



TEST DATA OF SUW34812

Regulated DC Power Supply
Mar 11, 2005

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Tetsuo Sugimori Design Manager

Prepared by : Hayato Nakatsubo
Hayato Nakatsubo Design Engineer

COSEL CO.,LTD.

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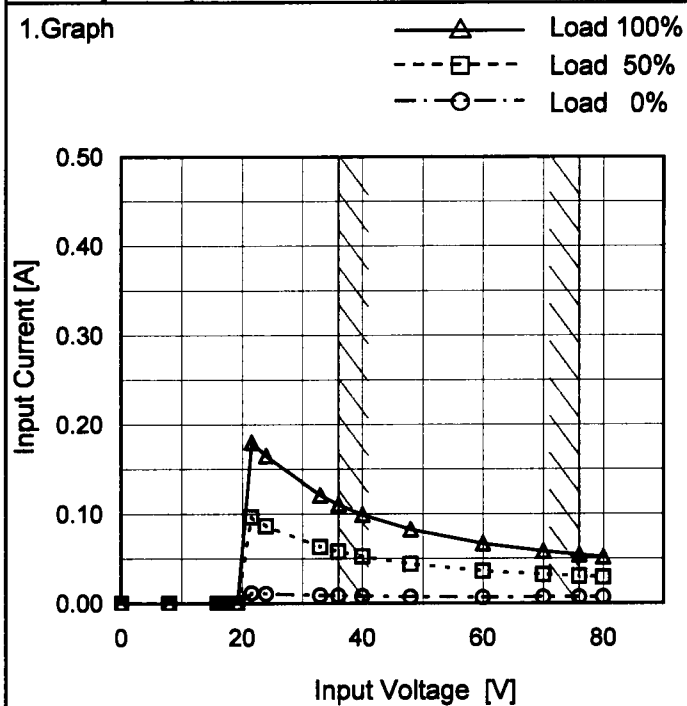
Model SUW34812

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%
0.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
16.0	0.000	0.000	0.000
16.8	0.000	0.000	0.000
19.2	0.000	0.000	0.000
21.6	0.012	0.097	0.180
24.0	0.011	0.087	0.165
33.0	0.009	0.063	0.121
36.0	0.009	0.058	0.111
40.0	0.008	0.052	0.099
48.0	0.007	0.044	0.083
60.0	0.007	0.036	0.067
70.0	0.007	0.032	0.058
76.0	0.007	0.030	0.054
80.0	0.007	0.029	0.052
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--	-	-	-
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Model		SUW34812																																																				
Item		Input Current (by Load Current)																																																				
Object																																																						
1.Graph		2.Values																																																				
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Model		SUW34812	
Item		Input Power (by Load Current)	
Object			

1.Graph

△

Input Volt.

36V

□

Input Volt.

48V

○

Input Volt.

76V

5.0

4.0

3.0

2.0

1.0

0.0

0

20

40

60

80

100

120

Input Power [W]

Load Ration [%]

2.Values

Load Ration [%]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.31	0.35	0.54
20	1.02	1.05	1.24
40	1.73	1.76	1.94
60	2.46	2.48	2.65
80	3.20	3.21	3.36
100	3.95	3.94	4.07
110	4.33	4.31	4.44
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Temperature

25°C

Testing Circuitry

Figure A

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Model	SUW34812																																
Item	Efficiency (by Input Voltage)	Temperature	25°C																														
Object		Testing Circuitry	Figure A																														
1.Graph		2.Values																															
<div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div> <div><div>---</div><div>△</div><div>---</div></div> <div>Load 100%</div> <table><thead><tr><th>Input Voltage [V]</th><th>Load 50% Efficiency [%]</th><th>Load 100% Efficiency [%]</th></tr></thead><tbody><tr><td>33</td><td>75.5</td><td>79.3</td></tr><tr><td>36</td><td>75.2</td><td>79.6</td></tr><tr><td>40</td><td>74.9</td><td>79.7</td></tr><tr><td>48</td><td>74.2</td><td>79.9</td></tr><tr><td>55</td><td>73.4</td><td>79.6</td></tr><tr><td>60</td><td>72.6</td><td>79.2</td></tr><tr><td>70</td><td>70.2</td><td>78.0</td></tr><tr><td>76</td><td>68.6</td><td>77.2</td></tr><tr><td>80</td><td>67.3</td><td>76.6</td></tr></tbody></table>		Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]	33	75.5	79.3	36	75.2	79.6	40	74.9	79.7	48	74.2	79.9	55	73.4	79.6	60	72.6	79.2	70	70.2	78.0	76	68.6	77.2	80	67.3	76.6		
Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]																															
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Note: Slanted line shows the range of the rated input voltage.																																	

