

# TEST DATA OF MGFS102412

Regulated DC Power Supply  
December 13, 2016

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Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi  
Takaaki Sekiguchi Design Engineer

**COSEL CO.,LTD.**

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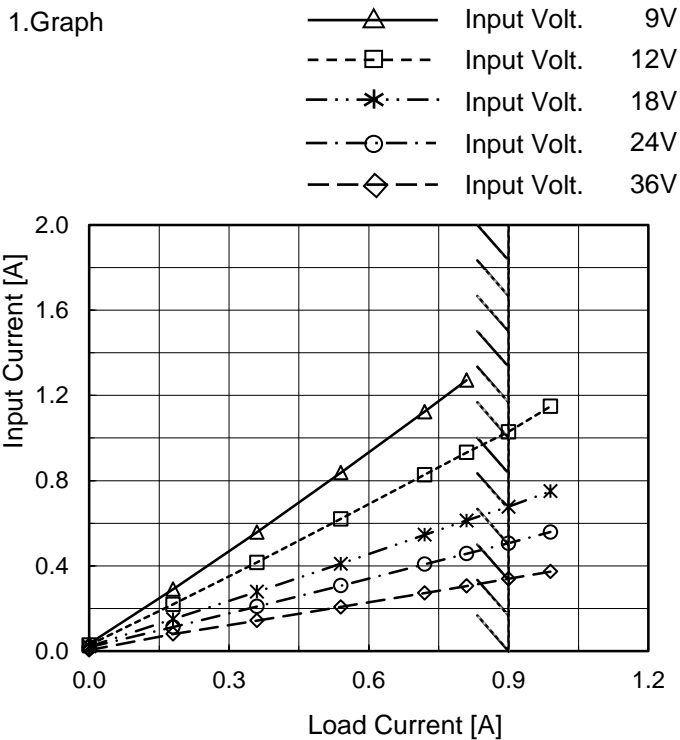


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Item	Input Current (by Load Current)
Object	_____

Temperature 25°C  
Testing Circuitry Figure A



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]
0.00	0.035	0.029	0.022	0.018	0.005
0.18	0.291	0.219	0.150	0.113	0.080
0.36	0.558	0.416	0.279	0.210	0.143
0.54	0.837	0.620	0.410	0.307	0.208
0.72	1.124	0.827	0.546	0.408	0.272
0.81	1.271	0.932	0.613	0.458	0.306
0.90	- ※	1.029	0.677	0.506	0.339
0.99	- ※	1.148	0.750	0.559	0.373
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.



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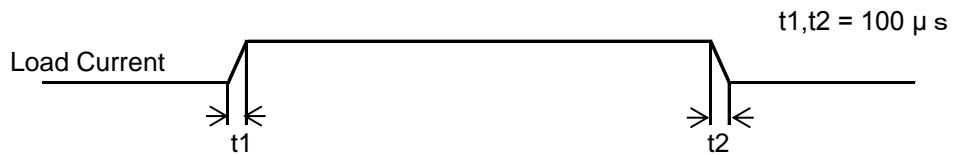


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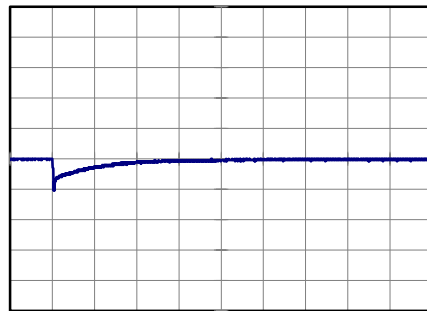
Model		MGFS102412	
Item		Dynamic Load Response	
Object		+12V0.9A	
		Temperature	25°C
		Testing Circuitry	Figure A

Input Volt. 24 V  
Cycle 100 ms

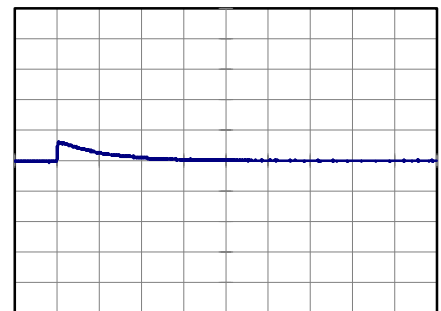


Min. Load (0A) ←→  
Load 100% (0.9A)

