

TEST DATA OF MGFS152405

Regulated DC Power Supply
September 14, 2010

Approved by : *Kazunari Asano*
Kazunari Asano Design Manager

Prepared by : *Ryoko Ueda*
Ryoko Ueda Design Engineer

COSEL CO.,LTD.

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<p>Model MGFS152405</p>		<p>Temperature 25°C</p>																																																																														
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12.0	5.062	5.061																																
15.0	5.062	5.061																																
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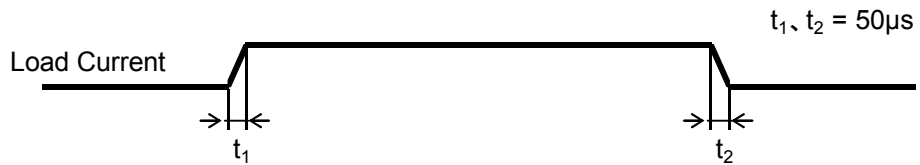


<p>Model MGFS152405</p>		<p>Temperature 25°C</p>																																																																																
<p>Item Load Regulation</p>		<p>Testing Circuitry Figure A</p>																																																																																
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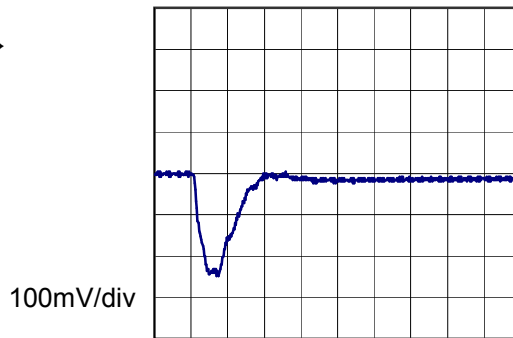


Model	MGFS152405	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+5V3A		

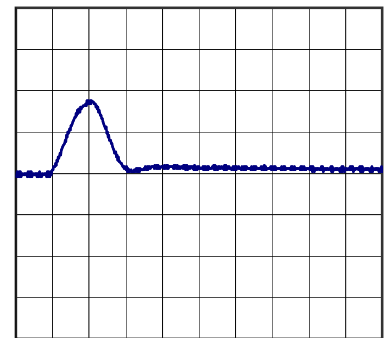
Input Volt. 24 V
 Cycle 1000 ms



Min. Load (0A) \longleftrightarrow
 Load 100% (3A)

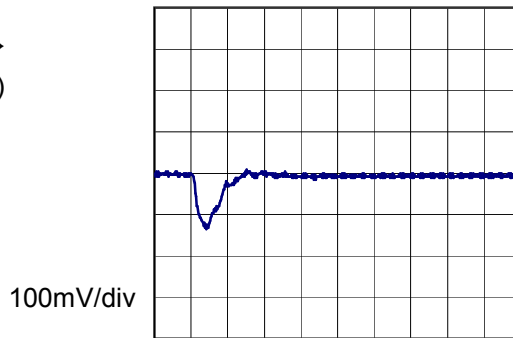


50µs/div

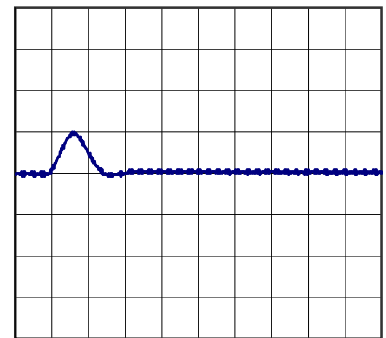


50µs/div

Min. Load (0A) \longleftrightarrow
 Load 50% (1.5A)

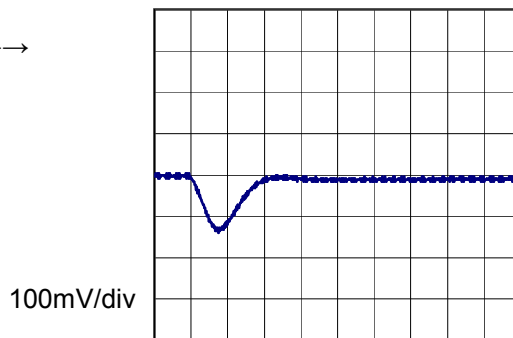


50µs/div

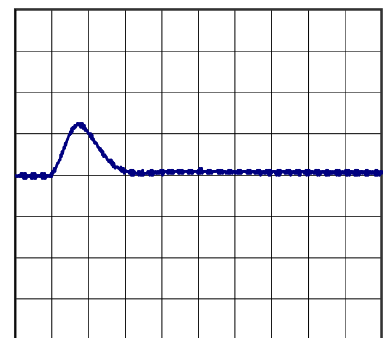


50µs/div

Load 50% (1.5A) \longleftrightarrow
 Load 100% (3A)



