

# TEST DATA OF MGW152412

Regulated DC Power Supply  
September 14, 2010

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Junki Nakayama  
Junki Nakayama Design Engineer

**COSEL CO.,LTD.**

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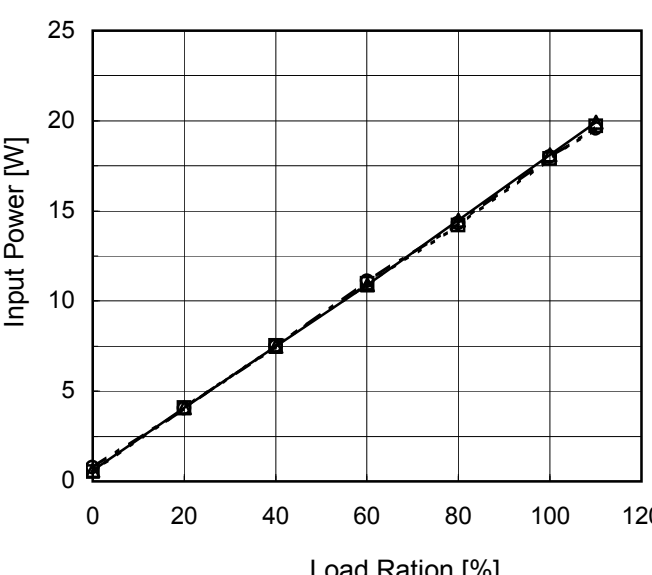


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Object	+12V0.65A		
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Model	MGW152412																																																					
Item	Load Regulation	Temperature	25°C																																																			
Object	+12V0.65A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
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Note: Slanted line shows the range of the rated load current.																																																						

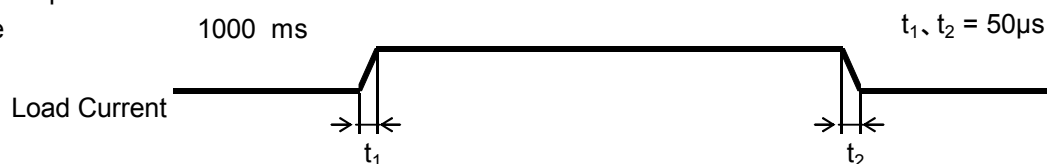


Model	MGW152412	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+12V0.65A	

Input Volt. 24 V

Other output current rated

Cycle 1000 ms



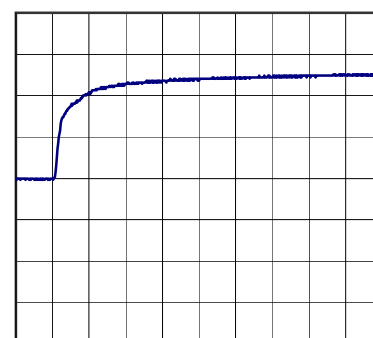
Min. Load (0A)  $\longleftrightarrow$

Load 100% (0.65A)

200mV/div



200µs/div



200µs/div

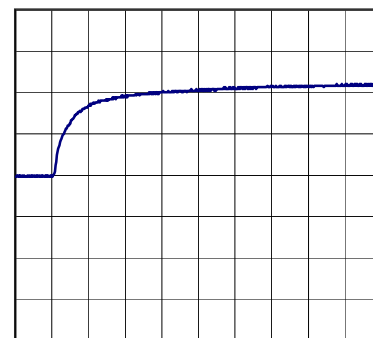
Min. Load (0A)  $\longleftrightarrow$

Load 50% (0.325A)

