



TEST DATA OF SUCW31212

Regulated DC Power Supply
Mar 17, 2005

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Hayato Nakatsubo
Hayato Nakatsubo Design Engineer

COSEL CO.,LTD.

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Model		SUCW31212																																																																																																				
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Model		SUCW31212	
Item		Efficiency (by Input Voltage)	
Object			
1.Graph		2.Values	

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Model

SUCW31212

Item

Efficiency (by Load Current)

Object

Temperature

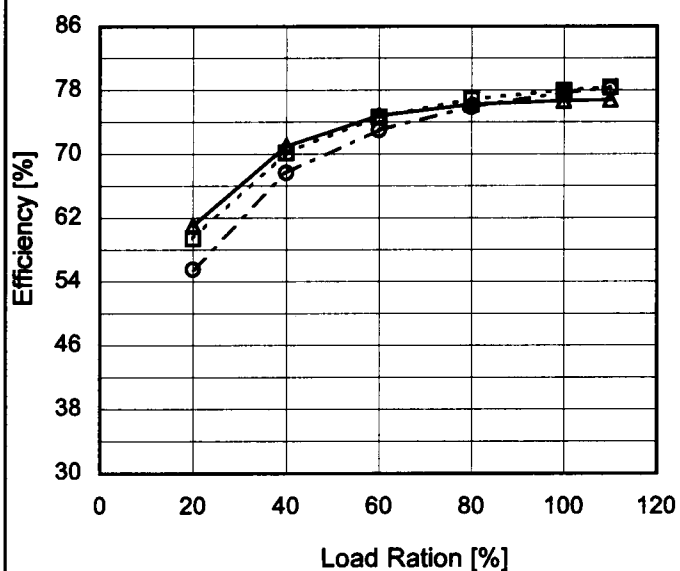
25°C

Testing Circuitry

Figure A

1. Graph

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



2. Values

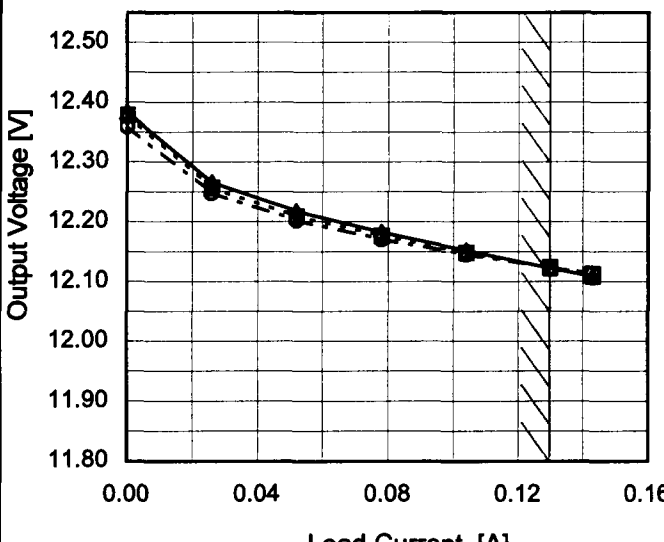
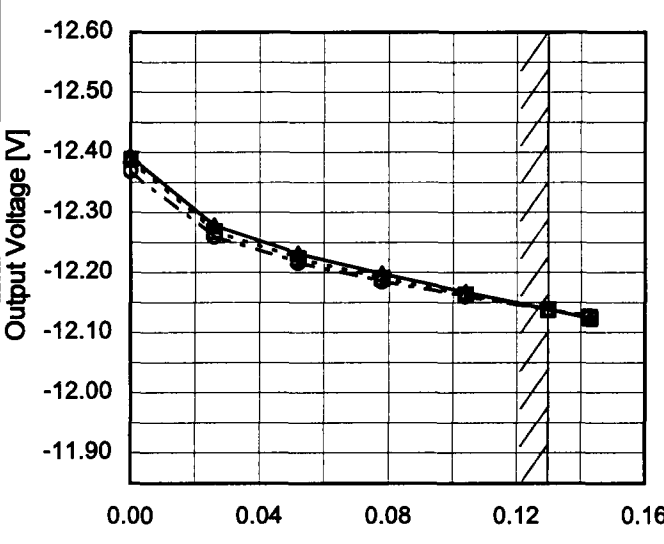
Load Ration [%]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	-	-	-
20	61.0	59.5	55.5
40	71.0	70.2	67.6
60	74.8	74.6	73.0
80	76.2	76.9	75.9
100	76.7	78.0	77.7
110	76.8	78.4	78.2
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model		SUCW31212	
Item		Line Regulation	
Object		+12V0.13A	
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Note: Slanted line shows the range of the rated load current.																																																						

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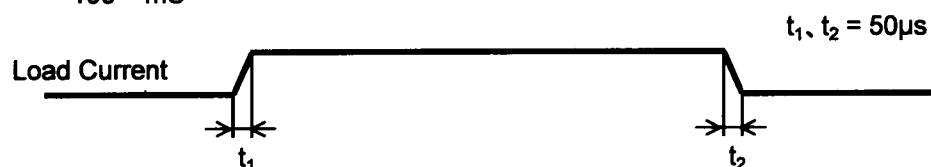
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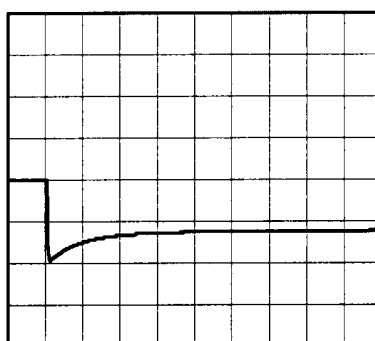
Model	SUCW31212	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.13A		

