

# TEST DATA OF MGS152405

Regulated DC Power Supply  
September 9, 2010

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Junki Nakayama  
Junki Nakayama Design Engineer

**COSEL CO.,LTD.**

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Model	MGS152405																																																																																	
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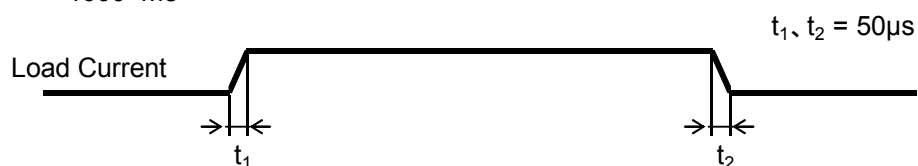


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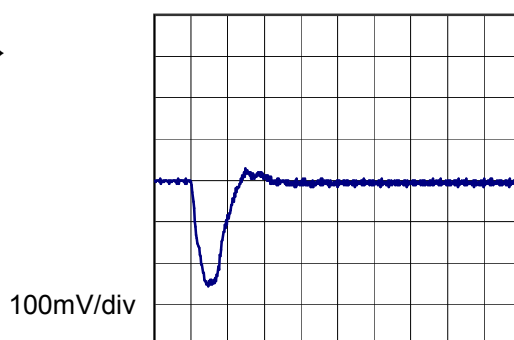


