



TEST DATA OF SUS101212 SUCS101212

Regulated DC Power Supply
Mar 24, 2005

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COSEL CO.,LTD.

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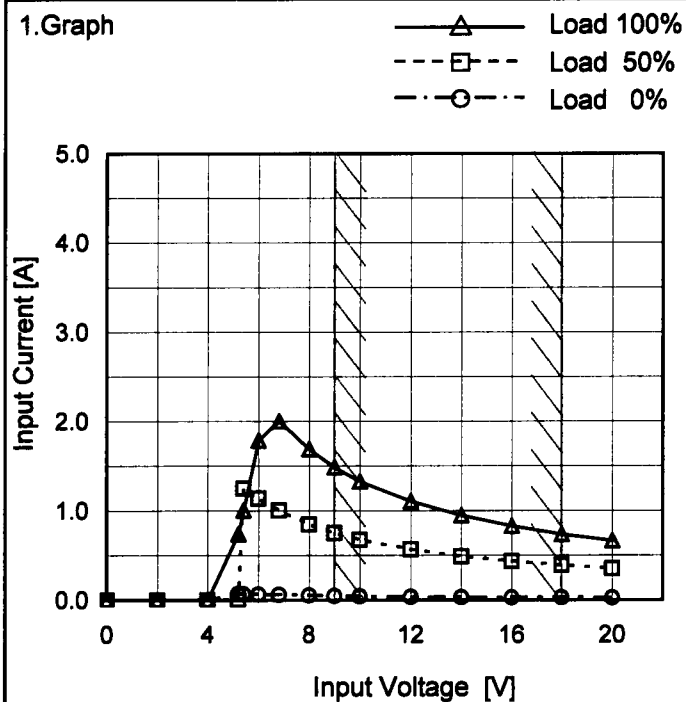
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Model SUS101212/SUCS101212

Item Input Current (by Input Voltage)

Object
Temperature 25°C
Testing Circuitry Figure A

1. Graph


Note: Slanted line shows the range of the rated input voltage.

2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
5.2	0.070	0.004	0.739
5.4	0.068	1.249	1.005
6.0	0.064	1.138	1.788
6.8	0.060	1.004	2.004
8.0	0.053	0.848	1.693
9.0	0.048	0.752	1.486
10.0	0.044	0.677	1.328
12.0	0.037	0.566	1.108
14.0	0.033	0.489	0.949
16.0	0.030	0.434	0.829
18.0	0.028	0.390	0.738
20.0	0.026	0.351	0.666
--	-	-	-
--	-	-	-
--	-	-	-

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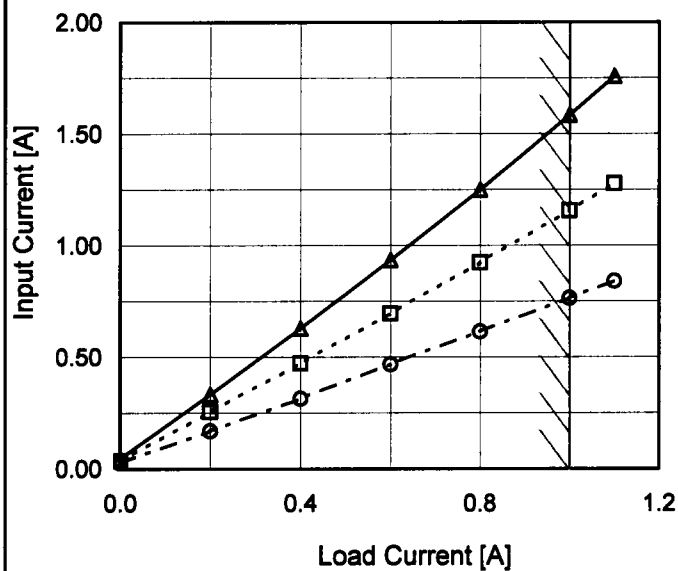
Model SUS101212/SUCS101212

