



TEST DATA OF SUCS30515

Regulated DC Power Supply
Mar 22, 2005

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COSEL CO.,LTD.



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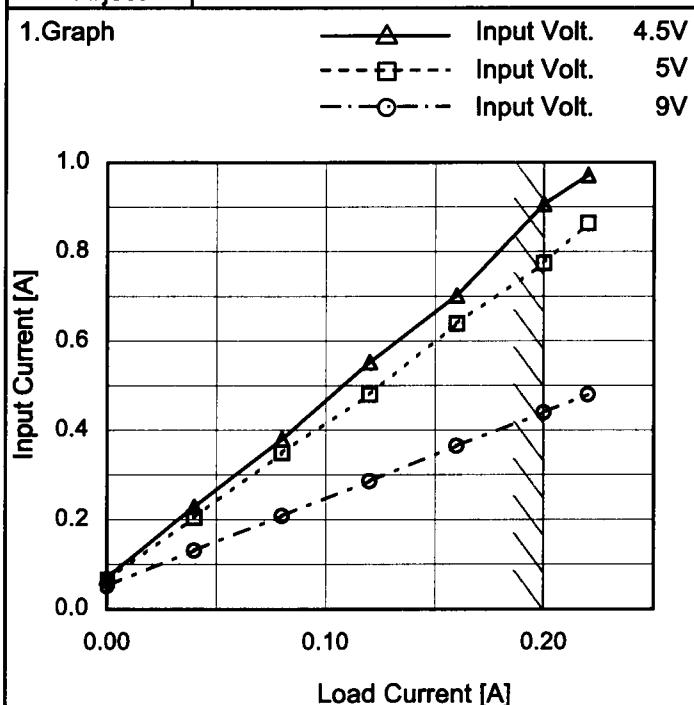
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Model	SUCS30515	Temperature Testing Circuitry	25°C Figure A																																																																															
Item	Input Current (by Input Voltage)																																																																																	
Object	_____																																																																																	
1. Graph			2. Values																																																																															
<p>The graph plots Input Current [A] on the Y-axis (0.0 to 5.0) against Input Voltage [V] on the X-axis (0 to 10). Three data series are shown: Load 0% (solid line with open circles), Load 50% (dashed line with open squares), and Load 100% (solid line with open triangles). All series show a sharp increase in current from 0V to approximately 2.5V, followed by a gradual decrease. A slanted line is drawn across the graph, starting from (0,0) and ending at (10, 0.3), representing the rated input voltage range.</p>			<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>0.00</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>1.70</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>2.00</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>2.49</td><td>0.107</td><td>0.025</td><td>0.016</td></tr> <tr><td>2.66</td><td>0.098</td><td>0.786</td><td>2.186</td></tr> <tr><td>3.00</td><td>0.091</td><td>0.746</td><td>2.151</td></tr> <tr><td>4.00</td><td>0.076</td><td>0.517</td><td>1.003</td></tr> <tr><td>4.50</td><td>0.071</td><td>0.463</td><td>0.877</td></tr> <tr><td>5.00</td><td>0.066</td><td>0.413</td><td>0.787</td></tr> <tr><td>6.00</td><td>0.060</td><td>0.346</td><td>0.655</td></tr> <tr><td>7.00</td><td>0.056</td><td>0.305</td><td>0.551</td></tr> <tr><td>8.00</td><td>0.053</td><td>0.271</td><td>0.492</td></tr> <tr><td>9.00</td><td>0.052</td><td>0.246</td><td>0.437</td></tr> <tr><td>10.00</td><td>0.052</td><td>0.226</td><td>0.406</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>	Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.00	0.000	0.000	0.000	1.70	0.000	0.000	0.000	2.00	0.000	0.000	0.000	2.49	0.107	0.025	0.016	2.66	0.098	0.786	2.186	3.00	0.091	0.746	2.151	4.00	0.076	0.517	1.003	4.50	0.071	0.463	0.877	5.00	0.066	0.413	0.787	6.00	0.060	0.346	0.655	7.00	0.056	0.305	0.551	8.00	0.053	0.271	0.492	9.00	0.052	0.246	0.437	10.00	0.052	0.226	0.406	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated input voltage.

