

# TEST DATA OF MGW151205

Regulated DC Power Supply  
September 10, 2010

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Shintaro Mizukami  
Shintaro Mizukami Design Engineer

**COSEL CO.,LTD.**

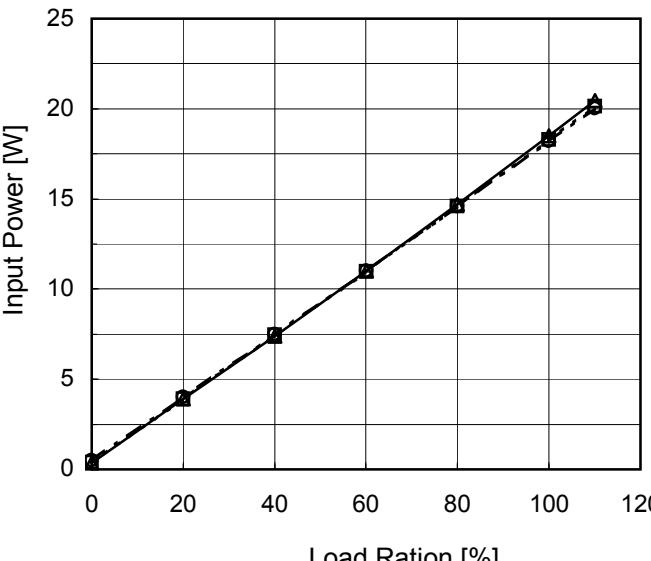
## CONTENTS

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

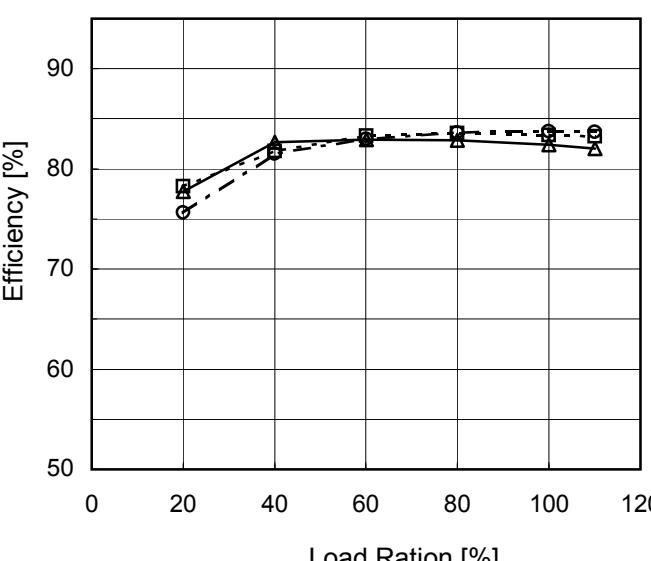
(Final Page 22)

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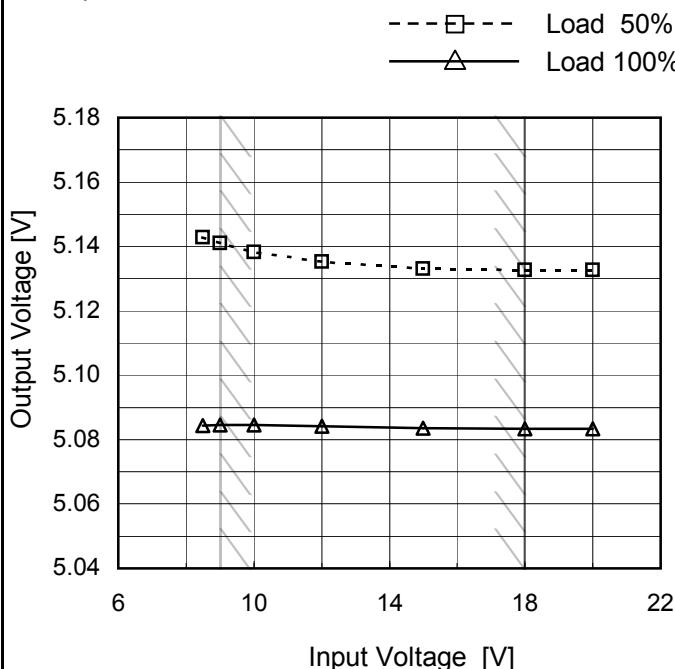
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<p>The graph plots Efficiency [%] on the y-axis (50 to 90) against Input Voltage [V] on the x-axis (6 to 22). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show efficiency increasing slightly with input voltage. A slanted line indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>8.5</td><td>82.6</td><td>82.0</td></tr> <tr><td>9.0</td><td>82.7</td><td>82.4</td></tr> <tr><td>10.0</td><td>82.8</td><td>82.9</td></tr> <tr><td>12.0</td><td>84.0</td><td>83.4</td></tr> <tr><td>15.0</td><td>82.4</td><td>83.7</td></tr> <tr><td>18.0</td><td>82.6</td><td>83.7</td></tr> <tr><td>20.0</td><td>83.2</td><td>83.8</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% [%]	Efficiency Load 100% [%]	8.5	82.6	82.0	9.0	82.7	82.4	10.0	82.8	82.9	12.0	84.0	83.4	15.0	82.4	83.7	18.0	82.6	83.7	20.0	83.2	83.8	--	-	-	--	-	-		
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Model	MGW151205
Item	Line Regulation
Object	+5V1.5A