Item Input Current (by Load Current)

Object
Temperature 25°C
Testing Circuitry Figure A

1. Graph

—△— Input Volt. 9V
 ---□--- Input Volt. 12V
 - - -○- - - Input Volt. 18V



Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.0	0.047	0.036	0.027
0.2	0.333	0.256	0.169
0.4	0.630	0.473	0.315
0.6	0.936	0.695	0.468
0.8	1.250	0.924	0.614
1.0	1.585	1.157	0.765
1.1	1.758	1.277	0.840
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

Model

SUS101212/SUCS101212

Item

Input Power (by Load Current)

Object

1.Graph

—△—

Input Volt.

9V

---□---

Input Volt.

12V

---○---

Input Volt.

18V

Input Power [W]

20.0

15.0

10.0

5.0

0.0

0.0

0.4

0.8

1.2

Load Current [A]

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.0	0.42	0.43	0.51
0.2	2.96	3.04	3.02
0.4	5.57	5.61	5.63
0.6	8.23	8.22	8.36
0.8	10.93	10.89	10.96
1.0	13.79	13.61	13.63
1.1	15.25	14.99	14.96
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model		SUS101212/SUCS101212																																	
Item		Efficiency (by Input Voltage)																																	
Object																																			
1.Graph		2.Values																																	
<div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div>Load 50%</div></div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div>Load 100%</div></div></div> <div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div>Efficiency [%]</div></div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div>Input Voltage [V]</div></div></div> <div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div>Note: Slanted line shows the range of the rated input voltage.</div></div>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>8</td><td>87.1</td><td>85.9</td></tr><tr><td>9</td><td>87.1</td><td>86.7</td></tr><tr><td>10</td><td>87.0</td><td>87.2</td></tr><tr><td>12</td><td>86.4</td><td>87.8</td></tr><tr><td>15</td><td>85.6</td><td>87.8</td></tr><tr><td>18</td><td>84.3</td><td>87.7</td></tr><tr><td>20</td><td>84.0</td><td>87.4</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	8	87.1	85.9	9	87.1	86.7	10	87.0	87.2	12	86.4	87.8	15	85.6	87.8	18	84.3	87.7	20	84.0	87.4	--	-	-	--	-	-
Input Voltage [V]	Efficiency [%]																																		
	Load 50%	Load 100%																																	
8	87.1	85.9																																	
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10	87.0	87.2																																	
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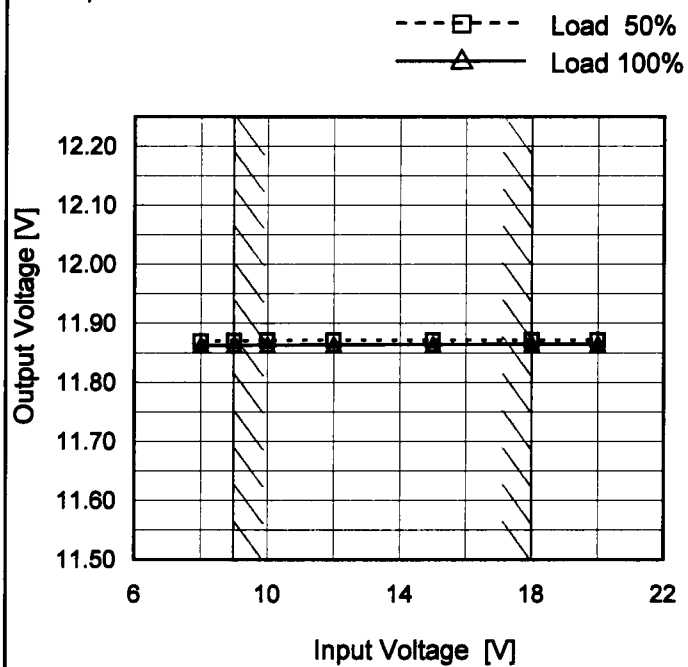
Model SUS101212/SUCS101212

Item Line Regulation

Object +12V1A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated input voltage.