500 mV/div



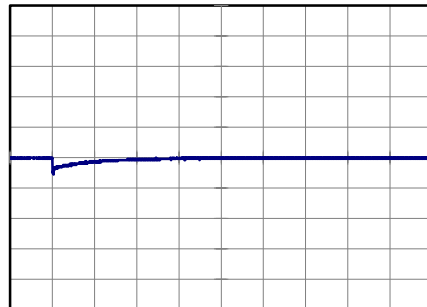
2 ms/div



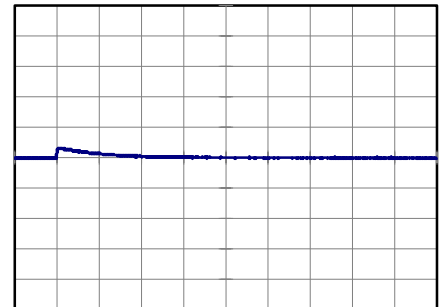
2 ms/div

Min. Load (0A) ←→  
Load 50% (0.45A)

500 mV/div



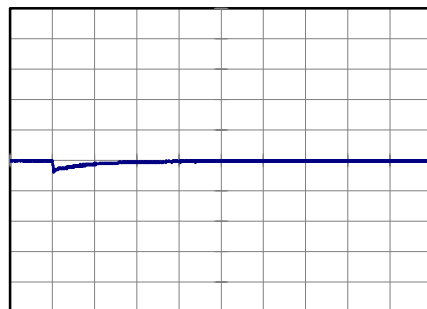
2 ms/div



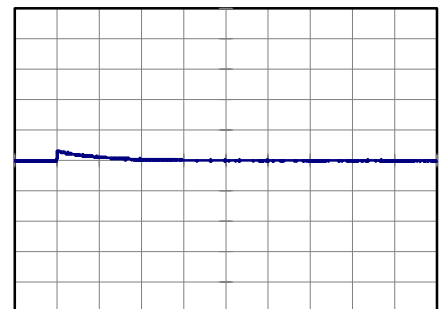
2 ms/div

Load 50% (0.45A) ←→  
Load 100% (0.9A)

500 mV/div



2 ms/div



2 ms/div



<p>Model MGFS102412</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
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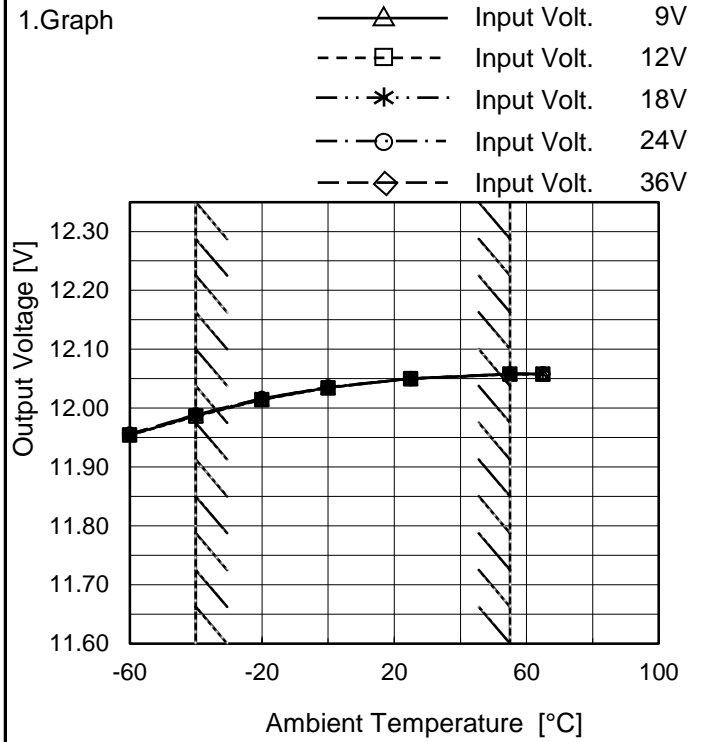