Model	MGS152405	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+5V3A	

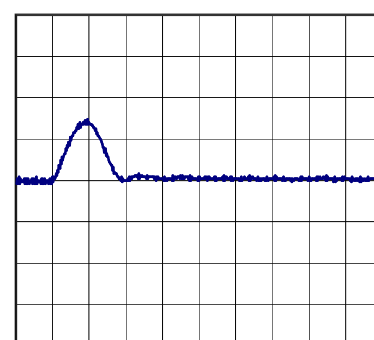
Input Volt. 24 V  
Cycle 1000 ms



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

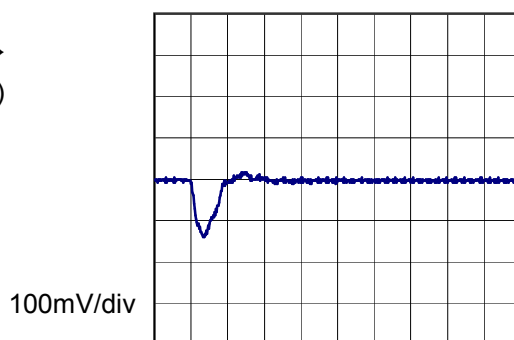


50µs/div

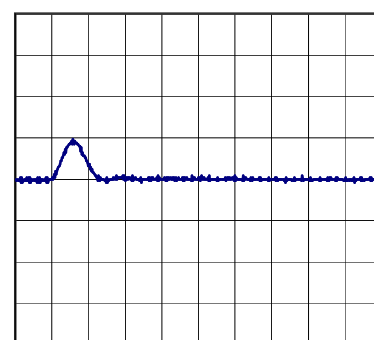


50µs/div

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

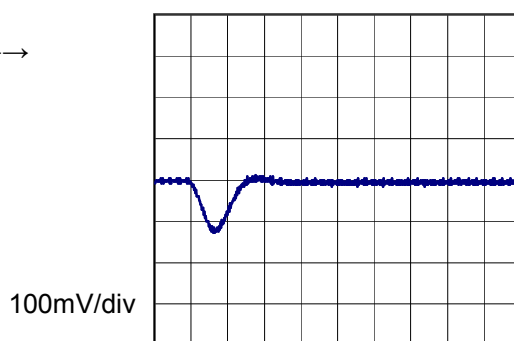


50µs/div

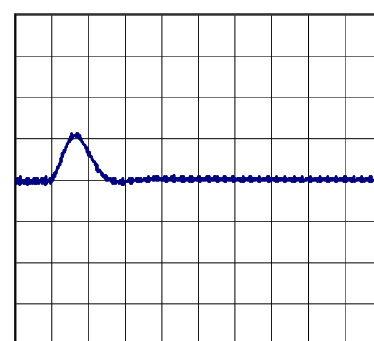


50µs/div

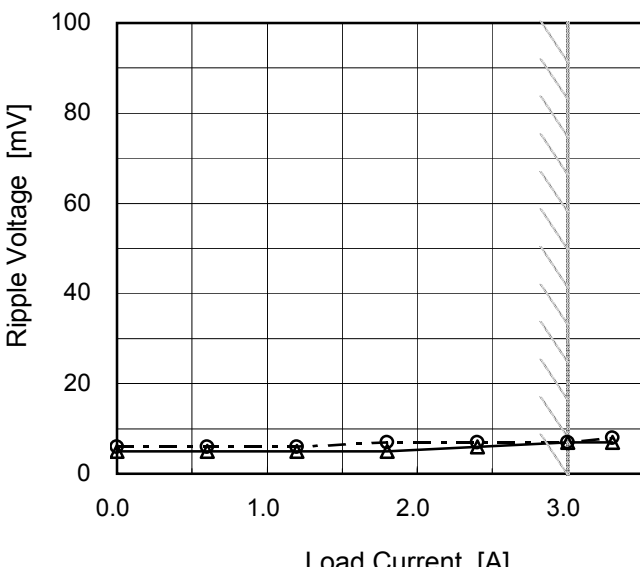
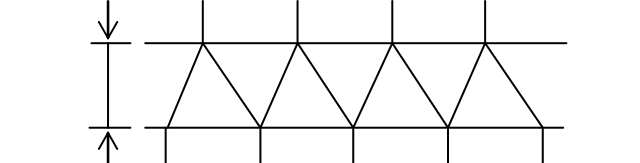
Load 50% (1.5A)  $\longleftrightarrow$   
Load 100% (3A)



50µs/div



50µs/div

Model		MGS152405																																							
Item		Ripple Voltage (by Load Current)																																							
Object		+5V3A																																							
1.Graph		2.Values																																							
<div><div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div>- - ○ - -</div><div>Input Volt.</div><div>36V</div></div></div> 		<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. 36 [V]</th></tr><tr><td>0.0</td><td>5</td><td>6</td></tr><tr><td>0.6</td><td>5</td><td>6</td></tr><tr><td>1.2</td><td>5</td><td>6</td></tr><tr><td>1.8</td><td>5</td><td>7</td></tr><tr><td>2.4</td><td>6</td><td>7</td></tr><tr><td>3.0</td><td>7</td><td>7</td></tr><tr><td>3.3</td><td>7</td><td>8</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. 36 [V]	0.0	5	6	0.6	5	6	1.2	5	6	1.8	5	7	2.4	6	7	3.0	7	7	3.3	7	8	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
	Input Volt. 18 [V]	Input Volt. 36 [V]																																							
0.0	5	6																																							
0.6	5	6																																							
1.2	5	6																																							
1.8	5	7																																							
2.4	6	7																																							
3.0	7	7																																							
3.3	7	8																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
<p>Measured by 100 MHz Oscilloscope.</p> <p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p>																																									
<div><div>Ripple [mVp-p]</div></div> <div>Fig.Complex Ripple Wave Form</div>																																									

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BC-10444

Model	MGS152405																																								
Item	Ripple-Noise	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+5V3A																																								
1.Graph		2.Values																																							
<div><div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div>- - ○ - -</div><div>Input Volt.</div><div>36V</div></div></div> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>		<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. 36 [V]</th></tr><tr><td>0.0</td><td>7</td><td>8</td></tr><tr><td>0.6</td><td>6</td><td>7</td></tr><tr><td>1.2</td><td>6</td><td>7</td></tr><tr><td>1.8</td><td>7</td><td>8</td></tr><tr><td>2.4</td><td>8</td><td>8</td></tr><tr><td>3.0</td><td>9</td><td>9</td></tr><tr><td>3.3</td><td>9</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></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.0	7	8	0.6	6	7	1.2	6	7	1.8	7	8	2.4	8	8	3.0	9	9	3.3	9	9	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 18 [V]	Input Volt. 36 [V]																																							
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<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>																																									
Fig.Complex Ripple Noise Wave Form																																									

