

TEST DATA OF MGS151205

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.

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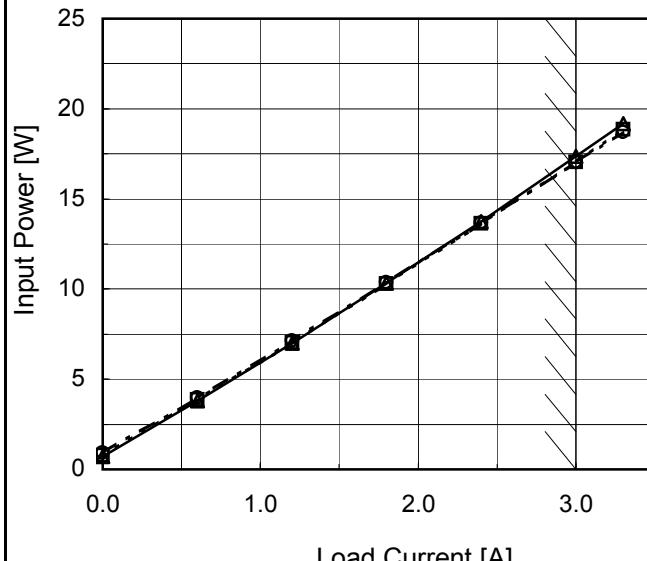
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Note: Slanted line shows the range of the rated input voltage.

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.001	0.001	0.001
4.0	0.001	0.002	0.002
6.0	0.002	0.002	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.1	0.082	1.062	2.199
8.5	0.080	1.014	2.040
9.0	0.077	0.958	1.916
10.0	0.071	0.860	1.708
12.0	0.064	0.717	1.411
14.0	0.058	0.617	1.206
16.0	0.053	0.541	1.062
18.0	0.050	0.484	0.954
20.0	0.047	0.436	0.850
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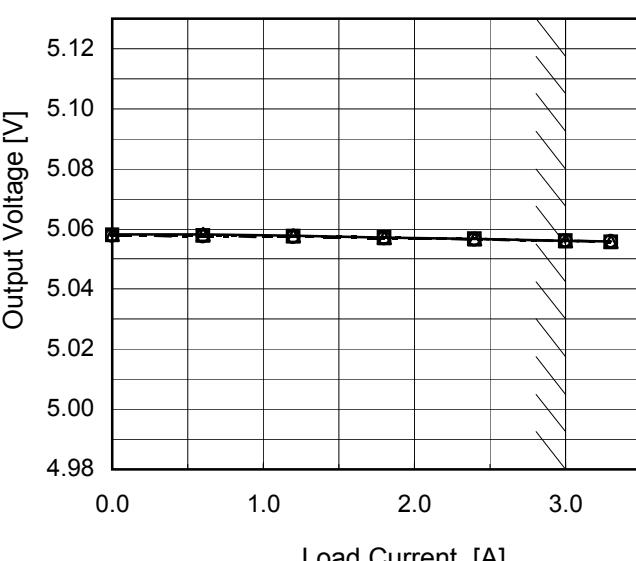
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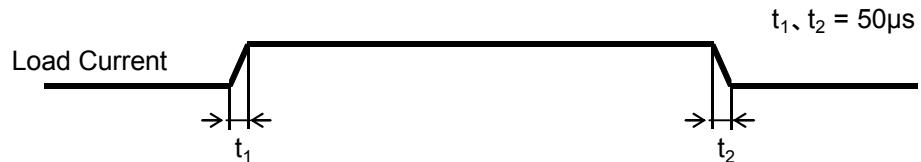
Note: Slanted line shows the range of the rated input voltage.

