

# TEST DATA OF MMC75B-4

Regulated DC Power Supply  
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**COSEL CO.,LTD.**

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| Model           |                   | MMC75B-4   |                    | Temperature 25°C           |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
|-----------------|-------------------|--|--------------------|----------------------------|-------------------|--------------------|--------------------|---|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|----|---|---|---|----|---|---|---|----|---|---|---|----|---|---|---|----------|--|
| Item            |                   | Input Current (by Load Current)  |                    | Testing Circuitry Figure A |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| Object          |                   | _____  |                    |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 1.Graph         |                   | <div><div><div>—△—</div><div>Input Volt.</div><div>85V</div></div><div><div>---□---</div><div>Input Volt.</div><div>100V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>132V</div></div></div> <table><thead><tr><th>Load Ration [%]</th><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr></thead><tbody><tr><td>0</td><td>0.099</td><td>0.101</td><td>0.104</td></tr><tr><td>20</td><td>0.570</td><td>0.524</td><td>0.484</td></tr><tr><td>40</td><td>0.971</td><td>0.883</td><td>0.772</td></tr><tr><td>60</td><td>1.363</td><td>1.224</td><td>1.036</td></tr><tr><td>80</td><td>1.748</td><td>1.567</td><td>1.312</td></tr><tr><td>100</td><td>2.136</td><td>1.904</td><td>1.579</td></tr><tr><td>110</td><td>2.328</td><td>2.073</td><td>1.716</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></tbody></table> |                    | Load Ration [%]            | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0 | 0.099 | 0.101 | 0.104 | 20 | 0.570 | 0.524 | 0.484 | 40 | 0.971 | 0.883 | 0.772 | 60 | 1.363 | 1.224 | 1.036 | 80 | 1.748 | 1.567 | 1.312 | 100 | 2.136 | 1.904 | 1.579 | 110 | 2.328 | 2.073 | 1.716 | -- | - | - | - | -- | - | - | - | -- | - | - | - | -- | - | - | - | 2.Values |  |
| Load Ration [%] | Input Volt. 85[V] | Input Volt. 100[V]   | Input Volt. 132[V] |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 0               | 0.099             | 0.101  | 0.104              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 20              | 0.570             | 0.524  | 0.484              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 40              | 0.971             | 0.883  | 0.772              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 60              | 1.363             | 1.224  | 1.036              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 80              | 1.748             | 1.567  | 1.312              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 100             | 2.136             | 1.904  | 1.579              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| 110             | 2.328             | 2.073  | 1.716              |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| --              | -                 | -  | -                  |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| --              | -                 | -  | -                  |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| --              | -                 | -  | -                  |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |
| --              | -                 | -  | -                  |                            |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |          |  |

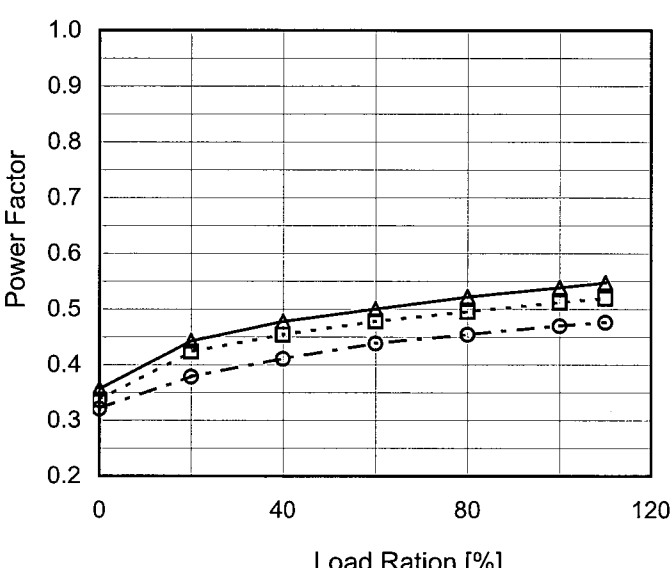
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| Model   |                | MMC75B-4                      |  | Temperature       |                | 25°C     |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|---|----------------|-------------------------------|--|-------------------|----------------|----------|----------|-----------|----|------|------|----|------|------|----|------|------|----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|--|--|--|--|
| Item  |                | Efficiency (by Input Voltage) |  | Testing Circuitry |                | Figure A |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| Object  |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 1.Graph   |                |                               |  | 2.Values          |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| <div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div>Load 50%</div><div>Load 100%</div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>75</td><td>77.0</td><td>75.6</td></tr><tr><td>80</td><td>77.0</td><td>75.9</td></tr><tr><td>85</td><td>76.8</td><td>76.2</td></tr><tr><td>90</td><td>76.8</td><td>76.4</td></tr><tr><td>100</td><td>75.9</td><td>76.6</td></tr><tr><td>110</td><td>75.3</td><td>76.6</td></tr><tr><td>120</td><td>74.5</td><td>76.4</td></tr><tr><td>132</td><td>73.5</td><td>76.1</td></tr><tr><td>140</td><td>72.5</td><td>75.9</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p> |                |                               |  | Input Voltage [V] | Efficiency [%] |          | Load 50% | Load 100% | 75 | 77.0 | 75.6 | 80 | 77.0 | 75.9 | 85 | 76.8 | 76.2 | 90 | 76.8 | 76.4 | 100 | 75.9 | 76.6 | 110 | 75.3 | 76.6 | 120 | 74.5 | 76.4 | 132 | 73.5 | 76.1 | 140 | 72.5 | 75.9 |  |  |  |  |
| Input Voltage [V]   | Efficiency [%] |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   | Load 50%       | Load 100%                     |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 75  | 77.0           | 75.6                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 80  | 77.0           | 75.9                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 85  | 76.8           | 76.2                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 90  | 76.8           | 76.4                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 100   | 75.9           | 76.6                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 110   | 75.3           | 76.6                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 120   | 74.5           | 76.4                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 132   | 73.5           | 76.1                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
| 140   | 72.5           | 75.9                          |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |
|   |                |                               |  |                   |                |          |          |           |    |      |      |    |      |      |    |      |      |    |      |      |     |      |      |     |      |      |     |      |      |     |      |      |     |      |      |  |  |  |  |

| Model           |                   | MMC75B-4   |                    | Temperature 25°C<br>Testing Circuitry Figure A |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
|-----------------|-------------------|--|--------------------|--|----------------|--------|--------|-------------------|--------------------|--------------------|---|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|----|---|---|----|----|---|---|----|----|---|---|----|----------|---|---|
| Item            |                   | Efficiency (by Load Current)   |                    |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| Object          |                   | _____  |                    |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 1.Graph         |                   | <div><div><div>—△—</div><div>Input Volt.</div><div>85V</div></div><div><div>---□---</div><div>Input Volt.</div><div>100V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>132V</div></div></div> <table><thead><tr><th>Load Ration [%]</th><th>85[V]</th><th>100[V]</th><th>132[V]</th></tr></thead><tbody><tr><td>0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>20</td><td>69.6</td><td>67.4</td><td>61.8</td></tr><tr><td>40</td><td>75.7</td><td>74.6</td><td>71.4</td></tr><tr><td>60</td><td>77.2</td><td>76.6</td><td>74.7</td></tr><tr><td>80</td><td>77.0</td><td>77.0</td><td>75.9</td></tr><tr><td>100</td><td>76.3</td><td>76.6</td><td>76.1</td></tr><tr><td>110</td><td>75.8</td><td>76.3</td><td>76.0</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></tbody></table> |                    | Load Ration [%]                                | 85[V]          | 100[V] | 132[V] | 0                 | -                  | -                  | - | 20 | 69.6 | 67.4 | 61.8 | 40   | 75.7 | 74.6 | 71.4 | 60   | 77.2 | 76.6 | 74.7 | 80   | 77.0 | 77.0 | 75.9 | 100  | 76.3 | 76.6 | 76.1 | 110  | 75.8 | 76.3 | 76.0 | --   | -    | -    | -  | -- | - | - | -  | -- | - | - | -  | -- | - | - | -  | 2.Values |   |   |
| Load Ration [%] | 85[V]             | 100[V]   | 132[V]             |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 0               | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 20              | 69.6              | 67.4   | 61.8               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 40              | 75.7              | 74.6   | 71.4               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 60              | 77.2              | 76.6   | 74.7               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 80              | 77.0              | 77.0   | 75.9               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 100             | 76.3              | 76.6   | 76.1               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 110             | 75.8              | 76.3   | 76.0               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
|                 |                   | <table><thead><tr><th rowspan="2">Load Ration [%]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr></thead><tbody><tr><td>0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>20</td><td>69.6</td><td>67.4</td><td>61.8</td></tr><tr><td>40</td><td>75.7</td><td>74.6</td><td>71.4</td></tr><tr><td>60</td><td>77.2</td><td>76.6</td><td>74.7</td></tr><tr><td>80</td><td>77.0</td><td>77.0</td><td>75.9</td></tr><tr><td>100</td><td>76.3</td><td>76.6</td><td>76.1</td></tr><tr><td>110</td><td>75.8</td><td>76.3</td><td>76.0</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></tbody></table>  |                    | Load Ration [%]                                | Efficiency [%] |        |        | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0 | -  | -    | -    | 20   | 69.6 | 67.4 | 61.8 | 40   | 75.7 | 74.6 | 71.4 | 60   | 77.2 | 76.6 | 74.7 | 80   | 77.0 | 77.0 | 75.9 | 100  | 76.3 | 76.6 | 76.1 | 110  | 75.8 | 76.3 | 76.0 | -- | -  | - | - | -- | -  | - | - | -- | -  | - | - | -- | -        | - | - |
| Load Ration [%] | Efficiency [%]    |  |                    |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
|                 | Input Volt. 85[V] | Input Volt. 100[V]   | Input Volt. 132[V] |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 0               | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 20              | 69.6              | 67.4   | 61.8               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 40              | 75.7              | 74.6   | 71.4               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 60              | 77.2              | 76.6   | 74.7               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 80              | 77.0              | 77.0   | 75.9               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 100             | 76.3              | 76.6   | 76.1               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| 110             | 75.8              | 76.3   | 76.0               |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |
| --              | -                 | -  | -                  |  |                |        |        |                   |                    |                    |   |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |   |   |    |    |   |   |    |    |   |   |    |          |   |   |

| Model   | MMC75B-4                        |                   |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
|---|---------------------------------|-------------------|--------------|--|----------|-----------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|--|--|
| Item  | Power Factor (by Input Voltage) | Temperature       | 25°C         |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
|   |                                 | Testing Circuitry | Figure A     |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| Object  |                                 |                   |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 1.Graph   |                                 | 2.Values          |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| <div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div> <div><div>—</div><div>△</div><div>—</div></div> <div>Load 100%</div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Power Factor</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>75</td><td>0.509</td><td>0.561</td></tr><tr><td>80</td><td>0.497</td><td>0.549</td></tr><tr><td>85</td><td>0.488</td><td>0.539</td></tr><tr><td>90</td><td>0.476</td><td>0.529</td></tr><tr><td>100</td><td>0.466</td><td>0.512</td></tr><tr><td>110</td><td>0.451</td><td>0.497</td></tr><tr><td>120</td><td>0.439</td><td>0.485</td></tr><tr><td>132</td><td>0.429</td><td>0.470</td></tr><tr><td>140</td><td>0.422</td><td>0.461</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p> |                                 | Input Voltage [V] | Power Factor |  | Load 50% | Load 100% | 75 | 0.509 | 0.561 | 80 | 0.497 | 0.549 | 85 | 0.488 | 0.539 | 90 | 0.476 | 0.529 | 100 | 0.466 | 0.512 | 110 | 0.451 | 0.497 | 120 | 0.439 | 0.485 | 132 | 0.429 | 0.470 | 140 | 0.422 | 0.461 |  |  |
| Input Voltage [V]   | Power Factor                    |                   |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
|   | Load 50%                        | Load 100%         |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 75  | 0.509                           | 0.561             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 80  | 0.497                           | 0.549             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 85  | 0.488                           | 0.539             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 90  | 0.476                           | 0.529             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 100   | 0.466                           | 0.512             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 110   | 0.451                           | 0.497             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 120   | 0.439                           | 0.485             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 132   | 0.429                           | 0.470             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |
| 140   | 0.422                           | 0.461             |              |  |          |           |    |       |       |    |       |       |    |       |       |    |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |  |  |

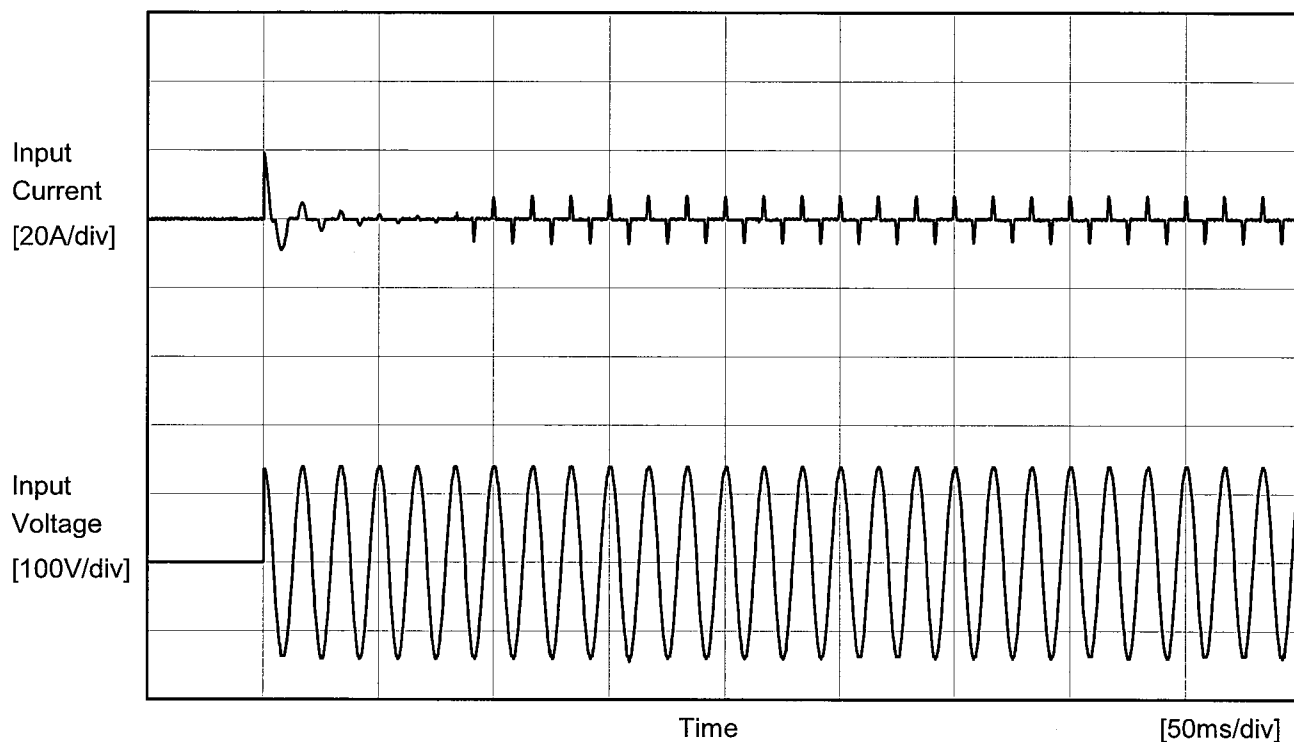
# COSEL

| Model  |                   | MMC75B-4  |                    | Temperature 25°C           |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
|--|-------------------|---|--------------------|----------------------------|--------------|--|--|-------------------|--------------------|--------------------|---|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|----|---|---|---|----|---|---|---|----|---|---|---|----|---|---|---|
| Item   |                   | Power Factor (by Load Current)  |                    | Testing Circuitry Figure A |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| Object   |                   |   |                    |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph  |                   | <div><div>—△—</div>Input Volt. 85V</div> <div><div>---□---</div>Input Volt. 100V</div> <div><div>-·-○-·-</div>Input Volt. 132V</div>  |                    | 2.Values                   |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| <div><div><div>Power Factor</div><div>1.0</div><div>0.9</div><div>0.8</div><div>0.7</div><div>0.6</div><div>0.5</div><div>0.4</div><div>0.3</div><div>0.2</div></div><div><div>0</div><div>40</div><div>80</div><div>120</div></div><div><div>Load Ration [%]</div></div></div>  |                   | <table><tr><th rowspan="2">Load Ration [%]</th><th colspan="3">Power Factor</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0</td><td>0.357</td><td>0.337</td><td>0.321</td></tr><tr><td>20</td><td>0.443</td><td>0.424</td><td>0.379</td></tr><tr><td>40</td><td>0.478</td><td>0.454</td><td>0.411</td></tr><tr><td>60</td><td>0.500</td><td>0.478</td><td>0.438</td></tr><tr><td>80</td><td>0.522</td><td>0.496</td><td>0.454</td></tr><tr><td>100</td><td>0.539</td><td>0.512</td><td>0.470</td></tr><tr><td>110</td><td>0.548</td><td>0.519</td><td>0.477</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |                    | Load Ration [%]            | Power Factor |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0 | 0.357 | 0.337 | 0.321 | 20 | 0.443 | 0.424 | 0.379 | 40 | 0.478 | 0.454 | 0.411 | 60 | 0.500 | 0.478 | 0.438 | 80 | 0.522 | 0.496 | 0.454 | 100 | 0.539 | 0.512 | 0.470 | 110 | 0.548 | 0.519 | 0.477 | -- | - | - | - | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load Ration [%]  | Power Factor      |   |                    |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
|  | Input Volt. 85[V] | Input Volt. 100[V]  | Input Volt. 132[V] |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 0  | 0.357             | 0.337   | 0.321              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 20   | 0.443             | 0.424   | 0.379              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 40   | 0.478             | 0.454   | 0.411              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 60   | 0.500             | 0.478   | 0.438              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 80   | 0.522             | 0.496   | 0.454              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 100  | 0.539             | 0.512   | 0.470              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 110  | 0.548             | 0.519   | 0.477              |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                 | -   | -                  |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                 | -   | -                  |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                 | -   | -                  |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                 | -   | -                  |                            |              |  |  |                   |                    |                    |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |     |       |       |       |     |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |



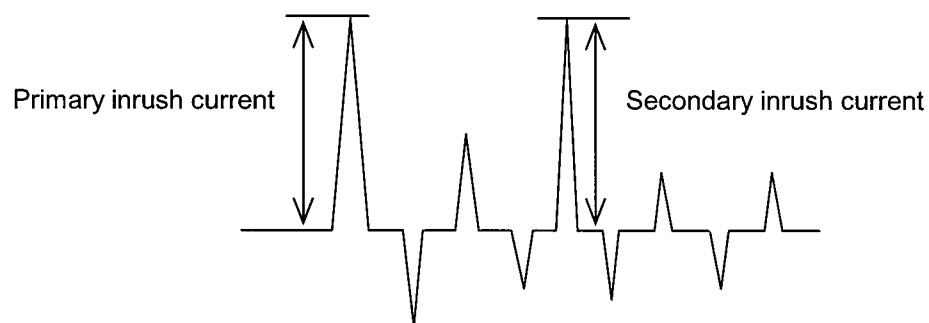
**COSEL**

|        |                |                   |          |
|--------|----------------|-------------------|----------|
|        |                |                   |          |
| Model  | MMC75B-4       |                   |          |
| Item   | Inrush Current | Temperature       | 25°C     |
|        |                | Testing Circuitry | Figure A |
| Object | _____          |                   |          |



Input Voltage 100 V  
Frequency 60 Hz  
Load 100 %

Primary inrush current 19.2 A  
Secondary inrush current 7.2 A





|        |                 |  |
|--------|-----------------|--|
|        |                 | Temperature 25°C<br>Testing Circuitry Figure B |
| Model  | MMC75B-4        |  |
| Item   | Leakage Current |  |
| Object |                 |  |

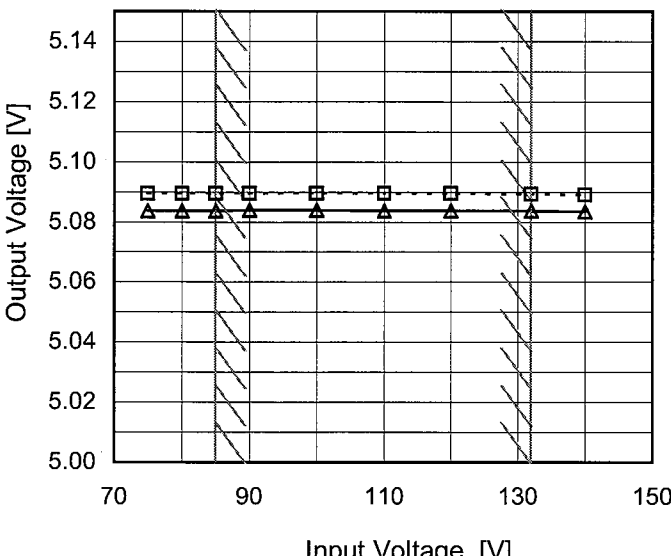
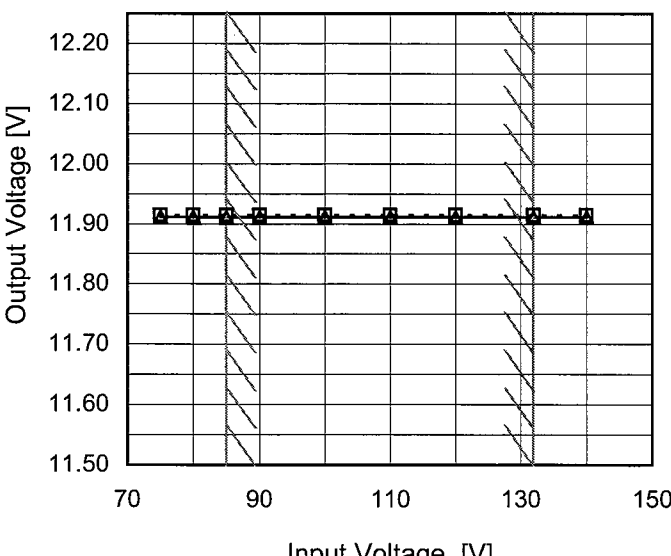
## 1.Results

| Standards     | Leakage Current [mA]  |                        |                        |
|---------------|-----------------------|------------------------|------------------------|
|               | Input Volt.<br>85 [V] | Input Volt.<br>100 [V] | Input Volt.<br>132 [V] |
| (A)DEN-AN     | 0.11                  | 0.13                   | 0.18                   |
| (B)IEC60950-1 | 0.22                  | 0.26                   | 0.36                   |

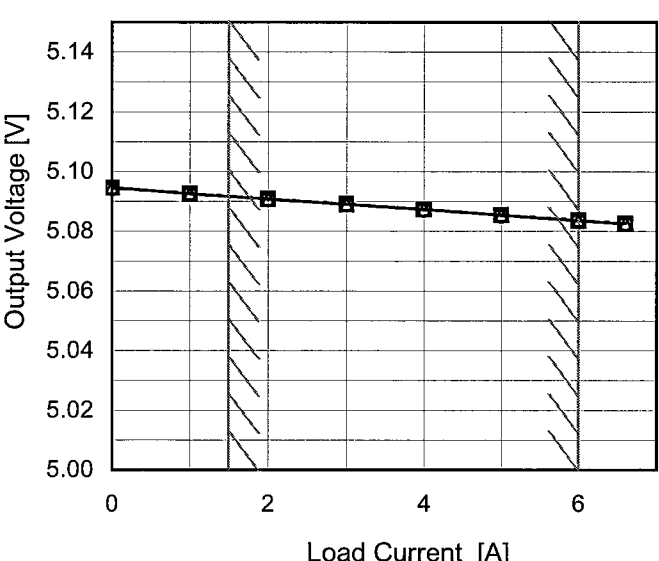
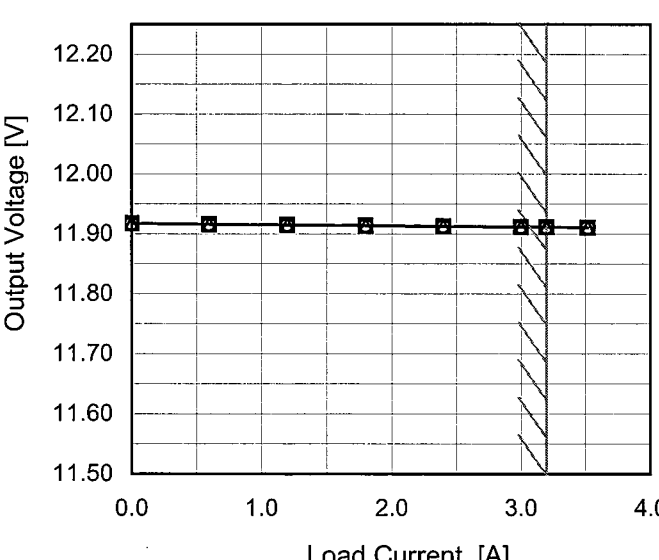
| Standards     | Leakage Current [mA]   |                        |                        |
|---------------|------------------------|------------------------|------------------------|
|               | Input Volt.<br>170 [V] | Input Volt.<br>240 [V] | Input Volt.<br>264 [V] |
| (B)IEC60950-1 | -                      | -                      | -                      |

## 2.Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

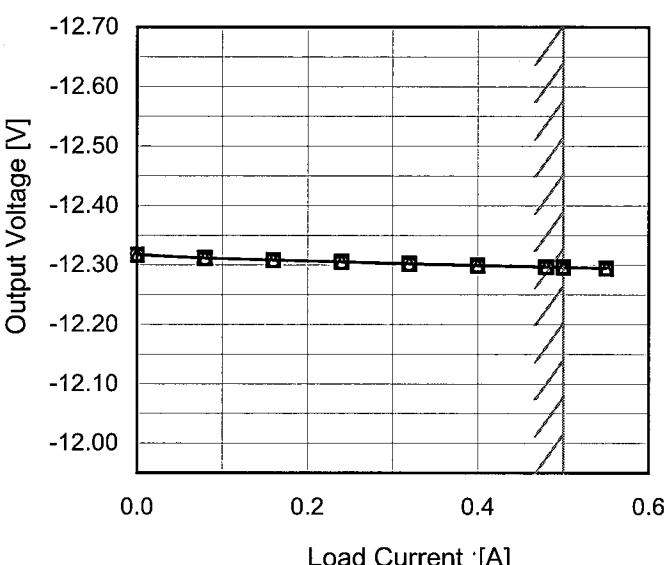
| Model   | MMC75B-4           |  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
|---|--------------------|--|----------|-------------------|--------------------|--|----------|-----------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| Item  | Line Regulation    | Temperature  | 25°C     |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| Object  | +5V6A              | Testing Circuitry  | Figure A |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 1.Graph   |                    | 2.Values   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| <div><div>---□--- Load 50%</div><div>—△— Load 100%</div></div>  |                    | <table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>5.090</td><td>5.084</td></tr><tr><td>80</td><td>5.089</td><td>5.084</td></tr><tr><td>85</td><td>5.089</td><td>5.084</td></tr><tr><td>90</td><td>5.090</td><td>5.084</td></tr><tr><td>100</td><td>5.090</td><td>5.084</td></tr><tr><td>110</td><td>5.089</td><td>5.084</td></tr><tr><td>120</td><td>5.089</td><td>5.084</td></tr><tr><td>132</td><td>5.089</td><td>5.084</td></tr><tr><td>140</td><td>5.089</td><td>5.084</td></tr></table>                   |          | Input Voltage [V] | Output Voltage [V] |  | Load 50% | Load 100% | 75 | 5.090  | 5.084  | 80 | 5.089  | 5.084  | 85 | 5.089  | 5.084  | 90 | 5.090  | 5.084  | 100 | 5.090  | 5.084  | 110 | 5.089  | 5.084  | 120 | 5.089  | 5.084  | 132 | 5.089  | 5.084  | 140 | 5.089  | 5.084  |
| Input Voltage [V]   | Output Voltage [V] |  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
|   | Load 50%           | Load 100%  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 75  | 5.090              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 80  | 5.089              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 85  | 5.089              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 90  | 5.090              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 100   | 5.090              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 110   | 5.089              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 120   | 5.089              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 132   | 5.089              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 140   | 5.089              | 5.084  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| Object  | +12V3.2A           |  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 1.Graph   |                    | 2.Values   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| <div><div>---□--- Load 50%</div><div>—△— Load 100%</div></div> |                    | <table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>11.914</td><td>11.911</td></tr><tr><td>80</td><td>11.914</td><td>11.911</td></tr><tr><td>85</td><td>11.914</td><td>11.911</td></tr><tr><td>90</td><td>11.914</td><td>11.911</td></tr><tr><td>100</td><td>11.914</td><td>11.911</td></tr><tr><td>110</td><td>11.914</td><td>11.911</td></tr><tr><td>120</td><td>11.914</td><td>11.911</td></tr><tr><td>132</td><td>11.914</td><td>11.911</td></tr><tr><td>140</td><td>11.914</td><td>11.911</td></tr></table> |          | Input Voltage [V] | Output Voltage [V] |  | Load 50% | Load 100% | 75 | 11.914 | 11.911 | 80 | 11.914 | 11.911 | 85 | 11.914 | 11.911 | 90 | 11.914 | 11.911 | 100 | 11.914 | 11.911 | 110 | 11.914 | 11.911 | 120 | 11.914 | 11.911 | 132 | 11.914 | 11.911 | 140 | 11.914 | 11.911 |
| Input Voltage [V]   | Output Voltage [V] |  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
|   | Load 50%           | Load 100%  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 75  | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 80  | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 85  | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 90  | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 100   | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 110   | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 120   | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 132   | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| 140   | 11.914             | 11.911   |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |
| Note: Slanted line shows the range of the rated input voltage.  |                    |  |          |                   |                    |  |          |           |    |        |        |    |        |        |    |        |        |    |        |        |     |        |        |     |        |        |     |        |        |     |        |        |     |        |        |

| Model  | MMC75B-4           |  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
|--|--------------------|--|----------|-------------------|--------------------|--|----------|-----------|----|---------|---------|----|---------|---------|----|---------|---------|----|---------|---------|-----|---------|---------|-----|---------|---------|-----|---------|---------|-----|---------|---------|-----|---------|---------|
| Item   | Line Regulation    | Temperature  | 25°C     |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| Object   | -12V0.5A           | Testing Circuitry  | Figure A |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 1.Graph  |                    | 2.Values   |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| <div><div><div>---□--- Load 50%</div><div>—△— Load 100%</div></div><p>Note: Slanted line shows the range of the rated input voltage.</p></div> |                    | <table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>-12.306</td><td>-12.296</td></tr><tr><td>80</td><td>-12.306</td><td>-12.296</td></tr><tr><td>85</td><td>-12.305</td><td>-12.297</td></tr><tr><td>90</td><td>-12.305</td><td>-12.297</td></tr><tr><td>100</td><td>-12.305</td><td>-12.297</td></tr><tr><td>110</td><td>-12.305</td><td>-12.297</td></tr><tr><td>120</td><td>-12.305</td><td>-12.297</td></tr><tr><td>132</td><td>-12.305</td><td>-12.296</td></tr><tr><td>140</td><td>-12.305</td><td>-12.296</td></tr></table> |          | Input Voltage [V] | Output Voltage [V] |  | Load 50% | Load 100% | 75 | -12.306 | -12.296 | 80 | -12.306 | -12.296 | 85 | -12.305 | -12.297 | 90 | -12.305 | -12.297 | 100 | -12.305 | -12.297 | 110 | -12.305 | -12.297 | 120 | -12.305 | -12.297 | 132 | -12.305 | -12.296 | 140 | -12.305 | -12.296 |
| Input Voltage [V]  | Output Voltage [V] |  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
|  | Load 50%           | Load 100%  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 75   | -12.306            | -12.296  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 80   | -12.306            | -12.296  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 85   | -12.305            | -12.297  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 90   | -12.305            | -12.297  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 100  | -12.305            | -12.297  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 110  | -12.305            | -12.297  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 120  | -12.305            | -12.297  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 132  | -12.305            | -12.296  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
| 140  | -12.305            | -12.296  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |
|  |                    |  |          |                   |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |     |         |         |     |         |         |     |         |         |     |         |         |     |         |         |