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Model

SUW34812

Item

Efficiency (by Load Current)

Object

Temperature

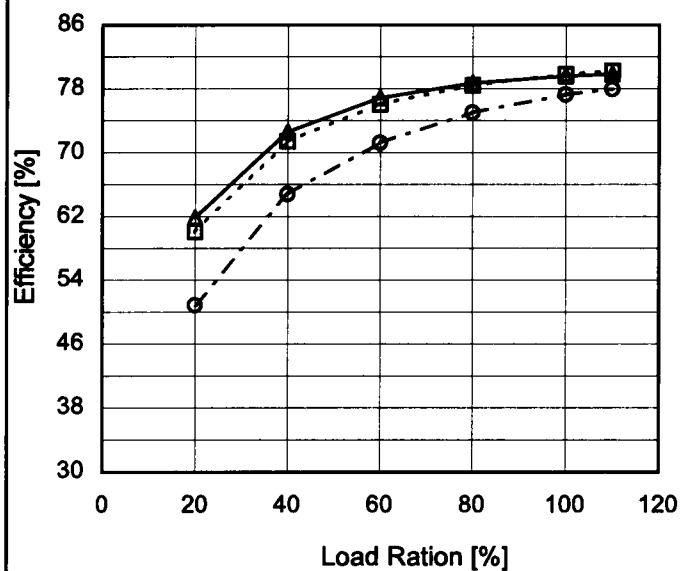
25°C

Testing Circuitry

Figure A

1. Graph

—△— Input Volt. 36V
 - - □ - - Input Volt. 48V
 - · ○ - · Input Volt. 76V



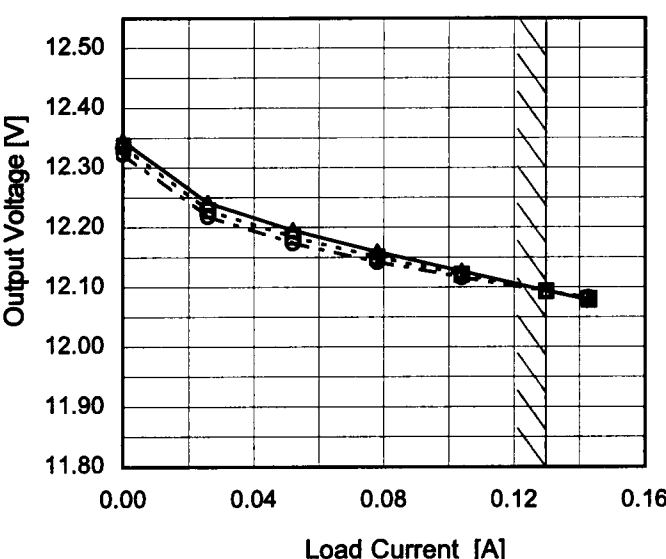
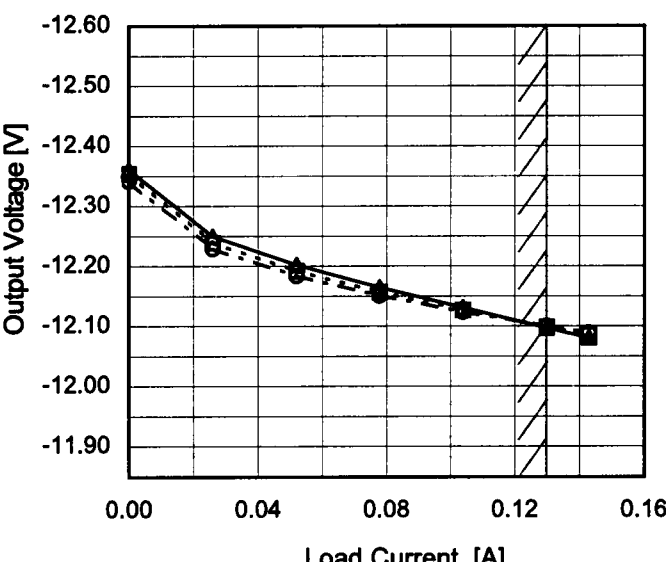
2. Values

