

TEST DATA OF MGS154812

Regulated DC Power Supply
September 8, 2010

Approved by : Kazunari Asano
Kazunari Asano Design Manager

Prepared by : Hidetaka Kobayashi
Hidetaka Kobayashi Design Engineer

COSEL CO.,LTD.

CONTENTS

1.Input Current (by Input Voltage)	1
2.Input Current (by Load Current)	2
3.Input Power (by Load Current)	3
4.Efficiency (by Input Voltage)	4
5.Efficiency (by Load Current)	5
6.Line Regulation	6
7.Load Regulation	7
8.Dynamic Load Response	8
9.Ripple Voltage (by Load Current)	9
10.Ripple-Noise	10
11.Ripple Voltage (by Ambient Temperature)	11
12.Ambient Temperature Drift	12
13.Output Voltage Accuracy	13
14.Time Lapse Drift	14
15.Rise and Fall Time	15
16.Minimum Input Voltage for Regulated Output Voltage	16
17.Overcurrent Protection	17
18.Figure of Testing Circuitry	18

(Final Page 18)



Model		MGS154812	Temperature		25°C																																																																															
Item		Input Current (by Input Voltage)	Testing Circuitry		Figure A																																																																															
Object																																																																																				
1.Graph			2.Values																																																																																	
<p> △ Load 100% □ Load 50% ○ Load 0% </p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Load 0%</th> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>8.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>16.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>24.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>28.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>32.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>33.6</td><td>0.019</td><td>0.262</td><td>0.189</td></tr> <tr><td>34.0</td><td>0.019</td><td>0.259</td><td>0.519</td></tr> <tr><td>34.4</td><td>0.019</td><td>0.256</td><td>0.513</td></tr> <tr><td>36.0</td><td>0.018</td><td>0.245</td><td>0.490</td></tr> <tr><td>40.0</td><td>0.017</td><td>0.220</td><td>0.439</td></tr> <tr><td>48.0</td><td>0.016</td><td>0.185</td><td>0.364</td></tr> <tr><td>60.0</td><td>0.014</td><td>0.149</td><td>0.291</td></tr> <tr><td>70.0</td><td>0.013</td><td>0.129</td><td>0.251</td></tr> <tr><td>76.0</td><td>0.013</td><td>0.119</td><td>0.231</td></tr> <tr><td>80.0</td><td>0.013</td><td>0.113</td><td>0.220</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	8.0	0.003	0.003	0.003	16.0	0.003	0.003	0.003	24.0	0.003	0.003	0.003	28.0	0.003	0.003	0.003	32.0	0.003	0.003	0.003	33.6	0.019	0.262	0.189	34.0	0.019	0.259	0.519	34.4	0.019	0.256	0.513	36.0	0.018	0.245	0.490	40.0	0.017	0.220	0.439	48.0	0.016	0.185	0.364	60.0	0.014	0.149	0.291	70.0	0.013	0.129	0.251	76.0	0.013	0.119	0.231	80.0	0.013	0.113	0.220	--	-	-	-	--	-	-	-
Input Voltage [V]	Input Current [A]																																																																																			
	Load 0%	Load 50%	Load 100%																																																																																	
0.0	0.000	0.000	0.000																																																																																	
8.0	0.003	0.003	0.003																																																																																	
16.0	0.003	0.003	0.003																																																																																	
24.0	0.003	0.003	0.003																																																																																	
28.0	0.003	0.003	0.003																																																																																	
32.0	0.003	0.003	0.003																																																																																	
33.6	0.019	0.262	0.189																																																																																	
34.0	0.019	0.259	0.519																																																																																	
34.4	0.019	0.256	0.513																																																																																	
36.0	0.018	0.245	0.490																																																																																	
40.0	0.017	0.220	0.439																																																																																	
48.0	0.016	0.185	0.364																																																																																	
60.0	0.014	0.149	0.291																																																																																	
70.0	0.013	0.129	0.251																																																																																	
76.0	0.013	0.119	0.231																																																																																	
80.0	0.013	0.113	0.220																																																																																	
--	-	-	-																																																																																	
--	-	-	-																																																																																	
<p>Note: Slanted line shows the range of the rated input voltage.</p>																																																																																				