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Model	SUCS30515
Item	Input Current (by Load Current)
Object	_____



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. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.00	0.071	0.065	0.052
0.04	0.229	0.205	0.131
0.08	0.380	0.350	0.208
0.12	0.552	0.481	0.286
0.16	0.702	0.640	0.365
0.20	0.907	0.775	0.440
0.22	0.971	0.864	0.480
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SUCS30515	Temperature	25°C																																																			
Item	Input Power (by Load Current)	Testing Circuitry	Figure A																																																			
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1.Graph	<p>—▲— Input Volt. 4.5V - - -□- - Input Volt. 5V - - ○ - - Input Volt. 9V</p> <table border="1"> <caption>Data points estimated from Graph</caption> <thead> <tr> <th>Load Current [A]</th> <th>Input Power [W] (4.5V)</th> <th>Input Power [W] (5V)</th> <th>Input Power [W] (9V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>0.32</td><td>0.33</td><td>0.47</td></tr> <tr><td>0.04</td><td>1.00</td><td>1.02</td><td>1.18</td></tr> <tr><td>0.08</td><td>1.70</td><td>1.71</td><td>1.87</td></tr> <tr><td>0.12</td><td>2.42</td><td>2.41</td><td>2.55</td></tr> <tr><td>0.16</td><td>3.16</td><td>3.15</td><td>3.24</td></tr> <tr><td>0.20</td><td>3.97</td><td>3.89</td><td>3.94</td></tr> <tr><td>0.22</td><td>4.33</td><td>4.29</td><td>4.29</td></tr> </tbody> </table>	Load Current [A]	Input Power [W] (4.5V)	Input Power [W] (5V)	Input Power [W] (9V)	0.00	0.32	0.33	0.47	0.04	1.00	1.02	1.18	0.08	1.70	1.71	1.87	0.12	2.42	2.41	2.55	0.16	3.16	3.15	3.24	0.20	3.97	3.89	3.94	0.22	4.33	4.29	4.29																					
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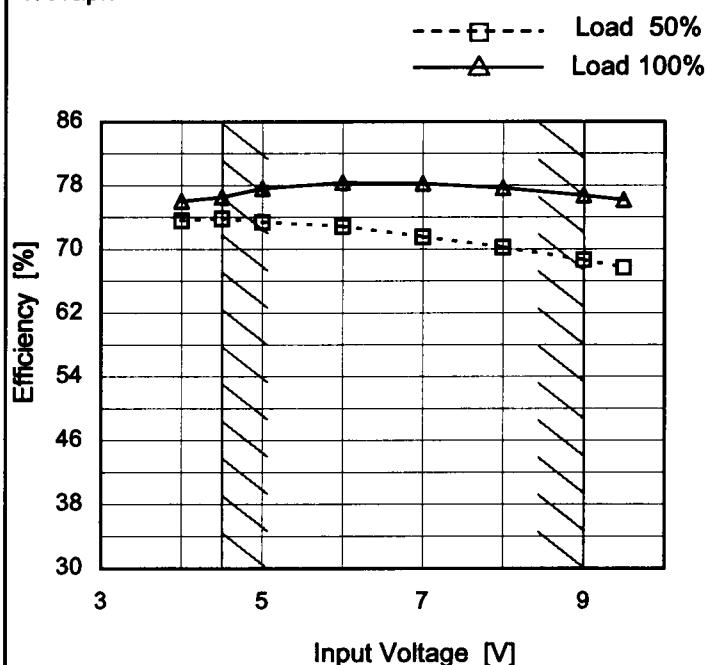
Note: Slanted line shows the range of the rated load current.

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Model	SUCS30515
Item	Efficiency (by Input Voltage)
Object	—

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.0	73.6	76.0
4.5	73.8	76.5
5.0	73.4	77.6
6.0	72.9	78.4
7.0	71.6	78.2
8.0	70.2	77.7
9.0	68.7	76.7
9.5	67.7	76.2
--	-	-

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

COSEL

Model	SUCS30515
Item	Efficiency (by Load Current)
Object	_____
1.Graph	<p>—△— Input Volt. 4.5V - - -□- - Input Volt. 5V - - -○- - Input Volt. 9V</p> <p>Efficiency [%]</p> <p>Load Current [A]</p>
Note:	Slanted line shows the range of the rated load current.

 Temperature 25°C
 Testing Circuitry Figure A

2.Values

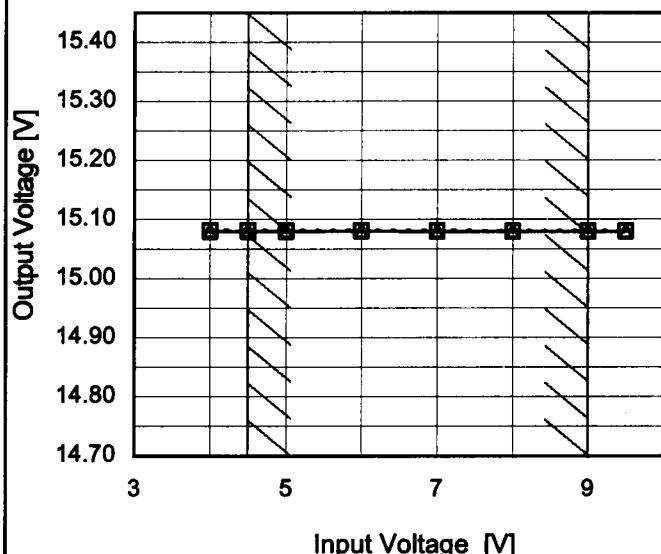
Load Current [A]	Efficiency [%]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.00	-	-	-
0.04	60.7	59.6	51.5
0.08	71.5	70.9	64.9
0.12	75.0	75.3	71.2
0.16	76.7	76.9	74.7
0.20	76.1	77.8	76.8
0.22	76.8	77.6	77.6
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SUCS30515
Item	Line Regulation
Object	+15V0.2A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph

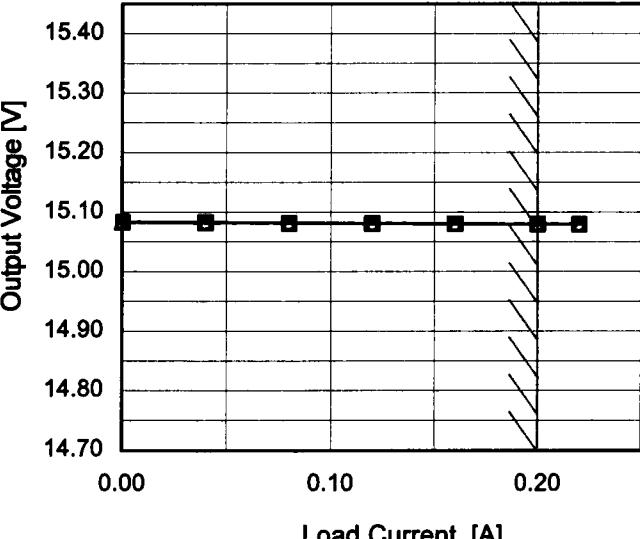
 ---□--- Load 50%
 —△— Load 100%


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

2.Values

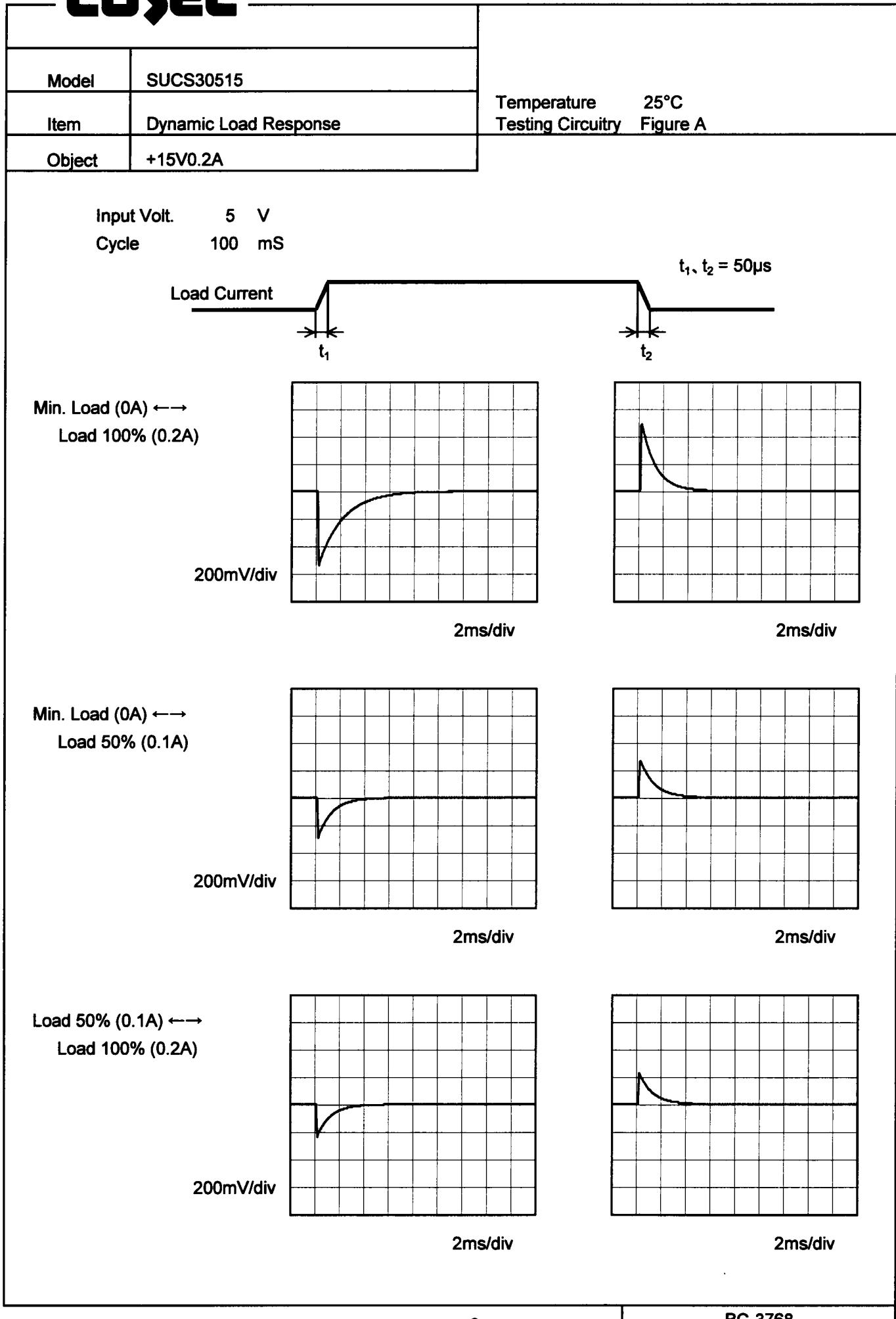
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	15.082	15.080
4.5	15.082	15.080
5.0	15.081	15.080
6.0	15.081	15.080
7.0	15.081	15.080
8.0	15.081	15.080
9.0	15.081	15.080
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--	-	-