50µs/div

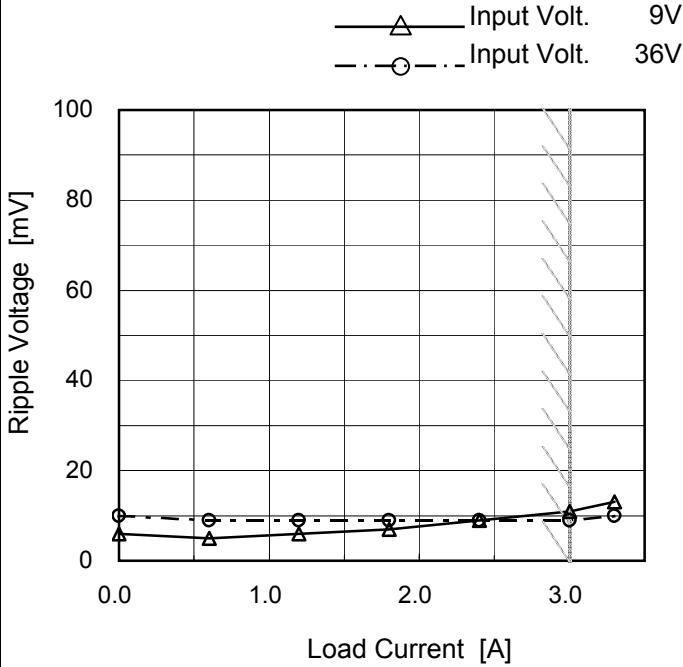


50µs/div

Model		MGFS152405		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+5V3A																																									
1.Graph			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. 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> <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. 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	--	-	-	--	-	-	--	-	-	--	-	-
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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>Fig.Complex Ripple Wave Form</p>																																											

Model	MGFS152405	Temperature	25°C
Item	Ripple-Noise	Testing Circuitry	Figure B
Object	+5V3A		

1. Graph



2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	6	10
0.6	5	9
1.2	6	9
1.8	7	9
2.4	9	9
3.0	11	9
3.3	13	10
--	-	-
--	-	-
--	-	-
--	-	-

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.

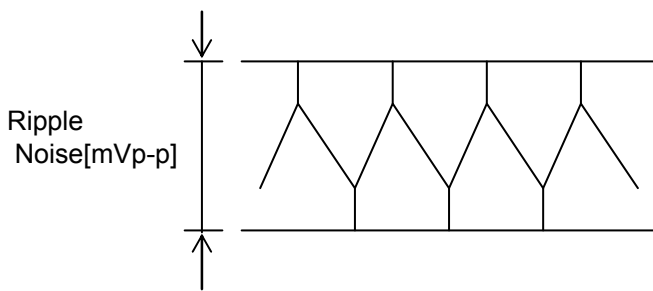
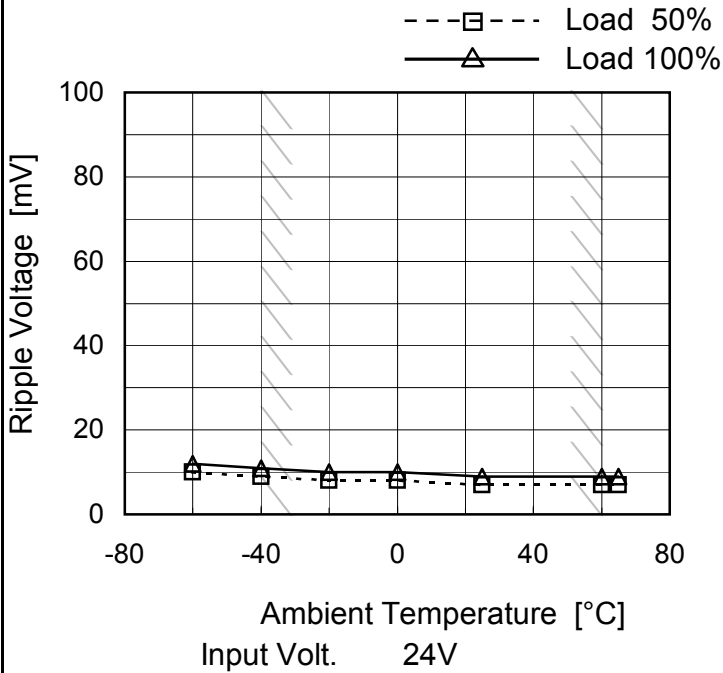


Fig.Complex Ripple Noise Wave Form

Model	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.



