

TEST DATA OF SUS1R51205

Regulated DC Power Supply
Sep 16, 2004

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Masahiro Shima
Masahiro Shima Design Engineer

COSEL CO.,LTD.

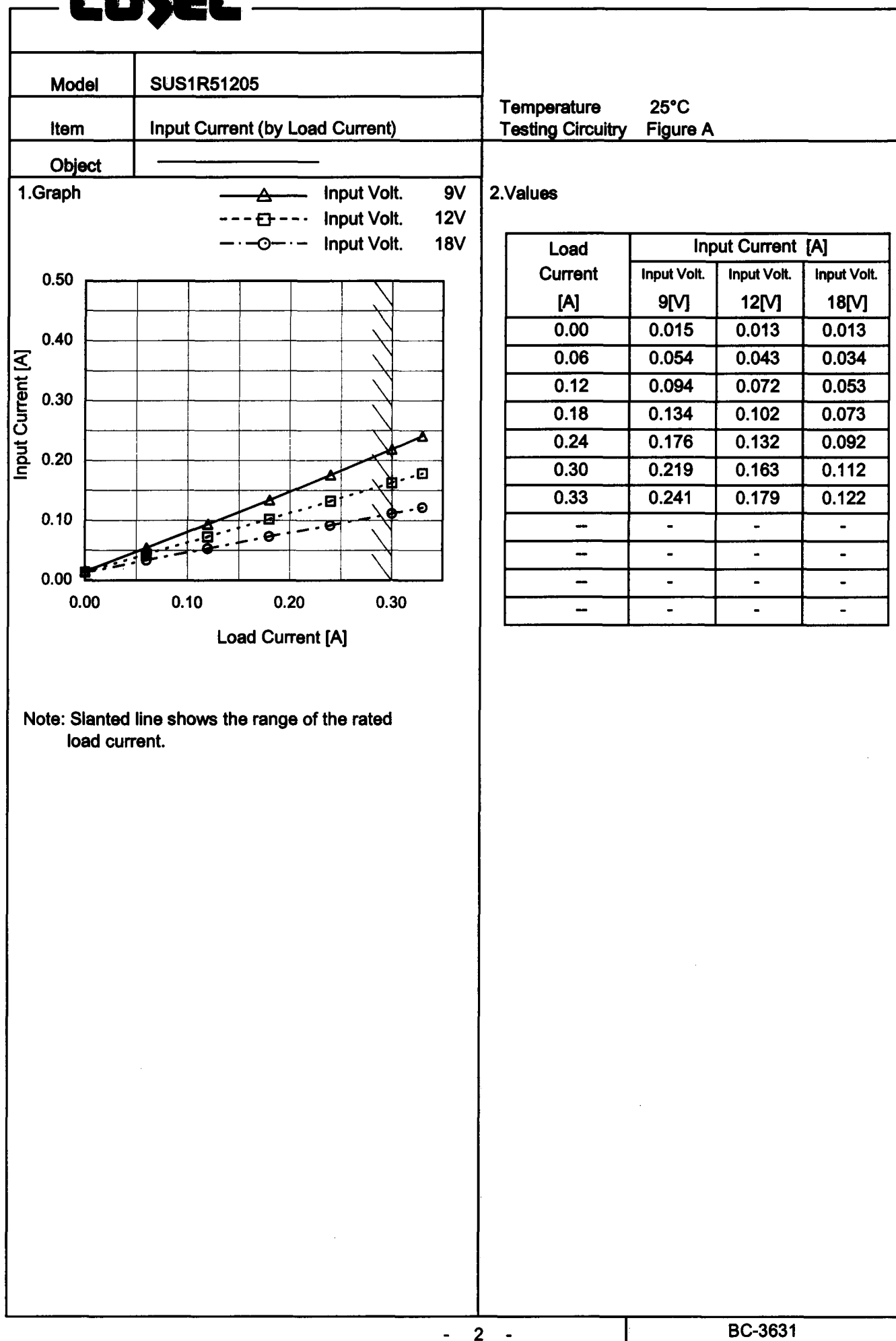
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(Final Page 18)

