



TEST DATA OF SUCS3123R3

Regulated DC Power Supply
Mar 10, 2005

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COSEL CO.,LTD.



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Model	SUCCS3123R3	Temperature	25°C																																																																															
Item	Input Current (by Input Voltage)	Testing Circuitry	Figure A																																																																															
Object	_____																																																																																	
1.Graph																																																																																		
<p style="text-align: center;"> —△— Load 100% ---□--- Load 50% ---○--- Load 0% </p> <p>The graph plots Input Current [A] on the y-axis (0.0 to 1.0) against Input Voltage [V] on the x-axis (0 to 24). Three data series are shown: Load 100% (triangles), Load 50% (squares), and Load 0% (circles). All series show a sharp initial increase in current from 0V to approximately 4V, followed by a gradual decrease as voltage increases. A slanted line is drawn across the graph, starting from the origin and extending to about 18V, representing the rated input voltage range.</p>																																																																																		
2.Values																																																																																		
<table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.0</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>2.6</td><td>0.046</td><td>0.001</td><td>0.001</td></tr> <tr><td>3.2</td><td>0.035</td><td>0.548</td><td>0.520</td></tr> <tr><td>4.0</td><td>0.027</td><td>0.396</td><td>0.528</td></tr> <tr><td>4.8</td><td>0.023</td><td>0.305</td><td>0.545</td></tr> <tr><td>5.2</td><td>0.022</td><td>0.276</td><td>0.556</td></tr> <tr><td>6.0</td><td>0.020</td><td>0.231</td><td>0.481</td></tr> <tr><td>8.0</td><td>0.017</td><td>0.169</td><td>0.338</td></tr> <tr><td>9.0</td><td>0.016</td><td>0.151</td><td>0.297</td></tr> <tr><td>10.0</td><td>0.015</td><td>0.136</td><td>0.265</td></tr> <tr><td>12.0</td><td>0.014</td><td>0.114</td><td>0.219</td></tr> <tr><td>14.0</td><td>0.014</td><td>0.100</td><td>0.188</td></tr> <tr><td>16.0</td><td>0.014</td><td>0.089</td><td>0.165</td></tr> <tr><td>18.0</td><td>0.015</td><td>0.081</td><td>0.148</td></tr> <tr><td>20.0</td><td>0.015</td><td>0.075</td><td>0.135</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>				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	2.6	0.046	0.001	0.001	3.2	0.035	0.548	0.520	4.0	0.027	0.396	0.528	4.8	0.023	0.305	0.545	5.2	0.022	0.276	0.556	6.0	0.020	0.231	0.481	8.0	0.017	0.169	0.338	9.0	0.016	0.151	0.297	10.0	0.015	0.136	0.265	12.0	0.014	0.114	0.219	14.0	0.014	0.100	0.188	16.0	0.014	0.089	0.165	18.0	0.015	0.081	0.148	20.0	0.015	0.075	0.135	--	-	-	-	--	-	-	-
Input Voltage [V]	Input Current [A]																																																																																	
	Load 0%	Load 50%	Load 100%																																																																															
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Note: Slanted line shows the range of the rated input voltage.

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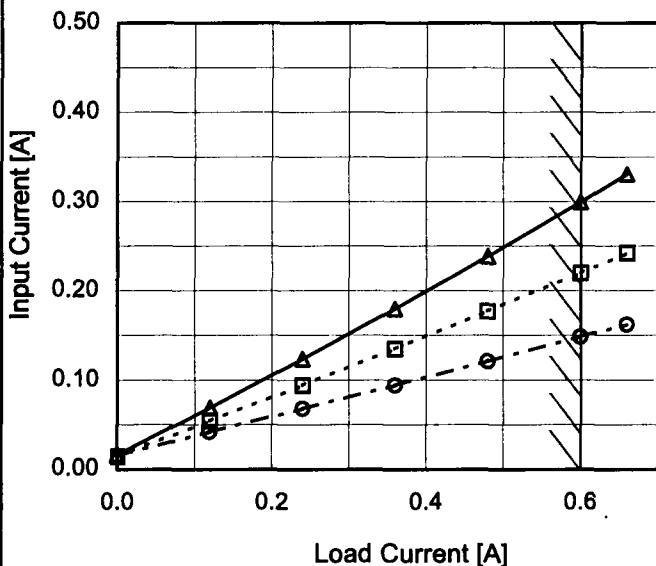
Model SUCS3123R3

Item Input Current (by Load Current)