Input Volt. 12 V
Cycle 100 mS

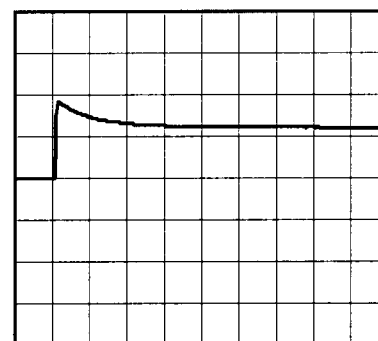


Min. Load (0A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



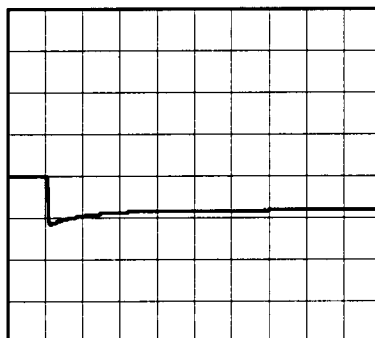
2ms/div



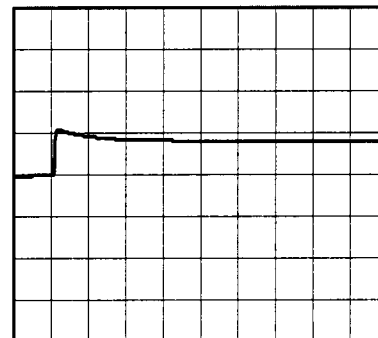
2ms/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.065A)

200mV/div



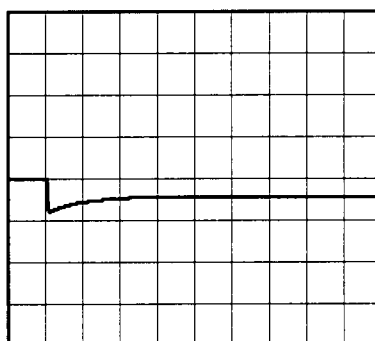
2ms/div



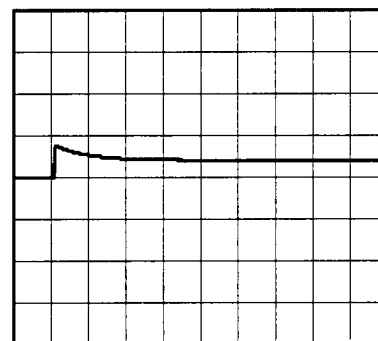
2ms/div

Load 50% (0.065A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



2ms/div

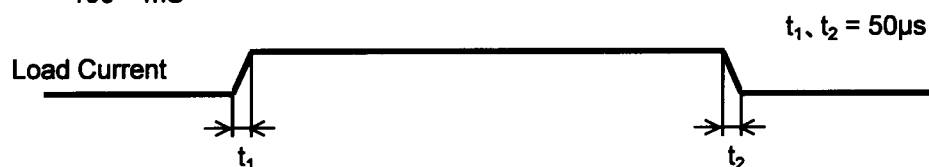


2ms/div

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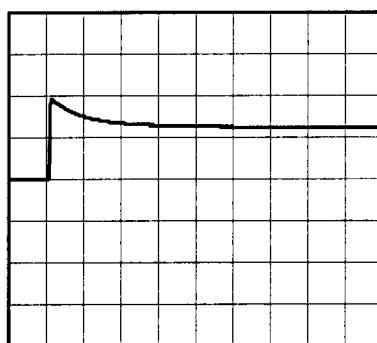
Model	SUCW31212	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-12V0.13A		

Input Volt. 12 V
Cycle 100 mS

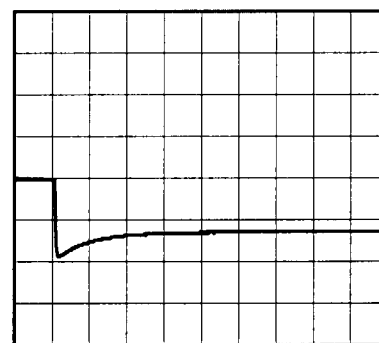


Min. Load (0A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



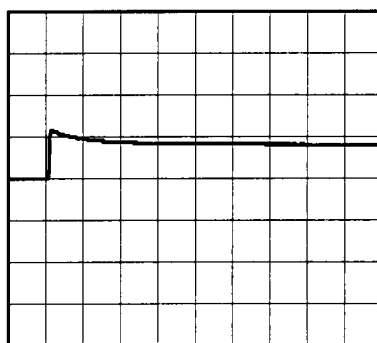
2ms/div



2ms/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.065A)

