

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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Model	SUS1R51205	Temperature	25°C																																																																							
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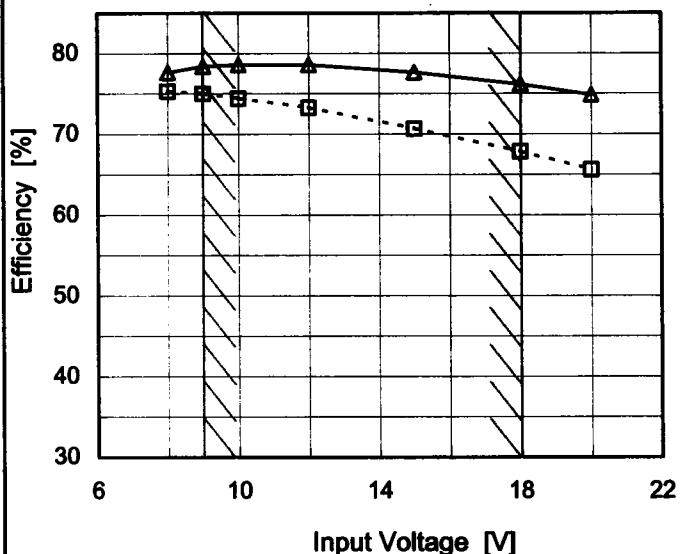
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Model	SUS1R51205
Item	Efficiency (by Input Voltage)
Object	_____

1.Graph

---□--- Load 50%
 —△— Load 100%



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

Temperature 25°C
 Testing Circuitry Figure A

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8	75.3	77.7
9	75.0	78.4
10	74.4	78.6
12	73.3	78.6
15	70.7	77.7
18	67.9	76.2
20	65.6	74.8
-	-	-
-	-	-

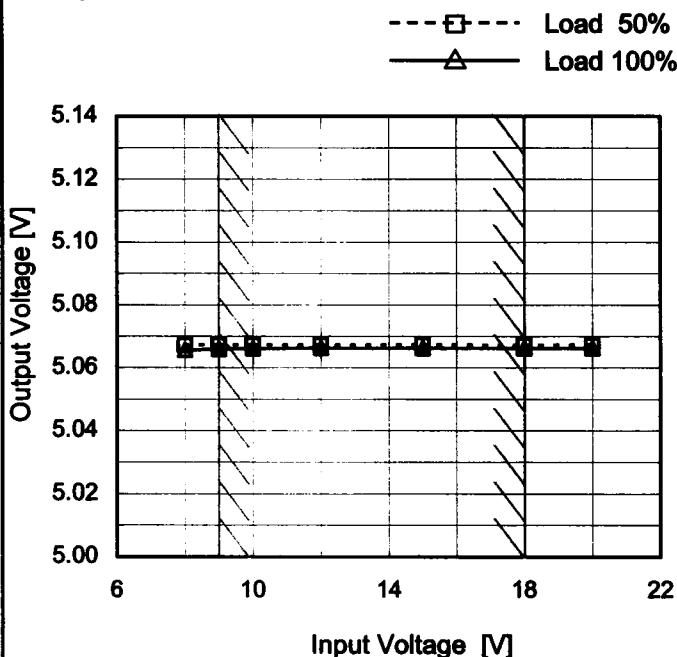
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Model	SUS1R51205
Item	Line Regulation
Object	+5V0.3A

1.Graph



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

Temperature 25°C
Testing Circuitry Figure A

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8	5.067	5.066
9	5.067	5.066
10	5.067	5.066
12	5.067	5.066
15	5.067	5.066
18	5.067	5.066
20	5.067	5.066
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<p style="text-align: center;"> —△— Input Volt. 9V ---□--- Input Volt. 12V ---○--- Input Volt. 18V </p> <p>The graph plots Output Voltage [V] on the Y-axis (5.00 to 5.14) against Load Current [A] on the X-axis (0.00 to 0.30). Three data series are shown for Input Voltages of 9V, 12V, and 18V. All series show a flat output voltage curve around 5.06V. A slanted line is drawn through the data points, representing the range of the rated load current.</p>																																																						
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0.12	5.068	5.068	5.068																																																			
0.18	5.067	5.067	5.067																																																			
0.24	5.067	5.067	5.067																																																			
0.30	5.066	5.066	5.067																																																			
0.33	5.066	5.066	5.066																																																			
-	-	-	-																																																			
-	-	-	-																																																			
-	-	-	-																																																			
-	-	-	-																																																			
<p>Note: Slanted line shows the range of the rated load current.</p>																																																						