200mV/div



200µs/div

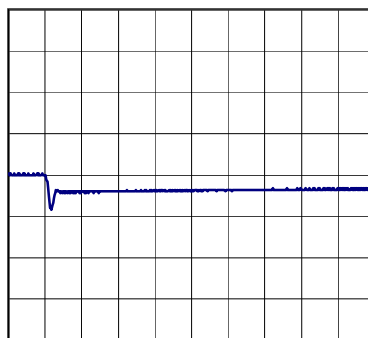


200µs/div

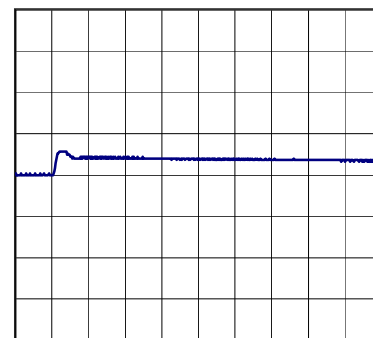
Load 50% (0.325A)  $\longleftrightarrow$

Load 100% (0.65A)

200mV/div



200µs/div



200µs/div



Model	MGW152412	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	-12V0.65A	

Input Volt. 24 V

Other output current rated

Cycle 1000 ms

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



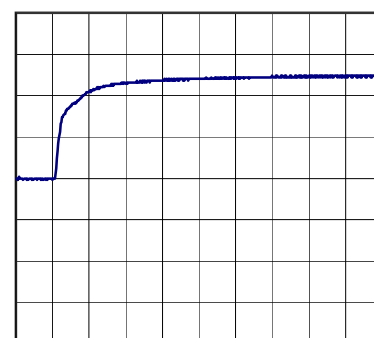
Min. Load (0A)  $\longleftrightarrow$

Load 100% (0.65A)

200mV/div



200 $\mu\text{s}$ /div

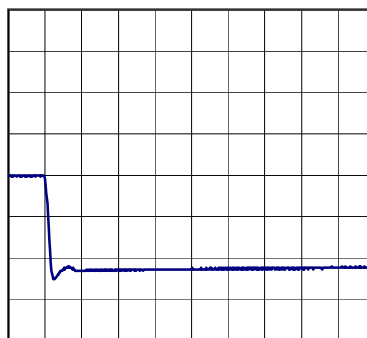


200 $\mu\text{s}$ /div

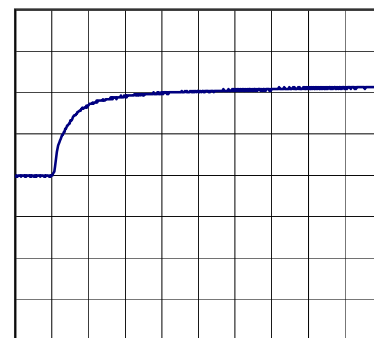
Min. Load (0A)  $\longleftrightarrow$

Load 50% (0.325A)

200mV/div



200 $\mu\text{s}$ /div

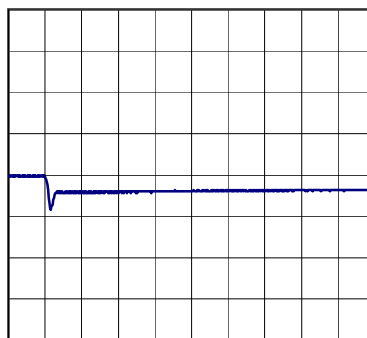


200 $\mu\text{s}$ /div

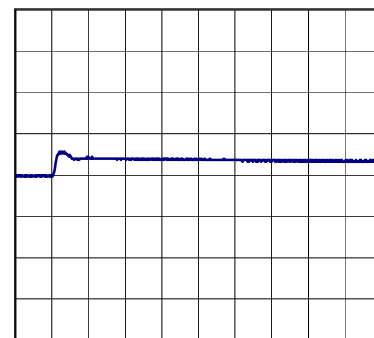
Load 50% (0.325A)  $\longleftrightarrow$

Load 100% (0.65A)

200mV/div



200 $\mu\text{s}$ /div



200 $\mu\text{s}$ /div

Model	MGW152412																																								
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Object	+12V0.65A	Testing Circuitry	Figure B																																						
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BC-10463