2. Values

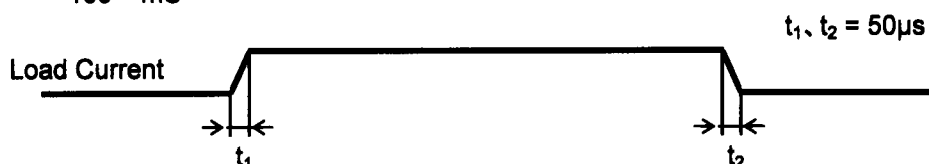
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8	11.869	11.863
9	11.871	11.863
10	11.871	11.863
12	11.871	11.864
15	11.871	11.865
18	11.871	11.865
20	11.871	11.865
—	—	—
—	—	—

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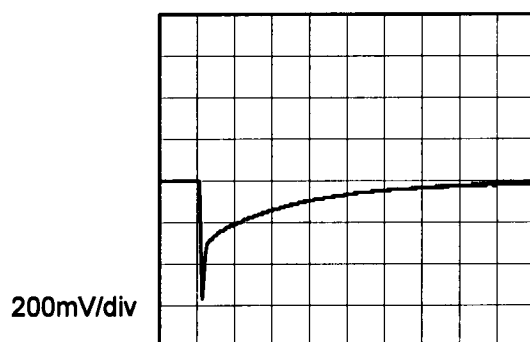
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Model	SUS101212/SUCS101212	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V1A		

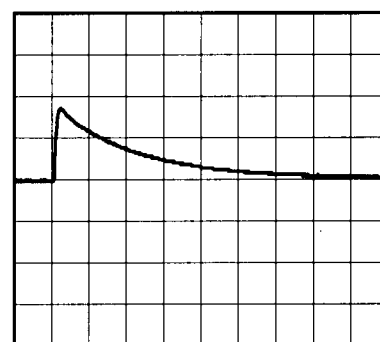
Input Volt. 12 V
Cycle 100 mS



Min. Load (0A) \longleftrightarrow
Load 100% (1A)

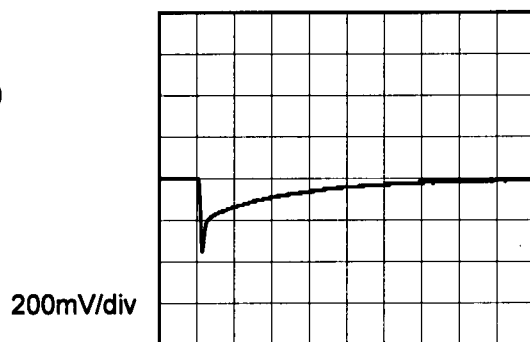


500µs/div



500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.5A)

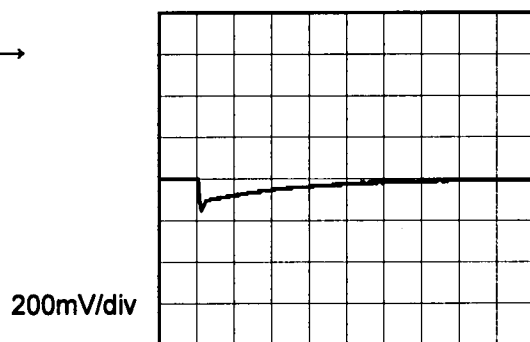


500µs/div

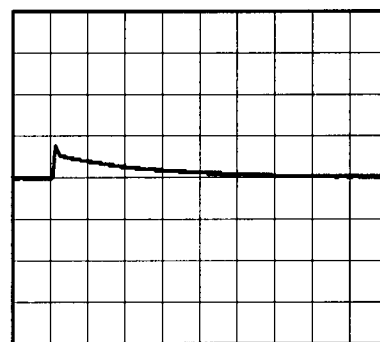


500µs/div

Load 50% (0.5A) \longleftrightarrow
Load 100% (1A)