Model	MGS151205	Temperature Testing Circuitry 25°C Figure A																																																			
Item	Load Regulation																																																				
Object	+5V3A																																																				
1.Graph	<p>—△— Input Volt. 9V - - -□- - Input Volt. 12V - - -○- - Input Volt. 18V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																			
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> </tr> </thead> <tbody> <tr> <td>0.0</td><td>5.058</td><td>5.058</td><td>5.058</td></tr> <tr> <td>0.6</td><td>5.058</td><td>5.058</td><td>5.058</td></tr> <tr> <td>1.2</td><td>5.058</td><td>5.058</td><td>5.057</td></tr> <tr> <td>1.8</td><td>5.057</td><td>5.057</td><td>5.057</td></tr> <tr> <td>2.4</td><td>5.057</td><td>5.057</td><td>5.057</td></tr> <tr> <td>3.0</td><td>5.056</td><td>5.056</td><td>5.056</td></tr> <tr> <td>3.3</td><td>5.056</td><td>5.056</td><td>5.056</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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.0	5.058	5.058	5.058	0.6	5.058	5.058	5.058	1.2	5.058	5.058	5.057	1.8	5.057	5.057	5.057	2.4	5.057	5.057	5.057	3.0	5.056	5.056	5.056	3.3	5.056	5.056	5.056	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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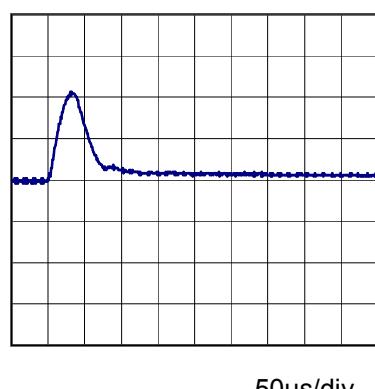
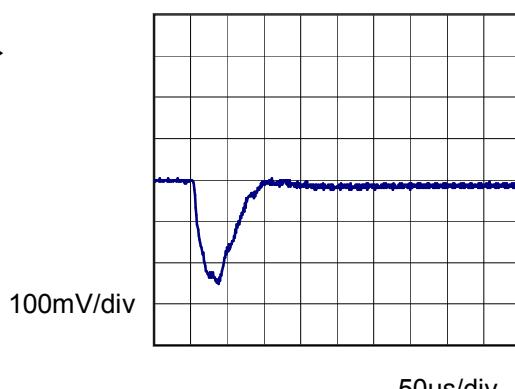
COSSEL

Model	MGS151205	Temperature Testing Circuitry 25°C Figure A
Item	Dynamic Load Response	
Object	+5V3A	

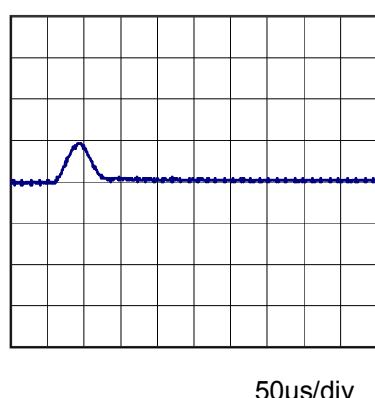
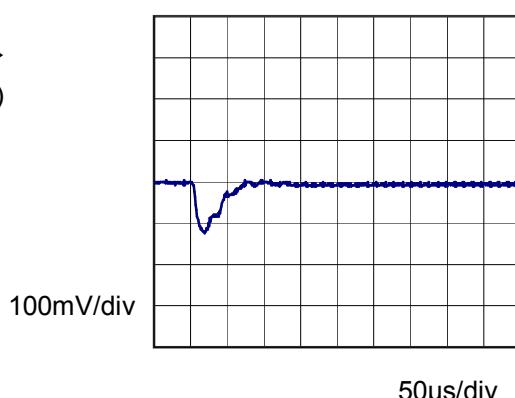
Input Volt. 12 V
Cycle 1000 ms



