

TEST DATA OF MGFS152405

Regulated DC Power Supply
September 14, 2010

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Kazunari Asano

Design Manager

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Ryoko Ueda

Design Engineer

COSEL CO.,LTD.

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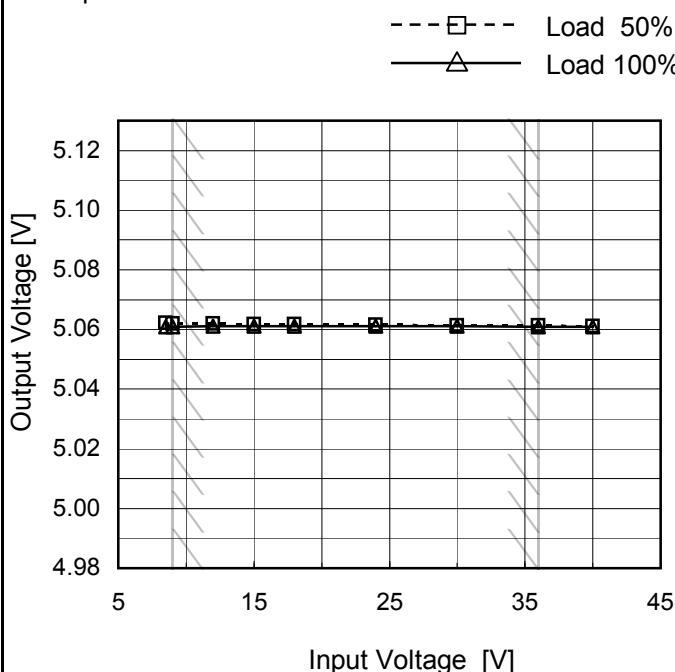
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<p>The graph plots Efficiency [%] on the y-axis (50 to 90) against Input Voltage [V] on the x-axis (5 to 45). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show efficiency 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>86.9</td><td>85.1</td></tr> <tr><td>9.0</td><td>87.1</td><td>85.4</td></tr> <tr><td>12.0</td><td>87.6</td><td>87.2</td></tr> <tr><td>15.0</td><td>87.5</td><td>88.0</td></tr> <tr><td>18.0</td><td>87.1</td><td>88.3</td></tr> <tr><td>24.0</td><td>86.3</td><td>88.4</td></tr> <tr><td>30.0</td><td>85.2</td><td>88.2</td></tr> <tr><td>36.0</td><td>84.4</td><td>87.9</td></tr> <tr><td>40.0</td><td>83.9</td><td>87.8</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8.5	86.9	85.1	9.0	87.1	85.4	12.0	87.6	87.2	15.0	87.5	88.0	18.0	87.1	88.3	24.0	86.3	88.4	30.0	85.2	88.2	36.0	84.4	87.9	40.0	83.9	87.8		
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Input Voltage [V]	Efficiency [%]																																	
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Model	MGFS152405																																																																																	
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Model	MGFS152405
Item	Line Regulation
Object	+5V3A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

