



TEST DATA OF SUW101212 SUCW101212

Regulated DC Power Supply
Mar 24, 2005

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Yoshimichi Hirokawa
Yoshimichi Hirokawa Design Engineer

COSEL CO.,LTD.

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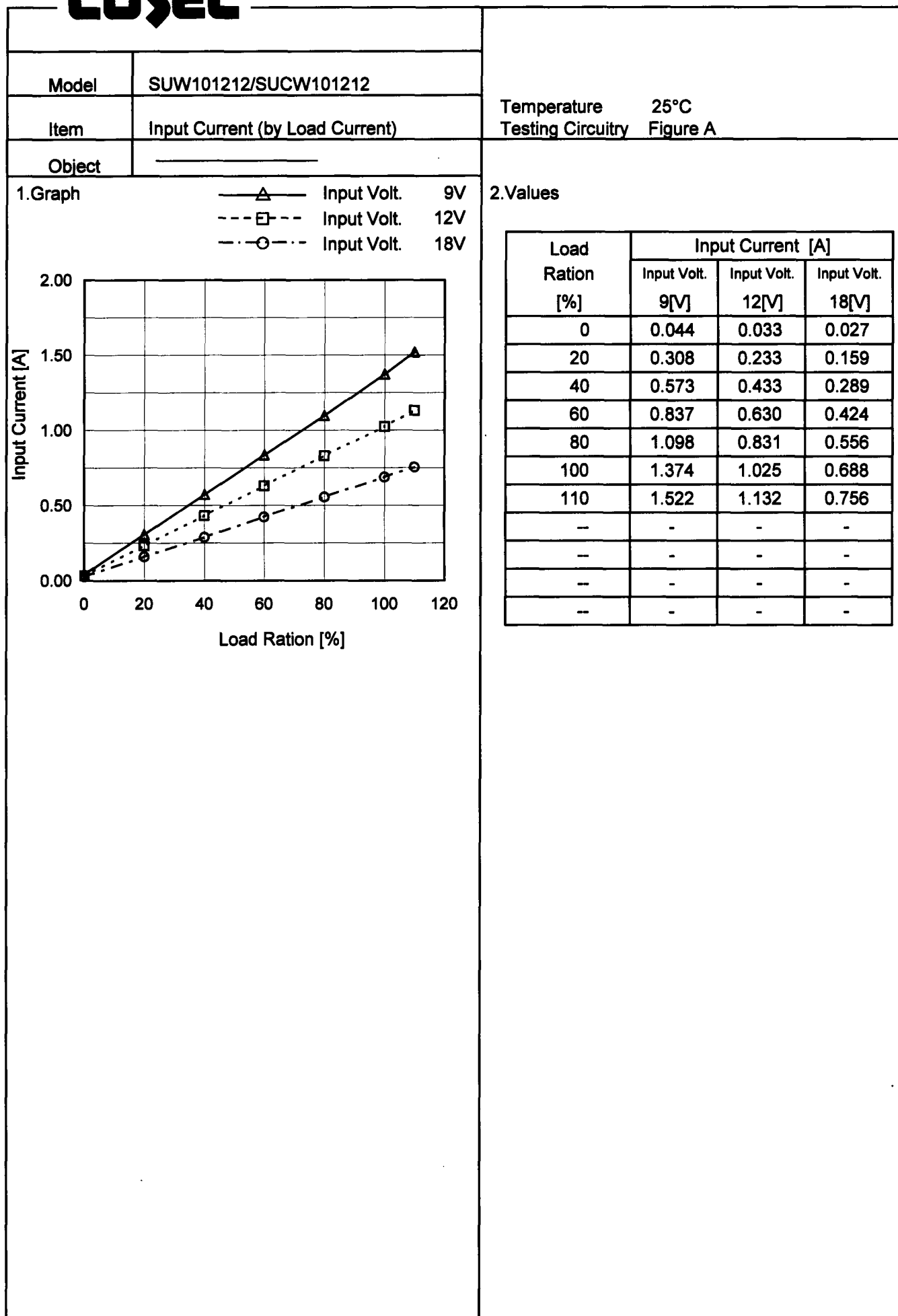
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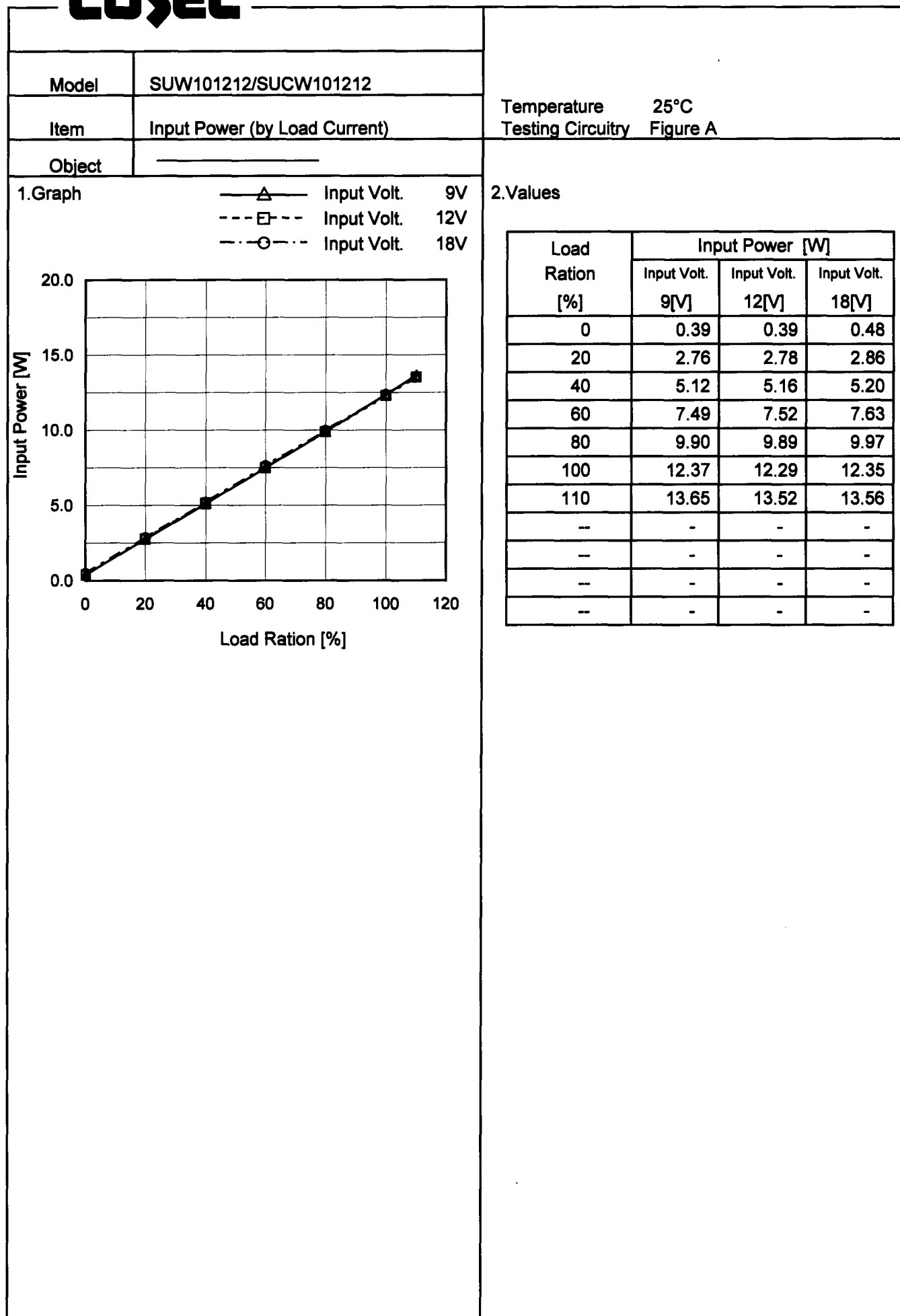
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Object			
1.Graph		2.Values	
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Item		Efficiency (by Input Voltage)	
Object			
1.Graph		2.Values	
<div><div><div><div><div></div><div></div></div><div></div><div></div></div><div>Load 50%</div></div><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><div></div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> 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COSEL

