



TEST DATA OF MMC50A-1 (100V INPUT)

Regulated DC Power Supply

Date : July 7, 1999

Approved by : Na-Go Takahira
Design Manager

Prepared by : Harumi Takikawa
Design Engineer

コーセル株式会社
COSEL CO., LTD.

CONTENTS

| | |
|--|----|
| 1. Line Regulation | 1 |
| 静的入力変動 | |
| 2. Efficiency (by Input Voltage) | 3 |
| 効率 (入力電圧特性) | |
| 3. Power Factor (by Input Voltage) | 4 |
| 力率 (入力電圧特性) | |
| 4. Hold-Up Time | 5 |
| 出力保持時間 | |
| 5. Instantaneous Interruption Compensation | 8 |
| 瞬時停電保障 | |
| 6. Load Regulation | 11 |
| 静的負荷変動 | |
| 7. Ripple Voltage (by Load Current) | 13 |
| リップル電圧 (負荷特性) | |
| 8. Ripple-Noise | 16 |
| リップルノイズ | |
| 9. Overcurrent Protection | 19 |
| 過電流保護 | |
| 10. Overvoltage Protection | 21 |
| 過電圧保護 | |
| 11. Inrush Current | 22 |
| 突入電流 | |
| 12. Dynamic Load Response | 23 |
| 動的負荷変動 | |
| 13. Rise and Fall Time | 26 |
| 立上り、立下がり時間 | |
| 14. Ambient Temperature Drift | 29 |
| 周囲温度変動 | |
| 15. Minimum Input Voltage for Regulated Output Voltage | 31 |
| 最低レギュレーション電圧 | |
| 16. Ripple Voltage (by Ambient Temperature) | 33 |
| リップル電圧 (周囲温度特性) | |
| 17. Time Lapse Drift | 35 |
| 経時ドリフト | |
| 18. Output Voltage Accuracy | 37 |
| 定電圧精度 | |
| 19. Condensation | 38 |
| 結露特性 | |
| 20. Leakage Current | 41 |
| 漏洩電流 | |
| 21. Conducted Emission | 42 |
| 雑音端子電圧 | |
| 22. Figure of Testing Circuitry | 43 |
| 測定回路図 | |

(Final Page 44)

COSEL

| Model | | MMC50A-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------------------------|---|--------|-------------------|---------------------------|----------------------------|----|--------|--------|----|--------|--------|----|--------|--------|----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|---|---|---|---|---|---|---|---|---|
| Item | Line Regulation | | 静的入力変動 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +5.0V5.00A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>-----□-----</div><div>-----△-----</div></div><div>Load 50%</div><div>Load 100%</div></div> <div><p>[V]</p><p>Output Voltage</p><p>Input Voltage</p><p>[V]</p></div> | | <table><tr><th>Input Voltage [V]</th><th>Load 50% Output Volt. [V]</th><th>Load 100% Output Volt. [V]</th></tr><tr><td>75</td><td>5.080</td><td>5.074</td></tr><tr><td>80</td><td>5.080</td><td>5.074</td></tr><tr><td>85</td><td>5.080</td><td>5.074</td></tr><tr><td>90</td><td>5.080</td><td>5.074</td></tr><tr><td>100</td><td>5.081</td><td>5.074</td></tr><tr><td>110</td><td>5.081</td><td>5.074</td></tr><tr><td>120</td><td>5.081</td><td>5.074</td></tr><tr><td>132</td><td>5.081</td><td>5.074</td></tr><tr><td>140</td><td>5.081</td><td>5.074</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> | | Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] | 75 | 5.080 | 5.074 | 80 | 5.080 | 5.074 | 85 | 5.080 | 5.074 | 90 | 5.080 | 5.074 | 100 | 5.081 | 5.074 | 110 | 5.081 | 5.074 | 120 | 5.081 | 5.074 | 132 | 5.081 | 5.074 | 140 | 5.081 | 5.074 | — | — | — | — | — | — | — | — | — |
| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 5.080 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 5.080 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 5.080 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 5.080 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 5.081 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 5.081 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 5.081 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | 5.081 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 5.081 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +12.0V1.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>-----□-----</div><div>-----△-----</div></div><div>Load 50%</div><div>Load 100%</div></div> <div><p>[V]</p><p>Output Voltage</p><p>Input Voltage</p><p>[V]</p></div> | | <table><tr><th>Input Voltage [V]</th><th>Load 50% Output Volt. [V]</th><th>Load 100% Output Volt. [V]</th></tr><tr><td>75</td><td>11.972</td><td>11.946</td></tr><tr><td>80</td><td>11.972</td><td>11.945</td></tr><tr><td>85</td><td>11.973</td><td>11.944</td></tr><tr><td>90</td><td>11.973</td><td>11.944</td></tr><tr><td>100</td><td>11.973</td><td>11.944</td></tr><tr><td>110</td><td>11.973</td><td>11.943</td></tr><tr><td>120</td><td>11.973</td><td>11.943</td></tr><tr><td>132</td><td>11.974</td><td>11.943</td></tr><tr><td>140</td><td>11.974</td><td>11.943</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> | | Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] | 75 | 11.972 | 11.946 | 80 | 11.972 | 11.945 | 85 | 11.973 | 11.944 | 90 | 11.973 | 11.944 | 100 | 11.973 | 11.944 | 110 | 11.973 | 11.943 | 120 | 11.973 | 11.943 | 132 | 11.974 | 11.943 | 140 | 11.974 | 11.943 | — | — | — | — | — | — | — | — | — |
| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 11.972 | 11.946 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 11.972 | 11.945 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 11.973 | 11.944 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 11.973 | 11.944 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 11.973 | 11.944 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 11.973 | 11.943 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 11.973 | 11.943 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | 11.974 | 11.943 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 11.974 | 11.943 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated input voltage. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (注)斜線は定格入力電圧範囲を示す。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

-1-

BC-3244

BC-3 2 4 4

COSEL

| | | | |
|----------|--|---------------|--|
| Model | | MMC50A-1 | |
| Item | | Efficiency 効率 | |
| Object | | | |
| 1. Graph | | 2. Values | |

-----□----- Load 50%

-----△----- Load 100%

Efficiency [%]

86

82

78

74

70

66

62

0

0

80

90

100

110

120

130

140

150

Input Voltage [V]

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

(注)斜線は定格入力電圧範囲を示す。

| Input Voltage [V] | Load 50% | Load 100% |
|-------------------|----------------|----------------|
| | Efficiency [%] | Efficiency [%] |
| 75 | 68.1 | 67.0 |
| 80 | 68.2 | 67.6 |
| 85 | 68.1 | 68.1 |
| 90 | 68.3 | 68.8 |
| 100 | 67.9 | 69.3 |
| 110 | 67.4 | 69.6 |
| 120 | 66.7 | 69.6 |
| 132 | 65.6 | 69.6 |
| 140 | 64.9 | 69.4 |

COSEL

| Model | | MMC50A-1 | | Temperature | | 25℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|---------------------|--|---|--|----------|--|-------------------|----------|-----------|-------------------|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|-----|----|----|-----|-----|----|-----|-----|----|-----|-----|-----|
| Item | | Hold-Up Time 出力保持時間 | | Testing Circuitry | | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +5.0V5.00A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△—</div><div>Load 50%</div></div><div><div>- -□- -</div><div>Load 100%</div></div></div> <div><div>[mS]</div><div>1000</div><div>100</div><div>10</div><div>1</div><div>Hold-Up Time</div><div>0 80 90 100 110 120 130 140 150</div><div>Input Voltage</div><div>[V]</div></div> | | | | <table><tr><th rowspan="2">Input Voltage [V]</th><th>Load 50%</th><th>Load 100%</th></tr><tr><th>Hold-Up Time [mS]</th><th>Hold-Up Time [mS]</th></tr><tr><td>75</td><td>35</td><td>23</td></tr><tr><td>80</td><td>41</td><td>28</td></tr><tr><td>85</td><td>48</td><td>33</td></tr><tr><td>90</td><td>55</td><td>38</td></tr><tr><td>100</td><td>72</td><td>50</td></tr><tr><td>110</td><td>90</td><td>64</td></tr><tr><td>120</td><td>110</td><td>79</td></tr><tr><td>132</td><td>136</td><td>99</td></tr><tr><td>140</td><td>155</td><td>114</td></tr></table> | | | | Input Voltage [V] | Load 50% | Load 100% | Hold-Up Time [mS] | Hold-Up Time [mS] | 75 | 35 | 23 | 80 | 41 | 28 | 85 | 48 | 33 | 90 | 55 | 38 | 100 | 72 | 50 | 110 | 90 | 64 | 120 | 110 | 79 | 132 | 136 | 99 | 140 | 155 | 114 |
| Input Voltage [V] | Load 50% | Load 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Hold-Up Time [mS] | Hold-Up Time [mS] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 35 | 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 41 | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 48 | 33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 55 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 72 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 90 | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 110 | 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | 136 | 99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 155 | 114 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <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> <p>出力保持時間とは、入力電圧断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。</p> <p>(注)斜線は定格入力電圧範囲を示す。</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| Model | | MMC50A-1 | | Temperature 25℃ Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------|---------------------|--|--|--|-------------------|----------|-----------|-------------------|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|-----|----|----|-----|-----|----|-----|-----|-----|-----|-----|-----|
| Item | | Hold-Up Time 出力保持時間 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +12.0V 1.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△— Load 50%</div><div>- - -□- - - Load 100%</div></div><div><div>[mS]</div><div><div>Hold-Up Time</div><div>Input Voltage [V]</div></div></div></div> | | | | <table><tr><th rowspan="2">Input Voltage [V]</th><th>Load 50%</th><th>Load 100%</th></tr><tr><th>Hold-Up Time [mS]</th><th>Hold-Up Time [mS]</th></tr><tr><td>75</td><td>36</td><td>26</td></tr><tr><td>80</td><td>41</td><td>31</td></tr><tr><td>85</td><td>48</td><td>36</td></tr><tr><td>90</td><td>55</td><td>41</td></tr><tr><td>100</td><td>69</td><td>53</td></tr><tr><td>110</td><td>86</td><td>67</td></tr><tr><td>120</td><td>104</td><td>82</td></tr><tr><td>132</td><td>129</td><td>102</td></tr><tr><td>140</td><td>146</td><td>117</td></tr></table> | | Input Voltage [V] | Load 50% | Load 100% | Hold-Up Time [mS] | Hold-Up Time [mS] | 75 | 36 | 26 | 80 | 41 | 31 | 85 | 48 | 36 | 90 | 55 | 41 | 100 | 69 | 53 | 110 | 86 | 67 | 120 | 104 | 82 | 132 | 129 | 102 | 140 | 146 | 117 |
| Input Voltage [V] | Load 50% | Load 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Hold-Up Time [mS] | Hold-Up Time [mS] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 36 | 26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 41 | 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 48 | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 55 | 41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 69 | 53 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 86 | 67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 104 | 82 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | 129 | 102 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 146 | 117 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <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> <p>出力保持時間とは、入力電圧断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。</p> <p>(注) 斜線は定格入力電圧範囲を示す。</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

Model MMC50A-1

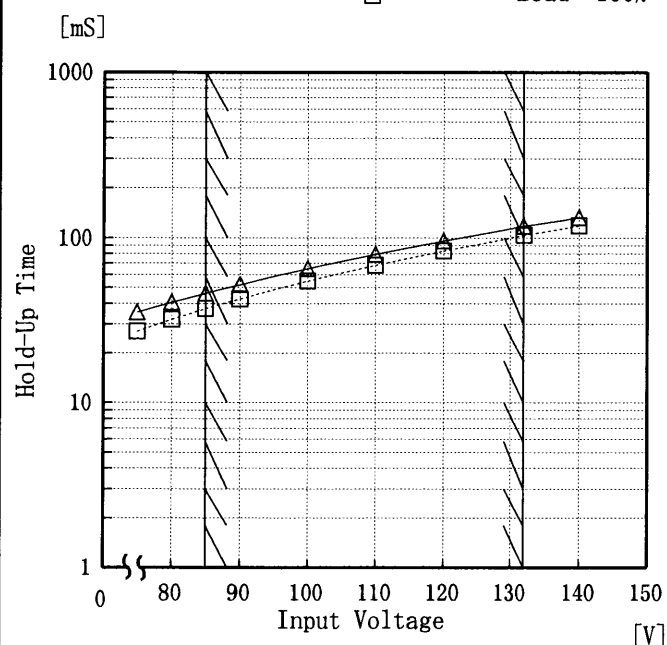
Item Hold-Up Time 出力保持時間

Object -12.0V0.50A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

—△— Load 50%
- -□- - Load 100%



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.