| Model   | MMC75B-4           |   |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
|---|--------------------|---|--------------------|------------------|--------------------|--|--|-------------------|--------------------|--------------------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|----|---|---|---|----|---|---|---|----|---|---|---|
| Item  | Load Regulation    | Temperature   | 25°C               |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
|   |                    | Testing Circuitry   | Figure A           |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| Object  | +5V6A              |   |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph   |                    | 2.Values  |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| <div><div>—△— Input Volt. 85V</div><div>---□--- Input Volt. 100V</div><div>-·-○-·- Input Volt. 132V</div></div>   |                    | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.0</td><td>5.095</td><td>5.095</td><td>5.094</td></tr><tr><td>1.0</td><td>5.093</td><td>5.093</td><td>5.093</td></tr><tr><td>2.0</td><td>5.091</td><td>5.091</td><td>5.091</td></tr><tr><td>3.0</td><td>5.089</td><td>5.089</td><td>5.089</td></tr><tr><td>4.0</td><td>5.088</td><td>5.087</td><td>5.087</td></tr><tr><td>5.0</td><td>5.086</td><td>5.086</td><td>5.085</td></tr><tr><td>6.0</td><td>5.084</td><td>5.084</td><td>5.084</td></tr><tr><td>6.6</td><td>5.083</td><td>5.083</td><td>5.083</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>                                 |                    | Load Current [A] | Output Voltage [V] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0.0  | 5.095  | 5.095  | 5.094  | 1.0  | 5.093  | 5.093  | 5.093  | 2.0  | 5.091  | 5.091  | 5.091  | 3.0  | 5.089  | 5.089  | 5.089  | 4.0  | 5.088  | 5.087  | 5.087  | 5.0  | 5.086  | 5.086  | 5.085  | 6.0  | 5.084  | 5.084  | 5.084  | 6.6  | 5.083  | 5.083  | 5.083  | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load Current [A]  | Output Voltage [V] |   |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
|   | Input Volt. 85[V]  | Input Volt. 100[V]  | Input Volt. 132[V] |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.0   | 5.095              | 5.095   | 5.094              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.0   | 5.093              | 5.093   | 5.093              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 2.0   | 5.091              | 5.091   | 5.091              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.0   | 5.089              | 5.089   | 5.089              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 4.0   | 5.088              | 5.087   | 5.087              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 5.0   | 5.086              | 5.086   | 5.085              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 6.0   | 5.084              | 5.084   | 5.084              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 6.6   | 5.083              | 5.083   | 5.083              |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| --  | -                  | -   | -                  |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| --  | -                  | -   | -                  |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| --  | -                  | -   | -                  |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| Object  | +12V3.2A           |   |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph   |                    | 2.Values  |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| <div><div>—△— Input Volt. 85V</div><div>---□--- Input Volt. 100V</div><div>-·-○-·- Input Volt. 132V</div></div>  |                    | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.00</td><td>11.917</td><td>11.917</td><td>11.917</td></tr><tr><td>0.60</td><td>11.916</td><td>11.916</td><td>11.916</td></tr><tr><td>1.20</td><td>11.915</td><td>11.915</td><td>11.915</td></tr><tr><td>1.80</td><td>11.914</td><td>11.914</td><td>11.914</td></tr><tr><td>2.40</td><td>11.913</td><td>11.913</td><td>11.913</td></tr><tr><td>3.00</td><td>11.912</td><td>11.912</td><td>11.912</td></tr><tr><td>3.20</td><td>11.911</td><td>11.911</td><td>11.911</td></tr><tr><td>3.52</td><td>11.911</td><td>11.911</td><td>11.911</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |                    | Load Current [A] | Output Voltage [V] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0.00 | 11.917 | 11.917 | 11.917 | 0.60 | 11.916 | 11.916 | 11.916 | 1.20 | 11.915 | 11.915 | 11.915 | 1.80 | 11.914 | 11.914 | 11.914 | 2.40 | 11.913 | 11.913 | 11.913 | 3.00 | 11.912 | 11.912 | 11.912 | 3.20 | 11.911 | 11.911 | 11.911 | 3.52 | 11.911 | 11.911 | 11.911 | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load Current [A]  | Output Voltage [V] |   |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
|   | Input Volt. 85[V]  | Input Volt. 100[V]  | Input Volt. 132[V] |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.00  | 11.917             | 11.917  | 11.917             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.60  | 11.916             | 11.916  | 11.916             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.20  | 11.915             | 11.915  | 11.915             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.80  | 11.914             | 11.914  | 11.914             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 2.40  | 11.913             | 11.913  | 11.913             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.00  | 11.912             | 11.912  | 11.912             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.20  | 11.911             | 11.911  | 11.911             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.52  | 11.911             | 11.911  | 11.911             |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| --  | -                  | -   | -                  |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| --  | -                  | -   | -                  |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| --  | -                  | -   | -                  |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |
| Note: Slanted line shows the range of the rated load current.   |                    |   |                    |                  |                    |  |  |                   |                    |                    |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |      |        |        |        |    |   |   |   |    |   |   |   |    |   |   |   |

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| Model   |                    | MMC75B-4           |                    | Temperature   |  | 25°C     |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
|---|--------------------|--------------------|--------------------|---|--|----------|--|------------------|--------------------|--|--|-------------------|--------------------|--------------------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|----|---|---|---|----|---|---|---|
| Item  |                    | Load Regulation    |                    | Testing Circuitry   |  | Figure A |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| Object  |                    | -12V0.5A           |                    |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 1.Graph   |                    |                    |                    | 2.Values  |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| <div><div><div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>—△—</div><div>---□---</div><div>-·-○-·-</div></div><div><div>Input Volt.</div><div>Input Volt.</div><div>Input Volt.</div></div><div><div>85V</div><div>100V</div><div>132V</div></div></div></div> |                    |                    |                    |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
|   |                    |                    |                    |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| Note: Slanted line shows the range of the rated load current.   |                    |                    |                    |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
|   |                    |                    |                    | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.00</td><td>-12.317</td><td>-12.317</td><td>-12.317</td></tr><tr><td>0.08</td><td>-12.312</td><td>-12.312</td><td>-12.312</td></tr><tr><td>0.16</td><td>-12.309</td><td>-12.308</td><td>-12.308</td></tr><tr><td>0.24</td><td>-12.306</td><td>-12.305</td><td>-12.305</td></tr><tr><td>0.32</td><td>-12.303</td><td>-12.302</td><td>-12.302</td></tr><tr><td>0.40</td><td>-12.300</td><td>-12.300</td><td>-12.299</td></tr><tr><td>0.48</td><td>-12.297</td><td>-12.297</td><td>-12.297</td></tr><tr><td>0.50</td><td>-12.297</td><td>-12.297</td><td>-12.296</td></tr><tr><td>0.55</td><td>-12.295</td><td>-12.295</td><td>-12.294</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |  |          |  | Load Current [A] | Output Voltage [V] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0.00 | -12.317 | -12.317 | -12.317 | 0.08 | -12.312 | -12.312 | -12.312 | 0.16 | -12.309 | -12.308 | -12.308 | 0.24 | -12.306 | -12.305 | -12.305 | 0.32 | -12.303 | -12.302 | -12.302 | 0.40 | -12.300 | -12.300 | -12.299 | 0.48 | -12.297 | -12.297 | -12.297 | 0.50 | -12.297 | -12.297 | -12.296 | 0.55 | -12.295 | -12.295 | -12.294 | -- | - | - | - | -- | - | - | - |
| Load Current [A]  | Output Voltage [V] |                    |                    |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
|   | Input Volt. 85[V]  | Input Volt. 100[V] | Input Volt. 132[V] |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.00  | -12.317            | -12.317            | -12.317            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.08  | -12.312            | -12.312            | -12.312            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.16  | -12.309            | -12.308            | -12.308            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.24  | -12.306            | -12.305            | -12.305            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.32  | -12.303            | -12.302            | -12.302            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.40  | -12.300            | -12.300            | -12.299            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.48  | -12.297            | -12.297            | -12.297            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.50  | -12.297            | -12.297            | -12.296            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| 0.55  | -12.295            | -12.295            | -12.294            |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| --  | -                  | -                  | -                  |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |
| --  | -                  | -                  | -                  |   |  |          |  |                  |                    |  |  |                   |                    |                    |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |

- 12 -

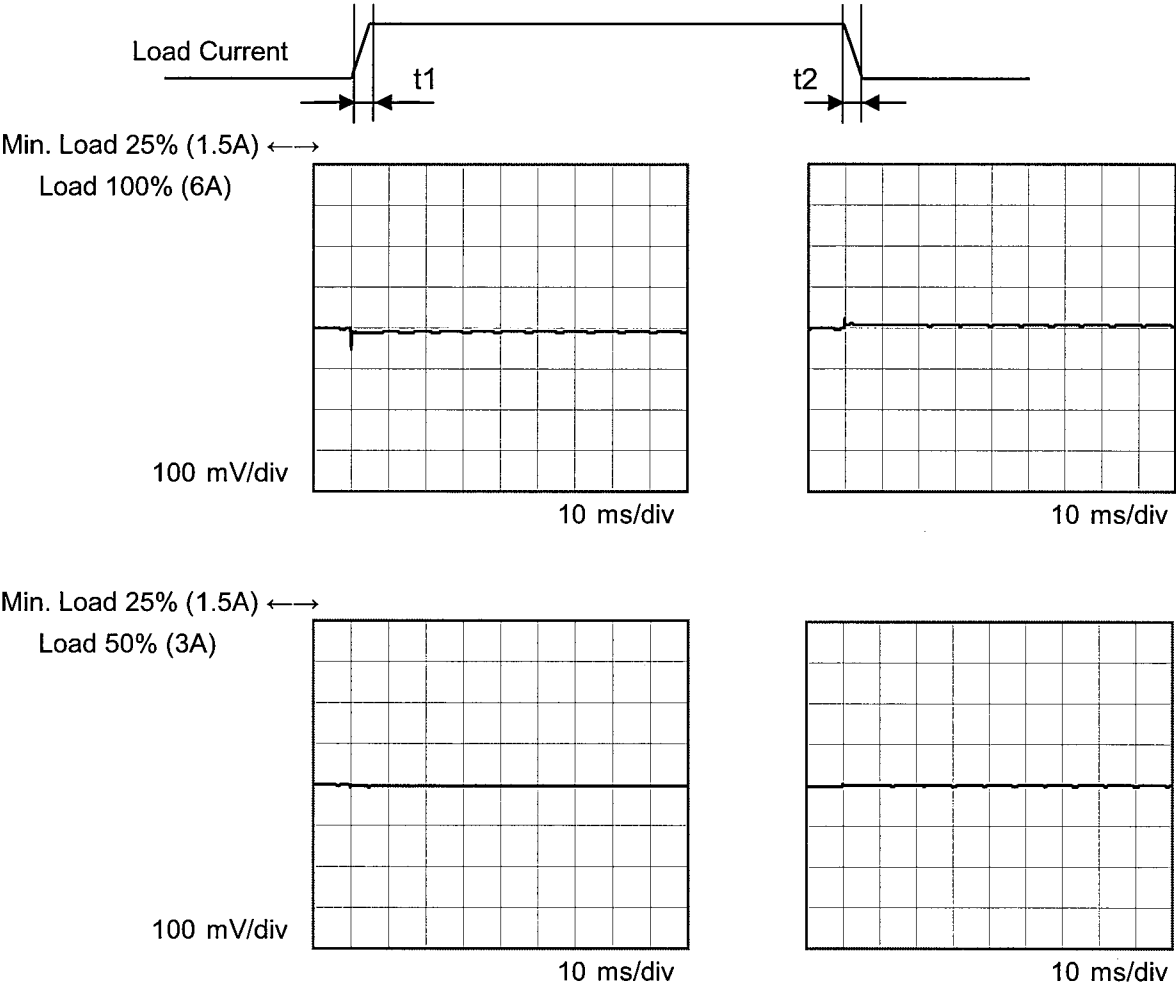
BC-10539



|        |                       |                   |          |
|--------|-----------------------|-------------------|----------|
| Model  | MMC75B-4              | Temperature       | 25°C     |
| Item   | Dynamic Load Response | Testing Circuitry | Figure A |
| Object | +5V6A                 |                   |          |

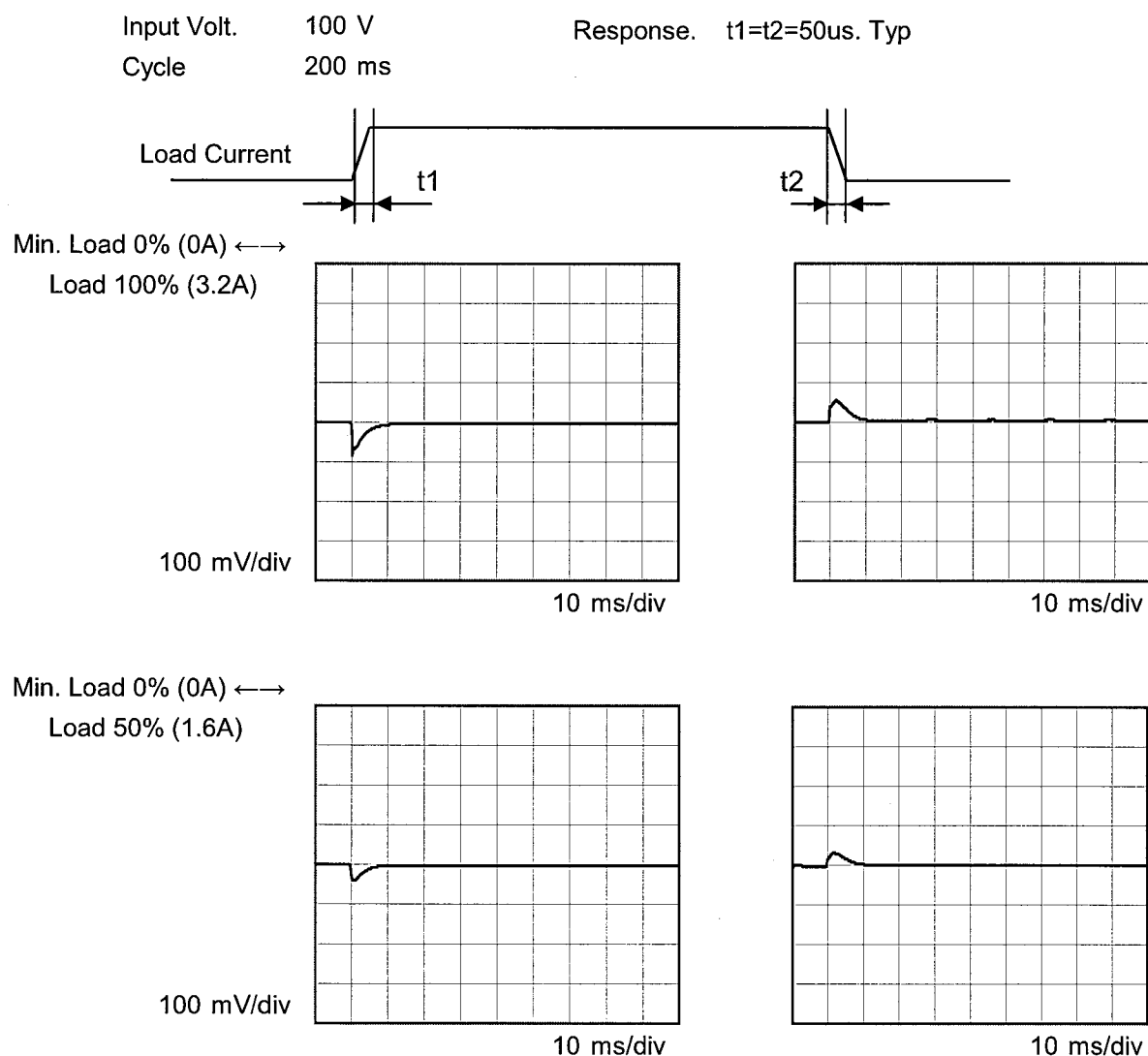
Input Volt. 100 V  
Cycle 200 ms

Response.  $t_1=t_2=50\mu\text{s}$ . Typ





|        |                       |                   |          |
|--------|-----------------------|-------------------|----------|
| Model  | MMC75B-4              | Temperature       | 25°C     |
| Item   | Dynamic Load Response | Testing Circuitry | Figure A |
| Object | +12V3.2A              |                   |          |