Model SUW101212/SUCW101212

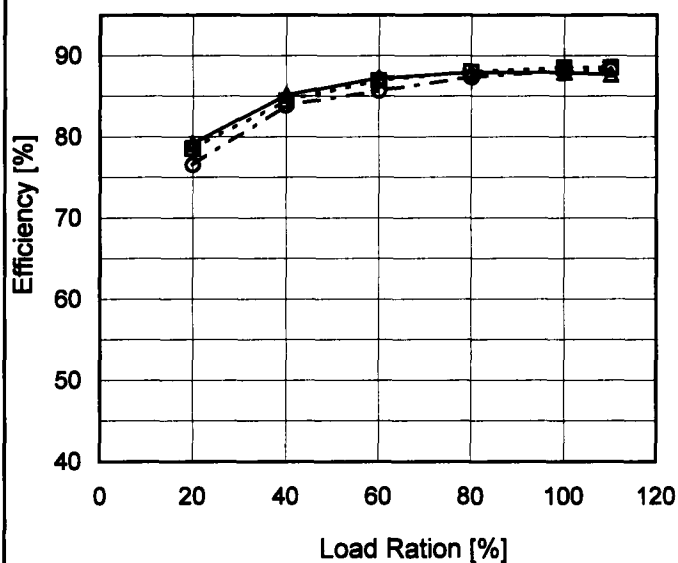
Item Efficiency (by Load Current)

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph

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

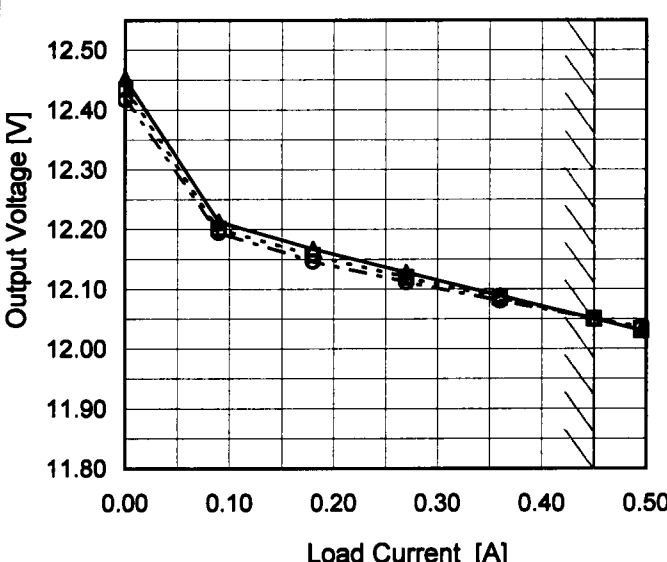
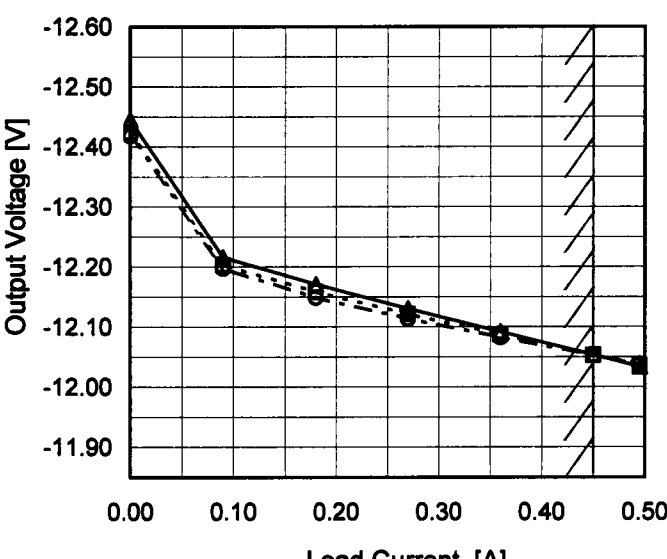


2. Values

Load Ration [%]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	-	-	-
20	79.2	78.6	76.5
40	85.2	84.4	83.9
60	87.2	86.9	85.7
80	87.9	88.0	87.3
100	87.9	88.5	88.1
110	87.7	88.5	88.2
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	SUW101212/SUCW101212																																
Item	Line Regulation	Temperature	25°C																														
Object	+12V0.45A	Testing Circuitry	Figure A																														
1.Graph		2.Values																															
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th>Input Voltage [V]</th><th>Output Voltage [V] Load 50%</th><th>Output Voltage [V] Load 100%</th></tr></thead><tbody><tr><td>8</td><td>12.153</td><td>12.049</td></tr><tr><td>9</td><td>12.148</td><td>12.049</td></tr><tr><td>10</td><td>12.144</td><td>12.049</td></tr><tr><td>12</td><td>12.138</td><td>12.049</td></tr><tr><td>15</td><td>12.132</td><td>12.049</td></tr><tr><td>18</td><td>12.129</td><td>12.050</td></tr><tr><td>20</td><td>12.127</td><td>12.050</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>		Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%	8	12.153	12.049	9	12.148	12.049	10	12.144	12.049	12	12.138	12.049	15	12.132	12.049	18	12.129	12.050	20	12.127	12.050	--	-	-	--	-	-		
Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
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Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
8	-12.157	-12.053																															
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		BC-3802																															

COSEL

Model		SUW101212/SUCW101212		Temperature 25°C	
Item		Load Regulation		Testing Circuitry Figure A	
Object		+12V0.45A		2.Values	
1.Graph		<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> <div></div>			
Object		-12V0.45A		2.Values	
1.Graph		<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> <div></div>			
Note: Slanted line shows the range of the rated load current.					