Object _____

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

Load Current [A]	Input Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	0.016	0.014	0.015
0.12	0.069	0.054	0.042
0.24	0.123	0.094	0.068
0.36	0.180	0.135	0.094
0.48	0.239	0.177	0.121
0.60	0.299	0.220	0.148
0.66	0.330	0.242	0.162
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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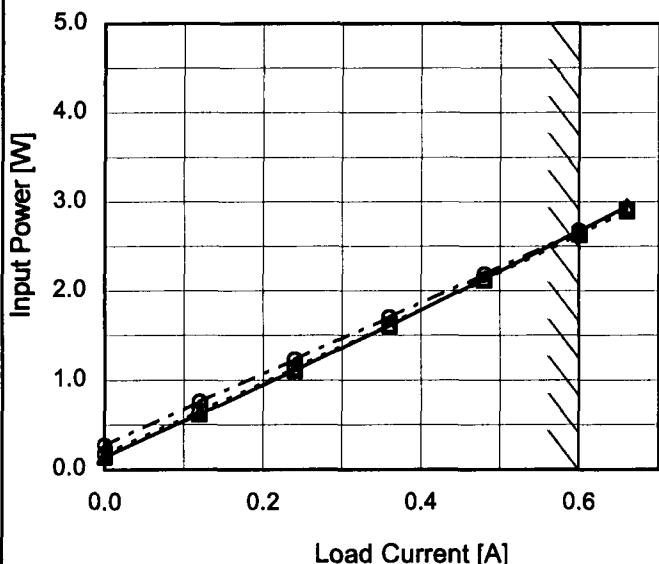
Model SUCS3123R3

Item Input Power (by Load Current)

Object _____

1.Graph

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


 Temperature 25°C
 Testing Circuitry Figure A

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	0.14	0.17	0.27
0.12	0.62	0.65	0.76
0.24	1.11	1.13	1.23
0.36	1.61	1.62	1.70
0.48	2.13	2.12	2.18
0.60	2.67	2.63	2.67
0.66	2.95	2.89	2.92
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	SUCS3123R3	Temperature	25°C																													
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A																													
Object	—	2.Values																														
1.Graph																																
<p>The graph plots Efficiency [%] on the Y-axis (30 to 86) against Input Voltage [V] on the X-axis (4 to 24). Two data series are shown: Load 50% (dashed line with open squares) and Load 100% (solid line with solid triangles). Both series show efficiency increasing slightly from ~73% at 8V to ~75% at 20V. A slanted line indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>8</td><td>73.2</td><td>73.7</td></tr> <tr><td>9</td><td>73.2</td><td>74.6</td></tr> <tr><td>10</td><td>73.1</td><td>75.1</td></tr> <tr><td>12</td><td>72.4</td><td>75.5</td></tr> <tr><td>15</td><td>70.5</td><td>75.3</td></tr> <tr><td>18</td><td>68.1</td><td>74.4</td></tr> <tr><td>20</td><td>66.0</td><td>73.4</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8	73.2	73.7	9	73.2	74.6	10	73.1	75.1	12	72.4	75.5	15	70.5	75.3	18	68.1	74.4	20	66.0	73.4	--	-	-	--	-	-
Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]																														
8	73.2	73.7																														
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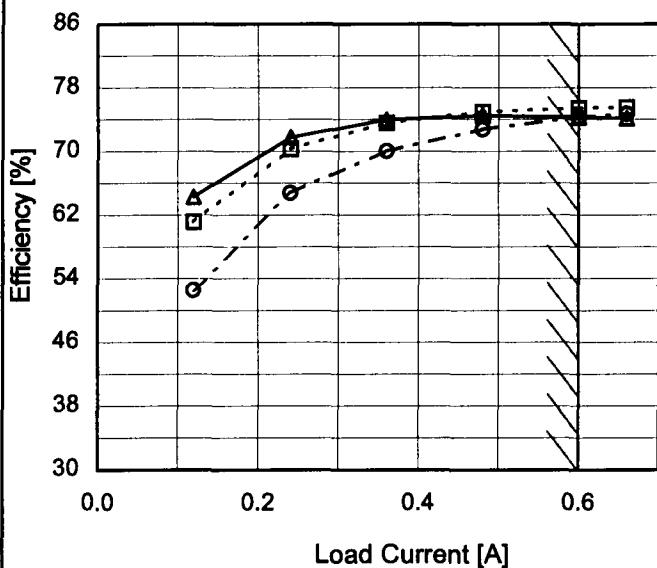
Model SUCS3123R3

Item Efficiency (by Load Current)

Object _____

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

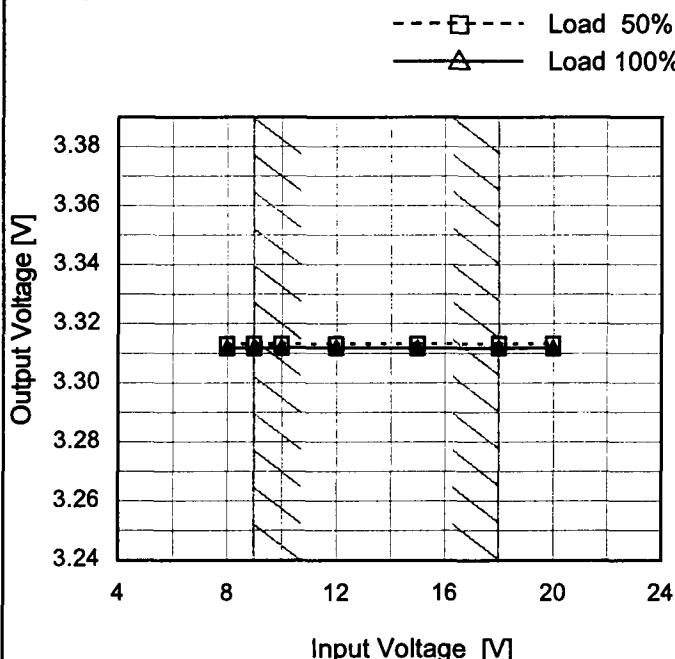
Load Current [A]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	-	-	-
0.12	64.3	61.1	52.6
0.24	71.8	70.3	64.8
0.36	74.0	73.6	70.0
0.48	74.5	74.9	72.7
0.60	74.3	75.4	74.2
0.66	74.1	75.5	74.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SUCS3123R3
Item	Line Regulation
Object	+3.3V0.6A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