出力保持時間とは、入力電圧断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。

(注)斜線は定格入力電圧範囲を示す。

2. Values

| Input Voltage [V] | Load 50% | Load 100% |
|-------------------|-------------------|-------------------|
| | Hold-Up Time [mS] | Hold-Up Time [mS] |
| 75 | 35 | 27 |
| 80 | 41 | 32 |
| 85 | 46 | 37 |
| 90 | 52 | 43 |
| 100 | 65 | 55 |
| 110 | 80 | 68 |
| 120 | 96 | 83 |
| 132 | 117 | 104 |
| 140 | 133 | 118 |

COSEL

| | | | |
|----------|--|---|--|
| Model | | MMC50A-1 | |
| Item | | Instantaneous Interruption Compensation 瞬時停電保障 | |
| Object | | +5.0V5.00A | |
| 1. Graph | | 2. Values | |

—△—

Input Volt. 85V

- -□- -

Input Volt. 100V

- -○- -

Input Volt. 132V

[mS]

1000

100

10

1

Instantaneous Compensation Time

0

2

4

6

Load Current

[A]

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 load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。

(注)斜線は定格負荷電流範囲を示す。

| Load Current [A] | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] |
|------------------|-------------------|--------------------|--------------------|
| | Time [mS] | | |
| 0.0 | — | — | — |
| 0.8 | 61 | 93 | 177 |
| 1.6 | 51 | 78 | 154 |
| 2.4 | 44 | 69 | 137 |
| 3.2 | 35 | 54 | 114 |
| 4.0 | 30 | 44 | 88 |
| 4.8 | 23 | 31 | 68 |
| 5.0 | 21 | 29 | 57 |
| 5.5 | 18 | 25 | 44 |
| — | — | — | — |
| — | — | — | — |

- 8 -

BC-3244

COSEL

LOVEL

| | |
|--------|---|
| Model | MMC50A-1 |
| Item | Instantaneous Interruption Compensation 瞬時停電保障 |
| Object | +12.0V 1.50A |

1. Graph

—△—

Input Volt. 85V

---□---

Input Volt. 100V

---○---

Input Volt. 132V

[mS]

1000

100

10

1

Instantaneous Compensation Time

0

0.5

1

1.5

2

Load Current

[A]

Testing Circuitry Figure A

2. Values

| Load Current [A] | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] |
|------------------|-------------------|--------------------|--------------------|
| | Time [mS] | | |
| 0.00 | — | — | — |
| 0.30 | 56 | 81 | 153 |
| 0.60 | 48 | 72 | 135 |
| 0.90 | 43 | 64 | 122 |
| 1.20 | 38 | 56 | 110 |
| 1.50 | 31 | 52 | 101 |
| 1.65 | 31 | 48 | 98 |
| — | — | — | — |
| — | — | — | — |
| — | — | — | — |
| — | — | — | — |

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 load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。

(注)斜線は定格負荷電流範囲を示す。

COSEL

Model

MMC50A-1

Item

Instantaneous Interruption Compensation
瞬時停電保障

Object

-12.0V 0.50A

1. Graph

△

Input Volt. 85V

□

Input Volt. 100V

○

Input Volt. 132V

Instantaneous Compensation Time [mS]

1000

100

10

1

0

0.2

0.4

0.6

Load Current [A]

0

0.2

0.4

0.6

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 load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。

(注) 斜線は定格負荷電流範囲を示す。

Testing Circuitry

Figure A

2. Values

| Load Current [A] | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] |
|------------------|-------------------|--------------------|--------------------|
| | Time [mS] | | |
| 0.00 | — | — | — |
| 0.08 | 63 | 81 | 139 |
| 0.16 | 47 | 68 | 123 |
| 0.24 | 43 | 63 | 115 |
| 0.32 | 39 | 56 | 110 |
| 0.40 | 38 | 56 | 106 |
| 0.48 | 36 | 54 | 103 |
| 0.50 | 35 | 53 | 103 |
| 0.55 | 35 | 52 | 101 |
| — | — | — | — |
| — | — | — | — |

COSEL

| | | | | | | | |
|--|--|---|--|-------------------|--|----------|--|
| Model | | MMC50A-1 | | Temperature | | 25℃ | |
| Item | | Load Regulation 静的負荷変動 | | Testing Circuitry | | Figure A | |
| Object | | +5.0V5.00A | | 2. Values | | | |
| 1. Graph | | <div><div>—△—</div>Input Volt. 85 V</div> <div><div>---□---</div>Input Volt. 100 V</div> <div><div>---○---</div>Input Volt. 132 V</div> | | | | | |
| <div><div><div>Output Voltage</div><div>[V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><</div></div></div></div> | | | | | | | |

COSEL

| Model | | MMC50A-1 | | Temperature | | 25℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------|------------------------|--------------------|--|--|----------|--|------------------|-------------------|--------------------|--------------------|------------------|------------------|------------------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|---|---|---|---|
| Item | | Load Regulation 静的負荷変動 | | Testing Circuitry | | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | -12.0V0.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△—</div><div>Input Volt. 85V</div></div><div><div>---□---</div><div>Input Volt. 100V</div></div><div><div>---○---</div><div>Input Volt. 132V</div></div></div> <div><div><div><div>Output Voltage [V]</div><div><div><div>-11.680</div><div>-11.720</div><div>-11.760</div><div>-11.800</div><div>-11.840</div><div>-11.880</div><div>-11.920</div></div><div><div>0</div><div>-11.840</div></div></div><div><div>0</div><div>0.2</div><div>0.4</div><div>0.6</div></div><div><div>Load Current [A]</div></div></div></div></div> <div><div>Note: Slanted line shows the range of the rated load current.</div><div>(注)斜線は定格負荷電流範囲を示す。</div></div> | | | | <table><tr><th rowspan="2">Load Current [A]</th><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><th>Output Volt. [V]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th></tr><tr><td>0.00</td><td>-11.837</td><td>-11.839</td><td>-11.840</td></tr><tr><td>0.08</td><td>-11.835</td><td>-11.836</td><td>-11.838</td></tr><tr><td>0.16</td><td>-11.832</td><td>-11.833</td><td>-11.835</td></tr><tr><td>0.24</td><td>-11.828</td><td>-11.830</td><td>-11.831</td></tr><tr><td>0.32</td><td>-11.825</td><td>-11.825</td><td>-11.827</td></tr><tr><td>0.40</td><td>-11.821</td><td>-11.821</td><td>-11.822</td></tr><tr><td>0.48</td><td>-11.816</td><td>-11.816</td><td>-11.816</td></tr><tr><td>0.50</td><td>-11.812</td><td>-11.813</td><td>-11.814</td></tr><tr><td>0.55</td><td>-11.808</td><td>-11.809</td><td>-11.810</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table> | | | | Load Current [A] | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | 0.00 | -11.837 | -11.839 | -11.840 | 0.08 | -11.835 | -11.836 | -11.838 | 0.16 | -11.832 | -11.833 | -11.835 | 0.24 | -11.828 | -11.830 | -11.831 | 0.32 | -11.825 | -11.825 | -11.827 | 0.40 | -11.821 | -11.821 | -11.822 | 0.48 | -11.816 | -11.816 | -11.816 | 0.50 | -11.812 | -11.813 | -11.814 | 0.55 | -11.808 | -11.809 | -11.810 | — | — | — | — |
| Load Current [A] | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.00 | -11.837 | -11.839 | -11.840 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.08 | -11.835 | -11.836 | -11.838 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.16 | -11.832 | -11.833 | -11.835 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.24 | -11.828 | -11.830 | -11.831 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.32 | -11.825 | -11.825 | -11.827 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.40 | -11.821 | -11.821 | -11.822 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.48 | -11.816 | -11.816 | -11.816 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.50 | -11.812 | -11.813 | -11.814 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.55 | -11.808 | -11.809 | -11.810 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| | | | |
|----------|--|---|--|
| Model | | MMC50A-1 | |
| Item | | Ripple Voltage(by Load Current) リップル電圧(負荷電流特性) | |
| Object | | +5.0V5.00A | |
| 1. Graph | | 2.Values | |

-----□----- Input Volt. 85V
———△——— Input Volt. 132V

[mV]

Ripple Voltage

Load Current

[A]

| Load Current [A] | Input Volt. 85 [V] | Input Volt. 132 [V] |
|---------------------|-----------------------------|-----------------------------|
| | Ripple Output Volt. [mV] | Ripple Output Volt. [mV] |
| 0.0 | 5 | 5 |
| 0.8 | 5 | 5 |
| 1.6 | 5 | 5 |
| 2.4 | 5 | 5 |
| 3.2 | 5 | 5 |
| 4.0 | 5 | 5 |
| 4.8 | 10 | 10 |
| 5.0 | 10 | 10 |
| 5.5 | 10 | 10 |
| — | — | — |
| — | — | — |

Ripple Voltage is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

リップル電圧は、下図 p - p 値で示される。
(注) 斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
スイッチング周期

Ripple [mVp-p]

T1

T2

Fig. Complex Ripple Wave Form
図 リップル波形詳細図

COSEL

| | | | |
|----------|--|--|--|
| Model | | MMC50A-1 | |
| Item | | Ripple Voltage (by Load Current) リップル電圧(負荷電流特性) | |
| Object | | +12.0V 1.50A | |
| 1. Graph | | 2. Values | |

-----□-----

Input Volt. 85V

———△———

Input Volt. 132V

Ripple Voltage

[mV]

150

125

100

75

50

25

0

0

0.5

1

1.5

2

Load Current

[A]