COSEL

Model	SUCS30515	Temperature 25°C Testing Circuitry Figure A																																																					
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Object	+15V0.2A																																																						
1.Graph	<p style="text-align: center;"> —△— Input Volt. 4.5V ---□--- Input Volt. 5V ---○--- Input Volt. 9V </p>  <p>The graph plots Output Voltage [V] on the Y-axis (14.70 to 15.40) against Load Current [A] on the X-axis (0.00 to 0.20). Three horizontal lines represent the output voltage for different input voltages: 4.5V (solid triangle), 5V (dashed square), and 9V (dashed circle). All three lines show a constant output voltage of approximately 15.08V over the entire load range. A diagonal line with open circles represents the rated load current range, which is approximately 0.12 to 0.16 A.</p>	2.Values																																																					
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Note: Slanted line shows the range of the rated load current.

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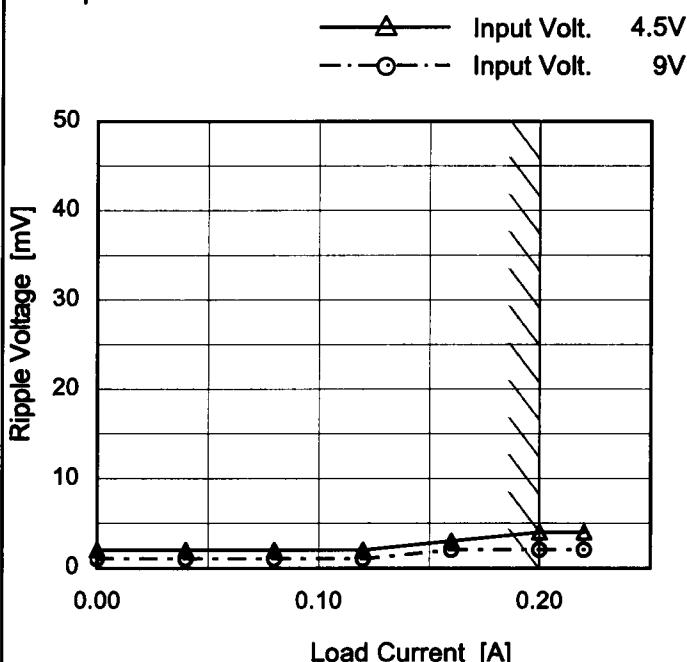


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Model	SUCS30515
Item	Ripple Voltage (by Load Current)
Object	+15V0.2A

Temperature 25°C
 Testing Circuitry Figure B

1.Graph

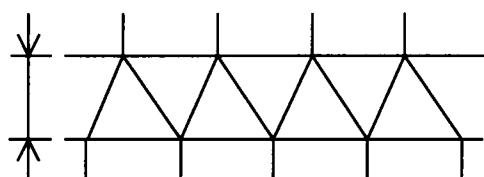


2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	2	1
0.04	2	1
0.08	2	1
0.12	2	1
0.16	3	2
0.20	4	2
0.22	4	2
--	-	-
--	-	-
--	-	-
--	-	-

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]



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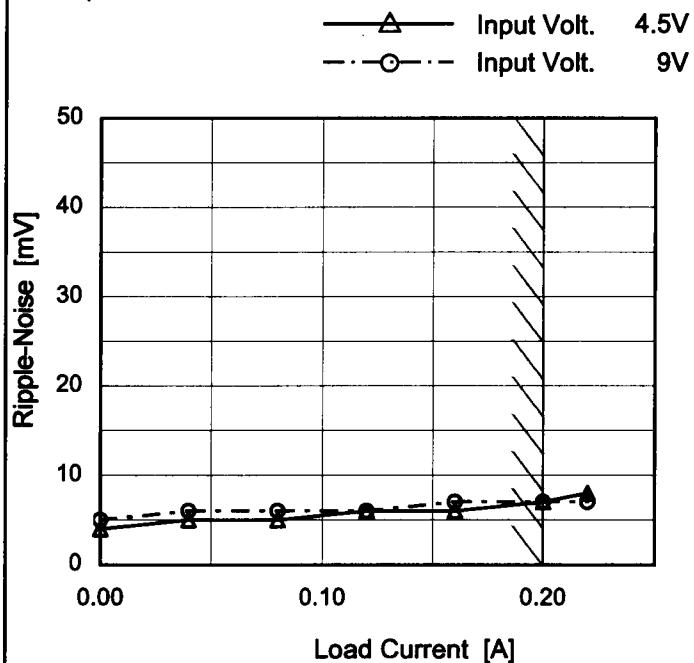
Model SUCS30515