COSEL

Model SUS1R51205

Item Dynamic Load Response

Object +5V0.3A

Temperature 25°C
Testing Circuitry Figure AInput Volt. 12 V
Cycle 100 mSMin. Load (0A) ←→
Load 100% (0.3A)

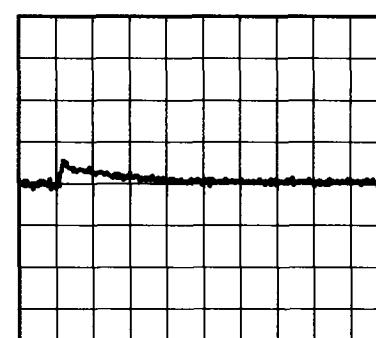
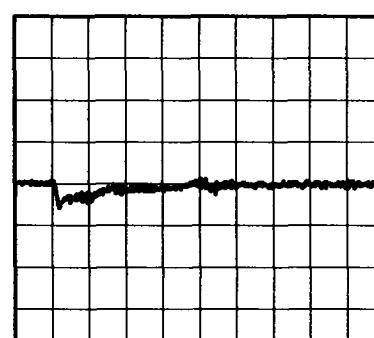
100mV/div

Min. Load (0A) ←→
Load 50% (0.15A)

100mV/div

Load 50% (0.15A) ←→
Load 100% (0.3A)

100mV/div

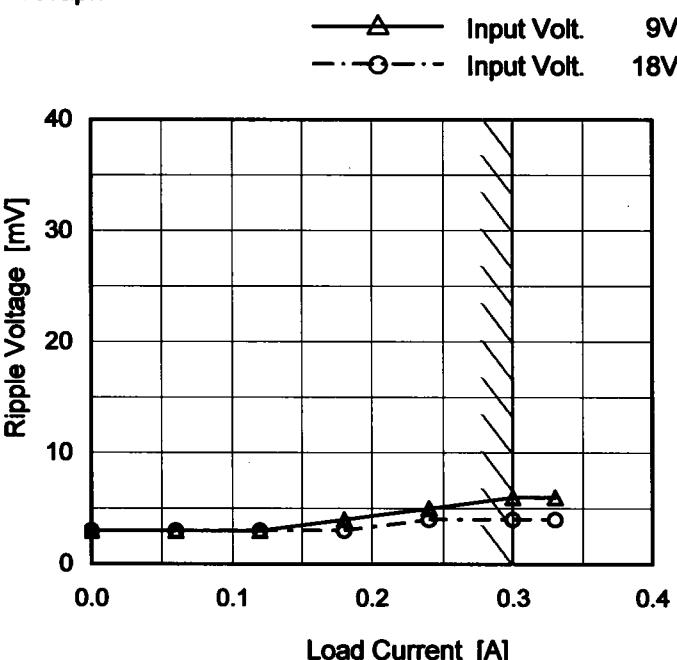


COSEL

Model	SUS1R51205
Item	Ripple Voltage (by Load Current)
Object	+5V 0.3A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



2.Values

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
--	-	-
--	-	-
--	-	-
--	-	-

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.

