



TEST DATA OF SUW30512

Regulated DC Power Supply
Mar 16, 2005

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COSEL CO.,LTD.

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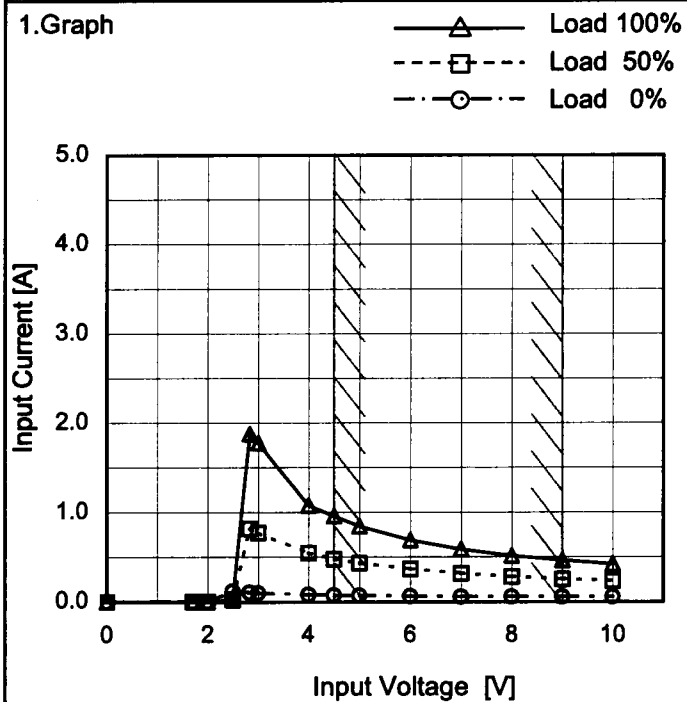
Model SUW30512

Item Input Current (by Input Voltage)

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph

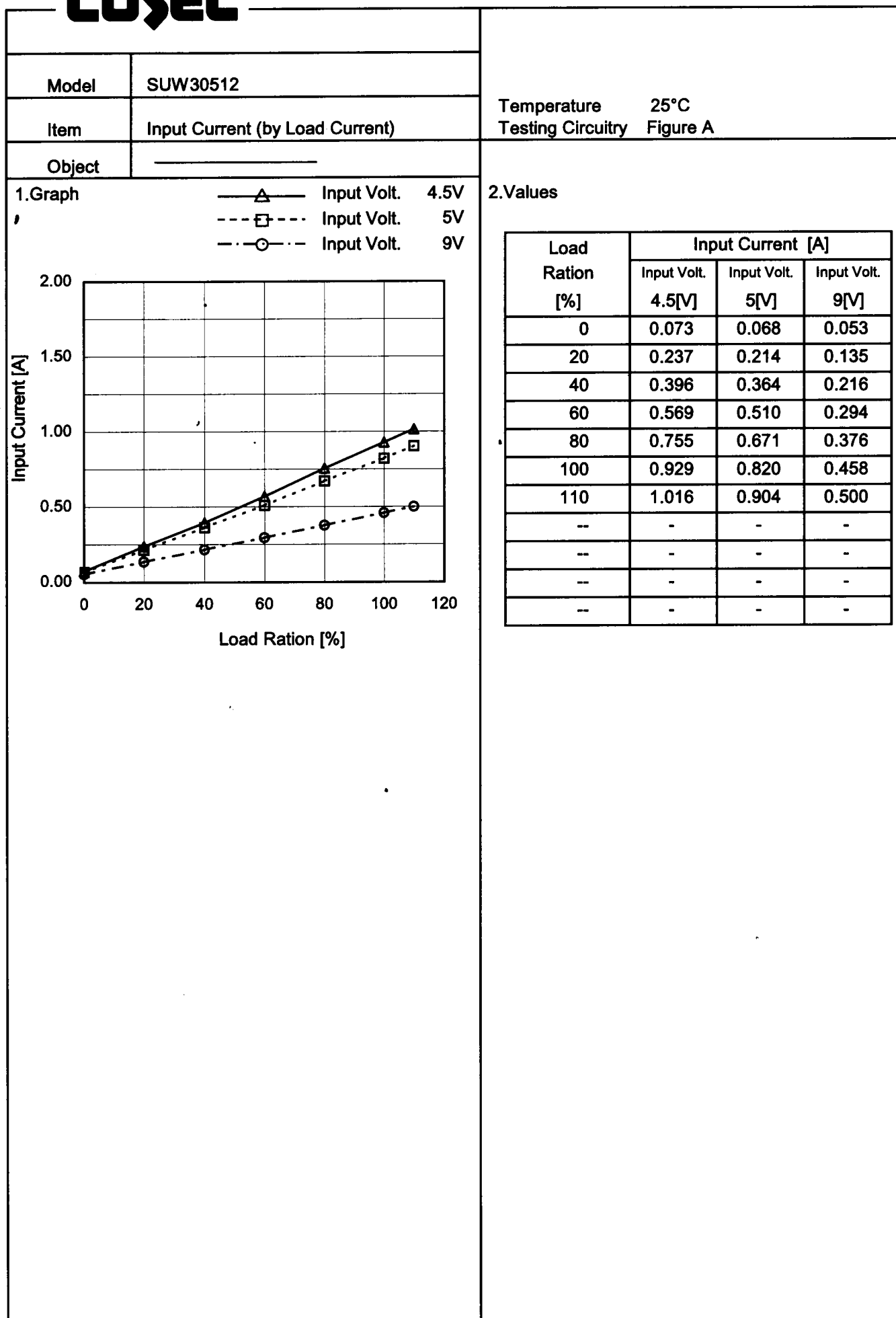


Note: Slanted line shows the range of the rated input voltage.