Load Ration [%]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-
20	61.9	60.1	50.9
40	72.6	71.4	64.8
60	76.9	76.1	71.3
80	78.7	78.4	75.0
100	79.6	79.8	77.3
110	79.8	80.2	78.0
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model		SUW34812	
Item		Line Regulation	
Object		+12V0.13A	
1.Graph		2.Values	

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Model		SUW34812		Temperature Testing Circuitry	25°C Figure A																																																			
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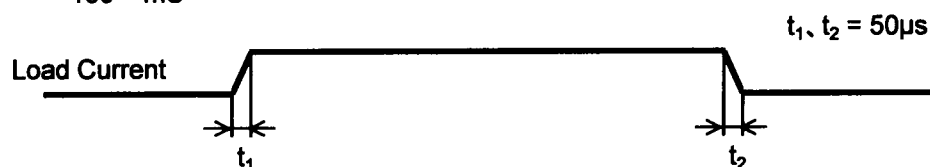
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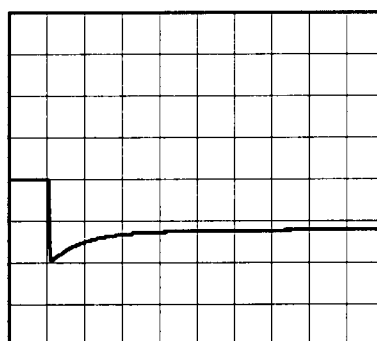
Model	SUW34812	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.13A		

Input Volt. 48 V
Cycle 100 mS

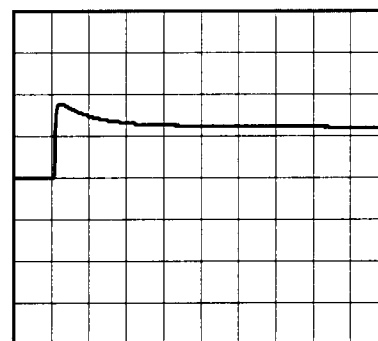


Min. Load (0A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



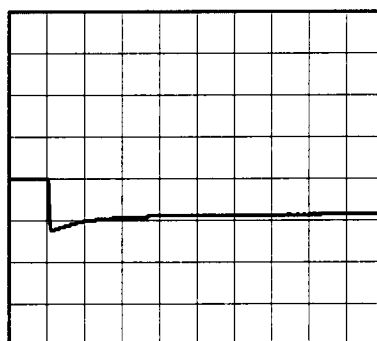
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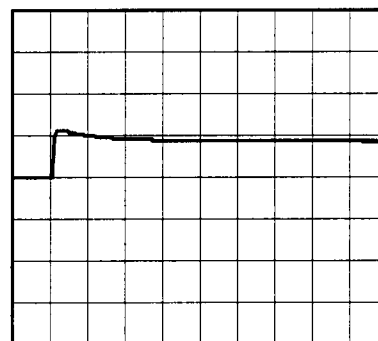
2ms/div

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

200mV/div



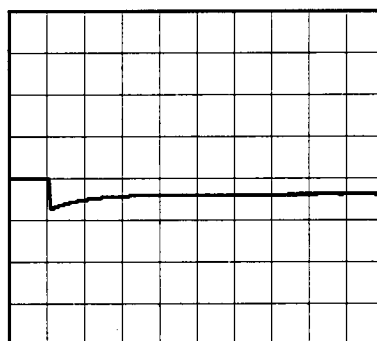
2ms/div



2ms/div

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

200mV/div



2ms/div

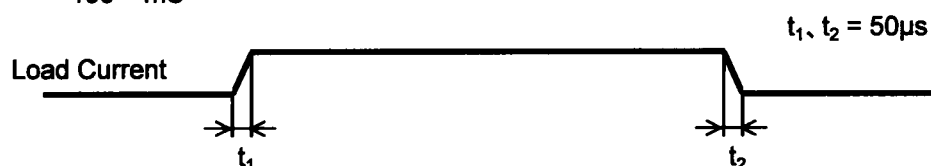


2ms/div

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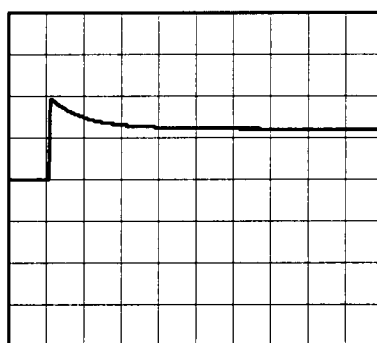
Model	SUW34812	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-12V0.13A		