COSEL																																																																																		
Model	MGFS152405																																																																																	
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																																																
Object	+5V3A																																																																																	
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<p style="text-align: center;">Load 100%</p>		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="5">Output Voltage [V]</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>-60</td><td>5.022</td><td>5.022</td><td>5.023</td><td>5.023</td><td>5.023</td></tr> <tr><td>-40</td><td>5.035</td><td>5.035</td><td>5.036</td><td>5.036</td><td>5.036</td></tr> <tr><td>-20</td><td>5.045</td><td>5.046</td><td>5.046</td><td>5.046</td><td>5.046</td></tr> <tr><td>0</td><td>5.054</td><td>5.054</td><td>5.054</td><td>5.055</td><td>5.055</td></tr> <tr><td>25</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td><td>5.061</td></tr> <tr><td>60</td><td>5.064</td><td>5.064</td><td>5.064</td><td>5.064</td><td>5.064</td></tr> <tr><td>65</td><td>5.064</td><td>5.064</td><td>5.064</td><td>5.064</td><td>5.064</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>				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	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	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																																																	
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																																																																		



COSEL		
Model	MGFS152405	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
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 = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

* 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		



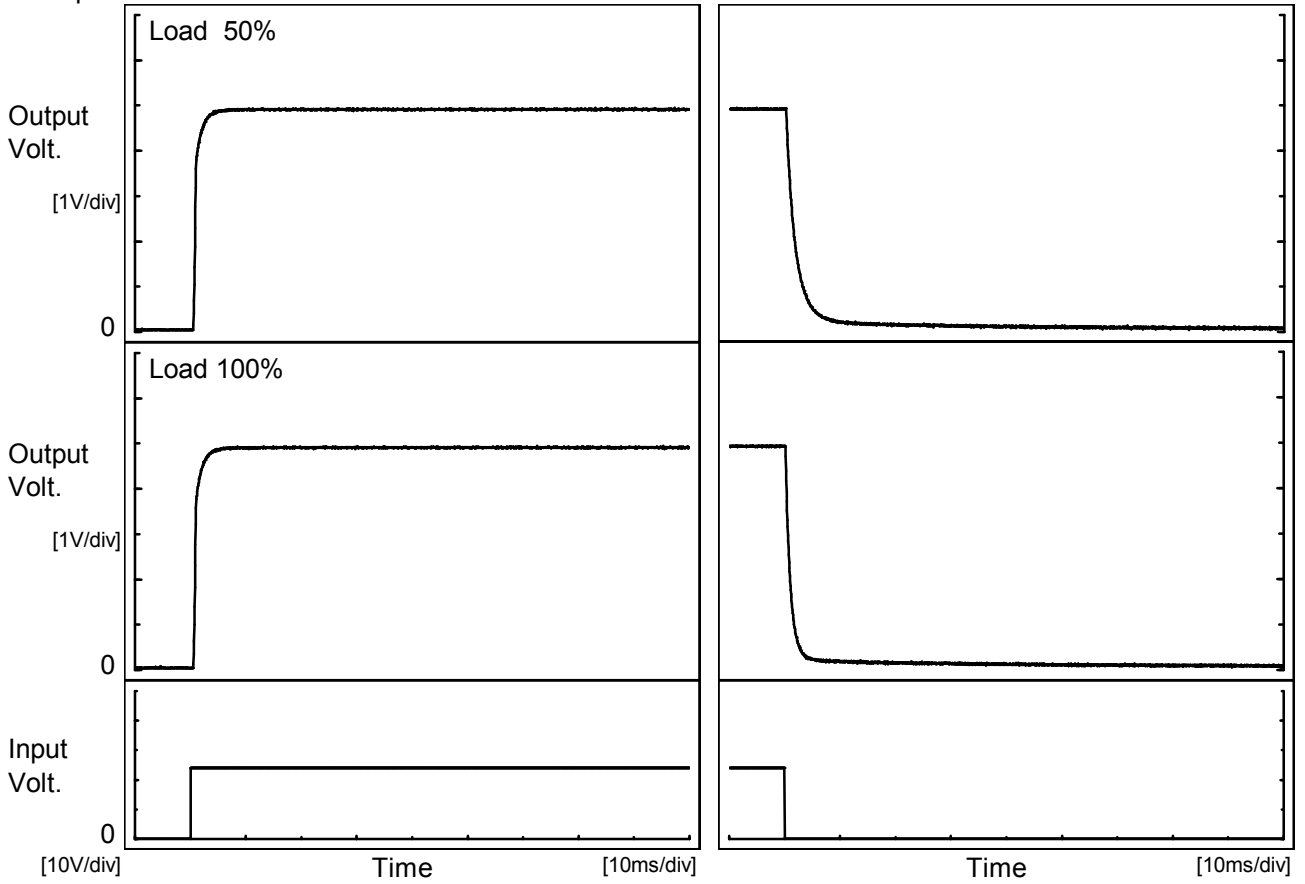
COSEL																								
Model	MGFS152405																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+5V3A																							
<p>1. Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 24V Load 100%</p>		<p>2. Values</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>5.059</td></tr> <tr><td>0.5</td><td>5.061</td></tr> <tr><td>1.0</td><td>5.061</td></tr> <tr><td>2.0</td><td>5.061</td></tr> <tr><td>3.0</td><td>5.061</td></tr> <tr><td>4.0</td><td>5.061</td></tr> <tr><td>5.0</td><td>5.061</td></tr> <tr><td>6.0</td><td>5.061</td></tr> <tr><td>7.0</td><td>5.061</td></tr> <tr><td>8.0</td><td>5.061</td></tr> </tbody> </table>	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
Time since start [H]	Output Voltage [V]																							
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6.0	5.061																							
7.0	5.061																							
8.0	5.061																							