Ripple [mVp-p]

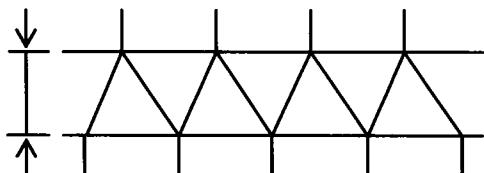


Fig.Complex Ripple Wave Form

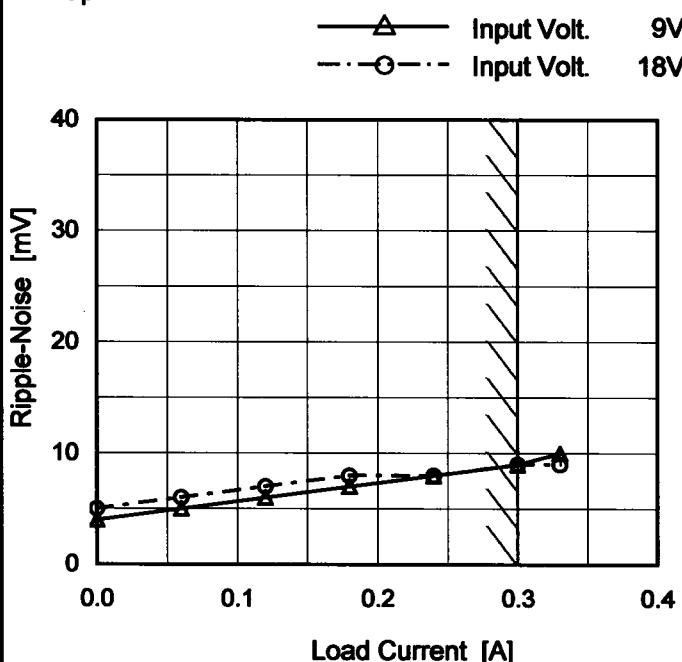
COSEL

Model SUS1R51205

Item Ripple-Noise

Object +5V0.3A

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.

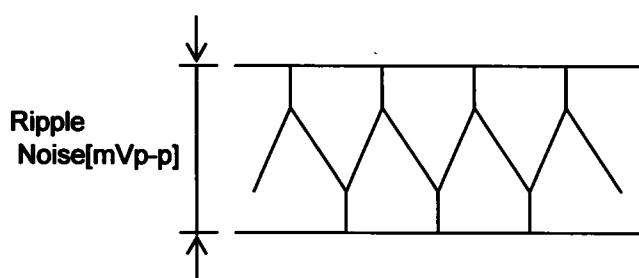


Fig.Complex Ripple Noise Wave Form

Temperature 25°C
Testing Circuitry Figure B

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	4	5
0.06	5	6
0.12	6	7
0.18	7	8
0.24	8	8
0.30	9	9
0.33	10	9
-	-	-
-	-	-
--	-	-
--	-	-

COSEL

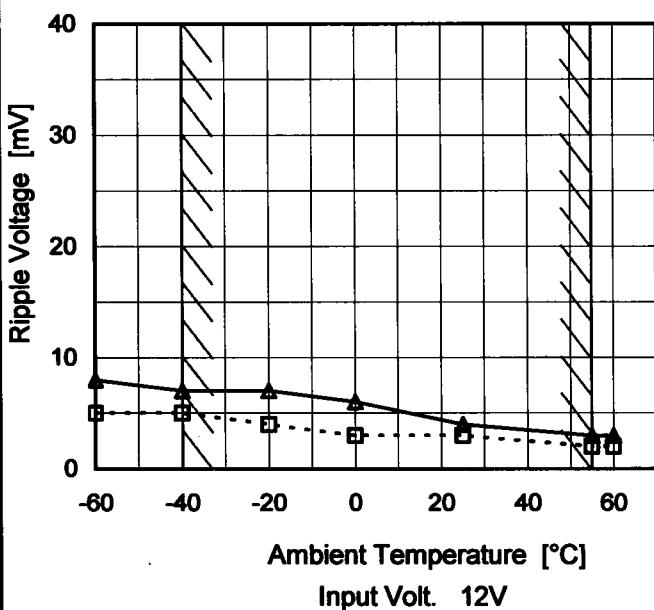
Model SUS1R51205

Item Ripple Voltage (by Ambient Temp.)

