

TEST DATA OF MGFS152415

Regulated DC Power Supply
September 15, 2010

Approved by : 
Kazunari Asano Design Manager

Prepared by : 
Ryoko Ueda Design Engineer

COSEL CO.,LTD.

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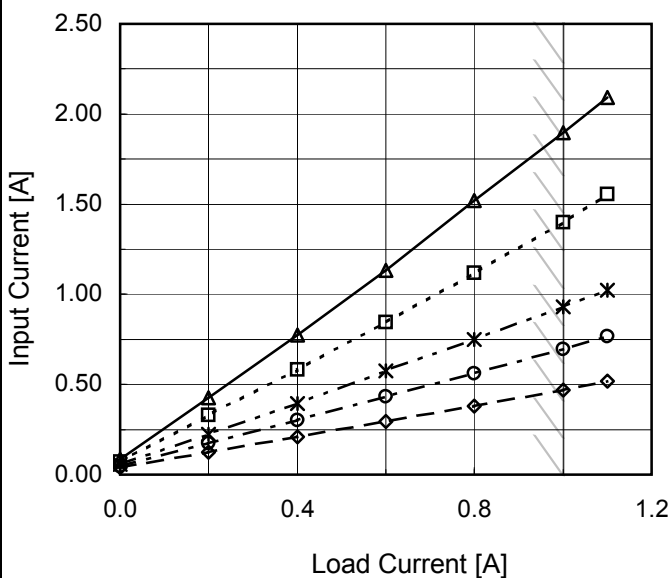
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Model	MGFS152415
Item	Input Current (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

- 1.Graph
- △— Input Volt. 9V
 - - -□- - - Input Volt. 12V
 - · · * · · - - Input Volt. 18V
 - · · ○ · · - - Input Volt. 24V
 - - ◇ - - Input Volt. 36V



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

2.Values

Load Current [A]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.086	0.072	0.057	0.048	0.039
0.2	0.427	0.329	0.225	0.175	0.123
0.4	0.776	0.582	0.395	0.301	0.208
0.6	1.134	0.845	0.576	0.433	0.295
0.8	1.521	1.120	0.749	0.563	0.381
1.0	1.896	1.399	0.929	0.697	0.470
1.1	2.090	1.556	1.021	0.768	0.517
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--	-	-	-	-	-
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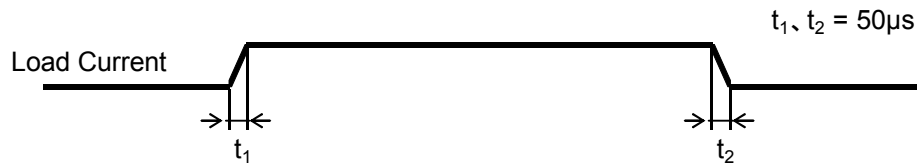


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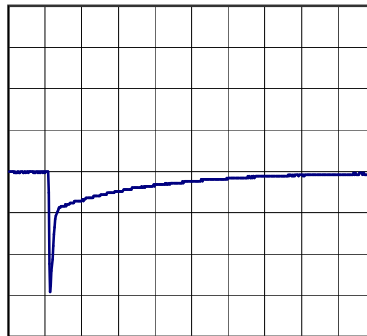
Model	MGFS152415	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+15V1A	

Input Volt. 24 V
Cycle 1000 ms

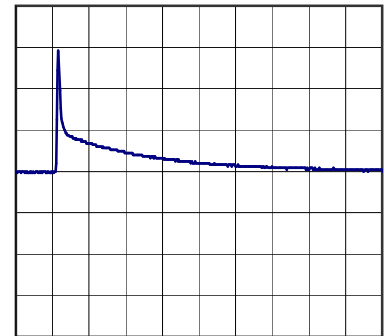


Min. Load (0A) \longleftrightarrow
Load 100% (1A)

