

TEST DATA OF MGW151212

Regulated DC Power Supply
September 11, 2010

Approved by : Kazunari Asano
Kazunari Asano Design Manager

Prepared by : Shintaro Mizukami
Shintaro Mizukami 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)	10
10.Ripple-Noise	12
11.Ripple Voltage (by Ambient Temperature)	14
12.Ambient Temperature Drift	15
13.Output Voltage Accuracy	16
14.Time Lapse Drift	17
15.Rise and Fall Time	18
16.Minimum Input Voltage for Regulated Output Voltage	20
17.Overcurrent Protection	21
18.Figure of Testing Circuitry	22

(Final Page 22)

Model	MGW151212																																																																																	
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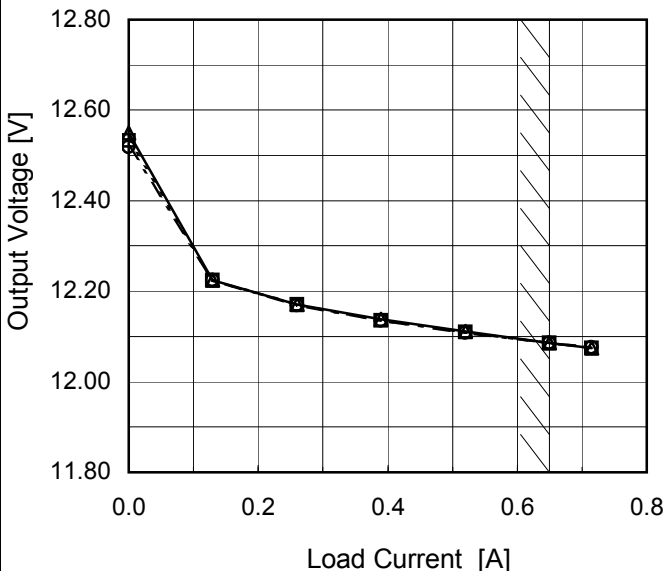
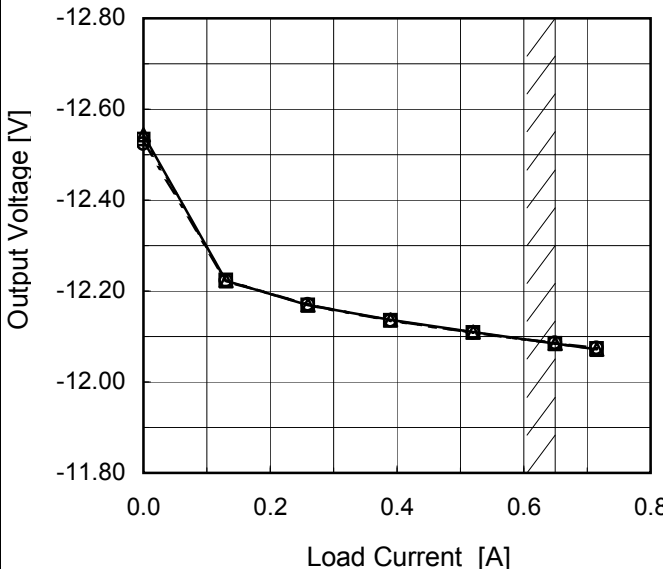
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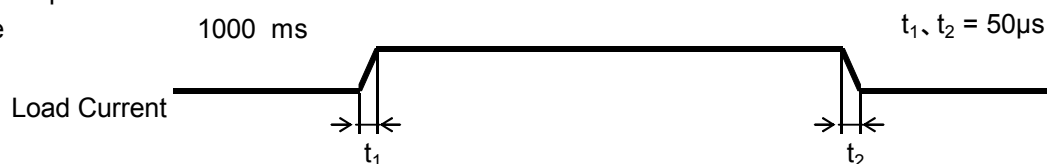


Model	MGW151212	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+12V0.65A	

Input Volt. 12 V

Other output current rated

Cycle 1000 ms



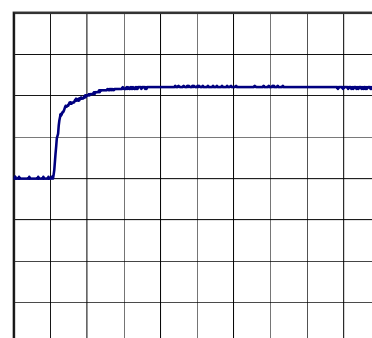
Min. Load (0A) \longleftrightarrow

Load 100% (0.65A)

