

# TEST DATA OF MGFS64805

Regulated DC Power Supply  
December 6, 2016

Approved by : Takayuki Fukuda  
Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi  
Takaaki Sekiguchi Design Engineer

**COSEL CO.,LTD.**

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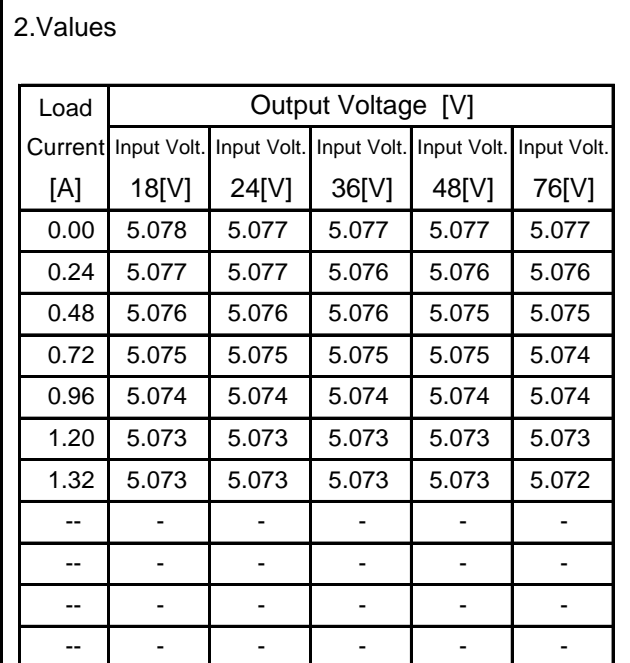
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Model		MGFS64805	
Item		Line Regulation	
Object		+5V1.2A	
1.Graph		2.Values	



Temperature	25°C
Testing Circuitry	Figure A



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# COSEL

Model	MGFS64805	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+5V1.2A	

Input Volt. 48 V  
Cycle 100 ms

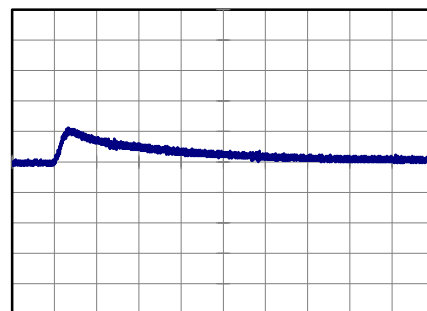
$t_1, t_2 = 100 \mu s$



Min.Load (0A) ←→  
Load 100% (1.2A)

200 mV/div

200  $\mu s$ /div

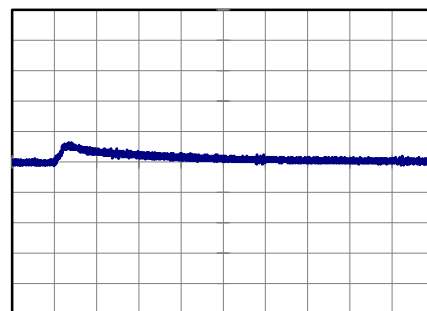


200  $\mu s$ /div

Min.Load (0A) ←→  
Load 50% (0.6A)

200 mV/div

200  $\mu s$ /div

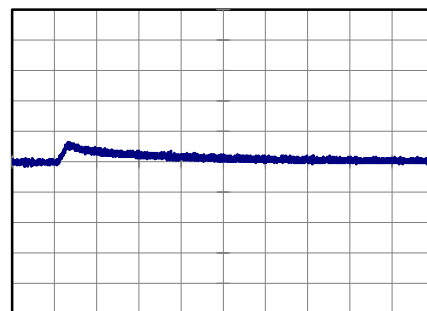


200  $\mu s$ /div

Load 50% (0.6A) ←→  
Load 100% (1.2A)