Item Ripple-Noise

Object +15V0.2A

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. 4.5 [V]	Input Volt. 9 [V]
0.00	4	5
0.04	5	6
0.08	5	6
0.12	6	6
0.16	6	7
0.20	7	7
0.22	8	7
--	-	-
--	-	-
--	-	-
--	-	-

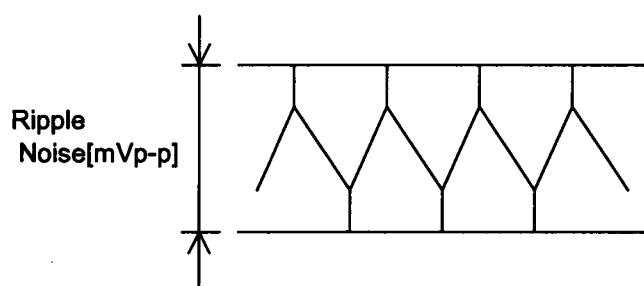


Fig.Complex Ripple Noise Wave Form

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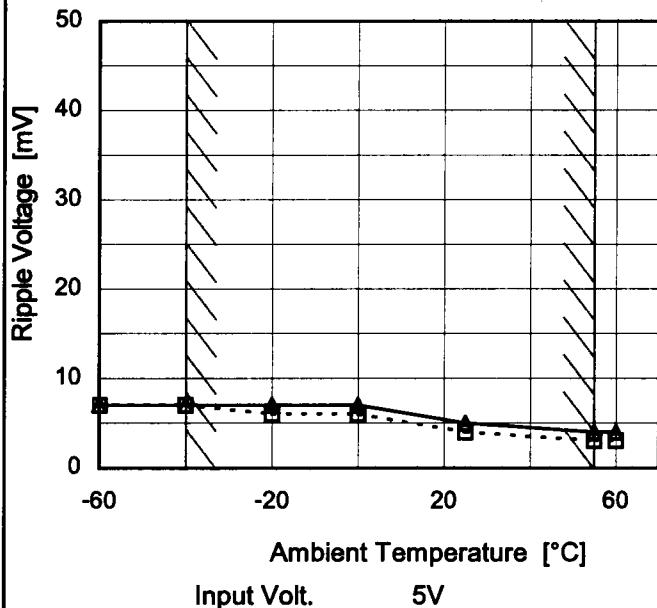
Model SUCS30515

Item Ripple Voltage (by Ambient Temp.)

Object +15V0.2A

1. Graph

---□--- Load 50%
—△— Load 100%



Input Volt. 5V

Measured by 100 MHz Oscilloscope.

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

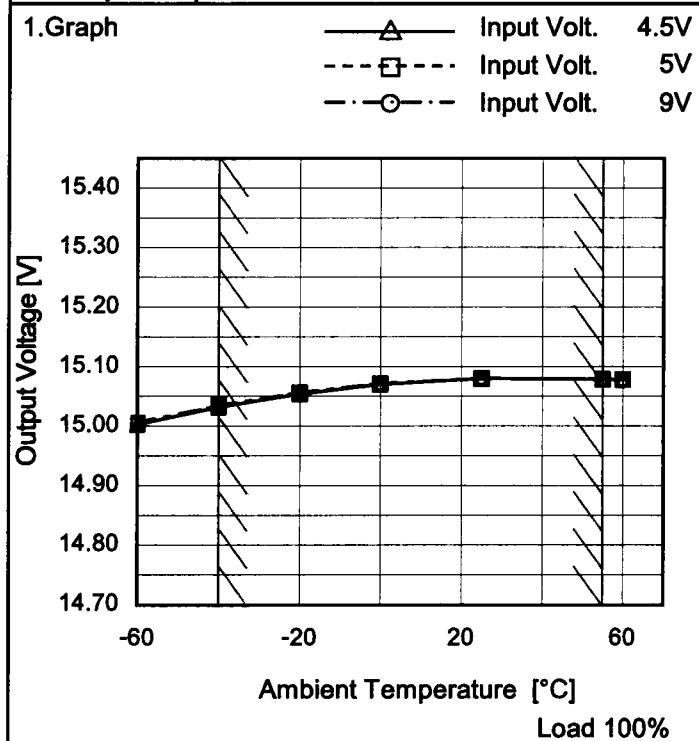
Testing Circuitry Figure A

2. Values

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

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Model	SUCS30515
Item	Ambient Temperature Drift
Object	+15V0.2A



Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
-60	15.003	15.005	15.006
-40	15.032	15.034	15.034
-20	15.054	15.056	15.056
0	15.070	15.071	15.071
25	15.080	15.080	15.080
55	15.079	15.079	15.079
60	15.078	15.078	15.077
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SUCS30515	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+15V0.2A	

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 : 4.5 - 9V

Load Current : 0 - 0.2A

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

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	4.5	0	15.083	± 26	± 0.2
Minimum Voltage	-40	4.5	0.2	15.032		

COSEL

Model	SUCCS30515	Temperature Testing Circuitry	25°C Figure A																						
Item	Time Lapse Drift																								
Object	+15V0.2A																								
1. Graph			2. Values																						
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 5V 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>15.080</td></tr> <tr><td>0.5</td><td>15.079</td></tr> <tr><td>1.0</td><td>15.079</td></tr> <tr><td>2.0</td><td>15.079</td></tr> <tr><td>3.0</td><td>15.079</td></tr> <tr><td>4.0</td><td>15.079</td></tr> <tr><td>5.0</td><td>15.079</td></tr> <tr><td>6.0</td><td>15.079</td></tr> <tr><td>7.0</td><td>15.079</td></tr> <tr><td>8.0</td><td>15.079</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	15.080	0.5	15.079	1.0	15.079	2.0	15.079	3.0	15.079	4.0	15.079	5.0	15.079	6.0	15.079	7.0	15.079	8.0	15.079
Time since start [H]	Output Voltage [V]																								
0.0	15.080																								
0.5	15.079																								
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5.0	15.079																								
6.0	15.079																								
7.0	15.079																								
8.0	15.079																								

COSEL

Model SUCS30515

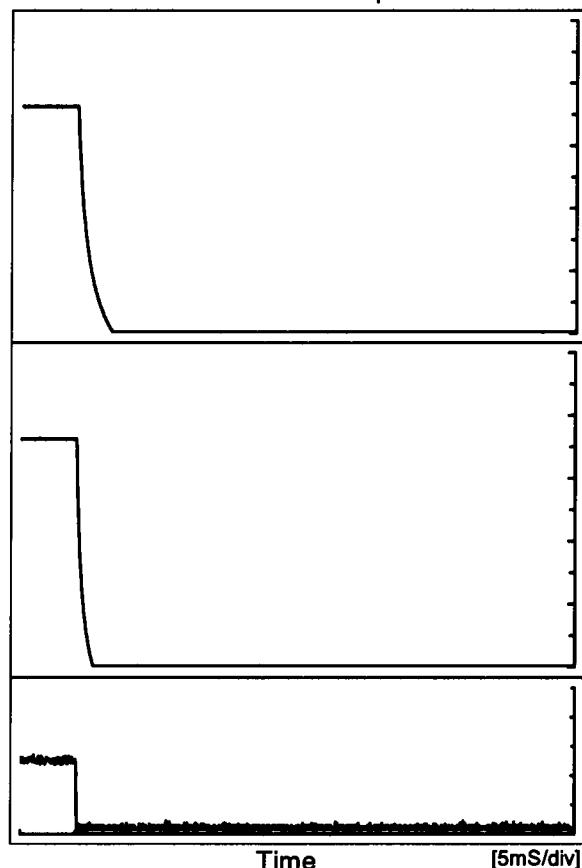
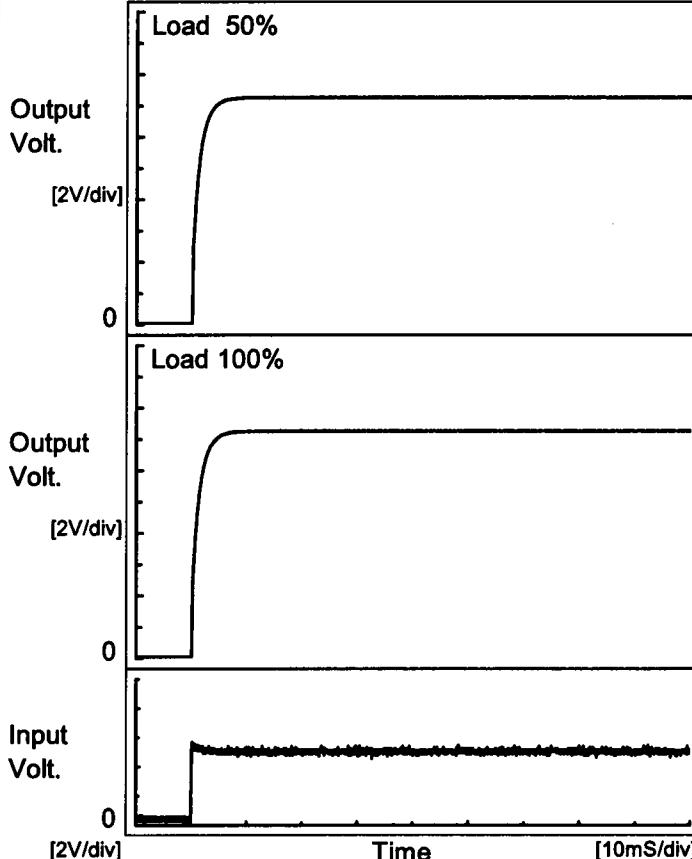
Item Rise and Fall Time