<b>COSEL</b>																																								
Model	MGFS102412																																							
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																						
Object	+12V0.9A																																							
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Model	MGFS102412
Item	Ambient Temperature Drift
Object	+12V0.9A

Testing Circuitry Figure A



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	11.955	11.954	11.955	11.956	11.956
-40	11.987	11.986	11.988	11.989	11.989
-20	12.015	12.014	12.016	12.016	12.017
0	12.035	12.034	12.035	12.036	12.036
25	12.050	12.050	12.050	12.050	12.050
55	12.058	12.057	12.059	12.058	12.058
65	12.058	12.058	12.058	12.058	12.058
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Note: In case of Input Volt. 9V, Load 80%.  
Other case Load 100%.



<b>COSEL</b>		Testing Circuitry Figure A
Model	MGFS102412	
Item	Output Voltage Accuracy	
Object	+12V0.9A	

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 - 55°C

Input Voltage : 12 - 36V

Load Current : 0 - 0.9A

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

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	55	24	0	12.066	±40	±0.3
Minimum Voltage	-40	12	0.9	11.986		



<b>COSEL</b>																								
Model	MGFS102412																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+12V0.9A																							
<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>12.045</td></tr> <tr><td>0.5</td><td>12.054</td></tr> <tr><td>1.0</td><td>12.053</td></tr> <tr><td>2.0</td><td>12.054</td></tr> <tr><td>3.0</td><td>12.054</td></tr> <tr><td>4.0</td><td>12.053</td></tr> <tr><td>5.0</td><td>12.053</td></tr> <tr><td>6.0</td><td>12.053</td></tr> <tr><td>7.0</td><td>12.053</td></tr> <tr><td>8.0</td><td>12.053</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	12.045	0.5	12.054	1.0	12.053	2.0	12.054	3.0	12.054	4.0	12.053	5.0	12.053	6.0	12.053	7.0	12.053	8.0	12.053
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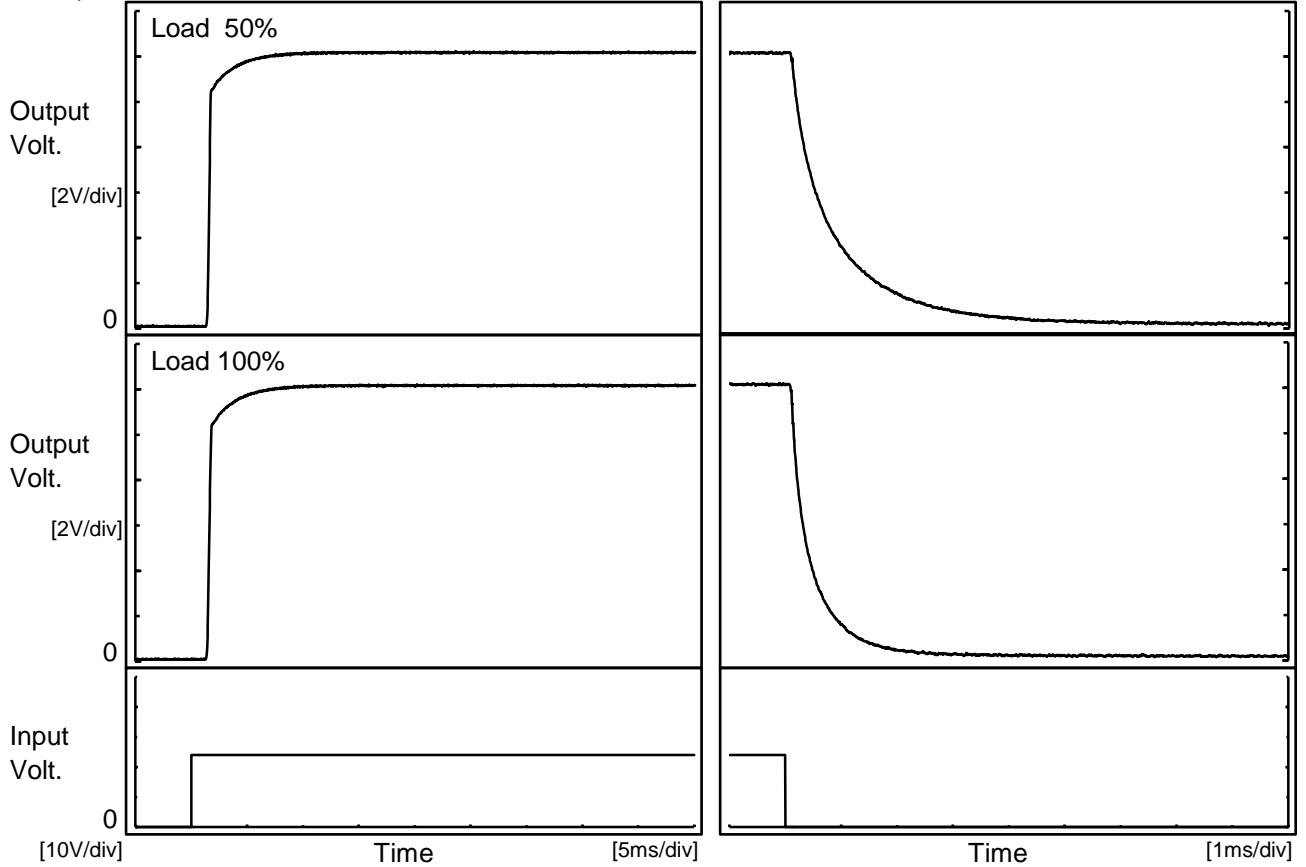