Model		MGS154812	Temperature	25°C																																																			
Item		Input Current (by Load Current)	Testing Circuitry	Figure A																																																			
Object		_____																																																					
1.Graph		<p>—△— Input Volt. 36V</p> <p>- - □ - - Input Volt. 48V</p> <p>- · ○ - · - Input Volt. 76V</p>	2.Values																																																				
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>0.019</td><td>0.016</td><td>0.013</td></tr> <tr><td>0.26</td><td>0.107</td><td>0.082</td><td>0.055</td></tr> <tr><td>0.52</td><td>0.199</td><td>0.150</td><td>0.097</td></tr> <tr><td>0.78</td><td>0.294</td><td>0.220</td><td>0.141</td></tr> <tr><td>1.04</td><td>0.391</td><td>0.292</td><td>0.186</td></tr> <tr><td>1.30</td><td>0.492</td><td>0.365</td><td>0.231</td></tr> <tr><td>1.43</td><td>0.544</td><td>0.402</td><td>0.254</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Load Current [A]	Input Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	0.019	0.016	0.013	0.26	0.107	0.082	0.055	0.52	0.199	0.150	0.097	0.78	0.294	0.220	0.141	1.04	0.391	0.292	0.186	1.30	0.492	0.365	0.231	1.43	0.544	0.402	0.254	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Current [A]																																																						
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																				
0.00	0.019	0.016	0.013																																																				
0.26	0.107	0.082	0.055																																																				
0.52	0.199	0.150	0.097																																																				
0.78	0.294	0.220	0.141																																																				
1.04	0.391	0.292	0.186																																																				
1.30	0.492	0.365	0.231																																																				
1.43	0.544	0.402	0.254																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
<p>Note: Slanted line shows the range of the rated load current.</p>																																																							



Model		MGS154812	Temperature 25°C																																																				
Item		Input Power (by Load Current)	Testing Circuitry Figure A																																																				
Object		_____																																																					
1.Graph		<p>—△— Input Volt. 36V</p> <p>- - - □ - - Input Volt. 48V</p> <p>- · - ○ - · - Input Volt. 76V</p>	2.Values																																																				
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>0.68</td><td>0.78</td><td>1.02</td></tr> <tr><td>0.26</td><td>3.86</td><td>3.95</td><td>4.19</td></tr> <tr><td>0.52</td><td>7.16</td><td>7.21</td><td>7.41</td></tr> <tr><td>0.78</td><td>10.57</td><td>10.57</td><td>10.76</td></tr> <tr><td>1.04</td><td>14.06</td><td>14.00</td><td>14.16</td></tr> <tr><td>1.30</td><td>17.69</td><td>17.51</td><td>17.62</td></tr> <tr><td>1.43</td><td>19.54</td><td>19.31</td><td>19.37</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Load Current [A]	Input Power [W]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	0.68	0.78	1.02	0.26	3.86	3.95	4.19	0.52	7.16	7.21	7.41	0.78	10.57	10.57	10.76	1.04	14.06	14.00	14.16	1.30	17.69	17.51	17.62	1.43	19.54	19.31	19.37	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Power [W]																																																						
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																				
0.00	0.68	0.78	1.02																																																				
0.26	3.86	3.95	4.19																																																				
0.52	7.16	7.21	7.41																																																				
0.78	10.57	10.57	10.76																																																				
1.04	14.06	14.00	14.16																																																				
1.30	17.69	17.51	17.62																																																				
1.43	19.54	19.31	19.37																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
<p>Note: Slanted line shows the range of the rated load current.</p>																																																							



<p>Model MGS154812</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																
Item	Efficiency (by Input Voltage)																																	
Object																																		
<p>1. Graph</p> <p>---□--- Load 50% —△— Load 100%</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>34</td> <td>88.2</td> <td>88.3</td> </tr> <tr> <td>36</td> <td>88.3</td> <td>88.5</td> </tr> <tr> <td>40</td> <td>88.3</td> <td>88.9</td> </tr> <tr> <td>48</td> <td>88.1</td> <td>89.3</td> </tr> <tr> <td>60</td> <td>87.5</td> <td>89.3</td> </tr> <tr> <td>76</td> <td>86.2</td> <td>88.8</td> </tr> <tr> <td>80</td> <td>85.9</td> <td>88.7</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	34	88.2	88.3	36	88.3	88.5	40	88.3	88.9	48	88.1	89.3	60	87.5	89.3	76	86.2	88.8	80	85.9	88.7	--	-	-	--	-	-
Input Voltage [V]	Efficiency [%]																																	
	Load 50%	Load 100%																																
34	88.2	88.3																																
36	88.3	88.5																																
40	88.3	88.9																																
48	88.1	89.3																																
60	87.5	89.3																																
76	86.2	88.8																																
80	85.9	88.7																																
--	-	-																																
--	-	-																																
<p>Note: Slanted line shows the range of the rated input voltage.</p>																																		