Model		MGW152412		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		-12V0.65A																																									
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BC-10463

Model		MGW152412																																							
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BC-10463

Model	MGW152412																																								
Item	Ripple-Noise	Temperature	25°C																																						
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BC-10463

Model	MGW152412																																								
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry    Figure B																																							
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Model	MGW152412																																																						
Item	Ambient Temperature Drift	Testing Circuitry    Figure A																																																					
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Note: Slanted line shows the range of the rated ambient temperature.																																																							



Model	MGW152412	
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 : 18 - 36V

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

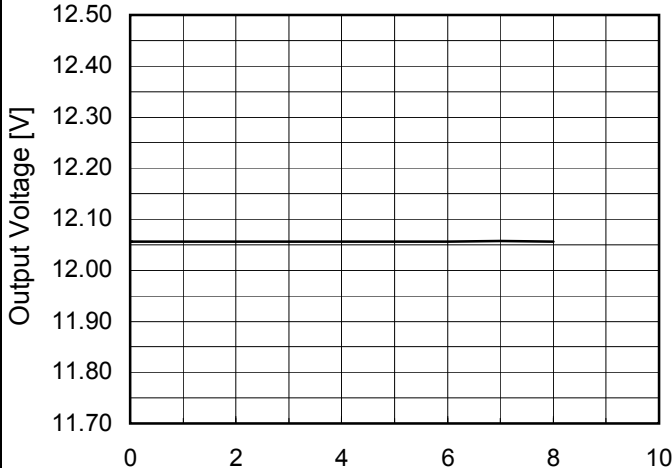
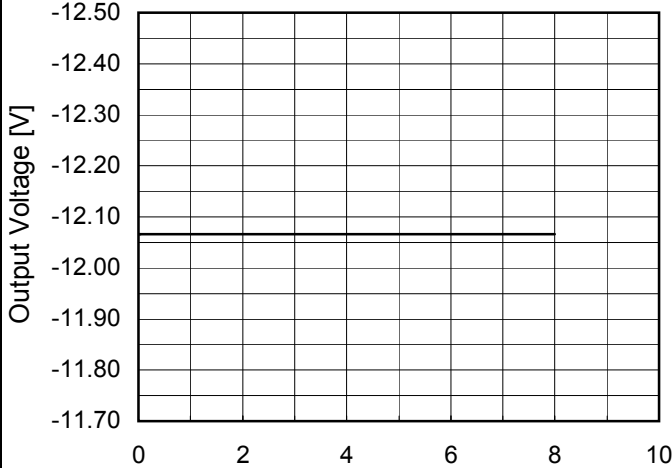
\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

\* 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	18	0	12.566	±270	±2.3
Minimum Voltage	-40	18	0.65	12.026		