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Model	SUS1R51205																																																																									
Item	Input Current (by Input Voltage)	Temperature	25°C																																																																							
Object		Testing Circuitry	Figure A																																																																							
1.Graph		2.Values																																																																								
<div><div>—△— Load 100%</div><div>- - □ - - Load 50%</div><div>- · - ○ - · Load 0%</div></div> <p>Note: Slanted line shows the range of the rated input voltage.</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Load 0%</th><th>Load 50%</th><th>Load 100%</th></tr><tr><td>0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>2.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>2.4</td><td>0.038</td><td>0.001</td><td>0.001</td></tr><tr><td>3.4</td><td>0.025</td><td>0.389</td><td>0.364</td></tr><tr><td>4.0</td><td>0.022</td><td>0.307</td><td>0.369</td></tr><tr><td>5.6</td><td>0.019</td><td>0.188</td><td>0.396</td></tr><tr><td>6.0</td><td>0.018</td><td>0.171</td><td>0.360</td></tr><tr><td>8.0</td><td>0.016</td><td>0.127</td><td>0.248</td></tr><tr><td>9.0</td><td>0.015</td><td>0.114</td><td>0.219</td></tr><tr><td>10.0</td><td>0.015</td><td>0.103</td><td>0.195</td></tr><tr><td>12.0</td><td>0.013</td><td>0.087</td><td>0.163</td></tr><tr><td>14.0</td><td>0.013</td><td>0.076</td><td>0.140</td></tr><tr><td>16.0</td><td>0.013</td><td>0.068</td><td>0.124</td></tr><tr><td>18.0</td><td>0.013</td><td>0.063</td><td>0.112</td></tr><tr><td>20.0</td><td>0.013</td><td>0.058</td><td>0.102</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0	0.000	0.000	0.000	2.0	0.000	0.000	0.000	2.4	0.038	0.001	0.001	3.4	0.025	0.389	0.364	4.0	0.022	0.307	0.369	5.6	0.019	0.188	0.396	6.0	0.018	0.171	0.360	8.0	0.016	0.127	0.248	9.0	0.015	0.114	0.219	10.0	0.015	0.103	0.195	12.0	0.013	0.087	0.163	14.0	0.013	0.076	0.140	16.0	0.013	0.068	0.124	18.0	0.013	0.063	0.112	20.0	0.013	0.058	0.102	--	-	-	-
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Model		SUS1R51205	
Item		Efficiency (by Input Voltage)	
Object			

1.Graph

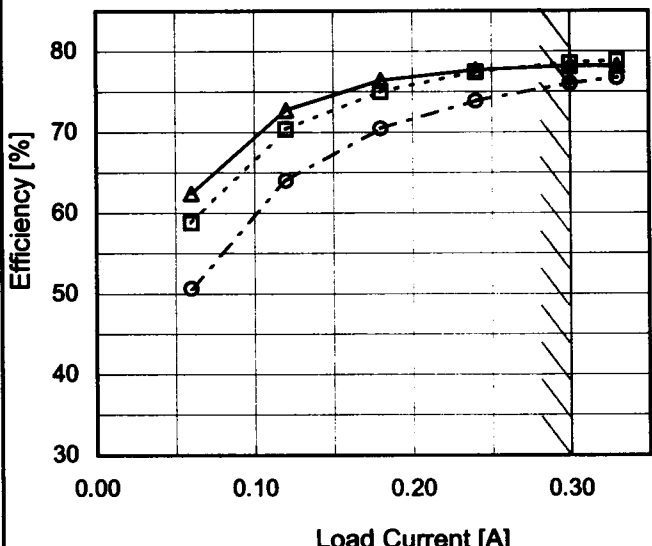
Load 50%

Load 100%

Efficiency [%]

Input Voltage [V]