200mV/div



2ms/div



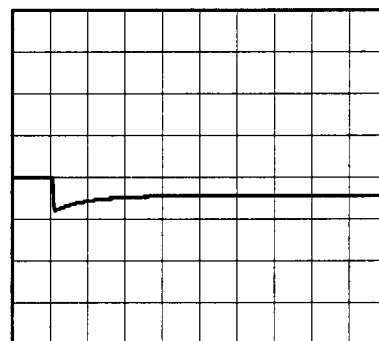
2ms/div

Load 50% (0.065A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



2ms/div



2ms/div

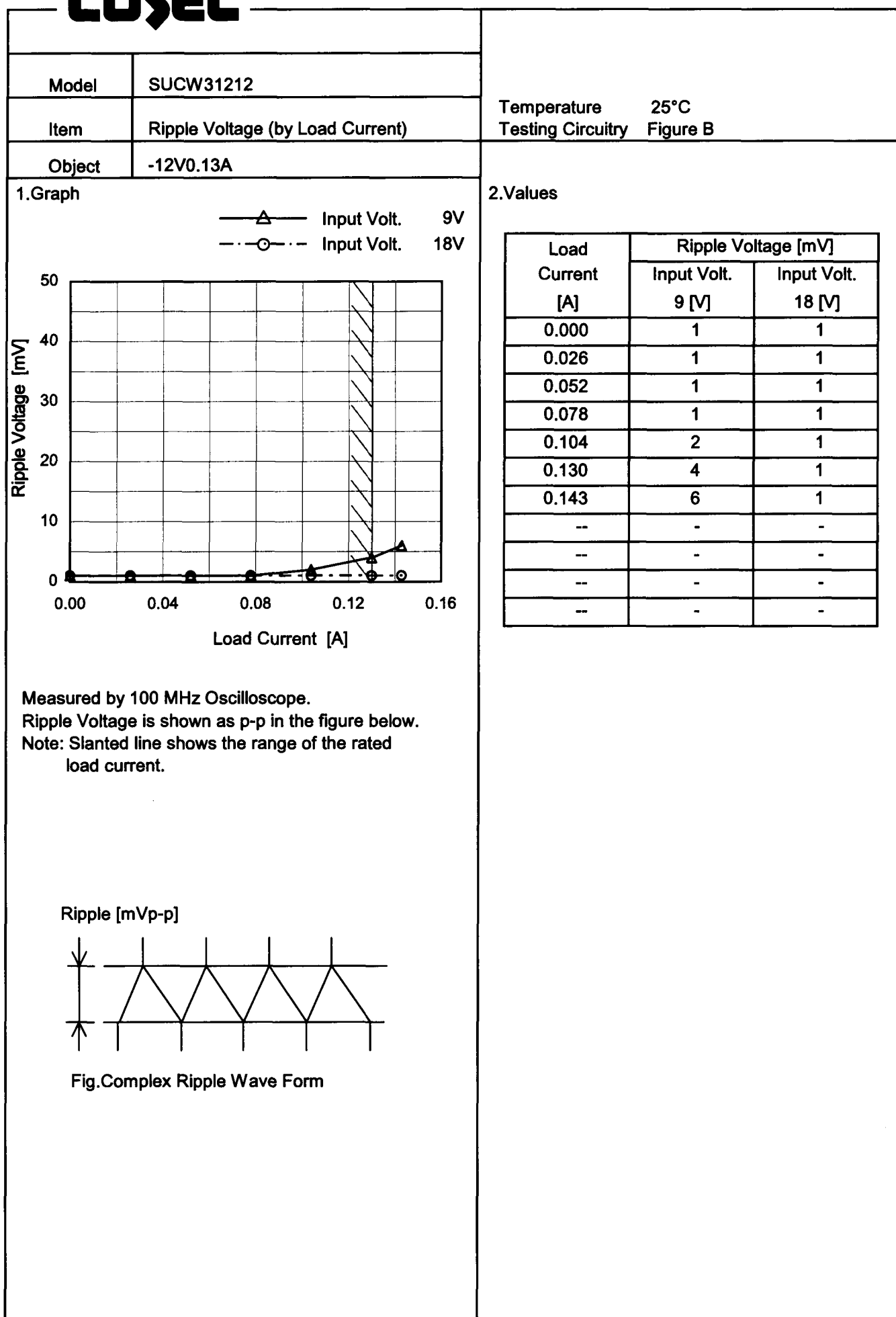
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Model	SUCW31212	Temperature 25°C Testing Circuitry Figure B																																							
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Object	+12V0.13A																																								
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Load Current [A]	Ripple Voltage [mV]																																								
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<div>Measured by 100 MHz Oscilloscope.</div> <div>Ripple Voltage 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>Ripple [mVp-p]</div><div>Fig.Complex Ripple Wave Form</div></div>																																									

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Object		+12V0.13A																																								
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><p>Measured by 100 MHz Oscilloscope.</p><p>Ripple-Noise is shown as p-p in the figure below.</p><p>Note: Slanted line shows the range of the rated load current.</p><div><div>Ripple Noise[mVp-p]</div></div></div> <div>Fig.Complex Ripple Noise Wave Form</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>0.000</td><td>3</td><td>3</td></tr><tr><td>0.026</td><td>3</td><td>4</td></tr><tr><td>0.052</td><td>4</td><td>6</td></tr><tr><td>0.078</td><td>5</td><td>5</td></tr><tr><td>0.104</td><td>7</td><td>5</td></tr><tr><td>0.130</td><td>11</td><td>6</td></tr><tr><td>0.143</td><td>14</td><td>7</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]	0.000	3	3	0.026	3	4	0.052	4	6	0.078	5	5	0.104	7	5	0.130	11	6	0.143	14	7	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																									
	Input Volt. 9 [V]	Input Volt. 18 [V]																																								
0.000	3	3																																								
0.026	3	4																																								
0.052	4	6																																								
0.078	5	5																																								
0.104	7	5																																								
0.130	11	6																																								
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COSEL