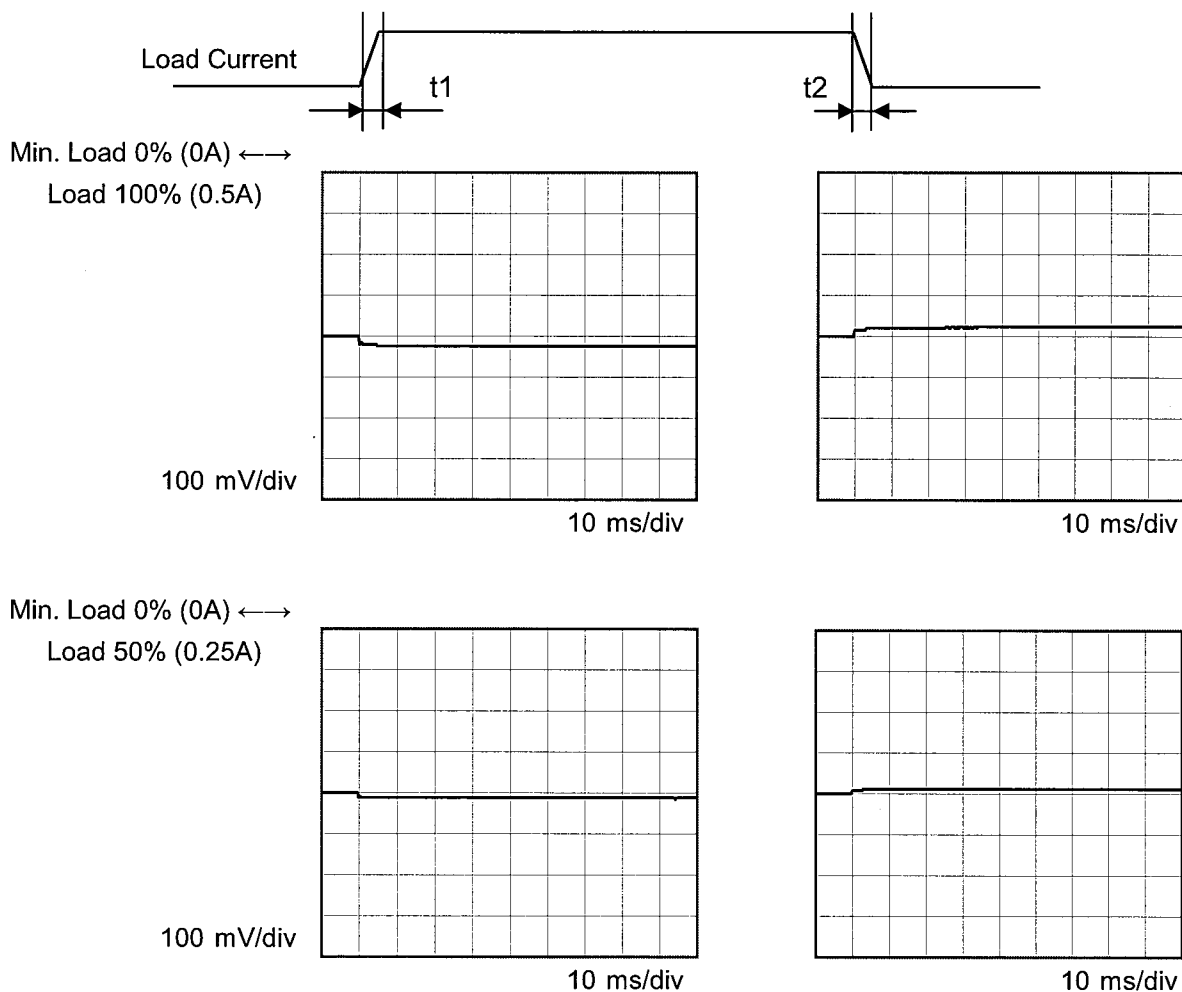




|        |                       |                   |          |
|--------|-----------------------|-------------------|----------|
| Model  | MMC75B-4              | Temperature       | 25°C     |
| Item   | Dynamic Load Response | Testing Circuitry | Figure A |
| Object | -12V0.5A              |                   |          |

Input Volt. 100 V  
Cycle 200 ms

Response.  $t_1=t_2=50\mu\text{s}$ . Typ



# COSEL

|         |  |                                  |  |
|---------|--|----------------------------------|--|
| Model   |  | MMC75B-4                         |  |
| Item    |  | Ripple Voltage (by Load Current) |  |
| Object  |  | +5V6A                            |  |
| 1.Graph |  | 2.Values                         |  |

<

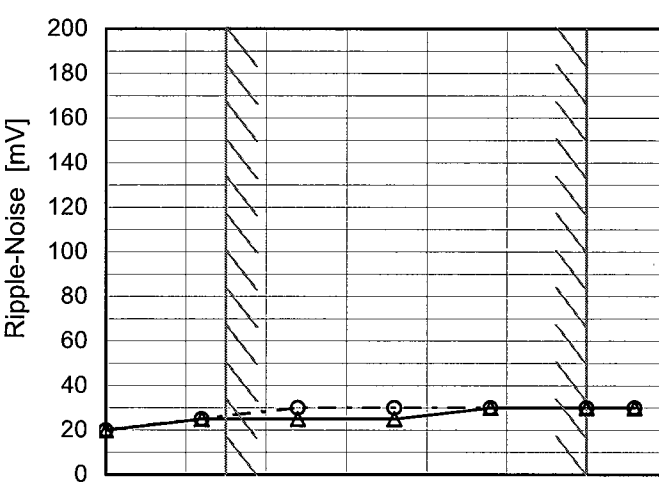
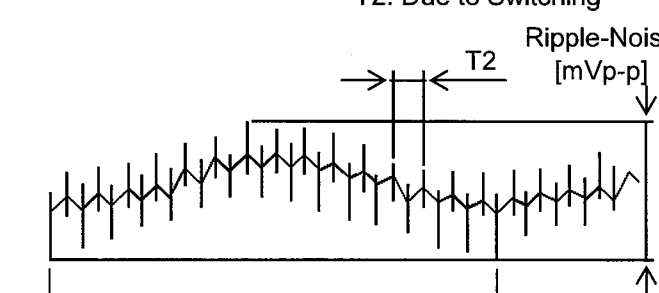
# COSEL

| Model   |                    | MMC75B-4                         |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
|---|--------------------|----------------------------------|--------------------|---------------------|------|----|----|------|----|----|------|----|----|------|----|----|------|----|----|------|----|----|------|----|----|----|---|---|----|---|---|----|---|---|----|---|---|--|--|
| Item  |                    | Ripple Voltage (by Load Current) |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| Object  |                    | +12V3.2A                         |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 1.Graph   |                    | 2.Values                         |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| <div><div><div>—△— Input Volt. 85V</div><div>-·-○-·- Input Volt. 132V</div></div><table><thead><tr><th>Load Current [A]</th><th>Input Volt. 85 [V]</th><th>Input Volt. 132 [V]</th></tr></thead><tbody><tr><td>0.00</td><td>15</td><td>15</td></tr><tr><td>0.64</td><td>20</td><td>20</td></tr><tr><td>1.28</td><td>25</td><td>25</td></tr><tr><td>1.92</td><td>25</td><td>25</td></tr><tr><td>2.56</td><td>30</td><td>30</td></tr><tr><td>3.20</td><td>30</td><td>35</td></tr><tr><td>3.52</td><td>30</td><td>35</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table></div> |                    | Load Current [A]                 | Input Volt. 85 [V] | Input Volt. 132 [V] | 0.00 | 15 | 15 | 0.64 | 20 | 20 | 1.28 | 25 | 25 | 1.92 | 25 | 25 | 2.56 | 30 | 30 | 3.20 | 30 | 35 | 3.52 | 30 | 35 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |  |  |
| Load Current [A]  | Input Volt. 85 [V] | Input Volt. 132 [V]              |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 0.00  | 15                 | 15                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 0.64  | 20                 | 20                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 1.28  | 25                 | 25                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 1.92  | 25                 | 25                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 2.56  | 30                 | 30                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 3.20  | 30                 | 35                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| 3.52  | 30                 | 35                               |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| --  | -                  | -                                |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| --  | -                  | -                                |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| --  | -                  | -                                |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| --  | -                  | -                                |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |
| <p>Measured by 20 MHz Oscilloscope.</p> <p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <div><div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><p>Fig. Complex Ripple Wave Form</p></div>  |                    |                                  |                    |                     |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |      |    |    |    |   |   |    |   |   |    |   |   |    |   |   |  |  |

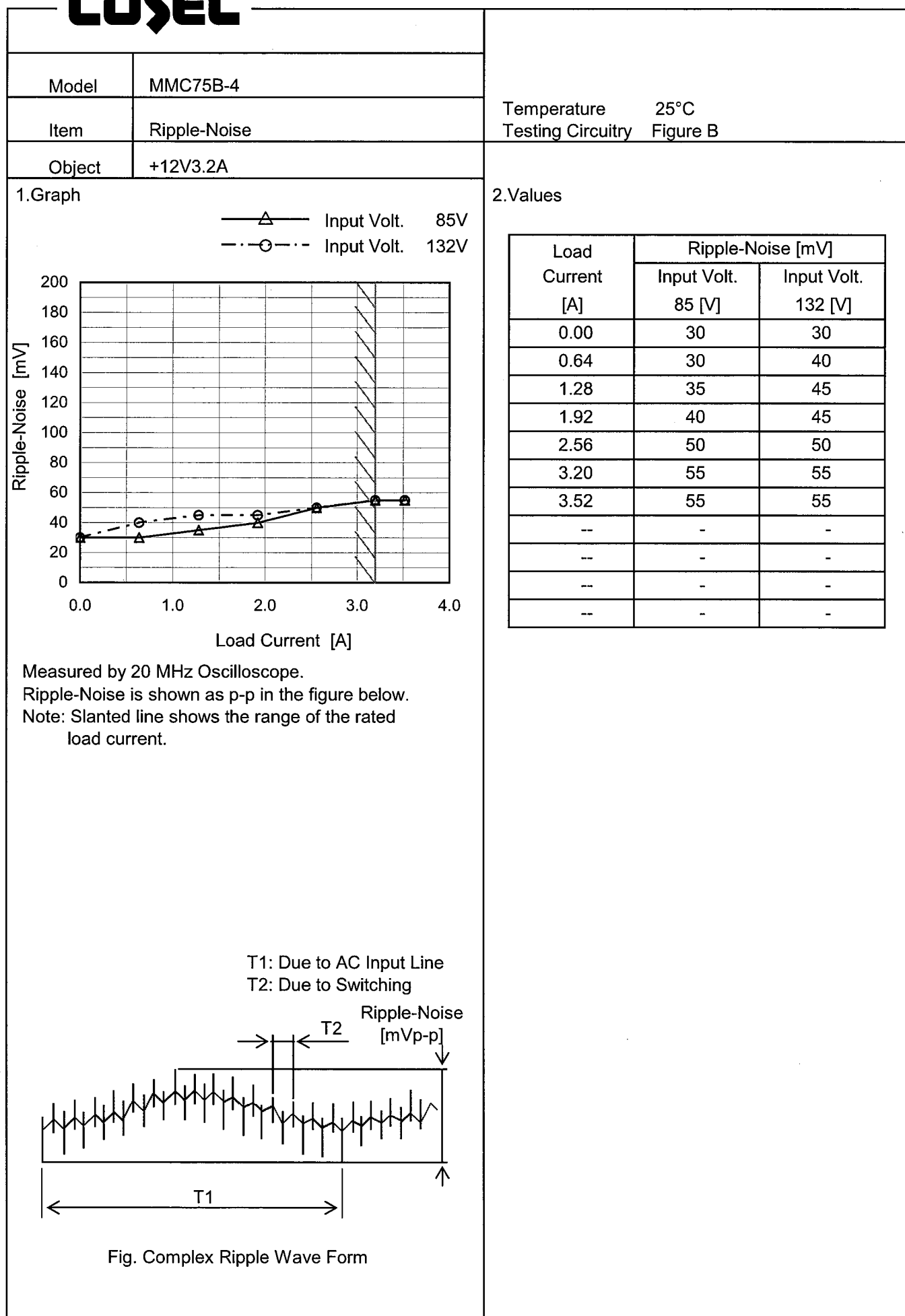
# COSEL

| Model   |                     | MMC75B-4                         | Temperature 25°C<br>Testing Circuitry Figure B   |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|---|---------------------|----------------------------------|--|------------------|---------------------|--|--------------------|---------------------|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|----|---|---|----|---|---|----|---|---|----|---|---|
| Item  |                     | Ripple Voltage (by Load Current) |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Object  |                     | -12V0.5A                         |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.Graph   |                     |                                  | 2.Values   |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>Input Volt. 85V</div><div>Input Volt. 132V</div></div></div> <div>Ripple Voltage [mV]</div> <div>Load Current [A]</div> |                     |                                  |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|   |                     |                                  |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|   |                     |                                  | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 85 [V]</th><th>Input Volt. 132 [V]</th></tr><tr><td>0.000</td><td>10</td><td>10</td></tr><tr><td>0.100</td><td>10</td><td>10</td></tr><tr><td>0.200</td><td>10</td><td>10</td></tr><tr><td>0.300</td><td>10</td><td>10</td></tr><tr><td>0.400</td><td>10</td><td>10</td></tr><tr><td>0.500</td><td>10</td><td>10</td></tr><tr><td>0.550</td><td>10</td><td>10</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> | Load Current [A] | Ripple Voltage [mV] |  | Input Volt. 85 [V] | Input Volt. 132 [V] | 0.000 | 10 | 10 | 0.100 | 10 | 10 | 0.200 | 10 | 10 | 0.300 | 10 | 10 | 0.400 | 10 | 10 | 0.500 | 10 | 10 | 0.550 | 10 | 10 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Load Current [A]  | Ripple Voltage [mV] |                                  |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|   | Input Volt. 85 [V]  | Input Volt. 132 [V]              |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.000   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.100   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.200   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.300   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.400   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.500   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.550   | 10                  | 10                               |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                   | -                                |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                   | -                                |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                   | -                                |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                   | -                                |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Measured by 20 MHz Oscilloscope.<br>Ripple Voltage is shown as p-p in the figure below.<br>Note: Slanted line shows the range of the rated load current.  |                     |                                  |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div> <div>Ripple [mVp-p]</div> <div>T1</div> <div>T2</div>   |                     |                                  |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Fig. Complex Ripple Wave Form   |                     |                                  |  |                  |                     |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |

# COSEL

| Model   |                    | MMC75B-4   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|---|--------------------|--|--|------------------|-------------------|--|--------------------|---------------------|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|----|---|---|----|---|---|----|---|---|----|---|---|
| Item  |                    | Ripple-Noise   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Object  |                    | +5V6A  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.Graph   |                    | 2.Values   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div><div><div>—△— Input Volt. 85V</div><div>-·-○-·- Input Volt. 132V</div></div><p>Ripple-Noise [mV]</p><p>Load Current [A]</p></div> <div><p>Measured by 20 MHz Oscilloscope.</p><p>Ripple-Noise is shown as p-p in the figure below.</p><p>Note: Slanted line shows the range of the rated load current.</p></div> |                    | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 85 [V]</th><th>Input Volt. 132 [V]</th></tr><tr><td>0.0</td><td>20</td><td>20</td></tr><tr><td>1.2</td><td>25</td><td>25</td></tr><tr><td>2.4</td><td>25</td><td>30</td></tr><tr><td>3.6</td><td>25</td><td>30</td></tr><tr><td>4.8</td><td>30</td><td>30</td></tr><tr><td>6.0</td><td>30</td><td>30</td></tr><tr><td>6.6</td><td>30</td><td>30</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> |  | Load Current [A] | Ripple-Noise [mV] |  | Input Volt. 85 [V] | Input Volt. 132 [V] | 0.0 | 20 | 20 | 1.2 | 25 | 25 | 2.4 | 25 | 30 | 3.6 | 25 | 30 | 4.8 | 30 | 30 | 6.0 | 30 | 30 | 6.6 | 30 | 30 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Load Current [A]  | Ripple-Noise [mV]  |  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|   | Input Volt. 85 [V] | Input Volt. 132 [V]  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.0   | 20                 | 20   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.2   | 25                 | 25   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 2.4   | 25                 | 30   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 3.6   | 25                 | 30   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 4.8   | 30                 | 30   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 6.0   | 30                 | 30   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 6.6   | 30                 | 30   |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div><div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><p>Ripple-Noise [mVp-p]</p><p>T1</p><p>T2</p></div> <p>Fig. Complex Ripple Wave Form</p>   |                    |  |  |                  |                   |  |                    |                     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |

# COSEL



# COSEL

| Model   | MMC75B-4           |  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|---|--------------------|--|----------|------------------|-------------------|--|--------------------|---------------------|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|-------|----|----|----|---|---|----|---|---|----|---|---|----|---|---|
| Item  | Ripple-Noise       | Temperature  | 25°C     |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Object  | -12V0.5A           | Testing Circuitry  | Figure B |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.Graph   |                    | 2.Values   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>Input Volt. 85V</div><div>Input Volt. 132V</div></div></div> <div>Ripple-Noise [mV]</div> <div>Load Current [A]</div>   |                    | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 85 [V]</th><th>Input Volt. 132 [V]</th></tr><tr><td>0.000</td><td>25</td><td>35</td></tr><tr><td>0.100</td><td>25</td><td>30</td></tr><tr><td>0.200</td><td>25</td><td>30</td></tr><tr><td>0.300</td><td>25</td><td>30</td></tr><tr><td>0.400</td><td>25</td><td>30</td></tr><tr><td>0.500</td><td>25</td><td>30</td></tr><tr><td>0.550</td><td>25</td><td>30</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> |          | Load Current [A] | Ripple-Noise [mV] |  | Input Volt. 85 [V] | Input Volt. 132 [V] | 0.000 | 25 | 35 | 0.100 | 25 | 30 | 0.200 | 25 | 30 | 0.300 | 25 | 30 | 0.400 | 25 | 30 | 0.500 | 25 | 30 | 0.550 | 25 | 30 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Load Current [A]  | Ripple-Noise [mV]  |  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|   | Input Volt. 85 [V] | Input Volt. 132 [V]  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.000   | 25                 | 35   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.100   | 25                 | 30   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.200   | 25                 | 30   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.300   | 25                 | 30   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.400   | 25                 | 30   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.500   | 25                 | 30   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.550   | 25                 | 30   |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --  | -                  | -  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div>Measured by 20 MHz Oscilloscope.</div> <div>Ripple-Noise is shown as p-p in the figure below.</div> <div>Note: Slanted line shows the range of the rated load current.</div>   |                    |  |          |                  |                   |  |                    |                     |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |       |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></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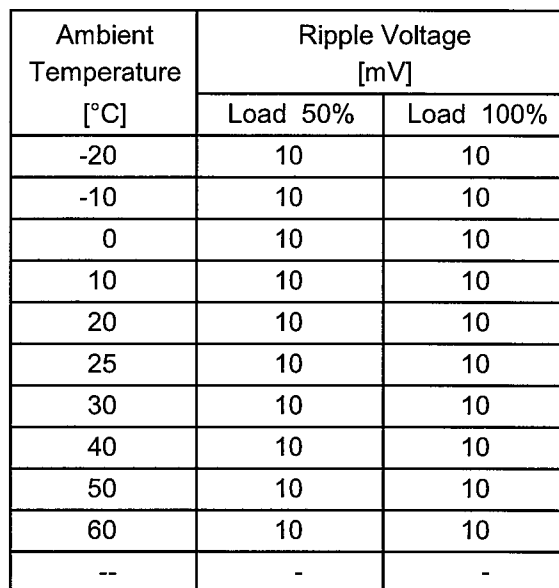
# COSEL

|   |                                   |  |                               |
|---|-----------------------------------|--|-------------------------------|
|   |                                   |  |                               |
| Model   | MMC75B-4                          |  |                               |
| Item  | Ripple Voltage (by Ambient Temp.) |  | Testing Circuitry    Figure A |
| Object  | +5V6A                             |  |                               |
| 1.Graph   |                                   |  |                               |
| 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|                                   |  |                               |



Testing Circuitry Figure A

## 2.Values



Note: Slanted line shows the range of the rated ambient temperature.

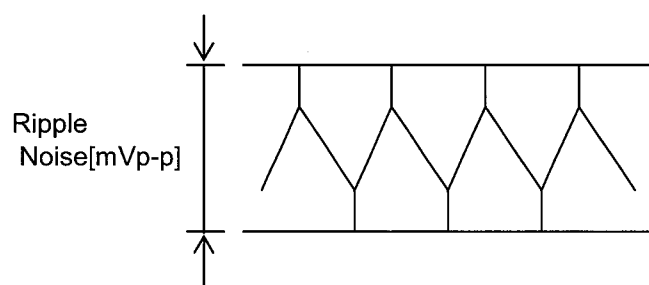


Fig.Complex Ripple Noise Wave Form

| Model                    |                    | MMC75B-4   |                    | Testing Circuitry    Figure A  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
|--------------------------|--------------------|--|--------------------|--|--|--|--------------------|--------------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|----|---|
| Item                     |                    | Ambient Temperature Drift  |                    |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| Object                   |                    | +5V6A  |                    |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 1.Graph                  |                    | <div><div>—△—</div>Input Volt.    85V</div> <div><div>---□---</div>Input Volt.    100V</div> <div><div>---○---</div>Input Volt.    132V</div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> |                    | 2.Values   |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
|                          |                    |  |                    | <table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>-20</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>-10</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>0</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>10</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>20</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>25</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>30</td><td>5.085</td><td>5.086</td><td>5.085</td></tr><tr><td>40</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>50</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>60</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |  | Ambient Temperature [°C]   | Output Voltage [V] |                          |                    | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | -20                | 5.085              | 5.085 | 5.085  | -10    | 5.085  | 5.085 | 5.085  | 0      | 5.085  | 5.085 | 5.085  | 10     | 5.085  | 5.085 | 5.085  | 20     | 5.085  | 5.085 | 5.085  | 25     | 5.085  | 5.085 | 5.085  | 30     | 5.085  | 5.086 | 5.085  | 40     | 5.085  | 5.085 | 5.085  | 50     | 5.085  | 5.085 | 5.085  | 60     | 5.085  | 5.085 | 5.085  | --     | -      | -  | - |
| Ambient Temperature [°C] | Output Voltage [V] |  |                    |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
|                          | Input Volt. 85[V]  | Input Volt. 100[V]   | Input Volt. 132[V] |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| -20                      | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| -10                      | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 0                        | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 10                       | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 20                       | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 25                       | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 30                       | 5.085              | 5.086  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 40                       | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 50                       | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 60                       | 5.085              | 5.085  | 5.085              |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| --                       | -                  | -  | -                  |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| Object                   |                    | +12V3.2A   |                    | Testing Circuitry    Figure A  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 1.Graph                  |                    | <div><div>—△—</div>Input Volt.    85V</div> <div><div>---□---</div>Input Volt.    100V</div> <div><div>---○---</div>Input Volt.    132V</div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> |                    |  |  | 2.Values   |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
|                          |                    |  |                    |  |  | <table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>-20</td><td>11.898</td><td>11.898</td><td>11.898</td></tr><tr><td>-10</td><td>11.902</td><td>11.902</td><td>11.902</td></tr><tr><td>0</td><td>11.905</td><td>11.905</td><td>11.905</td></tr><tr><td>10</td><td>11.908</td><td>11.908</td><td>11.908</td></tr><tr><td>20</td><td>11.911</td><td>11.911</td><td>11.911</td></tr><tr><td>25</td><td>11.912</td><td>11.912</td><td>11.912</td></tr><tr><td>30</td><td>11.913</td><td>11.913</td><td>11.912</td></tr><tr><td>40</td><td>11.912</td><td>11.912</td><td>11.912</td></tr><tr><td>50</td><td>11.910</td><td>11.910</td><td>11.910</td></tr><tr><td>60</td><td>11.905</td><td>11.905</td><td>11.905</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |                    | Ambient Temperature [°C] | Output Voltage [V] |                   |                    | Input Volt. 85[V]  | Input Volt. 100[V] | Input Volt. 132[V] | -20   | 11.898 | 11.898 | 11.898 | -10   | 11.902 | 11.902 | 11.902 | 0     | 11.905 | 11.905 | 11.905 | 10    | 11.908 | 11.908 | 11.908 | 20    | 11.911 | 11.911 | 11.911 | 25    | 11.912 | 11.912 | 11.912 | 30    | 11.913 | 11.913 | 11.912 | 40    | 11.912 | 11.912 | 11.912 | 50    | 11.910 | 11.910 | 11.910 | 60    | 11.905 | 11.905 | 11.905 | -- | - |
| Ambient Temperature [°C] | Output Voltage [V] |  |                    |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
|                          | Input Volt. 85[V]  | Input Volt. 100[V]   | Input Volt. 132[V] |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| -20                      | 11.898             | 11.898   | 11.898             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| -10                      | 11.902             | 11.902   | 11.902             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 0                        | 11.905             | 11.905   | 11.905             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 10                       | 11.908             | 11.908   | 11.908             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 20                       | 11.911             | 11.911   | 11.911             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 25                       | 11.912             | 11.912   | 11.912             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 30                       | 11.913             | 11.913   | 11.912             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 40                       | 11.912             | 11.912   | 11.912             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 50                       | 11.910             | 11.910   | 11.910             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| 60                       | 11.905             | 11.905   | 11.905             |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
| --                       | -                  | -  | -                  |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |
|                          |                    | Note: Slanted line shows the range of the rated ambient temperature.   |                    |  |  |  |                    |                          |                    |                   |                    |                    |                    |                    |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |       |        |        |        |    |   |

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|       |                         |                            |
|-------|-------------------------|----------------------------|
|       |                         | Testing Circuitry Figure A |
| Model | MMC75B-4                |                            |
| Item  | Output Voltage Accuracy |                            |

### 1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : 0 - 50°C

Input Voltage : 85 - 132V

Load Current (AVR 1) : 1.5 - 6A (AVR 2) : 0 - 3.2A (AVR 3) : 0 - 0.5A

\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

\* Output Voltage Accuracy (Ratio) =  $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

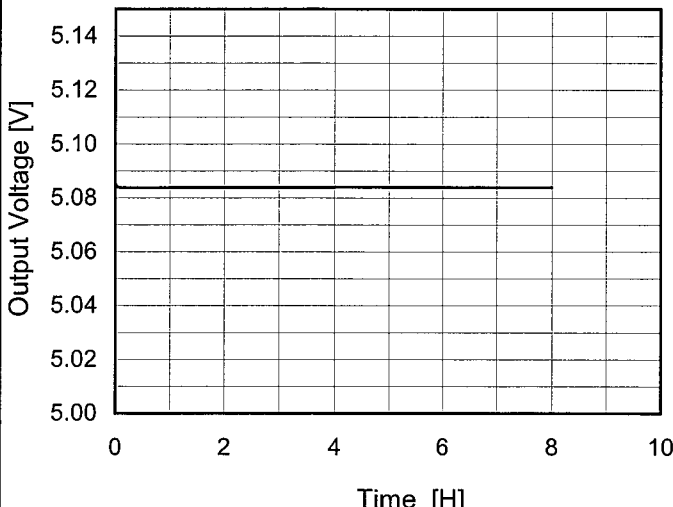
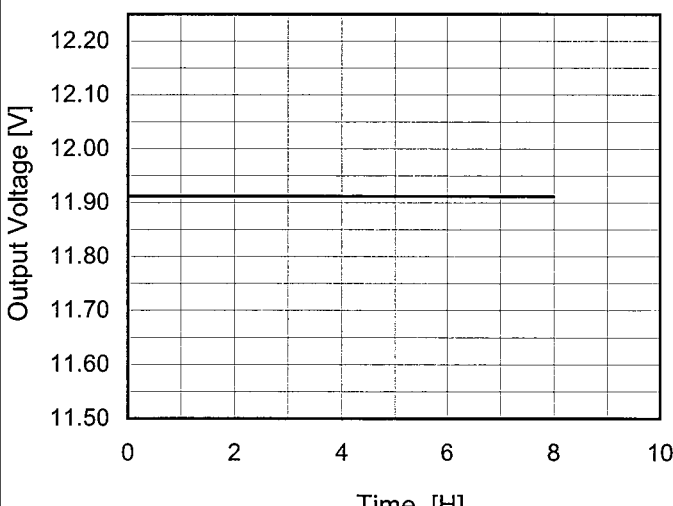
### 2. Values

| Object          | +5V6A               |                     |            |            |                         |            |
|-----------------|---------------------|---------------------|------------|------------|-------------------------|------------|
| Item            | Temperature<br>[°C] | Input<br>Voltage[V] | Output     |            | Output Voltage Accuracy |            |
|                 |                     |                     | Current[A] | Voltage[V] | Value [mV]              | Ration [%] |
| Maximum Voltage | 40                  | 100                 | 1.5        | 5.094      | ±5                      | ±0.1       |
| Minimum Voltage | 50                  | 85                  | 6          | 5.085      |                         |            |

| Object          | +12V3.2A            |                     |            |            |                         |            |
|-----------------|---------------------|---------------------|------------|------------|-------------------------|------------|
| Item            | Temperature<br>[°C] | Input<br>Voltage[V] | Output     |            | Output Voltage Accuracy |            |
|                 |                     |                     | Current[A] | Voltage[V] | Value [mV]              | Ration [%] |
| Maximum Voltage | 40                  | 100                 | 0          | 11.919     | ±8                      | ±0.1       |
| Minimum Voltage | 0                   | 100                 | 3.2        | 11.904     |                         |            |

| Object          | -12V0.5A            |                     |            |            |                         |            |
|-----------------|---------------------|---------------------|------------|------------|-------------------------|------------|
| Item            | Temperature<br>[°C] | Input<br>Voltage[V] | Output     |            | Output Voltage Accuracy |            |
|                 |                     |                     | Current[A] | Voltage[V] | Value [mV]              | Ration [%] |
| Maximum Voltage | 50                  | 85                  | 0          | -12.337    | ±38                     | ±0.3       |
| Minimum Voltage | 0                   | 85                  | 0.5        | -12.261    |                         |            |

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| Model   | MMC75B-4           | Temperature 25°C<br>Testing Circuitry Figure A   |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
|---|--------------------|--|--|----------------------|--------------------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| Item  | Time Lapse Drift   |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| Object  | +5V6A              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 1.Graph   |                    | 2.Values   |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| <div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 100V<br/>Load 100%</p></div>  |                    | <table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.085</td></tr><tr><td>0.5</td><td>5.084</td></tr><tr><td>1.0</td><td>5.084</td></tr><tr><td>2.0</td><td>5.084</td></tr><tr><td>3.0</td><td>5.084</td></tr><tr><td>4.0</td><td>5.084</td></tr><tr><td>5.0</td><td>5.084</td></tr><tr><td>6.0</td><td>5.084</td></tr><tr><td>7.0</td><td>5.084</td></tr><tr><td>8.0</td><td>5.084</td></tr></table>           |  | Time since start [H] | Output Voltage [V] | 0.0 | 5.085  | 0.5 | 5.084  | 1.0 | 5.084  | 2.0 | 5.084  | 3.0 | 5.084  | 4.0 | 5.084  | 5.0 | 5.084  | 6.0 | 5.084  | 7.0 | 5.084  | 8.0 | 5.084  |
| Time since start [H]  | Output Voltage [V] |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 0.0   | 5.085              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 0.5   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 1.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 2.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 3.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 4.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 5.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 6.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 7.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 8.0   | 5.084              |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| Object  | +12V3.2A           |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 1.Graph   |                    | 2.Values   |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| <div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 100V<br/>Load 100%</p></div> |                    | <table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>11.913</td></tr><tr><td>0.5</td><td>11.912</td></tr><tr><td>1.0</td><td>11.912</td></tr><tr><td>2.0</td><td>11.912</td></tr><tr><td>3.0</td><td>11.912</td></tr><tr><td>4.0</td><td>11.912</td></tr><tr><td>5.0</td><td>11.912</td></tr><tr><td>6.0</td><td>11.912</td></tr><tr><td>7.0</td><td>11.912</td></tr><tr><td>8.0</td><td>11.912</td></tr></table> |  | Time since start [H] | Output Voltage [V] | 0.0 | 11.913 | 0.5 | 11.912 | 1.0 | 11.912 | 2.0 | 11.912 | 3.0 | 11.912 | 4.0 | 11.912 | 5.0 | 11.912 | 6.0 | 11.912 | 7.0 | 11.912 | 8.0 | 11.912 |
| Time since start [H]  | Output Voltage [V] |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 0.0   | 11.913             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 0.5   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 1.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 2.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 3.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 4.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 5.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 6.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 7.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
| 8.0   | 11.912             |  |  |                      |                    |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |