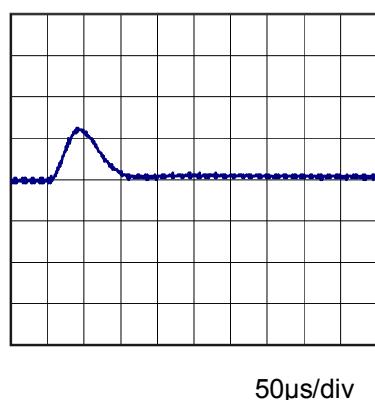
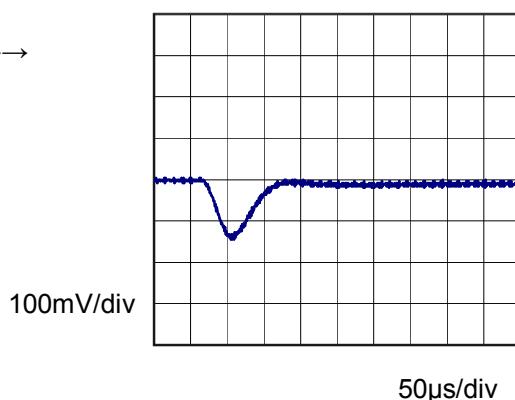
Min. Load (0A) ↔
Load 100% (3A)



Min. Load (0A) ↔
Load 50% (1.5A)



Load 50% (1.5A) ↔
Load 100% (3A)



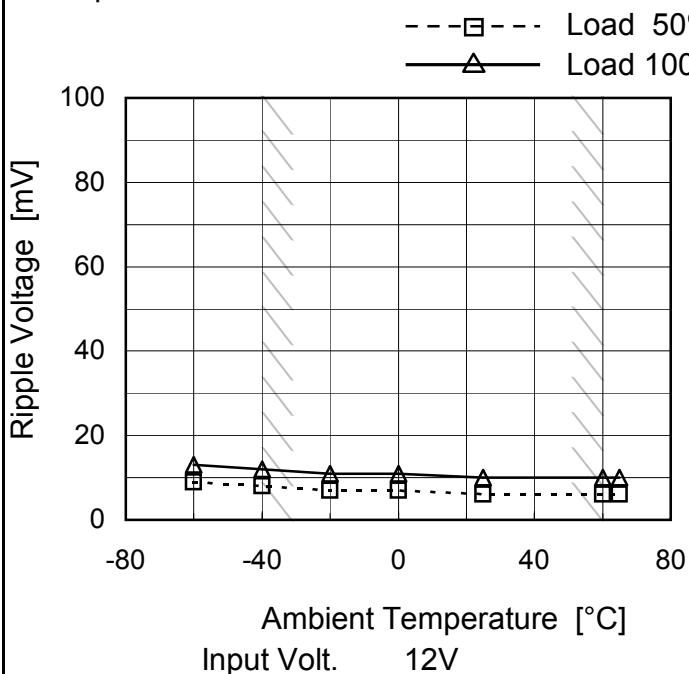
Model	MGS151205																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																						
Object	+5V3A																																							
1.Graph																																								
<p>Y-axis: Ripple Voltage [mV] (0 to 100) X-axis: Load Current [A] (0.0 to 3.0) Legend: Input Volt. 9V (solid line with open circles), Input Volt. 18V (dashed line with open circles)</p>																																								
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. 9 [V]</th> <th>Input Volt. 18 [V]</th> </tr> </thead> <tbody> <tr> <td>0.0</td><td>5</td><td>5</td></tr> <tr> <td>0.6</td><td>5</td><td>5</td></tr> <tr> <td>1.2</td><td>5</td><td>6</td></tr> <tr> <td>1.8</td><td>6</td><td>6</td></tr> <tr> <td>2.4</td><td>7</td><td>7</td></tr> <tr> <td>3.0</td><td>8</td><td>8</td></tr> <tr> <td>3.3</td><td>8</td><td>8</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. 9 [V]	Input Volt. 18 [V]	0.0	5	5	0.6	5	5	1.2	5	6	1.8	6	6	2.4	7	7	3.0	8	8	3.3	8	8	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 9 [V]	Input Volt. 18 [V]																																						
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<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>Ripple [mVp-p]</p>																																								
<p>Fig.Complex Ripple Wave Form</p>																																								