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BC-10444



Model	MGS152405																																																					
Item	Ambient Temperature Drift	Testing Circuitry    Figure A																																																				
Object	+5V3A																																																					
1.Graph		2.Values																																																				
<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> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>-60</td><td>5.021</td><td>5.021</td><td>5.022</td></tr><tr><td>-40</td><td>5.034</td><td>5.034</td><td>5.035</td></tr><tr><td>-20</td><td>5.044</td><td>5.044</td><td>5.045</td></tr><tr><td>0</td><td>5.052</td><td>5.052</td><td>5.053</td></tr><tr><td>25</td><td>5.059</td><td>5.059</td><td>5.059</td></tr><tr><td>60</td><td>5.063</td><td>5.063</td><td>5.063</td></tr><tr><td>65</td><td>5.063</td><td>5.063</td><td>5.063</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-60	5.021	5.021	5.022	-40	5.034	5.034	5.035	-20	5.044	5.044	5.045	0	5.052	5.052	5.053	25	5.059	5.059	5.059	60	5.063	5.063	5.063	65	5.063	5.063	5.063	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																			
-60	5.021	5.021	5.022																																																			
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65	5.063	5.063	5.063																																																			
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Model		MGS152405	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 : 18 - 36V

Load Current : 0 - 3A

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

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

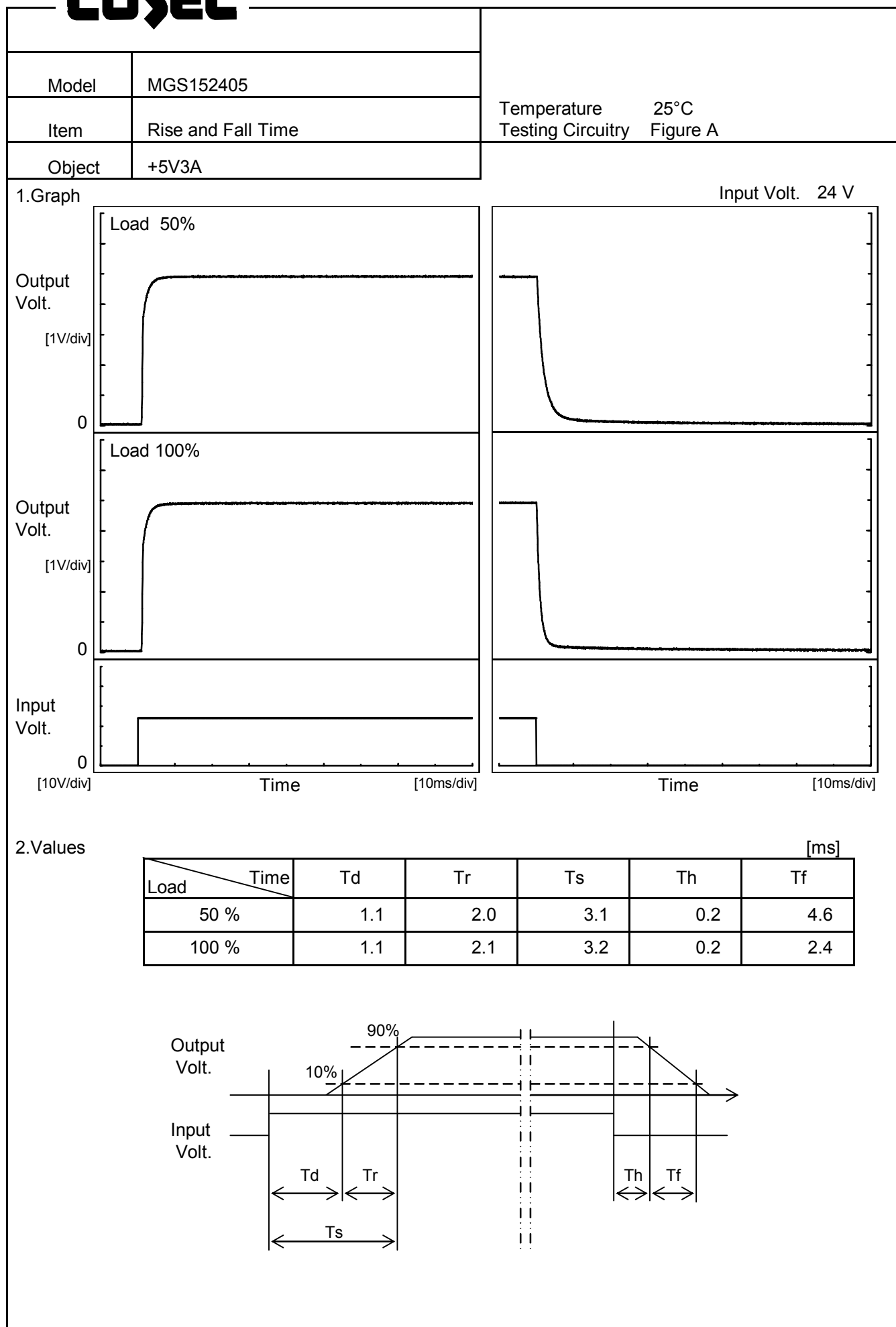
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	60	18	0	5.065	±16	±0.3
Minimum Voltage	-40	18	3	5.034		