Temperature 25°C  
Testing Circuitry Figure A

## 1.Graph



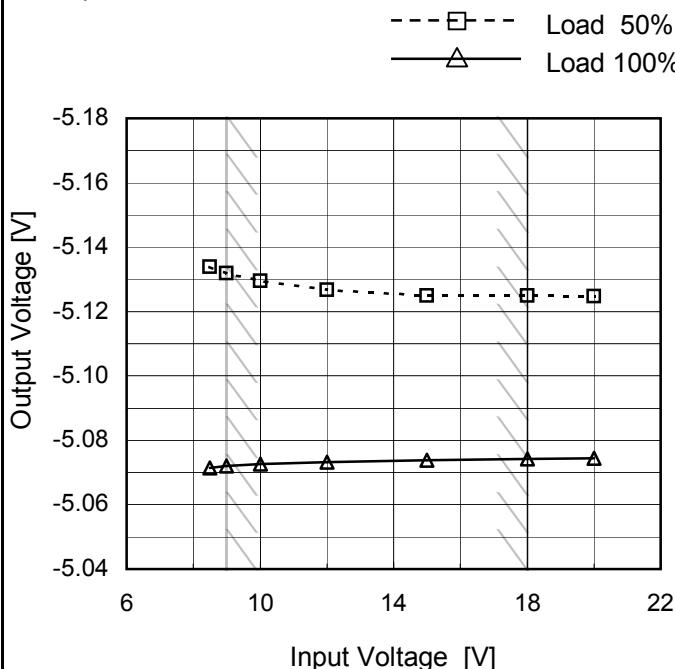
## 2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	5.143	5.084
9.0	5.141	5.085
10.0	5.138	5.085
12.0	5.135	5.084
15.0	5.133	5.084
18.0	5.133	5.083
20.0	5.133	5.083
--	-	-
--	-	-

-5V: Rated output current

## Object -5V1.5A

## 1.Graph



## 2.Values

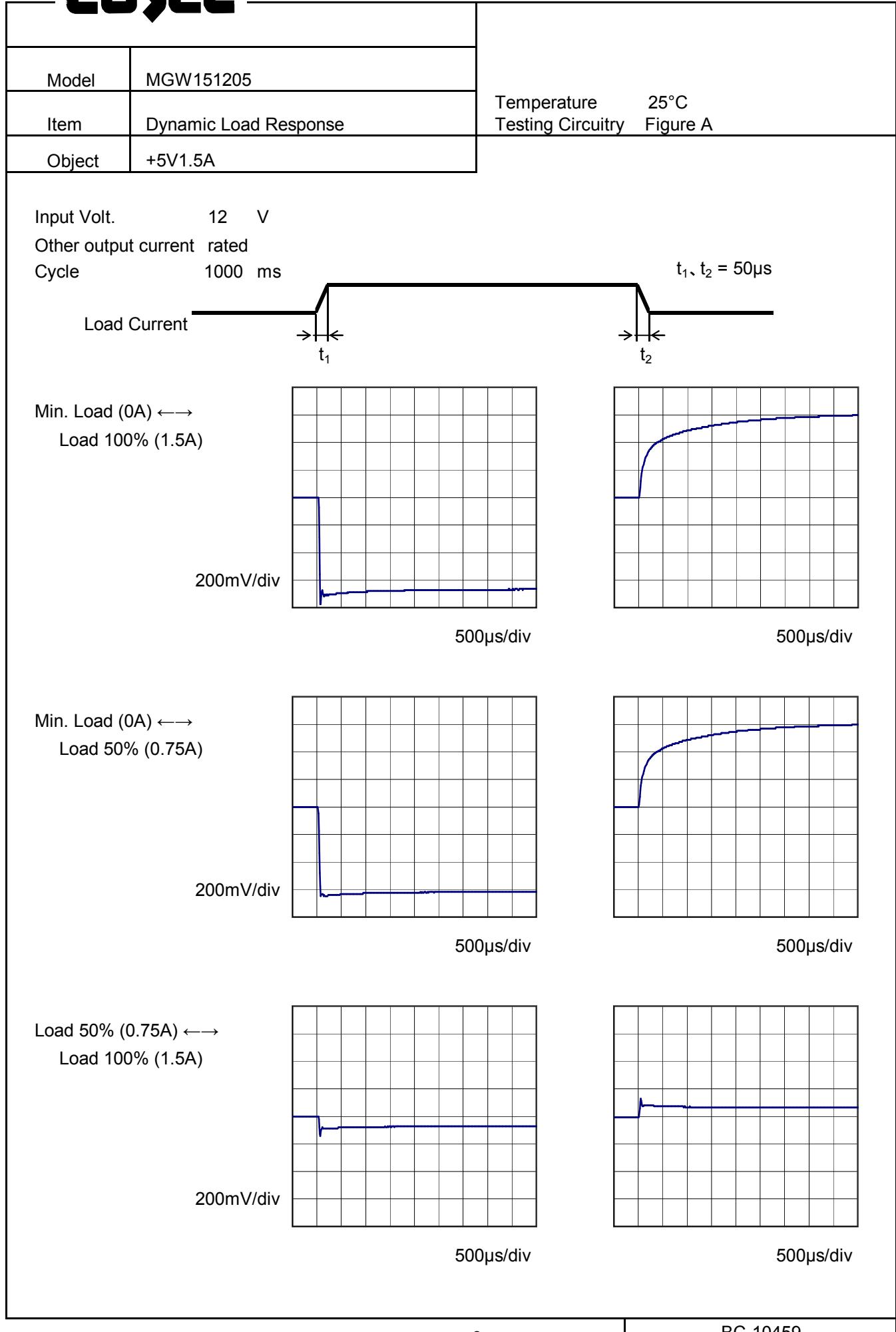
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	-5.134	-5.072
9.0	-5.132	-5.072
10.0	-5.129	-5.073
12.0	-5.127	-5.073
15.0	-5.125	-5.074
18.0	-5.125	-5.074
20.0	-5.125	-5.075
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+5V: Rated output current

