



# TEST DATA OF SUS102405 SUCS102405

Regulated DC Power Supply  
Mar 28, 2005

Approved by : Tetsuo Sugimori  
Tetsuo Sugimori Design Manager

Prepared by : Yoshimichi Hirokawa  
Yoshimichi Hirokawa Design Engineer

**COSEL CO.,LTD.**

**CONTENTS**

1.Input Current (by Input Voltage) . . . . . 1  
 2.Input Current (by Load Current) . . . . . 2  
 3.Input Power (by Load Current) . . . . . 3  
 4.Efficiency (by Input Voltage) . . . . . 4  
 5.Efficiency (by Load Current) . . . . . 5  
 6.Line Regulation . . . . . 6  
 7.Load Regulation . . . . . 7  
 8.Dynamic Load Response . . . . . 8  
 9.Ripple Voltage (by Load Current) . . . . . 9  
 10.Ripple-Noise . . . . . 10  
 11.Ripple Voltage (by Ambient Temperature) . . . . . 11  
 12.Ambient Temperature Drift . . . . . 12  
 13.Output Voltage Accuracy . . . . . 13  
 14.Time Lapse Drift . . . . . 14  
 15.Rise and Fall Time . . . . . 15  
 16.Minimum Input Voltage for Regulated Output Voltage . . . . . 16  
 17.Overcurrent Protection . . . . . 17  
 18.Figure of Testing Circuitry . . . . . 18

(Final Page 18)



<b>Model</b>		SUS102405/SUCS102405		Temperature 25°C Testing Circuitry Figure A																																																																															
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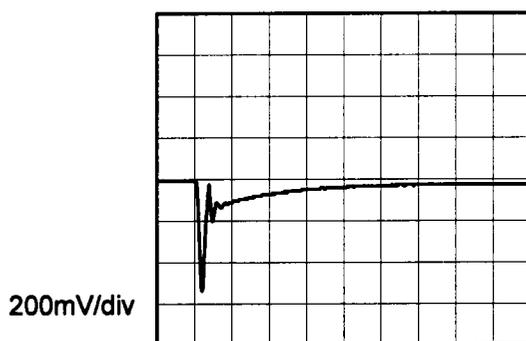


Model	SUS102405/SUCS102405	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+5V2A		

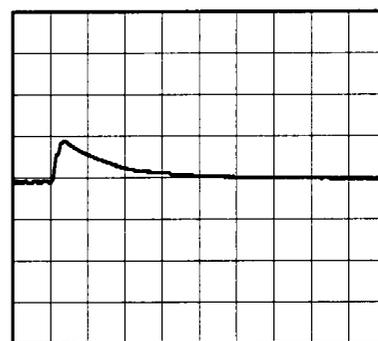
Input Volt. 24 V  
 Cycle 100 mS



Min. Load (0A)  $\longleftrightarrow$   
 Load 100% (2A)

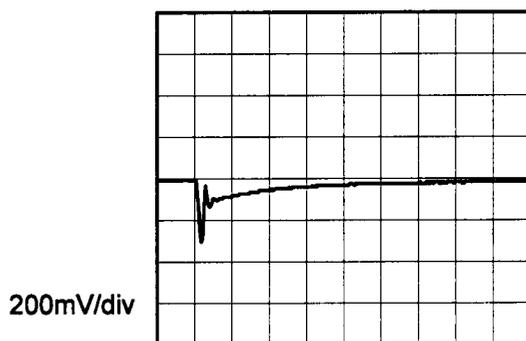


200µs/div

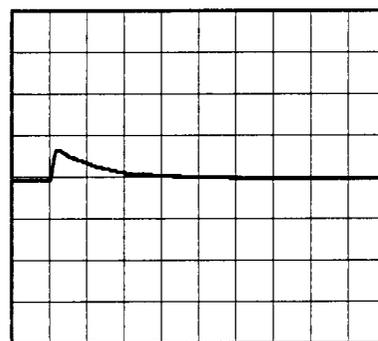


200µs/div

Min. Load (0A)  $\longleftrightarrow$   
 Load 50% (1A)