100mV/div



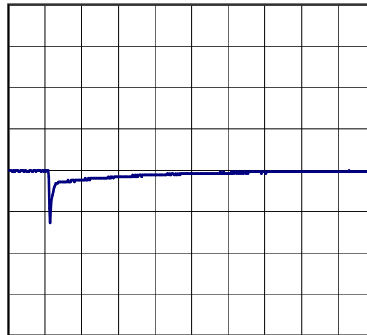
500µs/div



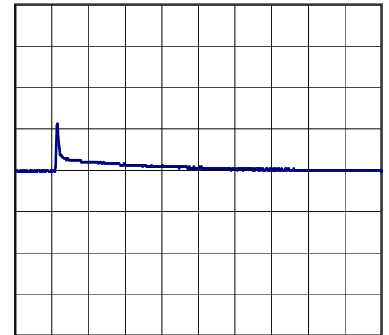
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.5A)

100mV/div



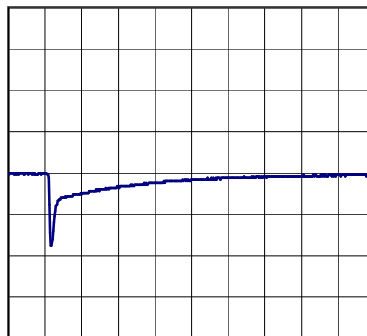
500µs/div



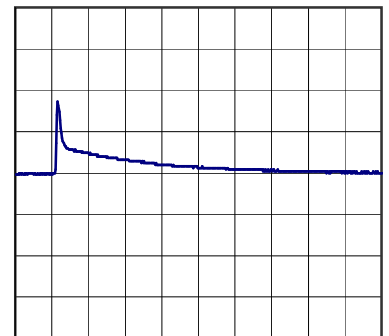
500µs/div

Load 50% (0.5A) \longleftrightarrow
Load 100% (1A)

100mV/div



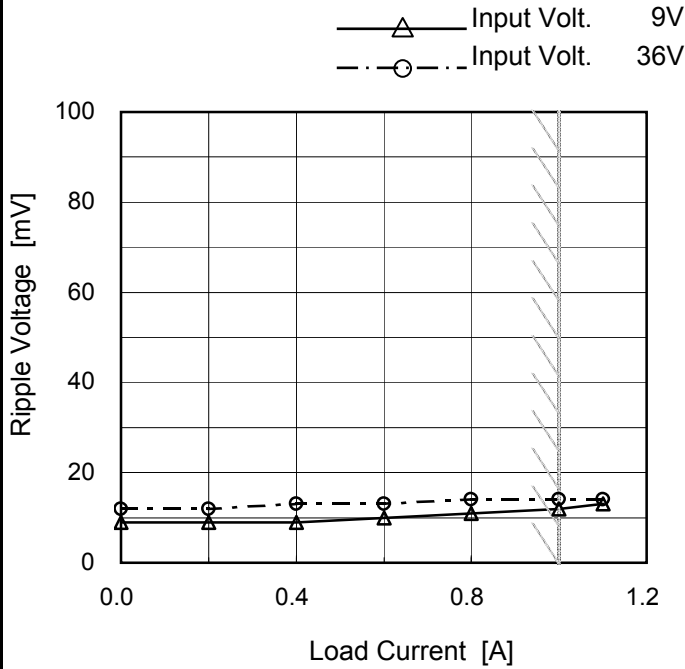
500µs/div



500µs/div

Model	MGFS152415	Temperature	25°C
Item	Ripple Voltage (by Load Current)	Testing Circuitry	Figure B
Object	+15V1A		

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	9	12
0.2	9	12
0.4	9	13
0.6	10	13
0.8	11	14
1.0	12	14
1.1	13	14
--	-	-
--	-	-
--	-	-
--	-	-

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.