Load Current [A]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.000	12.453	12.435	12.418
0.090	12.213	12.201	12.195
0.180	12.168	12.157	12.147
0.270	12.128	12.120	12.112
0.360	12.089	12.085	12.080
0.450	12.050	12.051	12.050
0.495	12.031	12.033	12.036
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Load Current [A]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.000	-12.446	-12.424	-12.418
0.090	-12.216	-12.204	-12.197
0.180	-12.171	-12.159	-12.149
0.270	-12.131	-12.122	-12.114
0.360	-12.092	-12.087	-12.083
0.450	-12.054	-12.053	-12.053
0.495	-12.034	-12.036	-12.038
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

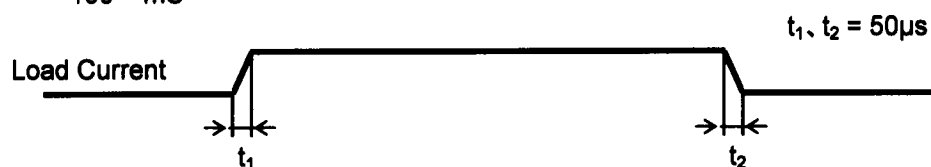
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BC-3802



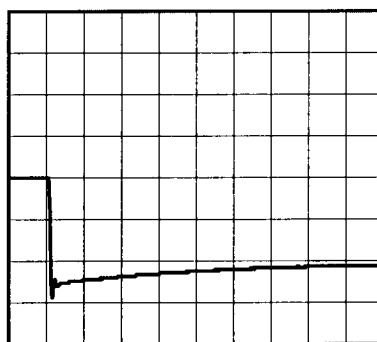
Model	SUW101212/SUCW101212	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.45A		

Input Volt. 12 V
Cycle 100 mS

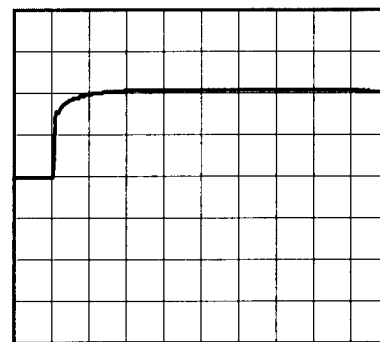


Min. Load (0A) \longleftrightarrow
Load 100% (0.45A)

200mV/div



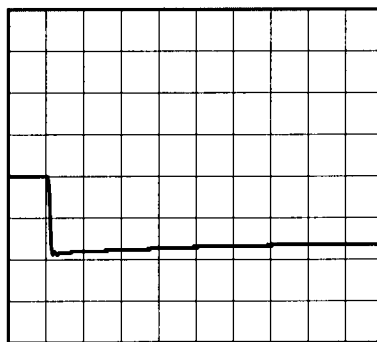
500µs/div



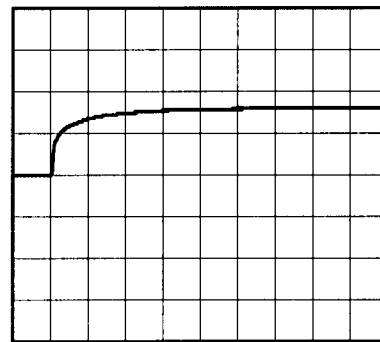
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.225A)

200mV/div



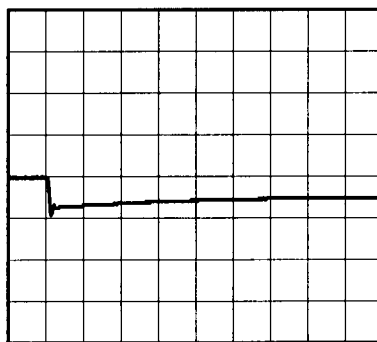
500µs/div



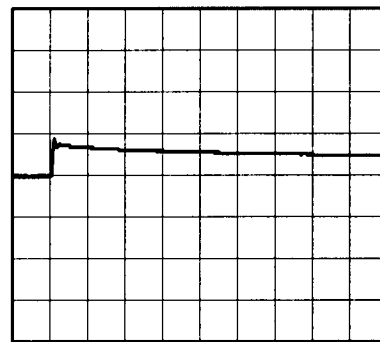
500µs/div

Load 50% (0.225A) \longleftrightarrow
Load 100% (0.45A)

200mV/div



500µs/div

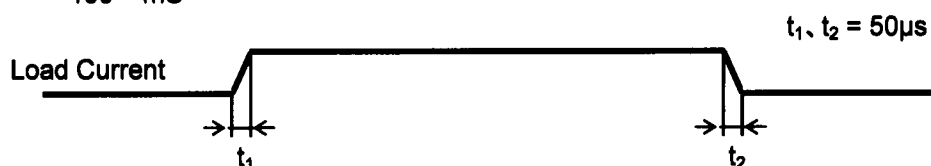


500µs/div

COSEL

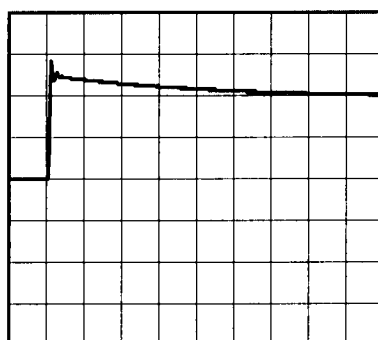
Model	SUW101212/SUCW101212	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-12V0.45A		

Input Volt. 12 V
Cycle 100 mS

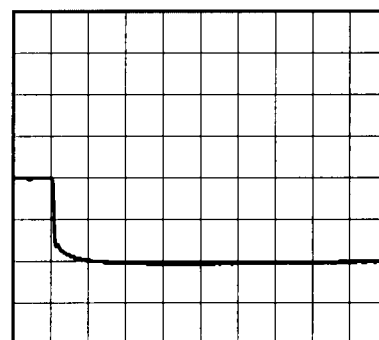


Min. Load (0A) \longleftrightarrow
Load 100% (0.45A)