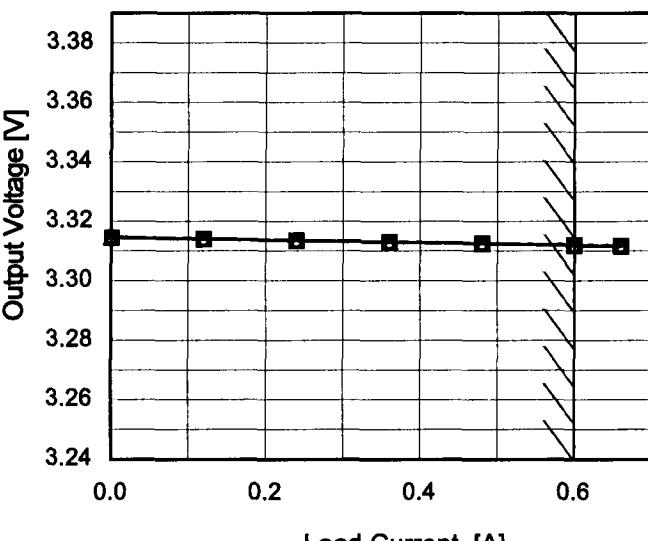


2. Values

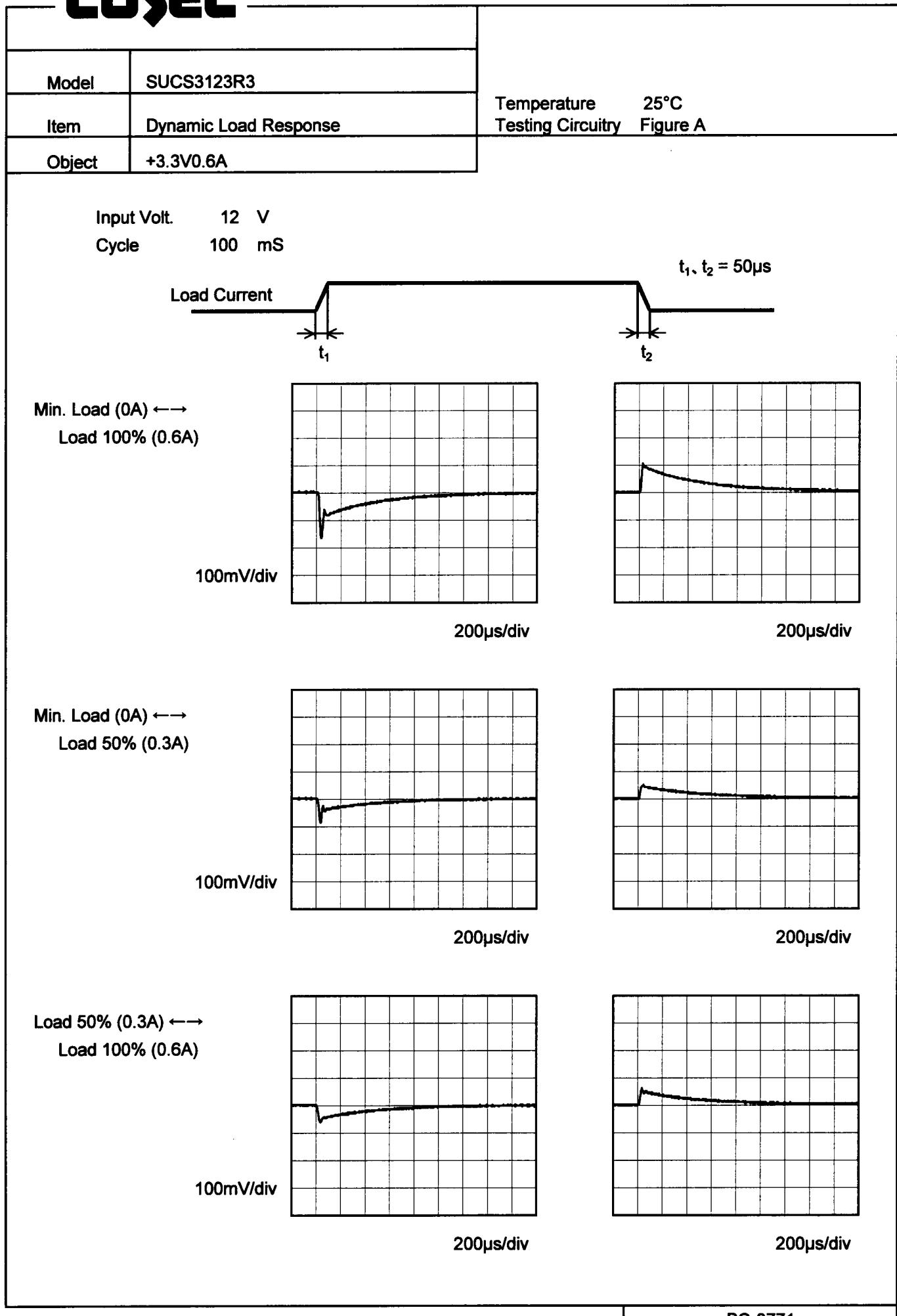
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8	3.313	3.312
9	3.313	3.312
10	3.313	3.312
12	3.313	3.312
15	3.313	3.312
18	3.313	3.312
20	3.313	3.312
--	-	-
--	-	-