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

0

0

0.5

1

1.5

2

150

125

100

75

50

25

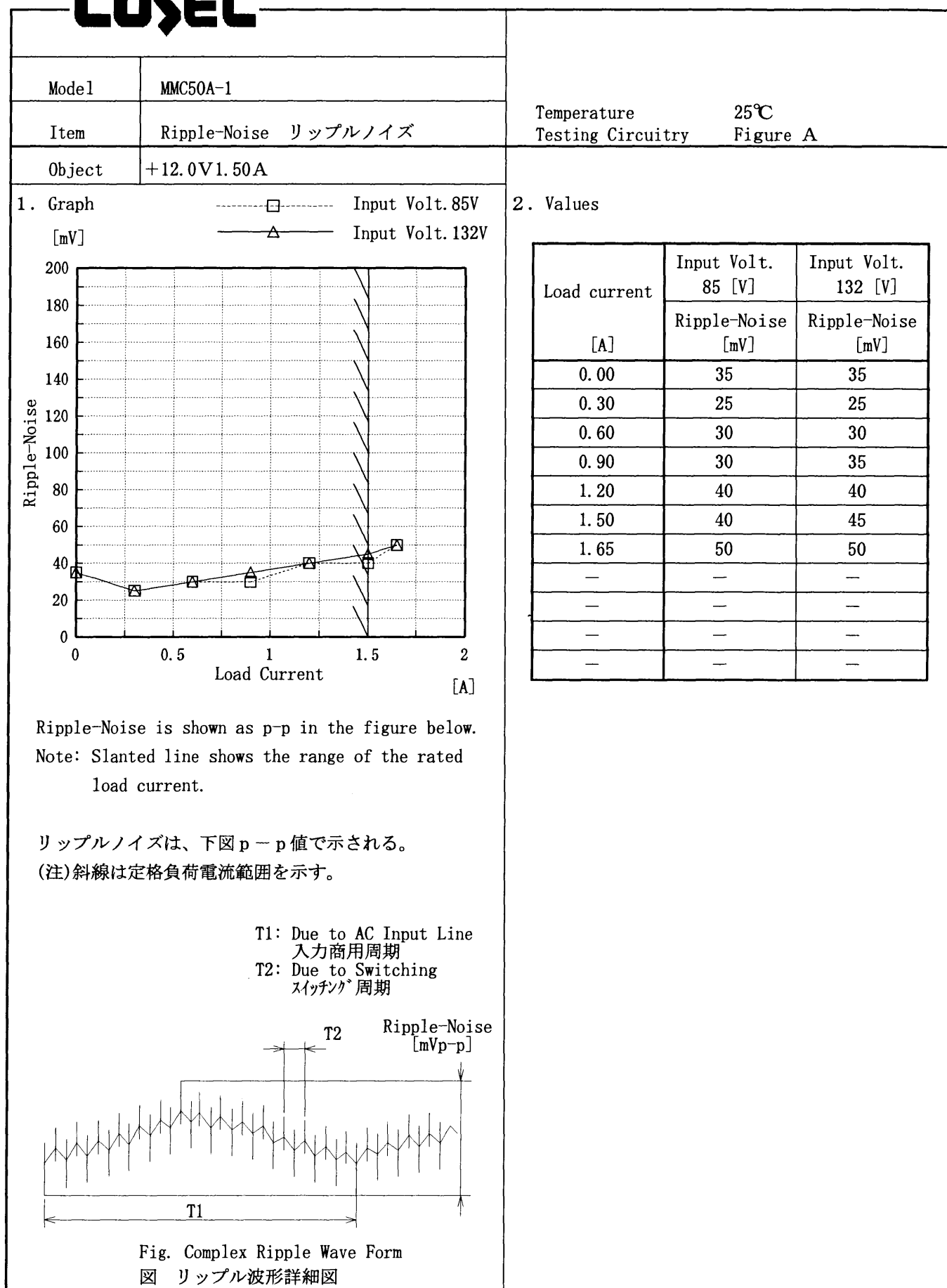
0

0

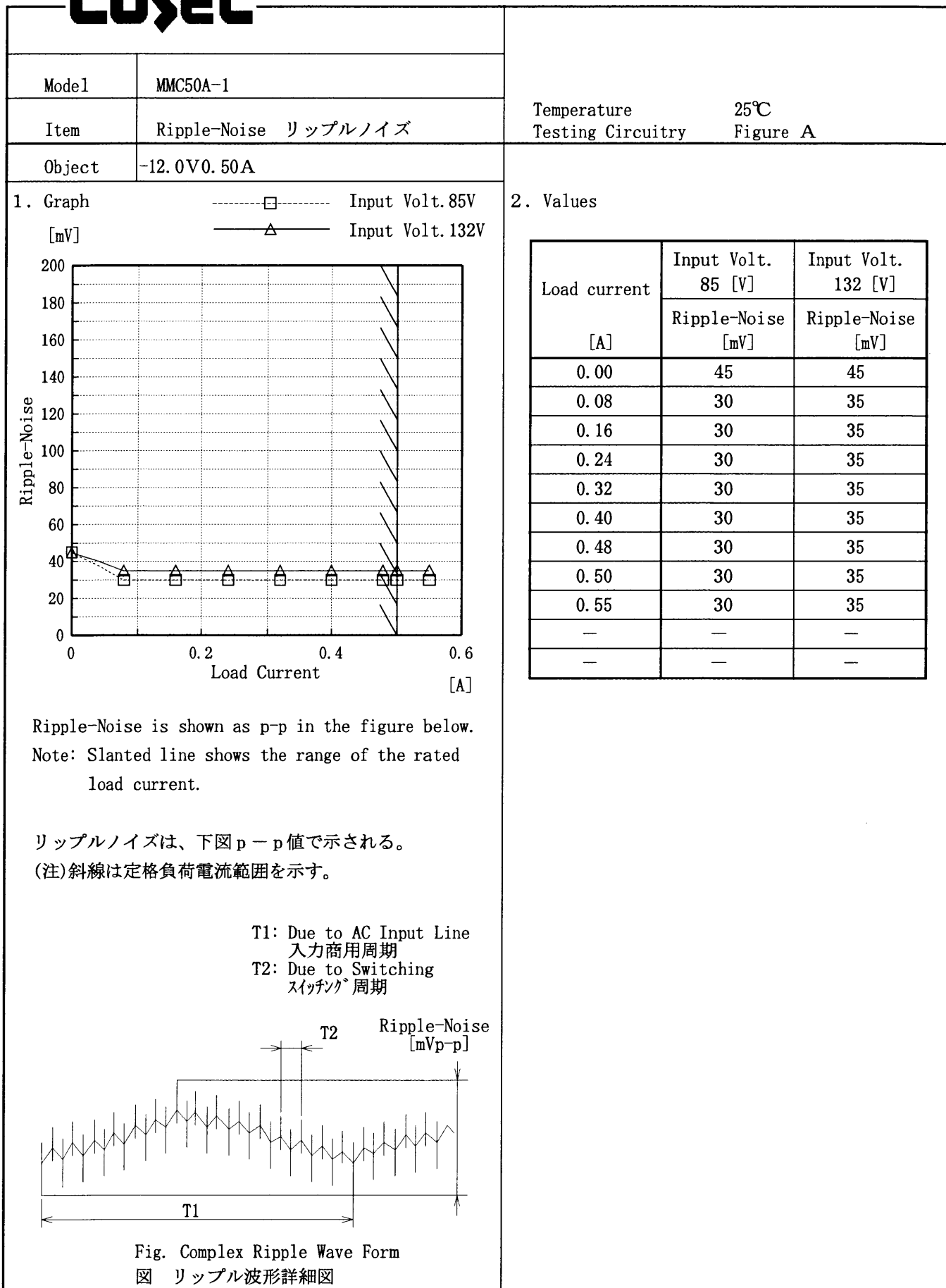
— 15 —

— 16 —

COSEL



COSEL



COSEL

| Model | | MMC50A-1 | | Temperature | | 25℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------------------|---------------------------------|----------------------|--|--|----------|--|--------------------|---------------------|----------------------|----------------------|------------------|------------------|------------------|-------|---|---|---|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|
| Item | | Overcurrent Protection 過電流保護 | | Testing Circuitry | | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +5.0V5.00A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div>Input Volt. 85.0 V</div><div>Input Volt. 100.0 V</div><div>Input Volt. 132.0 V</div></div> <div><div>[V]</div><div>Output Voltage</div><div>Load Current</div></div> | | | | <table><tr><th rowspan="2">Output Voltage [V]</th><th>Input Volt. 85.0[V]</th><th>Input Volt. 100.0[V]</th><th>Input Volt. 132.0[V]</th></tr><tr><th>Load Current [A]</th><th>Load Current [A]</th><th>Load Current [A]</th></tr><tr><td>5.00</td><td>—</td><td>—</td><td>—</td></tr><tr><td>4.75</td><td>9.767</td><td>8.853</td><td>8.405</td></tr><tr><td>4.50</td><td>9.220</td><td>8.302</td><td>8.056</td></tr><tr><td>4.00</td><td>8.636</td><td>7.820</td><td>7.708</td></tr><tr><td>3.50</td><td>8.585</td><td>7.847</td><td>7.861</td></tr><tr><td>3.00</td><td>8.457</td><td>7.818</td><td>7.984</td></tr><tr><td>2.50</td><td>8.228</td><td>7.713</td><td>8.057</td></tr><tr><td>2.00</td><td>7.865</td><td>7.549</td><td>8.068</td></tr><tr><td>1.50</td><td>7.434</td><td>7.312</td><td>8.017</td></tr><tr><td>1.00</td><td>6.807</td><td>6.958</td><td>7.920</td></tr><tr><td>0.50</td><td>6.392</td><td>6.782</td><td>8.012</td></tr><tr><td>0.00</td><td>6.363</td><td>6.753</td><td>8.030</td></tr></table> | | | | Output Voltage [V] | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | Load Current [A] | Load Current [A] | Load Current [A] | 5.00 | — | — | — | 4.75 | 9.767 | 8.853 | 8.405 | 4.50 | 9.220 | 8.302 | 8.056 | 4.00 | 8.636 | 7.820 | 7.708 | 3.50 | 8.585 | 7.847 | 7.861 | 3.00 | 8.457 | 7.818 | 7.984 | 2.50 | 8.228 | 7.713 | 8.057 | 2.00 | 7.865 | 7.549 | 8.068 | 1.50 | 7.434 | 7.312 | 8.017 | 1.00 | 6.807 | 6.958 | 7.920 | 0.50 | 6.392 | 6.782 | 8.012 | 0.00 | 6.363 | 6.753 | 8.030 |
| Output Voltage [V] | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Load Current [A] | Load Current [A] | Load Current [A] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.00 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.75 | 9.767 | 8.853 | 8.405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.50 | 9.220 | 8.302 | 8.056 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.00 | 8.636 | 7.820 | 7.708 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.50 | 8.585 | 7.847 | 7.861 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.00 | 8.457 | 7.818 | 7.984 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.50 | 8.228 | 7.713 | 8.057 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.00 | 7.865 | 7.549 | 8.068 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.50 | 7.434 | 7.312 | 8.017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.00 | 6.807 | 6.958 | 7.920 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.50 | 6.392 | 6.782 | 8.012 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.00 | 6.363 | 6.753 | 8.030 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +12.0V1.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div>Input Volt. 85.0 V</div><div>Input Volt. 100.0 V</div><div>Input Volt. 132.0 V</div></div> <div><div>[V]</div><div>Output Voltage</div><div>Load Current</div></div> | | | | <table><tr><th rowspan="2">Output Voltage [V]</th><th>Input Volt. 85.0[V]</th><th>Input Volt. 100.0[V]</th><th>Input Volt. 132.0[V]</th></tr><tr><th>Load Current [A]</th><th>Load Current [A]</th><th>Load Current [A]</th></tr><tr><td>12.00</td><td>—</td><td>—</td><td>—</td></tr><tr><td>11.40</td><td>3.276</td><td>2.932</td><td>2.830</td></tr><tr><td>10.80</td><td>3.263</td><td>2.921</td><td>2.848</td></tr><tr><td>9.60</td><td>3.265</td><td>2.951</td><td>2.923</td></tr><tr><td>8.40</td><td>3.271</td><td>2.968</td><td>2.979</td></tr><tr><td>7.20</td><td>3.270</td><td>2.974</td><td>3.009</td></tr><tr><td>6.00</td><td>3.265</td><td>2.975</td><td>3.032</td></tr><tr><td>4.80</td><td>3.251</td><td>2.972</td><td>3.050</td></tr><tr><td>3.60</td><td>3.236</td><td>2.972</td><td>3.065</td></tr><tr><td>2.40</td><td>3.244</td><td>2.968</td><td>3.075</td></tr><tr><td>1.20</td><td>0.643</td><td>0.612</td><td>0.627</td></tr><tr><td>0.00</td><td>0.218</td><td>0.205</td><td>0.212</td></tr></table> | | | | Output Voltage [V] | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | Load Current [A] | Load Current [A] | Load Current [A] | 12.00 | — | — | — | 11.40 | 3.276 | 2.932 | 2.830 | 10.80 | 3.263 | 2.921 | 2.848 | 9.60 | 3.265 | 2.951 | 2.923 | 8.40 | 3.271 | 2.968 | 2.979 | 7.20 | 3.270 | 2.974 | 3.009 | 6.00 | 3.265 | 2.975 | 3.032 | 4.80 | 3.251 | 2.972 | 3.050 | 3.60 | 3.236 | 2.972 | 3.065 | 2.40 | 3.244 | 2.968 | 3.075 | 1.20 | 0.643 | 0.612 | 0.627 | 0.00 | 0.218 | 0.205 | 0.212 |
| Output Voltage [V] | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Load Current [A] | Load Current [A] | Load Current [A] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.00 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11.40 | 3.276 | 2.932 | 2.830 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10.80 | 3.263 | 2.921 | 2.848 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.60 | 3.265 | 2.951 | 2.923 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.40 | 3.271 | 2.968 | 2.979 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.20 | 3.270 | 2.974 | 3.009 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.00 | 3.265 | 2.975 | 3.032 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.80 | 3.251 | 2.972 | 3.050 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.60 | 3.236 | 2.972 | 3.065 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.40 | 3.244 | 2.968 | 3.075 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.20 | 0.643 | 0.612 | 0.627 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.00 | 0.218 | 0.205 | 0.212 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated load current. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (注)斜線は定格負荷電流範囲を示す。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

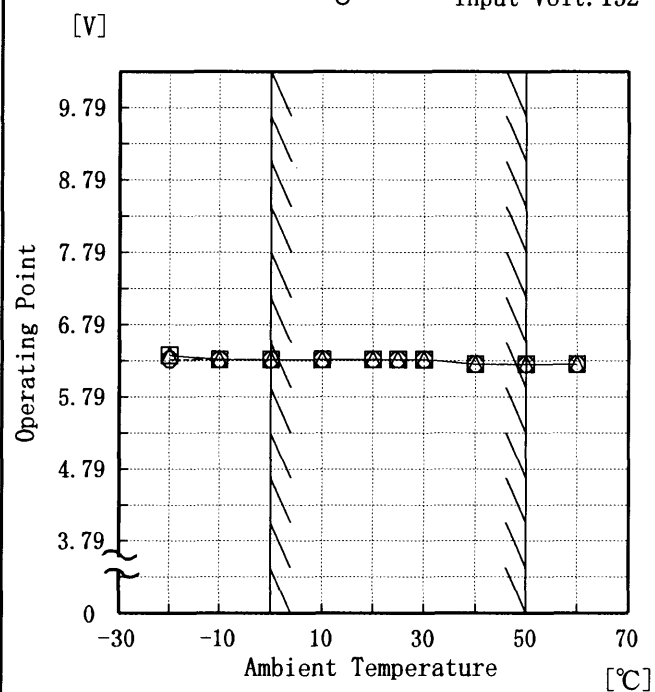
| | | | | | |
|--|--|---------------------------------|--|---|--|
| Model | | MMC50A-1 | | Temperature 25℃ Testing Circuitry Figure A | |
| Item | | Overcurrent Protection 過電流保護 | | | |
| Object | | -12.0V 0.50A | | | |
| 1. Graph | | | | 2. Values | |
| <div><div><div></div><div>[V]</div></div><div><div></div><div>Output Voltage</div></div></div> <div><div></div><div>Load Current</div></div> <div><div></div><div>[A]</div></div> <div><div></div><div>Input Volt. 85 V</div></div> <div><div></div><div>Input Volt. 100 V</div></div> <div><div></div><div>Input Volt. 132 V</div></div> <div><div></div><div>—</div></div> <div><div></div><div>—</div></div> <div><div></div><div>—</div></div> <div><div></div><div>1.40</div></div> <div><div></div><div>1.33</div></div> <div><div></div><div>1.33</div></div> <div><div></div><div>1.33</div></div> <div><div></div><div>1.27</div></div> <div><div></div><div>1.27</div></div> <div><div></div><div>1.27</div></div> <div><div></div><div>1.24</div></div> <div><div></div><div>1.20</div></div> <div><div></div><div>1.20</div></div> <div><div></div><div>1.17</div></div> <div><div></div><div>1.14</div></div> <div><div></div><div>1.14</div></div> <div><div></div><div>1.13</div></div> <div><div></div><div>1.11</div></div> <div><div></div><div>1.11</div></div> <div><div></div><div>1.06</div></div> <div><div></div><div>1.05</div></div> <div><div></div><div>1.05</div></div> <div><div></div><div>0.99</div></div> <div><div></div><div>0.98</div></div> <div><div></div><div>0.98</div></div> <div><div></div><div>0.91</div></div> <div><div></div><div>0.90</div></div> <div><div></div><div>0.90</div></div> <div><div></div><div>0.83</div></div> <div><div></div><div>0.82</div></div> <div><div></div><div>0.82</div></div> <div><div></div><div>0.76</div></div> <div><div></div><div>0.75</div></div> <div><div></div><div>0.75</div></div> <div><div></div><div>0.71</div></div> <div><div></div><div>0.70</div></div> <div><div></div><div>0.70</div></div> <div><div></div><div>Note: Slanted line shows the range of the rated load current.</div></div> <div><div></div><div>(注) 斜線は定格負荷電流範囲を示す。</div></div> | | | | | |

COSEL

| | |
|--------|---------------------------------|
| Model | MMC50A-1 |
| Item | Overvoltage Protection 過電圧保護 |
| Object | +5.0V5.00A |