Ripple [mVp-p]

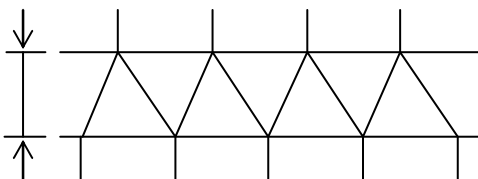
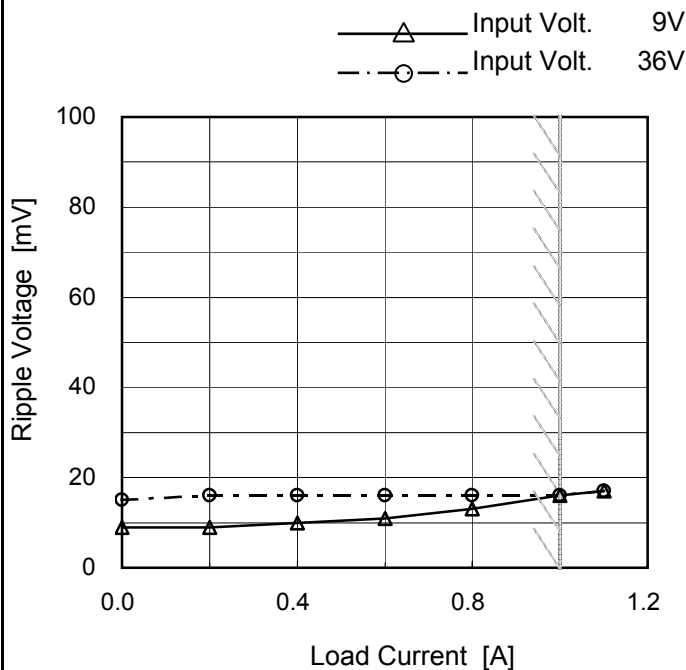


Fig. Complex Ripple Wave Form

Model	MGFS152415	Temperature	25°C
Item	Ripple-Noise	Testing Circuitry	Figure B
Object	+15V1A		

1.Graph



2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	9	15
0.2	9	16
0.4	10	16
0.6	11	16
0.8	13	16
1.0	16	16
1.1	17	17
--	-	-
--	-	-
--	-	-
--	-	-

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.

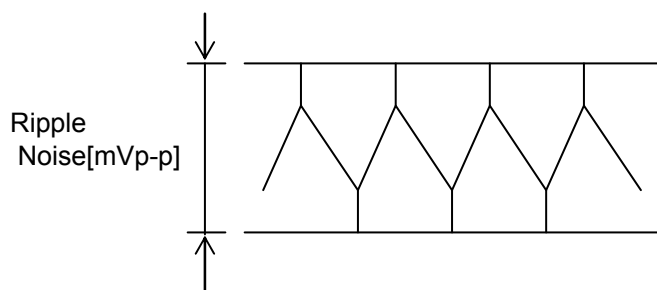
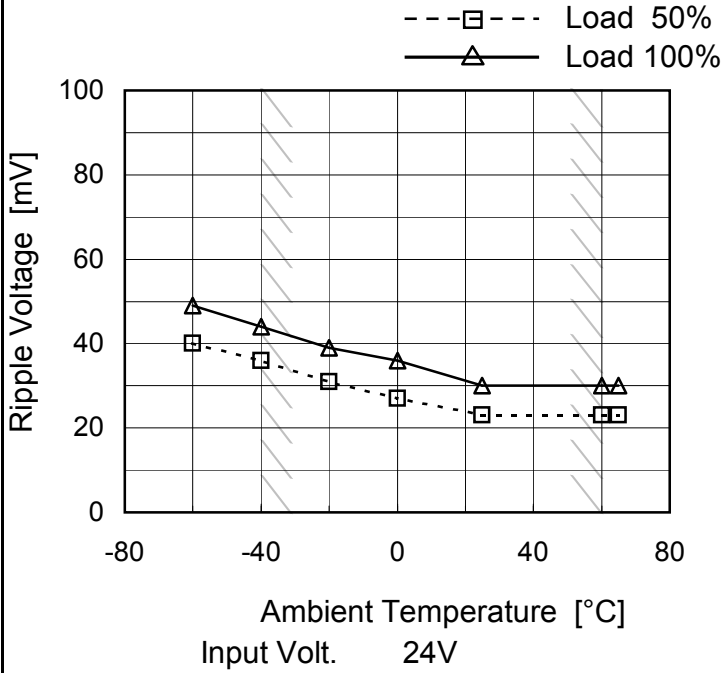