Model		MGS154812		Temperature 25°C																																																				
Item		Efficiency (by Load Current)		Testing Circuitry Figure A																																																				
Object		_____																																																						
1.Graph		—△— Input Volt. 36V - - - □ - - - Input Volt. 48V - · - ○ - · - - Input Volt. 76V		2.Values																																																				
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Efficiency [%]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.26</td><td>81.0</td><td>79.2</td><td>74.6</td></tr> <tr><td>0.52</td><td>87.4</td><td>86.8</td><td>84.4</td></tr> <tr><td>0.78</td><td>88.8</td><td>88.8</td><td>87.3</td></tr> <tr><td>1.04</td><td>89.1</td><td>89.5</td><td>88.5</td></tr> <tr><td>1.30</td><td>88.5</td><td>89.4</td><td>88.9</td></tr> <tr><td>1.43</td><td>88.2</td><td>89.2</td><td>88.9</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>		Load Current [A]	Efficiency [%]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	-	-	-	0.26	81.0	79.2	74.6	0.52	87.4	86.8	84.4	0.78	88.8	88.8	87.3	1.04	89.1	89.5	88.5	1.30	88.5	89.4	88.9	1.43	88.2	89.2	88.9	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	Efficiency [%]																																																							
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																					
0.00	-	-	-																																																					
0.26	81.0	79.2	74.6																																																					
0.52	87.4	86.8	84.4																																																					
0.78	88.8	88.8	87.3																																																					
1.04	89.1	89.5	88.5																																																					
1.30	88.5	89.4	88.9																																																					
1.43	88.2	89.2	88.9																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					
Note: Slanted line shows the range of the rated load current.																																																								



COSEL																																			
Model	MGS154812	Temperature	25°C																																
Item	Line Regulation	Testing Circuitry	Figure A																																
Object	+12V1.3A																																		
<p>1.Graph</p> <div style="text-align: right;"> <p>---□--- Load 50%</p> <p>—△— Load 100%</p> </div> <p style="text-align: center;">Output Voltage [V]</p> <p style="text-align: center;">Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>34</td><td>12.011</td><td>12.010</td></tr> <tr><td>36</td><td>12.011</td><td>12.010</td></tr> <tr><td>40</td><td>12.011</td><td>12.010</td></tr> <tr><td>48</td><td>12.011</td><td>12.010</td></tr> <tr><td>60</td><td>12.011</td><td>12.011</td></tr> <tr><td>76</td><td>12.011</td><td>12.011</td></tr> <tr><td>80</td><td>12.011</td><td>12.011</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	34	12.011	12.010	36	12.011	12.010	40	12.011	12.010	48	12.011	12.010	60	12.011	12.011	76	12.011	12.011	80	12.011	12.011	--	-	-	--	-	-
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
34	12.011	12.010																																	
36	12.011	12.010																																	
40	12.011	12.010																																	
48	12.011	12.010																																	
60	12.011	12.011																																	
76	12.011	12.011																																	
80	12.011	12.011																																	
--	-	-																																	
--	-	-																																	

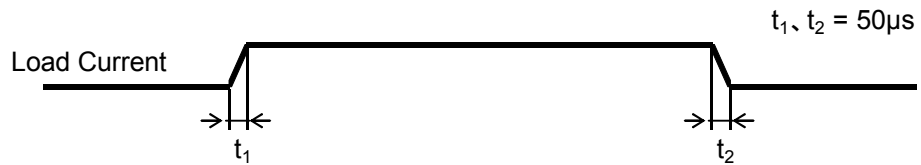


COSEL																																																						
Model	MGS154812	Temperature	25°C																																																			
Item	Load Regulation	Testing Circuitry	Figure A																																																			
Object	+12V1.3A																																																					
<p>1.Graph</p> <p> —△— Input Volt. 36V - - - □ - - - Input Volt. 48V - · - ○ - · - - Input Volt. 76V </p> <p style="text-align: center;">Output Voltage [V]</p> <p style="text-align: center;">Load Current [A]</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>12.012</td><td>12.012</td><td>12.012</td></tr> <tr><td>0.26</td><td>12.012</td><td>12.012</td><td>12.012</td></tr> <tr><td>0.52</td><td>12.011</td><td>12.012</td><td>12.012</td></tr> <tr><td>0.78</td><td>12.011</td><td>12.011</td><td>12.011</td></tr> <tr><td>1.04</td><td>12.011</td><td>12.011</td><td>12.011</td></tr> <tr><td>1.30</td><td>12.010</td><td>12.010</td><td>12.011</td></tr> <tr><td>1.43</td><td>12.010</td><td>12.010</td><td>12.011</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>		Load Current [A]	Output Voltage [V]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	12.012	12.012	12.012	0.26	12.012	12.012	12.012	0.52	12.011	12.012	12.012	0.78	12.011	12.011	12.011	1.04	12.011	12.011	12.011	1.30	12.010	12.010	12.011	1.43	12.010	12.010	12.011	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																					
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																			
0.00	12.012	12.012	12.012																																																			
0.26	12.012	12.012	12.012																																																			
0.52	12.011	12.012	12.012																																																			
0.78	12.011	12.011	12.011																																																			
1.04	12.011	12.011	12.011																																																			
1.30	12.010	12.010	12.011																																																			
1.43	12.010	12.010	12.011																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
<p>Note: Slanted line shows the range of the rated load current.</p>																																																						