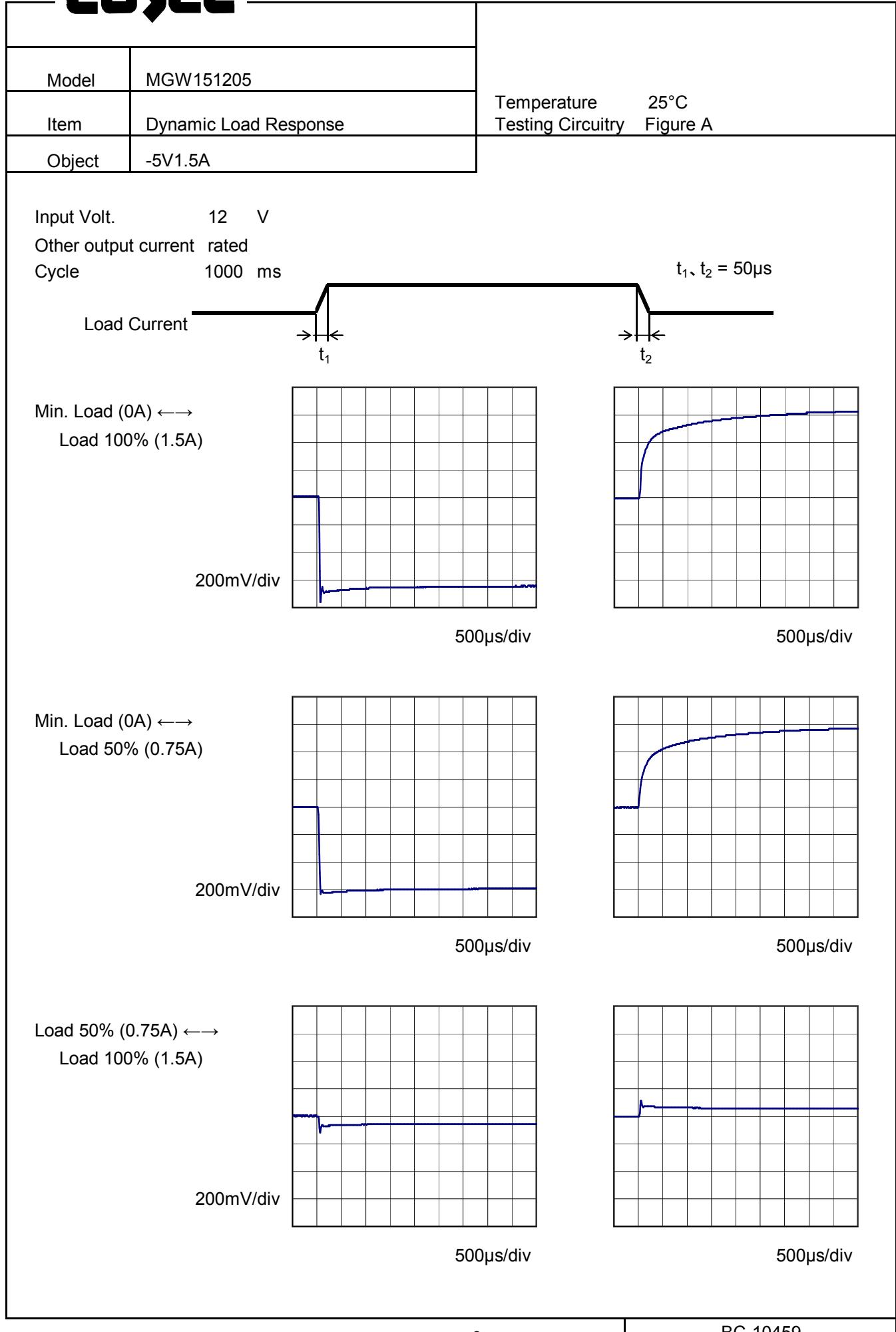
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<p>Fig.Complex Ripple Noise Wave Form</p>																																									

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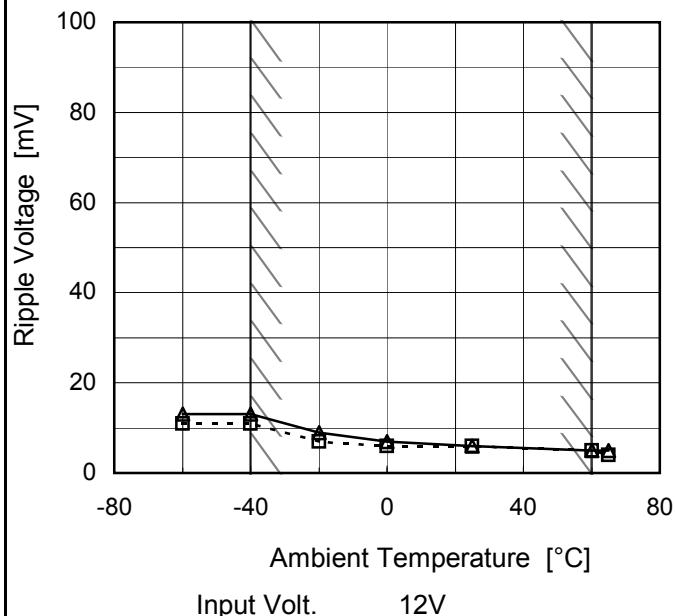
Model MGW151205

Item Ripple Voltage (by Ambient Temp.)