Fig.Complex Ripple Noise Wave Form

Model	MGFS152415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V1A

Testing Circuitry Figure B

1.Graph



2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	40	49
-40	36	44
-20	31	39
0	27	36
25	23	30
60	23	30
65	23	30
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

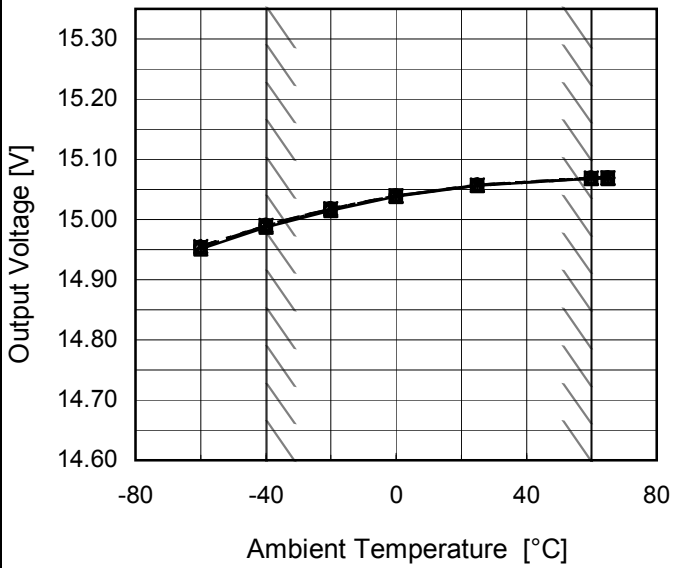


Model	MGFS152415
Item	Ambient Temperature Drift
Object	+15V1A

Testing Circuitry Figure A

1.Graph

- △— Input Volt. 9V
- Input Volt. 12V
- *--- Input Volt. 18V
- Input Volt. 24V
- ◇--- Input Volt. 36V



Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	14.951	14.953	14.955	14.954	14.954
-40	14.987	14.989	14.991	14.991	14.990
-20	15.015	15.017	15.018	15.018	15.018
0	15.038	15.039	15.039	15.040	15.039
25	15.056	15.057	15.058	15.058	15.057
60	15.068	15.069	15.069	15.069	15.069
65	15.068	15.069	15.069	15.069	15.069
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-



COSEL		
Model	MGFS152415	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V1A	

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 - 1A

* 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

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	15.072	±43	±0.3
Minimum Voltage	-40	9	1	14.987		