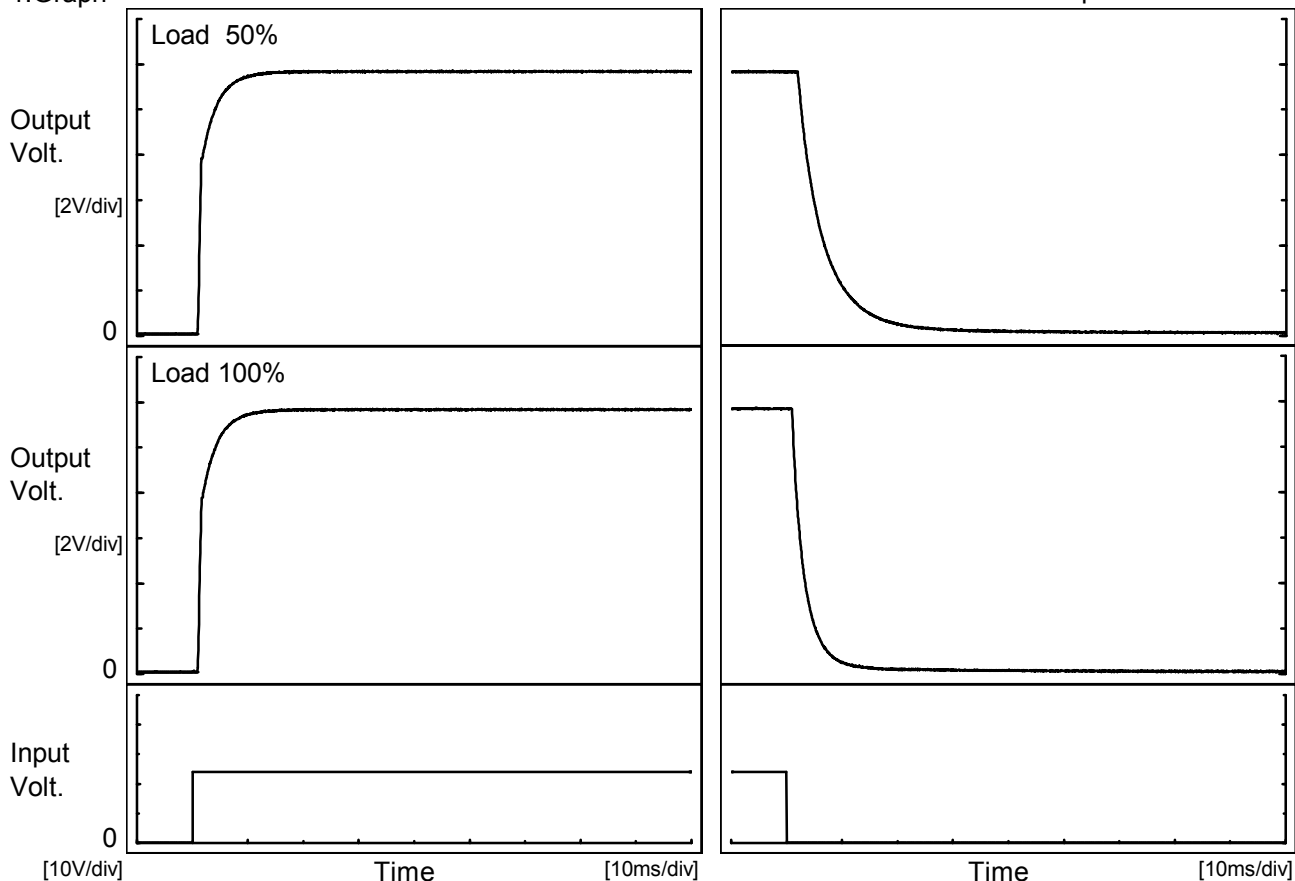
Object		-12V0.65A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	18	0	-12.567	±272	±2.3
Minimum Voltage	-40	18	0.65	-12.024		

Model	MGW152412																								
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. 24V</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>12.056</td></tr><tr><td>0.5</td><td>12.056</td></tr><tr><td>1.0</td><td>12.056</td></tr><tr><td>2.0</td><td>12.057</td></tr><tr><td>3.0</td><td>12.057</td></tr><tr><td>4.0</td><td>12.057</td></tr><tr><td>5.0</td><td>12.057</td></tr><tr><td>6.0</td><td>12.057</td></tr><tr><td>7.0</td><td>12.057</td></tr><tr><td>8.0</td><td>12.057</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	12.056	0.5	12.056	1.0	12.056	2.0	12.057	3.0	12.057	4.0	12.057	5.0	12.057	6.0	12.057	7.0	12.057	8.0	12.057
Time since start [H]	Output Voltage [V]																								
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Time since start [H]	Output Voltage [V]																								
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7.0	-12.066																								
8.0	-12.066																								