200mV/div



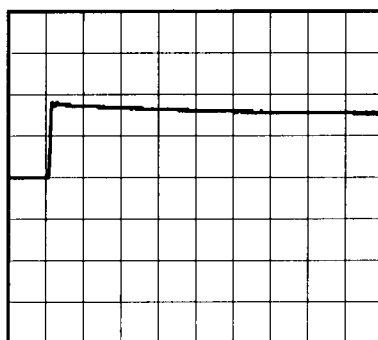
500µs/div



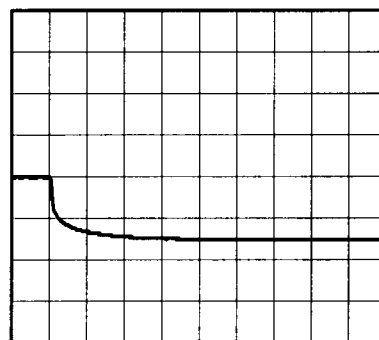
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.225A)

200mV/div



500µs/div



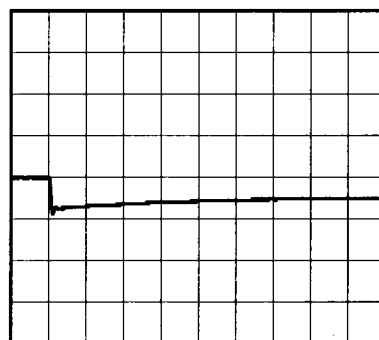
500µs/div

Load 50% (0.225A) \longleftrightarrow
Load 100% (0.45A)

200mV/div



500µs/div



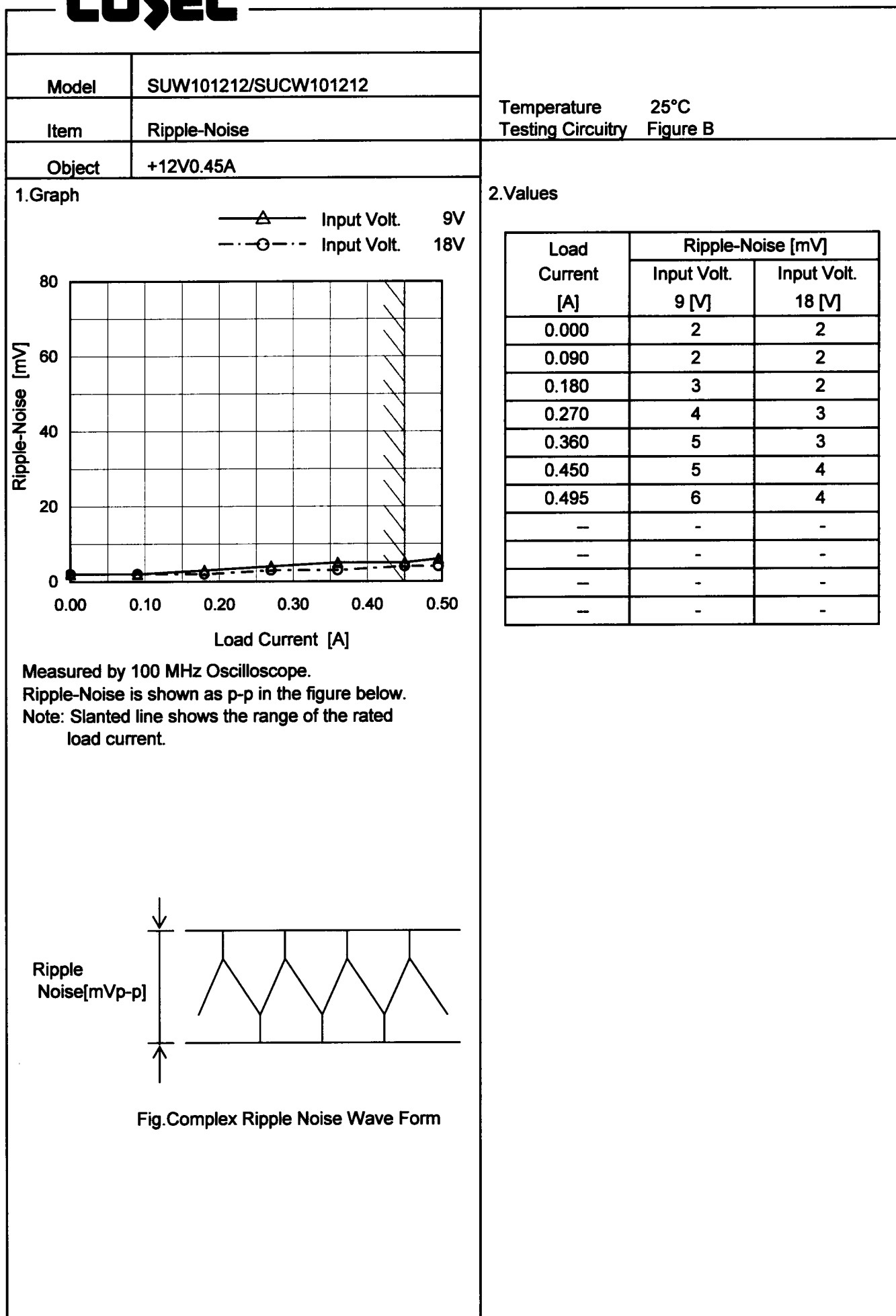
500µs/div

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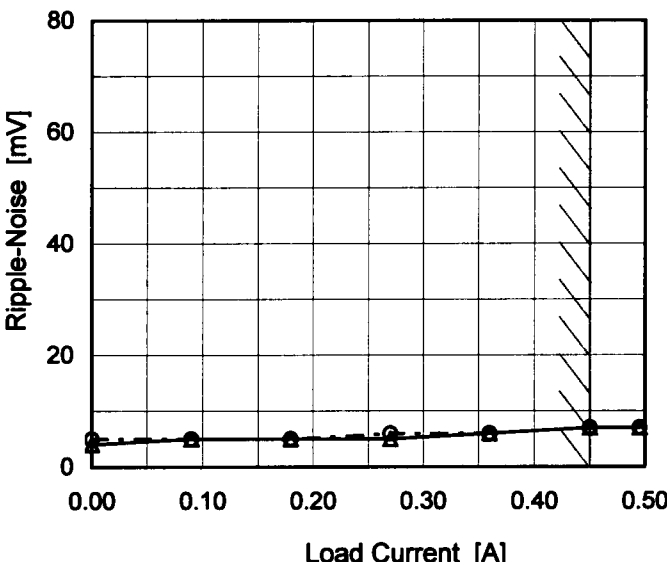
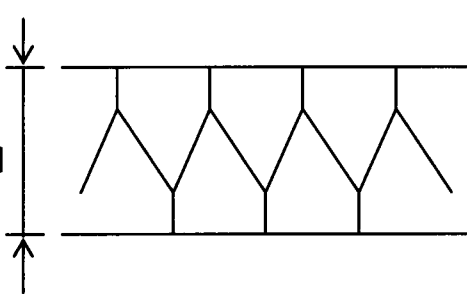
Model		SUW101212/SUCW101212		Temperature Testing Circuitry	25°C Figure B																																						
Item		Ripple Voltage (by Load Current)																																									
Object		+12V0.45A																																									
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Note: Slanted line shows the range of the rated ambient temperature.																																																			