Object +15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

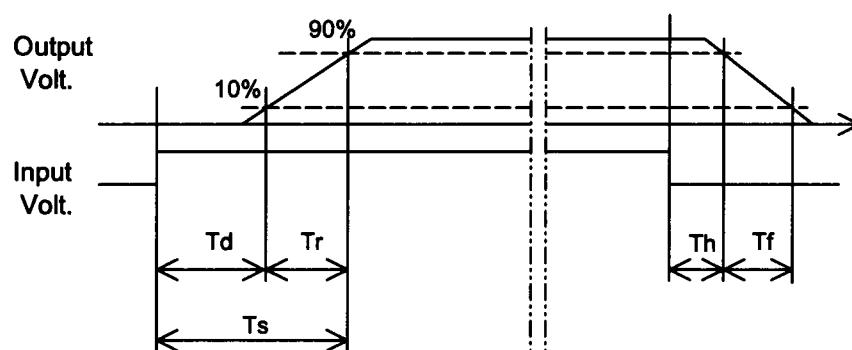
Input Volt. 5 V



2. Values

[mS]

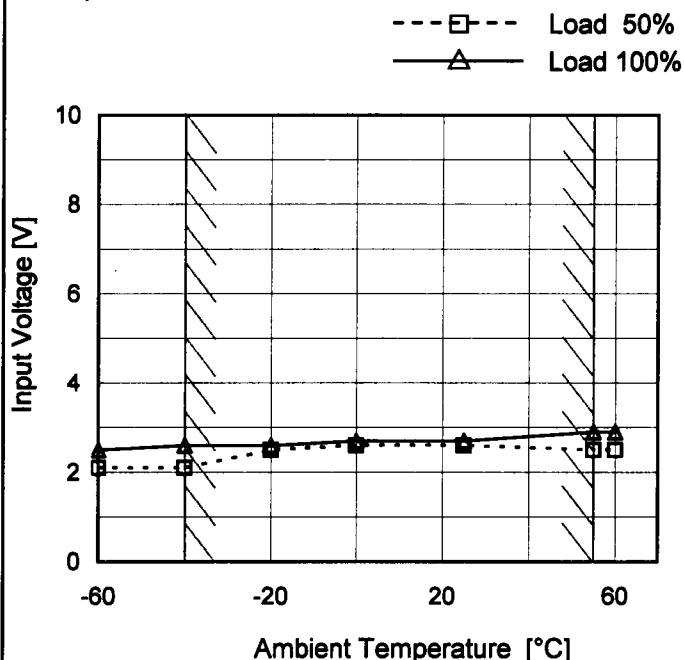
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.2	3.3	3.5	0.1	2.1
100 %		0.2	3.4	3.6	0.1	1.0



COSEL

Model	SUCS30515
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.2A

1. Graph



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

Testing Circuitry Figure A

2. Values

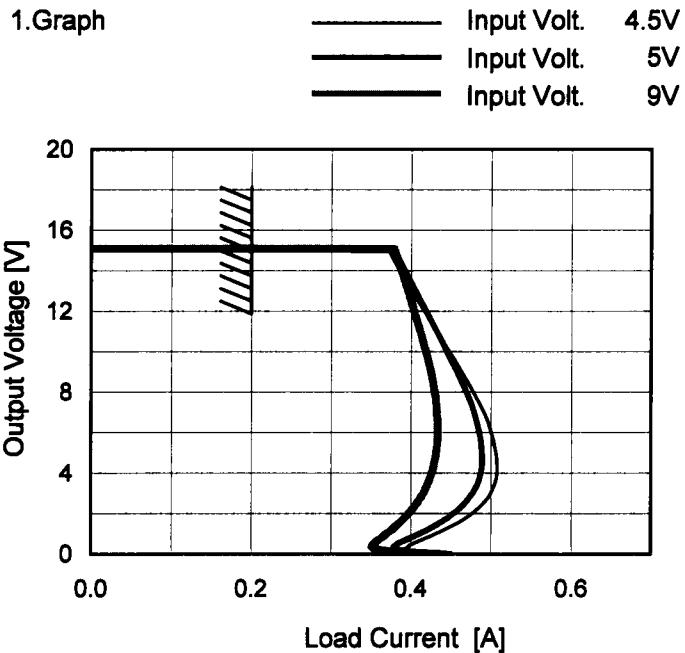
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	2.1	2.5
-40	2.1	2.6
-20	2.5	2.6
0	2.6	2.7
25	2.6	2.7
55	2.5	2.9
60	2.5	2.9
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model SUCS30515