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

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Model	SUCS3123R3	Temperature	25°C																																																			
Item	Load Regulation	Testing Circuitry	Figure A																																																			
Object	+3.3V0.6A																																																					
1.Graph	<p>—▲— Input Volt. 9V - - □ - - Input Volt. 12V - - ○ - - Input Volt. 18V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>																																																					
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Load Current [A]	Output Voltage [V]																																																					
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Note:	Slanted line shows the range of the rated load current.																																																					

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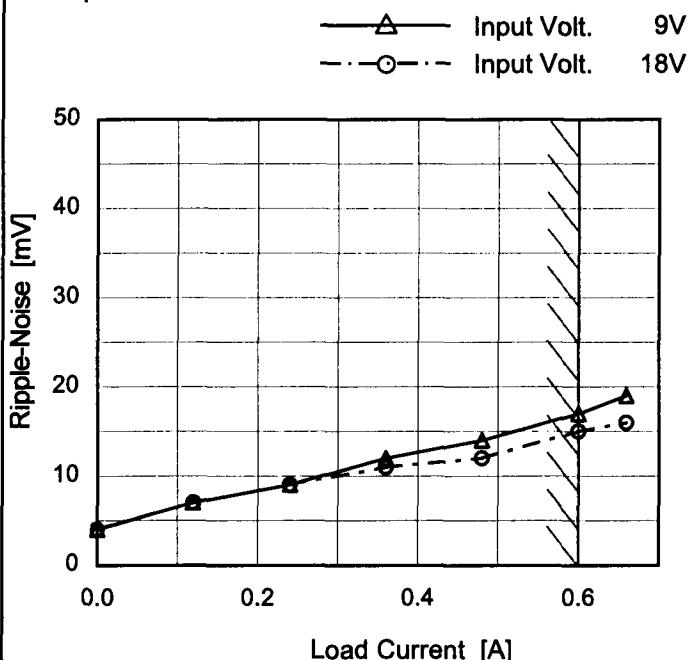
Model	SUCS3123R3	Temperature 25°C																																						
Item	Ripple Voltage (by Load Current)	Testing Circuitry Figure B																																						
Object	+3.3V0.6A																																							
1.Graph																																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 50 mV, and the X-axis ranges from 0.0 to 0.6 A. Two curves are plotted: one for Input Volt. 9V (solid line with triangle markers) and one for Input Volt. 18V (dashed line with circle markers). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (9V)</th> <th>Ripple Voltage [mV] (18V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>2</td><td>2</td></tr> <tr><td>0.12</td><td>3</td><td>2</td></tr> <tr><td>0.24</td><td>5</td><td>3</td></tr> <tr><td>0.36</td><td>7</td><td>5</td></tr> <tr><td>0.48</td><td>11</td><td>6</td></tr> <tr><td>0.60</td><td>15</td><td>8</td></tr> <tr><td>0.66</td><td>18</td><td>9</td></tr> </tbody> </table>			Load Current [A]	Ripple Voltage [mV] (9V)	Ripple Voltage [mV] (18V)	0.00	2	2	0.12	3	2	0.24	5	3	0.36	7	5	0.48	11	6	0.60	15	8	0.66	18	9														
Load Current [A]	Ripple Voltage [mV] (9V)	Ripple Voltage [mV] (18V)																																						
0.00	2	2																																						
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Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 9 [V]	Input Volt. 18 [V]																																						
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0.48	11	6																																						
0.60	15	8																																						
0.66	18	9																																						
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<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>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																								

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Model	SUCS3123R3
Item	Ripple-Noise
Object	+3.3V0.6A

 Temperature 25°C
 Testing Circuitry Figure B

1.Graph



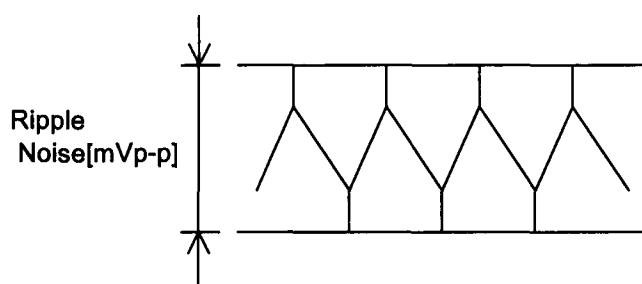
Measured by 100 MHz Oscilloscope.