Object +5V1.5A

## 1.Graph

--- □ --- Load 50%  
 —△— Load 100%



Testing Circuitry Figure B

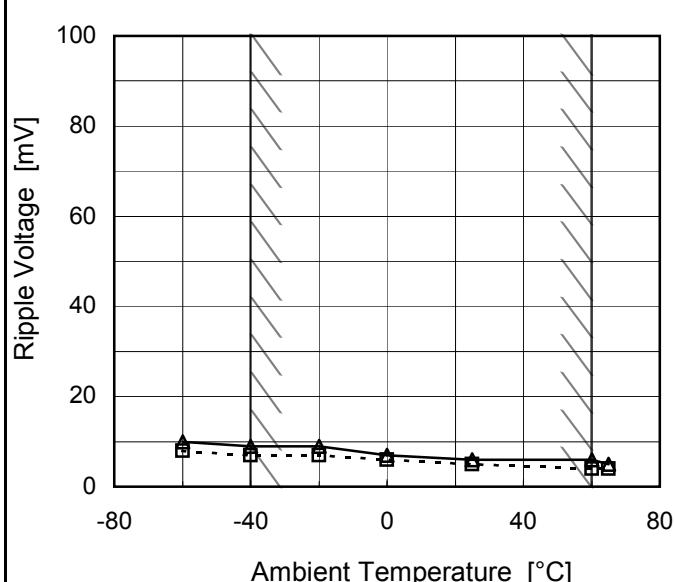
## 2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	11	13
-40	11	13
-20	7	9
0	6	7
25	6	6
60	5	5
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

## 1.Graph

--- □ --- Load 50%  
 —△— Load 100%



## 2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	8	10
-40	7	9
-20	7	9
0	6	7
25	5	6
60	4	6
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

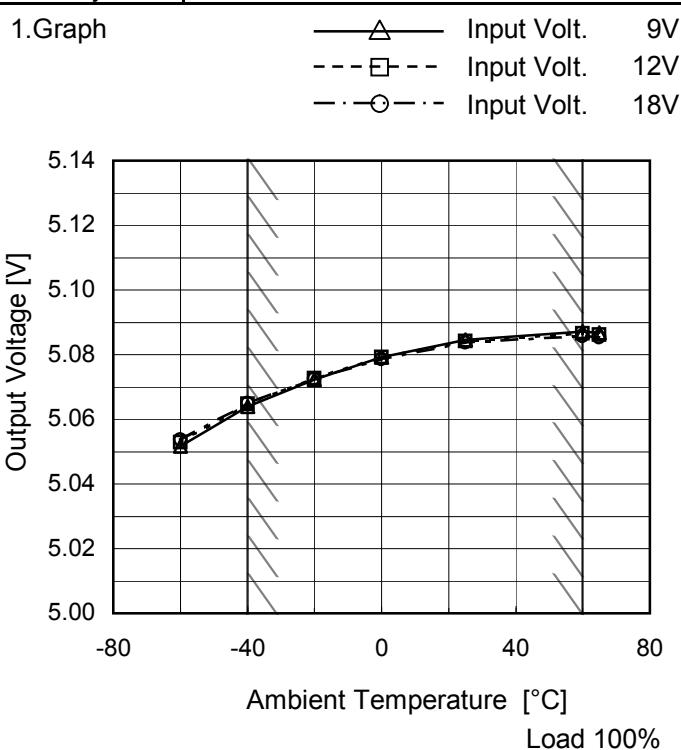
+5V: Rated output current

Measured by 100 MHz Oscilloscope.

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

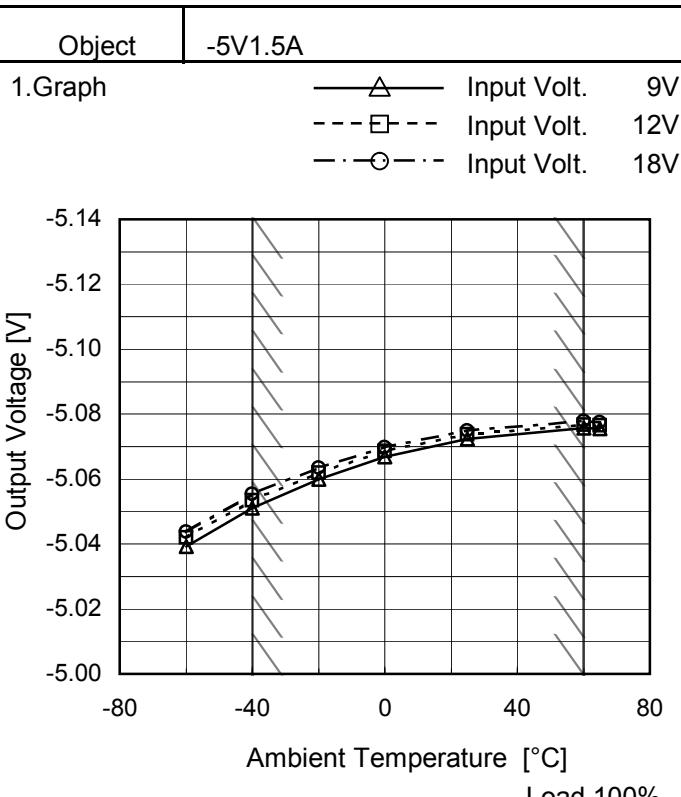
Model	MGW151205
Item	Ambient Temperature Drift
Object	+5V1.5A

## Testing Circuitry Figure A



## 2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	5.052	5.053	5.054
-40	5.064	5.065	5.065
-20	5.072	5.073	5.072
0	5.079	5.079	5.079
25	5.085	5.084	5.084
60	5.087	5.087	5.086
65	5.087	5.086	5.085
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



## 2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	-5.039	-5.042	-5.044
-40	-5.051	-5.054	-5.055
-20	-5.060	-5.062	-5.063
0	-5.067	-5.069	-5.070
25	-5.072	-5.074	-5.075
60	-5.076	-5.077	-5.078
65	-5.076	-5.077	-5.078
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	MGW151205	
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 - 1.5A (AVR 2) : 0 - 1.5A