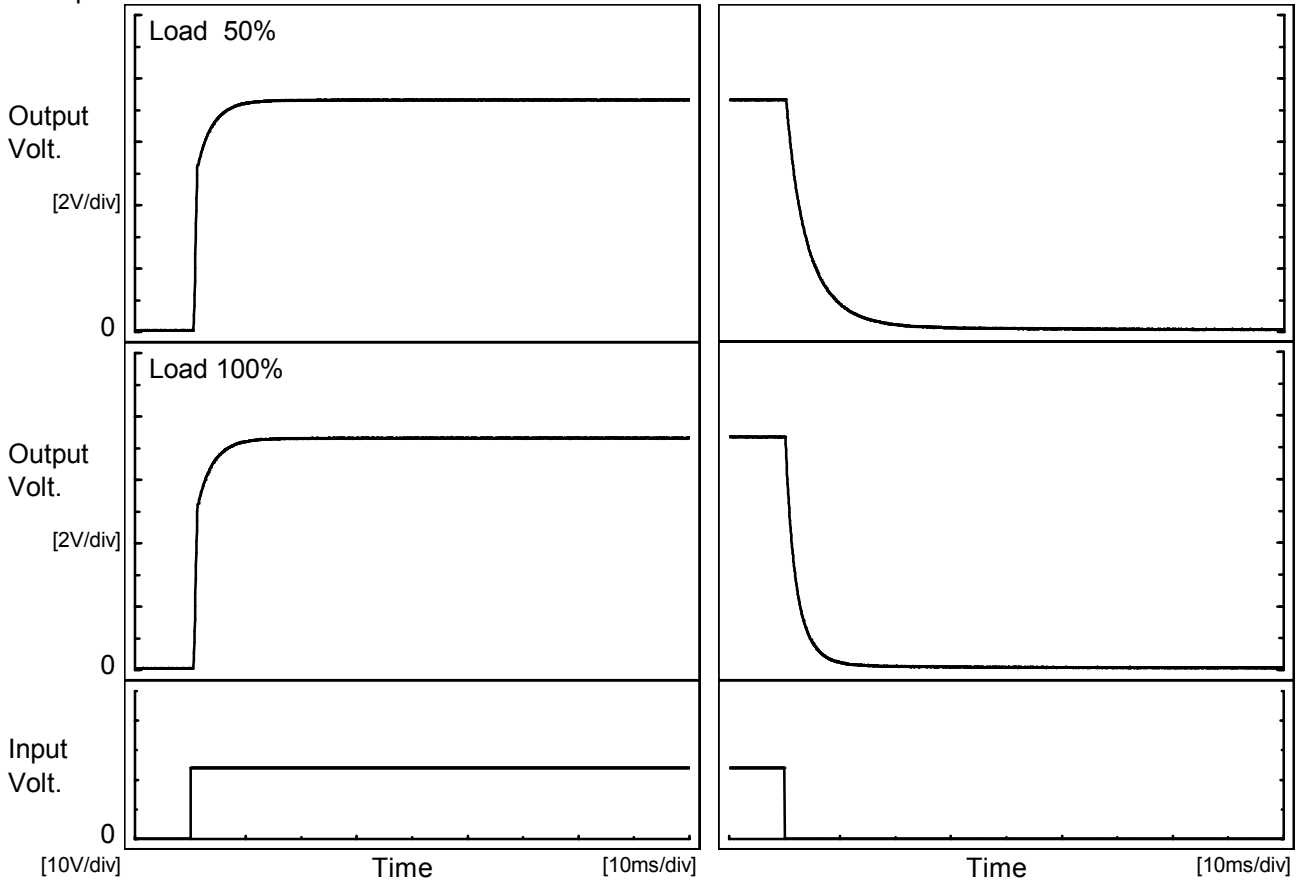
COSEL																								
Model	MGFS152415																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+15V1A																							
<p>1. Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 24V Load 100%</p>		<p>2. Values</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>15.053</td></tr> <tr><td>0.5</td><td>15.059</td></tr> <tr><td>1.0</td><td>15.058</td></tr> <tr><td>2.0</td><td>15.059</td></tr> <tr><td>3.0</td><td>15.059</td></tr> <tr><td>4.0</td><td>15.058</td></tr> <tr><td>5.0</td><td>15.058</td></tr> <tr><td>6.0</td><td>15.058</td></tr> <tr><td>7.0</td><td>15.058</td></tr> <tr><td>8.0</td><td>15.058</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	15.053	0.5	15.059	1.0	15.058	2.0	15.059	3.0	15.059	4.0	15.058	5.0	15.058	6.0	15.058	7.0	15.058	8.0	15.058
Time since start [H]	Output Voltage [V]																							
0.0	15.053																							
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7.0	15.058																							
8.0	15.058																							