200 mV/div

200  $\mu s$ /div



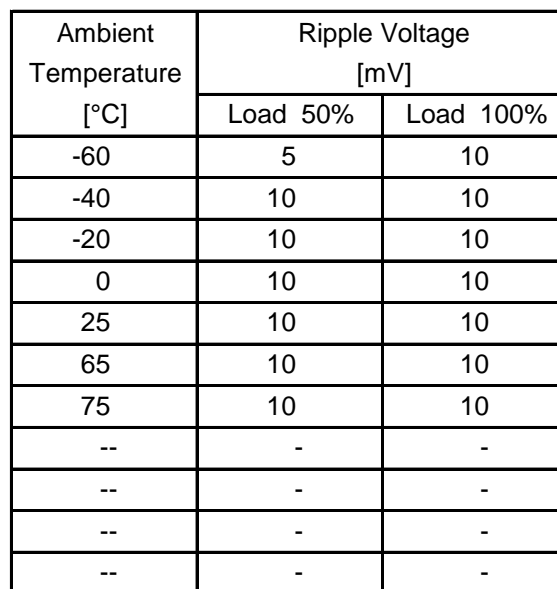
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<div><div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div>---○---</div><div>Input Volt.</div><div>76V</div></div></div> <p>Measured by 100 MHz Oscilloscope. Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p> <p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>				<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.00</td><td>5</td><td>15</td></tr><tr><td>0.24</td><td>5</td><td>5</td></tr><tr><td>0.48</td><td>5</td><td>10</td></tr><tr><td>0.72</td><td>10</td><td>15</td></tr><tr><td>0.96</td><td>20</td><td>10</td></tr><tr><td>1.20</td><td>35</td><td>5</td></tr><tr><td>1.32</td><td>45</td><td>10</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></table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	5	15	0.24	5	5	0.48	5	10	0.72	10	15	0.96	20	10	1.20	35	5	1.32	45	10	--	-	-	--	-	-	--	-	-	--	-	-
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Model		MGFS64805		Temperature		25°C																																			
Item		Ripple-Noise		Testing Circuitry		Figure B																																			
Object		+5V1.2A																																							
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<div><div><div><div><div></div><div>△</div></div><div>Input Volt.</div><div>18V</div></div><div><div><div></div><div>○</div></div><div>Input Volt.</div><div>76V</div></div></div><div><p>Ripple Voltage [mV]</p><p>Load Current [A]</p></div></div> <div><p>Measured by 100 MHz Oscilloscope.</p><p>Ripple-Noise is shown as p-p in the figure below.</p><p>Note: Slanted line shows the range of the rated load current.</p><p>Ripple Noise[mVp-p]</p><div></div><p>Fig.Complex Ripple Noise Wave Form</p></div> <div><table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.00</td><td>5</td><td>20</td></tr><tr><td>0.24</td><td>10</td><td>10</td></tr><tr><td>0.48</td><td>10</td><td>15</td></tr><tr><td>0.72</td><td>15</td><td>20</td></tr><tr><td>0.96</td><td>20</td><td>20</td></tr><tr><td>1.20</td><td>35</td><td>15</td></tr><tr><td>1.32</td><td>50</td><td>15</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></table></div>				Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	5	20	0.24	10	10	0.48	10	15	0.72	15	20	0.96	20	20	1.20	35	15	1.32	50	15	--	-	-	--	-	-	--	-	-	--	-	-
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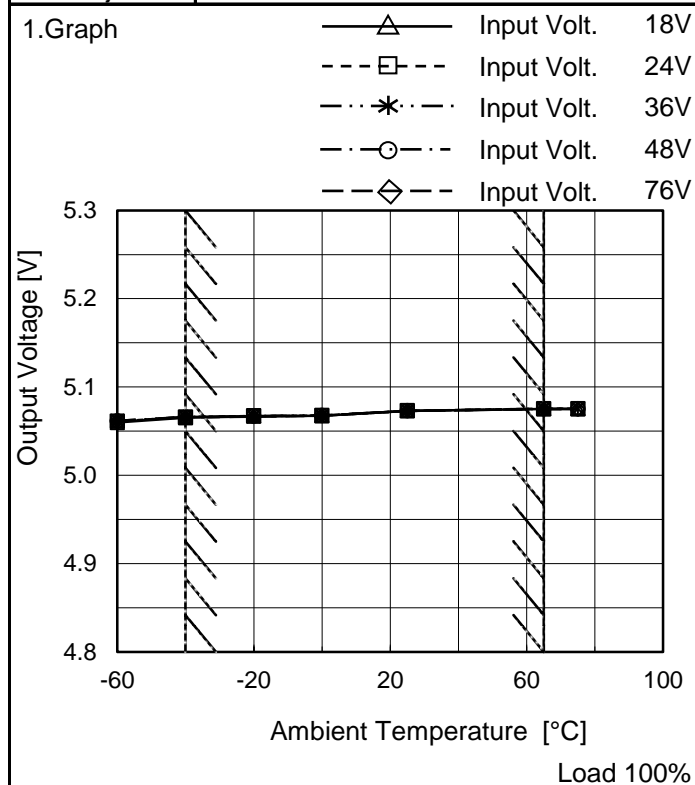
Testing Circuitry Figure B