Model		SUCW31212	Temperature Testing Circuitry	25°C Figure B
Item		Ripple-Noise		
Object		-12V0.13A		
1.Graph				
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>Input Volt.</div><div>9V</div></div><div><div>Input Volt.</div><div>18V</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></div></div> <div><div></div><div></div></div> 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COSEL

Model		SUCW31212	
Item		Ripple Voltage (by Ambient Temp.)	
Object		+12V0.13A	
1.Graph		2.Values	

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	3	9
-40	3	9
-20	3	8
0	2	6
25	1	3
55	1	2
60	1	2
--	-	-
--	-	-
--	-	-
--	-	-

Object		-12V0.13A	
1.Graph		2.Values	

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	2	6
-40	2	5
-20	1	3
0	1	3
25	1	2
55	1	2
60	1	2
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

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

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BC-3775



		Testing Circuitry Figure A
Model	SUCW31212	
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 - 0.13A (AVR 2): 0 - 0.13A

* Other Output : Rated Load

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

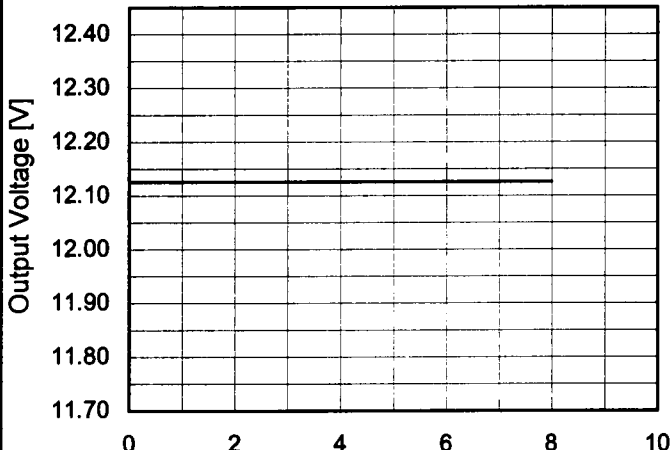
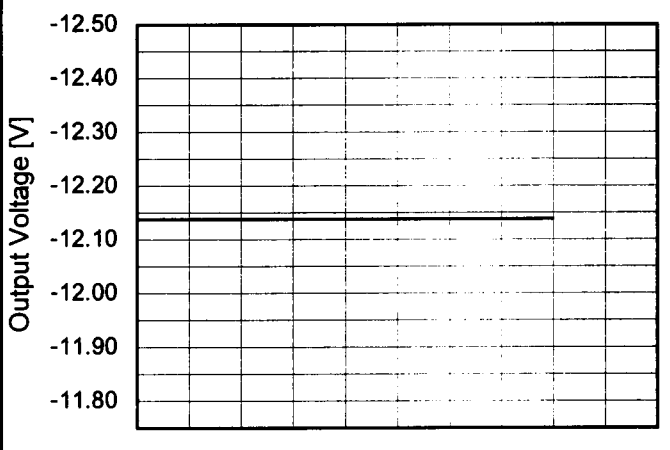
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Object	+12V0.13A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	9	0	12.389	±151	±1.3
Minimum Voltage	-40	9	0.13	12.088		

Object	-12V0.13A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	9	0	-12.401	±150	±1.3
Minimum Voltage	-40	9	0.13	-12.102		

COSEL

Model	SUCW31212																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+12V0.13A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 12V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>12.126</td></tr><tr><td>0.5</td><td>12.126</td></tr><tr><td>1.0</td><td>12.126</td></tr><tr><td>2.0</td><td>12.126</td></tr><tr><td>3.0</td><td>12.126</td></tr><tr><td>4.0</td><td>12.126</td></tr><tr><td>5.0</td><td>12.126</td></tr><tr><td>6.0</td><td>12.126</td></tr><tr><td>7.0</td><td>12.126</td></tr><tr><td>8.0</td><td>12.126</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	12.126	0.5	12.126	1.0	12.126	2.0	12.126	3.0	12.126	4.0	12.126	5.0	12.126	6.0	12.126	7.0	12.126	8.0	12.126
Time since start [H]	Output Voltage [V]																								
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<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 12V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>-12.140</td></tr><tr><td>0.5</td><td>-12.138</td></tr><tr><td>1.0</td><td>-12.138</td></tr><tr><td>2.0</td><td>-12.138</td></tr><tr><td>3.0</td><td>-12.138</td></tr><tr><td>4.0</td><td>-12.138</td></tr><tr><td>5.0</td><td>-12.138</td></tr><tr><td>6.0</td><td>-12.138</td></tr><tr><td>7.0</td><td>-12.138</td></tr><tr><td>8.0</td><td>-12.138</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	-12.140	0.5	-12.138	1.0	-12.138	2.0	-12.138	3.0	-12.138	4.0	-12.138	5.0	-12.138	6.0	-12.138	7.0	-12.138	8.0	-12.138
Time since start [H]	Output Voltage [V]																								
0.0	-12.140																								
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5.0	-12.138																								
6.0	-12.138																								
7.0	-12.138																								
8.0	-12.138																								