Testing Circuitry Figure A

1. Graph
- △— Input Volt. 85 V
 - - -□- - - Input Volt. 100 V
 - - -○- - - Input Volt. 132 V



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

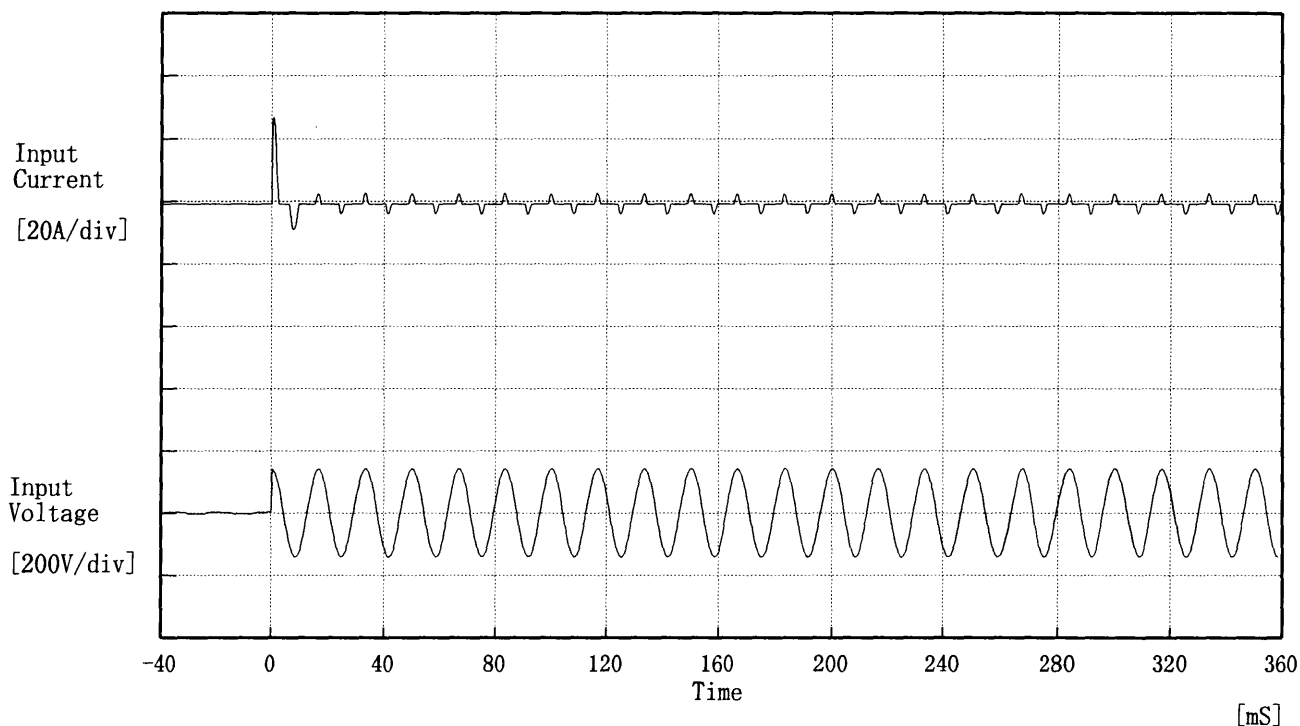
(注) 斜線は定格周囲温度範囲を示す。

2. Values

| Ambient Temp. [°C] | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] |
|-----------------------|----------------------|-----------------------|-----------------------|
| Operating Point | | [V] | |
| -20 | 6.37 | 6.37 | 6.31 |
| -10 | 6.31 | 6.31 | 6.31 |
| 0 | 6.31 | 6.31 | 6.31 |
| 10 | 6.31 | 6.31 | 6.31 |
| 20 | 6.31 | 6.31 | 6.31 |
| 25 | 6.31 | 6.31 | 6.31 |
| 30 | 6.31 | 6.31 | 6.31 |
| 40 | 6.24 | 6.24 | 6.24 |
| 50 | 6.24 | 6.24 | 6.24 |
| 60 | 6.24 | 6.24 | 6.24 |
| — | — | — | — |

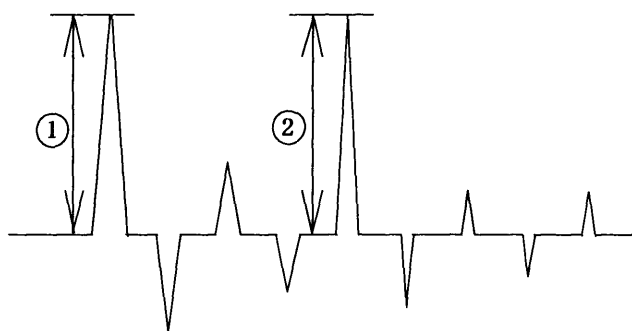
COSEL

| | | |
|--------|---------------------|--|
| Model | MMC50A-1 | Temperature 25°C Testing Circuitry Figure A |
| Item | Inrush Current 突入電流 | |
| Object | _____ | |



Input Voltage 100 V
Frequency 60 Hz
Load 100 %
Inrush Current

- ① 26.76 [A]
② 4.10 [A]



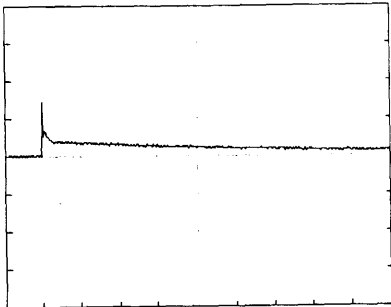
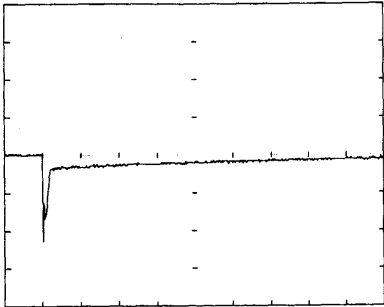
COSEL

| | | |
|--------|---------------------------------|---|
| Model | MMC50A-1 | Temperature 25℃ Testing Circuitry Figure A |
| Item | Dynamic Load Responce 動的負荷変動 | |
| Object | +5.0V 5.00A | |

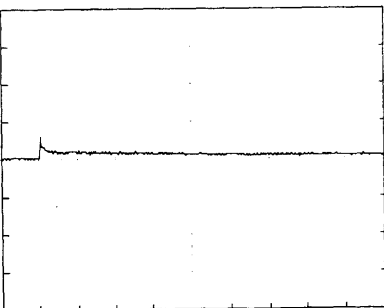
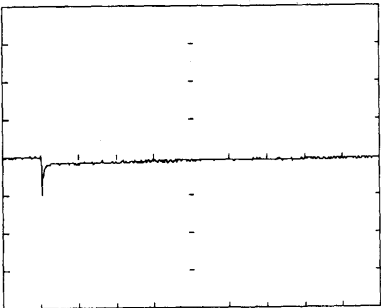
Input Volt. 100 V
Cycle 200 mS

Load Current

Load 0% ←→
Load 100 %



Load 0% ←→
Load 50 %



100 mV/div

10 mS/div

COSEL

| | | |
|--------|---------------------------------|--|
| Model | MMC50A-1 | Temperature 25°C Testing Circuitry Figure A |
| Item | Dynamic Load Responce 動的負荷変動 | |
| Object | +12.0V 1.50A | |

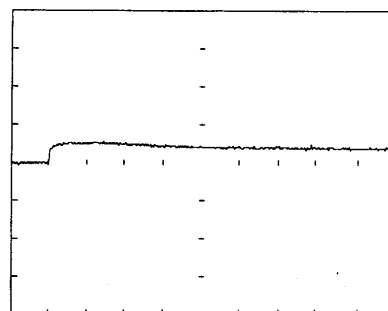
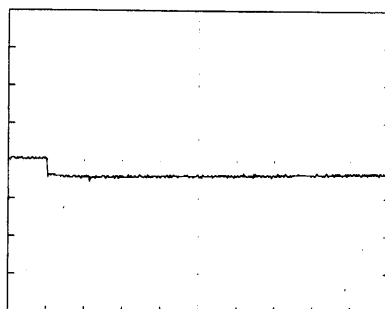
Input Volt. 100 V

Cycle 200 mS

Load Current

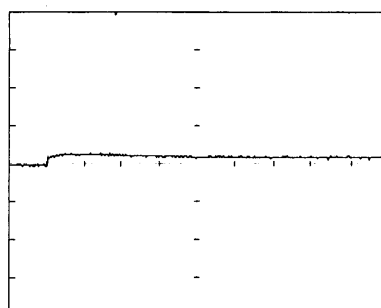
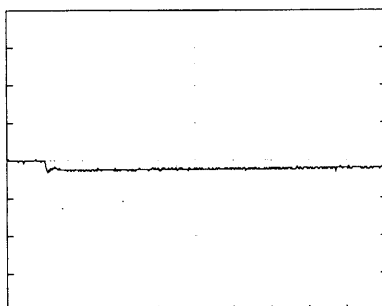
Load 0% ↔