## 2.Values



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

Model	MGFS64805
Item	Ambient Temperature Drift
Object	+5V1.2A



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

Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	5.060	5.061	5.062	5.062	5.061
-40	5.065	5.066	5.066	5.066	5.066
-20	5.067	5.067	5.067	5.067	5.066
0	5.067	5.068	5.068	5.068	5.068
25	5.073	5.073	5.073	5.073	5.073
65	5.075	5.075	5.075	5.075	5.075
75	5.075	5.075	5.075	5.075	5.075
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

**COSEL**

		Testing Circuitry Figure A
Model	MGFS64805	
Item	Output Voltage Accuracy	
Object	+5V1.2A	

### 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 - 65°C

Input Voltage : 18 - 76V

Load Current : 0 - 1.2A

\* 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	65	76	0	5.080	±8	±0.2
Minimum Voltage	-40	18	1.2	5.065		

# COSEL

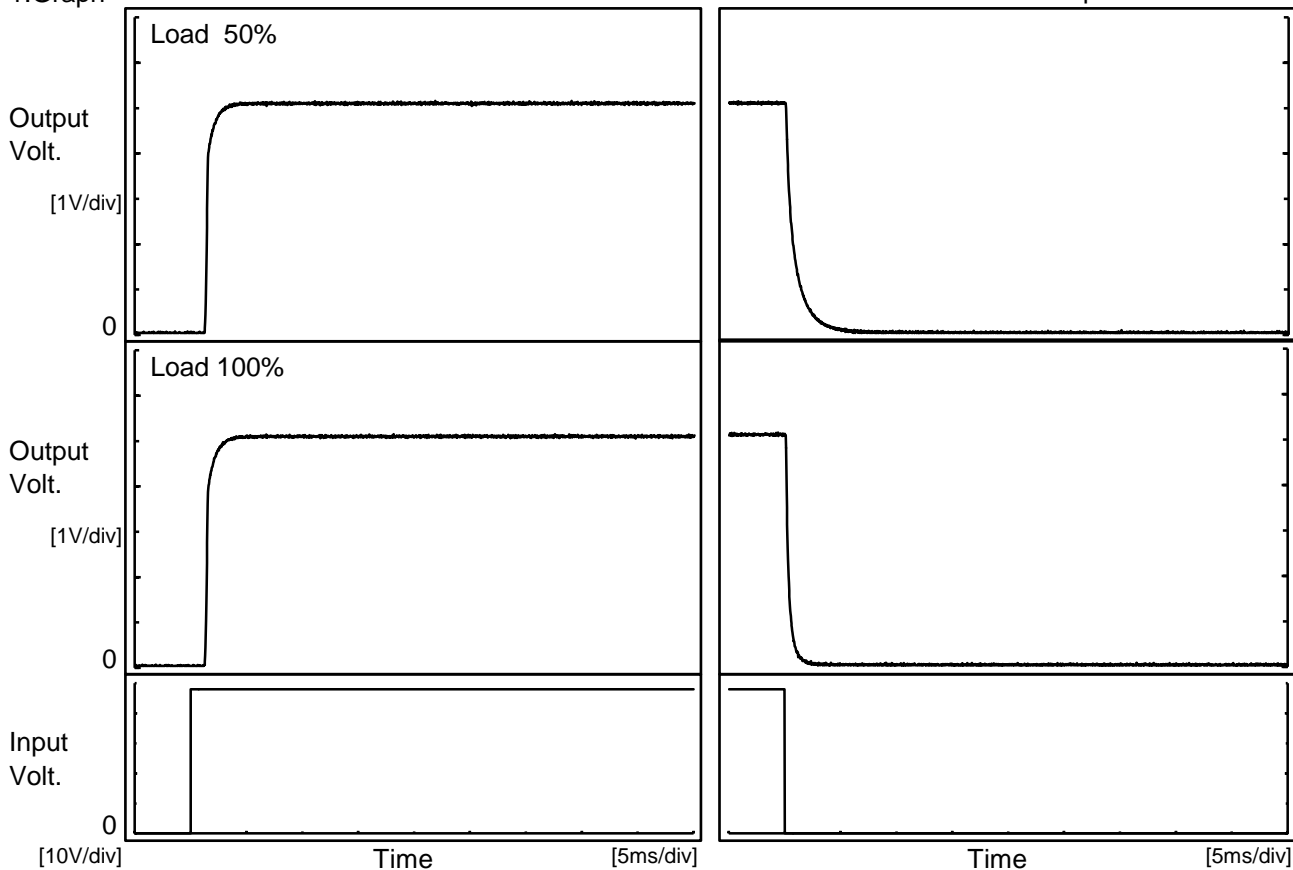
Model		MGFS64805		Temperature25°C Testing CircuitryFigure A																						
Item		Time Lapse Drift																								
Object		+5V1.2A																								
1.Graph				2.Values																						
<div><div><div>5.3</div><div>5.2</div><div>5.1</div><div>5.0</div><div>4.9</div><div>4.8</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div><div><div>Input Volt.48V</div><div>Load100%</div></div></div>				<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.070</td></tr><tr><td>0.5</td><td>5.073</td></tr><tr><td>1.0</td><td>5.073</td></tr><tr><td>2.0</td><td>5.073</td></tr><tr><td>3.0</td><td>5.073</td></tr><tr><td>4.0</td><td>5.073</td></tr><tr><td>5.0</td><td>5.073</td></tr><tr><td>6.0</td><td>5.073</td></tr><tr><td>7.0</td><td>5.073</td></tr><tr><td>8.0</td><td>5.073</td></tr></table>	Time since start [H]	Output Voltage [V]	0.0	5.070	0.5	5.073	1.0	5.073	2.0	5.073	3.0	5.073	4.0	5.073	5.0	5.073	6.0	5.073	7.0	5.073	8.0	5.073
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# COSEL