Ripple-Noise is shown as p-p in the figure below.

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

2.Values

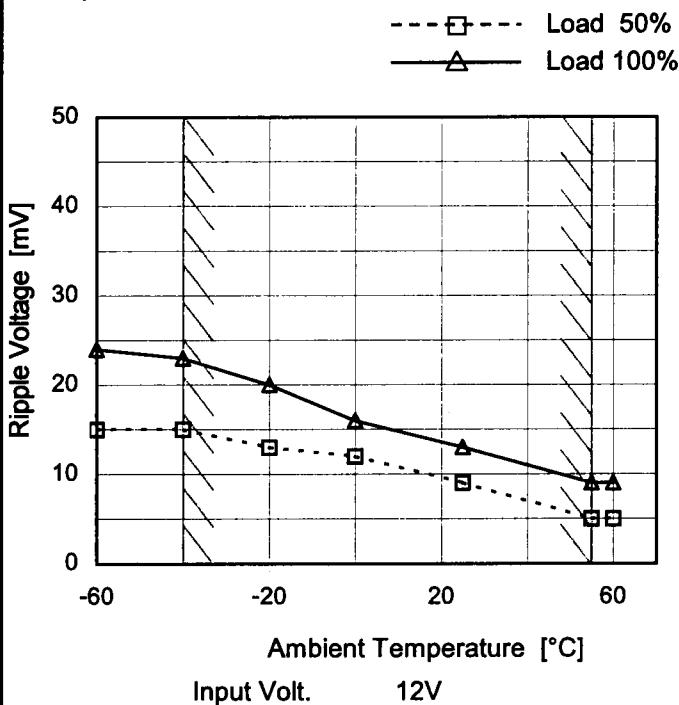
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	4	4
0.12	7	7
0.24	9	9
0.36	12	11
0.48	14	12
0.60	17	15
0.66	19	16
--	-	-
--	-	-
--	-	-
--	-	-



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Model	SUCS3123R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V0.6A

1.Graph



Measured by 100 MHz Oscilloscope.

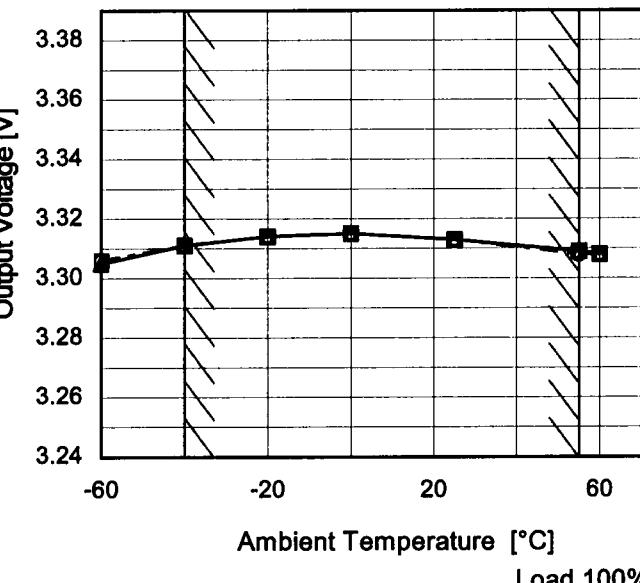
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure B

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	15	24
-40	15	23
-20	13	20
0	12	16
25	9	13
55	5	9
60	5	9
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUCS3123R3	Testing Circuitry Figure A		
Item	Ambient Temperature Drift			
Object	+3.3V0.6A			
1.Graph	<p style="text-align: center;"> — △ — Input Volt. 9V --- □ --- Input Volt. 12V --- ○ --- Input Volt. 18V </p>  <p style="text-align: center;">Output Voltage [V]</p> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Load 100%</p>	2.Values		
		Ambient Temperature [°C]	Output Voltage [V]	
			Input Volt. 9[V]	Input Volt. 12[V]
		-60	3.305	3.306
		-40	3.311	3.311
		-20	3.314	3.314
		0	3.315	3.315
		25	3.313	3.313
		55	3.309	3.309
		60	3.308	3.308
		--	-	-
		--	-	-
		--	-	-
		--	-	-