200mV/div



200µs/div

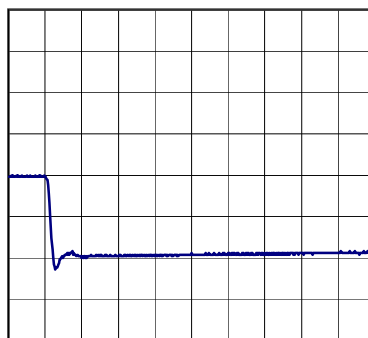


200µs/div

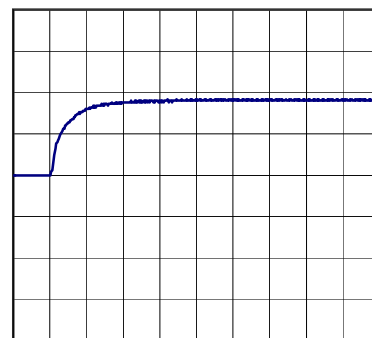
Min. Load (0A) \longleftrightarrow

Load 50% (0.325A)

200mV/div



200µs/div

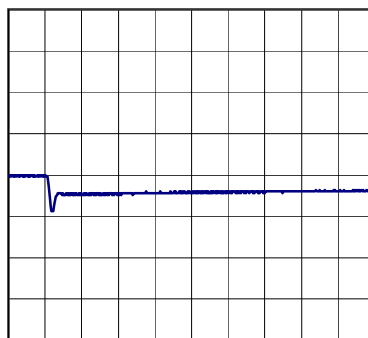


200µs/div

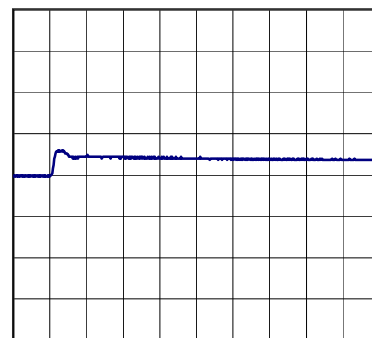
Load 50% (0.325A) \longleftrightarrow

Load 100% (0.65A)

200mV/div



200µs/div



200µs/div



Model	MGW151212	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	-12V0.65A	

Input Volt. 12 V

Other output current rated

Cycle 1000 ms

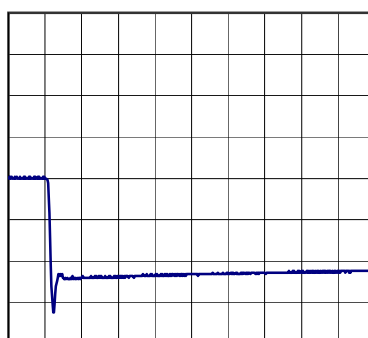
$t_1, t_2 = 50\mu\text{s}$



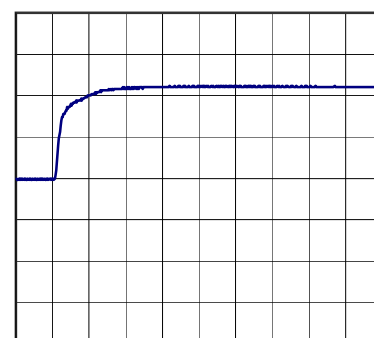
Min. Load (0A) \longleftrightarrow

Load 100% (0.65A)

200mV/div



200 μs /div

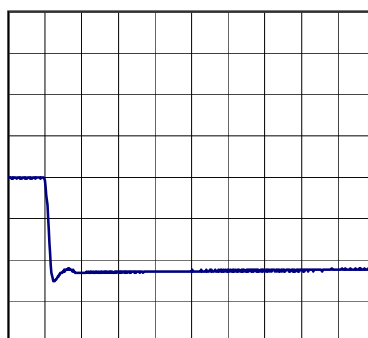


200 μs /div

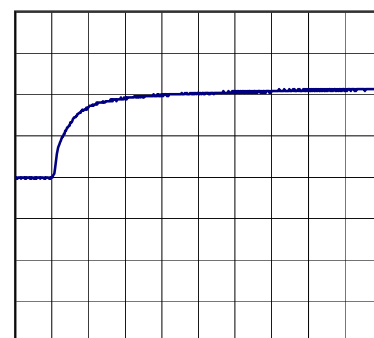
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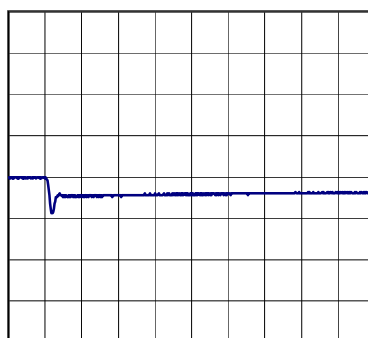