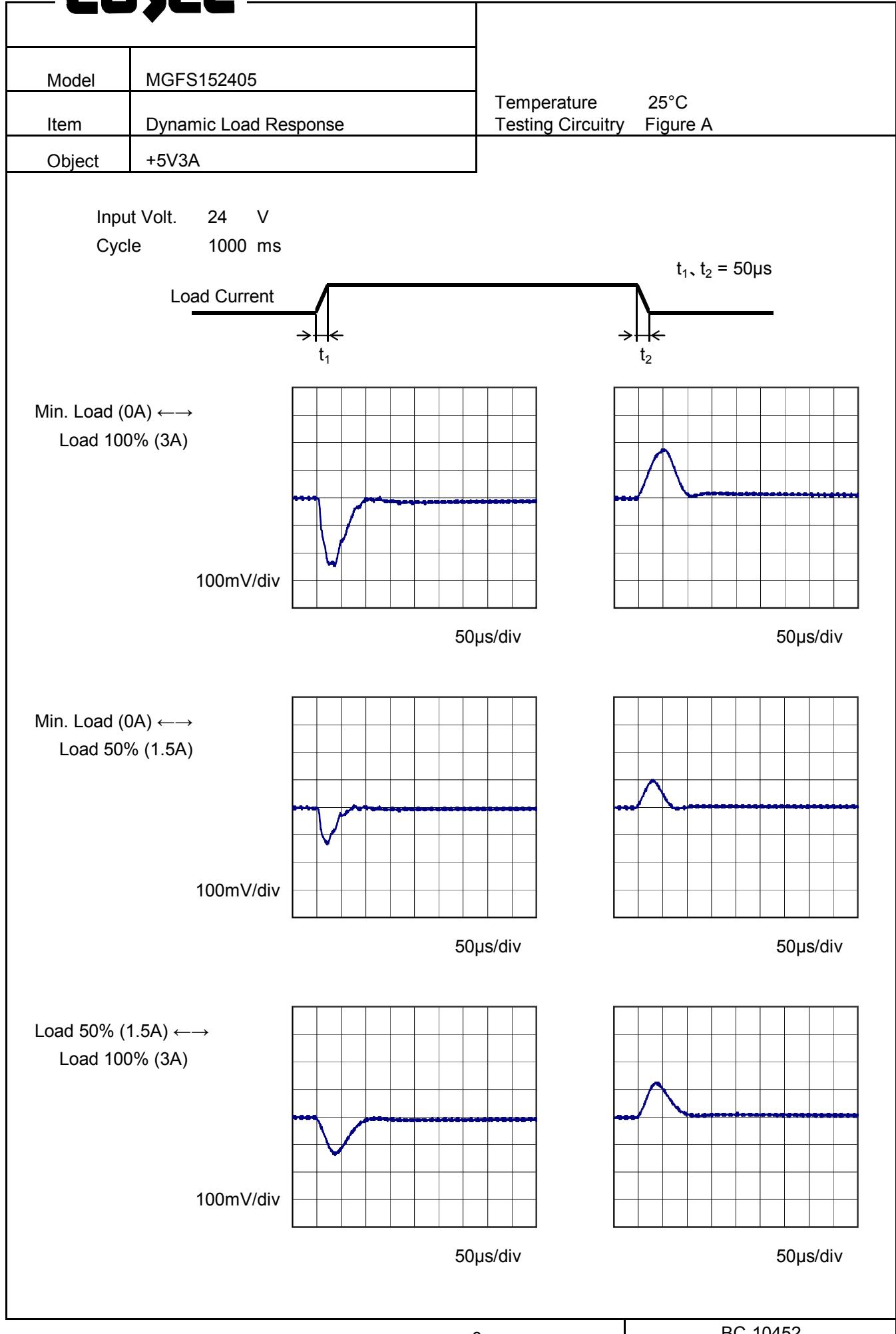
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	5.062	5.061
9.0	5.062	5.061
12.0	5.062	5.061
15.0	5.062	5.061
18.0	5.062	5.061
24.0	5.062	5.061
30.0	5.061	5.061
36.0	5.061	5.061
40.0	5.061	5.061

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

Model	MGFS152405	Temperature 25°C Testing Circuitry Figure A																																																																																		
Item	Load Regulation																																																																																			
Object	+5V3A																																																																																			
1.Graph	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Legend:</p> <ul style="list-style-type: none"> Input Volt. 9V Input Volt. 12V Input Volt. 18V Input Volt. 24V Input Volt. 36V 	2.Values																																																																																		
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="5">Output Voltage [V]</th> </tr> <tr> <th>9[V]</th> <th>12[V]</th> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>5.063</td><td>5.063</td><td>5.062</td><td>5.062</td><td>5.062</td></tr> <tr><td>0.6</td><td>5.063</td><td>5.063</td><td>5.062</td><td>5.062</td><td>5.062</td></tr> <tr><td>1.2</td><td>5.062</td><td>5.062</td><td>5.062</td><td>5.062</td><td>5.062</td></tr> <tr><td>1.8</td><td>5.062</td><td>5.062</td><td>5.062</td><td>5.062</td><td>5.061</td></tr> <tr><td>2.4</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td></tr> <tr><td>3.0</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td></tr> <tr><td>3.3</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.060</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>						Load Current [A]	Output Voltage [V]					9[V]	12[V]	18[V]	24[V]	36[V]	0.0	5.063	5.063	5.062	5.062	5.062	0.6	5.063	5.063	5.062	5.062	5.062	1.2	5.062	5.062	5.062	5.062	5.062	1.8	5.062	5.062	5.062	5.062	5.061	2.4	5.061	5.061	5.061	5.061	5.061	3.0	5.061	5.061	5.061	5.061	5.061	3.3	5.061	5.061	5.061	5.061	5.060	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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Note: Slanted line shows the range of the rated load current.