2. Values

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	0.117	0.024	0.020
2.83	0.105	0.817	1.880
3.00	0.099	0.773	1.777
4.00	0.079	0.545	1.076
4.50	0.073	0.478	0.960
5.00	0.067	0.429	0.845
6.00	0.060	0.365	0.689
7.00	0.055	0.317	0.587
8.00	0.053	0.281	0.514
9.00	0.053	0.253	0.462
10.00	0.054	0.235	0.420
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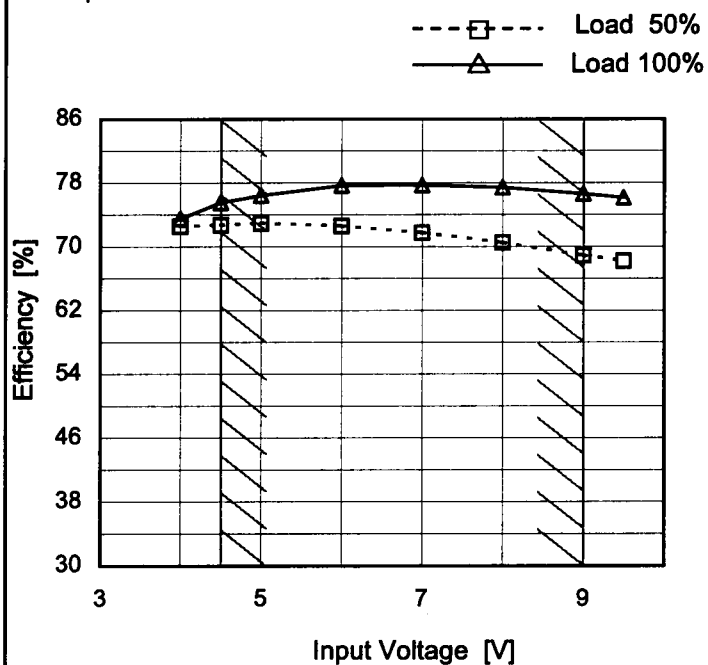
Model SUW30512

Item Efficiency (by Input Voltage)

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.0	72.5	73.5
4.5	72.7	75.5
5.0	72.9	76.4
6.0	72.6	77.7
7.0	71.7	77.7
8.0	70.5	77.4
9.0	68.9	76.6
9.5	68.2	76.1
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Model SUW30512

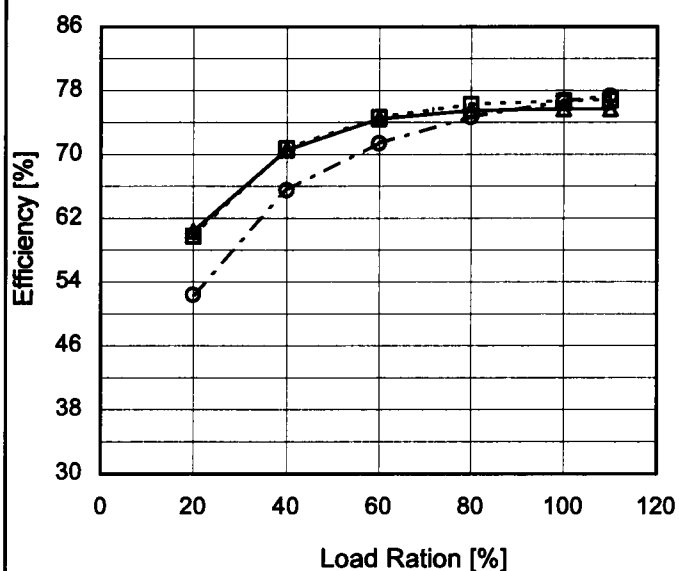
Item Efficiency (by Load Current)

Temperature 25°C
Testing Circuitry Figure A

Object

1.Graph

—△— Input Volt. 4.5V
 ---□--- Input Volt. 5V
 -○- Input Volt. 9V



2.Values

Load Ration [%]	Efficiency [%]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0	-	-	-
20	60.4	59.8	52.4
40	70.5	70.7	65.5
60	74.5	74.7	71.4
80	75.5	76.3	74.7
100	75.7	76.7	76.6
110	75.7	76.8	77.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	SUW30512	Temperature Testing Circuitry	25°C Figure A
Item	Line Regulation		
Object	+12V0.13A		
1.Graph		2.Values	
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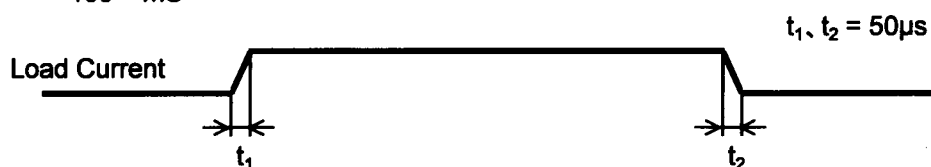
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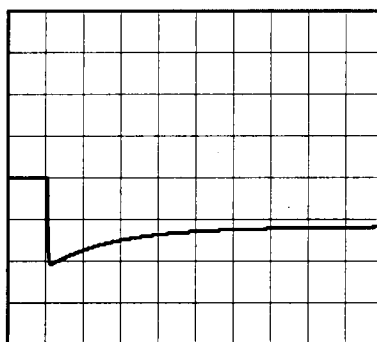
Model	SUW30512	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.13A		

Input Volt. 5 V
Cycle 100 mS



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

200mV/div



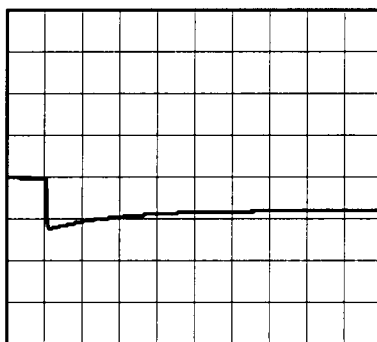
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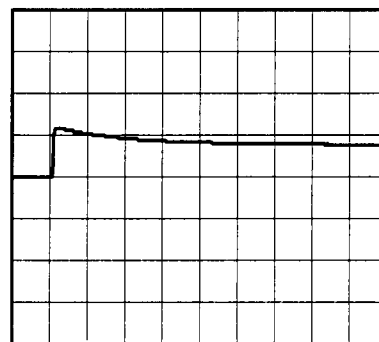
2ms/div