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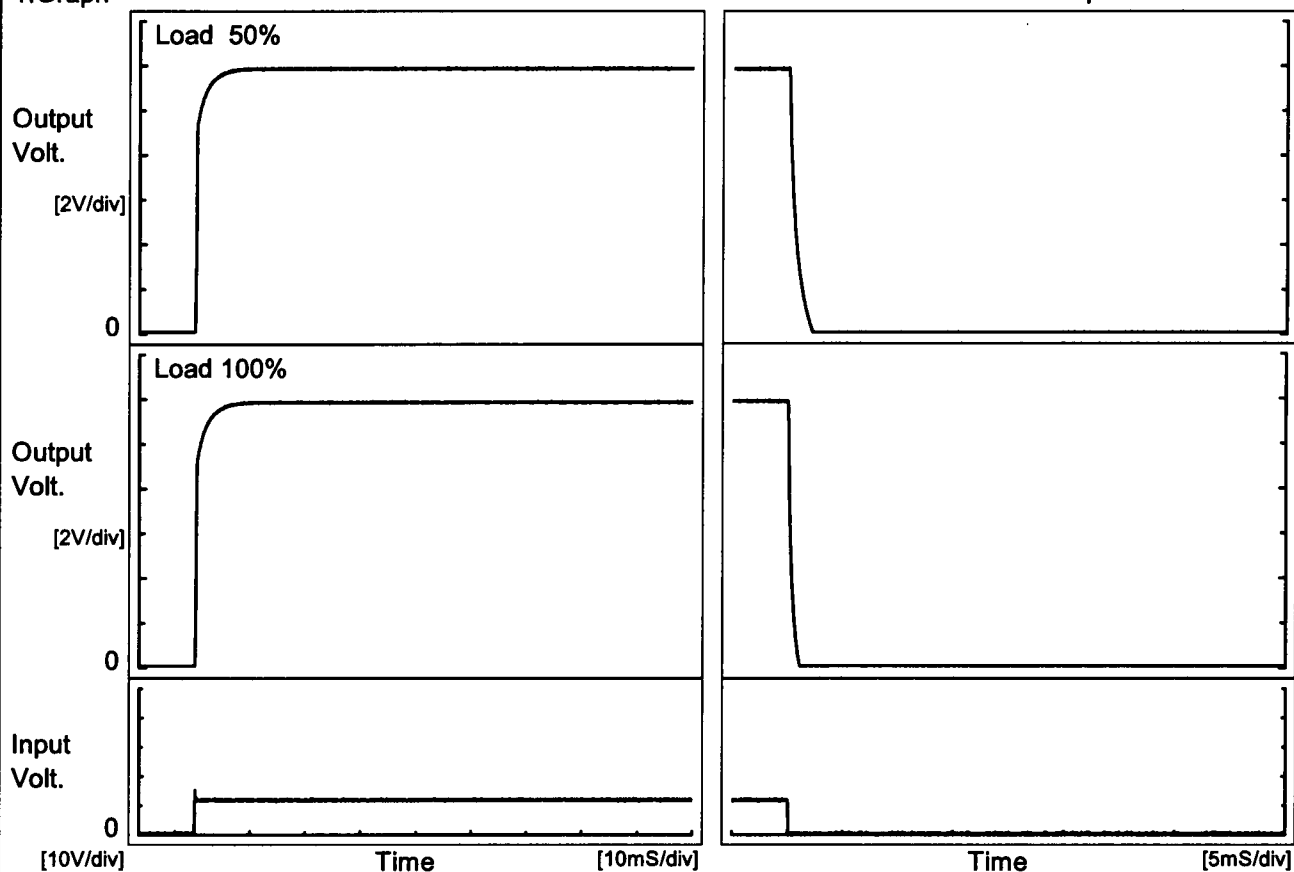
BC-3775

COSEL

Model	SUCW31212	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.13A		

1.Graph

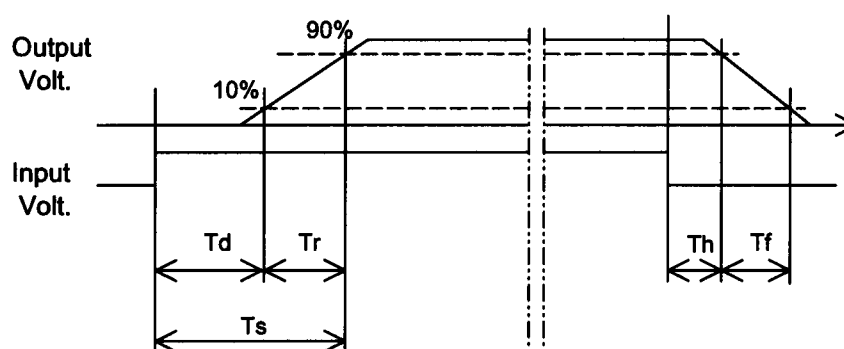
Input Volt. 12 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.1	2.0	2.1	0.1	1.4
100 %	0.1	2.2	2.3	0.1	0.7