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Item		Efficiency (by Load Current)																																																				
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<div><div><div>—△—</div><div>Input Volt.</div><div>9V</div></div><div><div>---□---</div><div>Input Volt.</div><div>12V</div></div><div><div>---○---</div><div>Input Volt.</div><div>18V</div></div></div> 		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.06</td><td>62.4</td><td>58.8</td><td>50.7</td></tr><tr><td>0.12</td><td>72.8</td><td>70.4</td><td>64.0</td></tr><tr><td>0.18</td><td>76.4</td><td>75.0</td><td>70.5</td></tr><tr><td>0.24</td><td>77.7</td><td>77.4</td><td>73.8</td></tr><tr><td>0.30</td><td>78.2</td><td>78.5</td><td>76.0</td></tr><tr><td>0.33</td><td>78.2</td><td>78.8</td><td>76.7</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>		Load Current [A]	Efficiency [%]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.00	-	-	-	0.06	62.4	58.8	50.7	0.12	72.8	70.4	64.0	0.18	76.4	75.0	70.5	0.24	77.7	77.4	73.8	0.30	78.2	78.5	76.0	0.33	78.2	78.8	76.7	—	-	-	-	—	-	-	-	—	-	-	-	—	-	-	-
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Model	SUS1R51205	Temperature 25°C Testing Circuitry Figure A																															
Item	Line Regulation																																
Object	+5V0.3A																																
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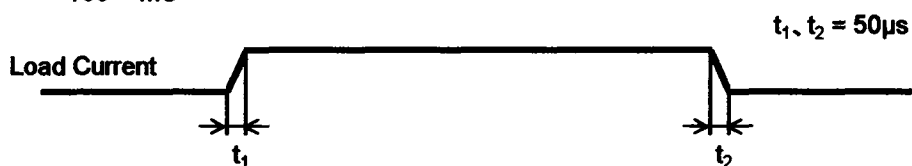
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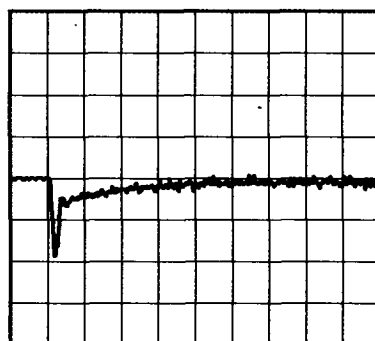
Model	SUS1R51205	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+5V0.3A		

Input Volt. 12 V
Cycle 100 mS

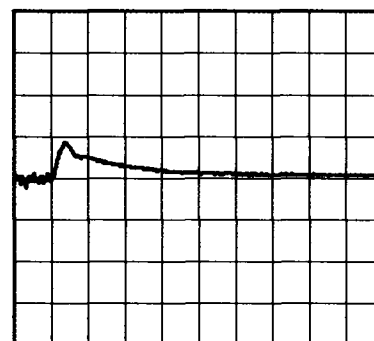


Min. Load (0A) \longleftrightarrow
Load 100% (0.3A)

100mV/div



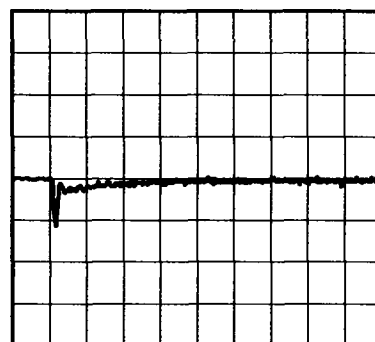
200µs/div



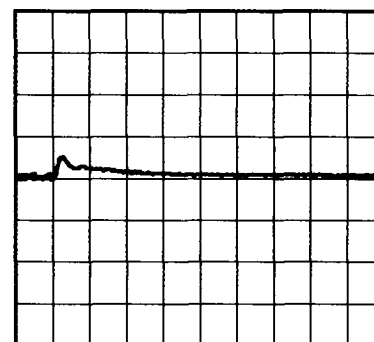
200µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.15A)

100mV/div



200µs/div



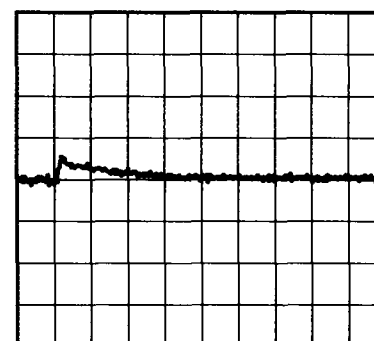
200µs/div

Load 50% (0.15A) \longleftrightarrow
Load 100% (0.3A)

100mV/div



200µs/div



200µs/div

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Model	SUS1R51205																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
Object	+5V0.3A	Testing Circuitry	Figure B																																						
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 9V</div><div>-·-○-·- Input Volt. 18V</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></div>		<table><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. 18 [V]</th></tr><tr><td>0.00</td><td>3</td><td>3</td></tr><tr><td>0.06</td><td>3</td><td>3</td></tr><tr><td>0.12</td><td>3</td><td>3</td></tr><tr><td>0.18</td><td>4</td><td>3</td></tr><tr><td>0.24</td><td>5</td><td>4</td></tr><tr><td>0.30</td><td>6</td><td>4</td></tr><tr><td>0.33</td><td>6</td><td>4</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. 9 [V]	Input Volt. 18 [V]	0.00	3	3	0.06	3	3	0.12	3	3	0.18	4	3	0.24	5	4	0.30	6	4	0.33	6	4	--	-	-	--	-	-	--	-	-	--	-	-
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<div><p>Ripple [mVp-p]</p><p>Fig.Complex Ripple Wave Form</p></div>																																									