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

200mV/div



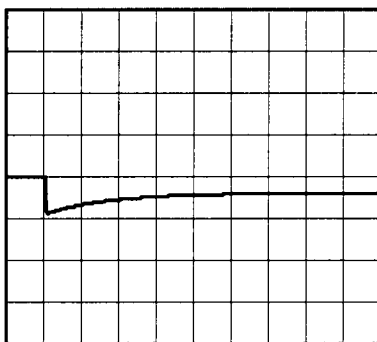
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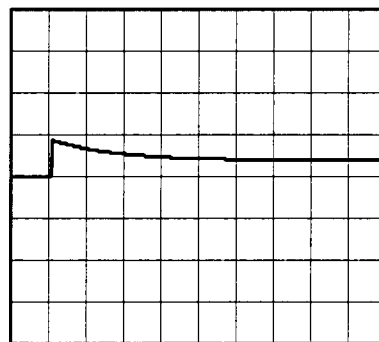
2ms/div

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

200mV/div



2ms/div

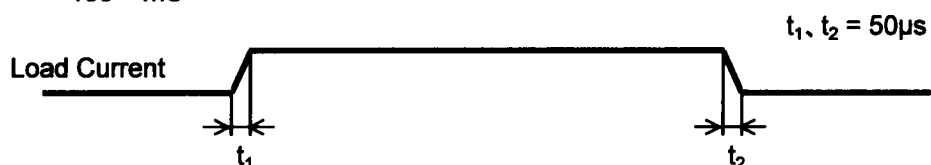


2ms/div

COSEL

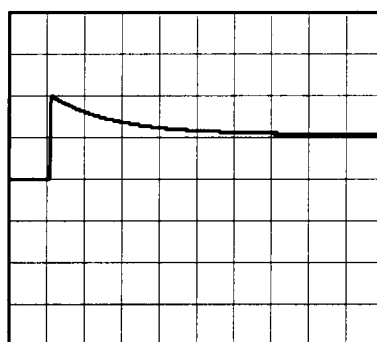
Model	SUW30512	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-12V0.13A		

Input Volt. 5 V
Cycle 100 mS

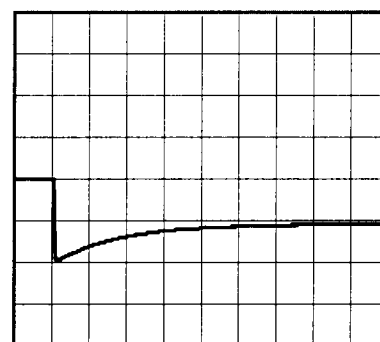


Min. Load (0A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



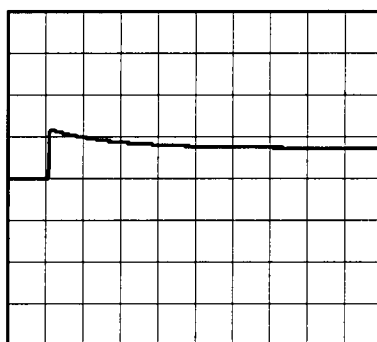
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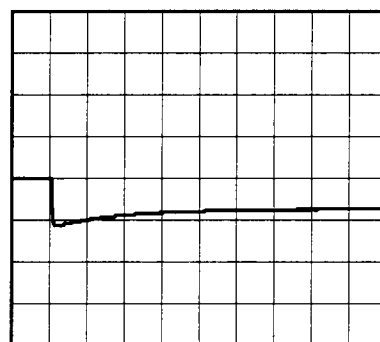
2ms/div

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

200mV/div



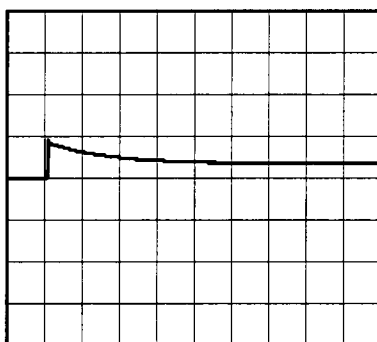
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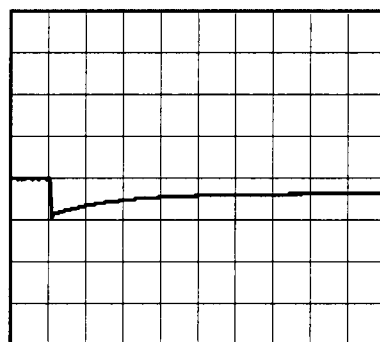
2ms/div

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

200mV/div



2ms/div



2ms/div

LOREL

Model	SUW30512
Item	Ripple Voltage (by Load Current)
Object	+12V0.13A

Temperature	25°C
Testing Circuitry	Figure B

1.Graph

—△—

Input Volt.

4.5V

- -○- -

Input Volt.