200 μs /div

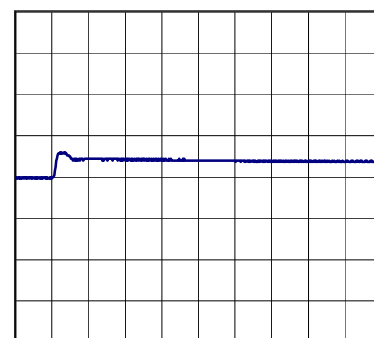
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Load 100% (0.65A)

200mV/div

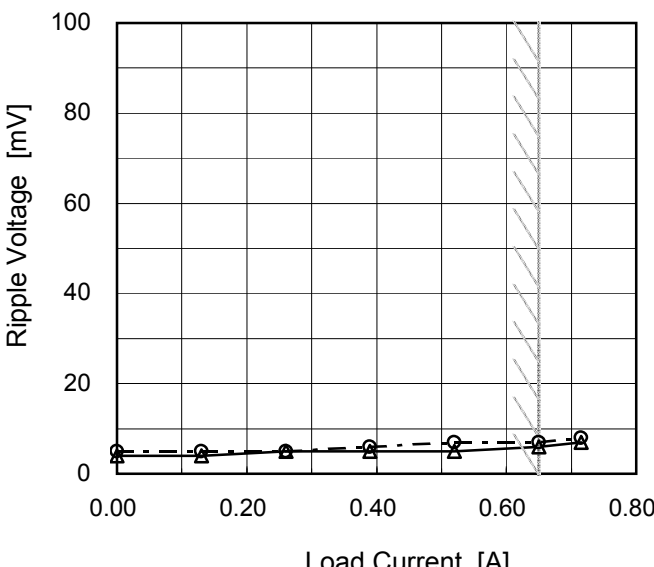
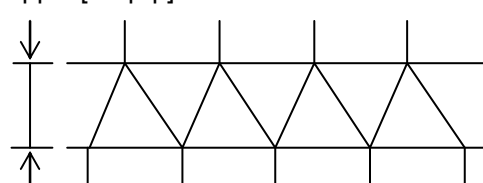


200 μs /div



200 μs /div

Model		MGW151212		Temperature 25°C																																					
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																					
Object		+12V0.65A																																							
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Model	MGW151212																																								
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- 13 -

BC-10460

Model	MGW151212																																								
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																							
Object	+12V0.65A																																								
1.Graph		2.Values																																							
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Model	MGW151212			
Item	Ambient Temperature Drift			Testing Circuitry Figure A
Object	+12V0.65A			
1.Graph		2.Values		
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Model	MGW151212	
Item	Output Voltage Accuracy	

Testing Circuitry Figure A

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 : 9 - 18V

Load Current (AVR 1) : 0 - 0.65A (AVR 2) : 0 - 0.65A

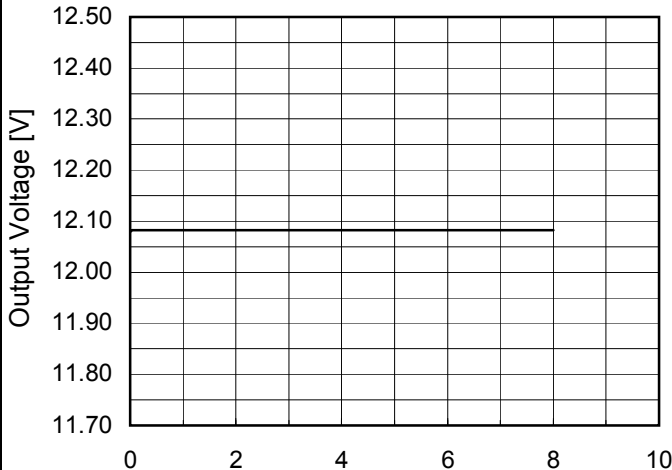
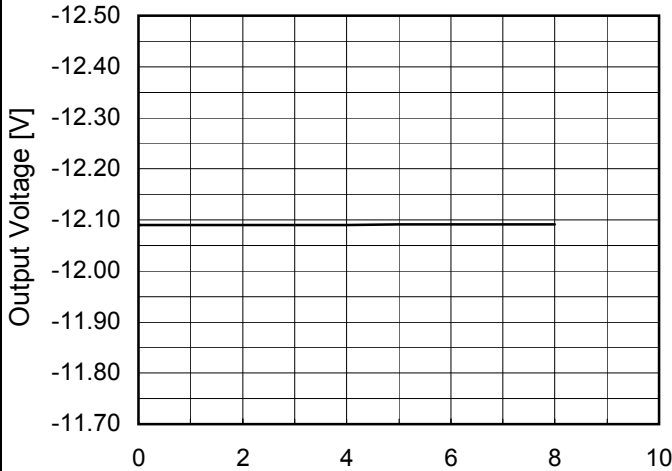
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