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

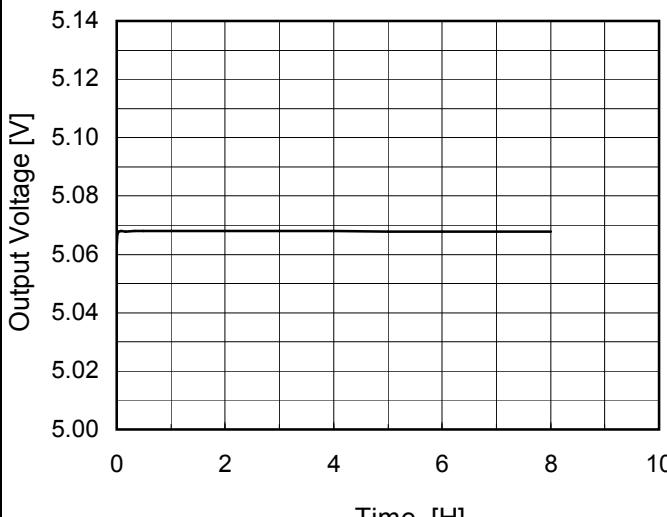
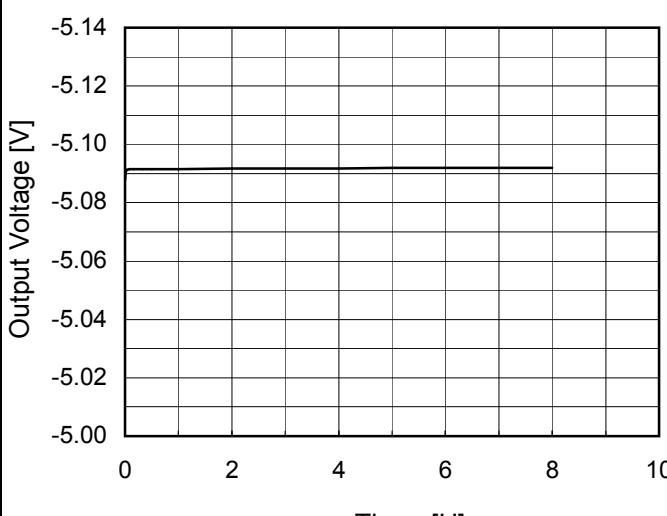
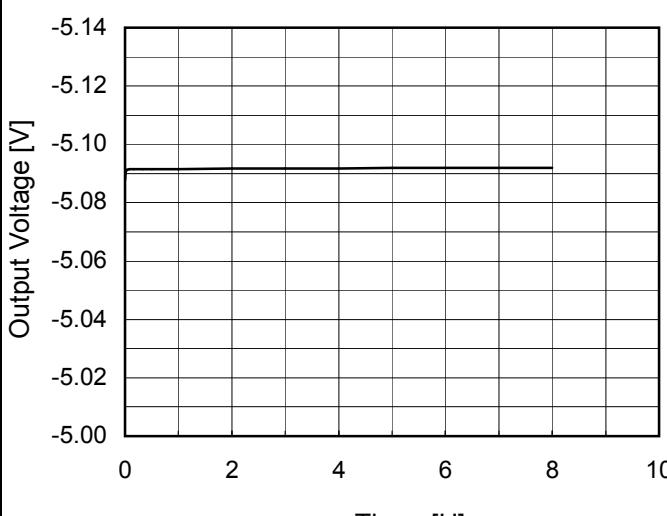
$$\text{* Output Voltage Accuracy (Ratio)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

### 2. Values

Object		+5V1.5A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Output		Value [mV]	Ration [%]	
			Current[A]	Voltage[V]			
Maximum Voltage	25	9	0	5.901	±419	±8.4	
Minimum Voltage	-40	9	1.5	5.064			

Object		-5V1.5A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Output		Value [mV]	Ration [%]	
			Current[A]	Voltage[V]			
Maximum Voltage	25	9	0	-5.823	±392	±7.8	
Minimum Voltage	-40	9	1.5	-5.039			