9V

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.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.000	1	1
0.026	1	1
0.052	1	1
0.078	2	1
0.104	3	1
0.130	5	2
0.143	7	2
--	-	-
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]

Fig.Complex Ripple Wave Form

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Model		SUW30512		Temperature 25°C Testing Circuitry Figure B																																							
Item		Ripple Voltage (by Load Current)																																									
Object		-12V0.13A																																									
1.Graph				2.Values																																							
<div><div><div>—△— Input Volt. 4.5V</div><div>-·-○-·- Input Volt. 9V</div></div><div>Ripple Voltage [mV]</div><div>Load Current [A]</div></div>				<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 4.5 [V]</th><th>Input Volt. 9 [V]</th></tr><tr><td>0.000</td><td>3</td><td>2</td></tr><tr><td>0.026</td><td>3</td><td>2</td></tr><tr><td>0.052</td><td>3</td><td>2</td></tr><tr><td>0.078</td><td>4</td><td>2</td></tr><tr><td>0.104</td><td>4</td><td>2</td></tr><tr><td>0.130</td><td>5</td><td>2</td></tr><tr><td>0.143</td><td>7</td><td>2</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 Voltage [mV]		Input Volt. 4.5 [V]	Input Volt. 9 [V]	0.000	3	2	0.026	3	2	0.052	3	2	0.078	4	2	0.104	4	2	0.130	5	2	0.143	7	2	--	-	-	--	-	-	--	-	-	--	-	-
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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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Model		SUW30512																																							
Item		Ripple-Noise																																							
Object		+12V0.13A																																							
1.Graph		2.Values																																							
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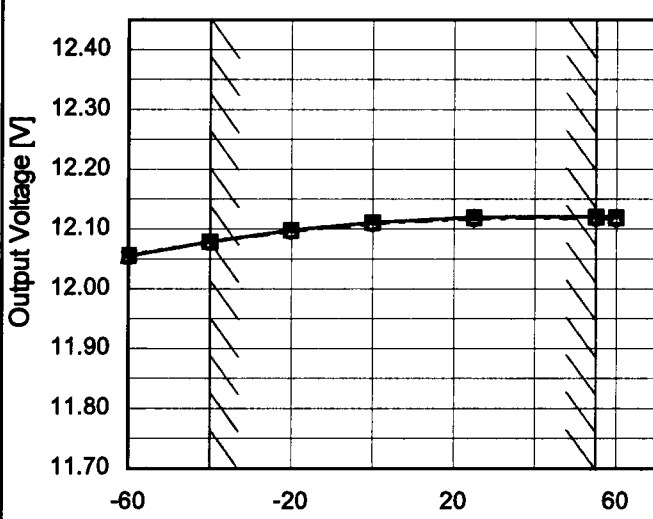
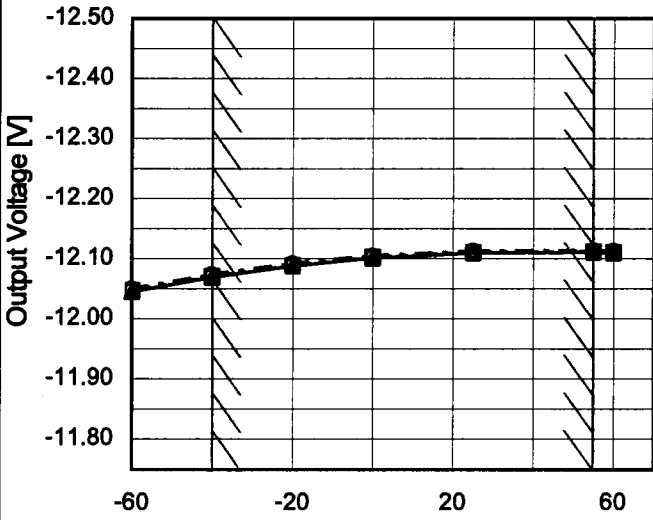
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Model		SUW30512	
Item		Ripple-Noise	
Object		-12V0.13A	
1.Graph		2.Values	
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COSEL

Model		SUW30512																																					
Item		Ripple Voltage (by Ambient Temp.)																																					
Object		+12V0.13A																																					
1.Graph																																							
<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>Load 50%</div><div>Load 100%</div></div> <div><table border="1"><caption>Data for +12V0.13A Graph</caption><thead><tr><th>Ambient Temperature [°C]</th><th>Load 50% [mV]</th><th>Load 100% [mV]</th></tr></thead><tbody><tr><td>-60</td><td>4</td><td>11</td></tr><tr><td>-40</td><td>4</td><td>10</td></tr><tr><td>-20</td><td>4</td><td>7</td></tr><tr><td>0</td><td>4</td><td>7</td></tr><tr><td>25</td><td>2</td><td>5</td></tr><tr><td>55</td><td>2</td><td>3</td></tr><tr><td>60</td><td>2</td><td>3</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></div> <div>Input Volt. 5V</div>				Ambient Temperature [°C]	Load 50% [mV]	Load 100% [mV]	-60	4	11	-40	4	10	-20	4	7	0	4	7	25	2	5	55	2	3	60	2	3	--	-	-	--	-	-	--	-	-	--	-	-
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Measured by 100 MHz Oscilloscope.																																																							
Note: Slanted line shows the range of the rated ambient temperature.																																																							

Model	SUW30512																																																						
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Object	+12V0.13A																																																						
1.Graph		2.Values																																																					
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Note: Slanted line shows the range of the rated ambient temperature.																																																							

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		Testing Circuitry Figure A
Model	SUW30512	
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 : 4.5 - 9V