2. Values

Object		+12V0.65A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	12.547	±246	±2.1
Minimum Voltage	-40	9	0.65	12.056		

Object		-12V0.65A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	-12.549	±248	±2.1
Minimum Voltage	-40	9	0.65	-12.053		

Model	MGW151212																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+12V0.65A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 12V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>12.079</td></tr><tr><td>0.5</td><td>12.083</td></tr><tr><td>1.0</td><td>12.083</td></tr><tr><td>2.0</td><td>12.083</td></tr><tr><td>3.0</td><td>12.083</td></tr><tr><td>4.0</td><td>12.083</td></tr><tr><td>5.0</td><td>12.083</td></tr><tr><td>6.0</td><td>12.083</td></tr><tr><td>7.0</td><td>12.083</td></tr><tr><td>8.0</td><td>12.083</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	12.079	0.5	12.083	1.0	12.083	2.0	12.083	3.0	12.083	4.0	12.083	5.0	12.083	6.0	12.083	7.0	12.083	8.0	12.083
Time since start [H]	Output Voltage [V]																								
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0.5	12.083																								
1.0	12.083																								
2.0	12.083																								
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8.0	12.083																								
Object	-12V0.65A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 12V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>-12.090</td></tr><tr><td>0.5</td><td>-12.090</td></tr><tr><td>1.0</td><td>-12.090</td></tr><tr><td>2.0</td><td>-12.090</td></tr><tr><td>3.0</td><td>-12.090</td></tr><tr><td>4.0</td><td>-12.091</td></tr><tr><td>5.0</td><td>-12.091</td></tr><tr><td>6.0</td><td>-12.091</td></tr><tr><td>7.0</td><td>-12.091</td></tr><tr><td>8.0</td><td>-12.091</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	-12.090	0.5	-12.090	1.0	-12.090	2.0	-12.090	3.0	-12.090	4.0	-12.091	5.0	-12.091	6.0	-12.091	7.0	-12.091	8.0	-12.091
Time since start [H]	Output Voltage [V]																								
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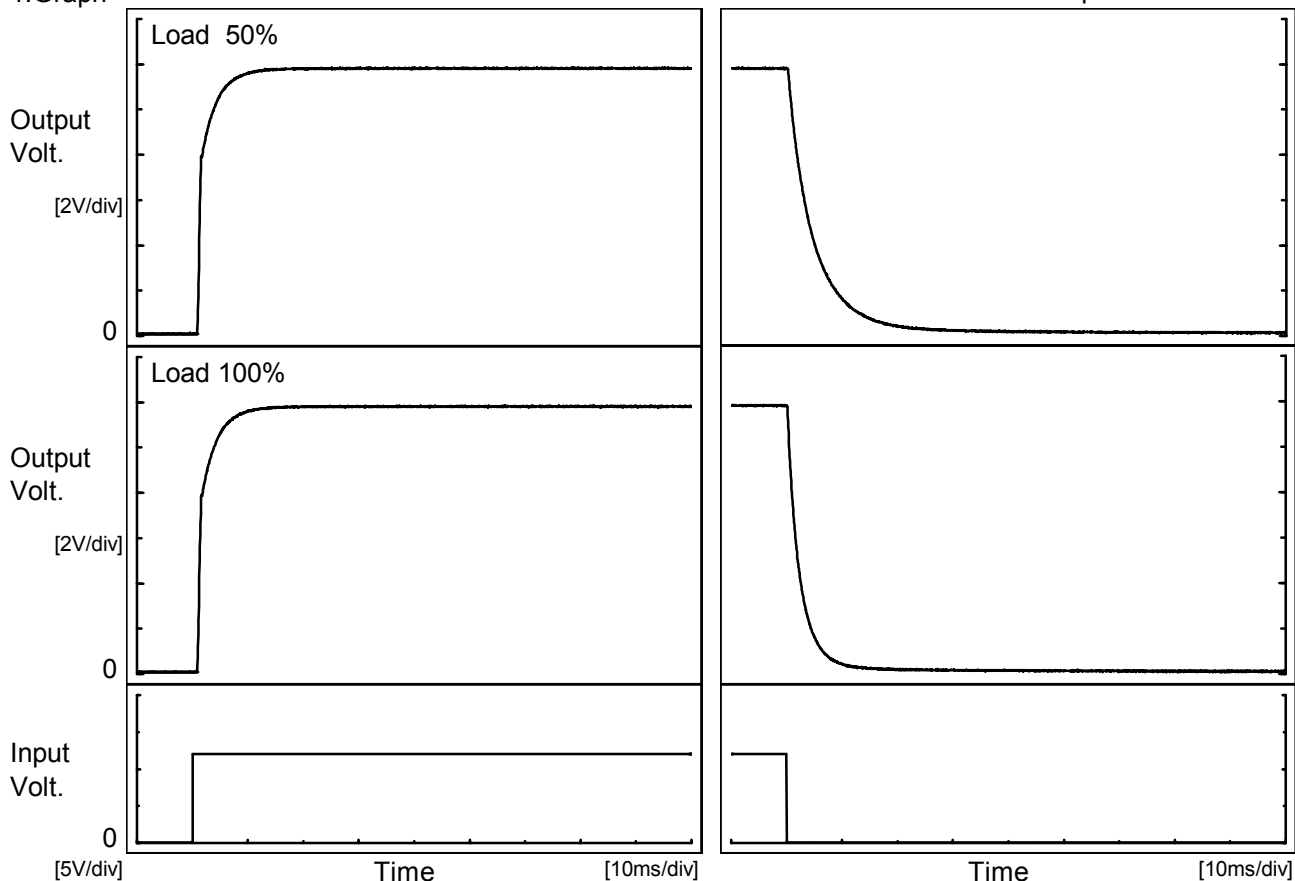
- 17 -