COSEL

Model

SUCW31212

Item

Rise and Fall Time

Temperature

25°C

Testing Circuitry

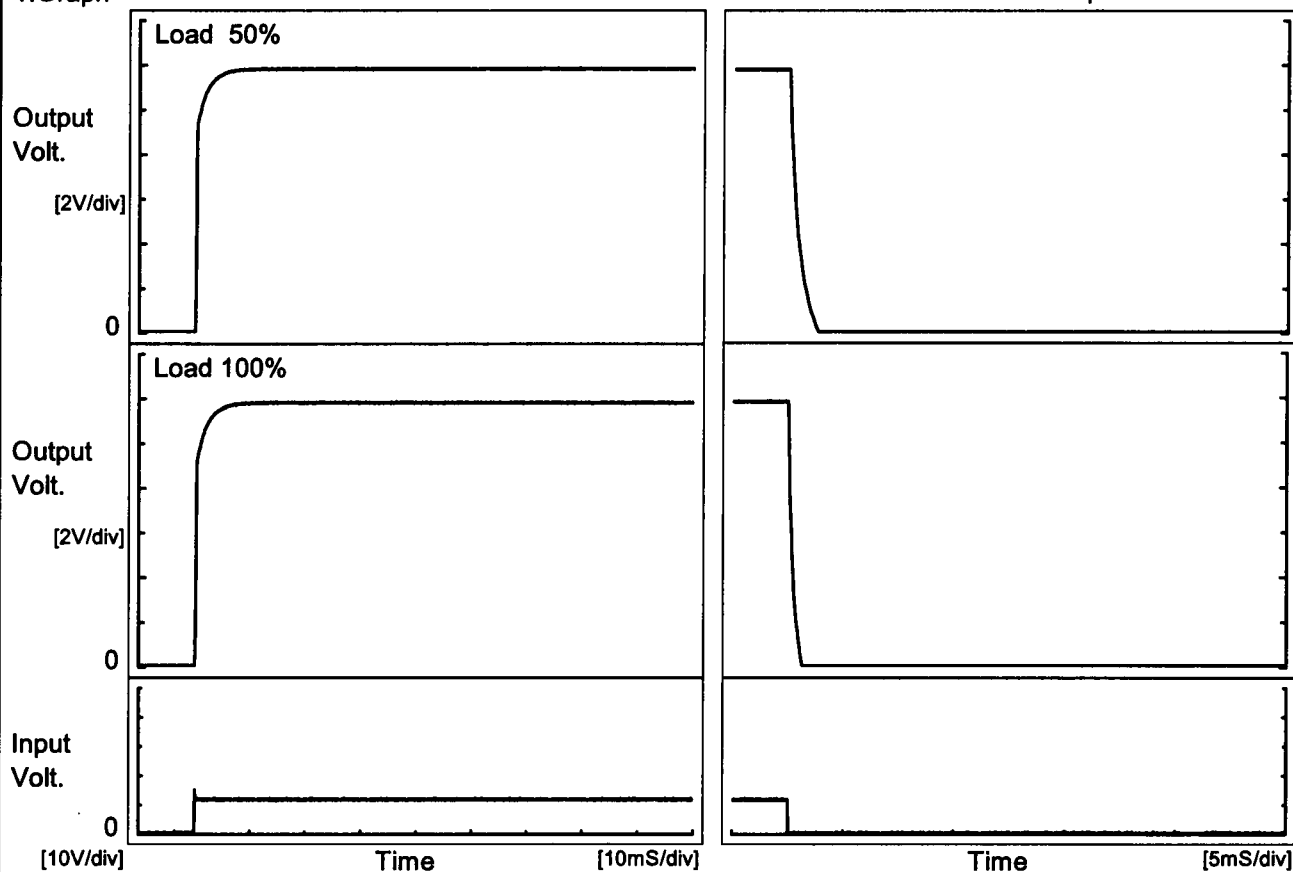
Figure A

Object

-12V0.13A

1.Graph

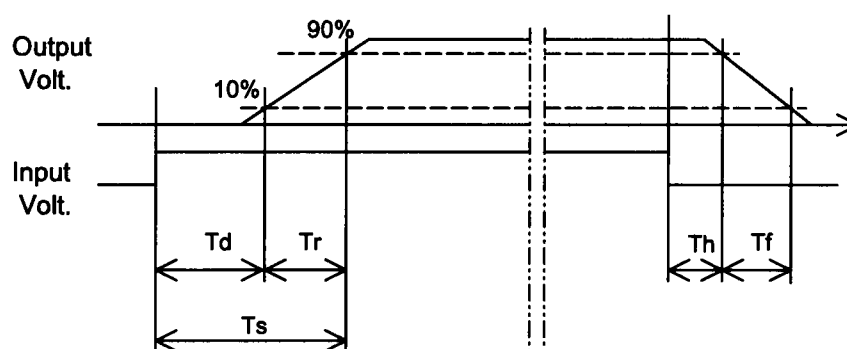
Input Volt. 12 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.1	2.1	2.2	0.1	1.7
100 %	0.1	2.3	2.4	0.1	0.9