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Model		SUS1R51205	
Item		Ripple-Noise	
Object		+5V0.3A	
1.Graph		2.Values	



Model		SUS1R51205	
Item		Ripple Voltage (by Ambient Temp.)	
Object		+5V0.3A	
1.Graph		2.Values	

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Model		SUS1R51205																																																				
Item		Ambient Temperature Drift																																																				
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Note: Slanted line shows the range of the rated ambient temperature.																																																						



		Testing Circuitry Figure A
Model	SUS1R51205	
Item	Output Voltage Accuracy	
Object	+5V0.3A	

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 : 9 - 18V

Load Current : 0 - 0.3A

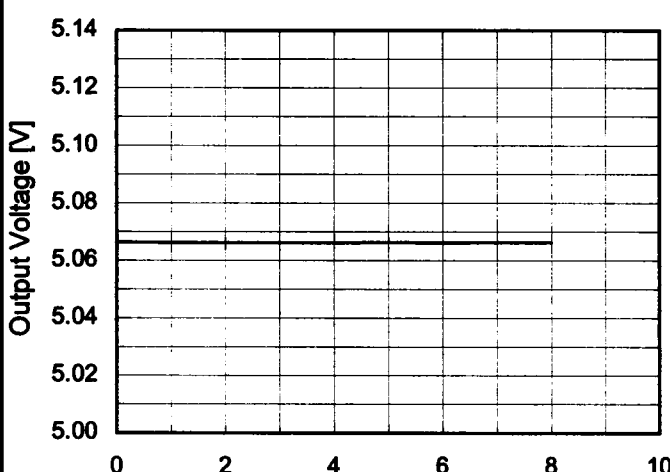
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

* 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	25	18	0	5.068	±5	±0.1
Minimum Voltage	-40	9	0.3	5.058		

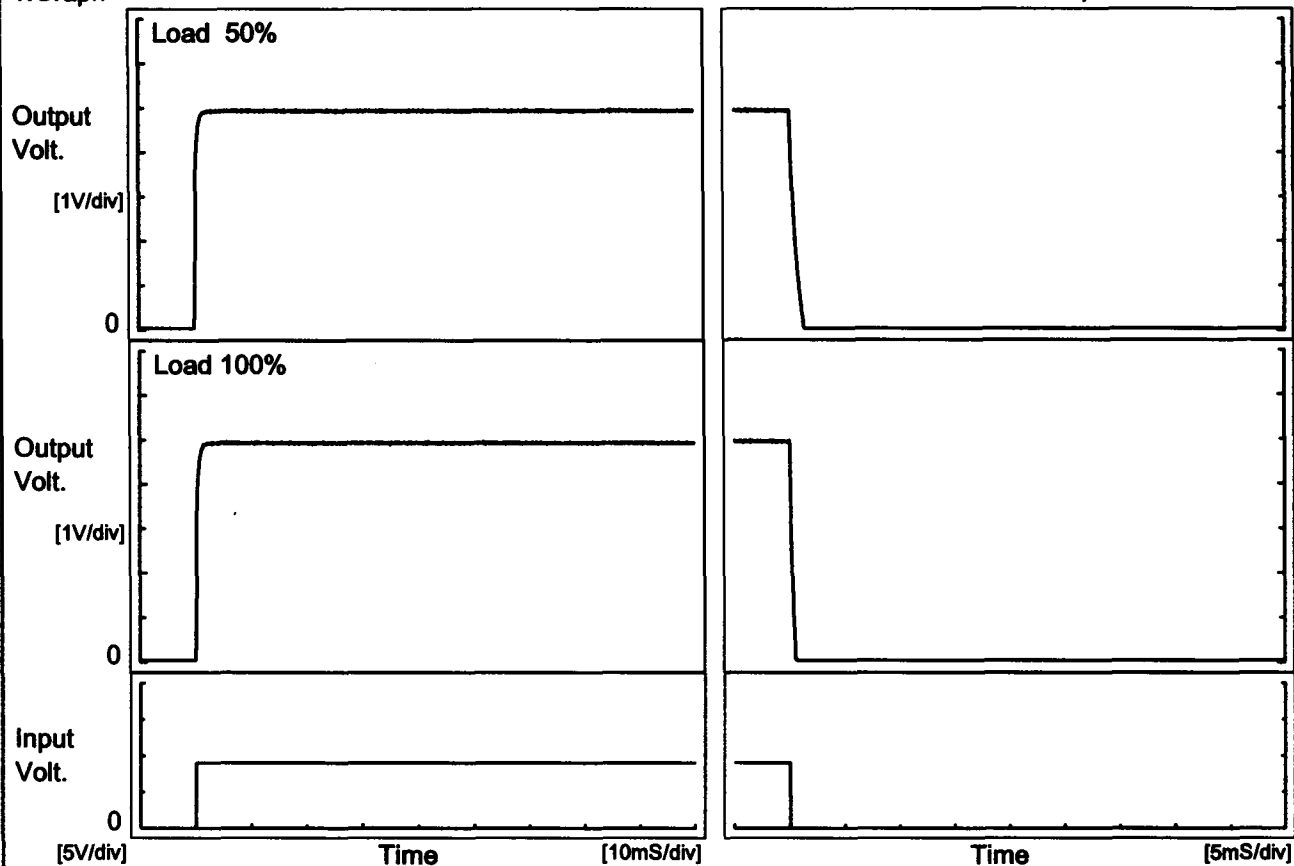
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Model	SUS1R51205	Temperature 25°C Testing Circuitry Figure A																							
Item	Time Lapse Drift																								
Object	+5V0.3A																								
1.Graph		2.Values																							
<div><div><div>5.14</div><div>5.12</div><div>5.10</div><div>5.08</div><div>5.06</div><div>5.04</div><div>5.02</div><div>5.00</div></div><div></div><div>Output Voltage [V]</div><div>Time [H]</div><div>Input Volt. 12V</div><div>Load 100%</div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.067</td></tr><tr><td>0.5</td><td>5.066</td></tr><tr><td>1.0</td><td>5.066</td></tr><tr><td>2.0</td><td>5.066</td></tr><tr><td>3.0</td><td>5.066</td></tr><tr><td>4.0</td><td>5.066</td></tr><tr><td>5.0</td><td>5.066</td></tr><tr><td>6.0</td><td>5.066</td></tr><tr><td>7.0</td><td>5.066</td></tr><tr><td>8.0</td><td>5.066</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.067	0.5	5.066	1.0	5.066	2.0	5.066	3.0	5.066	4.0	5.066	5.0	5.066	6.0	5.066	7.0	5.066	8.0	5.066
Time since start [H]	Output Voltage [V]																								
0.0	5.067																								
0.5	5.066																								
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8.0	5.066																								