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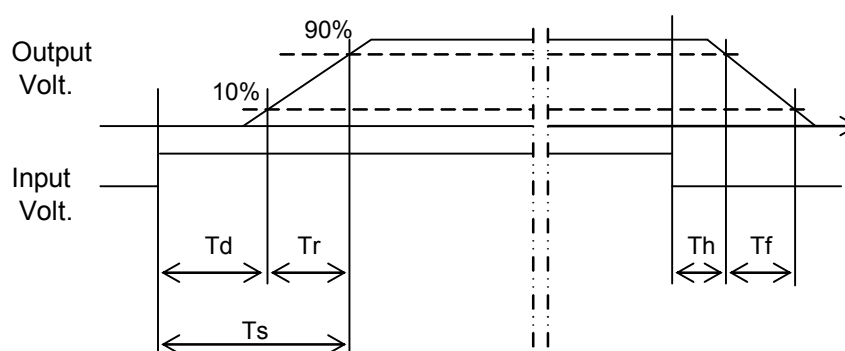
Model	MGW151212		
Item	Rise and Fall Time	Temperature	25°C
Object	+12V0.65A	Testing Circuitry	Figure A

1.Graph



2.Values

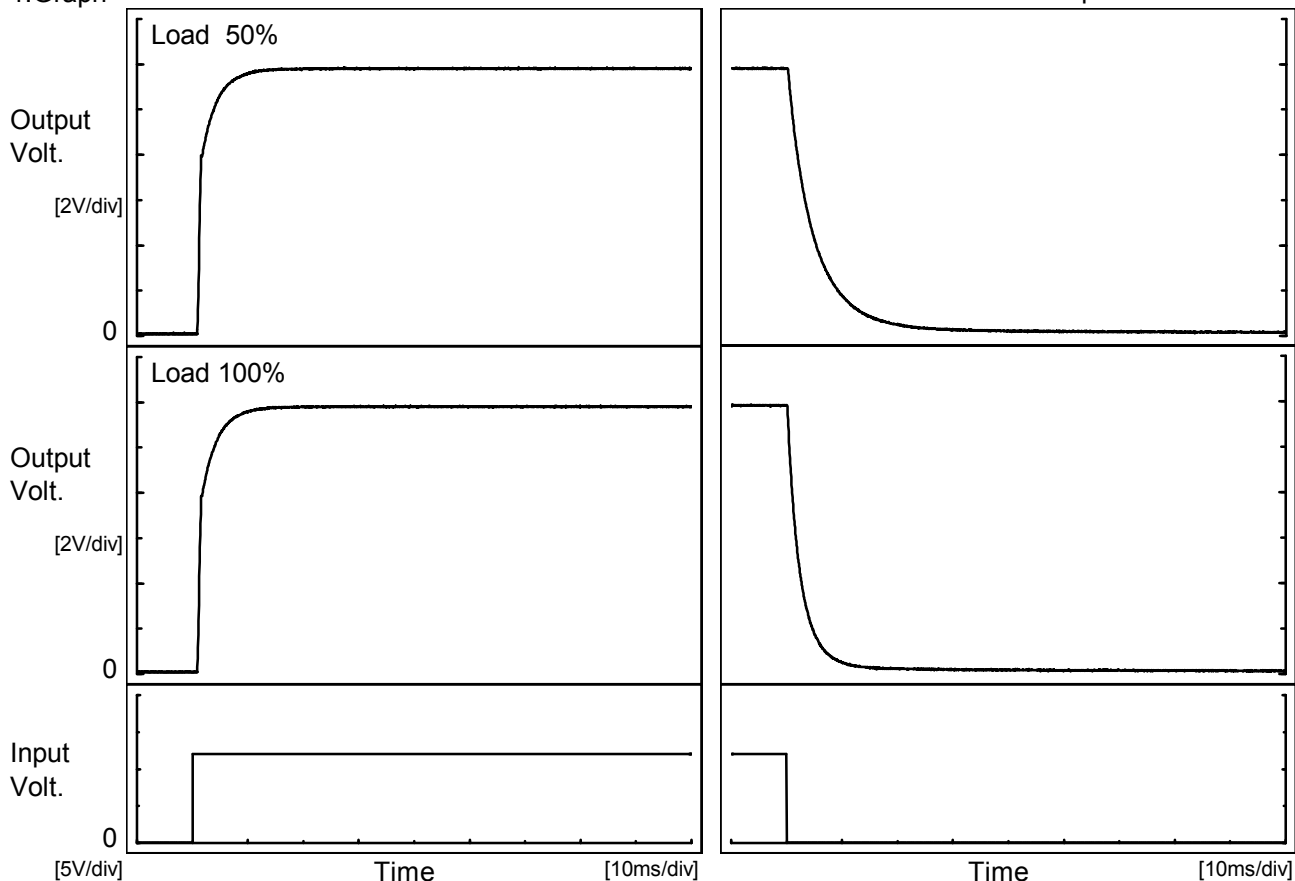
		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.1	4.6	5.7	0.5	10.9
100 %		1.1	4.6	5.7	0.3	5.4