Model	MGFS102412	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.9A		

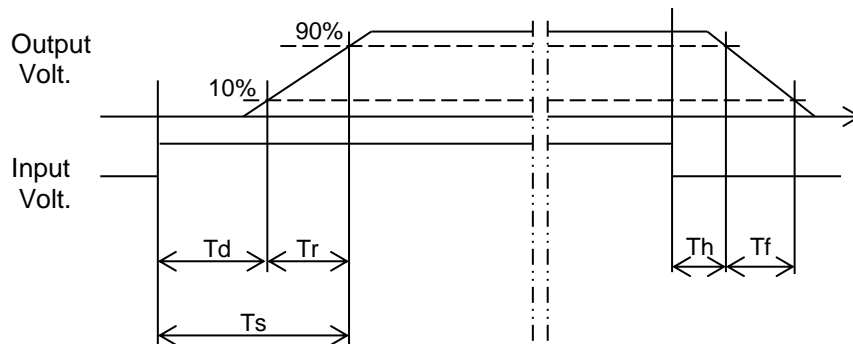
1.Graph

Input Volt. 24 V



2.Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.5	0.8	2.3	0.2	2.1
100 %		1.5	1.0	2.5	0.1	1.0

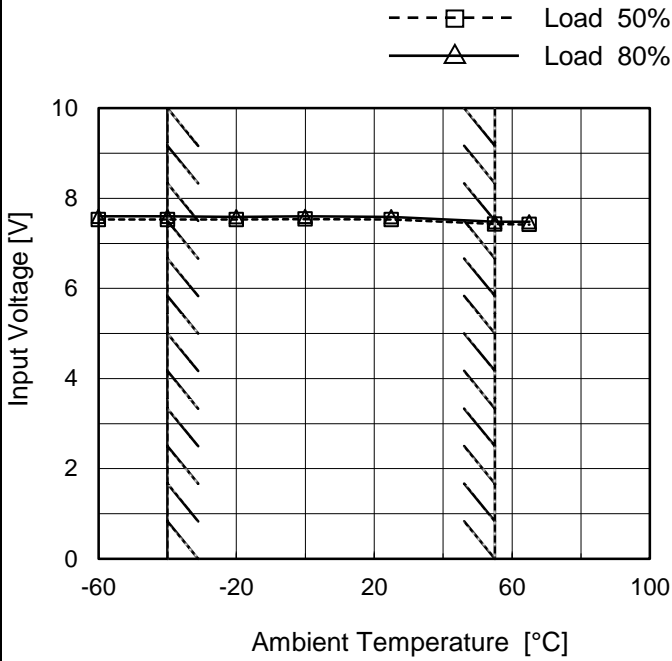




Model	MGFS102412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.9A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 80%
-60	7.6	7.6
-40	7.6	7.6
-20	7.6	7.6
0	7.6	7.6
25	7.6	7.6
55	7.5	7.5
65	7.5	7.5
--	-	-
--	-	-
--	-	-
--	-	-