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



Model	SUCS3123R3	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+3.3V0.6A	

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 - 0.6A

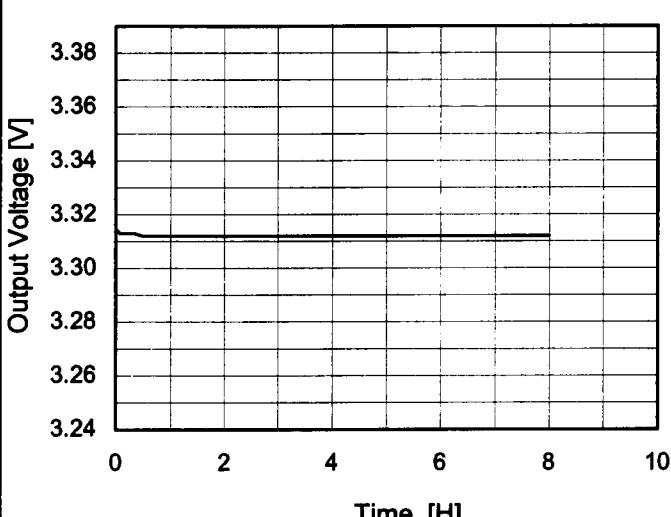
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	9	0	3.317	± 5	± 0.2
Minimum Voltage	55	18	0.6	3.308		

COSEL

Model	SUCS3123R3	Temperature Testing Circuitry	25°C Figure A																						
Item	Time Lapse Drift																								
Object	+3.3V0.6A																								
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>3.315</td></tr> <tr><td>0.5</td><td>3.312</td></tr> <tr><td>1.0</td><td>3.312</td></tr> <tr><td>2.0</td><td>3.312</td></tr> <tr><td>3.0</td><td>3.312</td></tr> <tr><td>4.0</td><td>3.312</td></tr> <tr><td>5.0</td><td>3.312</td></tr> <tr><td>6.0</td><td>3.312</td></tr> <tr><td>7.0</td><td>3.312</td></tr> <tr><td>8.0</td><td>3.312</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	3.315	0.5	3.312	1.0	3.312	2.0	3.312	3.0	3.312	4.0	3.312	5.0	3.312	6.0	3.312	7.0	3.312	8.0	3.312
Time since start [H]	Output Voltage [V]																								
0.0	3.315																								
0.5	3.312																								
1.0	3.312																								
2.0	3.312																								
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4.0	3.312																								
5.0	3.312																								
6.0	3.312																								
7.0	3.312																								
8.0	3.312																								