Model	MGS151205	Temperature Testing Circuitry	25°C Figure B																								
Item	Ripple-Noise																										
Object	+5V3A																										
1.Graph			2.Values																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The graph shows two sets of data points: one for Input Volt. 9V (solid line with triangle markers) and one for Input Volt. 18V (dashed line with circle markers). The x-axis represents Load Current [A] from 0.0 to 3.0. The y-axis represents Ripple Voltage [mV] from 0 to 100. A vertical dashed line is drawn at approximately 2.8 A, indicating the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (9V)</th> <th>Ripple Voltage [mV] (18V)</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>6</td><td>7</td></tr> <tr><td>0.6</td><td>5</td><td>7</td></tr> <tr><td>1.2</td><td>5</td><td>7</td></tr> <tr><td>1.8</td><td>7</td><td>7</td></tr> <tr><td>2.4</td><td>9</td><td>8</td></tr> <tr><td>3.0</td><td>10</td><td>8</td></tr> <tr><td>3.3</td><td>11</td><td>9</td></tr> </tbody> </table>				Load Current [A]	Ripple Voltage [mV] (9V)	Ripple Voltage [mV] (18V)	0.0	6	7	0.6	5	7	1.2	5	7	1.8	7	7	2.4	9	8	3.0	10	8	3.3	11	9
Load Current [A]	Ripple Voltage [mV] (9V)	Ripple Voltage [mV] (18V)																									
0.0	6	7																									
0.6	5	7																									
1.2	5	7																									
1.8	7	7																									
2.4	9	8																									
3.0	10	8																									
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<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>Fig.Complex Ripple Noise Wave Form</p>																											

COSEL

Model	MGS151205
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V3A

1. Graph



Testing Circuitry Figure B

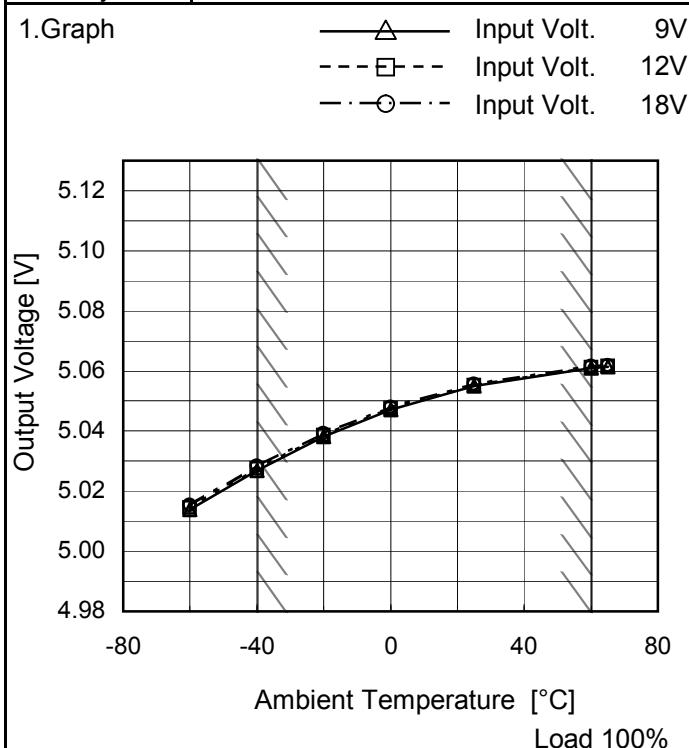
2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	9	13
-40	8	12
-20	7	11
0	7	11
25	6	10
60	6	10
65	6	10
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

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

Model	MGS151205
Item	Ambient Temperature Drift
Object	+5V3A



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	5.014	5.015	5.015
-40	5.027	5.028	5.028
-20	5.038	5.039	5.039
0	5.047	5.048	5.048
25	5.055	5.055	5.056
60	5.061	5.061	5.062
65	5.061	5.062	5.062
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	MGS151205	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+5V3A	