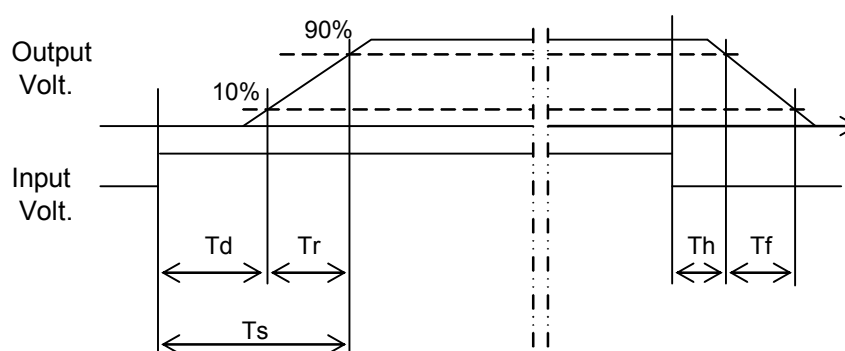
Model	MGW151212		
Item	Rise and Fall Time	Temperature	25°C
Object	-12V0.65A	Testing Circuitry	Figure A


1.Graph



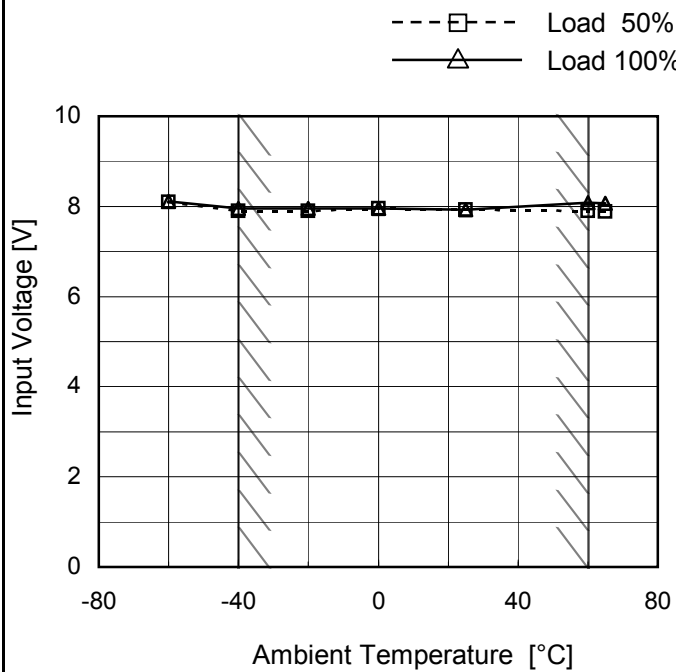
2.Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.1	4.7	5.8	0.5	11.4
100 %		1.1	4.7	5.8	0.3	5.8