COSEL

Model SUCS3123R3

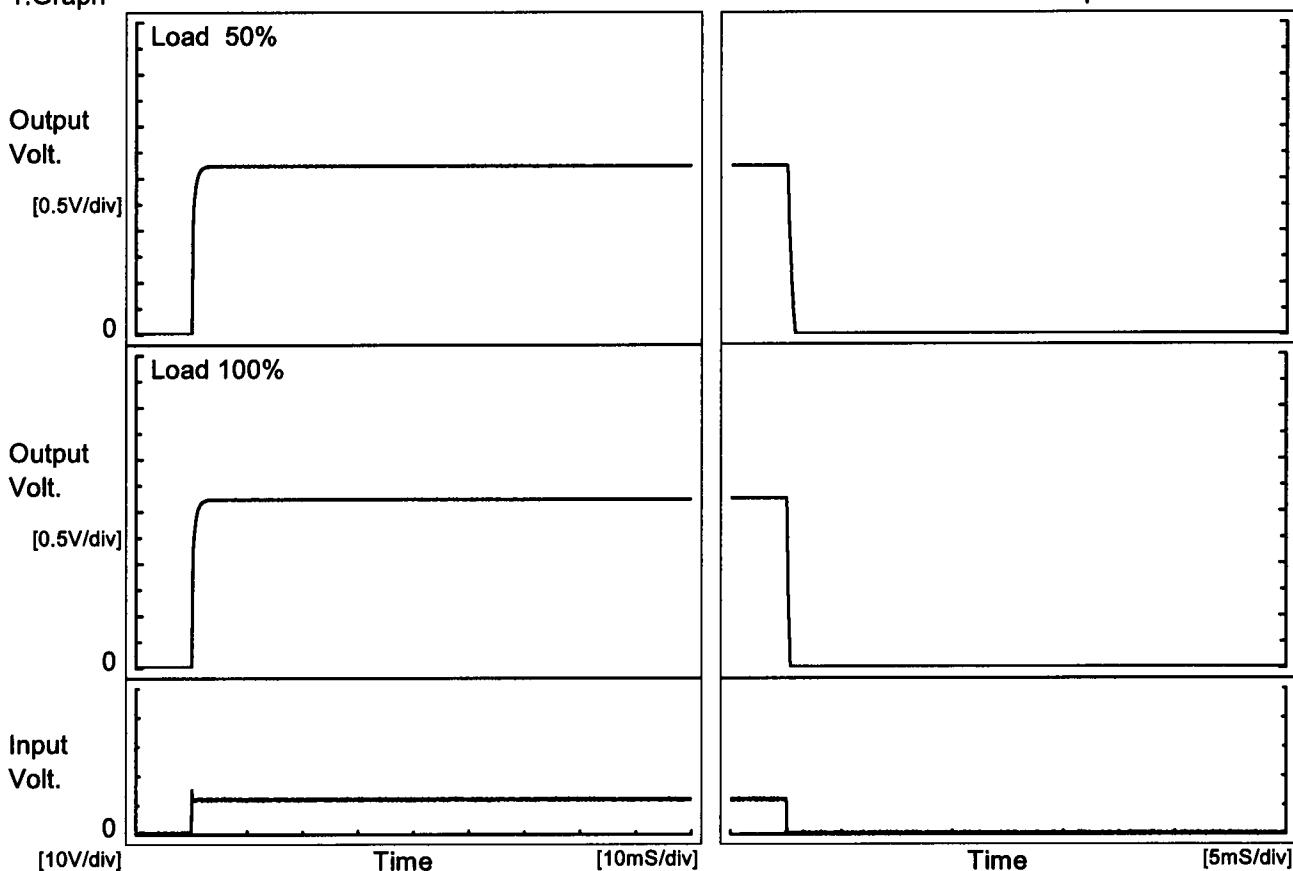
Item Rise and Fall Time

Temperature 25°C
Testing Circuitry Figure A

Object +3.3V0.6A

1. Graph

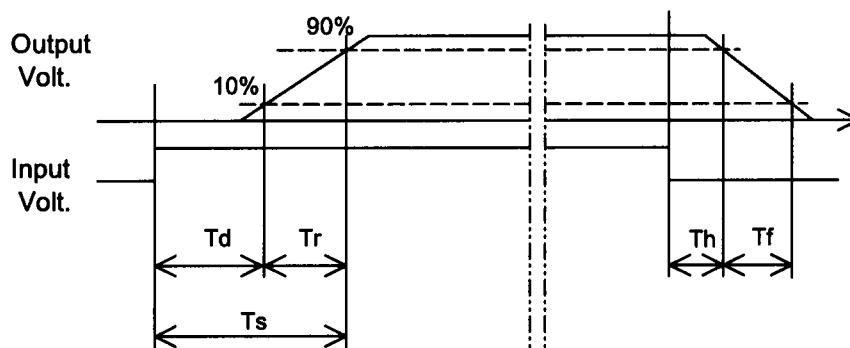
Input Volt. 12 V



2. Values

[mS]

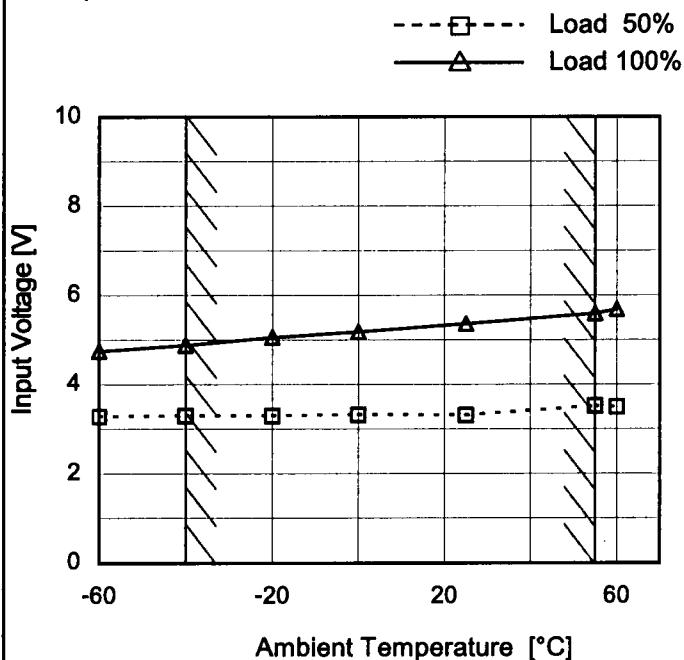
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.1	0.9	1.0	0.1	0.6
100 %		0.1	1.0	1.1	0.1	0.3



COSEL

Model	SUCS3123R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V0.6A

1. Graph



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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	3.3	4.8
-40	3.3	4.9
-20	3.3	5.1
0	3.4	5.2
25	3.4	5.4
55	3.6	5.6
60	3.5	5.7
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

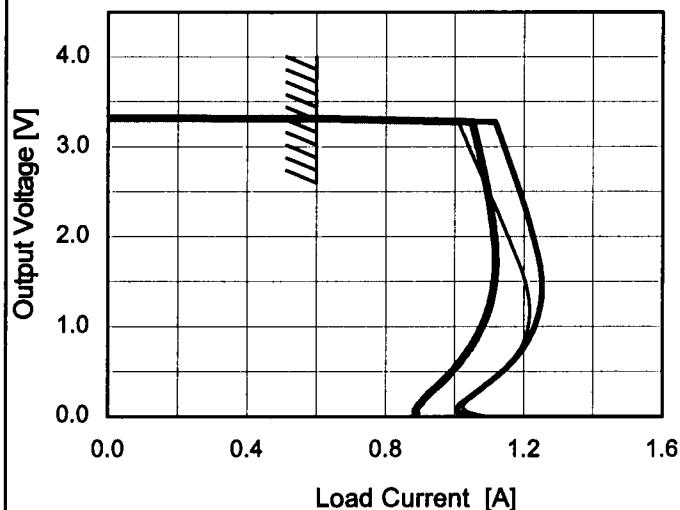
Model SUCS3123R3

Item Overcurrent Protection

Object +3.3V0.6A

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]
3.30	0.60	0.60	0.60
3.14	1.03	1.13	1.06
2.97	1.04	1.14	1.07
2.64	1.08	1.18	1.09
2.31	1.12	1.20	1.10
1.98	1.16	1.23	1.11
1.65	1.19	1.25	1.12
1.32	1.21	1.25	1.11
0.99	1.21	1.23	1.08
0.66	1.17	1.18	1.03
0.33	1.09	1.07	0.96
0.00	1.10	1.03	0.89