500µs/div



500µs/div

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Model	SUS101212/SUCS101212	Temperature 25°C Testing Circuitry Figure B																																							
Item	Ripple Voltage (by Load Current)																																								
Object	+12V1A																																								
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 9V</div><div>- - -○- - - Input Volt. 18V</div></div><p>Ripple Voltage [mV]</p><p>Load Current [A]</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>0.0</td><td>3</td><td>3</td></tr><tr><td>0.2</td><td>3</td><td>4</td></tr><tr><td>0.4</td><td>4</td><td>3</td></tr><tr><td>0.6</td><td>5</td><td>4</td></tr><tr><td>0.8</td><td>7</td><td>5</td></tr><tr><td>1.0</td><td>8</td><td>6</td></tr><tr><td>1.1</td><td>9</td><td>6</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]	0.0	3	3	0.2	3	4	0.4	4	3	0.6	5	4	0.8	7	5	1.0	8	6	1.1	9	6	—	-	-	—	-	-	—	-	-	—	-	-
Load Current [A]	Ripple Voltage [mV]																																								
	Input Volt. 9 [V]	Input Volt. 18 [V]																																							
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0.6	5	4																																							
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<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><p>Ripple [mVp-p]</p><p>Fig.Complex Ripple Wave Form</p></div>																																									

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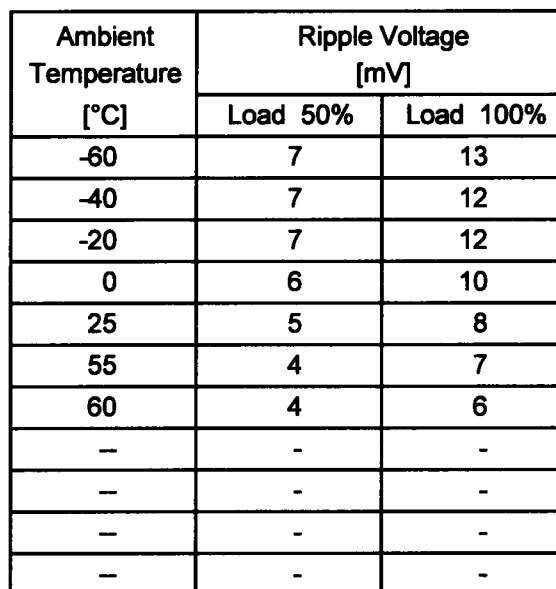
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Model		SUS101212/SUCS101212																																							
Item		Ripple-Noise																																							
Object		+12V1A																																							
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 9V</div><div>- - -○- - - Input Volt. 18V</div></div><div>Ripple-Noise [mV]</div><div>Load Current [A]</div></div> <div><div>Measured by 100 MHz Oscilloscope.</div><div>Ripple-Noise is shown as p-p in the figure below.</div><div>Note: Slanted line shows the range of the rated load current.</div></div> <div><div><div>Ripple Noise[mVp-p]</div></div><div>Fig.Complex Ripple Noise Wave Form</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 9 [V]</th><th>Input Volt. 18 [V]</th></tr><tr><td>0.0</td><td>6</td><td>7</td></tr><tr><td>0.2</td><td>7</td><td>7</td></tr><tr><td>0.4</td><td>9</td><td>9</td></tr><tr><td>0.6</td><td>12</td><td>11</td></tr><tr><td>0.8</td><td>16</td><td>14</td></tr><tr><td>1.0</td><td>20</td><td>16</td></tr><tr><td>1.1</td><td>22</td><td>18</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. 9 [V]	Input Volt. 18 [V]	0.0	6	7	0.2	7	7	0.4	9	9	0.6	12	11	0.8	16	14	1.0	20	16	1.1	22	18	—	-	-	—	-	-	—	-	-	—	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 9 [V]	Input Volt. 18 [V]																																							
0.0	6	7																																							
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Testing Circuitry Figure B