Model		MGFS152415	Temperature	25°C
Item		Rise and Fall Time	Testing Circuitry	Figure A
Object		+15V1A		

1. Graph

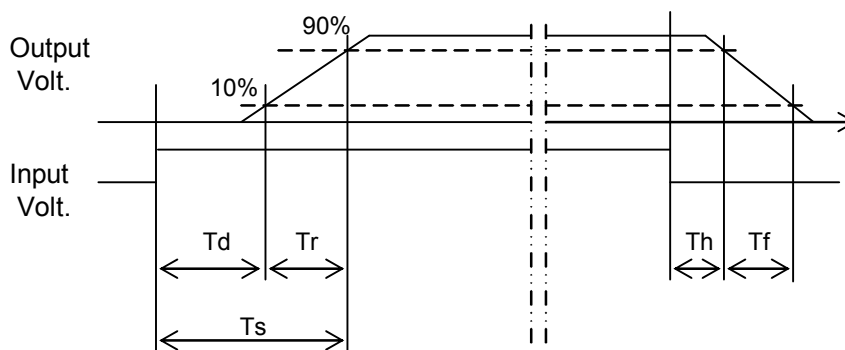
Input Volt. 24 V



2. Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	4.5	5.2	0.4	10.2
100 %	0.7	4.6	5.3	0.3	5.0





COSEL																																								
Model	MGFS152415																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+15V1A																																							
<p>1.Graph</p> <p style="text-align: right;"> ---□--- Load 50% —△— Load 100% </p>		<p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>-60</td><td>8.1</td><td>8.1</td></tr> <tr><td>-40</td><td>8.1</td><td>8.1</td></tr> <tr><td>-20</td><td>8.0</td><td>8.1</td></tr> <tr><td>0</td><td>8.0</td><td>8.1</td></tr> <tr><td>25</td><td>8.0</td><td>8.1</td></tr> <tr><td>60</td><td>8.0</td><td>8.1</td></tr> <tr><td>65</td><td>8.0</td><td>8.1</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>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	8.1	8.1	-40	8.1	8.1	-20	8.0	8.1	0	8.0	8.1	25	8.0	8.1	60	8.0	8.1	65	8.0	8.1	--	-	-	--	-	-	--	-	-	--	-	-
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																								



<p>Model MGFS152415</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																																																			
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Output Voltage [V]	Load Current [A]																																																																																				
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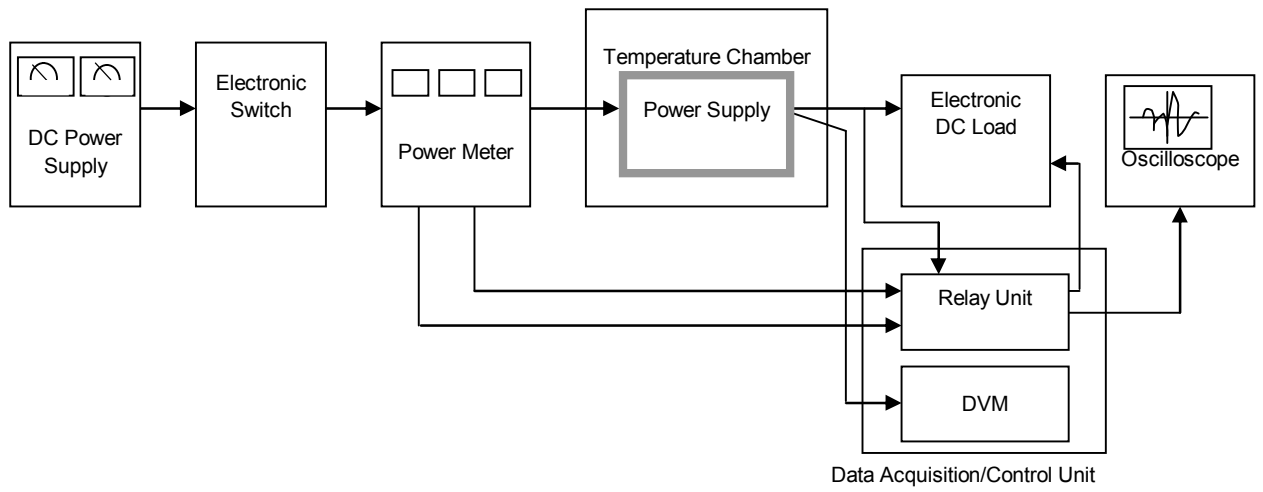