Model	MGS152405																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+5V3A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 24V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.057</td></tr><tr><td>0.5</td><td>5.060</td></tr><tr><td>1.0</td><td>5.060</td></tr><tr><td>2.0</td><td>5.060</td></tr><tr><td>3.0</td><td>5.060</td></tr><tr><td>4.0</td><td>5.060</td></tr><tr><td>5.0</td><td>5.060</td></tr><tr><td>6.0</td><td>5.060</td></tr><tr><td>7.0</td><td>5.060</td></tr><tr><td>8.0</td><td>5.060</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.057	0.5	5.060	1.0	5.060	2.0	5.060	3.0	5.060	4.0	5.060	5.0	5.060	6.0	5.060	7.0	5.060	8.0	5.060
Time since start [H]	Output Voltage [V]																								
0.0	5.057																								
0.5	5.060																								
1.0	5.060																								
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6.0	5.060																								
7.0	5.060																								
8.0	5.060																								





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Model	MGS152405																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
Object	+5V3A	Testing Circuitry	Figure A																																																							
1.Graph		2.Values																																																								
<div><div><div></div><div></div><div></div></div><div><div>Input Volt. 18V</div><div>Input Volt. 24V</div><div>Input Volt. 36V</div></div></div> <p>Output Voltage [V]</p> <p>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>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>5.00</td><td>3.76</td><td>4.02</td><td>3.81</td></tr><tr><td>4.75</td><td>-</td><td>-</td><td>-</td></tr><tr><td>4.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>4.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.00</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]	5.00	3.76	4.02	3.81	4.75	-	-	-	4.50	-	-	-	4.00	-	-	-	3.50	-	-	-	3.00	-	-	-	2.50	-	-	-	2.00	-	-	-	1.50	-	-	-	1.00	-	-	-	0.50	-	-	-	0.00	-	-	-
Output Voltage [V]	Load Current [A]																																																									
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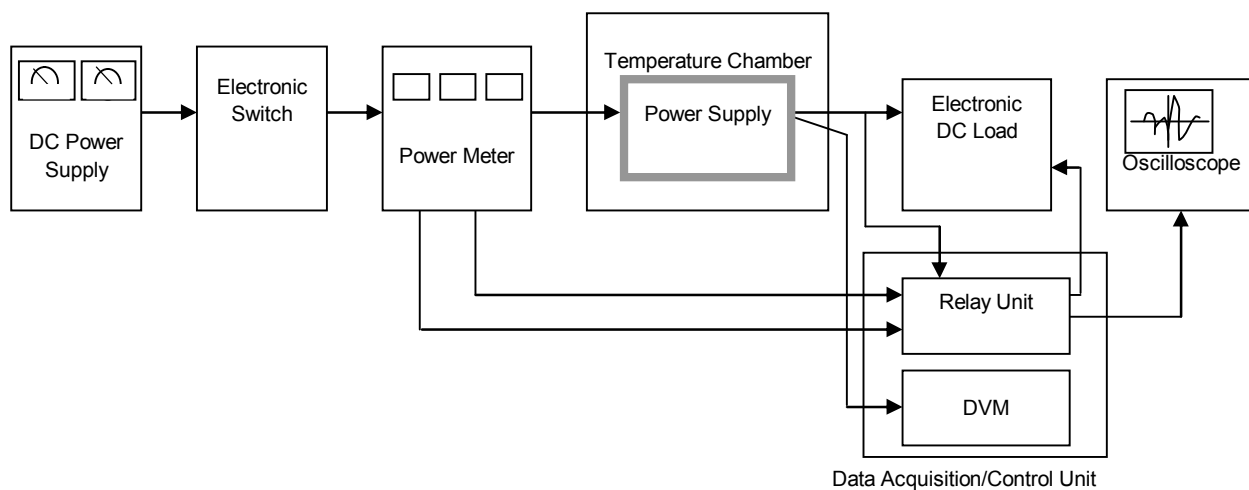