Model		MGFS152405	Temperature	25°C
Item		Rise and Fall Time	Testing Circuitry	Figure A
Object		+5V3A		

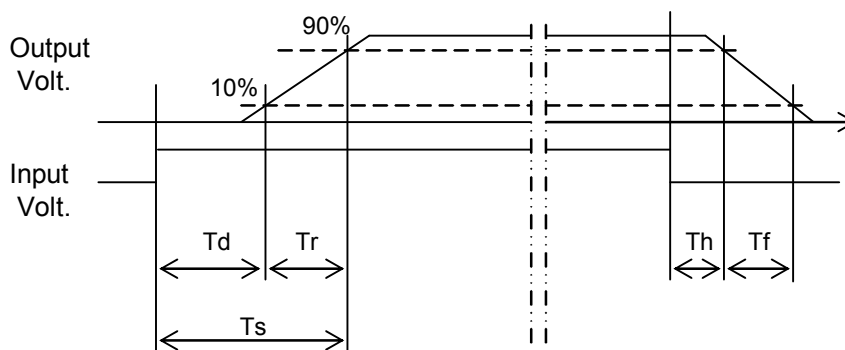
1. Graph

Input Volt. 24 V



2. Values

		[ms]				
Load \ Time	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





COSEL																																								
Model	MGFS152405																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+5V3A																																							
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<p>Model MGFS152405</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																																																			
<p>Item Overcurrent Protection</p>																																																																																					
<p>Object +5V3A</p>																																																																																					
<p>1.Graph</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <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 style="text-align: center;">Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when overcurrent protection is activated.</p>		<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>5.00</td> <td>3.345</td> <td>3.663</td> <td>3.980</td> <td>4.029</td> <td>3.767</td> </tr> <tr> <td>4.75</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>4.50</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>4.00</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>3.50</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>3.00</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>2.50</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>2.00</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>1.50</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>1.00</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>0.50</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>0.00</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]	5.00	3.345	3.663	3.980	4.029	3.767	4.75	-	-	-	-	-	4.50	-	-	-	-	-	4.00	-	-	-	-	-	3.50	-	-	-	-	-	3.00	-	-	-	-	-	2.50	-	-	-	-	-	2.00	-	-	-	-	-	1.50	-	-	-	-	-	1.00	-	-	-	-	-	0.50	-	-	-	-	-	0.00	-	-	-	-	-
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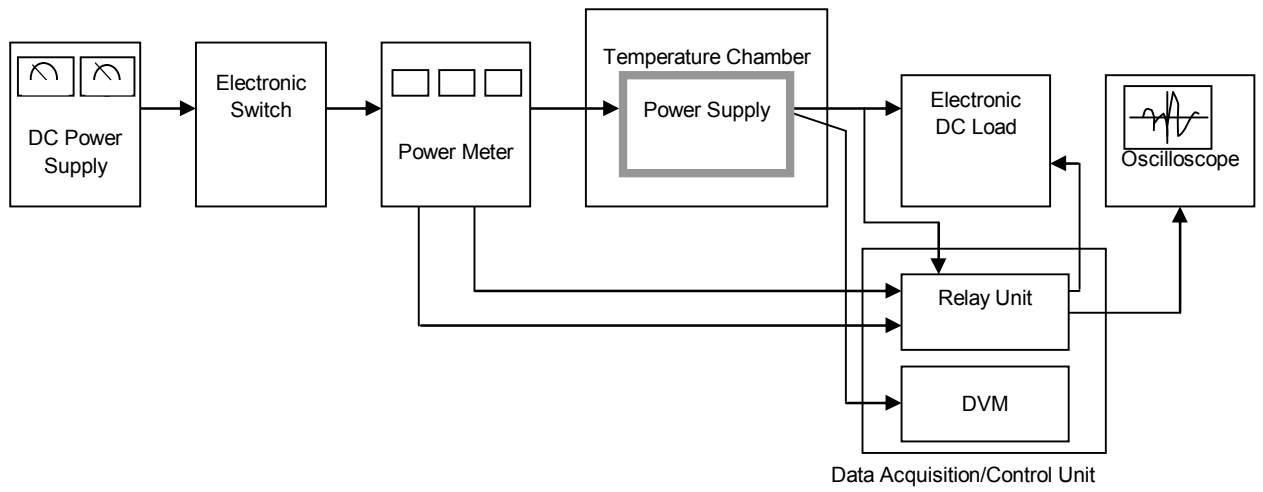