Object +5V0.3A

1.Graph

---□--- Load 50%
—△— Load 100%



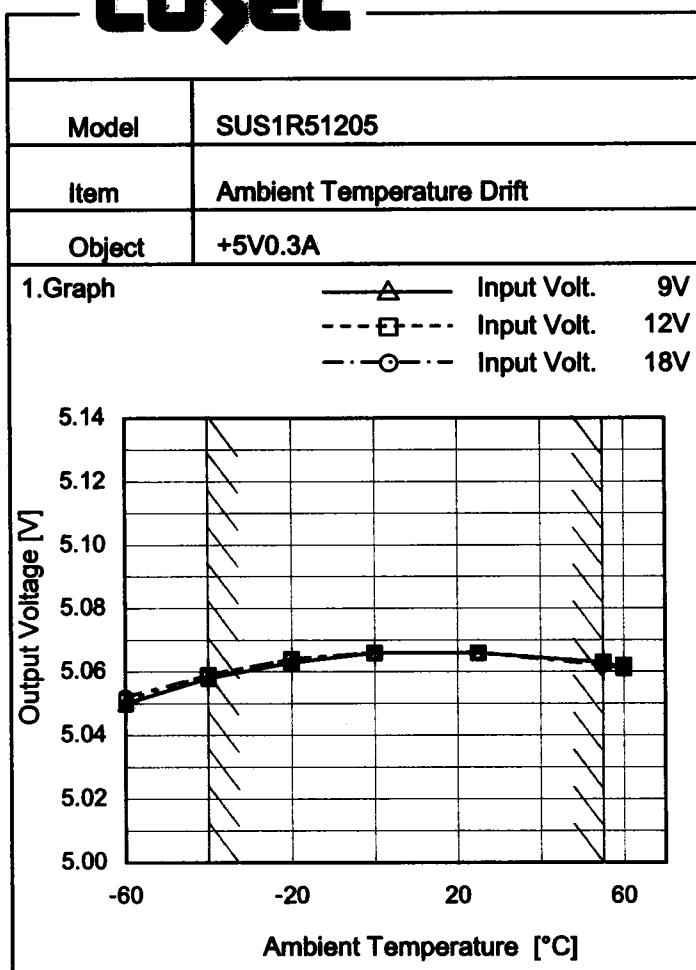
Testing Circuitry Figure B

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	8
-40	5	7
-20	4	7
0	3	6
25	3	4
55	2	3
60	2	3
-	-	-
-	-	-
-	-	-
-	-	-

Measured by 100 MHz Oscilloscope.

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

COSEL


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

Testing Circuitry Figure A
2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	5.050	5.051	5.052
-40	5.058	5.059	5.059
-20	5.063	5.064	5.064
0	5.066	5.066	5.066
25	5.066	5.066	5.066
55	5.063	5.063	5.062
60	5.061	5.062	5.061
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



Model	SUS1R51205	Testing Circuitry Figure A
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

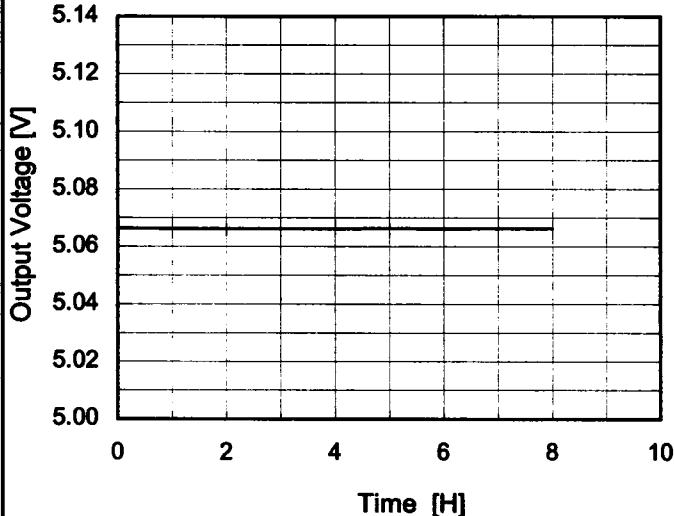
* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18	0	5.068	±5	±0.1
Minimum Voltage	-40	9	0.3	5.058		