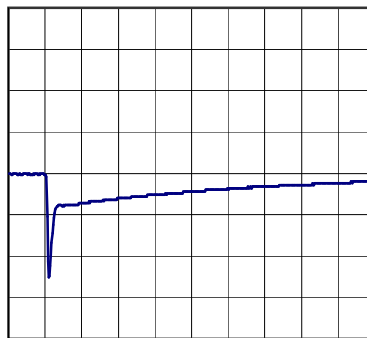
Model	MGS154812	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V1.3A		

Input Volt. 48 V
 Cycle 1000 ms

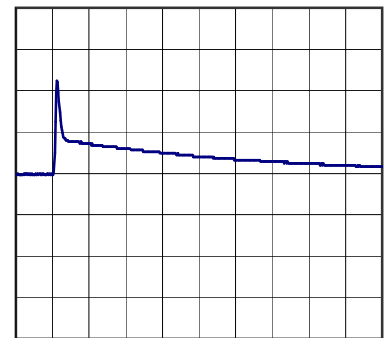


Min. Load (0A) \longleftrightarrow
 Load 100% (1.3A)

200mV/div



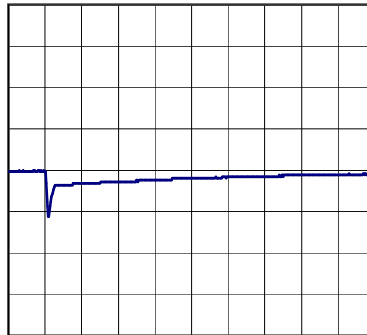
500µs/div



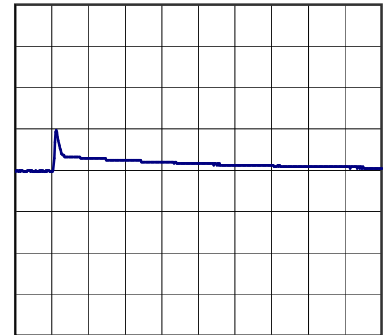
500µs/div

Min. Load (0A) \longleftrightarrow
 Load 50% (0.65A)

200mV/div



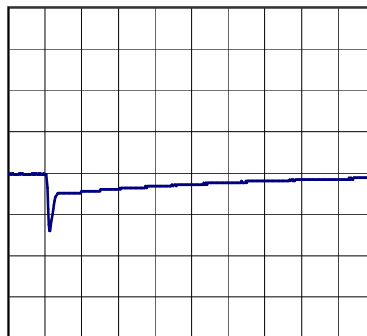
500µs/div



500µs/div

Load 50% (0.65A) \longleftrightarrow
 Load 100% (1.3A)

200mV/div



500µs/div



500µs/div

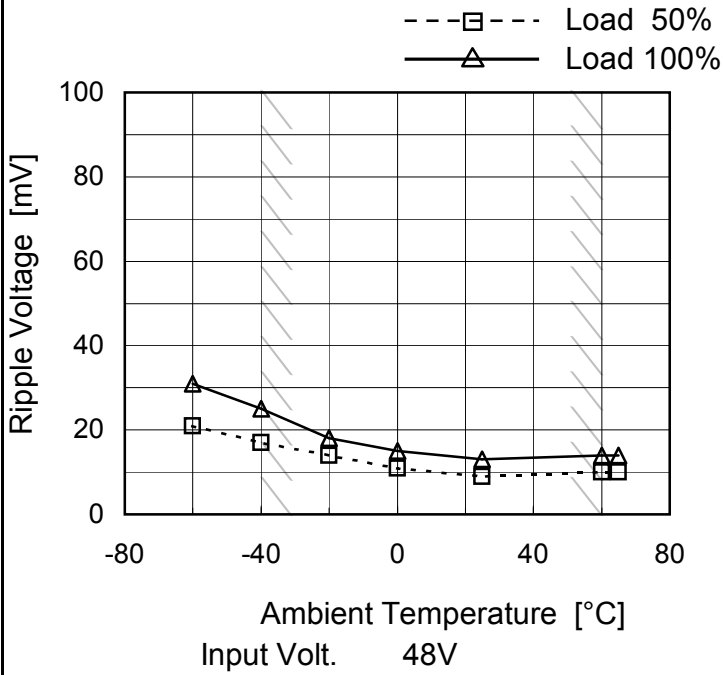
Model		MGS154812		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+12V1.3A																																									
1. Graph				2. Values																																							
				<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 36 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>5</td><td>6</td></tr> <tr><td>0.26</td><td>5</td><td>7</td></tr> <tr><td>0.52</td><td>6</td><td>7</td></tr> <tr><td>0.78</td><td>6</td><td>7</td></tr> <tr><td>1.04</td><td>7</td><td>8</td></tr> <tr><td>1.30</td><td>7</td><td>9</td></tr> <tr><td>1.43</td><td>8</td><td>10</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.00	5	6	0.26	5	7	0.52	6	7	0.78	6	7	1.04	7	8	1.30	7	9	1.43	8	10	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																										
	Input Volt. 36 [V]	Input Volt. 76 [V]																																									
0.00	5	6																																									
0.26	5	7																																									
0.52	6	7																																									
0.78	6	7																																									
1.04	7	8																																									
1.30	7	9																																									
1.43	8	10																																									
--	-	-																																									
--	-	-																																									
--	-	-																																									
--	-	-																																									
<p>Measured by 100 MHz Oscilloscope. Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p>																																											
<p>Fig. Complex Ripple Wave Form</p>																																											