Load Current (AVR 1) : 0 - 0.13A (AVR 2): 0 - 0.13A

* Other Output : Rated Load

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

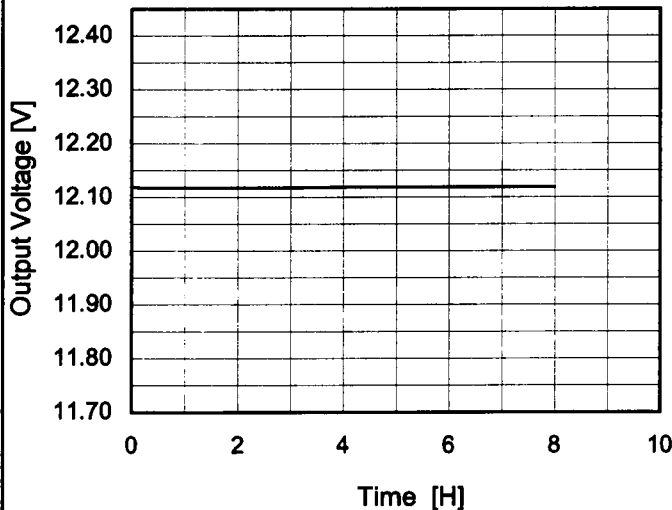
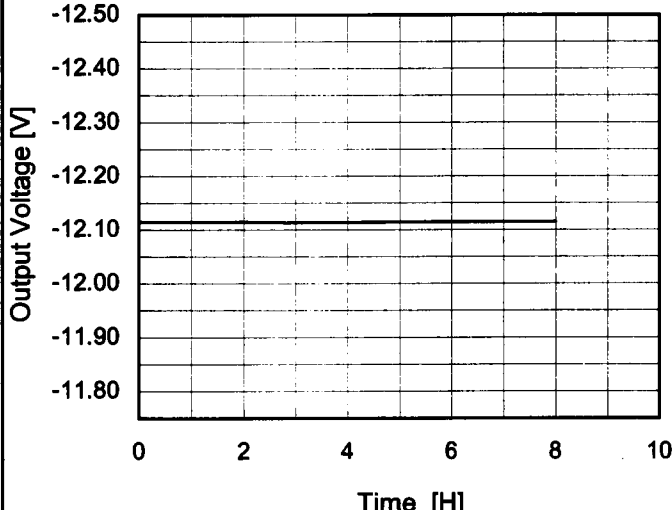
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Object	+12V0.13A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	5	0	12.348	±135	±1.1
Minimum Voltage	-40	9	0.13	12.078		

Object	-12V0.13A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	4.5	0	-12.363	±147	±1.2
Minimum Voltage	-40	4.5	0.13	-12.069		

COSEL

Model	SUW30512	Temperature 25°C Testing Circuitry Figure A																							
Item	Time Lapse Drift																								
Object	+12V0.13A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 5V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>12.119</td></tr><tr><td>0.5</td><td>12.118</td></tr><tr><td>1.0</td><td>12.118</td></tr><tr><td>2.0</td><td>12.118</td></tr><tr><td>3.0</td><td>12.118</td></tr><tr><td>4.0</td><td>12.119</td></tr><tr><td>5.0</td><td>12.119</td></tr><tr><td>6.0</td><td>12.119</td></tr><tr><td>7.0</td><td>12.119</td></tr><tr><td>8.0</td><td>12.119</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	12.119	0.5	12.118	1.0	12.118	2.0	12.118	3.0	12.118	4.0	12.119	5.0	12.119	6.0	12.119	7.0	12.119	8.0	12.119
Time since start [H]	Output Voltage [V]																								
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7.0	-12.115																								
8.0	-12.115																								