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# COSEL

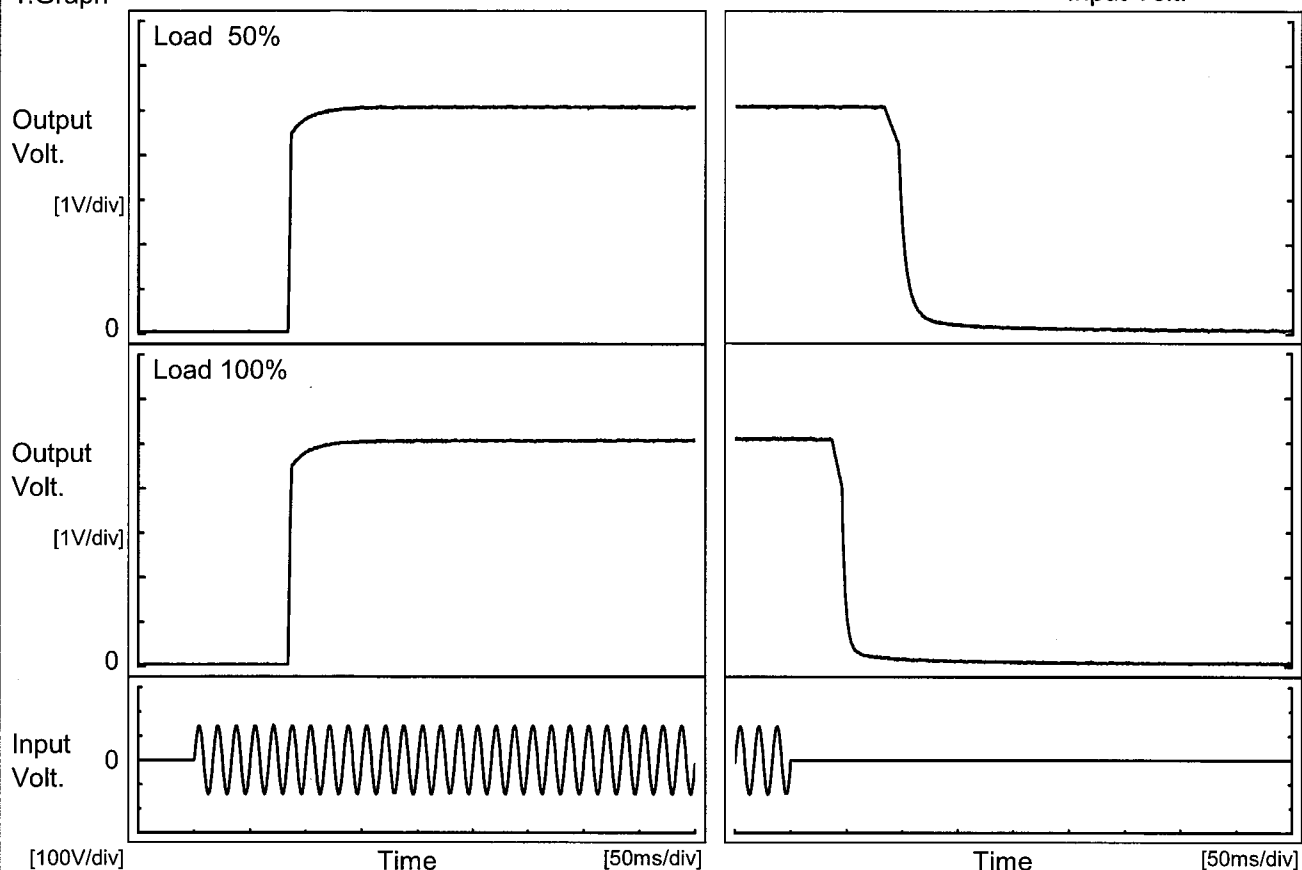
<

# COSEL

|        |                    |                   |          |
|--------|--------------------|-------------------|----------|
| Model  | MMC75B-4           | Temperature       | 25°C     |
| Item   | Rise and Fall Time | Testing Circuitry | Figure A |
| Object | +5V6A              |                   |          |

## 1.Graph

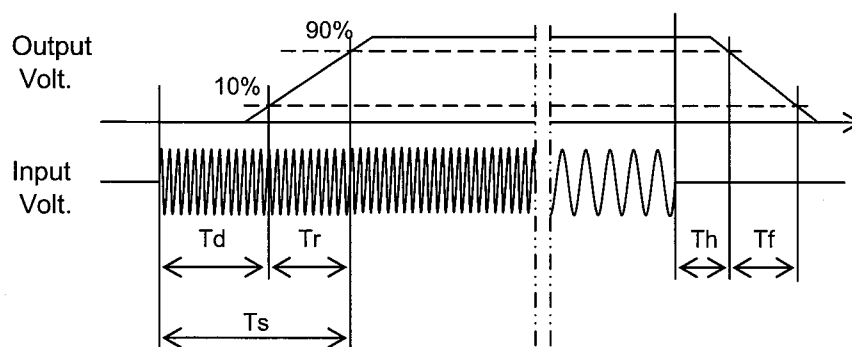
Input Volt. 100 V



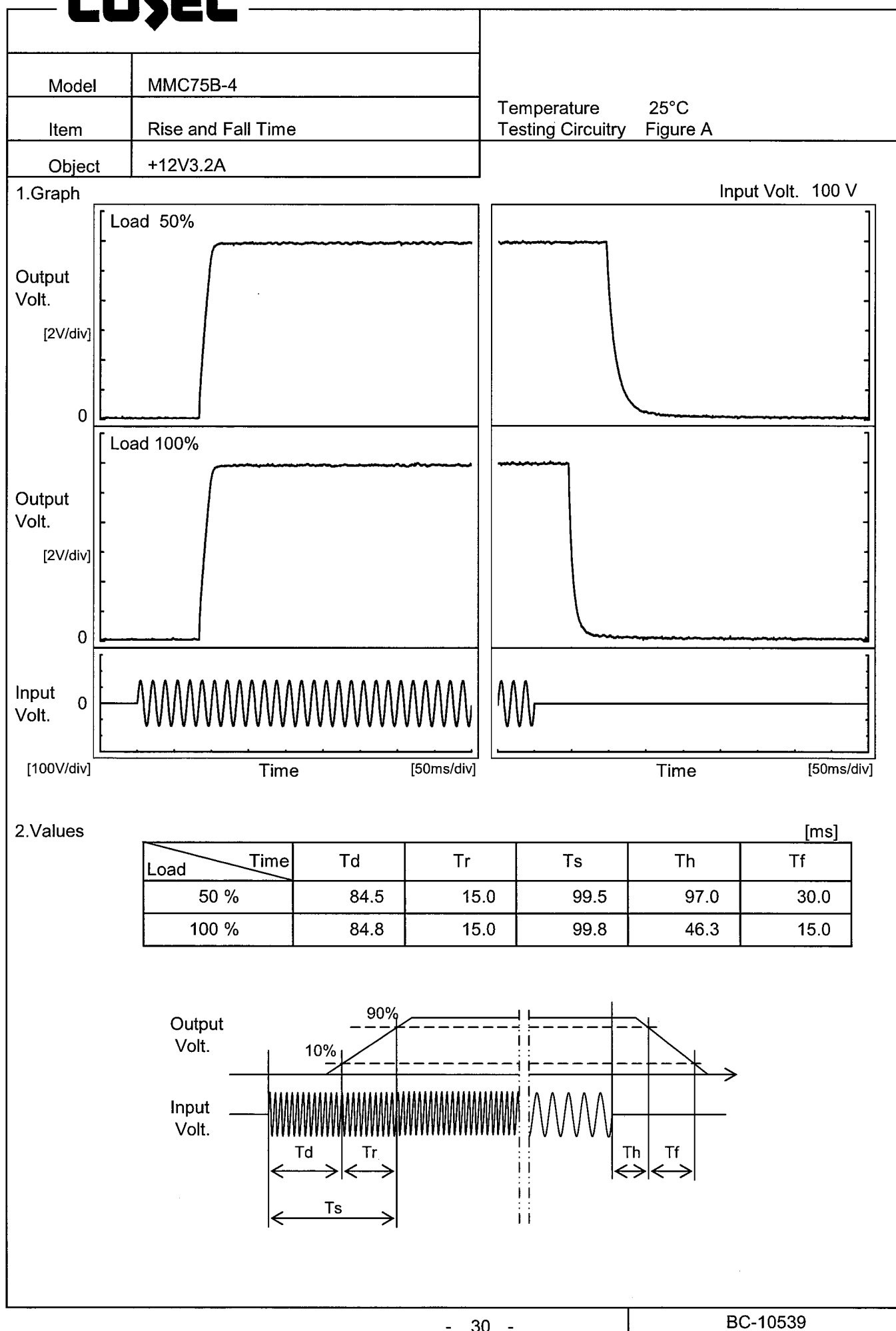
## 2.Values

[ms]

| Load \ Time | Td   | Tr  | Ts   | Th   | Tf   |
|-------------|------|-----|------|------|------|
| 50 %        | 84.5 | 4.0 | 88.5 | 91.3 | 21.8 |
| 100 %       | 84.8 | 4.0 | 88.8 | 41.3 | 13.0 |



# COSEL



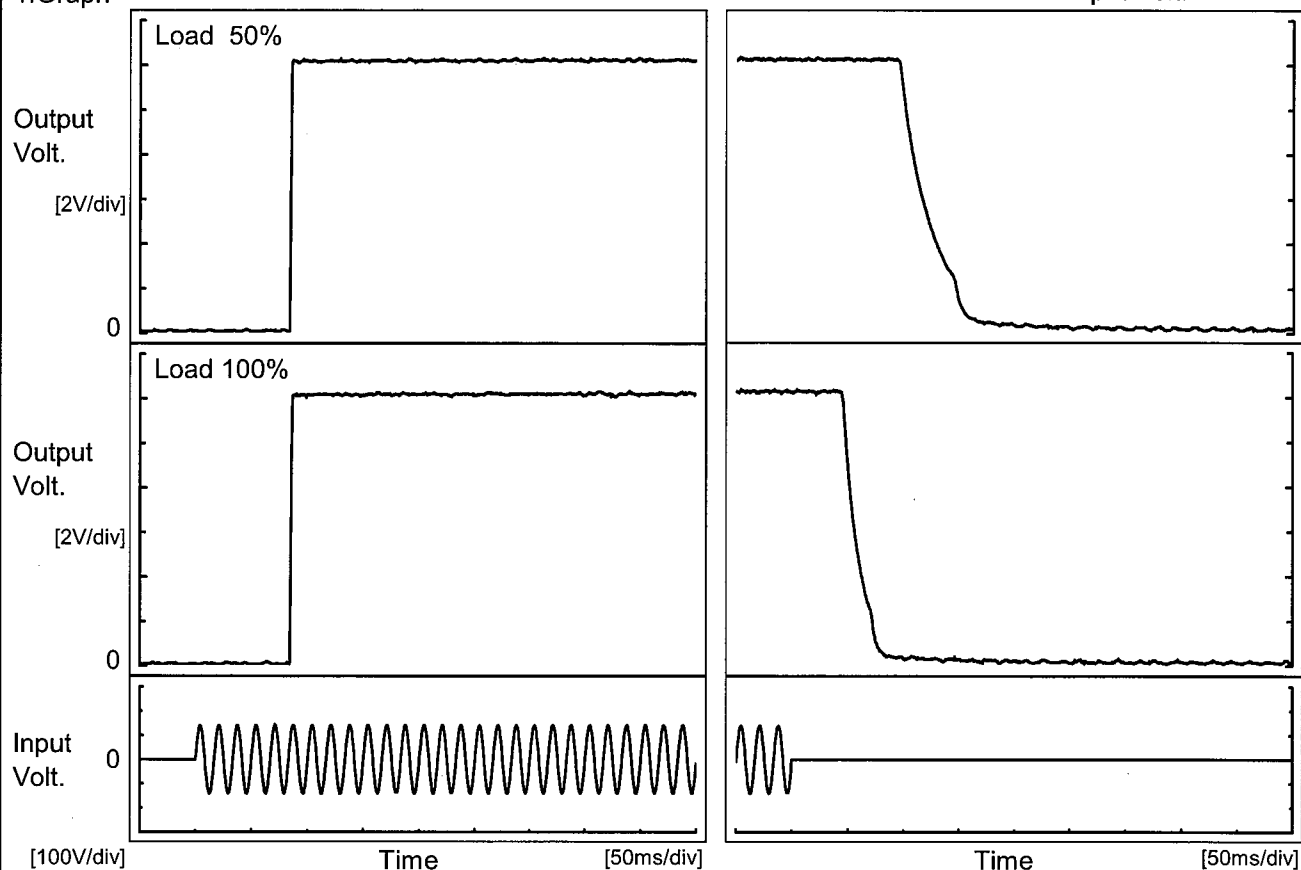


# COSEL

|        |                    |                   |          |
|--------|--------------------|-------------------|----------|
| Model  | MMC75B-4           | Temperature       | 25°C     |
| Item   | Rise and Fall Time | Testing Circuitry | Figure A |
| Object | -12V0.5A           |                   |          |

## 1.Graph

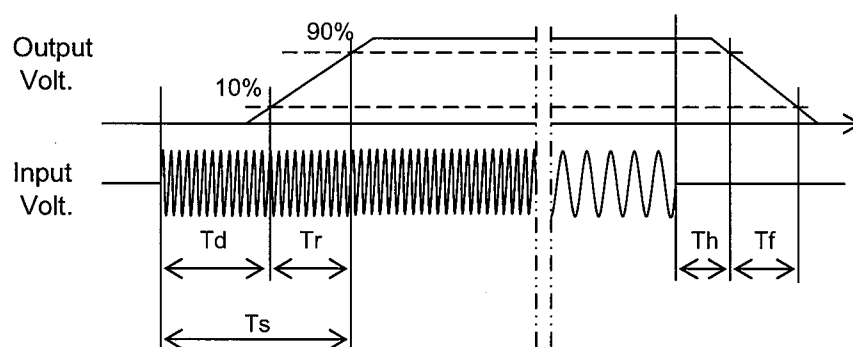
Input Volt. 100 V



## 2.Values

[ms]

| Load \ Time | Td   | Tr  | Ts   | Th   | Tf   |
|-------------|------|-----|------|------|------|
| 50 %        | 85.0 | 1.5 | 86.5 | 99.3 | 51.5 |
| 100 %       | 85.0 | 1.8 | 86.8 | 47.0 | 27.5 |





|         |  |              |  |
|---------|--|--------------|--|
| Model   |  | MMC75B-4     |  |
| Item    |  | Hold-Up Time |  |
| Object  |  | +12V3.2A     |  |
| 1.Graph |  | 2.Values     |  |

1000

100

10

1

70

90

110

130

150

Hold-Up Time [ms]

Input Voltage [V]

---

□

---

Load 50%

---

△

---

Load 100%

| Input Voltage [V] | Hold-Up Time [ms] |           |
|-------------------|-------------------|-----------|
|                   | Load 50%          | Load 100% |
| 75                | 39                | 17        |
| 80                | 49                | 22        |
| 85                | 60                | 27        |
| 90                | 71                | 33        |
| 100               | 97                | 46        |
| 110               | 125               | 60        |
| 120               | 155               | 75        |
| 132               | 196               | 96        |
| 140               | 226               | 112       |

This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.

Note: Slanted line shows the range of the rated input voltage.