<p>Model MGS154812</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
Item	Ripple-Noise																																							
Object	+12V1.3A																																							
<p>1. Graph</p> <p> —△— Input Volt. 36V - - ○ - - Input Volt. 76V </p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple-Noise [mV]</th> </tr> <tr> <th>Input Volt. 36 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>7</td><td>9</td></tr> <tr><td>0.26</td><td>8</td><td>10</td></tr> <tr><td>0.52</td><td>8</td><td>10</td></tr> <tr><td>0.78</td><td>9</td><td>11</td></tr> <tr><td>1.04</td><td>10</td><td>12</td></tr> <tr><td>1.30</td><td>11</td><td>12</td></tr> <tr><td>1.43</td><td>12</td><td>13</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Load Current [A]	Ripple-Noise [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.00	7	9	0.26	8	10	0.52	8	10	0.78	9	11	1.04	10	12	1.30	11	12	1.43	12	13	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																							
	Input Volt. 36 [V]	Input Volt. 76 [V]																																						
0.00	7	9																																						
0.26	8	10																																						
0.52	8	10																																						
0.78	9	11																																						
1.04	10	12																																						
1.30	11	12																																						
1.43	12	13																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<p>Measured by 100 MHz Oscilloscope. Ripple-Noise is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p> <p>Ripple Noise[mVp-p]</p>																																								
<p>Fig. Complex Ripple Noise Wave Form</p>																																								

Model	MGS154812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.3A

Testing Circuitry Figure B

1.Graph



2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	21	31
-40	17	25
-20	14	18
0	11	15
25	9	13
60	10	14
65	10	14
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.



COSEL																																																					
Model	MGS154812																																																				
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																			
Object	+12V1.3A																																																				
1.Graph	<p>—△— Input Volt. 36V ---□--- Input Volt. 48V -·-○-·- Input Volt. 76V</p> <p style="text-align: center;">Ambient Temperature [°C] Load 100%</p>	2.Values																																																			
		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>-60</td><td>11.921</td><td>11.921</td><td>11.922</td></tr> <tr><td>-40</td><td>11.952</td><td>11.952</td><td>11.953</td></tr> <tr><td>-20</td><td>11.976</td><td>11.976</td><td>11.977</td></tr> <tr><td>0</td><td>11.995</td><td>11.995</td><td>11.996</td></tr> <tr><td>25</td><td>12.011</td><td>12.012</td><td>12.012</td></tr> <tr><td>60</td><td>12.022</td><td>12.022</td><td>12.022</td></tr> <tr><td>65</td><td>12.022</td><td>12.022</td><td>12.022</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	-60	11.921	11.921	11.922	-40	11.952	11.952	11.953	-20	11.976	11.976	11.977	0	11.995	11.995	11.996	25	12.011	12.012	12.012	60	12.022	12.022	12.022	65	12.022	12.022	12.022	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																				
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																		
-60	11.921	11.921	11.922																																																		
-40	11.952	11.952	11.953																																																		
-20	11.976	11.976	11.977																																																		
0	11.995	11.995	11.996																																																		
25	12.011	12.012	12.012																																																		
60	12.022	12.022	12.022																																																		
65	12.022	12.022	12.022																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																																					



COSEL		
Model	MGS154812	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V1.3A	

1. Output Voltage Accuracy

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

Temperature : -40 - 60°C

Input Voltage : 36 - 76V

Load Current : 0 - 1.3A

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

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	48	0	12.024	±36	±0.3
Minimum Voltage	-40	36	1.3	11.952		