Load 100 %



Load 0% ↔

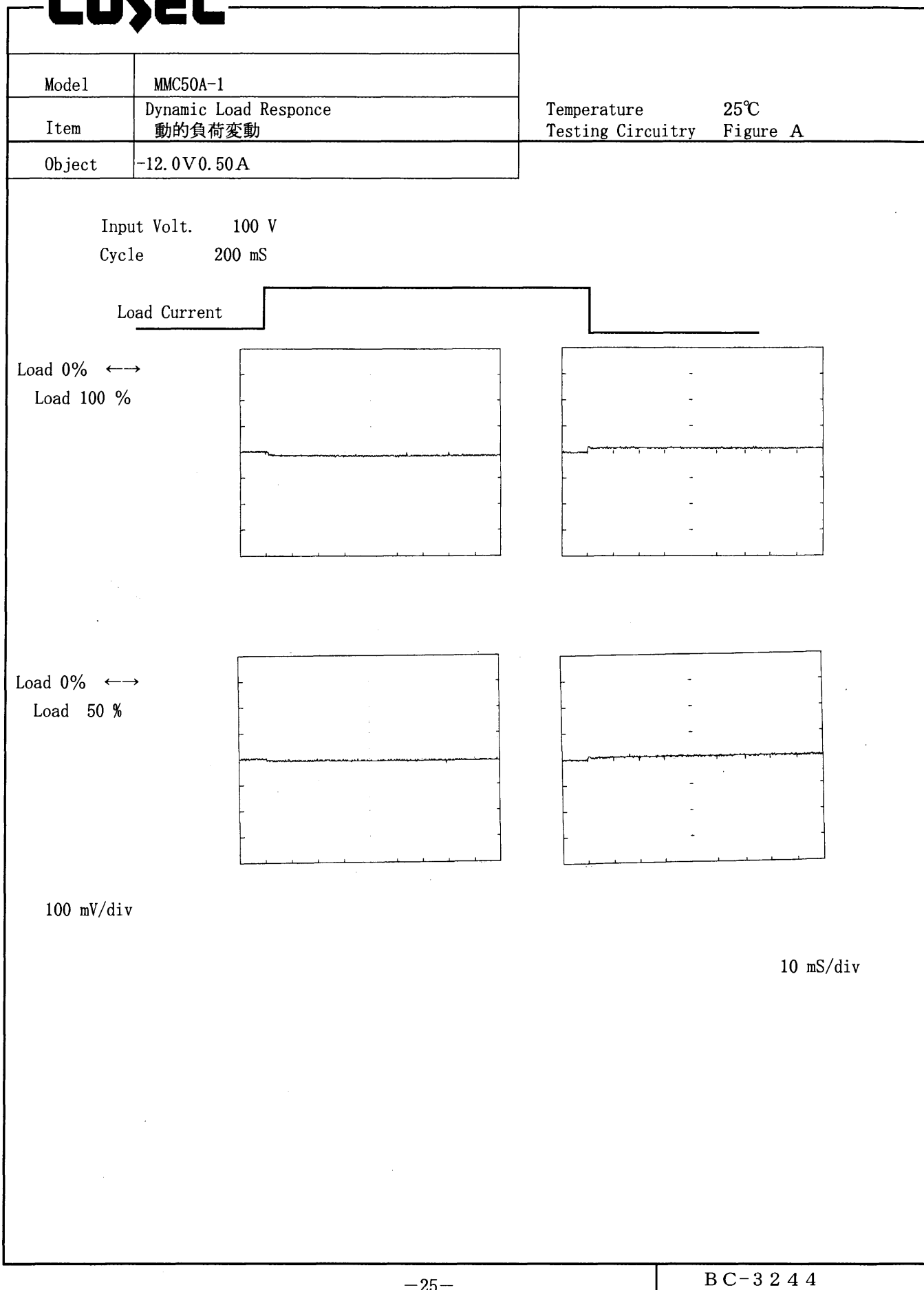
Load 50 %



100 mV/div

10 mS/div

COSEL

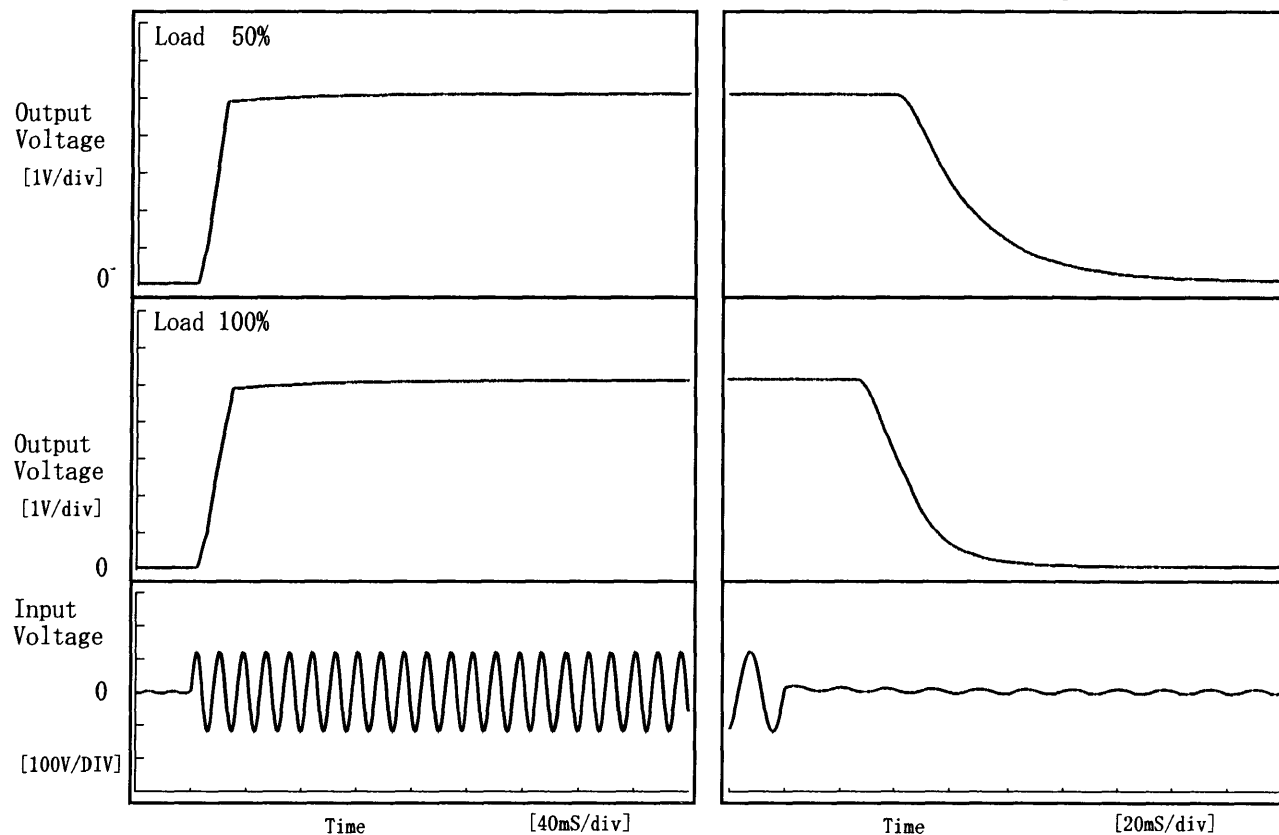


COSEL

| | | | |
|--------|------------------------------|-------------------|----------|
| Model | MMC50A-1 | Temperature | 25°C |
| Item | Rise and Fall Time 立上り、立下り時間 | Testing Circuitry | Figure A |
| Object | +5.0V 5.00A | | |

1. Graph

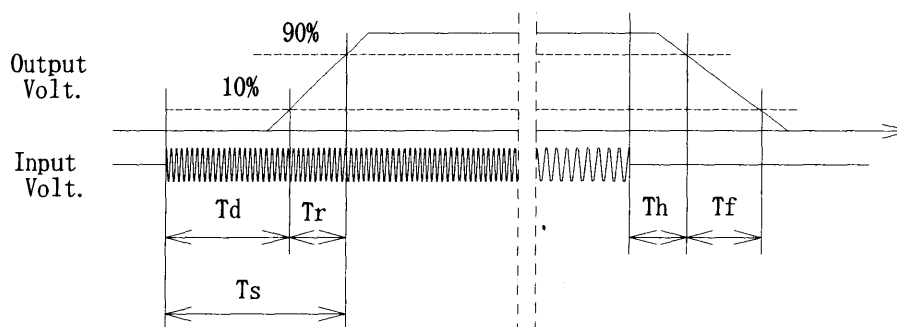
Input Volt. 85 V



2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|-------------|-----|------|------|------|------|
| 50 % | 7.4 | 16.4 | 23.8 | 47.4 | 55.4 |
| 100 % | 7.8 | 20.2 | 28.0 | 32.4 | 32.2 |

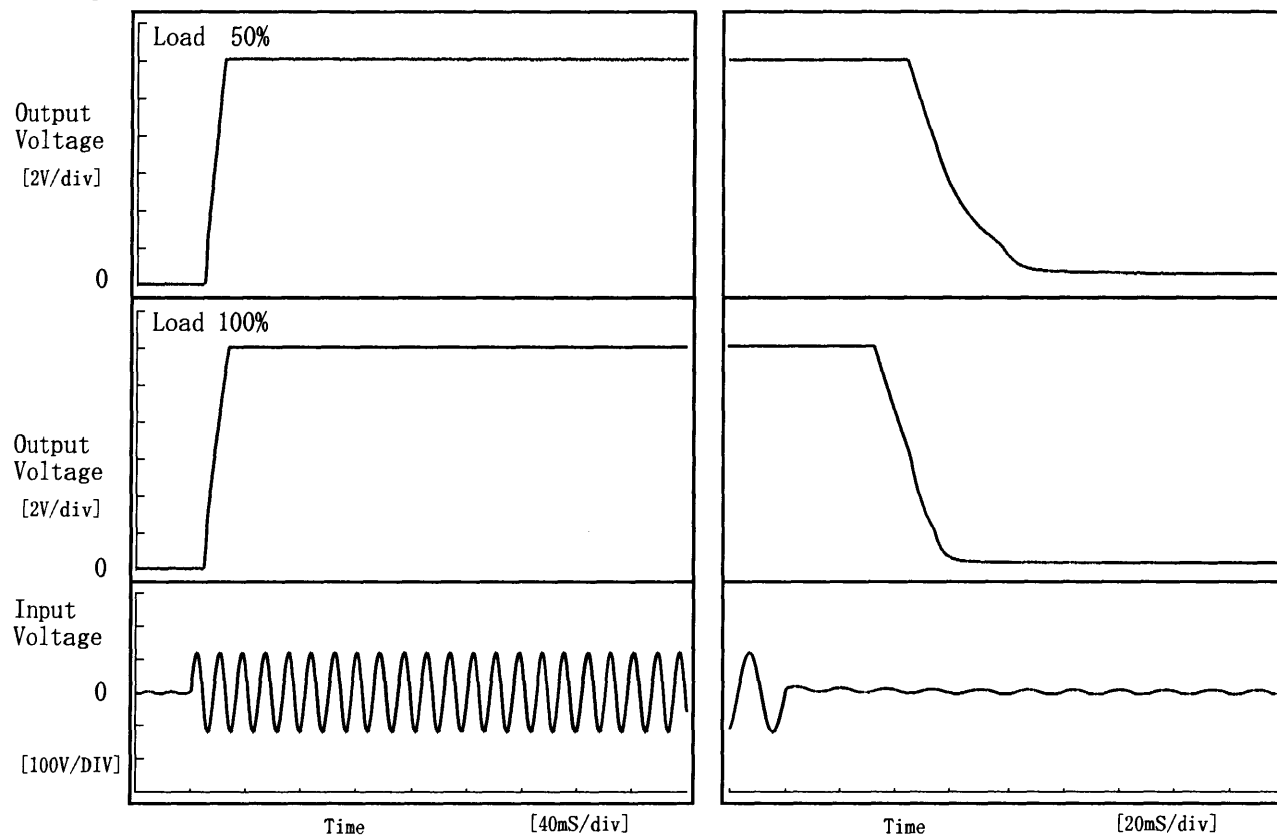


COSEL

| | | | |
|--------|------------------------------|-------------------|----------|
| Model | MMC50A-1 | Temperature | 25°C |
| Item | Rise and Fall Time 立上り、立下り時間 | Testing Circuitry | Figure A |
| Object | +12.0V1.50A | | |

1. Graph

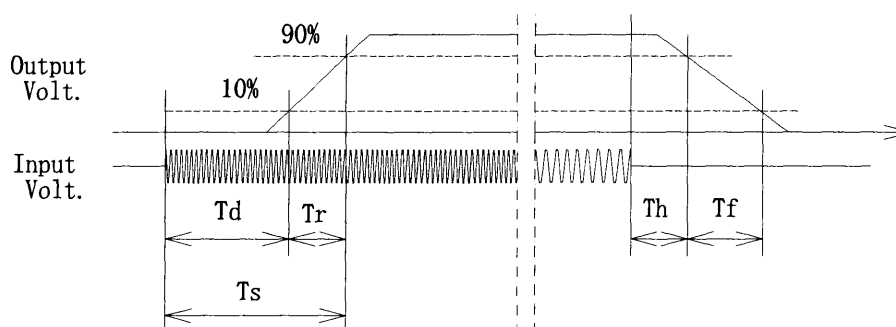
Input Volt. 85 V



2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|-------------|------|------|------|------|------|
| 50 % | 10.0 | 12.2 | 22.2 | 47.3 | 35.4 |
| 100 % | 10.4 | 14.4 | 24.8 | 35.4 | 21.6 |

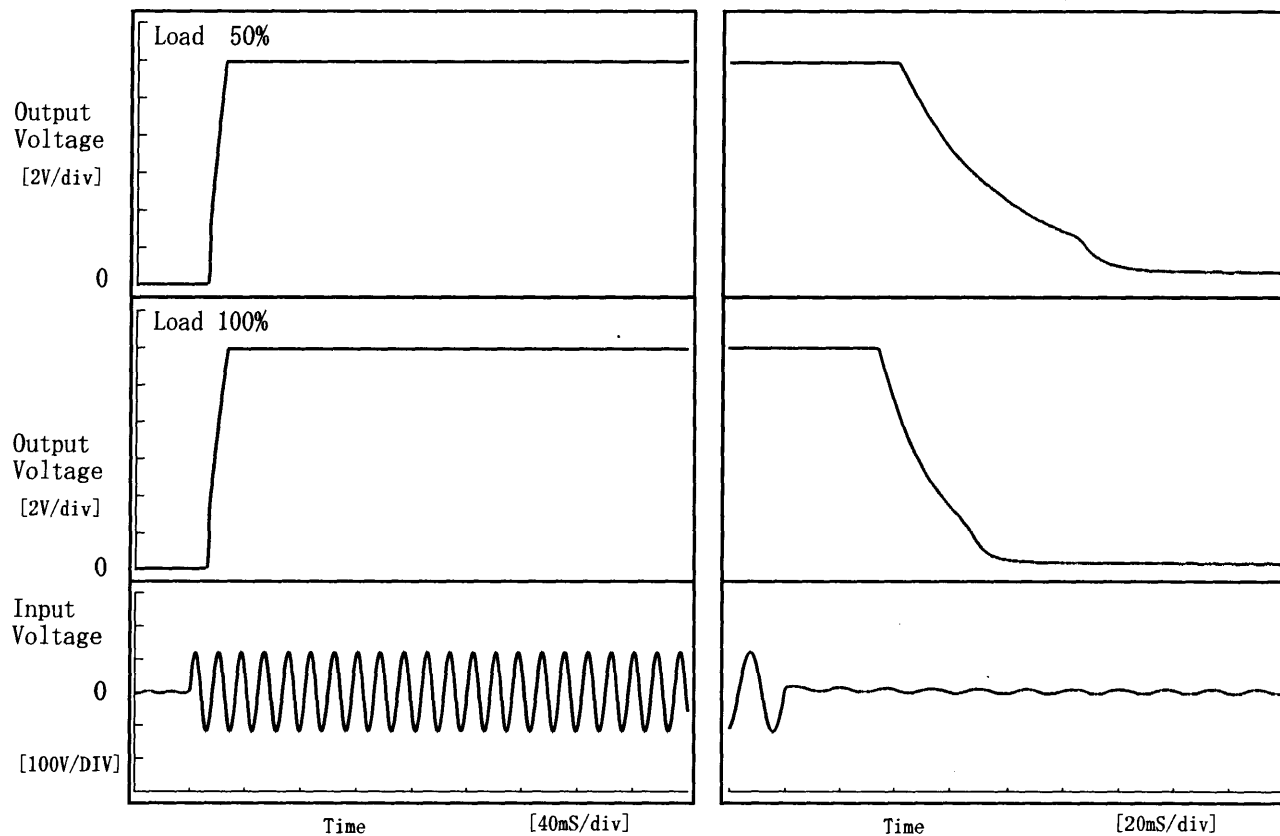


COSEL

| | | | |
|--------|------------------------------|-------------------|----------|
| Model | MMC50A-1 | Temperature | 25°C |
| Item | Rise and Fall Time 立上り、立下り時間 | Testing Circuitry | Figure A |
| Object | -12.0V 0.50A | | |

1. Graph

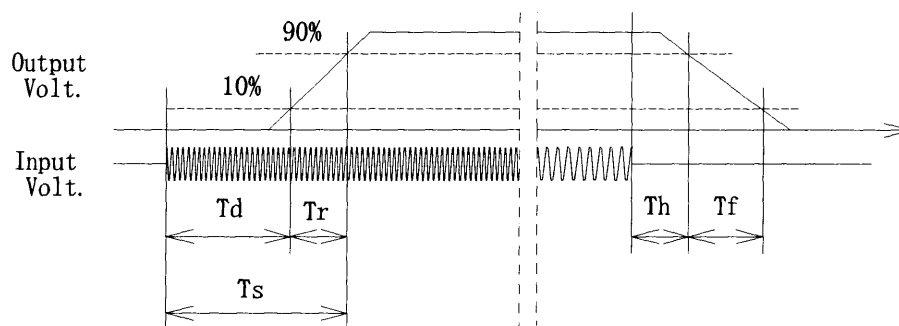
Input Volt. 85 V



2. Values

[mS]

| Load \ Time | T _d | T _r | T _s | T _h | T _f |
|-------------|----------------|----------------|----------------|----------------|----------------|
| 50 % | 13.0 | 10.6 | 23.6 | 45.5 | 70.5 |
| 100 % | 13.4 | 11.4 | 24.8 | 36.6 | 34.7 |