COSEL

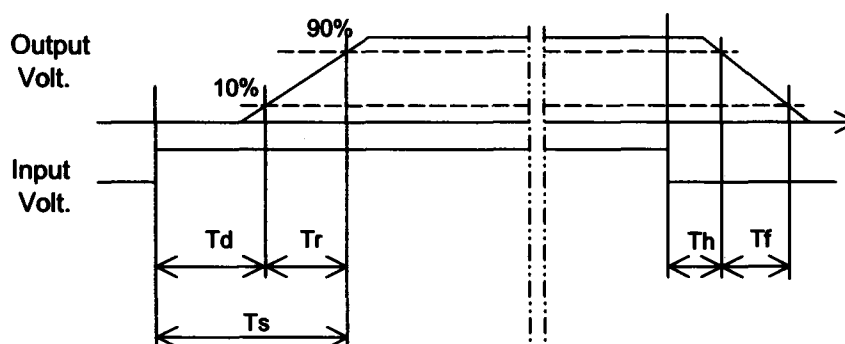
Model	SUS1R51205	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V0.3A		

1. Graph



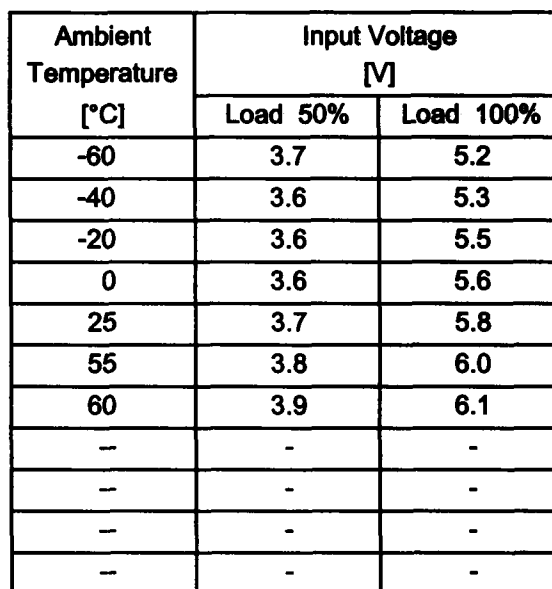
2. Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.1	0.7	0.8	0.1	2.2
100 %	0.1	0.8	0.9	0.1	1.0