COSEL

Model	SUS1R51205	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+5V0.3A																								
1.Graph			2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V Load 100%</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>5.067</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> </tbody> </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																								
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1.0	5.066																								
2.0	5.066																								
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4.0	5.066																								
5.0	5.066																								
6.0	5.066																								
7.0	5.066																								
8.0	5.066																								

COSEL

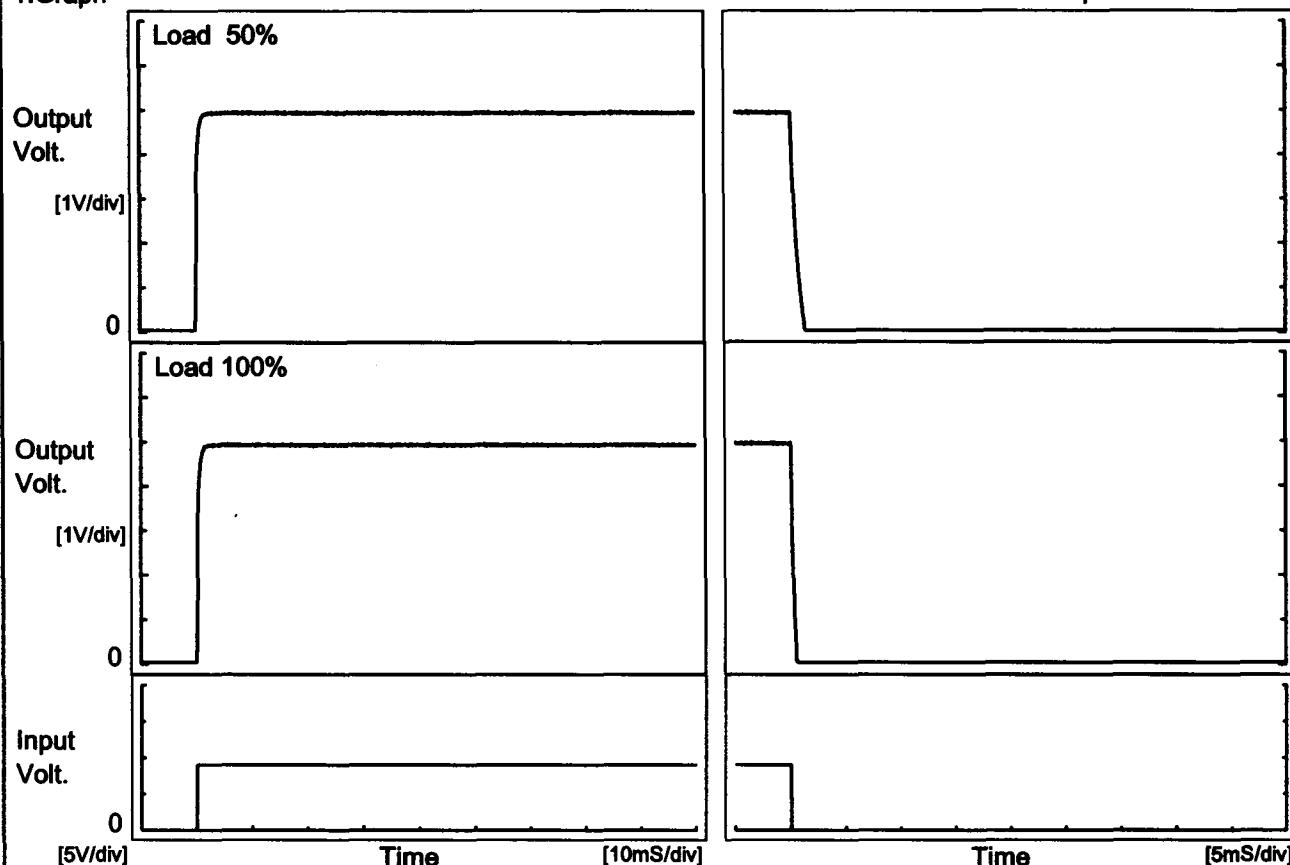
Model SUS1R51205

Item Rise and Fall Time

Object +5V0.3A

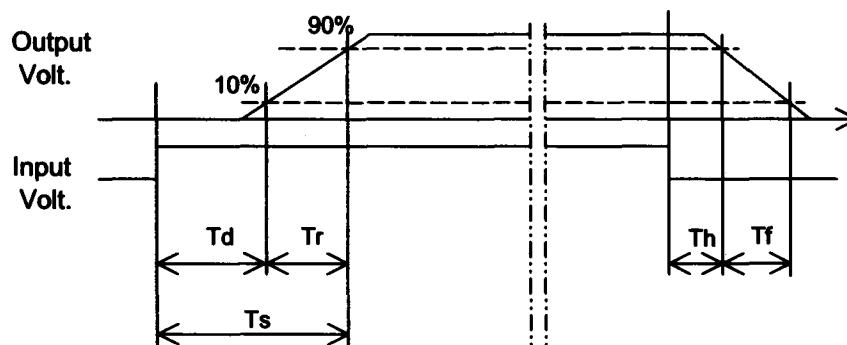
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

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



COSSEL

Model	SUS1R51205																																								
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																							
Object	+5V0.3A																																								
1.Graph		2.Values																																							