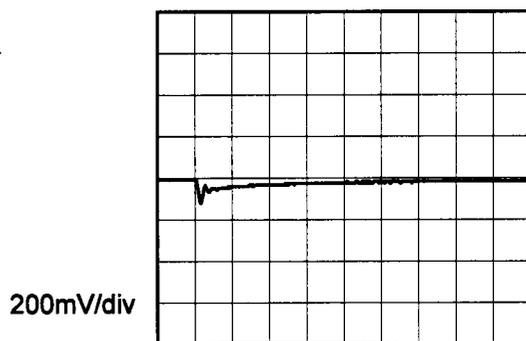


200µs/div

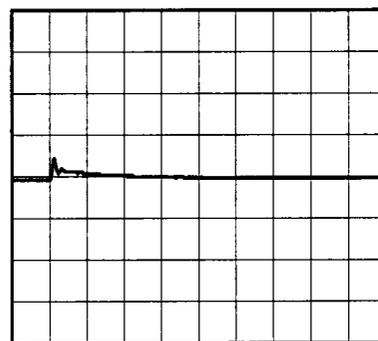


200µs/div

Load 50% (1A)  $\longleftrightarrow$   
 Load 100% (2A)



200µs/div



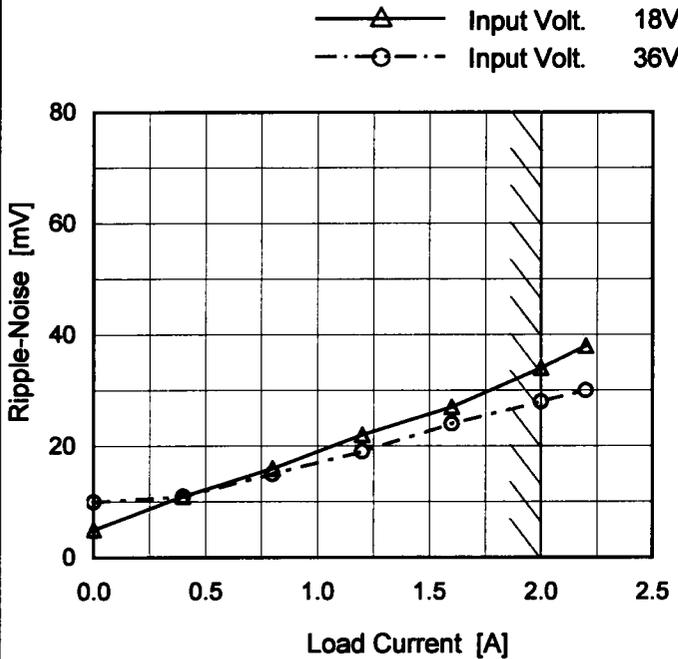
200µs/div



<p><b>Model</b> SUS102405/SUCS102405</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
<p><b>Item</b> Ripple Voltage (by Load Current)</p>																																								
<p><b>Object</b> +5V2A</p>																																								
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 18V - - -○- - - Input Volt. 36V</p> </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>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.0</td><td>2</td><td>3</td></tr> <tr><td>0.4</td><td>7</td><td>8</td></tr> <tr><td>0.8</td><td>11</td><td>10</td></tr> <tr><td>1.2</td><td>15</td><td>13</td></tr> <tr><td>1.6</td><td>19</td><td>15</td></tr> <tr><td>2.0</td><td>24</td><td>16</td></tr> <tr><td>2.2</td><td>27</td><td>17</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. 18 [V]	Input Volt. 36 [V]	0.0	2	3	0.4	7	8	0.8	11	10	1.2	15	13	1.6	19	15	2.0	24	16	2.2	27	17	-	-	-	-	-	-	-	-	-	-	-	-
Load Current [A]	Ripple Voltage [mV]																																							
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2.2	27	17																																						
-	-	-																																						
-	-	-																																						
-	-	-																																						
-	-	-																																						
<p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																								

Model	SUS102405/SUCS102405	
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B
Object	+5V2A	

1. Graph



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.