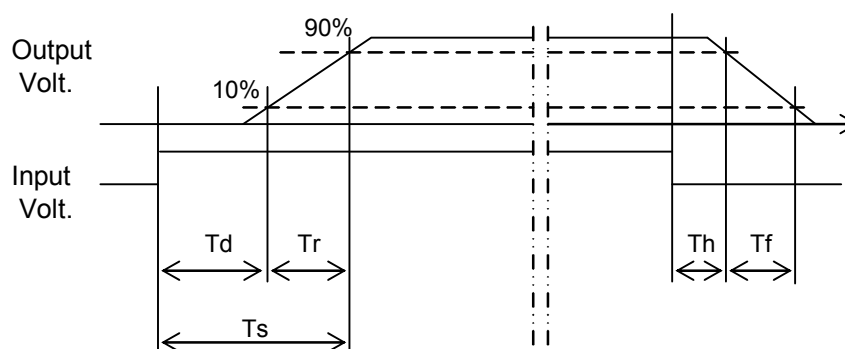
Model	MGW152412	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.65A		

## 1.Graph



## 2.Values

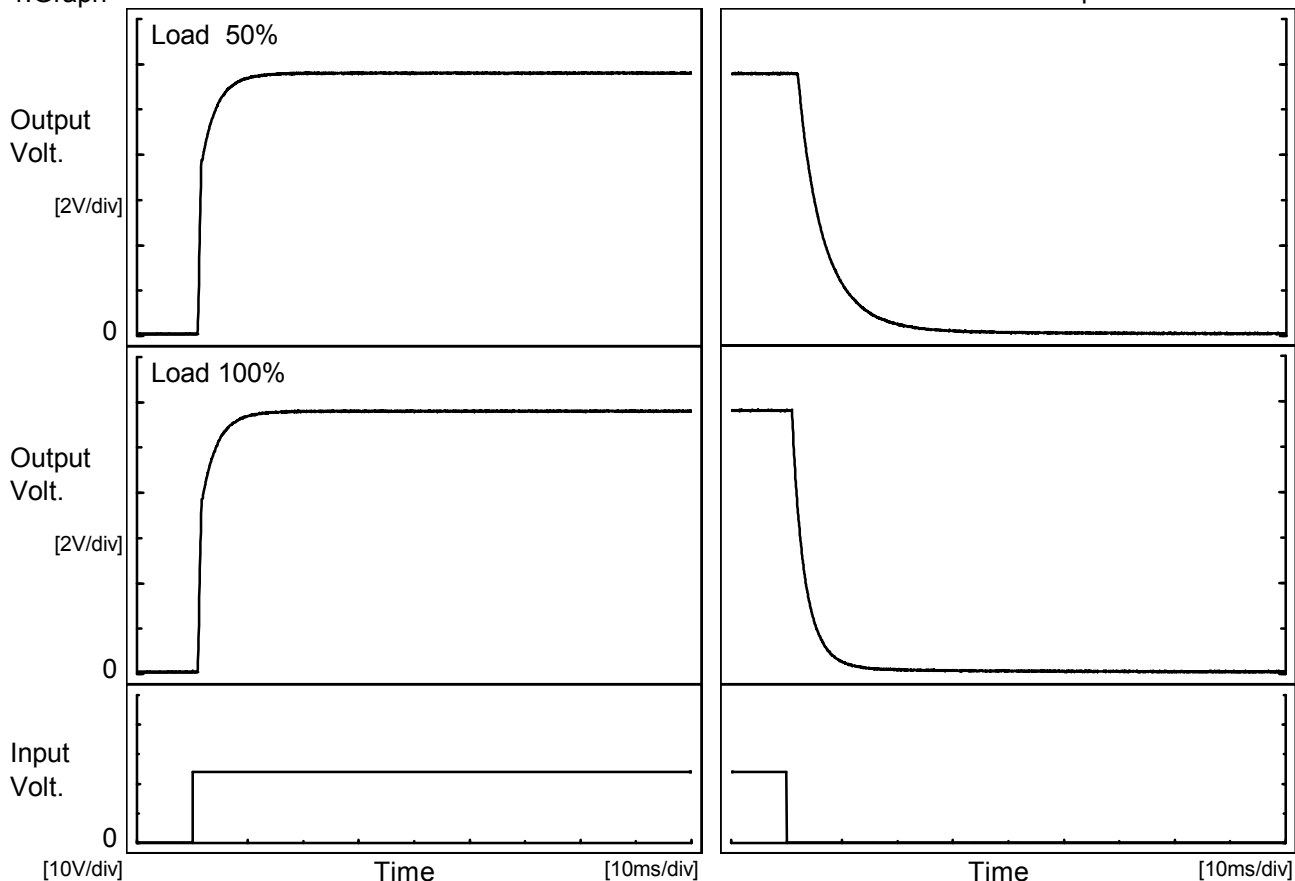
Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.1	5.0	6.1	2.2	11.0
100 %	1.1	5.1	6.2	1.1	5.4