		<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>3.7</td><td>5.2</td></tr> <tr><td>-40</td><td>3.6</td><td>5.3</td></tr> <tr><td>-20</td><td>3.6</td><td>5.5</td></tr> <tr><td>0</td><td>3.6</td><td>5.6</td></tr> <tr><td>25</td><td>3.7</td><td>5.8</td></tr> <tr><td>55</td><td>3.8</td><td>6.0</td></tr> <tr><td>60</td><td>3.9</td><td>6.1</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	3.7	5.2	-40	3.6	5.3	-20	3.6	5.5	0	3.6	5.6	25	3.7	5.8	55	3.8	6.0	60	3.9	6.1	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Input Voltage [V]																																								
	Load 50%	Load 100%																																							
-60	3.7	5.2																																							
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																									

COSEL

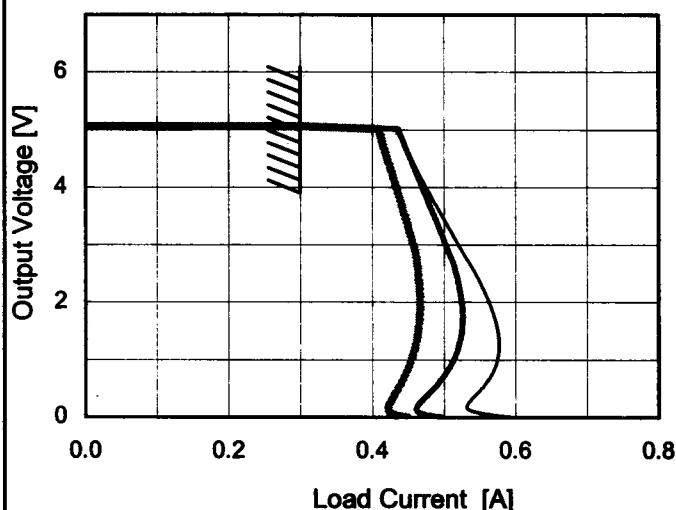
Model SUS1R51205

Item Overcurrent Protection

Object +5V0.3A

1.Graph

Input Volt. 9V
 Input Volt. 12V
 Input Volt. 18V



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

Temperature 25°C
 Testing Circuitry Figure A

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
5.00	0.30	0.30	0.30
4.75	0.44	0.44	0.41
4.50	0.45	0.45	0.42
4.00	0.47	0.47	0.43
3.50	0.50	0.49	0.45
3.00	0.52	0.50	0.46
2.50	0.54	0.52	0.46
2.00	0.56	0.52	0.47
1.50	0.58	0.53	0.46
1.00	0.58	0.51	0.45
0.50	0.55	0.49	0.44
0.00	0.60	0.50	0.45