Input Volt. 48 V
Cycle 100 mS

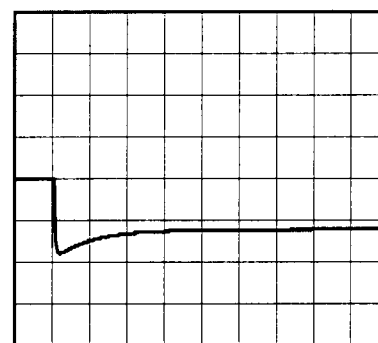


Min. Load (0A) \longleftrightarrow
Load 100% (0.13A)

200mV/div



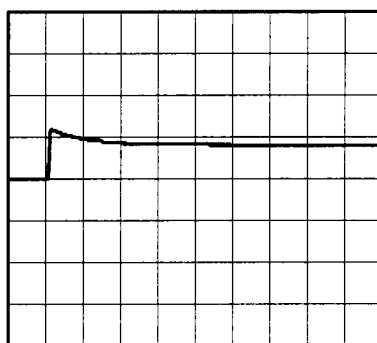
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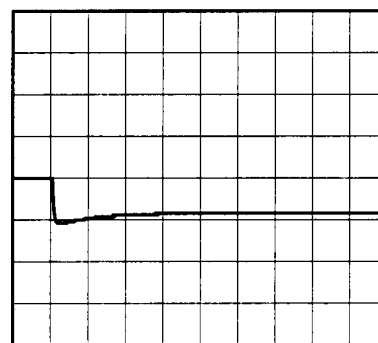
2ms/div

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

200mV/div



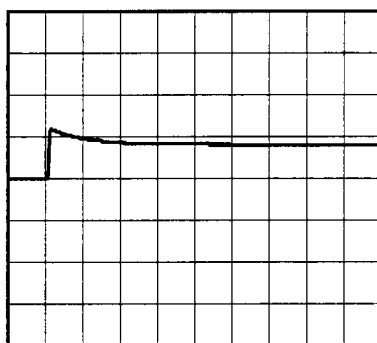
2ms/div



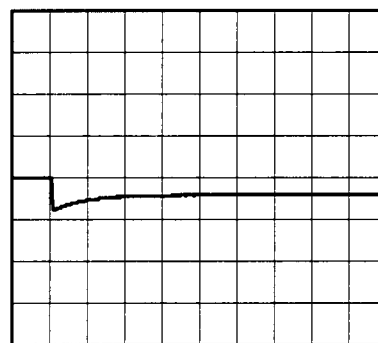
2ms/div

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

200mV/div



2ms/div



2ms/div

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Model		SUW34812		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+12V0.13A																																									
1.Graph				2.Values																																							
<div><div><div>—△— Input Volt. 36V</div><div>- - -○- - - Input Volt. 76V</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. 36 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.000</td><td>1</td><td>1</td></tr><tr><td>0.026</td><td>1</td><td>1</td></tr><tr><td>0.052</td><td>2</td><td>1</td></tr><tr><td>0.078</td><td>4</td><td>1</td></tr><tr><td>0.104</td><td>7</td><td>1</td></tr><tr><td>0.130</td><td>11</td><td>1</td></tr><tr><td>0.143</td><td>14</td><td>1</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. 36 [V]	Input Volt. 76 [V]	0.000	1	1	0.026	1	1	0.052	2	1	0.078	4	1	0.104	7	1	0.130	11	1	0.143	14	1	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																										
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--	-	-																																							
Object	-12V0.13A																																								
1.Graph		2.Values																																							
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Ambient Temperature [°C]	Ripple Voltage [mV]																																								
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Measured by 100 MHz Oscilloscope.																																									
Note: Slanted line shows the range of the rated ambient temperature.																																									