Figure A

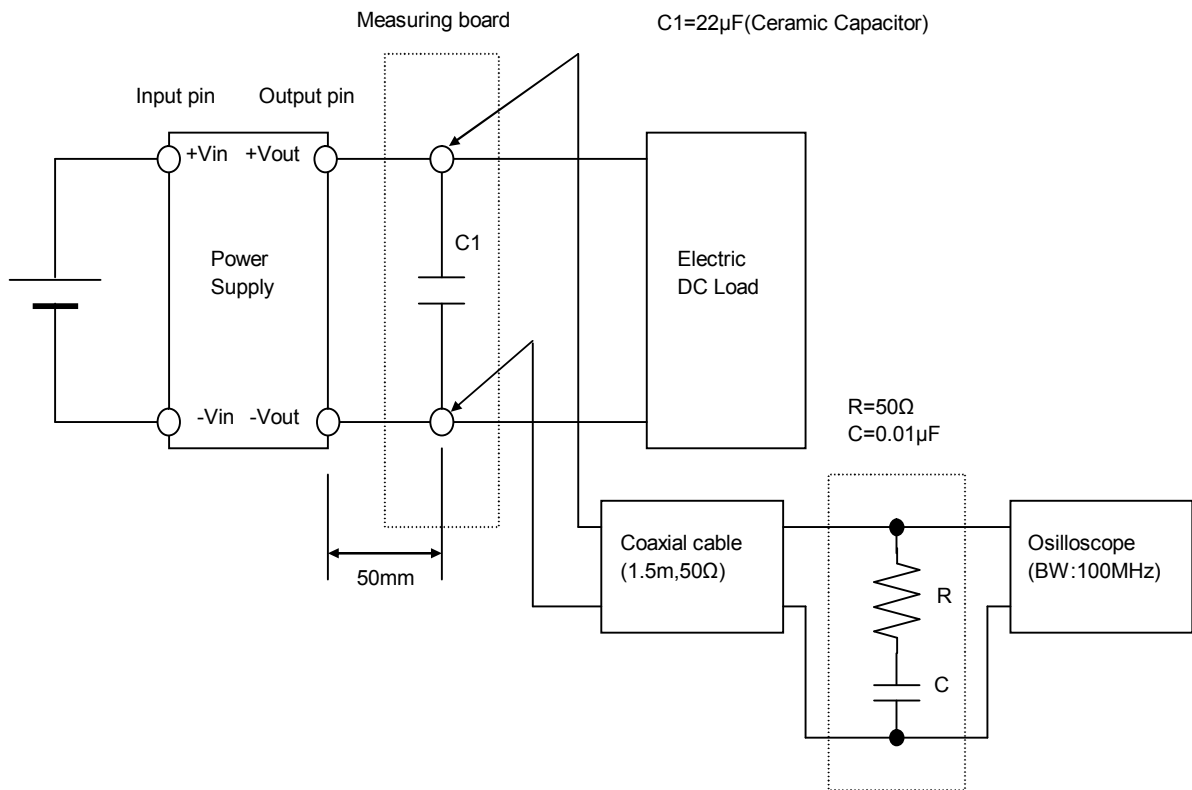


Figure B (Ripple and Ripple noise Characteristic)