<b>COSEL</b>																																																																																						
Model	MGFS102412	Temperature	25°C																																																																																			
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																																																			
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<p>1.Graph</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 45%;"> <p>— Input Volt. 9V</p> <p>— Input Volt. 12V</p> <p>— Input Volt. 18V</p> <p>— Input Volt. 24V</p> <p>— Input Volt. 36V</p> </div> </div>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="5">Load Current [A]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> <th>Input Volt. 24[V]</th> <th>Input Volt. 36[V]</th> </tr> </thead> <tbody> <tr><td>11.4</td><td>0.955</td><td>1.098</td><td>1.187</td><td>1.149</td><td>1.127</td></tr> <tr><td>10.8</td><td>0.993</td><td>1.134</td><td>1.223</td><td>1.179</td><td>1.150</td></tr> <tr><td>9.6</td><td>1.079</td><td>1.213</td><td>1.302</td><td>1.242</td><td>1.195</td></tr> <tr><td>8.4</td><td>1.176</td><td>1.307</td><td>1.385</td><td>1.307</td><td>1.243</td></tr> <tr><td>7.2</td><td>1.288</td><td>1.417</td><td>1.466</td><td>1.375</td><td>1.298</td></tr> <tr><td>6.0</td><td>1.412</td><td>1.527</td><td>1.550</td><td>1.445</td><td>1.355</td></tr> <tr><td>4.8</td><td>1.487</td><td>1.639</td><td>1.637</td><td>1.514</td><td>1.414</td></tr> <tr><td>3.6</td><td>1.570</td><td>1.756</td><td>1.737</td><td>1.597</td><td>1.484</td></tr> <tr><td>2.4</td><td>1.771</td><td>1.887</td><td>1.892</td><td>1.706</td><td>1.562</td></tr> <tr><td>1.2</td><td>1.991</td><td>2.075</td><td>2.007</td><td>1.806</td><td>1.635</td></tr> <tr><td>0.0</td><td>2.271</td><td>2.225</td><td>2.045</td><td>1.794</td><td>1.557</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>		Output Voltage [V]	Load Current [A]					Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	11.4	0.955	1.098	1.187	1.149	1.127	10.8	0.993	1.134	1.223	1.179	1.150	9.6	1.079	1.213	1.302	1.242	1.195	8.4	1.176	1.307	1.385	1.307	1.243	7.2	1.288	1.417	1.466	1.375	1.298	6.0	1.412	1.527	1.550	1.445	1.355	4.8	1.487	1.639	1.637	1.514	1.414	3.6	1.570	1.756	1.737	1.597	1.484	2.4	1.771	1.887	1.892	1.706	1.562	1.2	1.991	2.075	2.007	1.806	1.635	0.0	2.271	2.225	2.045	1.794	1.557	--	-	-	-	-	-
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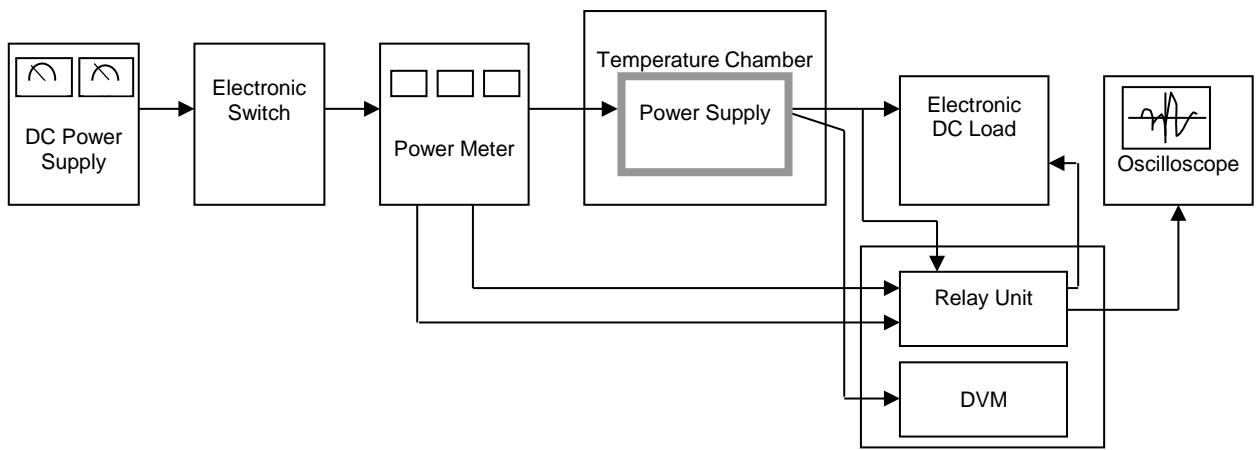