	
Model	MGW151212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.65A

1.Graph



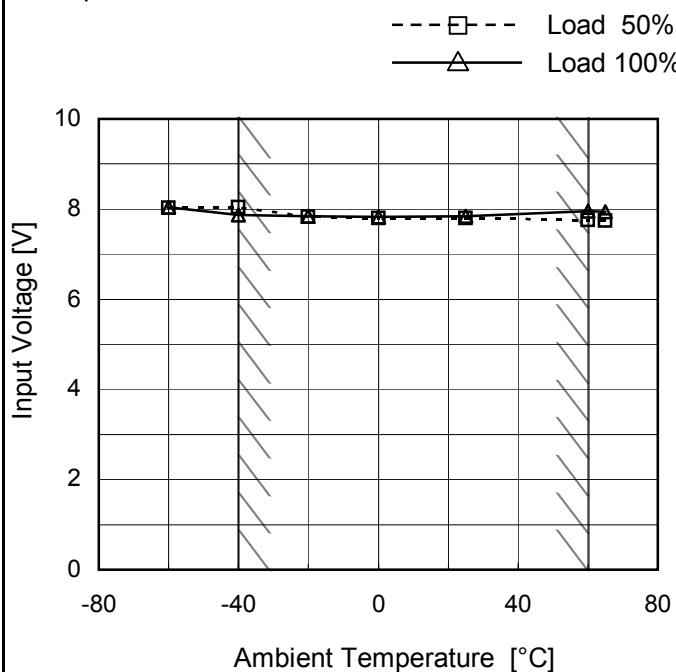
Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.2
-40	7.9	8.0
-20	7.9	8.0
0	8.0	8.0
25	8.0	8.0
60	7.9	8.1
65	7.9	8.1
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V0.65A
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1. Graph



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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.1
-40	8.1	7.9
-20	7.9	7.9
0	7.8	7.9
25	7.8	7.9
60	7.8	8.0
65	7.8	8.0
--	-	-
--	-	-
--	-	-
--	-	-

Model	MGW151212																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
Object	+12V0.65A	Testing Circuitry	Figure A																																																							
1.Graph		2.Values																																																								
<div><div><div></div><div>△</div><div>Input Volt. 9V</div></div><div><div></div><div>□</div><div>Input Volt. 12V</div></div><div><div></div><div>○</div><div>Input Volt. 18V</div></div></div> <p>Output Voltage [V]</p> <p>Load Current [A]</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>12.00</td><td>1.08</td><td>1.20</td><td>1.18</td></tr><tr><td>11.40</td><td>-</td><td>-</td><td>-</td></tr><tr><td>10.80</td><td>-</td><td>-</td><td>-</td></tr><tr><td>9.60</td><td>-</td><td>-</td><td>-</td></tr><tr><td>8.40</td><td>-</td><td>-</td><td>-</td></tr><tr><td>7.20</td><td>-</td><td>-</td><td>-</td></tr><tr><td>6.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>4.80</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.60</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.40</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.20</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr></table> <p>-12V: Rated output current</p>		Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	12.00	1.08	1.20	1.18	11.40	-	-	-	10.80	-	-	-	9.60	-	-	-	8.40	-	-	-	7.20	-	-	-	6.00	-	-	-	4.80	-	-	-	3.60	-	-	-	2.40	-	-	-	1.20	-	-	-	0.00	-	-	-
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<div><div><div></div><div>△</div><div>Input Volt. 9V</div></div><div><div></div><div>□</div><div>Input Volt. 12V</div></div><div><div></div><div>○</div><div>Input Volt. 18V</div></div></div> <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>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>-12.00</td><td>1.08</td><td>1.20</td><td>1.18</td></tr><tr><td>-11.40</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-10.80</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-9.60</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-8.40</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-7.20</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-6.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-4.80</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-3.60</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-2.40</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-1.20</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr></table> <p>+12V: Rated output current</p>		Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	-12.00	1.08	1.20	1.18	-11.40	-	-	-	-10.80	-	-	-	-9.60	-	-	-	-8.40	-	-	-	-7.20	-	-	-	-6.00	-	-	-	-4.80	-	-	-	-3.60	-	-	-	-2.40	-	-	-	-1.20	-	-	-	0.00	-	-	-
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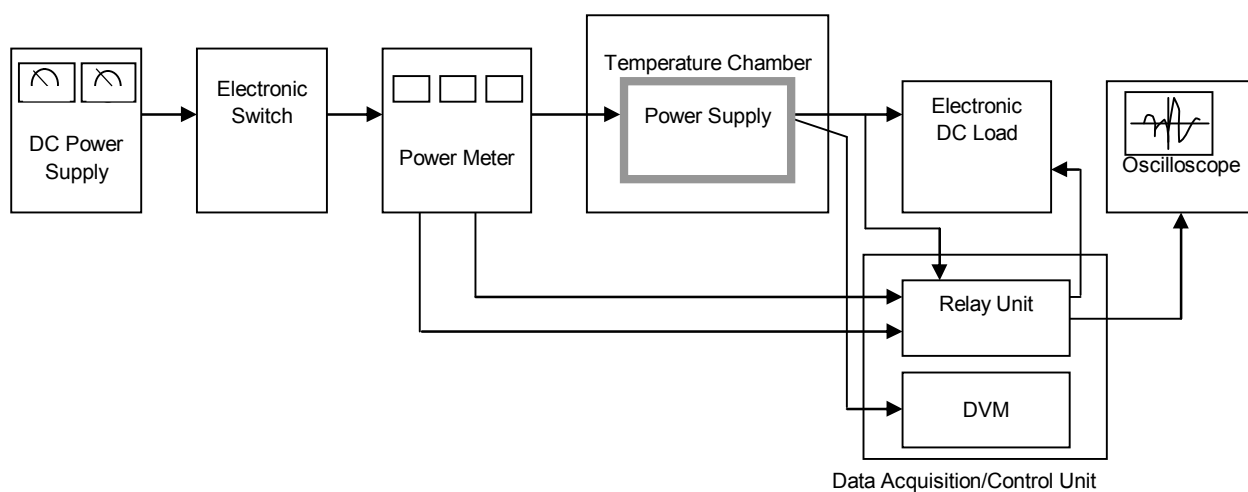