Testing Circuitry Figure A

2.Values



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

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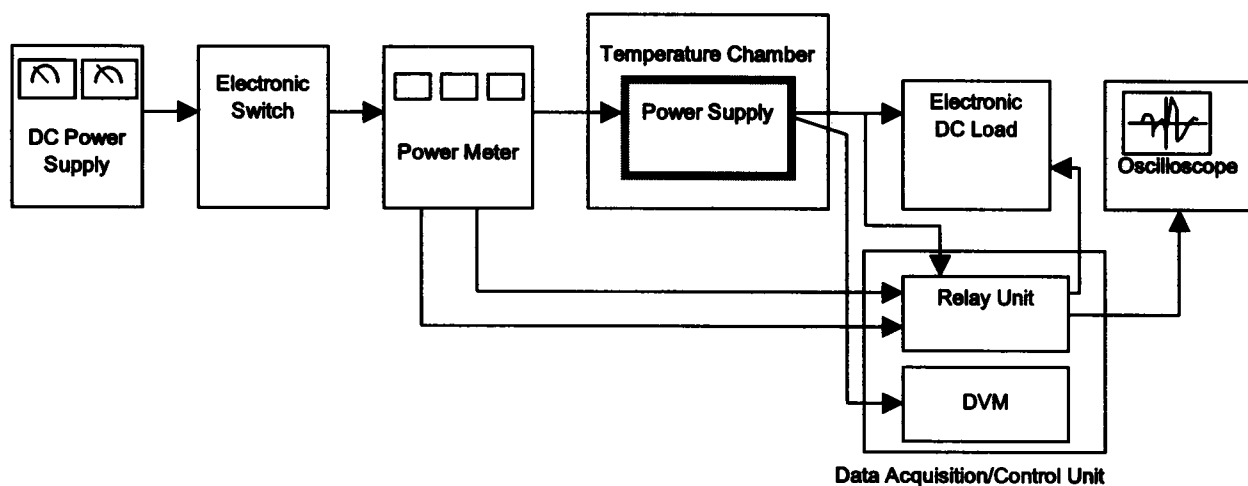


Figure A

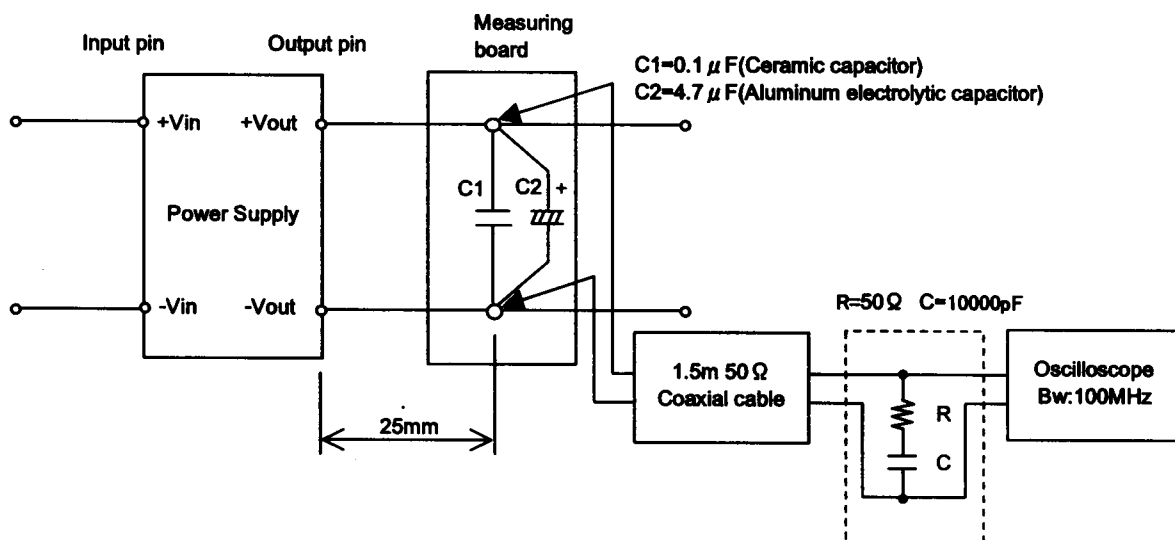


Figure B (Ripple and Ripple noise Characteristic)