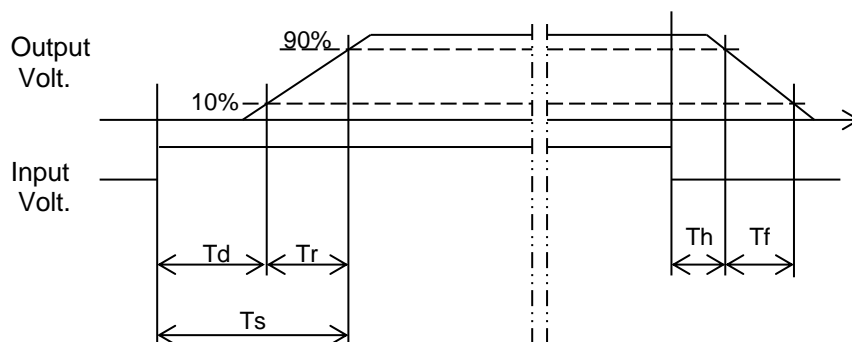
Model	MGFS64805	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V1.2A		

## 1.Graph



## 2.Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.4	0.7	2.1	0.2	2.2
100 %	1.4	0.7	2.1	0.1	0.7



1. Graph

The graph plots Input Voltage [V] on the Y-axis (0 to 20) against Ambient Temperature [°C] on the X-axis (-60 to 100). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a slight decrease in input voltage as temperature increases. A shaded region with diagonal lines indicates the range of rated ambient temperature, approximately from -40°C to 65°C.