Figure A

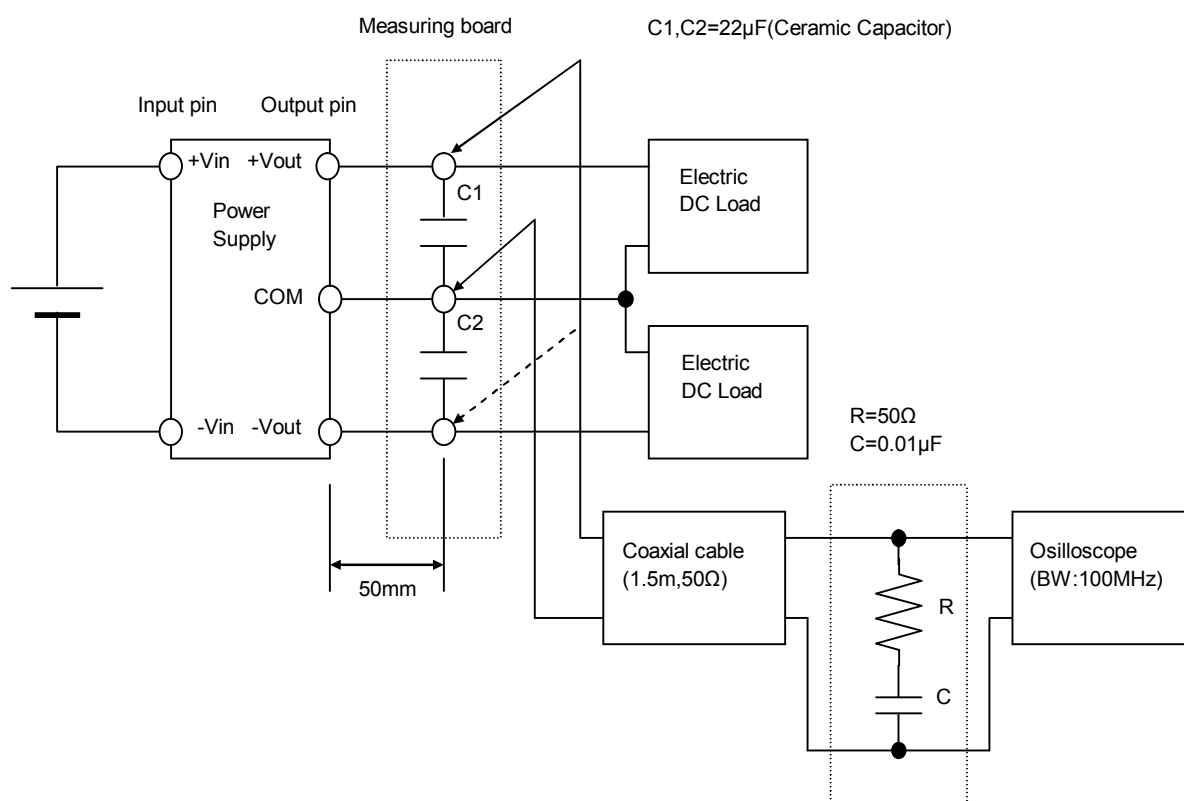


Figure B (Ripple and Ripple noise Characteristic)