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COSEL

Model SUW30512

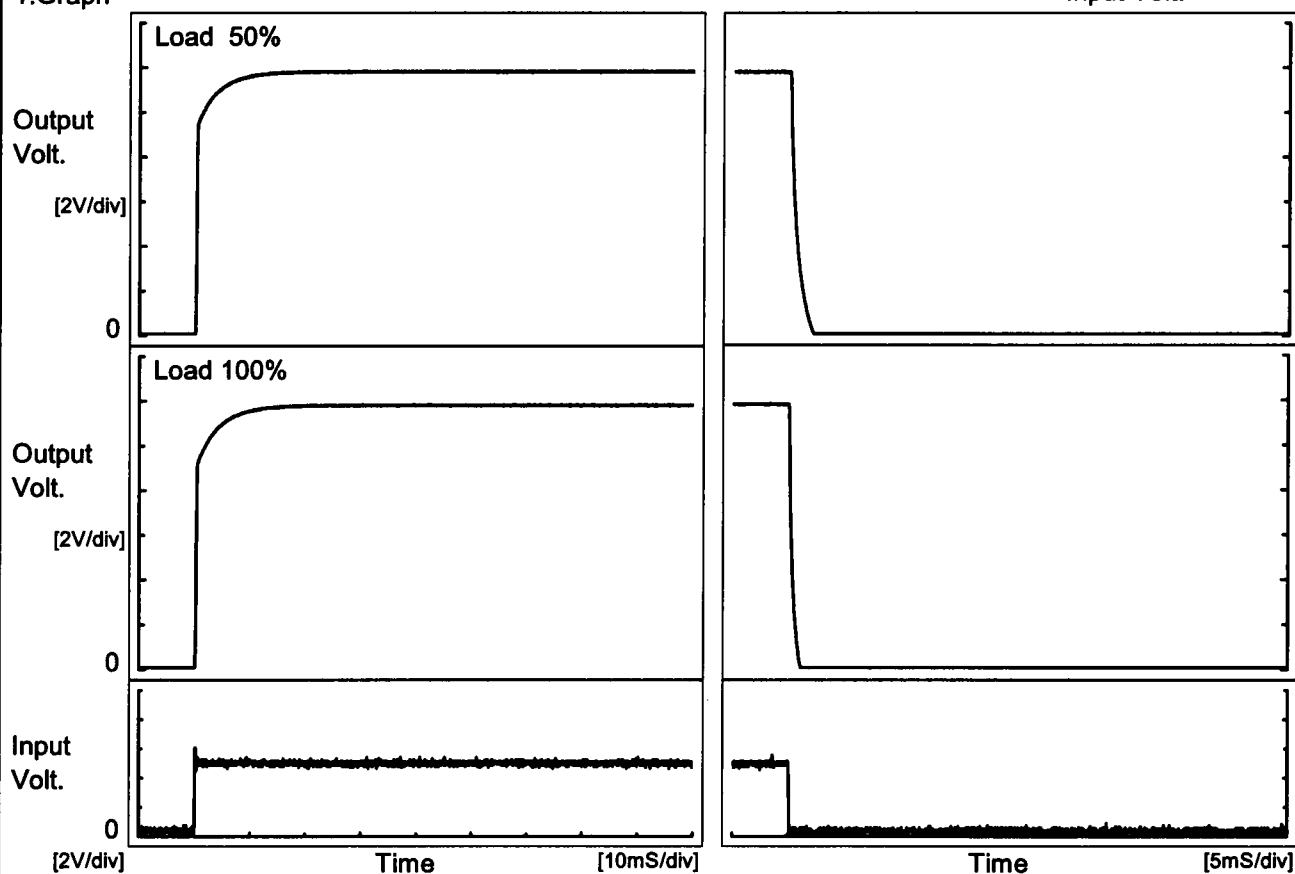
Item Rise and Fall Time

Temperature 25°C
Testing Circuitry Figure A

Object +12V0.13A

1.Graph

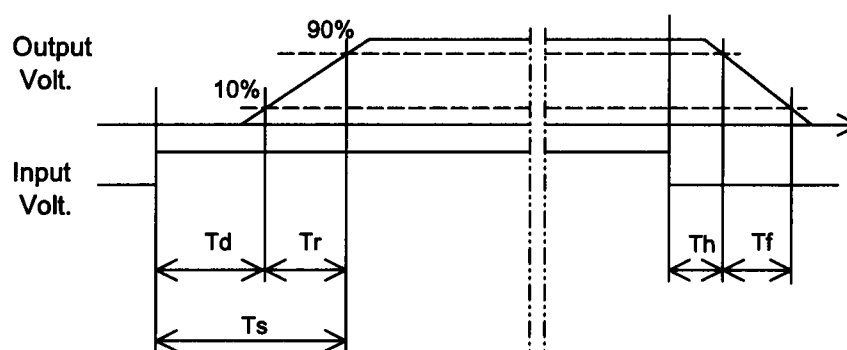
Input Volt. 5 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.2	3.8	4.0	0.1	1.4
100 %	0.2	4.4	4.6	0.1	0.7