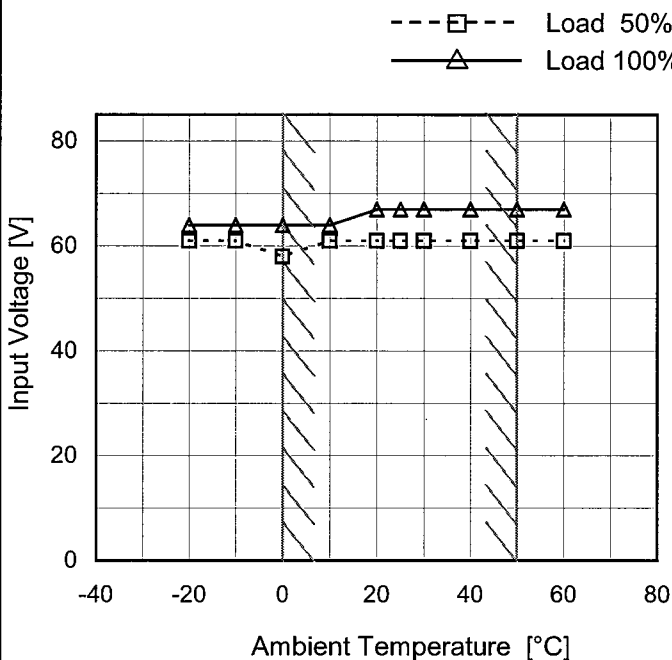
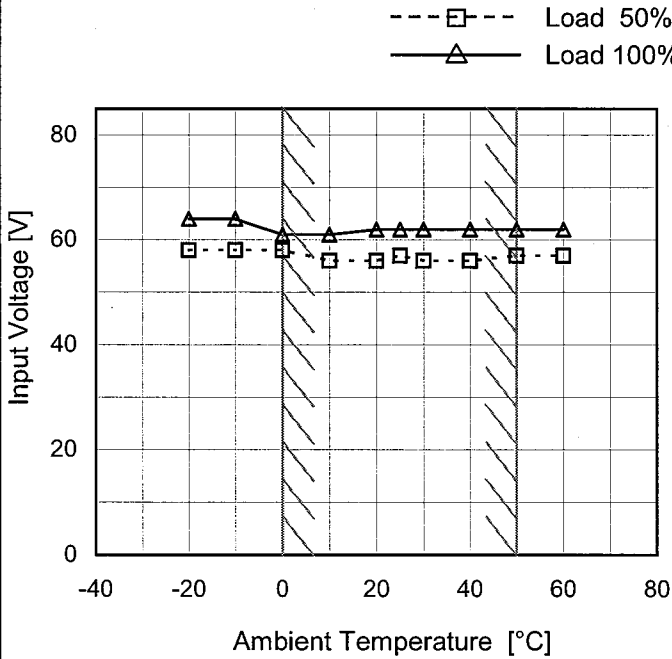
| Model  |                   | MMC75B-4     | Temperature 25°C<br>Testing Circuitry Figure A |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
|--|-------------------|--------------|--|-------------------|-------------------|--|----------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|
| Item   |                   | Hold-Up Time |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| Object   |                   | -12V0.5A     |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 1.Graph  |                   |              | 2.Values                                       |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| <div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Load 50%</div><div>Load 100%</div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Hold-Up Time [ms]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>75</td><td>39</td><td>17</td></tr><tr><td>80</td><td>49</td><td>22</td></tr><tr><td>85</td><td>60</td><td>27</td></tr><tr><td>90</td><td>72</td><td>33</td></tr><tr><td>100</td><td>97</td><td>46</td></tr><tr><td>110</td><td>126</td><td>60</td></tr><tr><td>120</td><td>156</td><td>75</td></tr><tr><td>132</td><td>197</td><td>96</td></tr><tr><td>140</td><td>226</td><td>111</td></tr></tbody></table> |                   |              |  | Input Voltage [V] | Hold-Up Time [ms] |  | Load 50% | Load 100% | 75 | 39 | 17 | 80 | 49 | 22 | 85 | 60 | 27 | 90 | 72 | 33 | 100 | 97 | 46 | 110 | 126 | 60 | 120 | 156 | 75 | 132 | 197 | 96 | 140 | 226 |
| Input Voltage [V]  | Hold-Up Time [ms] |              |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
|  | Load 50%          | Load 100%    |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 75   | 39                | 17           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 80   | 49                | 22           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 85   | 60                | 27           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 90   | 72                | 33           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 100  | 97                | 46           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 110  | 126               | 60           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 120  | 156               | 75           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 132  | 197               | 96           |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| 140  | 226               | 111          |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |
| <p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>  |                   |              |  |                   |                   |  |          |           |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |     |     |    |     |     |    |     |     |    |     |     |

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| Model  | MMC75B-4                                |   |                    |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
|--|---|---|--------------------|------------------|-----------|--|--|-------------------|--------------------|--------------------|------|---|---|---|------|----|----|-----|------|----|----|-----|------|----|----|-----|------|----|----|-----|------|----|----|----|------|----|----|----|------|----|----|----|----|---|---|---|----|---|---|---|----|---|---|---|
| Item   | Instantaneous Interruption Compensation | Temperature   | 25°C               |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| Object   | +12V3.2A                                | Testing Circuitry   | Figure A           |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph  |   | 2.Values  |                    |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| <div><div><div>—△—</div><div>Input Volt.</div><div>85V</div></div><div><div>---□---</div><div>Input Volt.</div><div>100V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>132V</div></div></div> <div>Instantaneous Compensation Time [ms]</div> <div>Load Current [A]</div> |   | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.60</td><td>48</td><td>81</td><td>164</td></tr><tr><td>1.20</td><td>39</td><td>69</td><td>140</td></tr><tr><td>1.80</td><td>37</td><td>60</td><td>123</td></tr><tr><td>2.40</td><td>31</td><td>53</td><td>112</td></tr><tr><td>3.00</td><td>28</td><td>47</td><td>98</td></tr><tr><td>3.20</td><td>27</td><td>45</td><td>97</td></tr><tr><td>3.52</td><td>22</td><td>43</td><td>90</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |                    | Load Current [A] | Time [ms] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0.00 | - | - | - | 0.60 | 48 | 81 | 164 | 1.20 | 39 | 69 | 140 | 1.80 | 37 | 60 | 123 | 2.40 | 31 | 53 | 112 | 3.00 | 28 | 47 | 98 | 3.20 | 27 | 45 | 97 | 3.52 | 22 | 43 | 90 | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load Current [A]   | Time [ms]                               |   |                    |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
|  | Input Volt. 85[V]                       | Input Volt. 100[V]  | Input Volt. 132[V] |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.00   | -                                       | -   | -                  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.60   | 48                                      | 81  | 164                |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.20   | 39                                      | 69  | 140                |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.80   | 37                                      | 60  | 123                |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 2.40   | 31                                      | 53  | 112                |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.00   | 28                                      | 47  | 98                 |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.20   | 27                                      | 45  | 97                 |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| 3.52   | 22                                      | 43  | 90                 |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                                       | -   | -                  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                                       | -   | -                  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| --   | -                                       | -   | -                  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |
| Note: Slanted line shows the range of the rated load current.  |   |   |                    |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |    |   |   |   |

| Model   |                   | MMC75B-4                                |                    | Temperature   |  | 25°C     |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
|---|-------------------|---|--------------------|---|--|----------|--|------------------|-----------|--|--|-------------------|--------------------|--------------------|------|---|---|---|------|----|----|-----|------|----|----|-----|------|----|----|-----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|----|---|---|---|----|---|---|---|
| Item  |                   | Instantaneous Interruption Compensation |                    | Testing Circuitry   |  | Figure A |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| Object  |                   | -12V0.5A                                |                    |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 1.Graph   |                   |   |                    | 2.Values  |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| <div><div><div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>—△—</div><div>---□---</div><div>-·-○-·-</div></div><div><div>Input Volt.</div><div>Input Volt.</div><div>Input Volt.</div></div><div><div>85V</div><div>100V</div><div>132V</div></div></div><div><div><div>Instantaneous Compensation Time [ms]</div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><div>0.0</div><div>0.2</div><div>0.4</div><div>0.6</div></div><div><div>Load Current [A]</div></div></div></div> |                   |   |                    | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.08</td><td>30</td><td>48</td><td>106</td></tr><tr><td>0.16</td><td>29</td><td>48</td><td>104</td></tr><tr><td>0.24</td><td>28</td><td>48</td><td>102</td></tr><tr><td>0.32</td><td>28</td><td>48</td><td>98</td></tr><tr><td>0.40</td><td>27</td><td>46</td><td>98</td></tr><tr><td>0.48</td><td>27</td><td>45</td><td>97</td></tr><tr><td>0.50</td><td>27</td><td>45</td><td>96</td></tr><tr><td>0.55</td><td>23</td><td>45</td><td>95</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |  |          |  | Load Current [A] | Time [ms] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 0.00 | - | - | - | 0.08 | 30 | 48 | 106 | 0.16 | 29 | 48 | 104 | 0.24 | 28 | 48 | 102 | 0.32 | 28 | 48 | 98 | 0.40 | 27 | 46 | 98 | 0.48 | 27 | 45 | 97 | 0.50 | 27 | 45 | 96 | 0.55 | 23 | 45 | 95 | -- | - | - | - | -- | - | - | - |
| Load Current [A]  | Time [ms]         |   |                    |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
|   | Input Volt. 85[V] | Input Volt. 100[V]                      | Input Volt. 132[V] |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.00  | -                 | -                                       | -                  |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.08  | 30                | 48                                      | 106                |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.16  | 29                | 48                                      | 104                |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.24  | 28                | 48                                      | 102                |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.32  | 28                | 48                                      | 98                 |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.40  | 27                | 46                                      | 98                 |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.48  | 27                | 45                                      | 97                 |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.50  | 27                | 45                                      | 96                 |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| 0.55  | 23                | 45                                      | 95                 |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| --  | -                 | -                                       | -                  |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| --  | -                 | -                                       | -                  |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |
| <div>Note: Slanted line shows the range of the rated load current.</div>  |                   |   |                    |   |  |          |  |                  |           |  |  |                   |                    |                    |      |   |   |   |      |    |    |     |      |    |    |     |      |    |    |     |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |      |    |    |    |    |   |   |   |    |   |   |   |

# COSEL

| Model   | MMC75B-4  | Testing Circuitry    Figure A  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
|---|---|--|--|-----------------------------|----------------------|--|----------|-----------|-----|----|----|-----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|
| Item  | Minimum Input Voltage<br>for Regulated Output Voltage |  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Object  | +5V6A   |  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 1.Graph   |   | 2.Values   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| <div><div>---□---    Load 50%</div><div>—△—        Load 100%</div></div>  |   | <table><tr><th rowspan="2">Ambient Temperature<br/>[°C]</th><th colspan="2">Input Voltage<br/>[V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-20</td><td>61</td><td>64</td></tr><tr><td>-10</td><td>61</td><td>64</td></tr><tr><td>0</td><td>58</td><td>64</td></tr><tr><td>10</td><td>61</td><td>64</td></tr><tr><td>20</td><td>61</td><td>67</td></tr><tr><td>25</td><td>61</td><td>67</td></tr><tr><td>30</td><td>61</td><td>67</td></tr><tr><td>40</td><td>61</td><td>67</td></tr><tr><td>50</td><td>61</td><td>67</td></tr><tr><td>60</td><td>61</td><td>67</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> |  | Ambient Temperature<br>[°C] | Input Voltage<br>[V] |  | Load 50% | Load 100% | -20 | 61 | 64 | -10 | 61 | 64 | 0 | 58 | 64 | 10 | 61 | 64 | 20 | 61 | 67 | 25 | 61 | 67 | 30 | 61 | 67 | 40 | 61 | 67 | 50 | 61 | 67 | 60 | 61 | 67 | -- | - | - |
| Ambient Temperature<br>[°C]   | Input Voltage<br>[V]                                  |  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
|   | Load 50%  | Load 100%  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| -20   | 61  | 64   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| -10   | 61  | 64   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 0   | 58  | 64   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 10  | 61  | 64   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 20  | 61  | 67   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 25  | 61  | 67   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 30  | 61  | 67   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 40  | 61  | 67   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 50  | 61  | 67   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 60  | 61  | 67   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| --  | -   | -  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Object  | +12V3.2A  |  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 1.Graph   |   | 2.Values   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| <div><div>---□---    Load 50%</div><div>—△—        Load 100%</div></div> |   | <table><tr><th rowspan="2">Ambient Temperature<br/>[°C]</th><th colspan="2">Input Voltage<br/>[V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-20</td><td>58</td><td>64</td></tr><tr><td>-10</td><td>58</td><td>64</td></tr><tr><td>0</td><td>58</td><td>61</td></tr><tr><td>10</td><td>56</td><td>61</td></tr><tr><td>20</td><td>56</td><td>62</td></tr><tr><td>25</td><td>57</td><td>62</td></tr><tr><td>30</td><td>56</td><td>62</td></tr><tr><td>40</td><td>56</td><td>62</td></tr><tr><td>50</td><td>57</td><td>62</td></tr><tr><td>60</td><td>57</td><td>62</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> |  | Ambient Temperature<br>[°C] | Input Voltage<br>[V] |  | Load 50% | Load 100% | -20 | 58 | 64 | -10 | 58 | 64 | 0 | 58 | 61 | 10 | 56 | 61 | 20 | 56 | 62 | 25 | 57 | 62 | 30 | 56 | 62 | 40 | 56 | 62 | 50 | 57 | 62 | 60 | 57 | 62 | -- | - | - |
| Ambient Temperature<br>[°C]   | Input Voltage<br>[V]                                  |  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
|   | Load 50%  | Load 100%  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| -20   | 58  | 64   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| -10   | 58  | 64   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 0   | 58  | 61   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 10  | 56  | 61   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 20  | 56  | 62   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 25  | 57  | 62   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 30  | 56  | 62   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 40  | 56  | 62   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 50  | 57  | 62   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| 60  | 57  | 62   |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| --  | -   | -  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |
| Note: Slanted line shows the range of the rated ambient temperature.  |   |  |  |                             |                      |  |          |           |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |

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| Model  | MMC75B-4  | Testing Circuitry    Figure A |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
|--|---|-------------------------------|--------------|---------------|-----|----|----|-----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|--|--|
| Item   | Minimum Input Voltage<br>for Regulated Output Voltage |                               |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| Object   | -12V0.5A  |                               |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 1.Graph  |   | 2.Values                      |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| <div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th>Ambient Temperature [°C]</th><th>Load 50% [V]</th><th>Load 100% [V]</th></tr></thead><tbody><tr><td>-20</td><td>58</td><td>64</td></tr><tr><td>-10</td><td>58</td><td>64</td></tr><tr><td>0</td><td>58</td><td>61</td></tr><tr><td>10</td><td>56</td><td>61</td></tr><tr><td>20</td><td>56</td><td>62</td></tr><tr><td>25</td><td>56</td><td>62</td></tr><tr><td>30</td><td>56</td><td>62</td></tr><tr><td>40</td><td>56</td><td>62</td></tr><tr><td>50</td><td>56</td><td>62</td></tr><tr><td>60</td><td>57</td><td>62</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated ambient temperature.</p> |   | Ambient Temperature [°C]      | Load 50% [V] | Load 100% [V] | -20 | 58 | 64 | -10 | 58 | 64 | 0 | 58 | 61 | 10 | 56 | 61 | 20 | 56 | 62 | 25 | 56 | 62 | 30 | 56 | 62 | 40 | 56 | 62 | 50 | 56 | 62 | 60 | 57 | 62 | -- | - | - |  |  |
| Ambient Temperature [°C]   | Load 50% [V]  | Load 100% [V]                 |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| -20  | 58  | 64                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| -10  | 58  | 64                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 0  | 58  | 61                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 10   | 56  | 61                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 20   | 56  | 62                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 25   | 56  | 62                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 30   | 56  | 62                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 40   | 56  | 62                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 50   | 56  | 62                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| 60   | 57  | 62                            |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
| --   | -   | -                             |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |
|  |   | BC-10539                      |              |               |     |    |    |     |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |  |  |