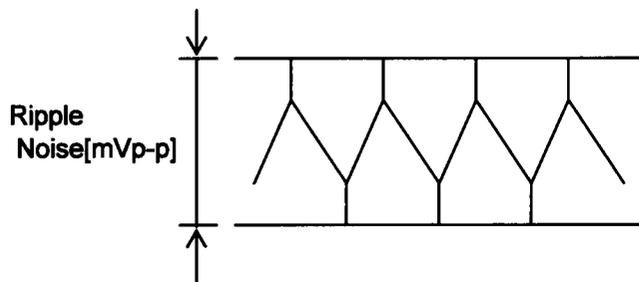


Fig. Complex Ripple Noise Wave Form

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	5	10
0.4	11	11
0.8	16	15
1.2	22	19
1.6	27	24
2.0	34	28
2.2	38	30
-	-	-
-	-	-
-	-	-
-	-	-



<b>Model</b>		SUS102405/SUCS102405																																							
<b>Item</b>		Ripple Voltage (by Ambient Temp.)																																							
<b>Object</b>		+5V2A																																							
<b>1.Graph</b>		<b>2.Values</b>																																							
<p style="text-align: right;">                 ---□--- Load 50%                  ——△—— Load 100%             </p> <p style="text-align: center;">                 Ambient Temperature [°C]                  Input Volt. 24V             </p>		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>-60</td><td>24</td><td>40</td></tr> <tr><td>-40</td><td>21</td><td>35</td></tr> <tr><td>-20</td><td>18</td><td>30</td></tr> <tr><td>0</td><td>16</td><td>26</td></tr> <tr><td>25</td><td>13</td><td>22</td></tr> <tr><td>55</td><td>11</td><td>19</td></tr> <tr><td>60</td><td>11</td><td>19</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]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	24	40	-40	21	35	-20	18	30	0	16	26	25	13	22	55	11	19	60	11	19	-	-	-	-	-	-	-	-	-	-	-	-
Ambient Temperature [°C]	Ripple Voltage [mV]																																								
	Load 50%	Load 100%																																							
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<p>Measured by 100 MHz Oscilloscope.                  Note: Slanted line shows the range of the rated ambient temperature.</p>																																									



Model		SUS102405/SUCS102405		Testing Circuitry Figure A																																																			
Item		Ambient Temperature Drift																																																					
Object		+5V2A																																																					
1.Graph		—△— Input Volt. 18V - - - □ - - - Input Volt. 24V - · - ○ - · - - Input Volt. 36V																																																					
		2.Values																																																					
		<table border="1"> <thead> <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> </thead> <tbody> <tr><td>-60</td><td>5.027</td><td>5.028</td><td>5.028</td></tr> <tr><td>-40</td><td>5.032</td><td>5.032</td><td>5.033</td></tr> <tr><td>-20</td><td>5.034</td><td>5.034</td><td>5.034</td></tr> <tr><td>0</td><td>5.034</td><td>5.034</td><td>5.034</td></tr> <tr><td>25</td><td>5.030</td><td>5.030</td><td>5.029</td></tr> <tr><td>55</td><td>5.022</td><td>5.021</td><td>5.021</td></tr> <tr><td>60</td><td>5.021</td><td>5.020</td><td>5.020</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> </tbody> </table>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-60	5.027	5.028	5.028	-40	5.032	5.032	5.033	-20	5.034	5.034	5.034	0	5.034	5.034	5.034	25	5.030	5.030	5.029	55	5.022	5.021	5.021	60	5.021	5.020	5.020	-	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																						
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Note: Slanted line shows the range of the rated ambient temperature.																																																							



<b>COSEL</b>		
Model	SUS102405/SUCS102405	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V2A	

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 : 18 - 36V

Load Current : 0 - 2A

\* 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	0	36	0	5.040	±10	±0.2
Minimum Voltage	55	36	2	5.021		