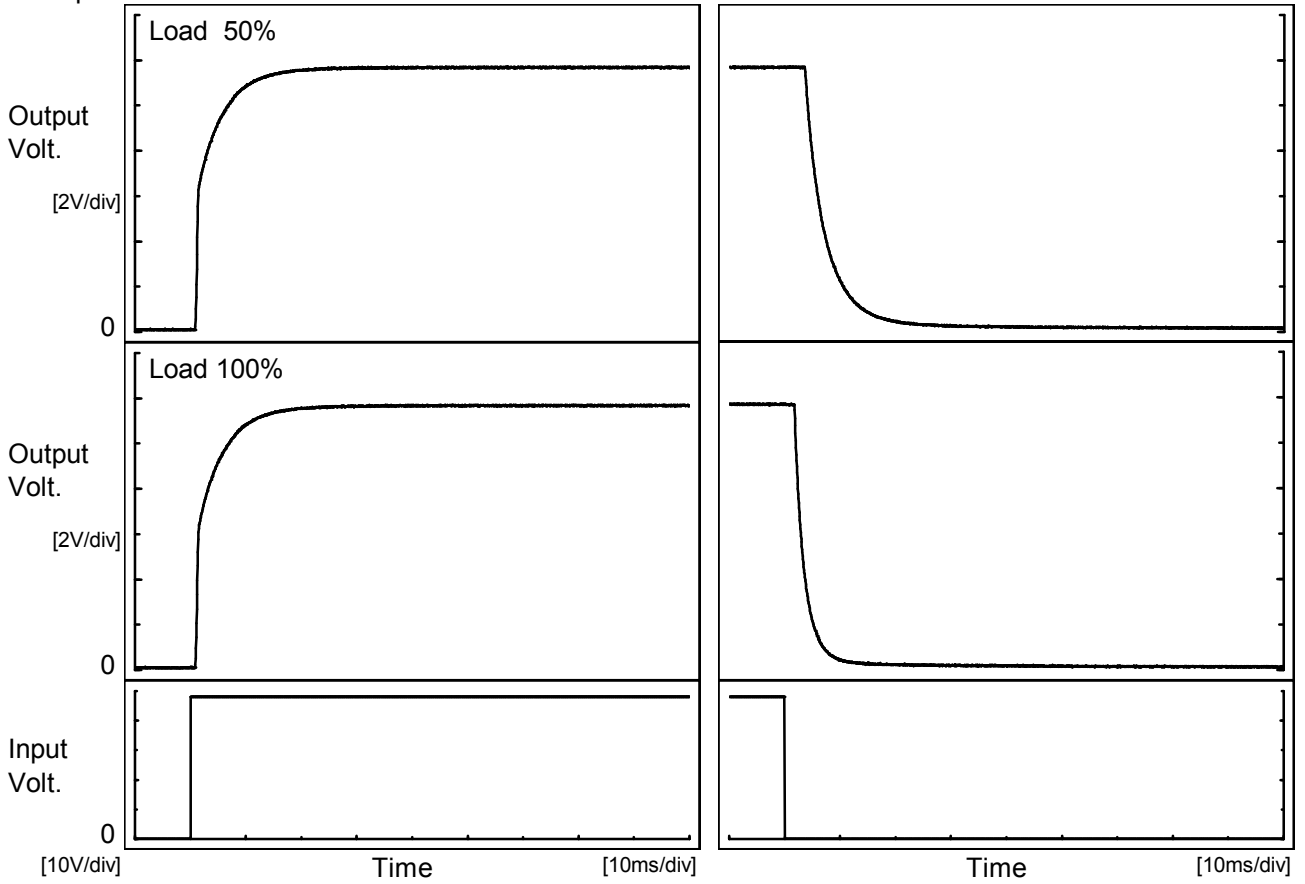
COSEL																									
Model	MGS154812	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+12V1.3A																								
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 48V Load 100%</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>12.008</td></tr> <tr><td>0.5</td><td>12.008</td></tr> <tr><td>1.0</td><td>12.008</td></tr> <tr><td>2.0</td><td>12.008</td></tr> <tr><td>3.0</td><td>12.008</td></tr> <tr><td>4.0</td><td>12.008</td></tr> <tr><td>5.0</td><td>12.008</td></tr> <tr><td>6.0</td><td>12.008</td></tr> <tr><td>7.0</td><td>12.008</td></tr> <tr><td>8.0</td><td>12.008</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	12.008	0.5	12.008	1.0	12.008	2.0	12.008	3.0	12.008	4.0	12.008	5.0	12.008	6.0	12.008	7.0	12.008	8.0	12.008
Time since start [H]	Output Voltage [V]																								
0.0	12.008																								
0.5	12.008																								
1.0	12.008																								
2.0	12.008																								
3.0	12.008																								
4.0	12.008																								
5.0	12.008																								
6.0	12.008																								
7.0	12.008																								
8.0	12.008																								