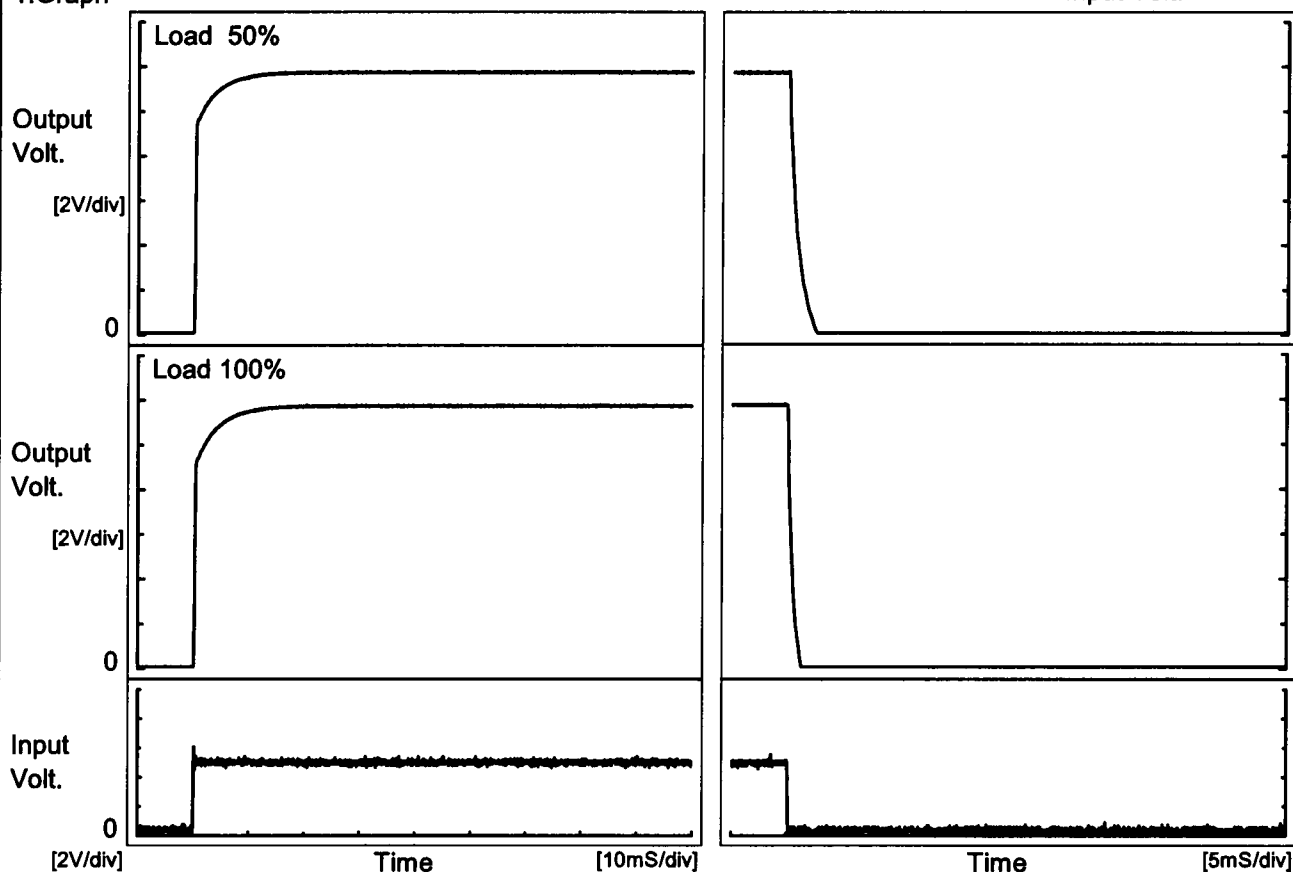


COSEL

Model	SUW30512	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-12V0.13A		

1. Graph

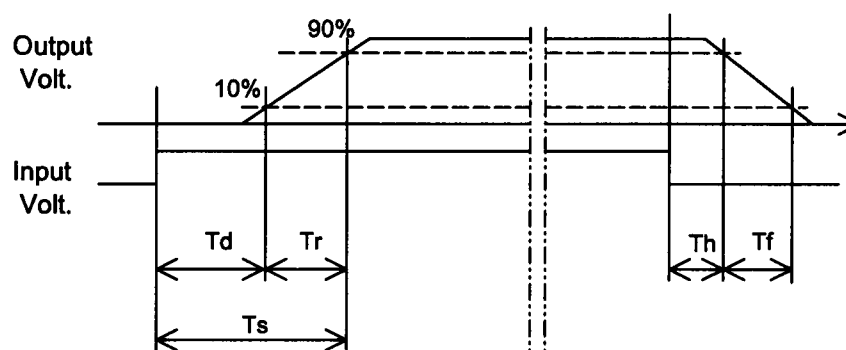
Input Volt. 5 V



2. Values

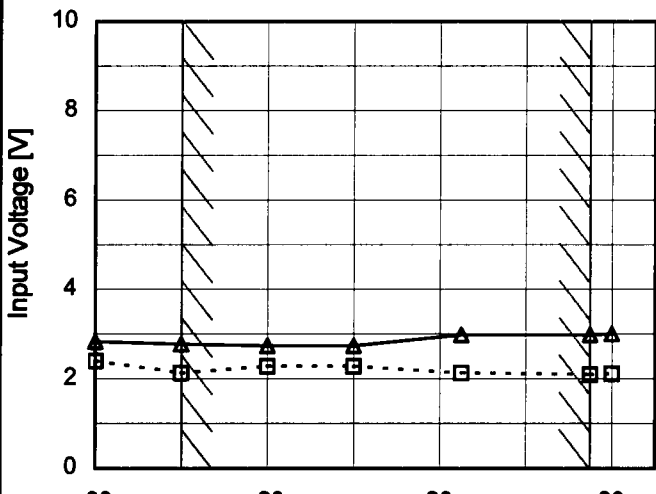
[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.2	4.0	4.2	0.1	1.7
100 %	0.2	4.7	4.9	0.1	0.9

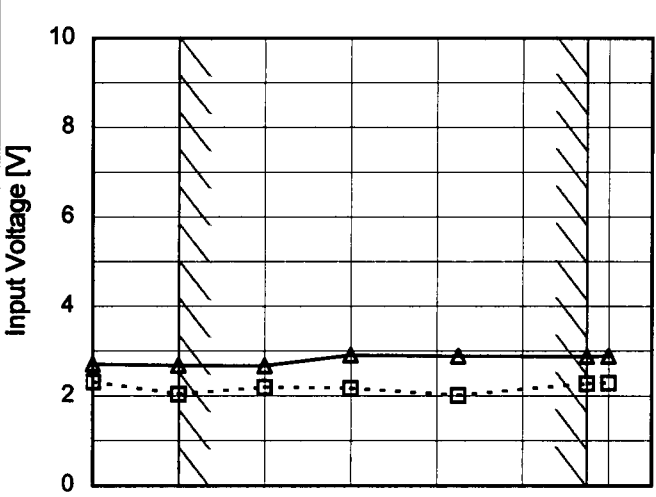


COSEL

Model		SUW30512	
Item		Minimum Input Voltage for Regulated Output Voltage	
Object		+12V0.13A	
1.Graph		2.Values	

Input Voltage [V]	Ambient Temperature [°C]	Input Voltage [V]	
		Load 50%	Load 100%
	-60	2.4	2.9
	-40	2.2	2.8
	-20	2.3	2.8
	0	2.3	2.8
	25	2.2	3.0
	55	2.1	3.0
	60	2.2	3.0
	--	-	-
	--	-	-
	--	-	-
	--	-	-

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

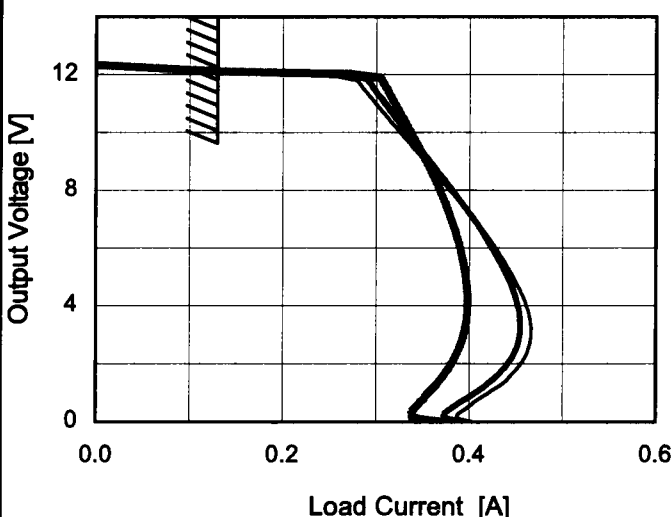
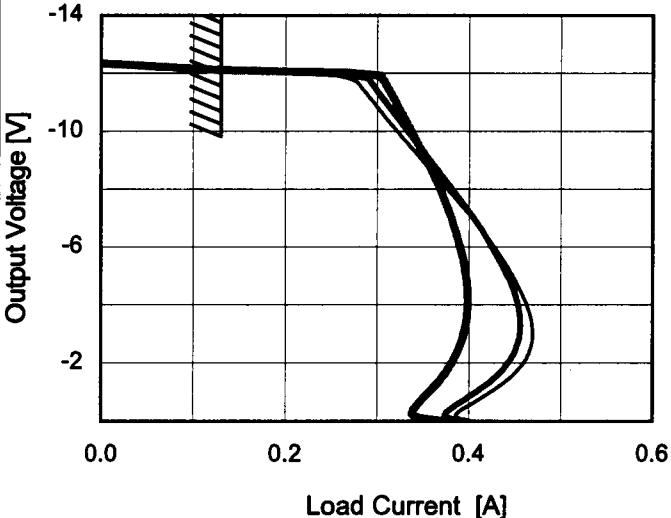
Input Voltage [V]	Ambient Temperature [°C]	Input Voltage [V]	
		Load 50%	Load 100%
	-60	2.4	2.8
	-40	2.1	2.7
	-20	2.2	2.7
	0	2.2	3.0
	25	2.1	2.9
	55	2.3	2.9
	60	2.3	2.9
	--	-	-
	--	-	-
	--	-	-
	--	-	-