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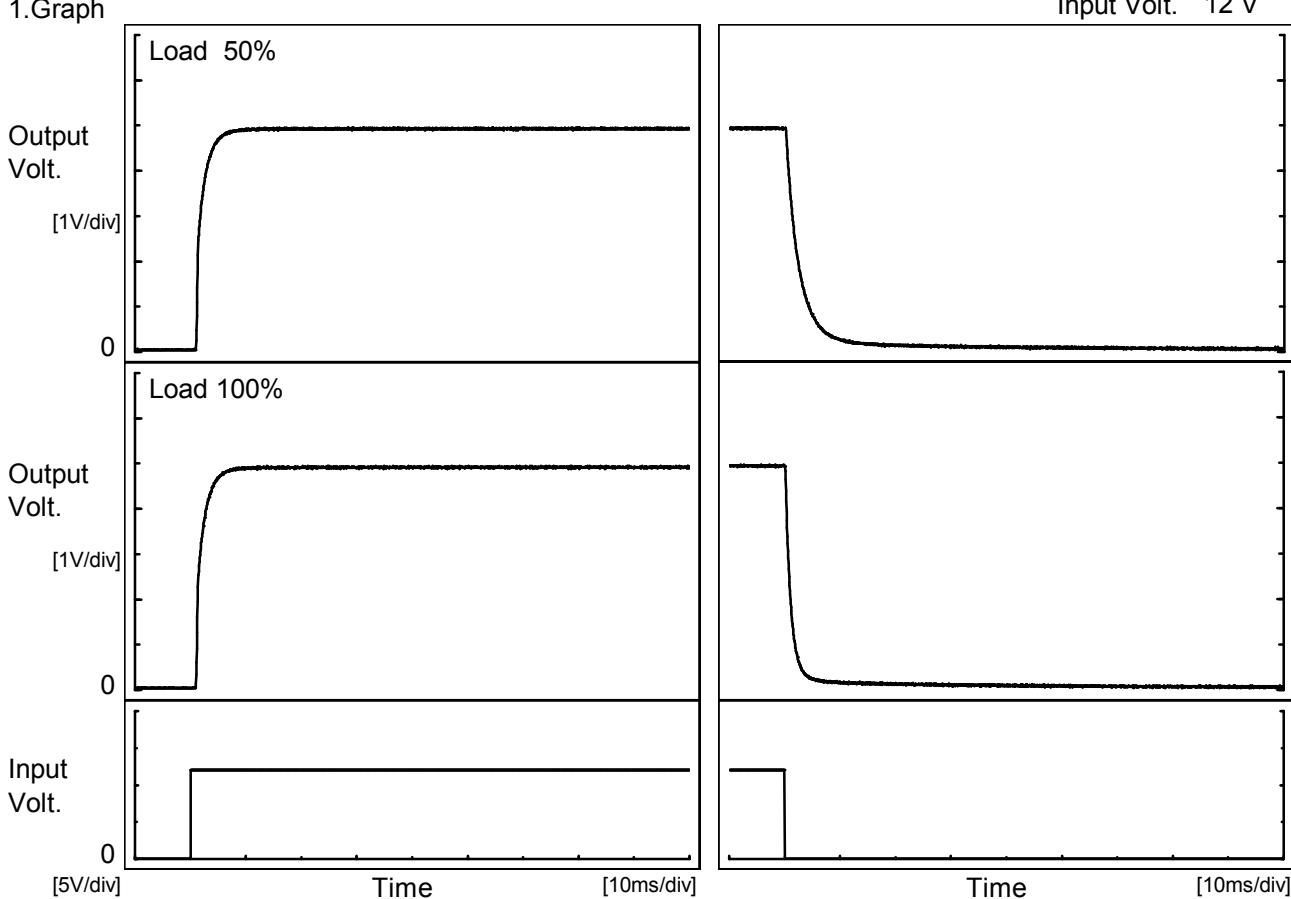
Model	MGW151205	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+5V1.5A																								
1.Graph			2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V Load 100%</p>			<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>5.063</td></tr> <tr><td>0.5</td><td>5.068</td></tr> <tr><td>1.0</td><td>5.068</td></tr> <tr><td>2.0</td><td>5.068</td></tr> <tr><td>3.0</td><td>5.068</td></tr> <tr><td>4.0</td><td>5.068</td></tr> <tr><td>5.0</td><td>5.068</td></tr> <tr><td>6.0</td><td>5.068</td></tr> <tr><td>7.0</td><td>5.068</td></tr> <tr><td>8.0</td><td>5.068</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	5.063	0.5	5.068	1.0	5.068	2.0	5.068	3.0	5.068	4.0	5.068	5.0	5.068	6.0	5.068	7.0	5.068	8.0	5.068
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8.0	-5.092																								

**COSEL**

Model	MGW151205
Item	Rise and Fall Time
Object	+5V1.5A

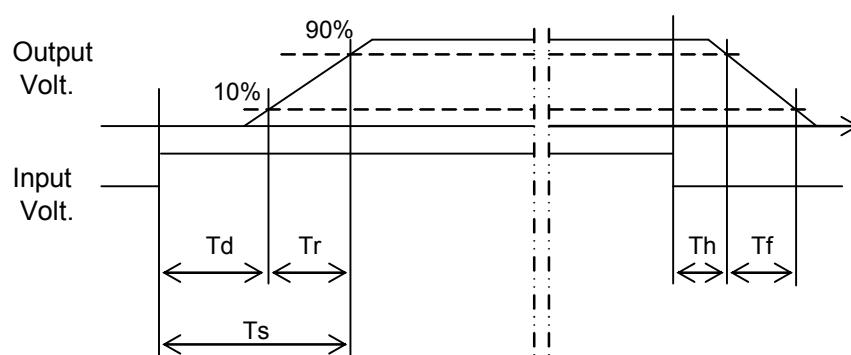
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.2	3.1	4.3	0.3	6.0
100 %		1.1	3.2	4.3	0.2	2.6