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 : 0 - 3A

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

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

2. Values

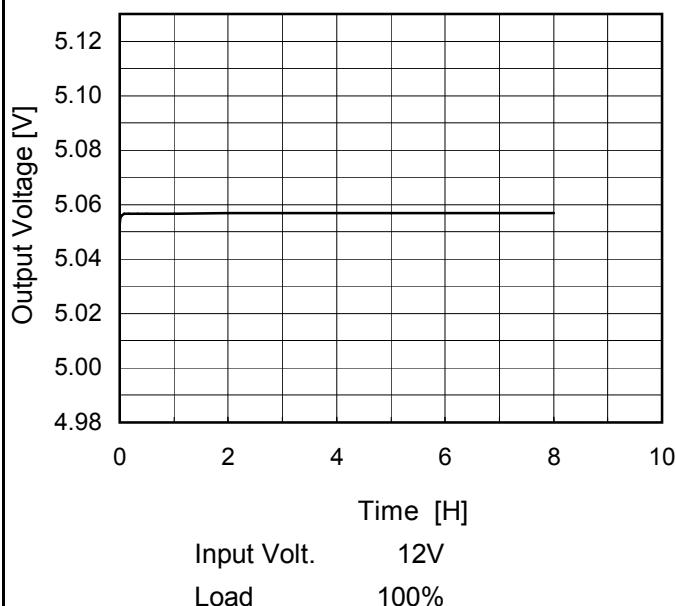
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	5.063	±18	±0.4
Minimum Voltage	-40	9	3	5.027		

COSEL

Model	MGS151205
Item	Time Lapse Drift
Object	+5V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

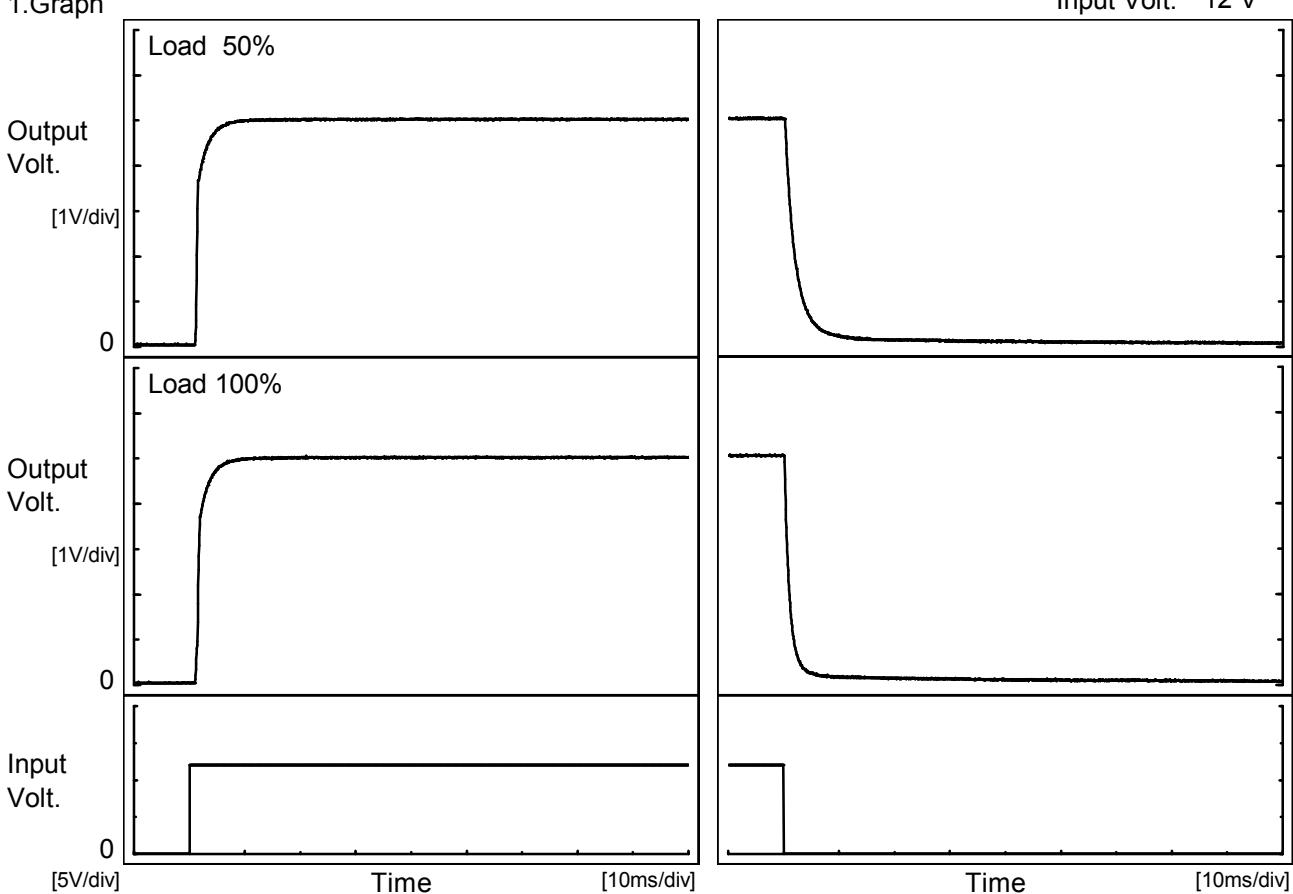
Time since start [H]	Output Voltage [V]
0.0	5.053
0.5	5.057
1.0	5.057
2.0	5.057
3.0	5.057
4.0	5.057
5.0	5.057
6.0	5.057
7.0	5.057
8.0	5.057