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BC-3802



		Testing Circuitry Figure A
Model	SUW101212/SUCW101212	
Item	Output Voltage Accuracy	

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 (AVR 1) : 0 - 0.45A (AVR 2) : 0 - 0.45A

* Other Output : Rated Load

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

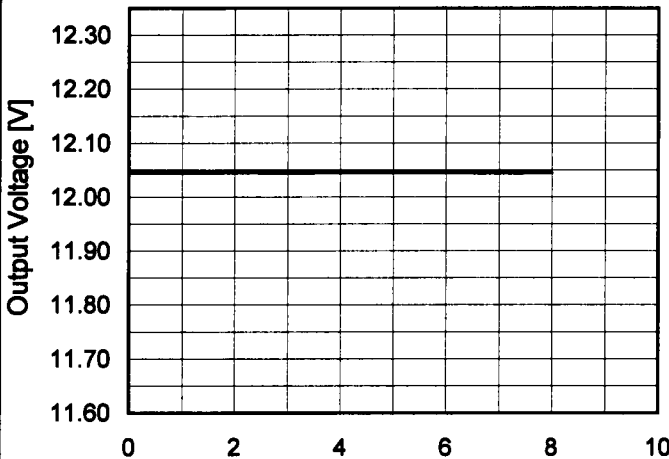
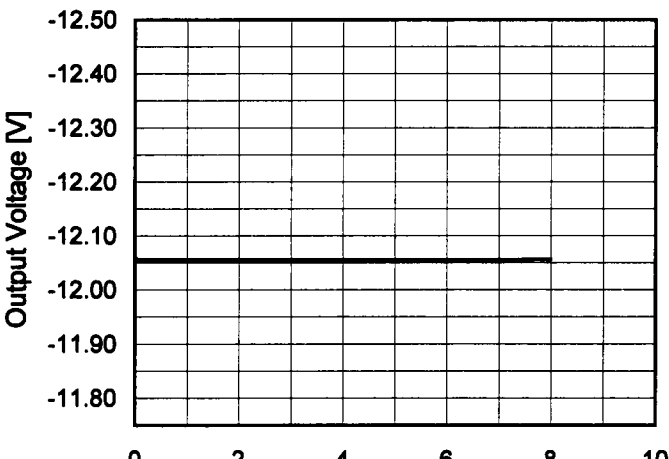
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Object	+12V0.45A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	9	0	12.465	±221	±1.8
Minimum Voltage	55	18	0.45	12.024		

Object	-12V0.45A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	9	0	-12.458	±216	±1.8
Minimum Voltage	55	18	0.45	-12.026		

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Model	SUW101212/SUCW101212																								
Item	Time Lapse Drift																								
Object	+12V0.45A																								
1.Graph		2.Values																							
<div><p>Input Volt. 12V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>12.055</td></tr><tr><td>0.5</td><td>12.045</td></tr><tr><td>1.0</td><td>12.045</td></tr><tr><td>2.0</td><td>12.045</td></tr><tr><td>3.0</td><td>12.045</td></tr><tr><td>4.0</td><td>12.045</td></tr><tr><td>5.0</td><td>12.045</td></tr><tr><td>6.0</td><td>12.045</td></tr><tr><td>7.0</td><td>12.045</td></tr><tr><td>8.0</td><td>12.045</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	12.055	0.5	12.045	1.0	12.045	2.0	12.045	3.0	12.045	4.0	12.045	5.0	12.045	6.0	12.045	7.0	12.045	8.0	12.045
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Object	-12V0.45A																								
1.Graph		2.Values																							
<div><p>Input Volt. 12V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>-12.064</td></tr><tr><td>0.5</td><td>-12.056</td></tr><tr><td>1.0</td><td>-12.056</td></tr><tr><td>2.0</td><td>-12.056</td></tr><tr><td>3.0</td><td>-12.056</td></tr><tr><td>4.0</td><td>-12.056</td></tr><tr><td>5.0</td><td>-12.056</td></tr><tr><td>6.0</td><td>-12.056</td></tr><tr><td>7.0</td><td>-12.056</td></tr><tr><td>8.0</td><td>-12.056</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	-12.064	0.5	-12.056	1.0	-12.056	2.0	-12.056	3.0	-12.056	4.0	-12.056	5.0	-12.056	6.0	-12.056	7.0	-12.056	8.0	-12.056
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8.0	-12.056																								