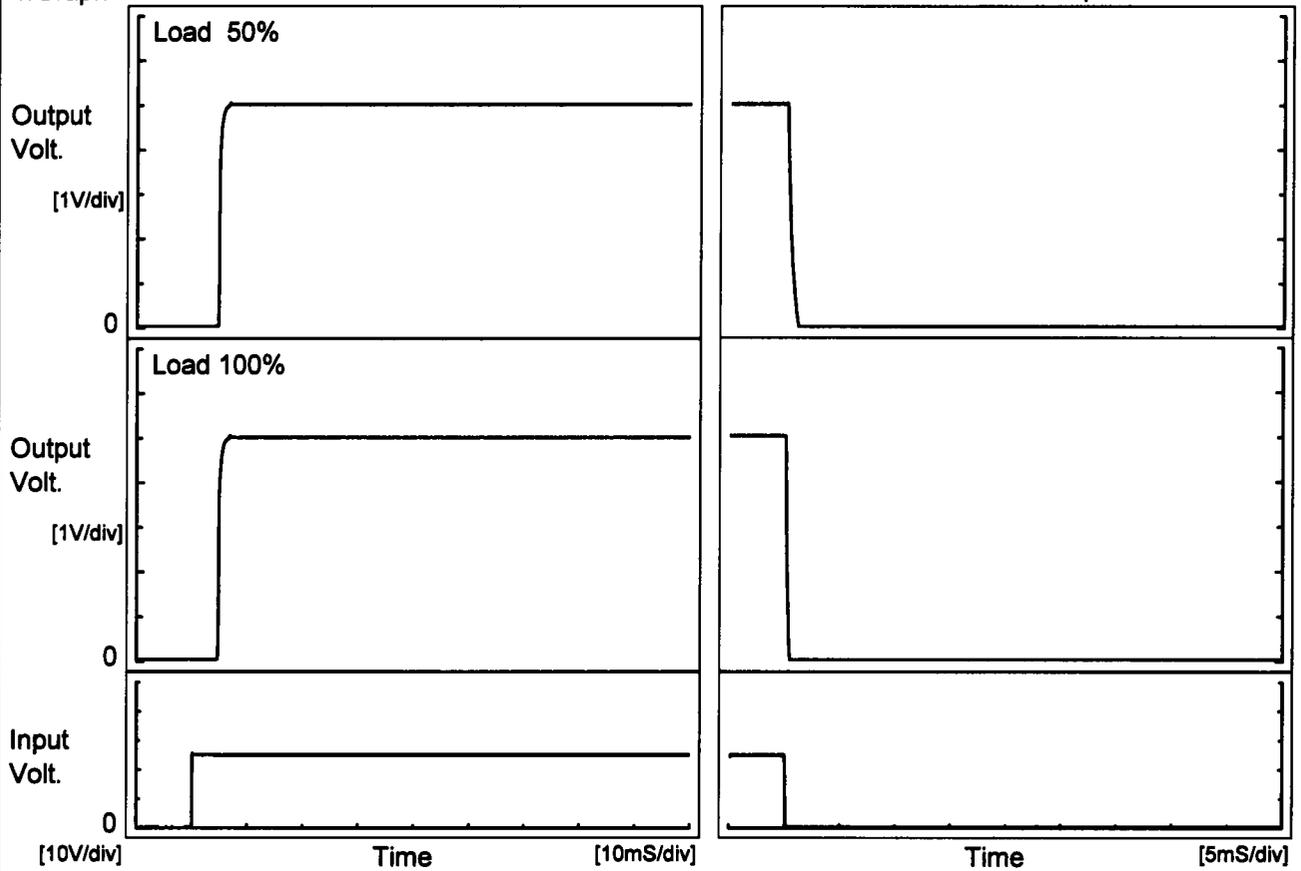
<b>COSEL</b>																									
<b>Model</b>	SUS102405/SUCS102405	<b>Temperature</b>	25°C																						
<b>Item</b>	Time Lapse Drift	<b>Testing Circuitry</b>	Figure A																						
<b>Object</b>	+5V2A																								
<p>1. Graph</p> <p style="text-align: center;">Time [H]</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>5.033</td></tr> <tr><td>0.5</td><td>5.026</td></tr> <tr><td>1.0</td><td>5.026</td></tr> <tr><td>2.0</td><td>5.026</td></tr> <tr><td>3.0</td><td>5.026</td></tr> <tr><td>4.0</td><td>5.026</td></tr> <tr><td>5.0</td><td>5.026</td></tr> <tr><td>6.0</td><td>5.026</td></tr> <tr><td>7.0</td><td>5.026</td></tr> <tr><td>8.0</td><td>5.026</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	5.033	0.5	5.026	1.0	5.026	2.0	5.026	3.0	5.026	4.0	5.026	5.0	5.026	6.0	5.026	7.0	5.026	8.0	5.026
Time since start [H]	Output Voltage [V]																								
0.0	5.033																								
0.5	5.026																								
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8.0	5.026																								



<b>Model</b>		SUS102405/SUCS102405	
<b>Item</b>		Rise and Fall Time	
<b>Object</b>		+5V2A	
		Temperature 25°C Testing Circuitry Figure A	