2.Values



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

Model		SUS101212/SUCS101212		Testing Circuitry Figure A																																																		
Item		Ambient Temperature Drift																																																				
Object		+12V1A																																																				
1. Graph		<div><div>—△—</div><div>---□---</div><div>---○---</div></div> <div><div>Input Volt. 9V</div><div>Input Volt. 12V</div><div>Input Volt. 18V</div></div>		2. Values																																																		
<div><div>Output Voltage [V]</div><div>Ambient Temperature [°C]</div><div>Load 100%</div></div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>-60</td><td>11.869</td><td>11.872</td><td>11.876</td></tr><tr><td>-40</td><td>11.876</td><td>11.879</td><td>11.881</td></tr><tr><td>-20</td><td>11.878</td><td>11.880</td><td>11.882</td></tr><tr><td>0</td><td>11.875</td><td>11.876</td><td>11.877</td></tr><tr><td>25</td><td>11.864</td><td>11.864</td><td>11.865</td></tr><tr><td>55</td><td>11.843</td><td>11.843</td><td>11.843</td></tr><tr><td>60</td><td>11.839</td><td>11.839</td><td>11.839</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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	-60	11.869	11.872	11.876	-40	11.876	11.879	11.881	-20	11.878	11.880	11.882	0	11.875	11.876	11.877	25	11.864	11.864	11.865	55	11.843	11.843	11.843	60	11.839	11.839	11.839	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
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-20	11.878	11.880	11.882																																																			
0	11.875	11.876	11.877																																																			
25	11.864	11.864	11.865																																																			
55	11.843	11.843	11.843																																																			
60	11.839	11.839	11.839																																																			
--	-	-	-																																																			
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Note: Slanted line shows the range of the rated ambient temperature.																																																						

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		Testing Circuitry Figure A
Model	SUS101212/SUCS101212	
Item	Output Voltage Accuracy	
Object	+12V1A	

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 - 1A

* 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	-20	9	0	11.887	±22	±0.2
Minimum Voltage	55	9	1	11.843		