Figure A

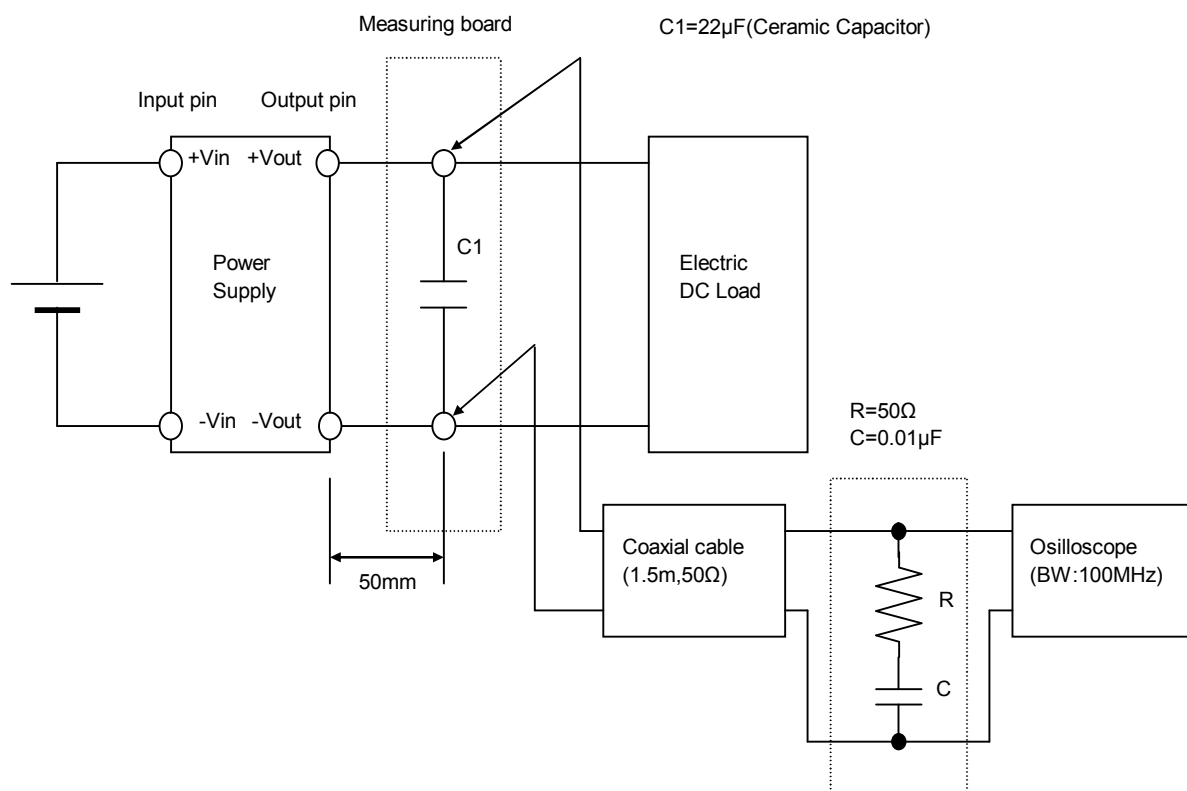


Figure B (Ripple and Ripple noise Characteristic)