COSEL

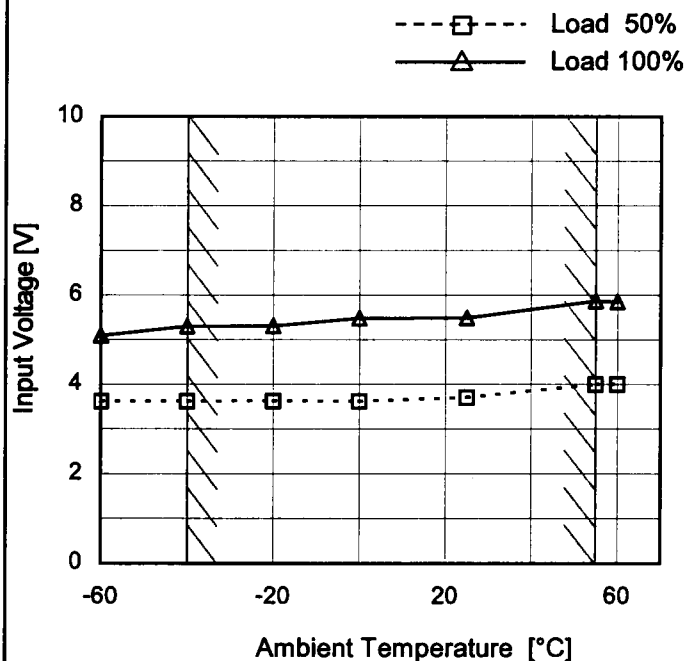
Model SUCW31212

Item Minimum Input Voltage
for Regulated Output Voltage

Object +12V0.13A

Testing Circuitry Figure A

1.Graph

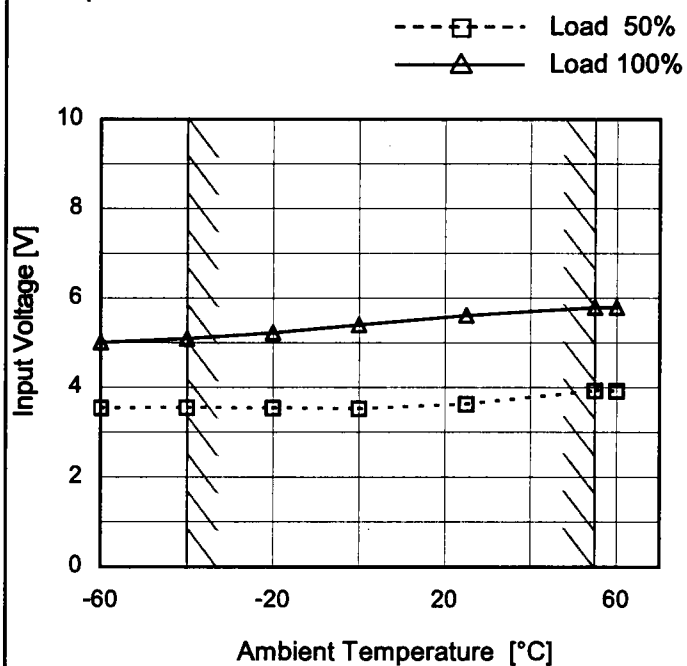


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	3.7	5.1
-40	3.7	5.3
-20	3.7	5.4
0	3.7	5.5
25	3.8	5.5
55	4.0	5.9
60	4.0	5.9
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Object -12V0.13A

1.Graph

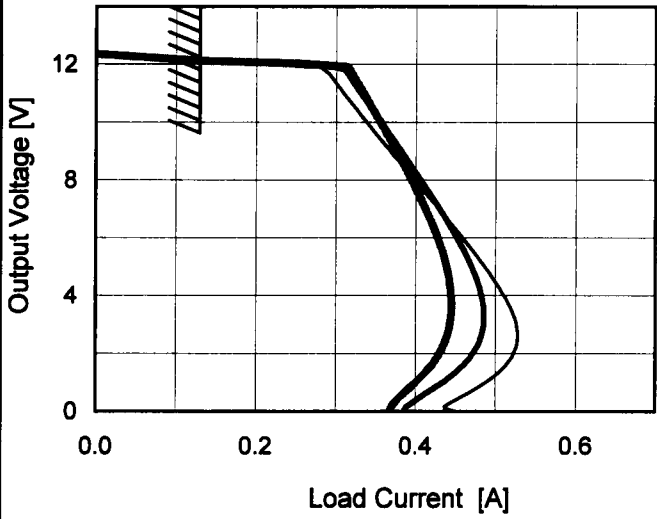
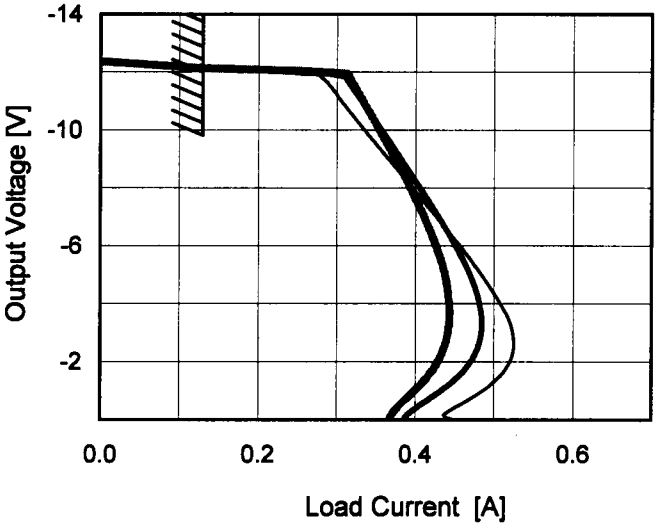