| Model  | MMC75B-4               |  |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
|--|------------------------|--|--------------------|--------------------|------------------|--|--|-------------------|--------------------|--------------------|-------|------|------|-------|-------|------|------|-------|------|------|------|-------|------|------|------|------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|----|---|---|---|
| Item   | Overcurrent Protection | Temperature  | 25°C               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| Object   | +5V6A                  | Testing Circuitry  | Figure A           |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 1.Graph  |                        | 2.Values   |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| <div><div><div></div>Input Volt. 85V</div><div><div></div>Input Volt. 100V</div><div><div></div>Input Volt. 132V</div></div> |                        | <table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>4.75</td><td>9.67</td><td>9.87</td><td>10.20</td></tr><tr><td>4.50</td><td>9.68</td><td>9.85</td><td>10.11</td></tr><tr><td>4.00</td><td>9.63</td><td>9.77</td><td>10.04</td></tr><tr><td>3.50</td><td>9.85</td><td>9.96</td><td>9.98</td></tr><tr><td>3.00</td><td>11.05</td><td>11.10</td><td>11.19</td></tr><tr><td>2.50</td><td>12.24</td><td>12.30</td><td>12.38</td></tr><tr><td>2.00</td><td>13.42</td><td>13.48</td><td>13.58</td></tr><tr><td>1.50</td><td>14.59</td><td>14.66</td><td>14.76</td></tr><tr><td>1.00</td><td>15.76</td><td>15.81</td><td>15.91</td></tr><tr><td>0.50</td><td>16.88</td><td>16.93</td><td>17.04</td></tr><tr><td>0.00</td><td>17.99</td><td>18.00</td><td>18.06</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |                    | Output Voltage [V] | Load Current [A] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 4.75  | 9.67 | 9.87 | 10.20 | 4.50  | 9.68 | 9.85 | 10.11 | 4.00 | 9.63 | 9.77 | 10.04 | 3.50 | 9.85 | 9.96 | 9.98 | 3.00 | 11.05 | 11.10 | 11.19 | 2.50 | 12.24 | 12.30 | 12.38 | 2.00 | 13.42 | 13.48 | 13.58 | 1.50 | 14.59 | 14.66 | 14.76 | 1.00 | 15.76 | 15.81 | 15.91 | 0.50 | 16.88 | 16.93 | 17.04 | 0.00 | 17.99 | 18.00 | 18.06 | -- | - | - | - |
| Output Voltage [V]   | Load Current [A]       |  |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
|  | Input Volt. 85[V]      | Input Volt. 100[V]   | Input Volt. 132[V] |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 4.75   | 9.67                   | 9.87   | 10.20              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 4.50   | 9.68                   | 9.85   | 10.11              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 4.00   | 9.63                   | 9.77   | 10.04              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 3.50   | 9.85                   | 9.96   | 9.98               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 3.00   | 11.05                  | 11.10  | 11.19              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 2.50   | 12.24                  | 12.30  | 12.38              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 2.00   | 13.42                  | 13.48  | 13.58              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 1.50   | 14.59                  | 14.66  | 14.76              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 1.00   | 15.76                  | 15.81  | 15.91              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 0.50   | 16.88                  | 16.93  | 17.04              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 0.00   | 17.99                  | 18.00  | 18.06              |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| --   | -                      | -  | -                  |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| Object   | +12V3.2A               | 2.Values   |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 1.Graph  |                        |  |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| <div><div><div></div>Input Volt. 85V</div><div><div></div>Input Volt. 100V</div><div><div></div>Input Volt. 132V</div></div> |                        | <table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>11.40</td><td>4.82</td><td>4.90</td><td>4.99</td></tr><tr><td>10.80</td><td>4.93</td><td>4.98</td><td>5.10</td></tr><tr><td>9.60</td><td>5.12</td><td>5.19</td><td>5.33</td></tr><tr><td>8.40</td><td>5.32</td><td>5.40</td><td>5.55</td></tr><tr><td>7.20</td><td>5.55</td><td>5.60</td><td>5.78</td></tr><tr><td>6.00</td><td>5.76</td><td>5.83</td><td>5.99</td></tr><tr><td>4.80</td><td>5.96</td><td>6.03</td><td>6.20</td></tr><tr><td>3.60</td><td>6.15</td><td>6.22</td><td>6.38</td></tr><tr><td>2.40</td><td>6.36</td><td>6.42</td><td>6.55</td></tr><tr><td>1.20</td><td>6.50</td><td>6.54</td><td>6.65</td></tr><tr><td>0.00</td><td>6.56</td><td>6.64</td><td>6.87</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>                       |                    | Output Voltage [V] | Load Current [A] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | 11.40 | 4.82 | 4.90 | 4.99  | 10.80 | 4.93 | 4.98 | 5.10  | 9.60 | 5.12 | 5.19 | 5.33  | 8.40 | 5.32 | 5.40 | 5.55 | 7.20 | 5.55  | 5.60  | 5.78  | 6.00 | 5.76  | 5.83  | 5.99  | 4.80 | 5.96  | 6.03  | 6.20  | 3.60 | 6.15  | 6.22  | 6.38  | 2.40 | 6.36  | 6.42  | 6.55  | 1.20 | 6.50  | 6.54  | 6.65  | 0.00 | 6.56  | 6.64  | 6.87  | -- | - | - | - |
| Output Voltage [V]   | Load Current [A]       |  |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
|  | Input Volt. 85[V]      | Input Volt. 100[V]   | Input Volt. 132[V] |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 11.40  | 4.82                   | 4.90   | 4.99               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 10.80  | 4.93                   | 4.98   | 5.10               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 9.60   | 5.12                   | 5.19   | 5.33               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 8.40   | 5.32                   | 5.40   | 5.55               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 7.20   | 5.55                   | 5.60   | 5.78               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 6.00   | 5.76                   | 5.83   | 5.99               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 4.80   | 5.96                   | 6.03   | 6.20               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 3.60   | 6.15                   | 6.22   | 6.38               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 2.40   | 6.36                   | 6.42   | 6.55               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 1.20   | 6.50                   | 6.54   | 6.65               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| 0.00   | 6.56                   | 6.64   | 6.87               |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| --   | -                      | -  | -                  |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |
| Note: Slanted line shows the range of the rated load current.  |                        |  |                    |                    |                  |  |  |                   |                    |                    |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |    |   |   |   |

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# COSEL

| Model  | MMC75B-4               |   |                    |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
|--|------------------------|---|--------------------|--------------------|------------------|--|--|-------------------|--------------------|--------------------|-------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|----|---|---|---|
| Item   | Overcurrent Protection | Temperature   | 25°C               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| Object   | -12V0.5A               | Testing Circuitry   | Figure A           |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| 1.Graph  |                        | 2.Values  |                    |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| <div><div></div>Input Volt. 85V</div> <div><div></div>Input Volt. 100V</div> <div><div></div>Input Volt. 132V</div> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> |                        |   |                    |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
|  |                        | <table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>-11.4</td><td>1.51</td><td>1.48</td><td>1.47</td></tr><tr><td>-10.8</td><td>1.48</td><td>1.45</td><td>1.44</td></tr><tr><td>-9.6</td><td>1.42</td><td>1.39</td><td>1.39</td></tr><tr><td>-8.4</td><td>1.35</td><td>1.33</td><td>1.33</td></tr><tr><td>-7.2</td><td>1.27</td><td>1.26</td><td>1.26</td></tr><tr><td>-6.0</td><td>1.16</td><td>1.15</td><td>1.15</td></tr><tr><td>-4.8</td><td>1.09</td><td>1.09</td><td>1.08</td></tr><tr><td>-3.6</td><td>1.03</td><td>1.03</td><td>1.03</td></tr><tr><td>-2.4</td><td>0.97</td><td>0.96</td><td>0.96</td></tr><tr><td>-1.2</td><td>0.90</td><td>0.89</td><td>0.89</td></tr><tr><td>0.0</td><td>0.83</td><td>0.83</td><td>0.83</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> |                    | Output Voltage [V] | Load Current [A] |  |  | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | -11.4 | 1.51 | 1.48 | 1.47 | -10.8 | 1.48 | 1.45 | 1.44 | -9.6 | 1.42 | 1.39 | 1.39 | -8.4 | 1.35 | 1.33 | 1.33 | -7.2 | 1.27 | 1.26 | 1.26 | -6.0 | 1.16 | 1.15 | 1.15 | -4.8 | 1.09 | 1.09 | 1.08 | -3.6 | 1.03 | 1.03 | 1.03 | -2.4 | 0.97 | 0.96 | 0.96 | -1.2 | 0.90 | 0.89 | 0.89 | 0.0 | 0.83 | 0.83 | 0.83 | -- | - | - | - |
| Output Voltage [V]   | Load Current [A]       |   |                    |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
|  | Input Volt. 85[V]      | Input Volt. 100[V]  | Input Volt. 132[V] |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -11.4  | 1.51                   | 1.48  | 1.47               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -10.8  | 1.48                   | 1.45  | 1.44               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -9.6   | 1.42                   | 1.39  | 1.39               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -8.4   | 1.35                   | 1.33  | 1.33               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -7.2   | 1.27                   | 1.26  | 1.26               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -6.0   | 1.16                   | 1.15  | 1.15               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -4.8   | 1.09                   | 1.09  | 1.08               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -3.6   | 1.03                   | 1.03  | 1.03               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -2.4   | 0.97                   | 0.96  | 0.96               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| -1.2   | 0.90                   | 0.89  | 0.89               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| 0.0  | 0.83                   | 0.83  | 0.83               |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |
| --   | -                      | -   | -                  |                    |                  |  |  |                   |                    |                    |       |      |      |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |

| Model   | MMC75B-4               |  |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
|---|------------------------|--|--|--------------------------|---------------------|--|-------------------|--------------------|-----|------|------|-----|------|------|---|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|---|---|
| Item  | Overvoltage Protection | Testing Circuitry    Figure A  |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| Object  | +5V6A                  |  |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 1.Graph   |                        | 2.Values   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| <div><div><div>—△— Input Volt. 85V</div><div>---□--- Input Volt. 132V</div></div><p>Operating Point [V]</p><p>Ambient Temperature [°C]</p><p>Load 0%</p><p>Note: Slanted line shows the range of the rated ambient temperature.</p></div> |                        | <table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Operating Point [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>-20</td><td>6.36</td><td>6.36</td></tr><tr><td>-10</td><td>6.36</td><td>6.36</td></tr><tr><td>0</td><td>6.29</td><td>6.29</td></tr><tr><td>10</td><td>6.29</td><td>6.29</td></tr><tr><td>20</td><td>6.29</td><td>6.29</td></tr><tr><td>25</td><td>6.29</td><td>6.29</td></tr><tr><td>30</td><td>6.29</td><td>6.29</td></tr><tr><td>40</td><td>6.29</td><td>6.29</td></tr><tr><td>50</td><td>6.22</td><td>6.29</td></tr><tr><td>60</td><td>6.22</td><td>6.22</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> |  | Ambient Temperature [°C] | Operating Point [V] |  | Input Volt. 85[V] | Input Volt. 132[V] | -20 | 6.36 | 6.36 | -10 | 6.36 | 6.36 | 0 | 6.29 | 6.29 | 10 | 6.29 | 6.29 | 20 | 6.29 | 6.29 | 25 | 6.29 | 6.29 | 30 | 6.29 | 6.29 | 40 | 6.29 | 6.29 | 50 | 6.22 | 6.29 | 60 | 6.22 | 6.22 | -- | - | - |
| Ambient Temperature [°C]  | Operating Point [V]    |  |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
|   | Input Volt. 85[V]      | Input Volt. 132[V]   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| -20   | 6.36                   | 6.36   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| -10   | 6.36                   | 6.36   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 0   | 6.29                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 10  | 6.29                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 20  | 6.29                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 25  | 6.29                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 30  | 6.29                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 40  | 6.29                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 50  | 6.22                   | 6.29   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| 60  | 6.22                   | 6.22   |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |
| --  | -                      | -  |  |                          |                     |  |                   |                    |     |      |      |     |      |      |   |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |

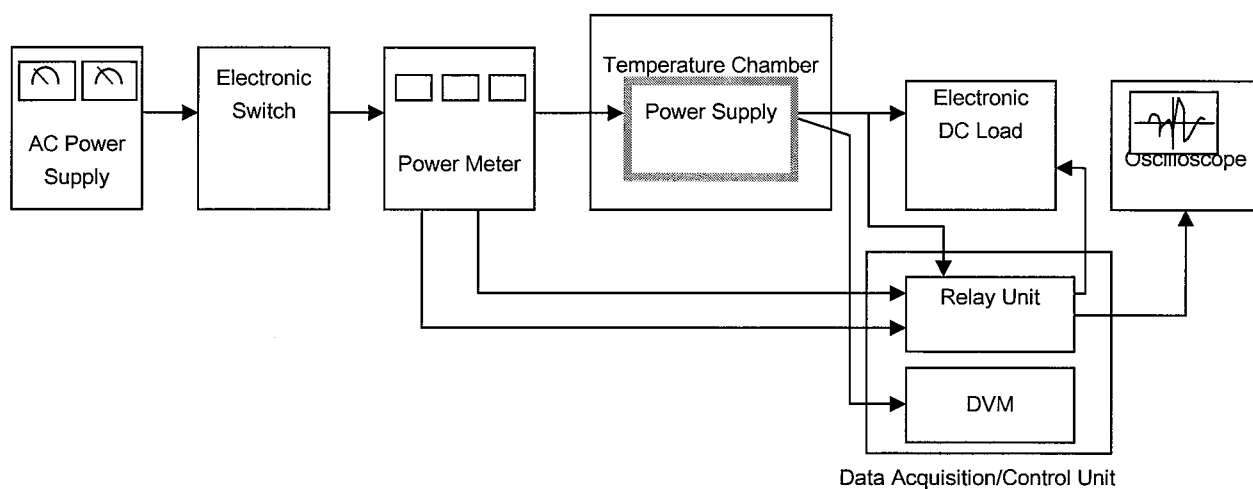


Figure A

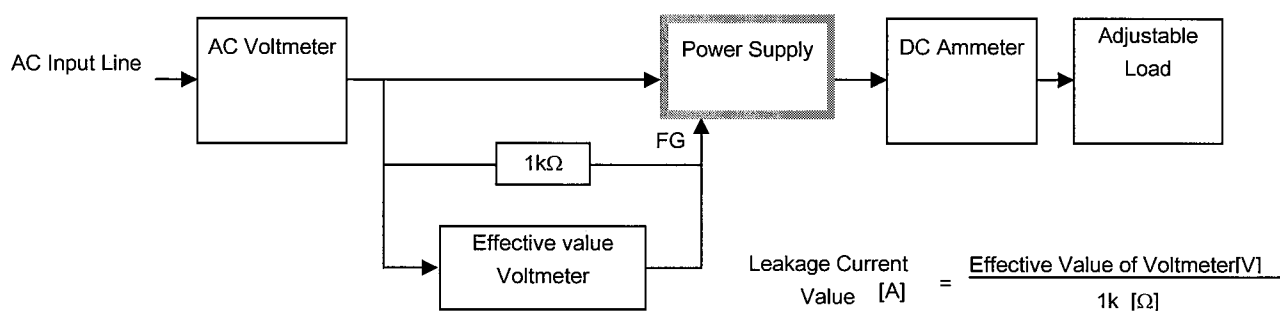


Figure B ( DEN-AN )

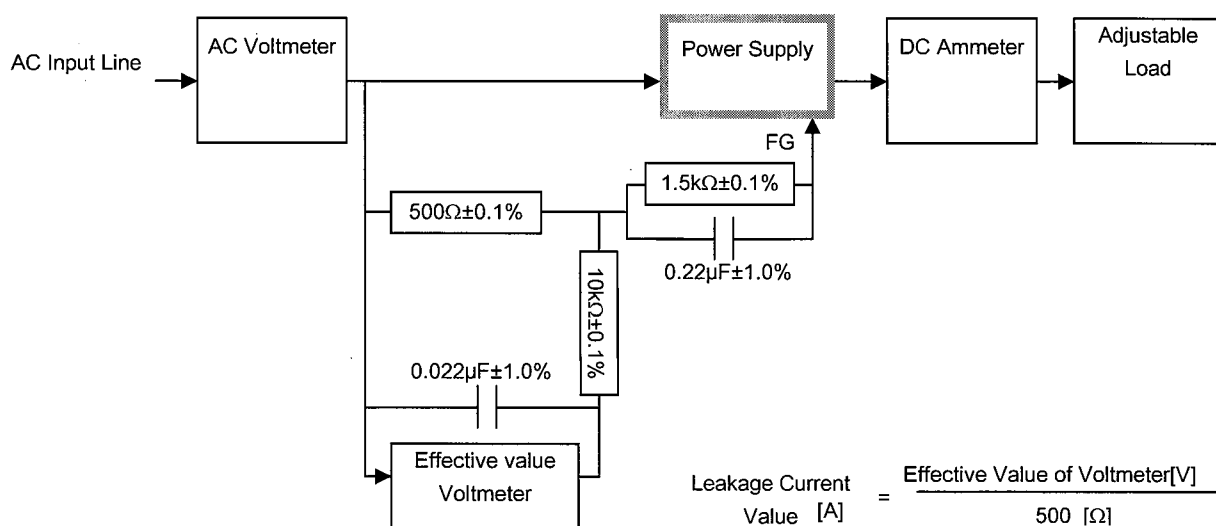


Figure B ( IEC60950-1 )