COSEL

Model	MGS151205
Item	Rise and Fall Time
Object	+5V3A

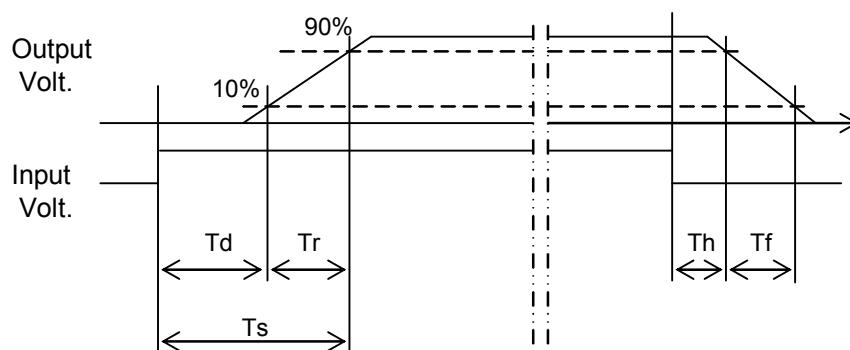
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

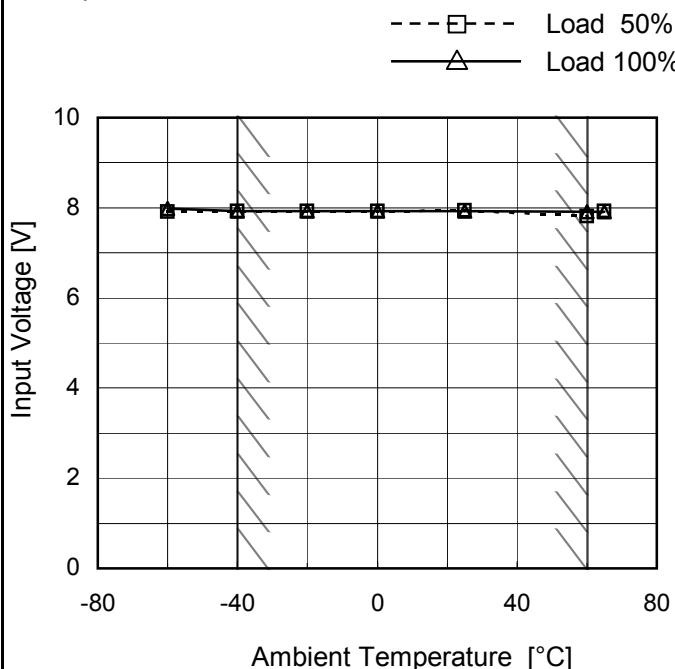
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.2	2.4	3.6	0.3	5.0
100 %		1.3	2.6	3.9	0.2	2.5