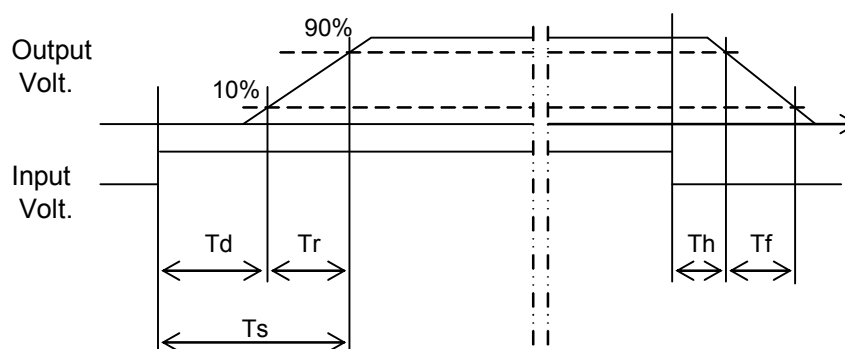
Model	MGW152412		
Item	Rise and Fall Time	Temperature	25°C
Object	-12V0.65A	Testing Circuitry	Figure A

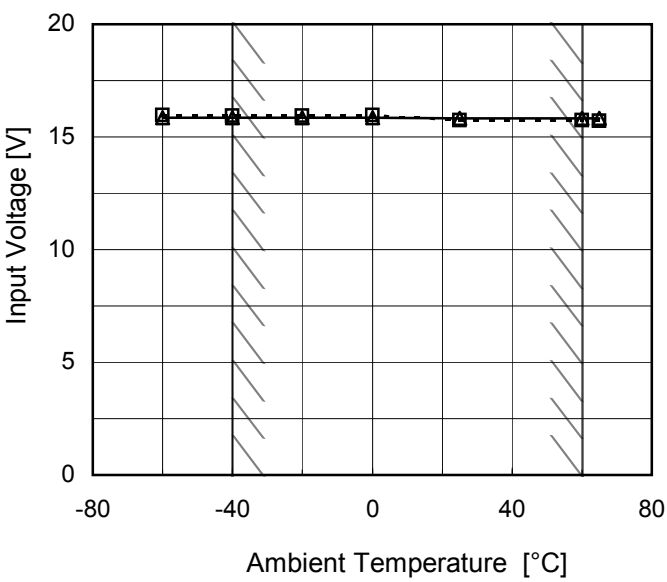
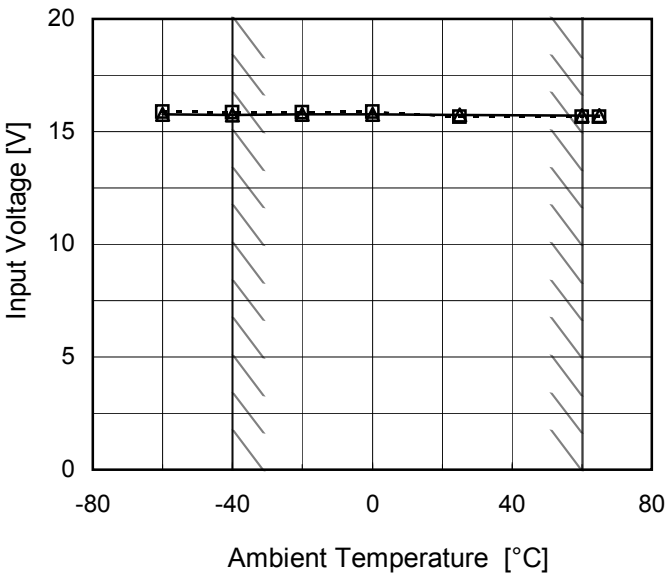
## 1.Graph