COSEL



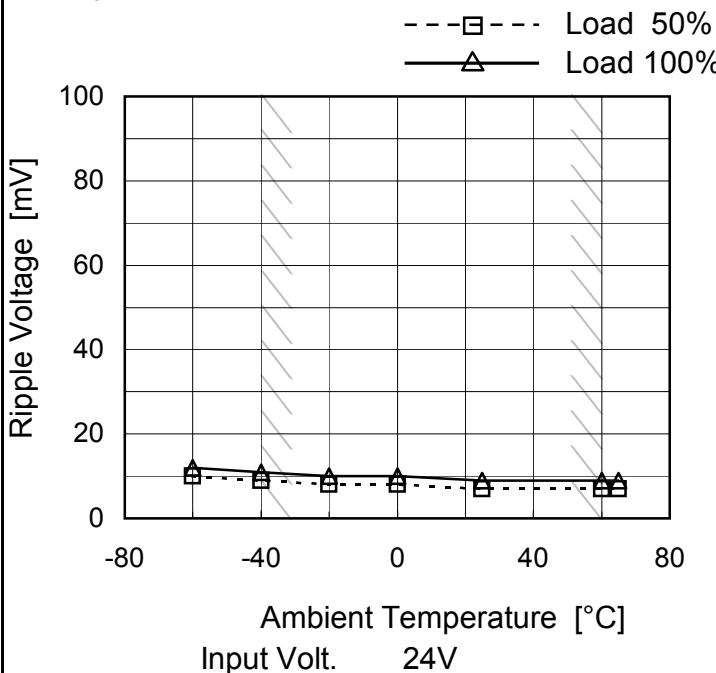
Model	MGFS152405																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																						
Object	+5V3A																																							
1.Graph																																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 100 mV, and the X-axis ranges from 0.0 to 3.0 A. Two data series are plotted: Input Volt. 9V (solid line with open circles) and Input Volt. 36V (dashed line with open circles). Both series show a slight increase in ripple voltage as load current increases. A vertical dashed line at approximately 2.8 A indicates the rated load current range.</p>																																								
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<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. 36 [V]</th> </tr> </thead> <tbody> <tr> <td>0.0</td> <td>4</td> <td>7</td> </tr> <tr> <td>0.6</td> <td>4</td> <td>7</td> </tr> <tr> <td>1.2</td> <td>4</td> <td>7</td> </tr> <tr> <td>1.8</td> <td>5</td> <td>7</td> </tr> <tr> <td>2.4</td> <td>5</td> <td>8</td> </tr> <tr> <td>3.0</td> <td>5</td> <td>8</td> </tr> <tr> <td>3.3</td> <td>6</td> <td>9</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Load Current [A]	Ripple Voltage [mV]		Input Volt. 9 [V]	Input Volt. 36 [V]	0.0	4	7	0.6	4	7	1.2	4	7	1.8	5	7	2.4	5	8	3.0	5	8	3.3	6	9	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 9 [V]	Input Volt. 36 [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	MGFS152405																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+5V3A																																							
1.Graph																																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A] for MGFS152405 at 25°C. The graph shows two curves: one for Input Volt. 9V (solid line with open circles) and one for Input Volt. 36V (dashed line with open triangles). Both curves show low ripple noise (around 10-15 mV) across the load current range from 0.0 to 3.0 A. A vertical dashed line at approximately 2.8 A indicates the rated load current range.</p>																																								
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Load Current [A]	Ripple-Noise [mV]																																							
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Model	MGFS152405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V3A