COSEL

| Model | | MMC50A-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------------|---|-------------------------|-------------|------------------------|-------------------------|-------------------------|------|---------------------|---------------------|---------------------|-----|--------|--------|--------|-----|--------|--------|--------|---|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|---|---|---|---|
| Item | | Ambient Temperature Drift 周囲温度変動 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +5.0V5.00A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△—</div><div>Input Volt. 85.0V</div></div><div><div>- -□- -</div><div>Input Volt. 100.0V</div></div><div><div>- -○- -</div><div>Input Volt. 132.0V</div></div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> | | <table><tr><th>Temperature</th><th>Input Volt. 85.0[V]</th><th>Input Volt. 100.0[V]</th><th>Input Volt. 132.0[V]</th></tr><tr><th>[°C]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th></tr><tr><td>-20</td><td>5.086</td><td>5.086</td><td>5.086</td></tr><tr><td>-10</td><td>5.085</td><td>5.085</td><td>5.085</td></tr><tr><td>0</td><td>5.082</td><td>5.082</td><td>5.082</td></tr><tr><td>10</td><td>5.081</td><td>5.081</td><td>5.081</td></tr><tr><td>20</td><td>5.077</td><td>5.077</td><td>5.077</td></tr><tr><td>25</td><td>5.075</td><td>5.075</td><td>5.075</td></tr><tr><td>30</td><td>5.073</td><td>5.074</td><td>5.074</td></tr><tr><td>40</td><td>5.068</td><td>5.068</td><td>5.068</td></tr><tr><td>50</td><td>5.065</td><td>5.066</td><td>5.066</td></tr><tr><td>60</td><td>5.061</td><td>5.061</td><td>5.061</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table> | | Temperature | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | [°C] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | -20 | 5.086 | 5.086 | 5.086 | -10 | 5.085 | 5.085 | 5.085 | 0 | 5.082 | 5.082 | 5.082 | 10 | 5.081 | 5.081 | 5.081 | 20 | 5.077 | 5.077 | 5.077 | 25 | 5.075 | 5.075 | 5.075 | 30 | 5.073 | 5.074 | 5.074 | 40 | 5.068 | 5.068 | 5.068 | 50 | 5.065 | 5.066 | 5.066 | 60 | 5.061 | 5.061 | 5.061 | — | — | — | — |
| Temperature | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [°C] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 5.086 | 5.086 | 5.086 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 5.085 | 5.085 | 5.085 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 5.082 | 5.082 | 5.082 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 5.081 | 5.081 | 5.081 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 5.077 | 5.077 | 5.077 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 5.075 | 5.075 | 5.075 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 5.073 | 5.074 | 5.074 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 5.068 | 5.068 | 5.068 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 5.065 | 5.066 | 5.066 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 5.061 | 5.061 | 5.061 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +12.0V1.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△—</div><div>Input Volt. 85.0V</div></div><div><div>- -□- -</div><div>Input Volt. 100.0V</div></div><div><div>- -○- -</div><div>Input Volt. 132.0V</div></div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> | | <table><tr><th>Temperature</th><th>Input Volt. 85.0[V]</th><th>Input Volt. 100.0[V]</th><th>Input Volt. 132.0[V]</th></tr><tr><th>[°C]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th></tr><tr><td>-20</td><td>11.989</td><td>11.988</td><td>11.988</td></tr><tr><td>-10</td><td>11.979</td><td>11.979</td><td>11.979</td></tr><tr><td>0</td><td>11.970</td><td>11.970</td><td>11.970</td></tr><tr><td>10</td><td>11.961</td><td>11.961</td><td>11.961</td></tr><tr><td>20</td><td>11.953</td><td>11.952</td><td>11.952</td></tr><tr><td>25</td><td>11.948</td><td>11.948</td><td>11.948</td></tr><tr><td>30</td><td>11.943</td><td>11.943</td><td>11.943</td></tr><tr><td>40</td><td>11.934</td><td>11.934</td><td>11.934</td></tr><tr><td>50</td><td>11.926</td><td>11.925</td><td>11.925</td></tr><tr><td>60</td><td>11.917</td><td>11.917</td><td>11.917</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table> | | Temperature | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | [°C] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | -20 | 11.989 | 11.988 | 11.988 | -10 | 11.979 | 11.979 | 11.979 | 0 | 11.970 | 11.970 | 11.970 | 10 | 11.961 | 11.961 | 11.961 | 20 | 11.953 | 11.952 | 11.952 | 25 | 11.948 | 11.948 | 11.948 | 30 | 11.943 | 11.943 | 11.943 | 40 | 11.934 | 11.934 | 11.934 | 50 | 11.926 | 11.925 | 11.925 | 60 | 11.917 | 11.917 | 11.917 | — | — | — | — |
| Temperature | Input Volt. 85.0[V] | Input Volt. 100.0[V] | Input Volt. 132.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [°C] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 11.989 | 11.988 | 11.988 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 11.979 | 11.979 | 11.979 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 11.970 | 11.970 | 11.970 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 11.961 | 11.961 | 11.961 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 11.953 | 11.952 | 11.952 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 11.948 | 11.948 | 11.948 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 11.943 | 11.943 | 11.943 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 11.934 | 11.934 | 11.934 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 11.926 | 11.925 | 11.925 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 11.917 | 11.917 | 11.917 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated ambient temperature. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (注)斜線は定格周囲温度範囲を示す。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -29- | | BC-3244 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| Model | | MMC50A-1 | Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|-------------------|---|----------------------------|-------------|-------------------|--------------------|--------------------|------|------------------|------------------|------------------|-----|---------|---------|---------|-----|---------|---------|---------|---|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|---|---|---|
| Item | | Ambient Temperature Drift 周囲温度変動 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | -12.0V 0.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | <div> <div> <div>△</div> <div>Input Volt. 85V</div> </div> <div> <div>□</div> <div>Input Volt. 100V</div> </div> <div> <div>○</div> <div>Input Volt. 132V</div> </div> </div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p> <p>(注)斜線は定格周囲温度範囲を示す。</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Values | | <table> <tr> <th>Temperature</th><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr> <tr> <th>[°C]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th></tr> <tr><td>-20</td><td>-11.868</td><td>-11.868</td><td>-11.868</td></tr> <tr><td>-10</td><td>-11.860</td><td>-11.859</td><td>-11.859</td></tr> <tr><td>0</td><td>-11.849</td><td>-11.849</td><td>-11.849</td></tr> <tr><td>10</td><td>-11.835</td><td>-11.835</td><td>-11.835</td></tr> <tr><td>20</td><td>-11.820</td><td>-11.820</td><td>-11.820</td></tr> <tr><td>25</td><td>-11.812</td><td>-11.812</td><td>-11.811</td></tr> <tr><td>30</td><td>-11.802</td><td>-11.802</td><td>-11.801</td></tr> <tr><td>40</td><td>-11.786</td><td>-11.785</td><td>-11.785</td></tr> <tr><td>50</td><td>-11.767</td><td>-11.766</td><td>-11.766</td></tr> <tr><td>60</td><td>-11.747</td><td>-11.746</td><td>-11.746</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </table> | | Temperature | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | [°C] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | -20 | -11.868 | -11.868 | -11.868 | -10 | -11.860 | -11.859 | -11.859 | 0 | -11.849 | -11.849 | -11.849 | 10 | -11.835 | -11.835 | -11.835 | 20 | -11.820 | -11.820 | -11.820 | 25 | -11.812 | -11.812 | -11.811 | 30 | -11.802 | -11.802 | -11.801 | 40 | -11.786 | -11.785 | -11.785 | 50 | -11.767 | -11.766 | -11.766 | 60 | -11.747 | -11.746 | -11.746 | — | — | — |
| Temperature | Input Volt. 85[V] | Input Volt. 100[V] | Input Volt. 132[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [°C] | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | -11.868 | -11.868 | -11.868 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | -11.860 | -11.859 | -11.859 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | -11.849 | -11.849 | -11.849 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | -11.835 | -11.835 | -11.835 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | -11.820 | -11.820 | -11.820 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | -11.812 | -11.812 | -11.811 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | -11.802 | -11.802 | -11.801 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | -11.786 | -11.785 | -11.785 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | -11.767 | -11.766 | -11.766 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | -11.747 | -11.746 | -11.746 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| Model | | MMC50A-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------|--|-----------------------|--------------------------------|---------------------------------|-----|------|------|-----|------|------|---|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|---|---|---|
| Item | | Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +5.0V5.00A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | <div> <div> <div>-----□-----</div> <div>Load 50%</div> </div> <div> <div>-----△-----</div> <div>Load 100%</div> </div> </div> <p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Values | | <table> <tr> <th>Ambient Temp. [°C]</th><th>Load 50% Input Volt. [V]</th><th>Load 100% Input Volt. [V]</th></tr> <tr><td>-20</td><td>49.5</td><td>54.4</td></tr> <tr><td>-10</td><td>48.6</td><td>53.5</td></tr> <tr><td>0</td><td>47.5</td><td>53.5</td></tr> <tr><td>10</td><td>47.5</td><td>52.5</td></tr> <tr><td>20</td><td>46.4</td><td>52.6</td></tr> <tr><td>25</td><td>46.5</td><td>52.5</td></tr> <tr><td>30</td><td>46.6</td><td>52.6</td></tr> <tr><td>40</td><td>46.5</td><td>52.5</td></tr> <tr><td>50</td><td>46.6</td><td>52.5</td></tr> <tr><td>60</td><td>45.5</td><td>51.5</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </table> | Ambient Temp. [°C] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] | -20 | 49.5 | 54.4 | -10 | 48.6 | 53.5 | 0 | 47.5 | 53.5 | 10 | 47.5 | 52.5 | 20 | 46.4 | 52.6 | 25 | 46.5 | 52.5 | 30 | 46.6 | 52.6 | 40 | 46.5 | 52.5 | 50 | 46.6 | 52.5 | 60 | 45.5 | 51.5 | — | — | — |
| Ambient Temp. [°C] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 49.5 | 54.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 48.6 | 53.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 47.5 | 53.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 47.5 | 52.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 46.4 | 52.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 46.5 | 52.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 46.6 | 52.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 46.5 | 52.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 46.6 | 52.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 45.5 | 51.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +12.0V1.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | <div> <div>-----□-----</div> <div>Load 50%</div> </div> <div> <div>-----△-----</div> <div>Load 100%</div> </div> <p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Values | | <table> <tr> <th>Ambient Temp. [°C]</th><th>Load 50% Input Volt. [V]</th><th>Load 100% Input Volt. [V]</th></tr> <tr><td>-20</td><td>49.5</td><td>53.6</td></tr> <tr><td>-10</td><td>48.5</td><td>52.6</td></tr> <tr><td>0</td><td>48.4</td><td>52.5</td></tr> <tr><td>10</td><td>47.5</td><td>52.4</td></tr> <tr><td>20</td><td>47.7</td><td>51.7</td></tr> <tr><td>25</td><td>47.5</td><td>51.5</td></tr> <tr><td>30</td><td>47.5</td><td>51.4</td></tr> <tr><td>40</td><td>47.6</td><td>51.7</td></tr> <tr><td>50</td><td>46.5</td><td>51.5</td></tr> <tr><td>60</td><td>46.5</td><td>51.5</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </table> | Ambient Temp. [°C] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] | -20 | 49.5 | 53.6 | -10 | 48.5 | 52.6 | 0 | 48.4 | 52.5 | 10 | 47.5 | 52.4 | 20 | 47.7 | 51.7 | 25 | 47.5 | 51.5 | 30 | 47.5 | 51.4 | 40 | 47.6 | 51.7 | 50 | 46.5 | 51.5 | 60 | 46.5 | 51.5 | — | — | — |
| Ambient Temp. [°C] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 49.5 | 53.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 48.5 | 52.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 48.4 | 52.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 47.5 | 52.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 47.7 | 51.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 47.5 | 51.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 47.5 | 51.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 47.6 | 51.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 46.5 | 51.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 46.5 | 51.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated ambient temperature. (注)斜線は定格周囲温度範囲を示す。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

Model

MMC50A-1

Item

Minimum Input Voltage for Regulated Output Voltage
最低レギュレーション電圧

Object

-12.0V0.50A

1. Graph

-----□-----

Load 50%

-----△-----

Load 100%

[V]

100

80

60

40

20

0

Input Voltage

-30

-10

10

30

50

70

Ambient Temperature

[°C]

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

(注)斜線は定格周囲温度範囲を示す。

2. Values

| Ambient Temp. | Load 50% | Load 100% |
|---------------|-------------|-------------|
| | Input Volt. | Input Volt. |
| [°C] | [V] | [V] |
| -20 | 51.5 | 53.5 |
| -10 | 51.6 | 52.5 |
| 0 | 50.5 | 52.4 |
| 10 | 50.4 | 52.5 |
| 20 | 50.4 | 51.3 |
| 25 | 49.5 | 51.5 |
| 30 | 49.4 | 51.5 |
| 40 | 49.6 | 51.5 |
| 50 | 49.5 | 51.5 |
| 60 | 49.6 | 51.5 |
| — | — | — |