## 2.Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.1	5.3	6.4	2.2	11.2
100 %		1.1	5.3	6.4	1.1	5.6



Model	MGW152412	Testing Circuitry    Figure A																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																								
Object	+12V0.65A																																								
1.Graph		2.Values																																							
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> 		<table><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><tr><td>-60</td><td>16.0</td><td>15.9</td></tr><tr><td>-40</td><td>16.0</td><td>15.9</td></tr><tr><td>-20</td><td>16.0</td><td>15.9</td></tr><tr><td>0</td><td>16.0</td><td>15.9</td></tr><tr><td>25</td><td>15.8</td><td>15.9</td></tr><tr><td>60</td><td>15.8</td><td>15.9</td></tr><tr><td>65</td><td>15.8</td><td>15.9</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	16.0	15.9	-40	16.0	15.9	-20	16.0	15.9	0	16.0	15.9	25	15.8	15.9	60	15.8	15.9	65	15.8	15.9	--	-	-	--	-	-	--	-	-	--	-	-
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Note: Slanted line shows the range of the rated ambient temperature.																																									

- 20 -

BC-10463

Model	MGW152412																																																									
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. 18V</div></div><div><div></div><div>□</div><div>Input Volt. 24V</div></div><div><div></div><div>○</div><div>Input Volt. 36V</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. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>12.00</td><td>1.03</td><td>1.13</td><td>1.12</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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	12.00	1.03	1.13	1.12	11.40	-	-	-	10.80	-	-	-	9.60	-	-	-	8.40	-	-	-	7.20	-	-	-	6.00	-	-	-	4.80	-	-	-	3.60	-	-	-	2.40	-	-	-	1.20	-	-	-	0.00	-	-	-
Output Voltage [V]	Load Current [A]																																																									
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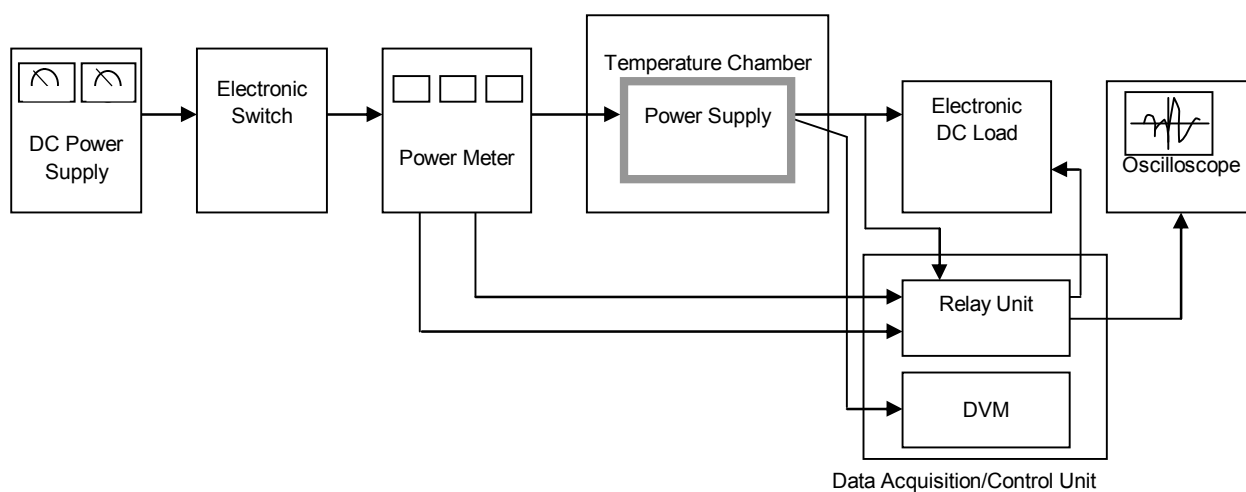