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COSEL

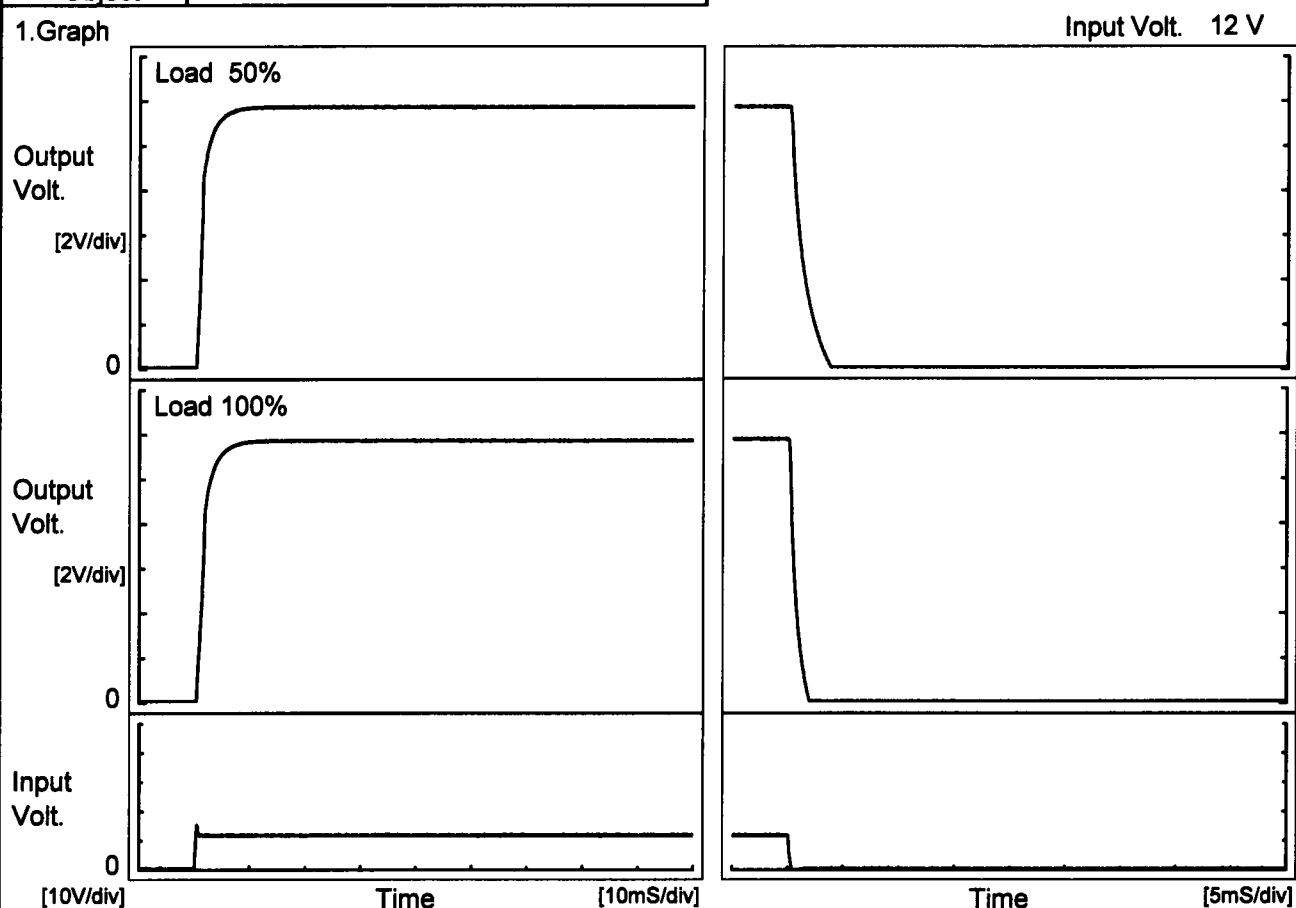
Model SUW101212/SUCW101212

Item Rise and Fall Time

Temperature 25°C
Testing Circuitry Figure A

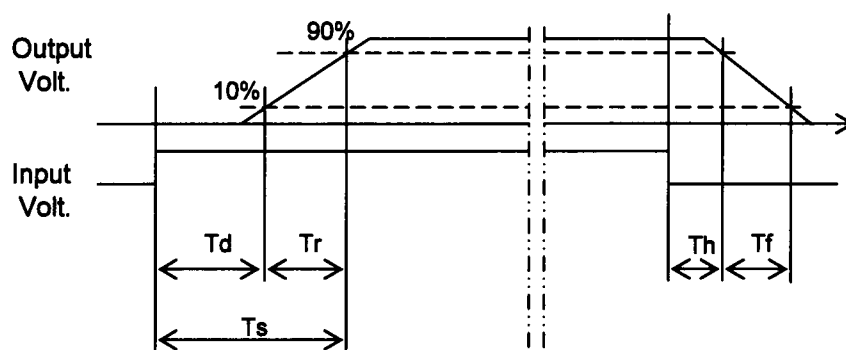
Object +12V0.45A

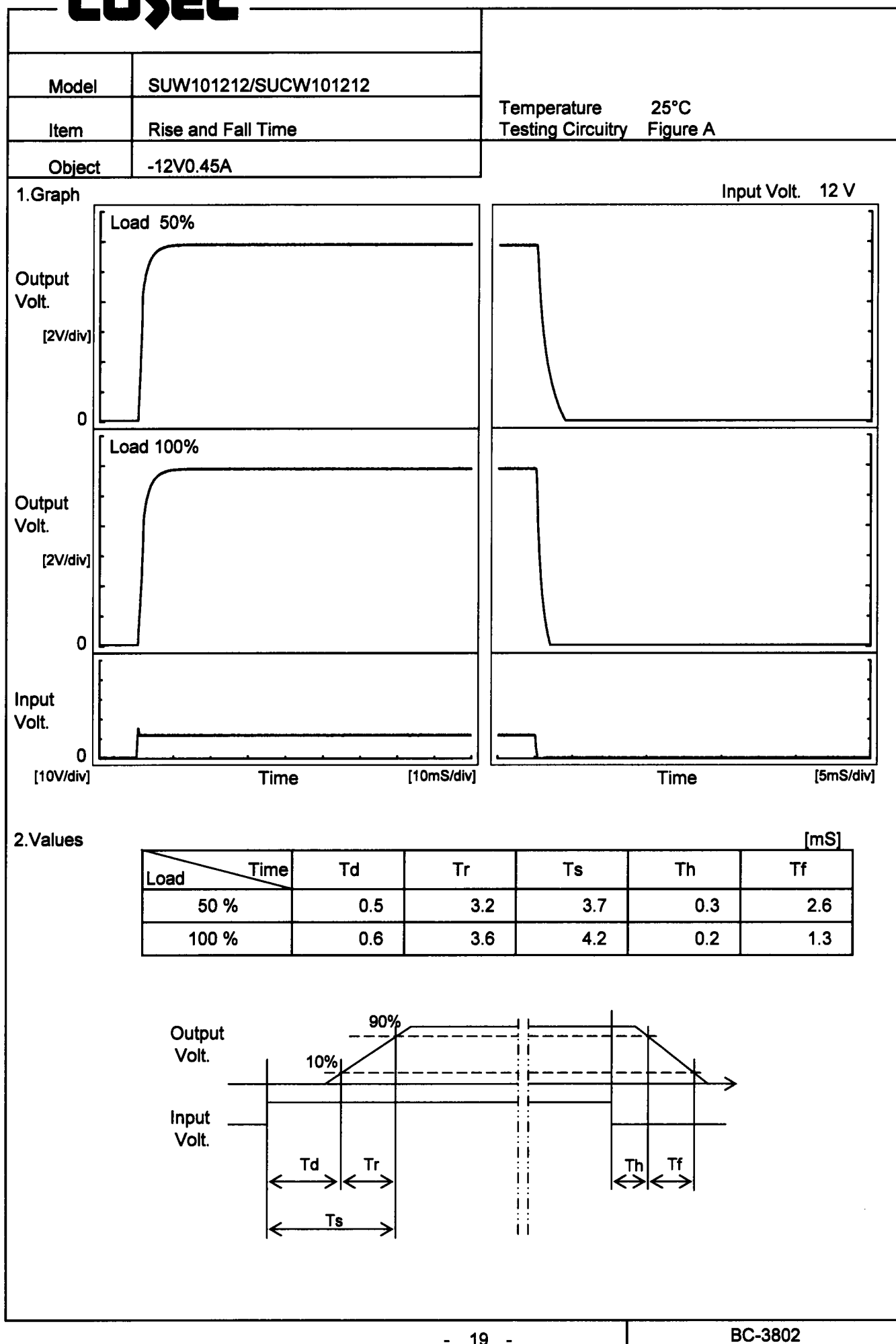
1. Graph



2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.5	3.4	3.9	0.3	2.5
100 %		0.6	3.8	4.4	0.2	1.3