Model		MGS154812	Temperature	25°C
Item		Rise and Fall Time	Testing Circuitry	Figure A
Object		+12V1.3A		

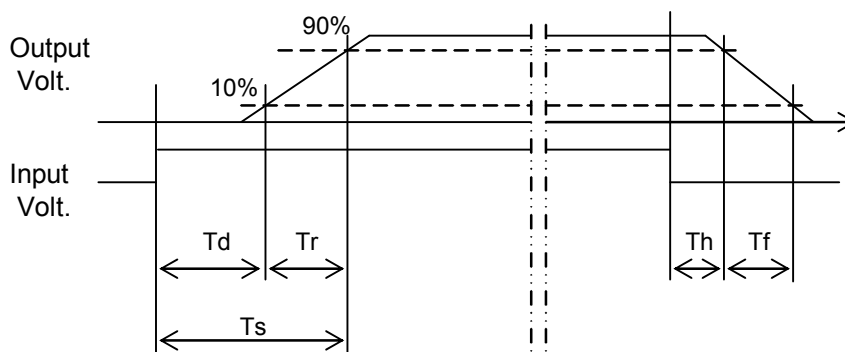
1. Graph

Input Volt. 48 V



2. Values

		[ms]				
Load \ Time	Time	Td	Tr	Ts	Th	Tf
50 %		1.1	9.1	10.2	3.8	8.9
100 %		1.1	9.2	10.3	1.9	4.4





COSEL																																								
Model	MGS154812																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+12V1.3A																																							
<p>1.Graph</p> <p style="text-align: center;"> ---□--- Load 50% —△— Load 100% </p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Input Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>-60</td><td>31.9</td><td>31.9</td></tr> <tr><td>-40</td><td>31.9</td><td>31.9</td></tr> <tr><td>-20</td><td>31.9</td><td>31.9</td></tr> <tr><td>0</td><td>31.9</td><td>31.9</td></tr> <tr><td>25</td><td>31.7</td><td>31.9</td></tr> <tr><td>60</td><td>31.5</td><td>31.6</td></tr> <tr><td>65</td><td>31.5</td><td>31.4</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	31.9	31.9	-40	31.9	31.9	-20	31.9	31.9	0	31.9	31.9	25	31.7	31.9	60	31.5	31.6	65	31.5	31.4	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Input Voltage [V]																																							
	Load 50%	Load 100%																																						
-60	31.9	31.9																																						
-40	31.9	31.9																																						
-20	31.9	31.9																																						
0	31.9	31.9																																						
25	31.7	31.9																																						
60	31.5	31.6																																						
65	31.5	31.4																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																								



<p>Model MGS154812</p> <p>Item Overcurrent Protection</p> <p>Object +12V1.3A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																																							
<p>1.Graph</p> <p> —△ Input Volt. 36V —□ Input Volt. 48V —○ Input Volt. 76V </p> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when overcurrent protection is activated.</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>12.0</td><td>1.50</td><td>1.60</td><td>1.64</td></tr> <tr><td>11.4</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>10.8</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>9.6</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>8.4</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7.2</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>6.0</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>4.8</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>3.6</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>2.4</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>1.2</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	12.0	1.50	1.60	1.64	11.4	-	-	-	10.8	-	-	-	9.6	-	-	-	8.4	-	-	-	7.2	-	-	-	6.0	-	-	-	4.8	-	-	-	3.6	-	-	-	2.4	-	-	-	1.2	-	-	-	0.0	-	-	-
Output Voltage [V]	Load Current [A]																																																								
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																						
12.0	1.50	1.60	1.64																																																						
11.4	-	-	-																																																						
10.8	-	-	-																																																						
9.6	-	-	-																																																						
8.4	-	-	-																																																						
7.2	-	-	-																																																						
6.0	-	-	-																																																						
4.8	-	-	-																																																						
3.6	-	-	-																																																						
2.4	-	-	-																																																						
1.2	-	-	-																																																						
0.0	-	-	-																																																						