Testing Circuitry Figure B

1. Graph



2. Values

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

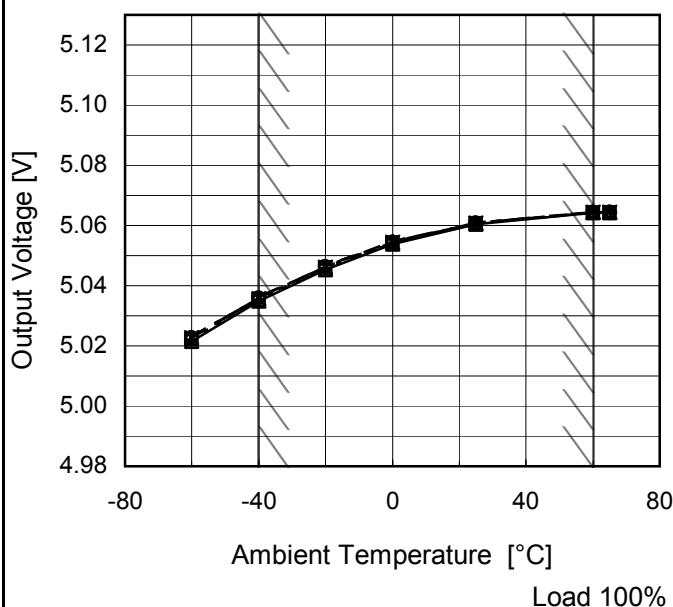
Measured by 100 MHz Oscilloscope.

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

Model	MGFS152405
Item	Ambient Temperature Drift
Object	+5V3A

1. Graph

- △— Input Volt. 9V
 - - - □ - - Input Volt. 12V
 - - * - - Input Volt. 18V
 - - ○ - - Input Volt. 24V
 - - ◆ - - Input Volt. 36V



Ambient Temperature [°C]

Load 100%

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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]				
	9[V]	12[V]	18[V]	24[V]	36[V]
-60	5.022	5.022	5.023	5.023	5.023
-40	5.035	5.035	5.036	5.036	5.036
-20	5.045	5.046	5.046	5.046	5.046
0	5.054	5.054	5.054	5.055	5.055
25	5.061	5.061	5.061	5.061	5.061
60	5.064	5.064	5.064	5.064	5.064
65	5.064	5.064	5.064	5.064	5.064
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-



Model	MGFS152405	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 - 36V

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

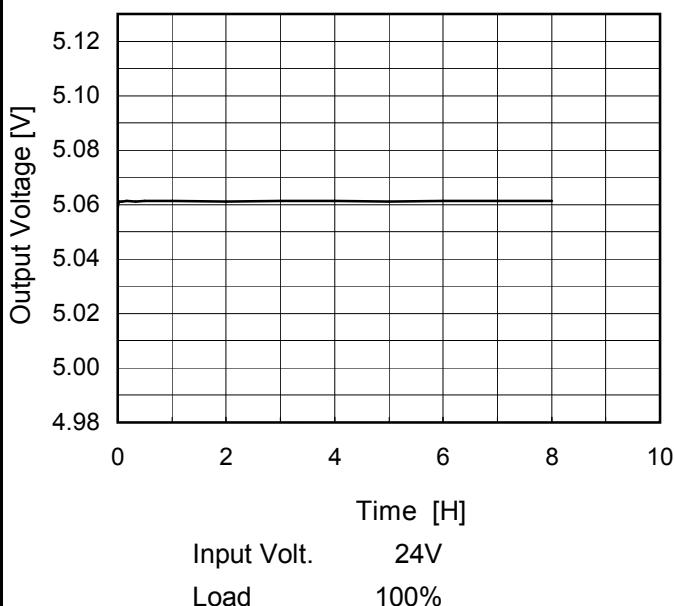
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	5.066	±16	±0.3
Minimum Voltage	-40	36	0	5.035		

COSEL

Model	MGFS152405
Item	Time Lapse Drift
Object	+5V3A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