COSEL

| Model | | MMC50A-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|-----------------------|---|--|-----|----|----|-----|----|----|---|----|----|----|---|----|----|---|----|----|---|----|----|---|----|----|---|---|----|---|---|----|---|---|---|---|---|
| Item | | Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +5.0V5.00A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>-----□-----</div><div>Load 50%</div></div><div><div>-----△-----</div><div>Load 100%</div></div></div> <div><div>[mV]</div><div>150</div><div>125</div><div>100</div><div>75</div><div>50</div><div>25</div><div>0</div><div>Ripple Voltage</div></div> <div><div>-30</div><div>-10</div><div>10</div><div>30</div><div>50</div><div>70</div><div>Ambient Temperature</div><div>[°C]</div></div> <div>Input Volt. 85 V</div> | | <table><tr><th>Ambient Temp. [°C]</th><th>Load 50% Ripple Output Volt. [mV]</th><th>Load 100% Ripple Output Volt. [mV]</th></tr><tr><td>-20</td><td>10</td><td>20</td></tr><tr><td>-10</td><td>10</td><td>15</td></tr><tr><td>0</td><td>10</td><td>15</td></tr><tr><td>10</td><td>5</td><td>10</td></tr><tr><td>20</td><td>5</td><td>10</td></tr><tr><td>25</td><td>5</td><td>10</td></tr><tr><td>30</td><td>5</td><td>10</td></tr><tr><td>40</td><td>5</td><td>5</td></tr><tr><td>50</td><td>5</td><td>5</td></tr><tr><td>60</td><td>5</td><td>5</td></tr><tr><td>—</td><td>—</td><td>—</td></tr></table> | | Ambient Temp. [°C] | Load 50% Ripple Output Volt. [mV] | Load 100% Ripple Output Volt. [mV] | -20 | 10 | 20 | -10 | 10 | 15 | 0 | 10 | 15 | 10 | 5 | 10 | 20 | 5 | 10 | 25 | 5 | 10 | 30 | 5 | 10 | 40 | 5 | 5 | 50 | 5 | 5 | 60 | 5 | 5 | — | — | — |
| Ambient Temp. [°C] | Load 50% Ripple Output Volt. [mV] | Load 100% Ripple Output Volt. [mV] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 10 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 10 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 10 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +12.0V1.50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>-----□-----</div><div>Load 50%</div></div><div><div>-----△-----</div><div>Load 100%</div></div></div> <div><div>[mV]</div><div>150</div><div>125</div><div>100</div><div>75</div><div>50</div><div>25</div><div>0</div><div>Ripple Voltage</div></div> <div><div>-30</div><div>-10</div><div>10</div><div>30</div><div>50</div><div>70</div><div>Ambient Temperature</div><div>[°C]</div></div> <div>Input Volt. 85 V</div> | | <table><tr><th>Ambient Temp. [°C]</th><th>Load 50% Ripple Output Volt. [mV]</th><th>Load 100% Ripple Output Volt. [mV]</th></tr><tr><td>-20</td><td>10</td><td>15</td></tr><tr><td>-10</td><td>10</td><td>15</td></tr><tr><td>0</td><td>5</td><td>10</td></tr><tr><td>10</td><td>5</td><td>10</td></tr><tr><td>20</td><td>5</td><td>10</td></tr><tr><td>25</td><td>5</td><td>10</td></tr><tr><td>30</td><td>5</td><td>10</td></tr><tr><td>40</td><td>5</td><td>5</td></tr><tr><td>50</td><td>5</td><td>5</td></tr><tr><td>60</td><td>5</td><td>5</td></tr><tr><td>—</td><td>—</td><td>—</td></tr></table> | | Ambient Temp. [°C] | Load 50% Ripple Output Volt. [mV] | Load 100% Ripple Output Volt. [mV] | -20 | 10 | 15 | -10 | 10 | 15 | 0 | 5 | 10 | 10 | 5 | 10 | 20 | 5 | 10 | 25 | 5 | 10 | 30 | 5 | 10 | 40 | 5 | 5 | 50 | 5 | 5 | 60 | 5 | 5 | — | — | — |
| Ambient Temp. [°C] | Load 50% Ripple Output Volt. [mV] | Load 100% Ripple Output Volt. [mV] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 10 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 10 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated ambient temperature. (注)斜線は定格周囲温度範囲を示す。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| | | | |
|----------|--|--|--|
| Model | | MMC50A-1 | |
| Item | | Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性) | |
| Object | | -12.0V 0.50A | |
| 1. Graph | | 2. Values | |

-----□-----

Load 50%

-----△-----

Load 100%

[mV]

150

125

100

75

50

25

0

Ripple Voltage

-30

-10

10

30

50

70

Ambient Temperature

[°C]

Input Volt. 85 V

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

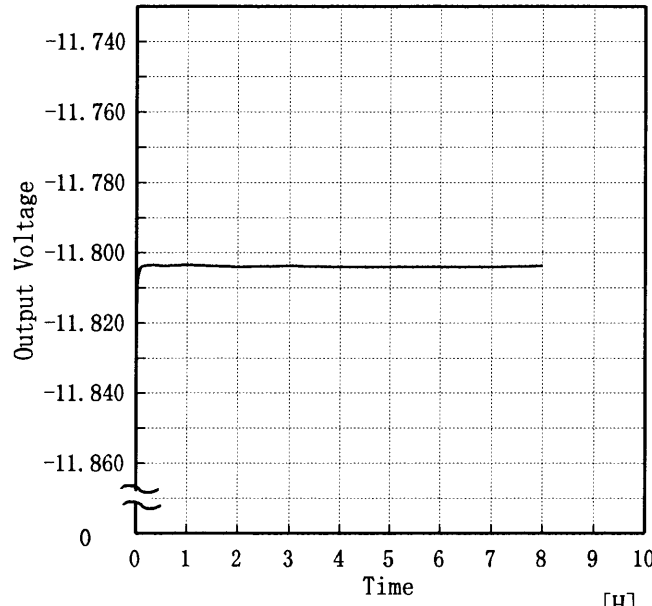
(注)斜線は定格周囲温度範囲を示す。

| Ambient Temp. [°C] | Load 50% | Load 100% |
|-----------------------|-----------------------------|-----------------------------|
| | Ripple Output Volt. [mV] | Ripple Output Volt. [mV] |
| -20 | 5 | 10 |
| -10 | 5 | 10 |
| 0 | 5 | 5 |
| 10 | 5 | 5 |
| 20 | 5 | 5 |
| 25 | 5 | 5 |
| 30 | 5 | 5 |
| 40 | 5 | 5 |
| 50 | 5 | 5 |
| 60 | 5 | 5 |
| — | — | — |

COSEL

| | | | | | |
|---|--|-------------------------|--|---|--|
| Model | | MMC50A-1 | | Temperature25℃ Testing CircuitryFigure A | |
| Item | | Time Lapse Drift 経時ドリフト | | | |
| Object | | +5.0V5.00A | | | |
| 1. Graph | | | | 2.Values | |
| <div><div><div>Output Voltage</div><div>[V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div></div> | | | | | |

COSEL

| COSEL | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------------|--|----------|----------------------|--------------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|
| Model | MMC50A-1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Item | Time Lapse Drift 経時ドリフト | Temperature | 25 ℃ | | | | | | | | | | | | | | | | | | | | | | |
| Object | -12.0V0.50A | Testing Circuitry | Figure A | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2.Values | | | | | | | | | | | | | | | | | | | | | | | |
| <div>[V]</div> <div></div> <div>Output Voltage [V]</div> <div>Time [H]</div> <div>Input Volt. 100V</div> <div>Load 100%</div> | | <table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>-11.832</td></tr><tr><td>0.5</td><td>-11.804</td></tr><tr><td>1.0</td><td>-11.804</td></tr><tr><td>2.0</td><td>-11.804</td></tr><tr><td>3.0</td><td>-11.804</td></tr><tr><td>4.0</td><td>-11.804</td></tr><tr><td>5.0</td><td>-11.804</td></tr><tr><td>6.0</td><td>-11.804</td></tr><tr><td>7.0</td><td>-11.804</td></tr><tr><td>8.0</td><td>-11.804</td></tr></table> | | Time since start [H] | Output Voltage [V] | 0.0 | -11.832 | 0.5 | -11.804 | 1.0 | -11.804 | 2.0 | -11.804 | 3.0 | -11.804 | 4.0 | -11.804 | 5.0 | -11.804 | 6.0 | -11.804 | 7.0 | -11.804 | 8.0 | -11.804 |
| Time since start [H] | Output Voltage [V] | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0 | -11.832 | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.5 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.0 | -11.804 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | BC-3244 | | | | | | | | | | | | | | | | | | | | | | | |
| | | -36- | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| | | | |
|-------|--|-------------------------------|----------------------------|
| Model | | MMC50A-1 | Testing Circuitry Figure A |
| Item | | Output Voltage Accuracy 定電圧精度 | |

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 : 85.0~132.0 V

Load Current (AVR 1) : 0.75~5.00 A (AVR 2) : 0.00~1.50 A (AVR 3) : 0.00~0.50 A

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

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

定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 0~50 °C

入力電圧 85.0~132.0 V

負荷電流 (AVR 1) 0.75~5.00 A (AVR 2) : 0.00~1.50 A (AVR 3) : 0.00~0.50 A

* 定電圧精度(変動値) = $\pm (\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

* 定電圧精度(変動率) = $\frac{\text{変動値}}{\text{定格出力電圧}} \times 100$

| | | | | | | |
|-----------------|------------------|-------------------|--------------------|--------------------|------------------------------|-------------------------------------|
| Object | +5.0V5.00A | | | | | |
| Item | Temperature [°C] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration) [%] |
| Maximum Voltage | 0 | 132.0 | 0.750 | 5.093 | ±14 | ±0.3 |
| Minimum Voltage | 50 | 85.0 | 5.000 | 5.065 | | |

| | | | | | | |
|-----------------|------------------|-------------------|--------------------|--------------------|------------------------------|-------------------------------------|
| Object | +12.0V1.50A | | | | | |
| Item | Temperature [°C] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration) [%] |
| Maximum Voltage | 0 | 100.0 | 0.00 | 12.021 | ±50 | ±0.5 |
| Minimum Voltage | 50 | 132.0 | 1.50 | 11.921 | | |

| | | | | | | |
|-----------------|------------------|-------------------|--------------------|--------------------|------------------------------|-------------------------------------|
| Object | -12.0V0.50A | | | | | |
| Item | Temperature [°C] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration) [%] |
| Maximum Voltage | 0 | 132.0 | 0.00 | -11.888 | ±64 | ±0.6 |
| Minimum Voltage | 50 | 132.0 | 0.50 | -11.760 | | |

COSEL

| | | | | |
|---|--|-------------------|--|----------|
| Model | | MMC50A-1 | Testing Circuitry | Figure A |
| Item | | Condensation 結露特性 | | |
| Object | | +5.0V5.00A | | |
| 1. Condensation test | | | | |
| Testing procedure is as follows. | | | | |
| ① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off. | | | | |
| ② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH. | | | | |
| ③ Testing electrical characteristics of the unit to confirm there be no fault. | | | | |
| 1. 結露特性試験 | | | | |
| 入力を切った状態で、恒温槽で-10℃に冷却しておき、約1時間後に恒温槽から取り出し、室温25℃、湿度40%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。 | | | | |
| 2. Values | | | | |
| Item | | Data | Testing Conditions | |
| Output Voltage [V] | | 5.073 | Input Volt.: 100V, Load Current:5.00A | |
| Line Regulation [mV] | | 1 | Input Volt.: 85~132V, Load Current:5.00A | |
| Load Regulation [mV] | | 11 | Input Volt.: 100V, Load Current:0.75~5.00A | |

— 38 —

BC-3244

COSEL

LUCEL

| | | |
|--------|----------------------|---------------------------------|
| | | Testing Circuitry Figure A |
| Model | MMC50A-1 | |
| Item | Condensation 結露特性 | |
| Object | +12.0V1.50A | |

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.

② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH.

③ Testing electrical characteristics of the unit to confirm there be no fault.

1. 結露特性試験

入力を切った状態で、恒温槽で－10℃に冷却しておき、約1時間後に恒温槽から取り出し、室温25℃、湿度40%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2. Values

| Item | Data | Testing Conditions |
|----------------------|--------|---|
| Output Voltage [V] | 11.944 | Input Volt. : 100V, Load Current:1.5A |
| Line Regulation [mV] | 1 | Input Volt. : 85～132V, Load Current:1.5A |
| Load Regulation [mV] | 49 | Input Volt. : 100V, Load Current:0.0～1.5A |

COSEL

LUCEL

| | | |
|--------|----------------------|---------------------------------|
| | | Testing Circuitry Figure A |
| Model | MMC50A-1 | |
| Item | Condensation 結露特性 | |
| Object | -12.0V0.50A | |

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.

② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH.

③ Testing electrical characteristics of the unit to confirm there be no fault.