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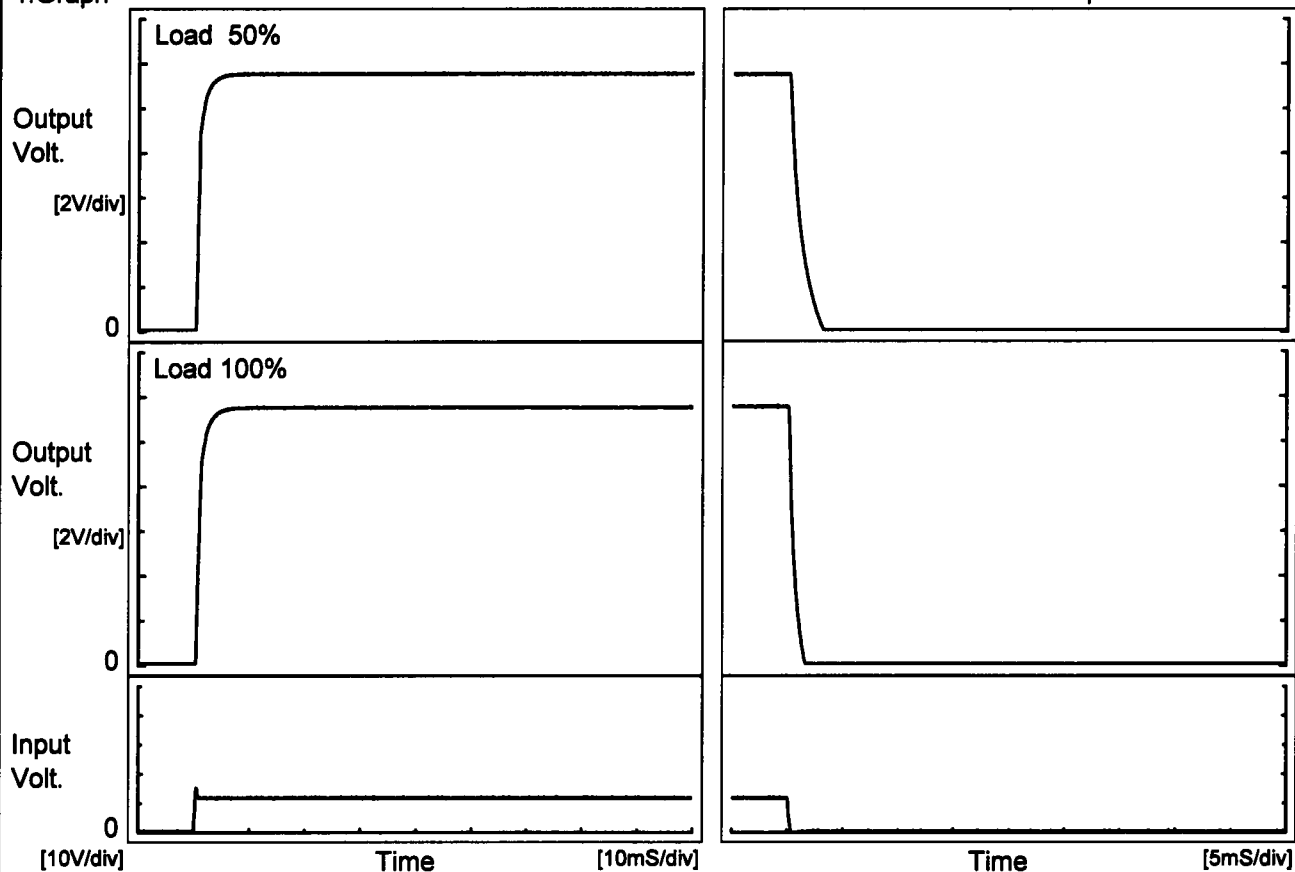
Model SUS101212/SUCS101212

Item Rise and Fall Time

Temperature 25°C
Testing Circuitry Figure A

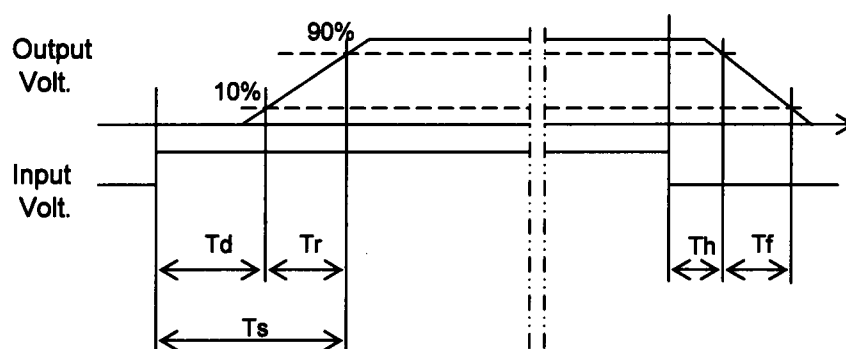
Object +12V1A

1. Graph



2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.5	2.3	2.8	0.2	2.1
100 %		0.5	2.6	3.1	0.2	1.1