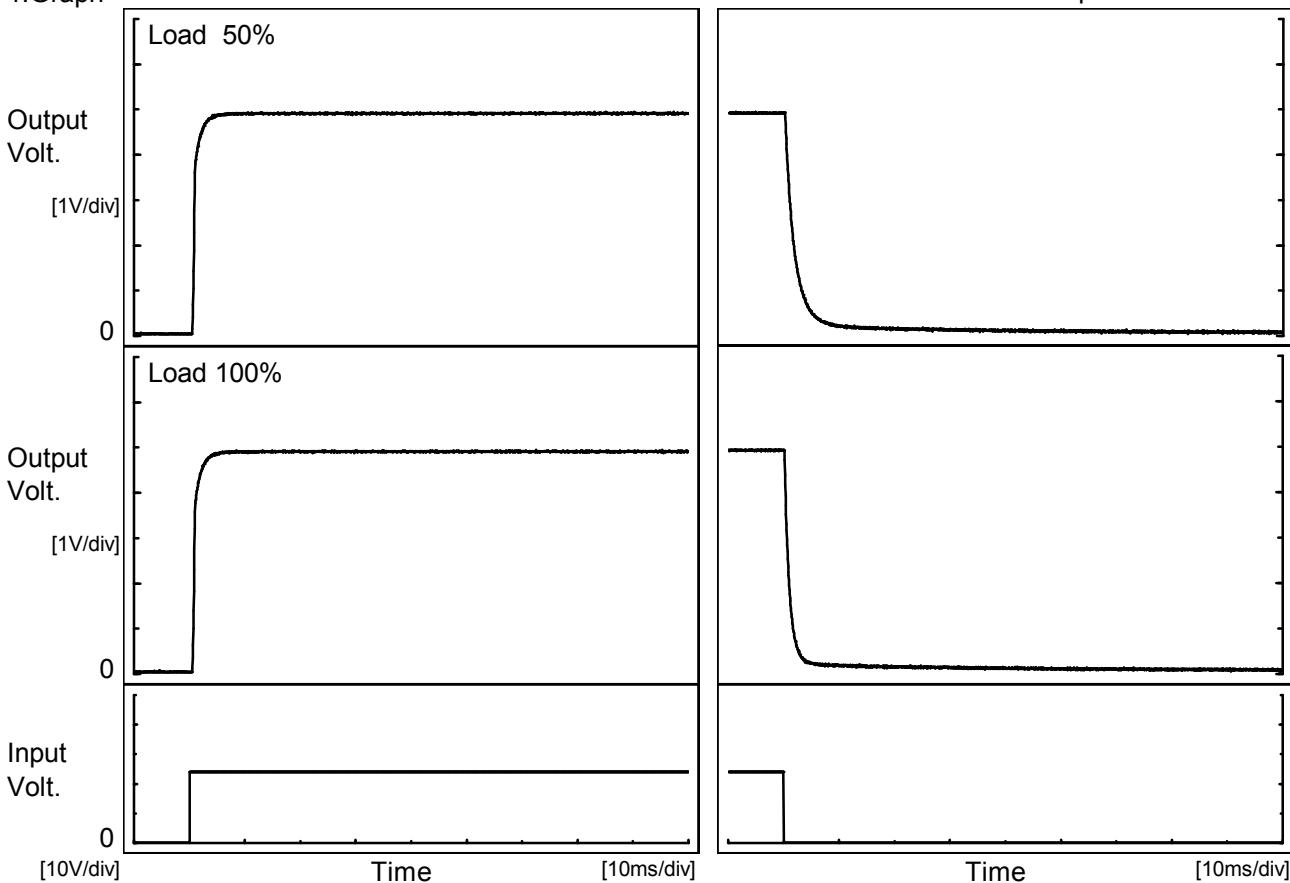
Time since start [H]	Output Voltage [V]
0.0	5.059
0.5	5.061
1.0	5.061
2.0	5.061
3.0	5.061
4.0	5.061
5.0	5.061
6.0	5.061
7.0	5.061
8.0	5.061