Item Overcurrent Protection

Object +15V0.2A



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. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
15.0	0.20	0.20	0.20
14.3	0.37	0.39	0.39
13.5	0.38	0.39	0.39
12.0	0.41	0.41	0.41
10.5	0.43	0.44	0.42
9.0	0.46	0.46	0.43
7.5	0.48	0.48	0.44
6.0	0.50	0.49	0.44
4.5	0.51	0.50	0.43
3.0	0.50	0.49	0.42
1.5	0.47	0.45	0.39
0.0	0.45	0.44	0.42

COSEL

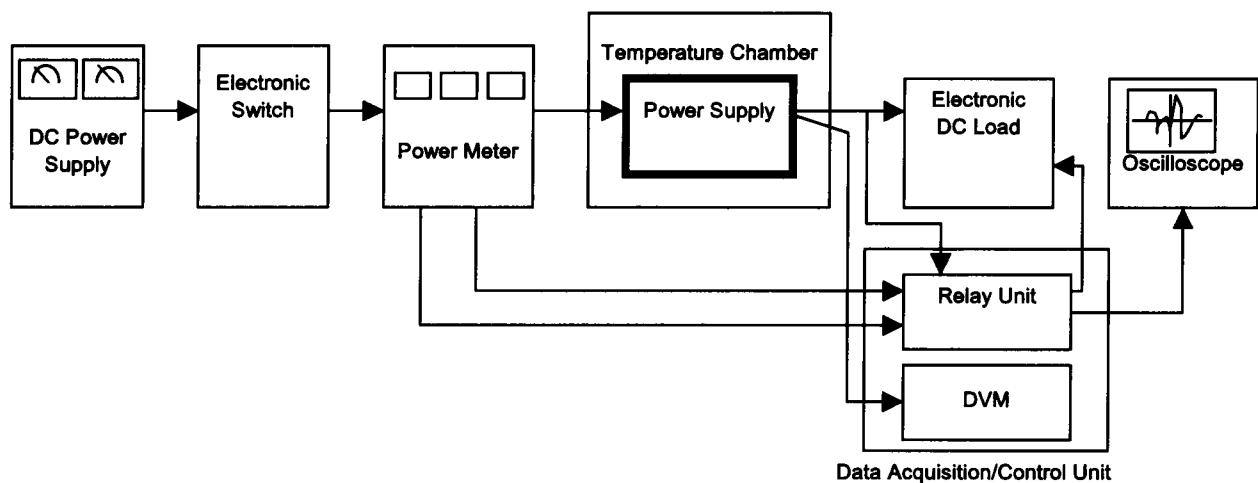


Figure A

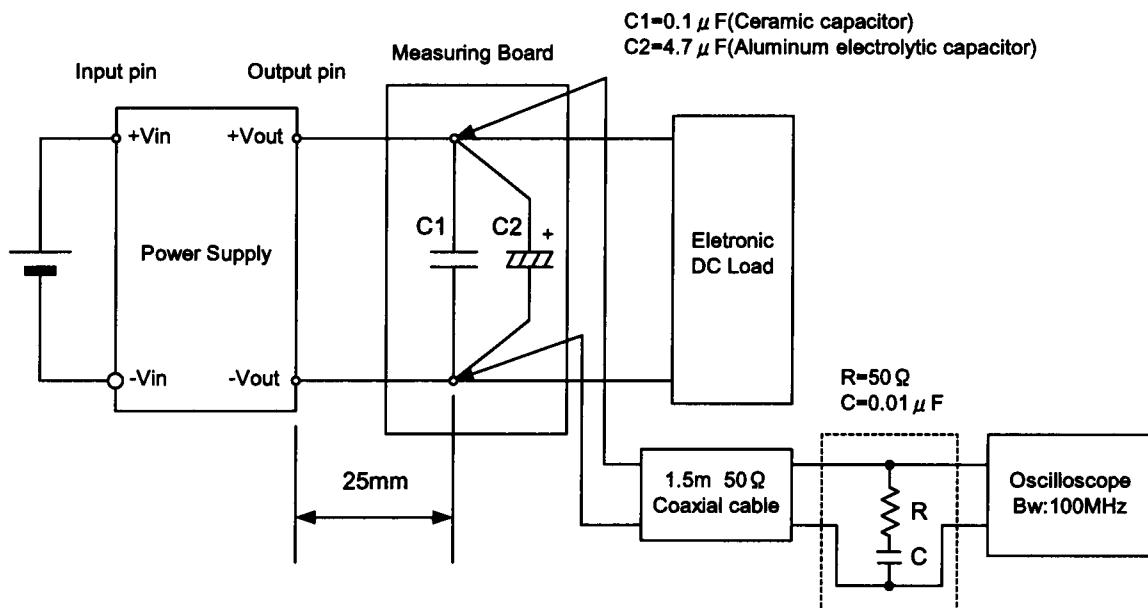


Figure B (Ripple and Ripple noise Characteristic)