1. 結露特性試験

入力を切った状態で、恒温槽で－10℃に冷却しておき、約1時間後に恒温槽から取り出し、室温25℃、湿度40%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2. Values

| Item | Data | Testing Conditions |
|----------------------|---------|--|
| Output Voltage [V] | -11.806 | Input Volt.: 100V, Load Current:0.5A |
| Line Regulation [mV] | 1 | Input Volt.: 85～132V, Load Current:0.5A |
| Load Regulation [mV] | 29 | Input Volt.: 100V, Load Current:0.0～0.5A |

COSEL

| | | | |
|--------|--|----------------------|---|
| Model | | MMC50A-1 | Temperature 25℃ Testing Circuitry Figure A |
| Item | | Leakage Current 漏洩電流 | |
| Object | | _____ | |

1. Results

| Standards | Leakage Current [mA] | | |
|--------------|-----------------------|------------------------|------------------------|
| | Input Volt. 85 [V] | Input Volt. 100 [V] | Input Volt. 132 [V] |
| (A) DENTORI | 0.24 | 0.27 | 0.33 |
| (B) IEC60950 | 0.22 | 0.26 | 0.34 |

| Standards | Leakage Current [mA] | | |
|--------------|------------------------|------------------------|------------------------|
| | Input Volt. 170 [V] | Input Volt. 230 [V] | Input Volt. 264 [V] |
| (B) IEC60950 | — | — | — |

2. Condition

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

交流入力 of 両相について測定し、その大きい方を漏洩電流測定値とする。

COSEL

| | | |
|--------|------------------------------|---------------------------------|
| Model | MMC50A-1 | Testing Circuitry Figure D |
| Item | Conducted Emission 雑音端子電圧 | |
| Object | _____ | |

1. Graph

Remarks

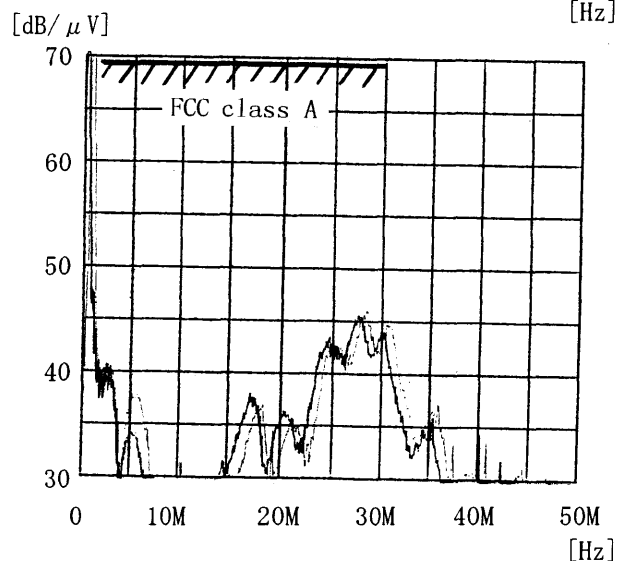
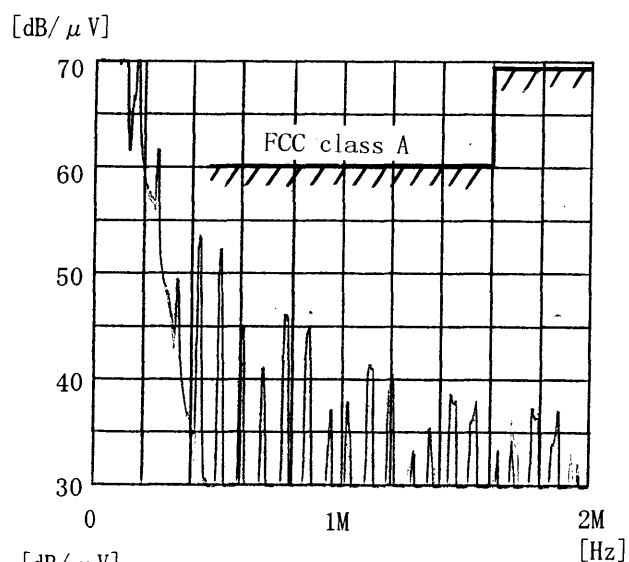
Input Volt. 120 V

Load 100 %

Note: Slanted line shows the range of Tolerance.

(注) 斜線は許容値を示す。

| NO | Standards | Standards Complied | Frequency [MHz] | Tolerance [dB/μV] |
|----|---------------------------------------|-----------------------|--------------------|----------------------|
| 1 | FCC class A | ○ | 0.45~1.6 | 60 |
| | | | 1.6~30 | 69.5 |
| 2 | FCC class B | | 0.45~30 | 48 |
| 3 | VCCI class A | | 0.15~0.5 | 79 |
| | | | 0.5~30 | 73 |
| 4 | VCCI class B | | 0.15~0.5 | 66-56 |
| | | | 0.5~5 | 56 |
| | | | 5~30 | 60 |
| 5 | CISPR Pub. 22 class A (EN55022) | | 0.15~0.5 | 79 |
| | | | 0.5~30 | 73 |
| | | | | |
| 6 | CISPR Pub. 22 class B (EN55022) | | 0.15~0.5 | 66-56 |
| | | | 0.5~5 | 56 |
| | | | 5~30 | 60 |



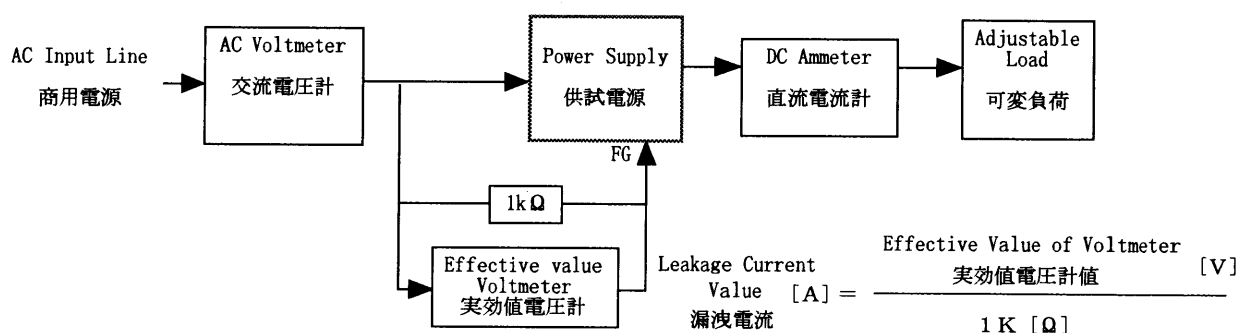
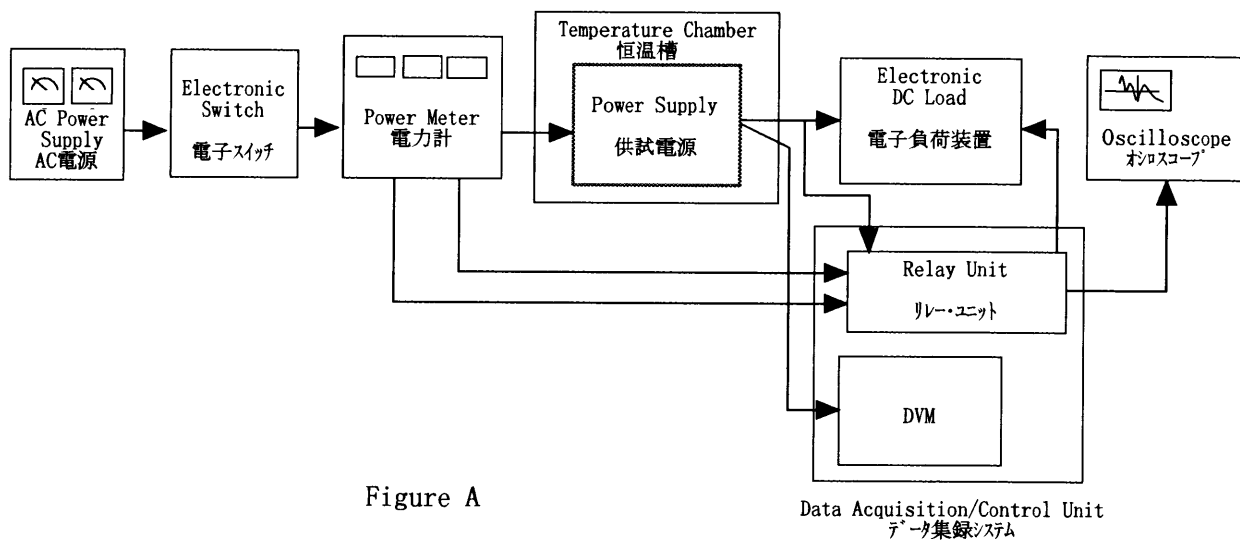


Figure B (DENTORI)

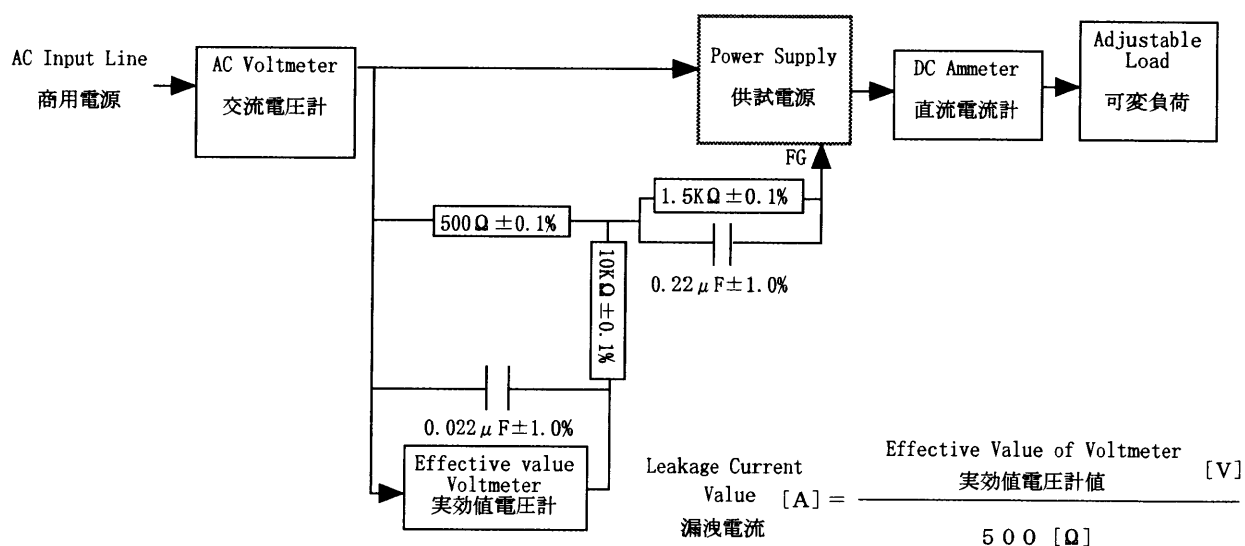


Figure B (IEC 60950)

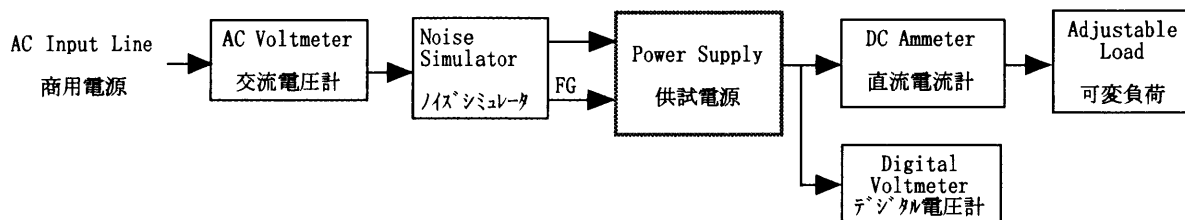


Figure C

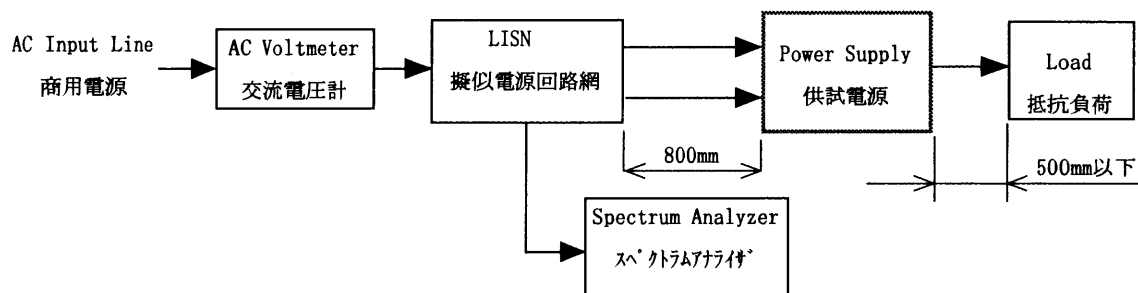


Figure D

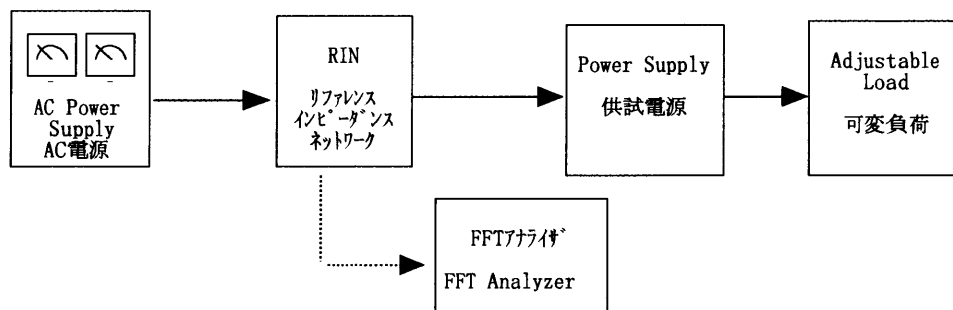


Figure E