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	3.6	5.1
-40	3.6	5.1
-20	3.6	5.3
0	3.6	5.4
25	3.7	5.7
55	4.0	5.8
60	4.0	5.8
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Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	SUCW31212																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
Object	+12V0.13A	Testing Circuitry	Figure A																																																							
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BC-3775

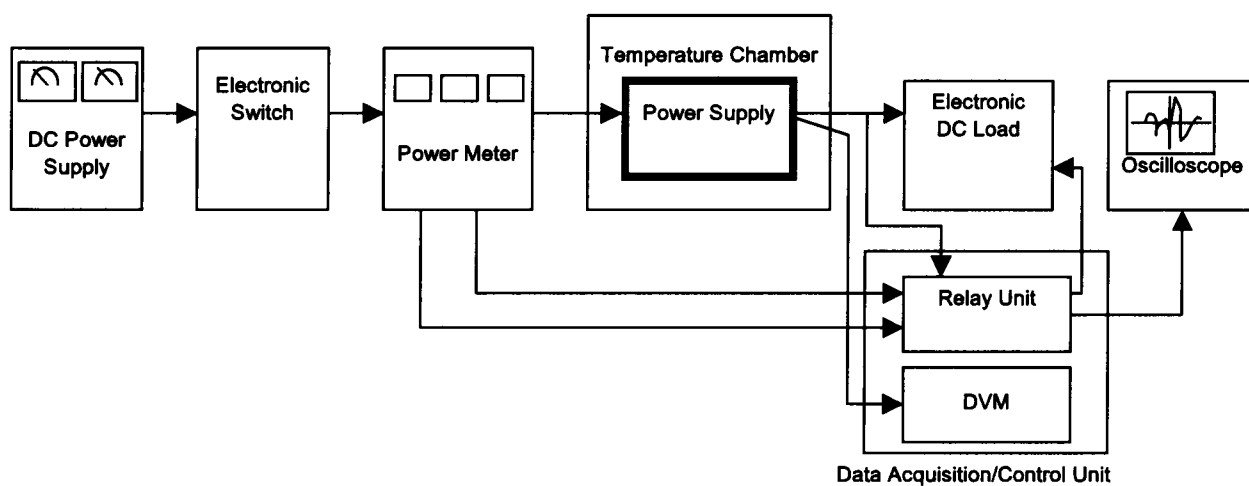


Figure A

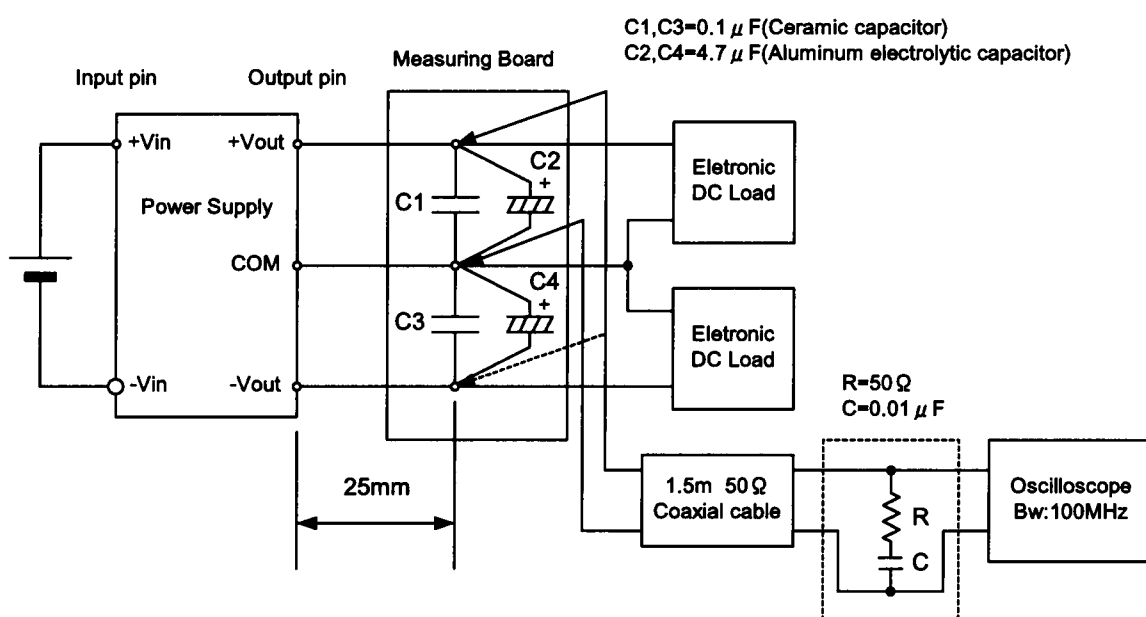


Figure B (Ripple and Ripple noise Characteristic)