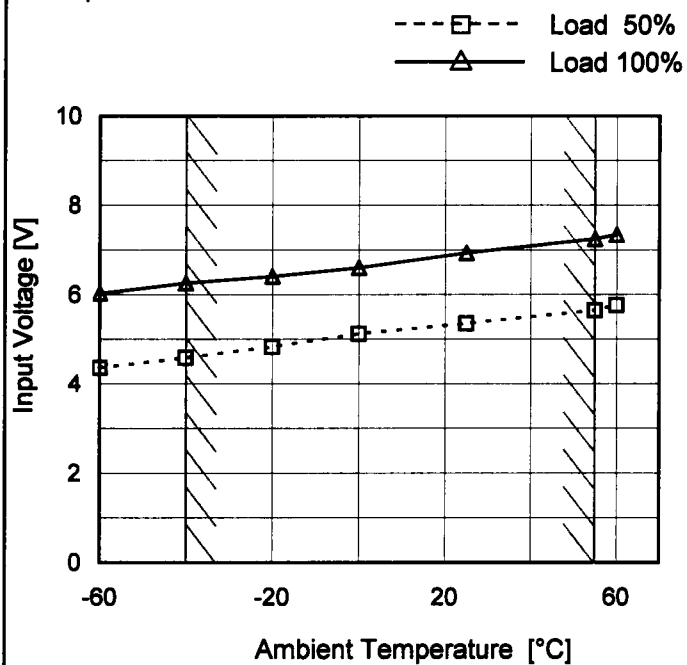
Model SUS101212/SUCS101212

Item Minimum Input Voltage
for Regulated Output Voltage

Object +12V1A

Testing Circuitry Figure A

1. Graph



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

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	4.4	6.1
-40	4.6	6.3
-20	4.9	6.5
0	5.2	6.6
25	5.4	7.0
55	5.7	7.3
60	5.8	7.4
—	—	—
—	—	—
—	—	—
—	—	—

Model		SUS101212/SUCS101212		Temperature		25°C																																																								
Item		Overcurrent Protection		Testing Circuitry		Figure A																																																								
Object		+12V1A																																																												
1.Graph				2.Values																																																										
<div><div><div>Input Volt. 9V</div><div>Input Volt. 12V</div><div>Input Volt. 18V</div></div><p>Note: Slanted line shows the range of the rated load current.</p></div>				<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>12.0</td><td>1.25</td><td>1.33</td><td>1.36</td></tr><tr><td>11.4</td><td>1.29</td><td>1.39</td><td>1.46</td></tr><tr><td>10.8</td><td>1.31</td><td>1.42</td><td>1.49</td></tr><tr><td>9.6</td><td>1.31</td><td>1.41</td><td>1.46</td></tr><tr><td>8.4</td><td>1.31</td><td>1.40</td><td>1.42</td></tr><tr><td>7.2</td><td>1.31</td><td>1.38</td><td>1.38</td></tr><tr><td>6.0</td><td>1.31</td><td>1.36</td><td>1.34</td></tr><tr><td>4.8</td><td>1.31</td><td>1.35</td><td>1.29</td></tr><tr><td>3.6</td><td>1.34</td><td>1.35</td><td>1.22</td></tr><tr><td>2.4</td><td>1.38</td><td>1.33</td><td>1.16</td></tr><tr><td>1.2</td><td>1.45</td><td>1.38</td><td>1.19</td></tr><tr><td>0.0</td><td>1.79</td><td>1.71</td><td>1.64</td></tr></table>				Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	12.0	1.25	1.33	1.36	11.4	1.29	1.39	1.46	10.8	1.31	1.42	1.49	9.6	1.31	1.41	1.46	8.4	1.31	1.40	1.42	7.2	1.31	1.38	1.38	6.0	1.31	1.36	1.34	4.8	1.31	1.35	1.29	3.6	1.34	1.35	1.22	2.4	1.38	1.33	1.16	1.2	1.45	1.38	1.19	0.0	1.79	1.71	1.64
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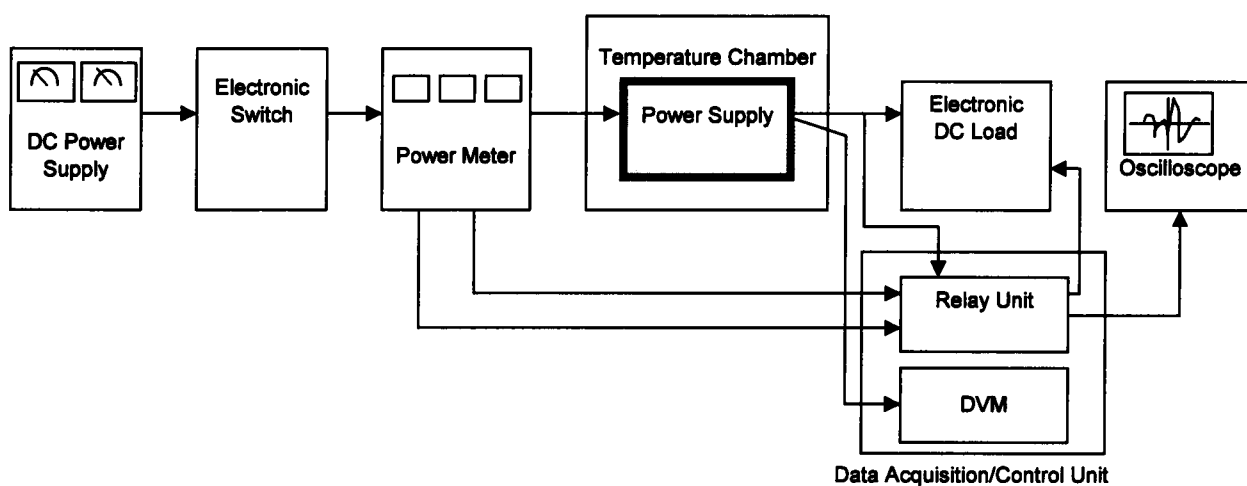