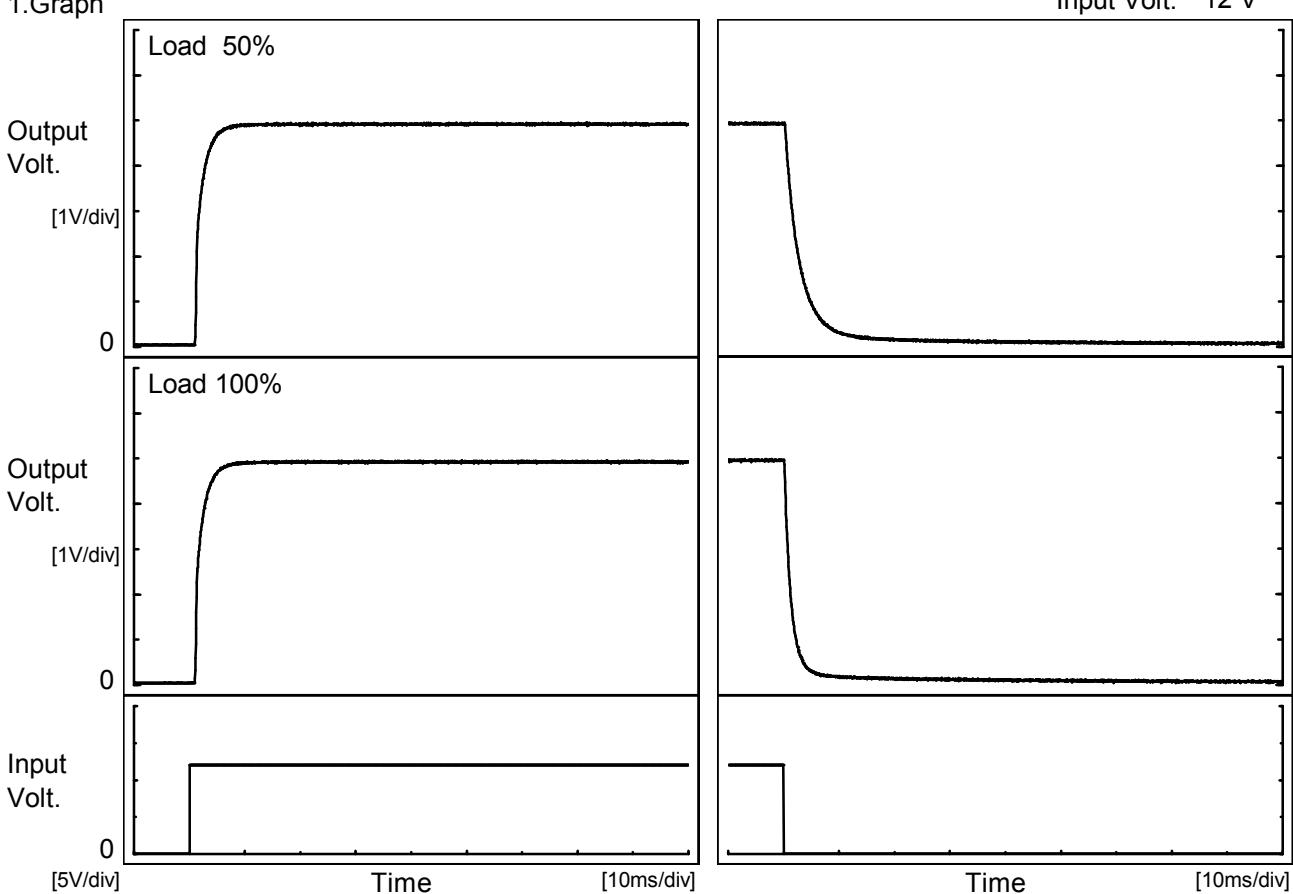


**COSEL**

Model	MGW151205
Item	Rise and Fall Time
Object	-5V1.5A

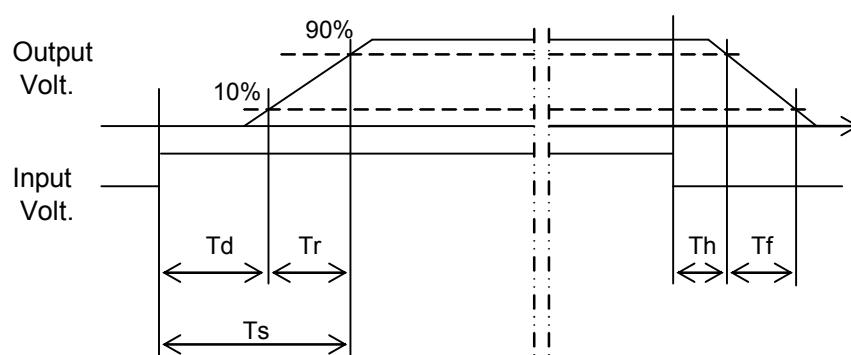
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

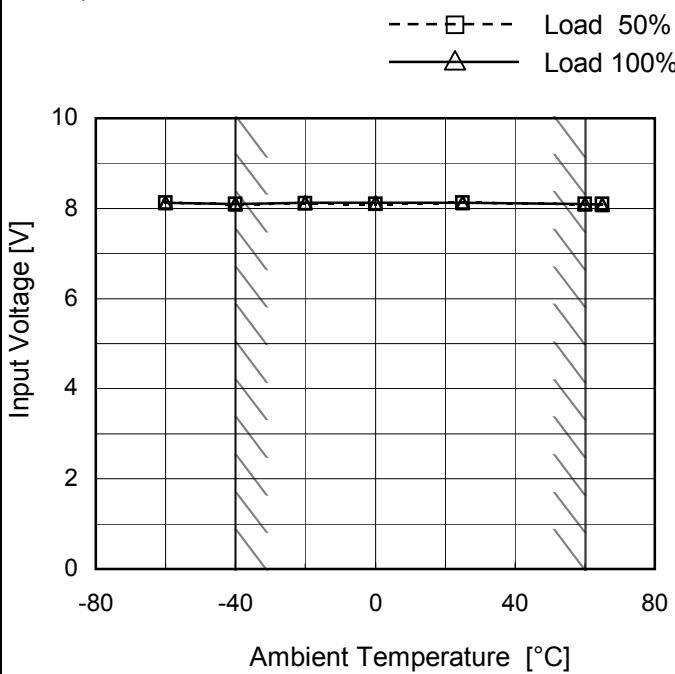
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.2	3.2	4.4	0.3	6.9
100 %		1.1	3.1	4.2	0.2	3.1



Model	MGW151205
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.5A

Testing Circuitry Figure A

## 1.Graph

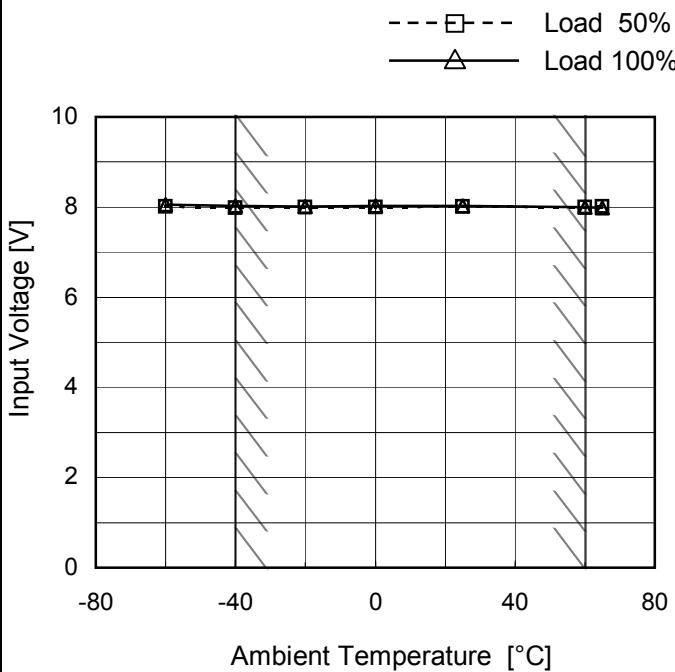


## 2.Values

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

Object	-5V1.5A
--------	---------

## 1.Graph



## 2.Values

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

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

Model	MGW151205			Temperature Testing Circuitry 25°C Figure A																																																							
Item	Overcurrent Protection																																																										
Object	+5V1.5A																																																										
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Output Voltage [V]	Load Current [A]																																																										
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COSEL