Model	MGS151205
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V3A

Testing Circuitry Figure A

1. Graph

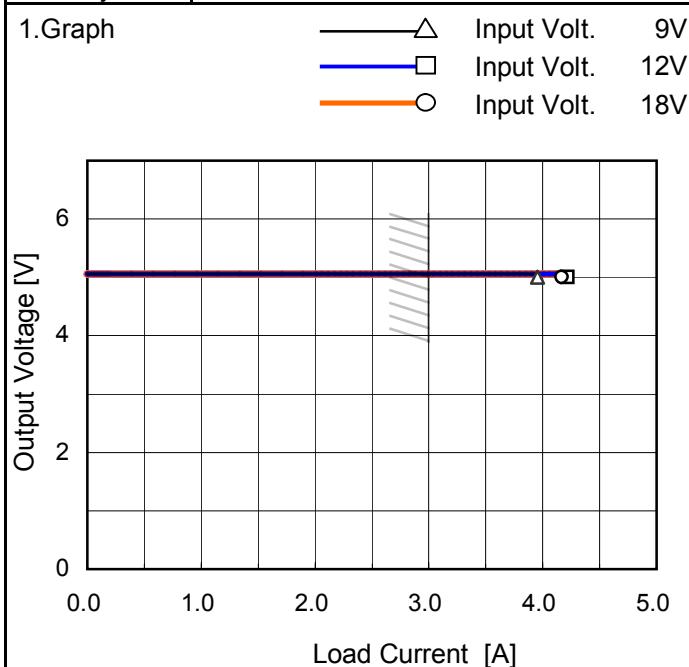


2. Values

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

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

Model	MGS151205
Item	Overcurrent Protection
Object	+5V3A



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

Intermittent operation occurs when overcurrent protection is activated.

Temperature 25°C
Testing Circuitry Figure A

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
5.00	3.96	4.22	4.17
4.75	-	-	-
4.50	-	-	-
4.00	-	-	-
3.50	-	-	-
3.00	-	-	-
2.50	-	-	-
2.00	-	-	-
1.50	-	-	-
1.00	-	-	-
0.50	-	-	-
0.00	-	-	-