Ambient Temperature [°C]	Input Voltage [V] (Load 50%)	Input Voltage [V] (Load 100%)
-60	15.0	15.0
-40	14.8	14.8
-20	14.6	14.6
0	14.4	14.4
20	14.2	14.2
40	14.0	14.0
60	13.8	13.8
70	13.6	13.6

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

Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.1	15.2
-40	15.0	15.1
-20	15.0	15.1
0	14.9	15.0
25	14.8	14.9
65	14.5	14.6
75	14.4	14.5
--	-	-
--	-	-
--	-	-
--	-	-

Model		MGFS64805		Temperature 25°C																																																																																						
Item		Overcurrent Protection		Testing Circuitry Figure A																																																																																						
Object		+5V1.2A																																																																																								
1.Graph		<div><div><div></div><div>Input Volt.</div><div>18V</div></div><div><div></div><div>Input Volt.</div><div>24V</div></div><div><div></div><div>Input Volt.</div><div>36V</div></div><div><div></div><div>Input Volt.</div><div>48V</div></div><div><div></div><div>Input Volt.</div><div>76V</div></div></div> <div><div><div>Output Voltage [V]</div><div><div>8</div><div>6</div><div>4</div><div>2</div><div>0</div></div><div><div>0</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div>Load Current [A]</div></div></div> <div>Note: Slanted line shows the range of the rated load current.</div>		2.Values		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>4.75</td><td>1.627</td><td>1.619</td><td>1.637</td><td>1.700</td><td>1.818</td></tr><tr><td>4.50</td><td>1.694</td><td>1.679</td><td>1.696</td><td>1.752</td><td>1.862</td></tr><tr><td>4.00</td><td>1.842</td><td>1.818</td><td>1.831</td><td>1.873</td><td>1.953</td></tr><tr><td>3.50</td><td>2.013</td><td>1.972</td><td>1.975</td><td>1.995</td><td>2.038</td></tr><tr><td>3.00</td><td>2.211</td><td>2.151</td><td>2.123</td><td>2.123</td><td>2.154</td></tr><tr><td>2.50</td><td>2.429</td><td>2.356</td><td>2.276</td><td>2.261</td><td>2.276</td></tr><tr><td>2.00</td><td>2.645</td><td>2.565</td><td>2.448</td><td>2.415</td><td>2.400</td></tr><tr><td>1.50</td><td>2.884</td><td>2.811</td><td>2.638</td><td>2.582</td><td>2.538</td></tr><tr><td>1.00</td><td>3.198</td><td>3.127</td><td>2.843</td><td>2.754</td><td>2.669</td></tr><tr><td>0.50</td><td>3.621</td><td>3.236</td><td>3.016</td><td>2.894</td><td>2.764</td></tr><tr><td>0.00</td><td>4.010</td><td>3.543</td><td>3.090</td><td>2.901</td><td>2.701</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]					Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	4.75	1.627	1.619	1.637	1.700	1.818	4.50	1.694	1.679	1.696	1.752	1.862	4.00	1.842	1.818	1.831	1.873	1.953	3.50	2.013	1.972	1.975	1.995	2.038	3.00	2.211	2.151	2.123	2.123	2.154	2.50	2.429	2.356	2.276	2.261	2.276	2.00	2.645	2.565	2.448	2.415	2.400	1.50	2.884	2.811	2.638	2.582	2.538	1.00	3.198	3.127	2.843	2.754	2.669	0.50	3.621	3.236	3.016	2.894	2.764	0.00	4.010	3.543	3.090	2.901	2.701	--	-	-	-	-	-
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Model		MGFS64805		Temperature 25°C																																																																																
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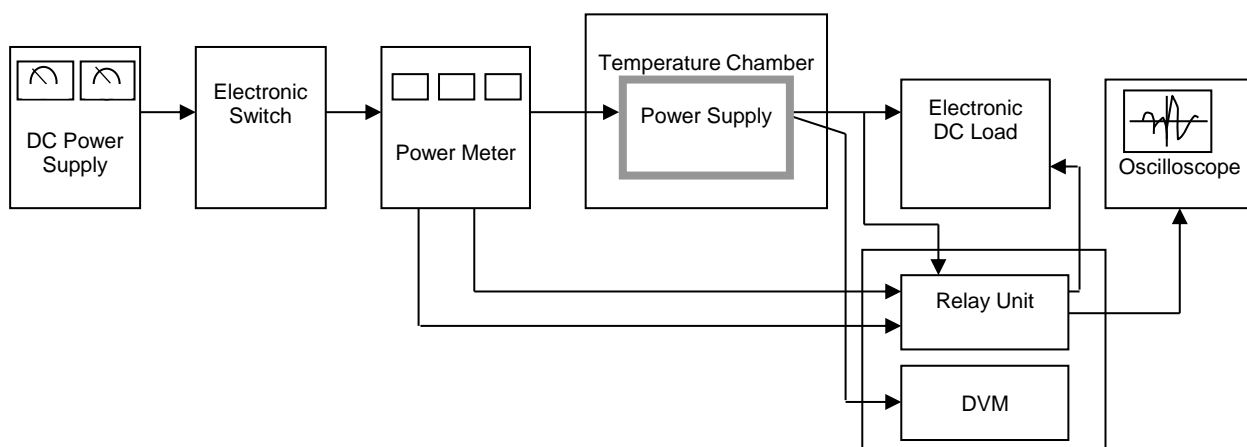