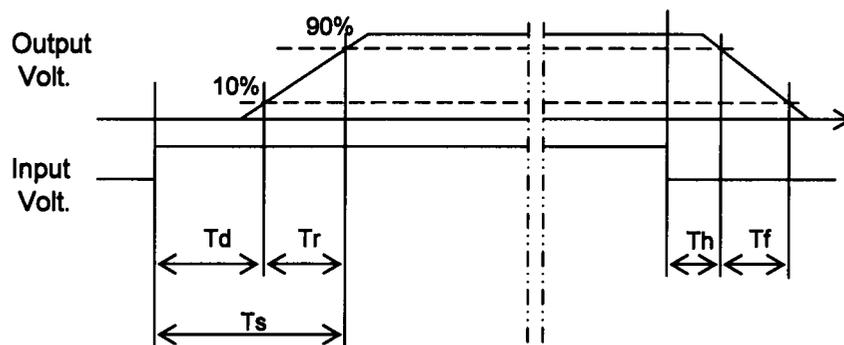
1. Graph

Input Volt. 24 V



2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		4.7	0.6	5.3	0.2	0.7
100 %		4.6	0.7	5.3	0.1	0.3





<b>COSEL</b>																																								
Model	SUS102405/SUCS102405																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+5V2A																																							
<p>1. Graph</p> <div style="text-align: right;"> <p>---□--- Load 50%</p> <p>—△— Load 100%</p> </div> <p style="text-align: center;">Ambient Temperature [°C]</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>11.8</td><td>11.9</td></tr> <tr><td>-40</td><td>11.7</td><td>11.5</td></tr> <tr><td>-20</td><td>11.7</td><td>11.5</td></tr> <tr><td>0</td><td>11.4</td><td>11.5</td></tr> <tr><td>25</td><td>11.2</td><td>11.2</td></tr> <tr><td>55</td><td>10.9</td><td>10.9</td></tr> <tr><td>60</td><td>11.0</td><td>10.9</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>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	11.8	11.9	-40	11.7	11.5	-20	11.7	11.5	0	11.4	11.5	25	11.2	11.2	55	10.9	10.9	60	11.0	10.9	-	-	-	-	-	-	-	-	-	-	-	-
Ambient Temperature [°C]	Input Voltage [V]																																							
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<b>Model</b> SUS102405/SUCS102405		Temperature 25°C Testing Circuitry Figure A																																																							
<b>Item</b>	Overcurrent Protection																																																								
<b>Object</b>	+5V2A																																																								
<p>1. Graph</p> <p> <span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> Input Volt. 18V  <span style="display: inline-block; width: 20px; border-bottom: 3px double black; margin-right: 5px;"></span> Input Volt. 24V  <span style="display: inline-block; width: 20px; border-bottom: 2px solid black; margin-right: 5px;"></span> Input Volt. 36V                 </p> <p style="text-align: center;">Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<p>2. Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>5.00</td><td>2.52</td><td>2.41</td><td>2.38</td></tr> <tr><td>4.75</td><td>2.87</td><td>3.03</td><td>3.02</td></tr> <tr><td>4.50</td><td>2.98</td><td>3.14</td><td>3.13</td></tr> <tr><td>4.00</td><td>3.20</td><td>3.38</td><td>3.40</td></tr> <tr><td>3.50</td><td>3.45</td><td>3.64</td><td>3.67</td></tr> <tr><td>3.00</td><td>3.61</td><td>3.76</td><td>3.71</td></tr> <tr><td>2.50</td><td>3.59</td><td>3.71</td><td>3.60</td></tr> <tr><td>2.00</td><td>3.56</td><td>3.61</td><td>3.39</td></tr> <tr><td>1.50</td><td>3.52</td><td>3.56</td><td>3.09</td></tr> <tr><td>1.00</td><td>3.55</td><td>3.40</td><td>2.64</td></tr> <tr><td>0.50</td><td>3.43</td><td>3.06</td><td>2.14</td></tr> <tr><td>0.00</td><td>2.98</td><td>2.80</td><td>3.46</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	5.00	2.52	2.41	2.38	4.75	2.87	3.03	3.02	4.50	2.98	3.14	3.13	4.00	3.20	3.38	3.40	3.50	3.45	3.64	3.67	3.00	3.61	3.76	3.71	2.50	3.59	3.71	3.60	2.00	3.56	3.61	3.39	1.50	3.52	3.56	3.09	1.00	3.55	3.40	2.64	0.50	3.43	3.06	2.14	0.00	2.98	2.80	3.46
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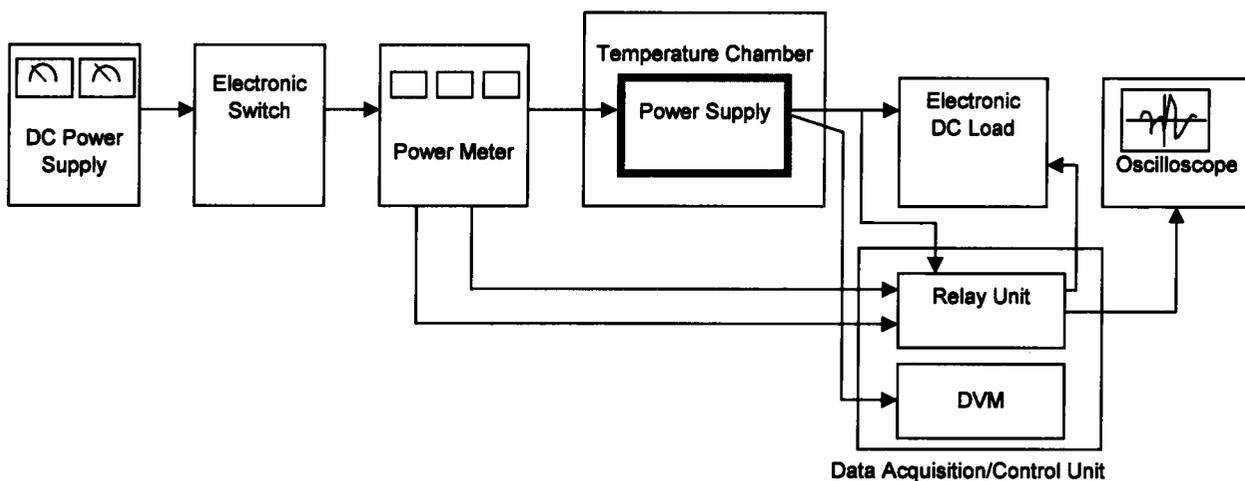