Figure A

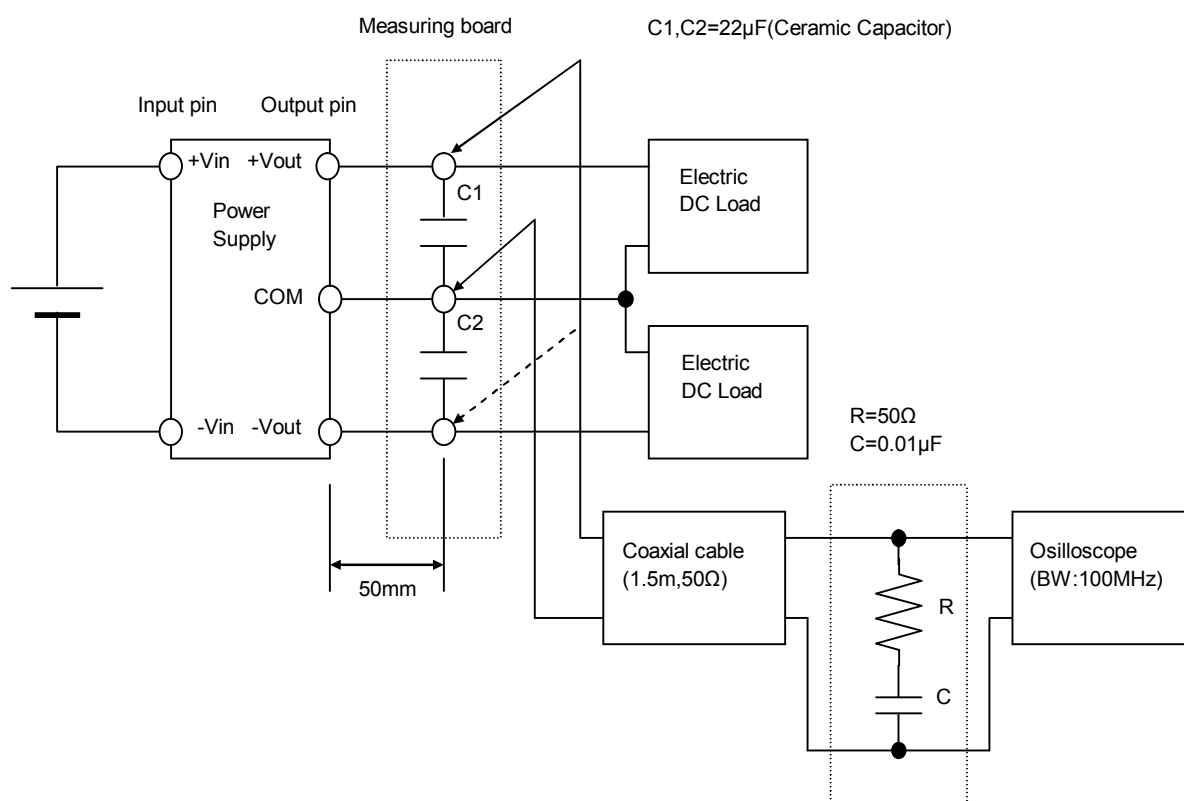


Figure B (Ripple and Ripple noise Characteristic)