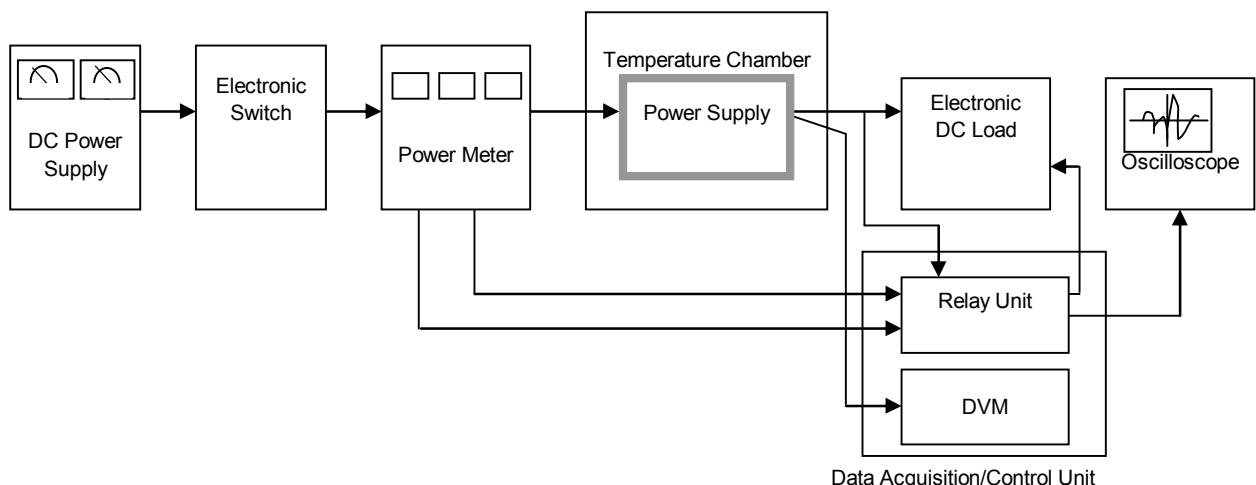


Figure A

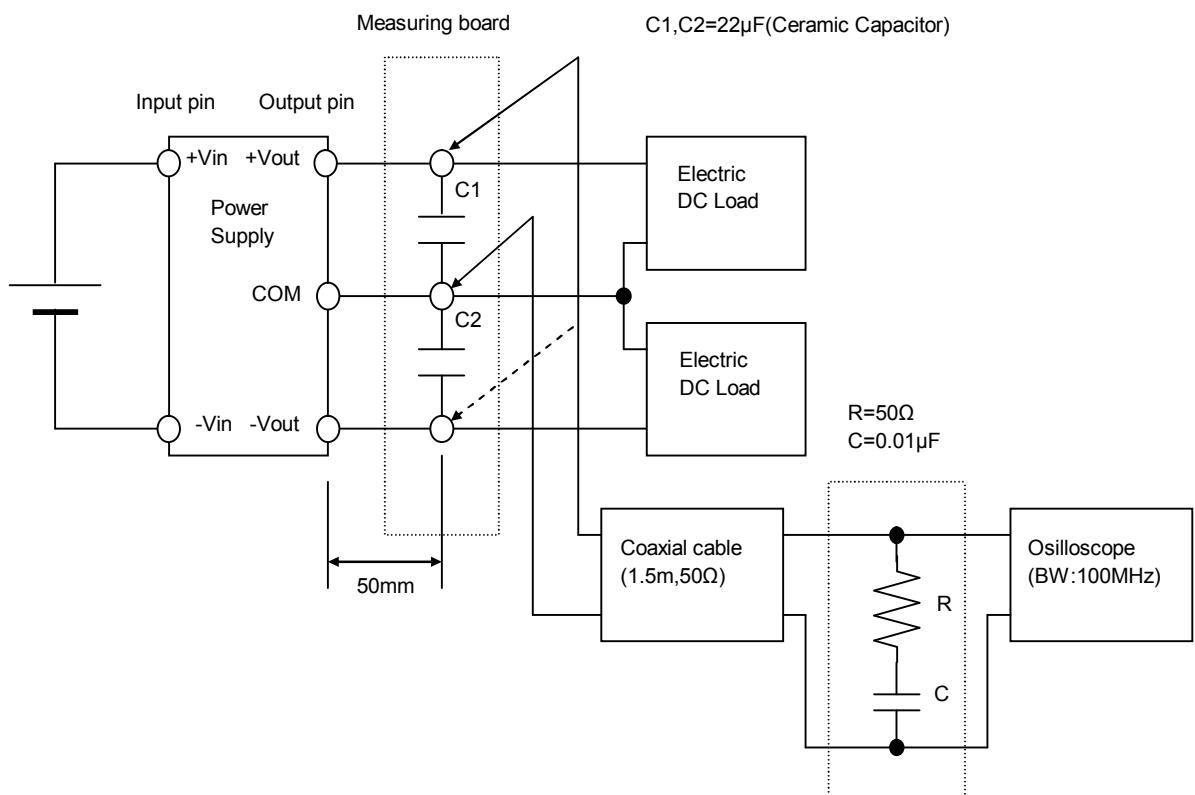


Figure B (Ripple and Ripple noise Characteristic)