COSEL

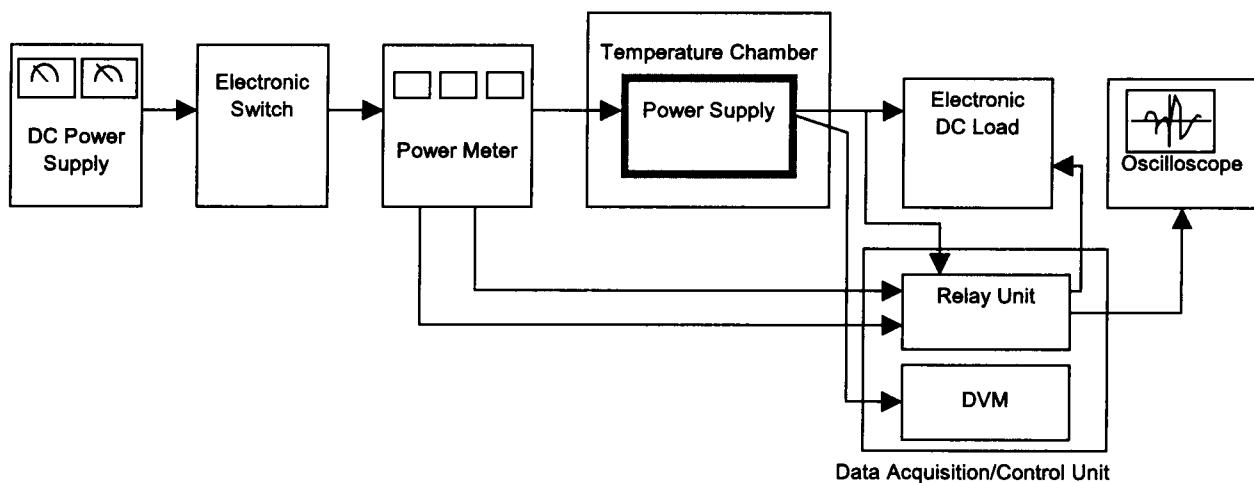


Figure A

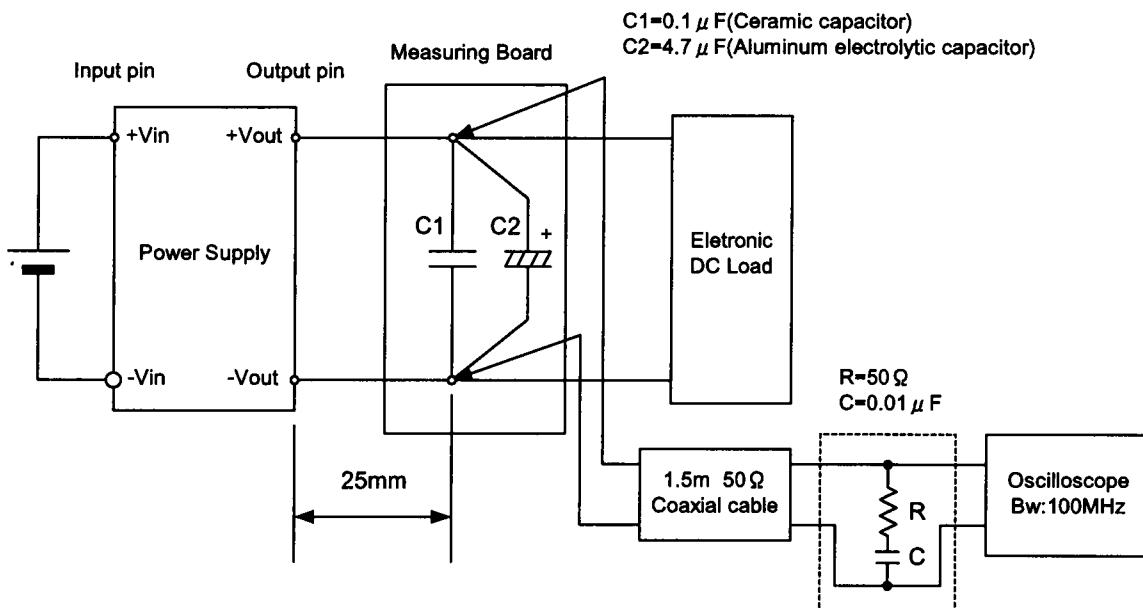


Figure B (Ripple and Ripple noise Characteristic)