COSEL

Model	MGFS152405
Item	Rise and Fall Time
Object	+5V3A

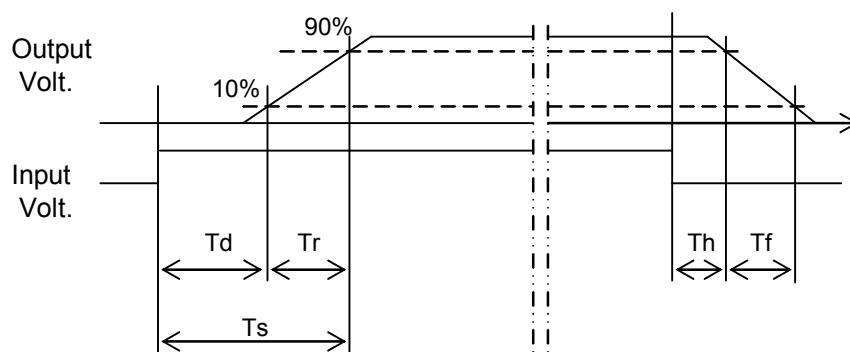
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

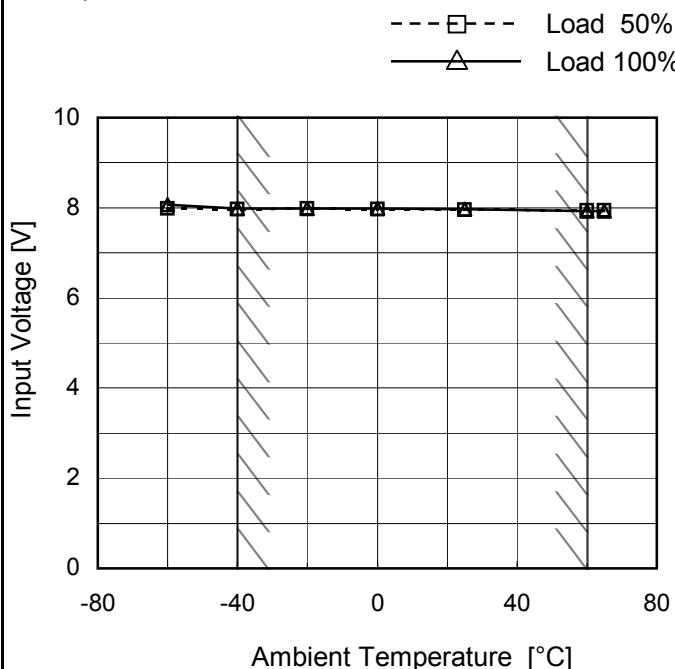
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.7	1.7	2.4	0.3	4.6
100 %		0.7	1.7	2.4	0.2	2.3



Model	MGFS152405
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	8.1
-40	8.0	8.0
-20	8.0	8.0
0	8.0	8.0
25	8.0	8.0
60	8.0	8.0
65	8.0	8.0
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	MGFS152405	Temperature Testing Circuitry 25°C Figure A																																																																																						
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Object	+5V3A																																																																																							
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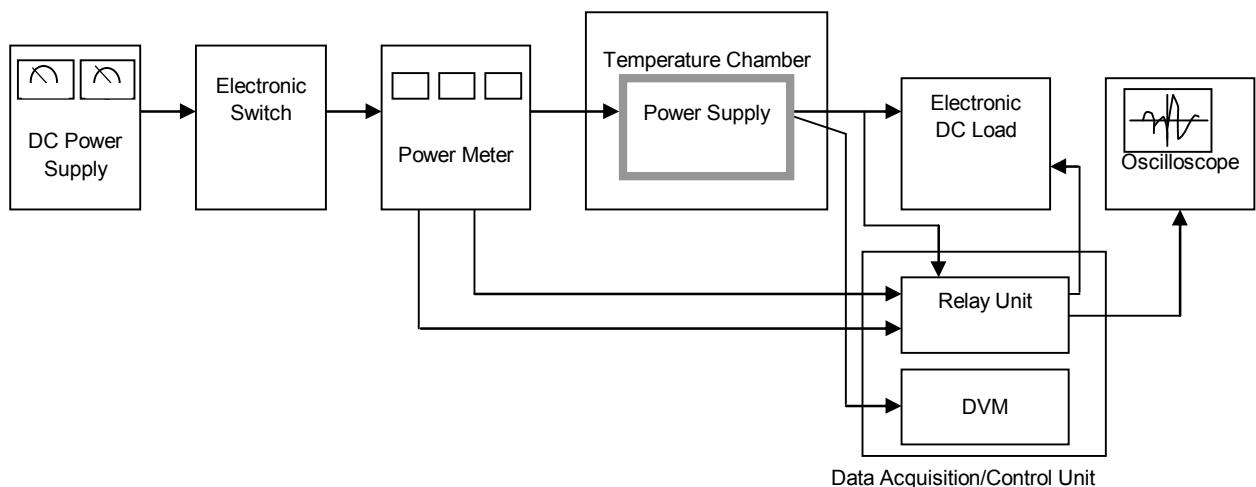