Figure A

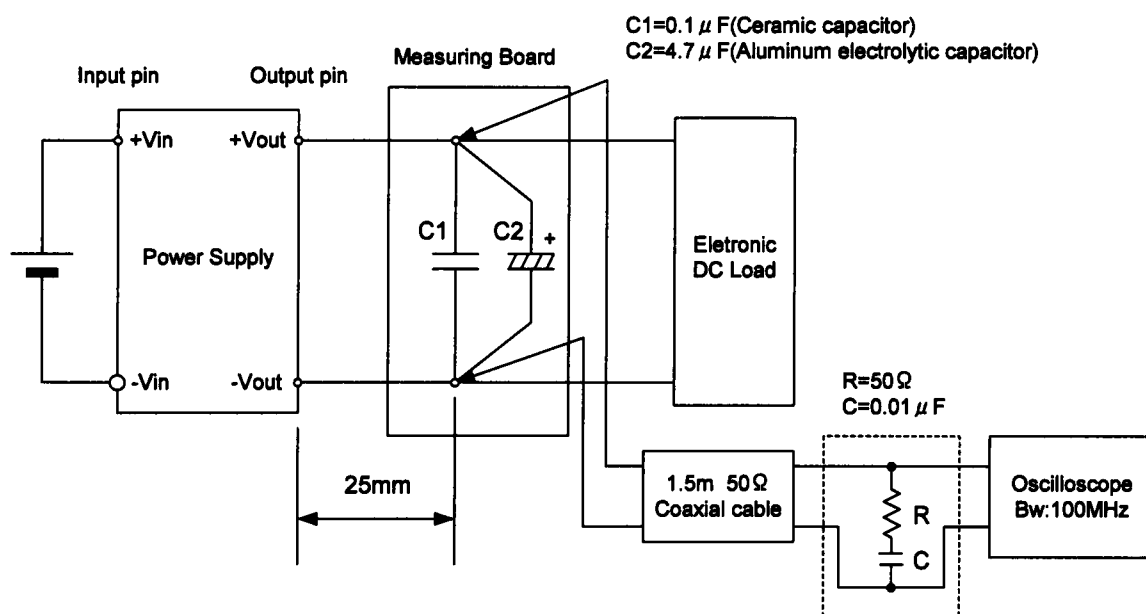


Figure B (Ripple and Ripple noise Characteristic)