COSEL

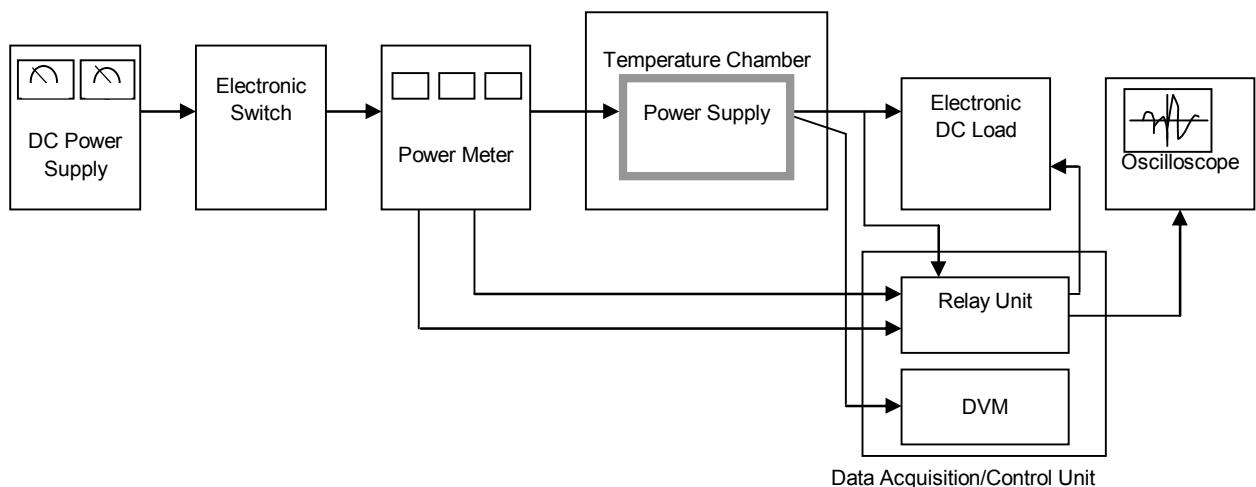


Figure A

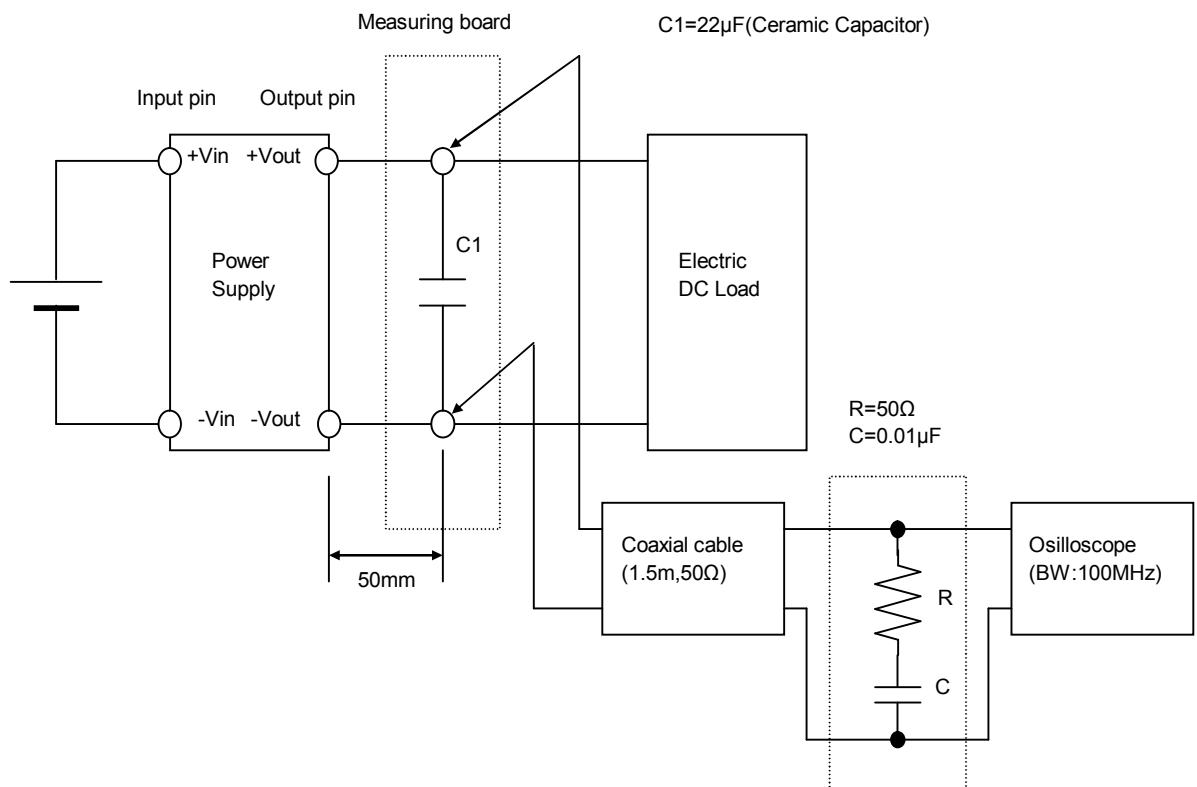


Figure B (Ripple and Ripple noise Characteristic)