Figure A

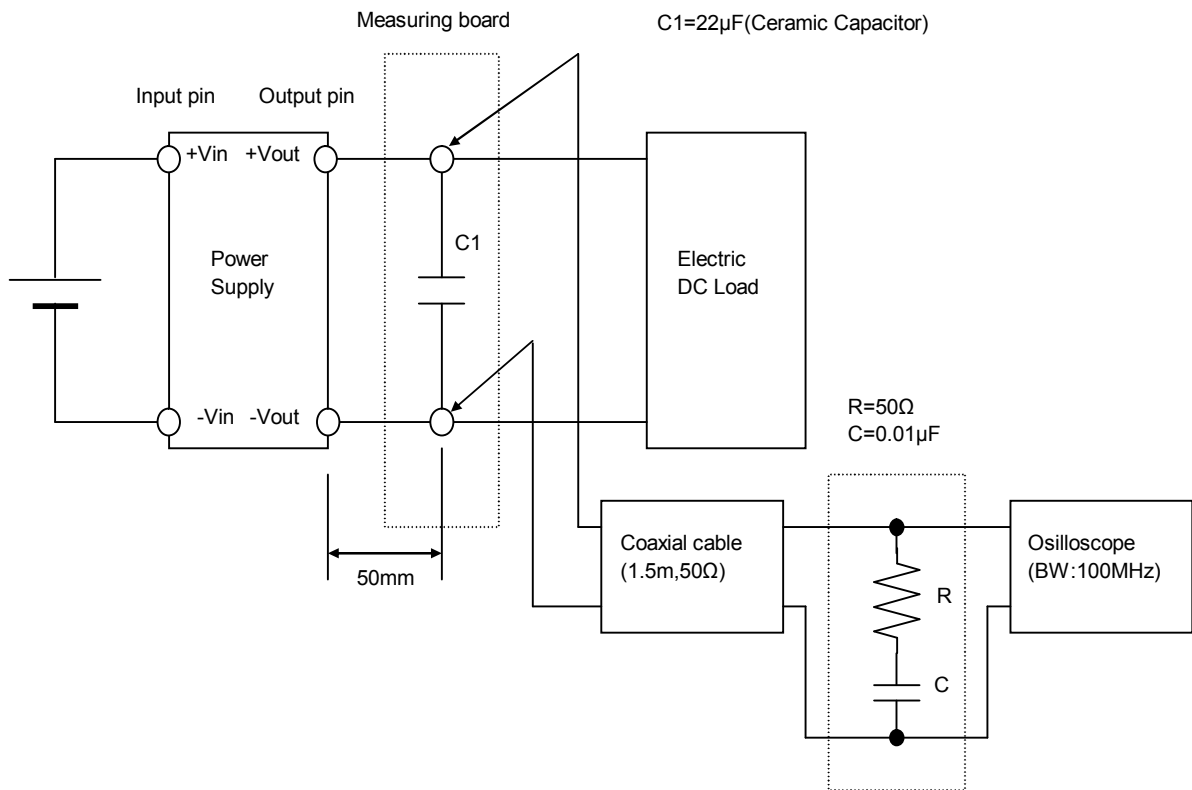


Figure B (Ripple and Ripple noise Characteristic)