Figure A

Data Acquisition/Control Unit

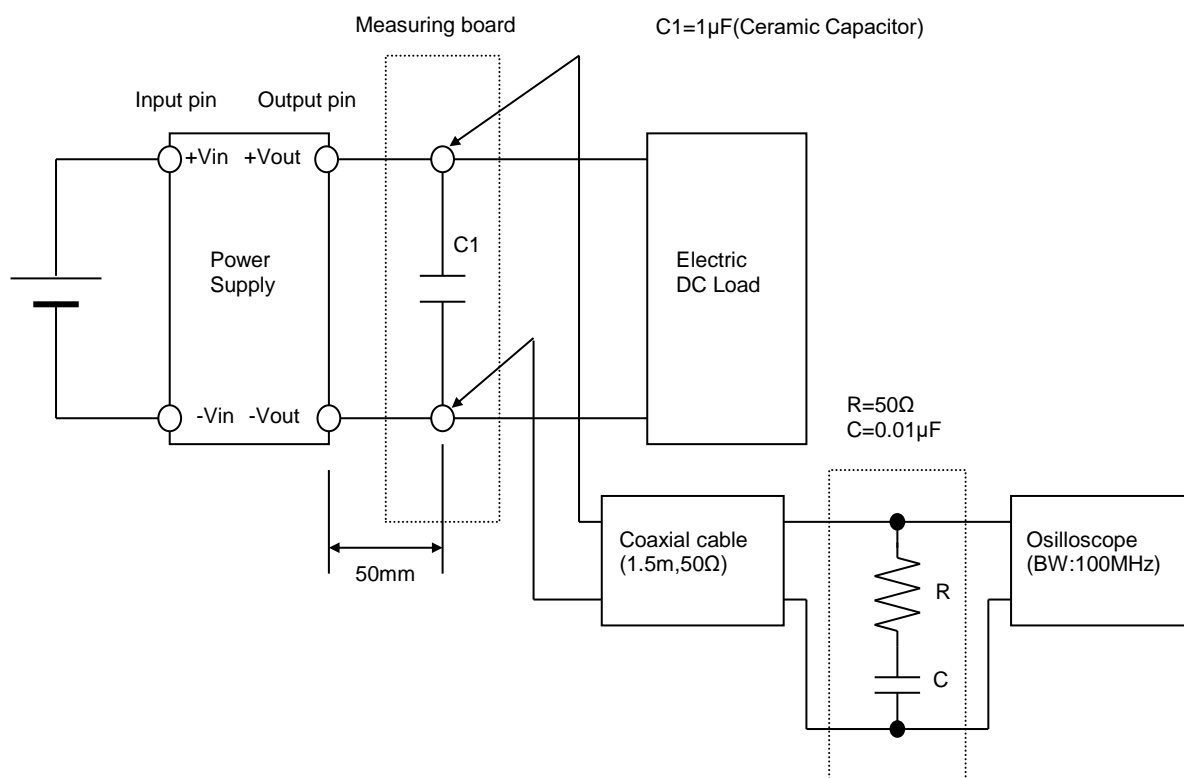


Figure B (Ripple and Ripple noise Characteristic)