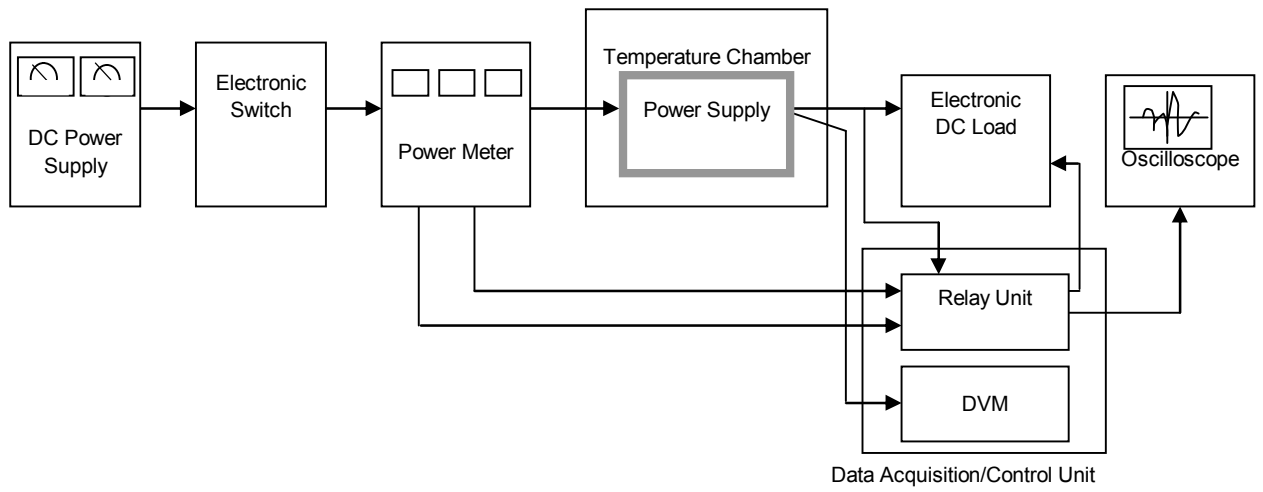


Figure A

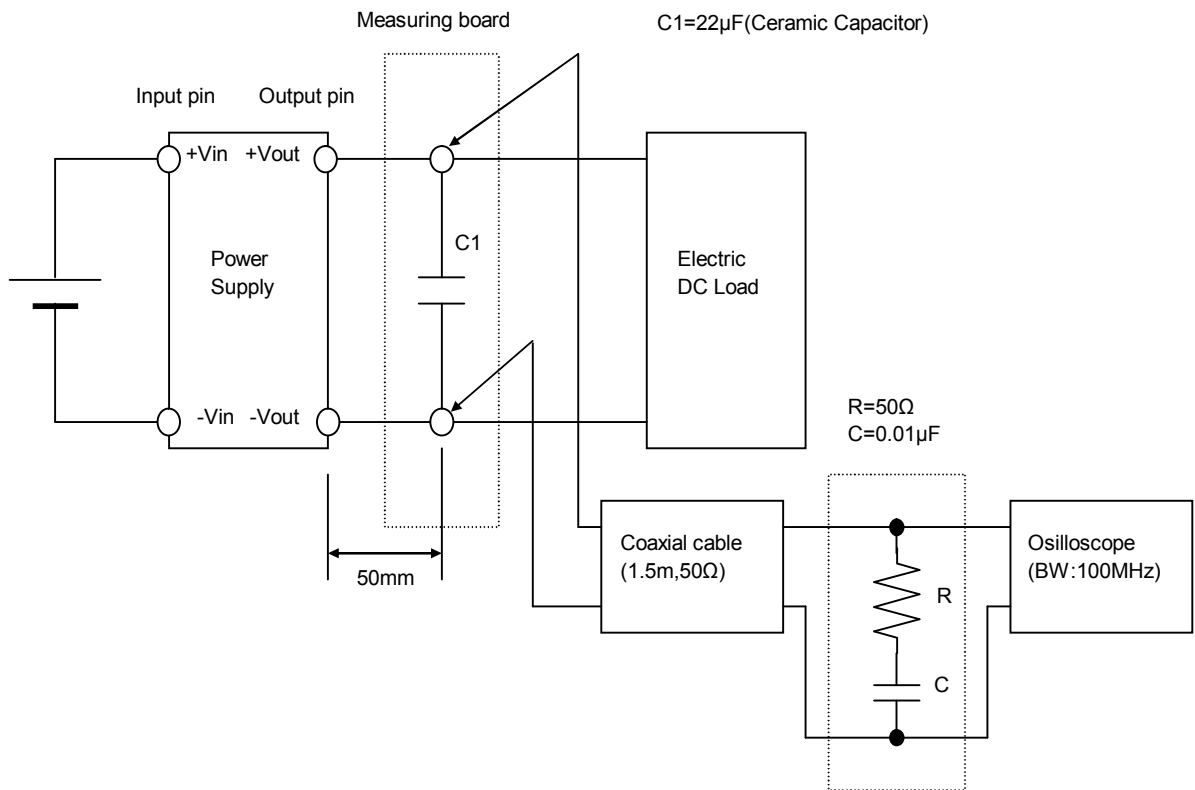


Figure B (Ripple and Ripple noise Characteristic)