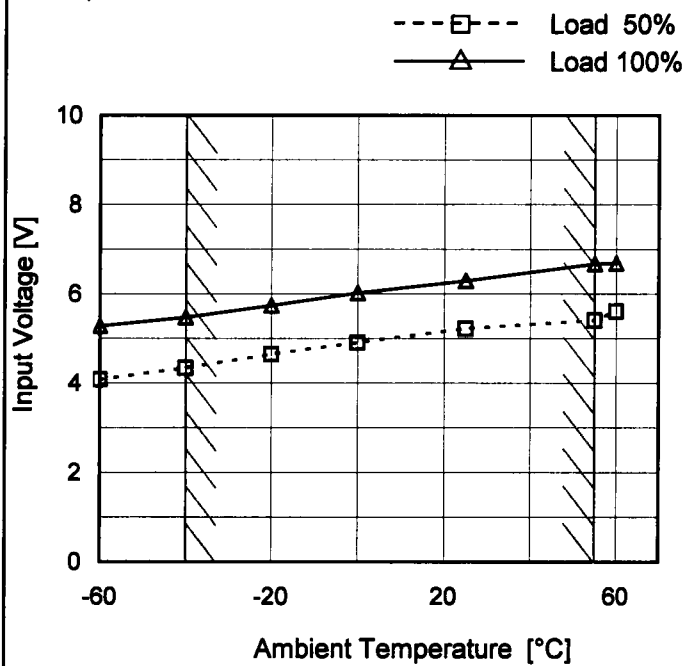


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Model	SUW101212/SUCW101212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.45A

1.Graph



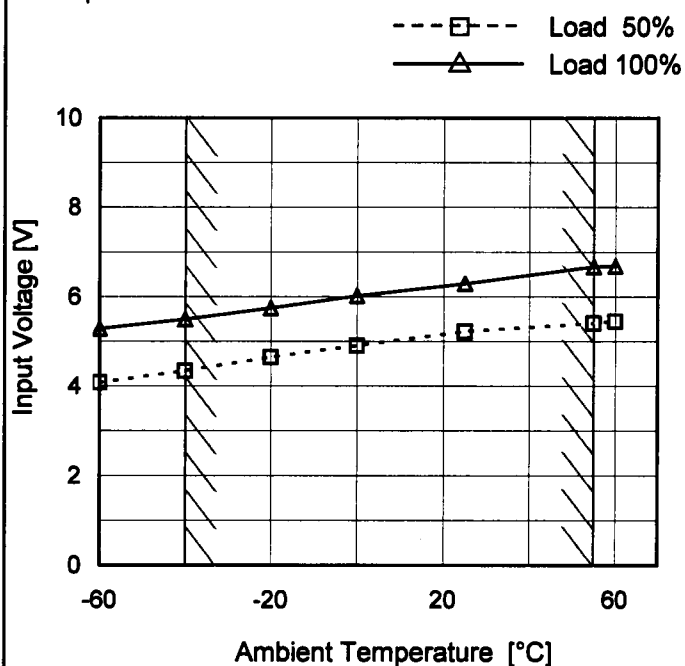
Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	4.1	5.3
-40	4.4	5.5
-20	4.7	5.8
0	4.9	6.1
25	5.3	6.3
55	5.5	6.7
60	5.6	6.7
—	—	—
—	—	—
—	—	—
—	—	—

Object	-12V0.45A
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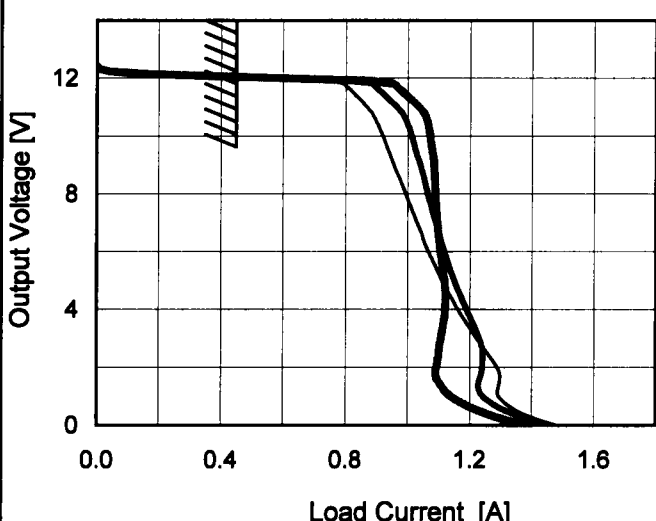
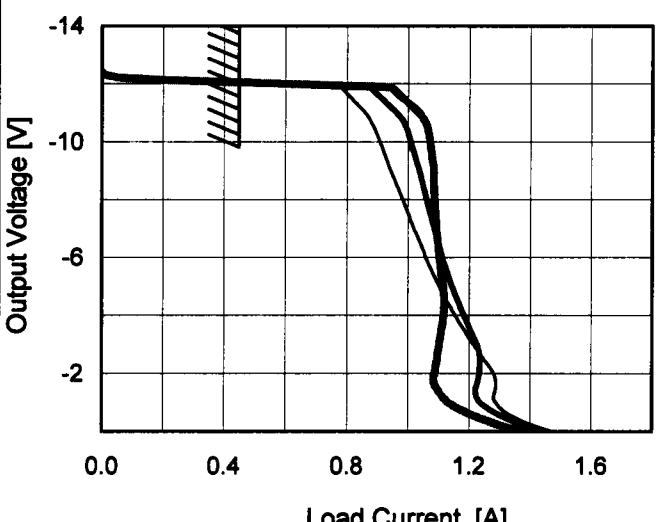
1.Graph