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

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COSEL

Model		SUW30512		Temperature 25°C																																																								
Item		Overcurrent Protection		Testing Circuitry Figure A																																																								
Object		+12V0.13A																																																										
1.Graph		<div><div></div>Input Volt. 4.5V</div> <div><div></div>Input Volt. 5V</div> <div><div></div>Input Volt. 9V</div>		2.Values																																																								
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Note: Slanted line shows the range of the rated load current.																																																												

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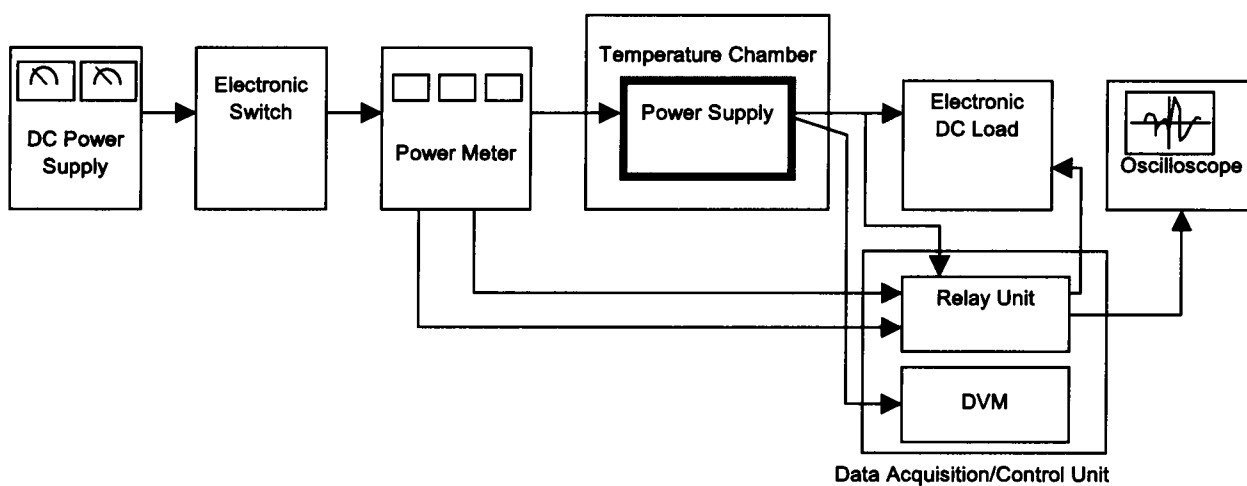


Figure A

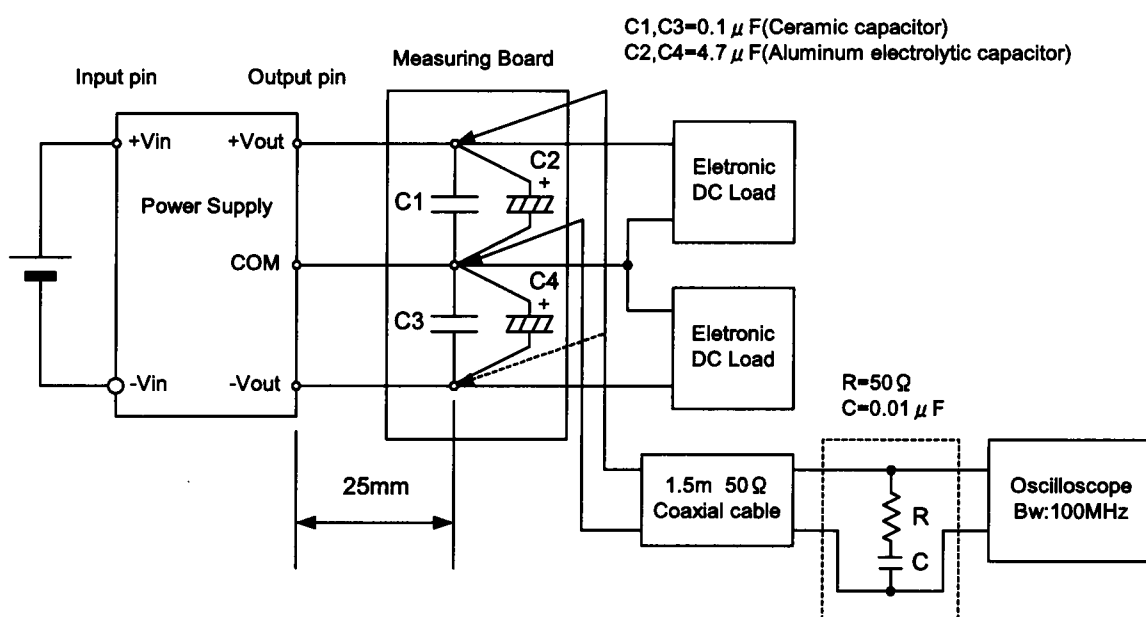


Figure B (Ripple and Ripple noise Characteristic)