Figure A

Data Acquisition/Control Unit

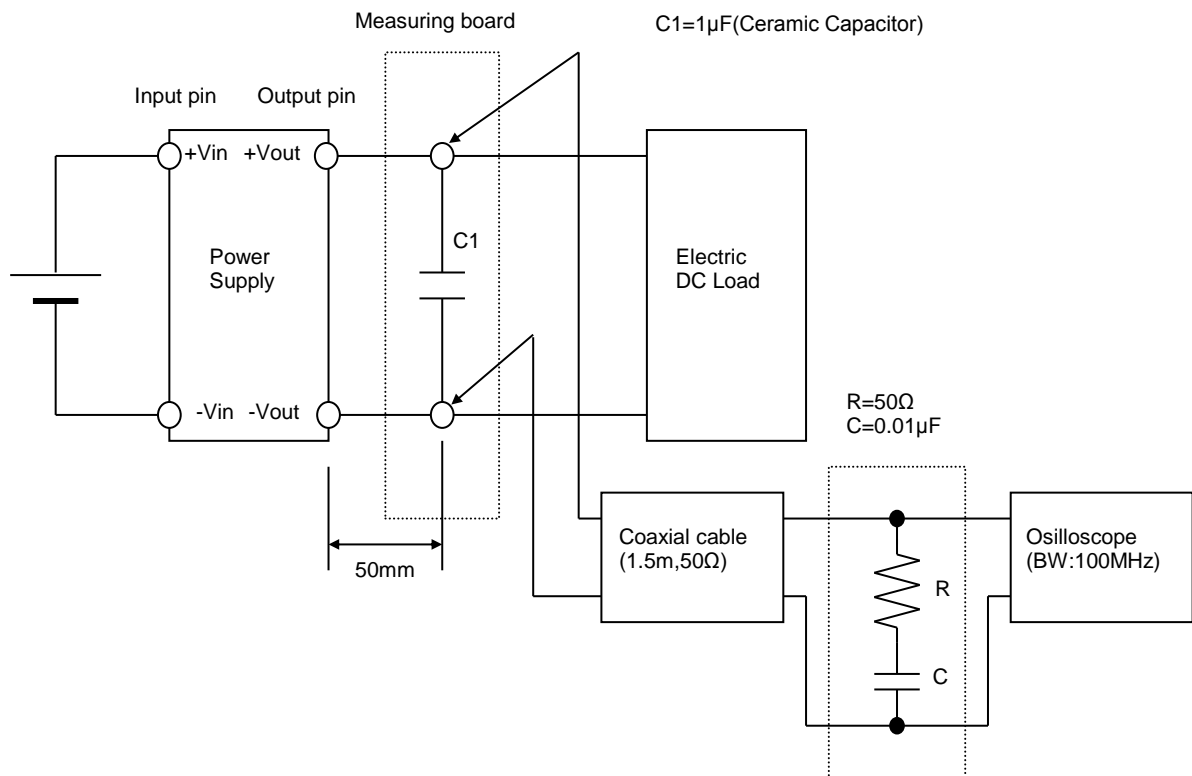


Figure B (Ripple and Ripple noise Characteristic)