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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	4.1	5.3
-40	4.4	5.5
-20	4.7	5.8
0	4.9	6.1
25	5.3	6.3
55	5.5	6.7
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Model		SUW101212/SUCW101212		Temperature 25°C																																																								
Item		Overcurrent Protection		Testing Circuitry Figure A																																																								
Object		+12V0.45A		2.Values																																																								
1.Graph		<div><div><div></div><div></div><div></div></div><div>Input Volt. 9V Input Volt. 12V Input Volt. 18V</div></div> 																																																										
Object		-12V0.45A		2.Values																																																								
1.Graph		<div><div><div></div><div></div><div></div></div><div>Input Volt. 9V Input Volt. 12V Input Volt. 18V</div></div>  <p>Note: Slanted line shows the range of the rated load current.</p>																																																										
				<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>0.55</td><td>0.59</td><td>0.64</td></tr><tr><td>11.4</td><td>0.83</td><td>0.93</td><td>1.00</td></tr><tr><td>10.8</td><td>0.89</td><td>0.98</td><td>1.05</td></tr><tr><td>9.6</td><td>0.94</td><td>1.02</td><td>1.08</td></tr><tr><td>8.4</td><td>0.98</td><td>1.05</td><td>1.09</td></tr><tr><td>7.2</td><td>1.02</td><td>1.09</td><td>1.09</td></tr><tr><td>6.0</td><td>1.07</td><td>1.12</td><td>1.11</td></tr><tr><td>4.8</td><td>1.12</td><td>1.16</td><td>1.12</td></tr><tr><td>3.6</td><td>1.19</td><td>1.21</td><td>1.12</td></tr><tr><td>2.4</td><td>1.27</td><td>1.24</td><td>1.10</td></tr><tr><td>1.2</td><td>1.29</td><td>1.23</td><td>1.12</td></tr><tr><td>0.0</td><td>1.48</td><td>1.46</td><td>1.39</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	12.0	0.55	0.59	0.64	11.4	0.83	0.93	1.00	10.8	0.89	0.98	1.05	9.6	0.94	1.02	1.08	8.4	0.98	1.05	1.09	7.2	1.02	1.09	1.09	6.0	1.07	1.12	1.11	4.8	1.12	1.16	1.12	3.6	1.19	1.21	1.12	2.4	1.27	1.24	1.10	1.2	1.29	1.23	1.12	0.0	1.48	1.46	1.39
Output Voltage [V]	Load Current [A]																																																											
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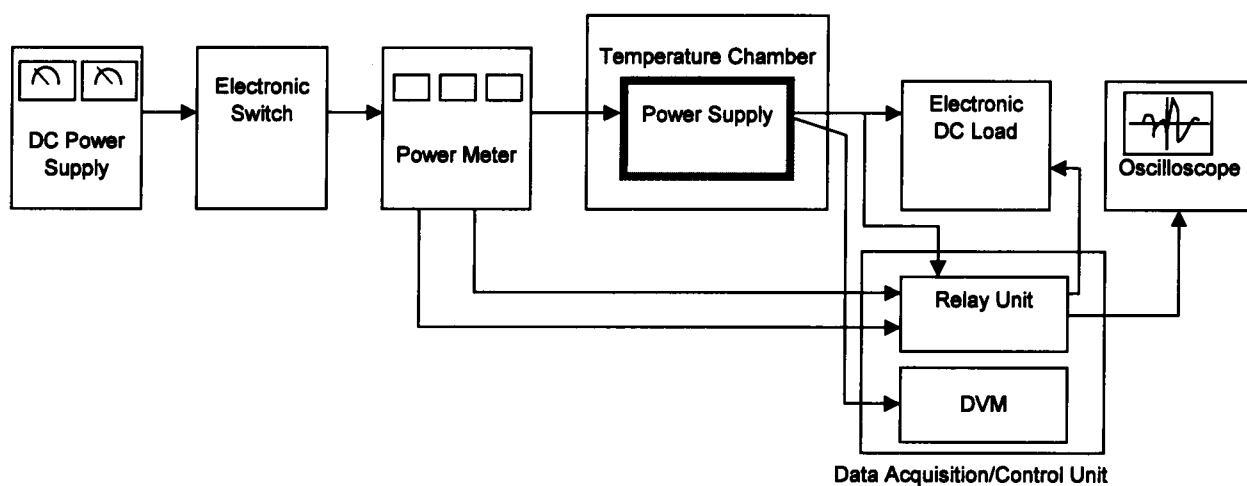


Figure A

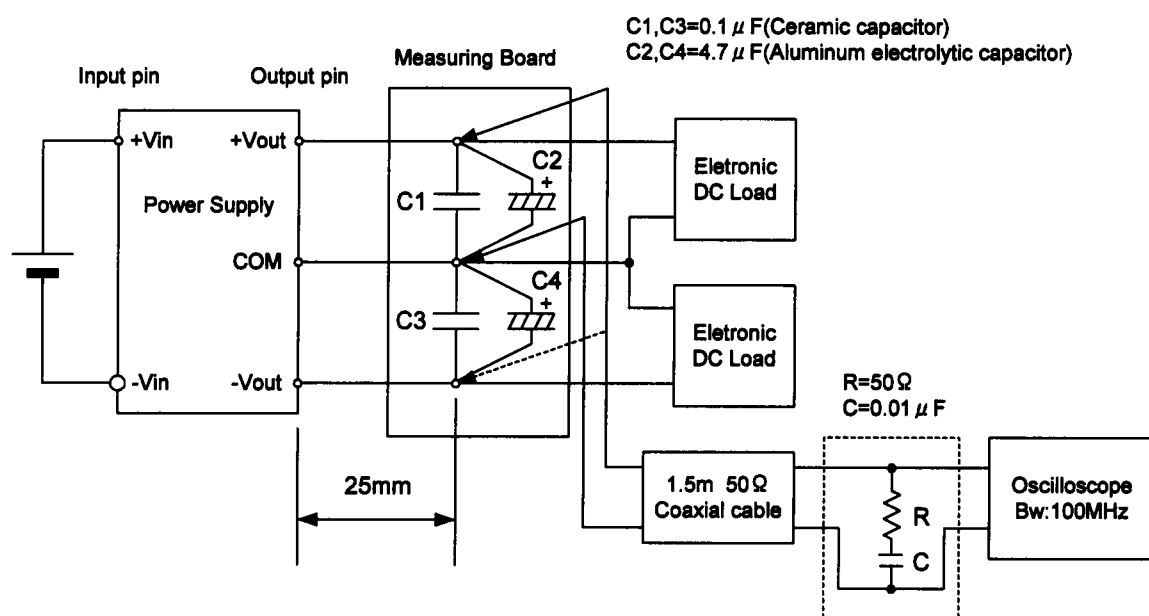


Figure B (Ripple and Ripple noise Characteristic)