Figure A

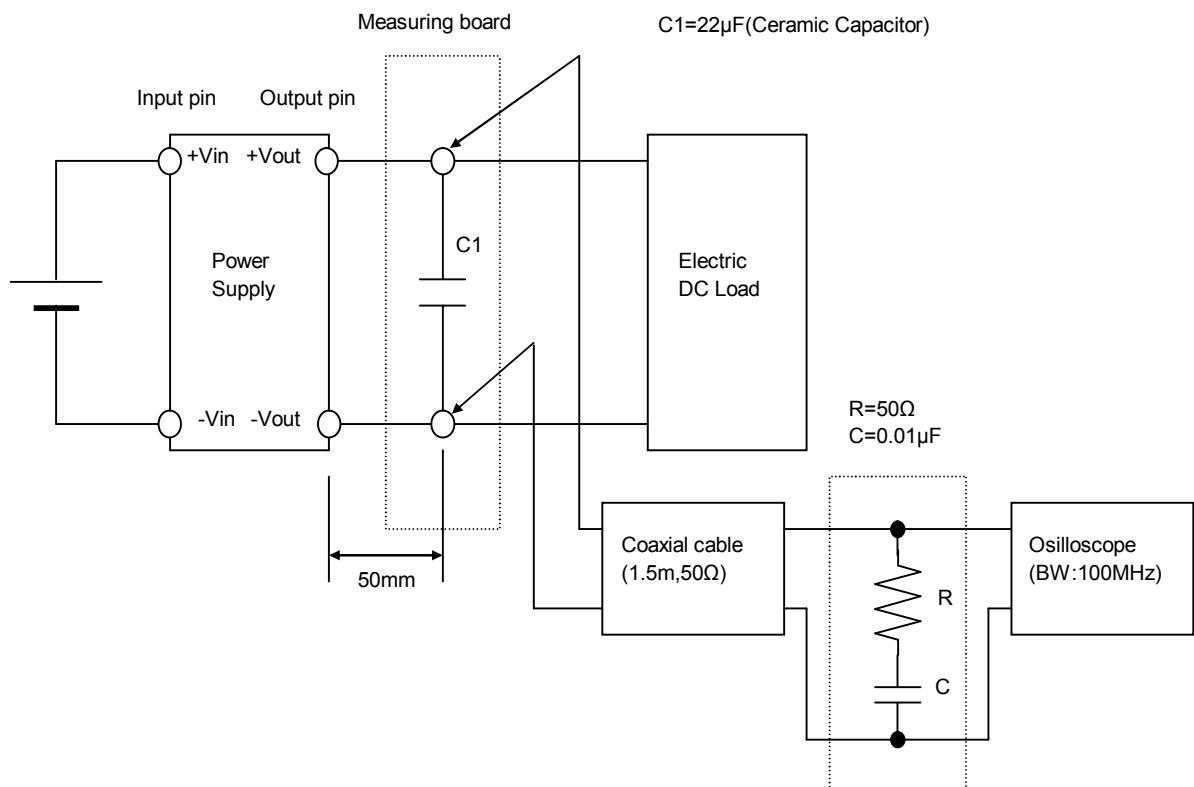


Figure B (Ripple and Ripple noise Characteristic)