Figure A

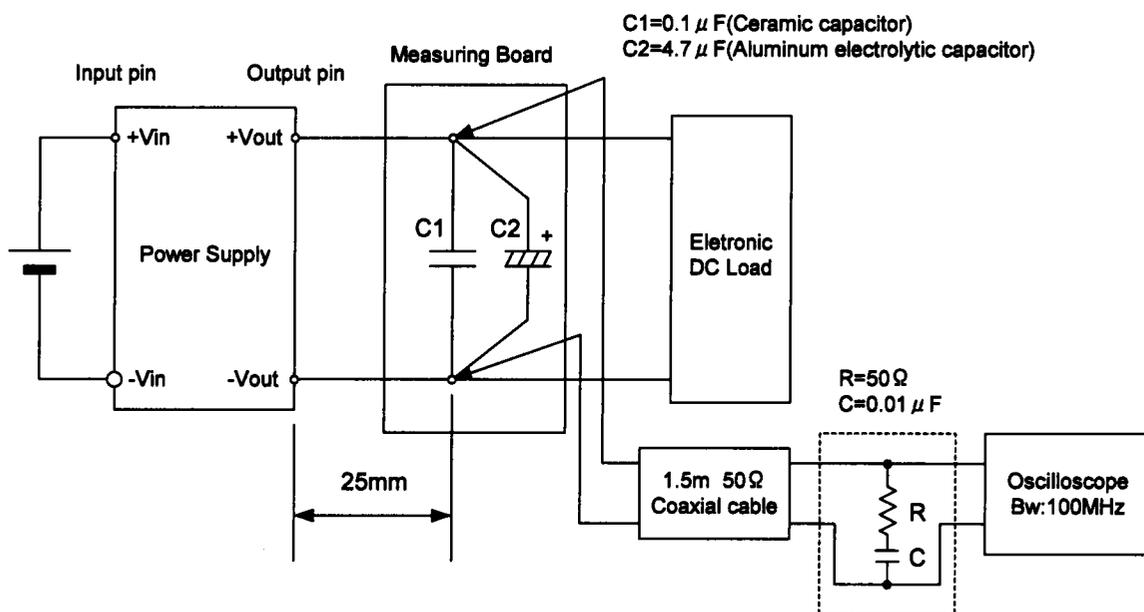


Figure B (Ripple and Ripple noise Characteristic)