COSEL

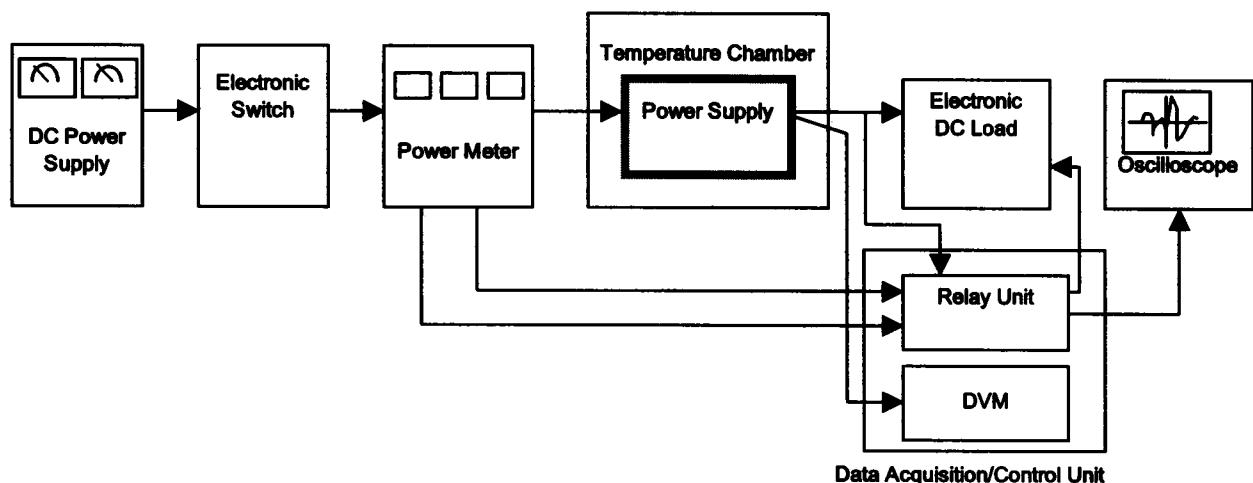


Figure A

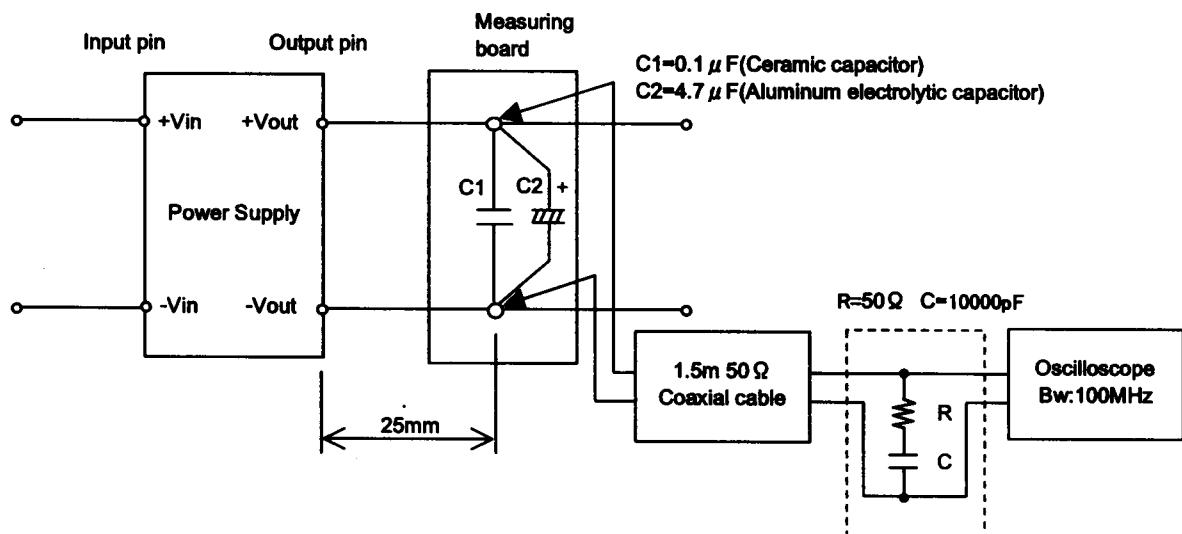


Figure B (Ripple and Ripple noise Characteristic)