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BC-3763

COSEL

Model		SUW34812																																																				
Item		Ambient Temperature Drift																																																				
Object		+12V0.13A																																																				
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>36V</div></div><div><div>---□---</div><div>Input Volt.</div><div>48V</div></div><div><div>---○---</div><div>Input Volt.</div><div>76V</div></div></div> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p></div>																																																				
2.Values		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>-60</td><td>12.014</td><td>12.014</td><td>12.014</td></tr><tr><td>-40</td><td>12.042</td><td>12.043</td><td>12.043</td></tr><tr><td>-20</td><td>12.065</td><td>12.065</td><td>12.065</td></tr><tr><td>0</td><td>12.082</td><td>12.082</td><td>12.082</td></tr><tr><td>25</td><td>12.096</td><td>12.096</td><td>12.095</td></tr><tr><td>55</td><td>12.103</td><td>12.101</td><td>12.101</td></tr><tr><td>60</td><td>12.103</td><td>12.102</td><td>12.101</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></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	-60	12.014	12.014	12.014	-40	12.042	12.043	12.043	-20	12.065	12.065	12.065	0	12.082	12.082	12.082	25	12.096	12.096	12.095	55	12.103	12.101	12.101	60	12.103	12.102	12.101	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Object		-12V0.13A																																																				
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>36V</div></div><div><div>---□---</div><div>Input Volt.</div><div>48V</div></div><div><div>---○---</div><div>Input Volt.</div><div>76V</div></div></div> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p></div>																																																				
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Note: Slanted line shows the range of the rated ambient temperature.																																																						

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BC-3763



		Testing Circuitry Figure A
Model	SUW34812	
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 : 36 - 76V

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

* Other Output : Rated Load

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

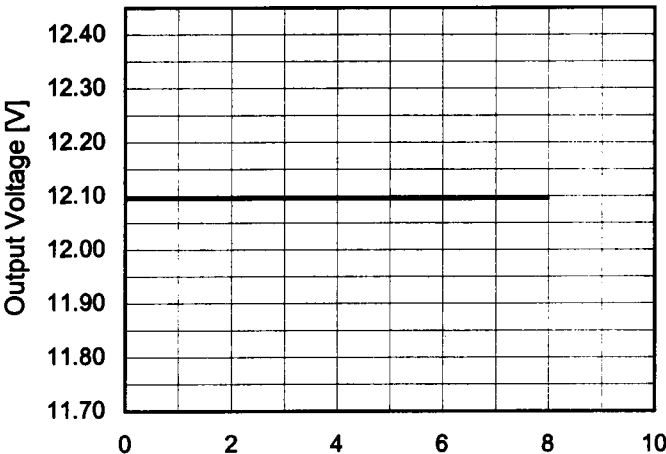
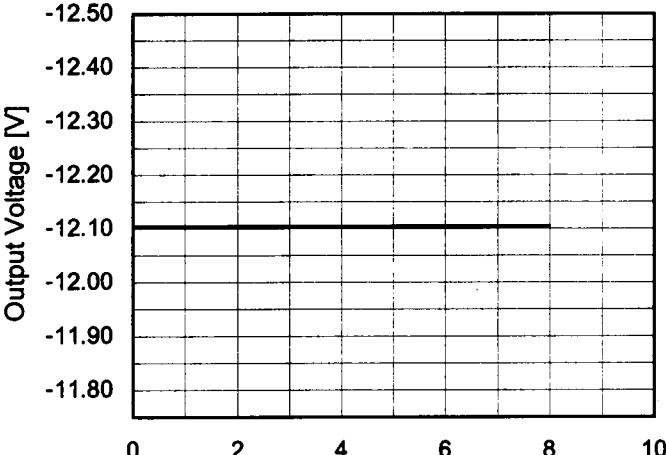
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

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	36	0	12.361	±160	±1.3
Minimum Voltage	-40	36	0.13	12.041		

Object		-12V0.13A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	36	0	-12.376	±166	±1.4
Minimum Voltage	-40	36	0.13	-12.044		

COSEL

Model	SUW34812																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+12V0.13A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Input Volt. 48V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>12.089</td></tr><tr><td>0.5</td><td>12.095</td></tr><tr><td>1.0</td><td>12.095</td></tr><tr><td>2.0</td><td>12.095</td></tr><tr><td>3.0</td><td>12.095</td></tr><tr><td>4.0</td><td>12.095</td></tr><tr><td>5.0</td><td>12.095</td></tr><tr><td>6.0</td><td>12.095</td></tr><tr><td>7.0</td><td>12.095</td></tr><tr><td>8.0</td><td>12.095</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	12.089	0.5	12.095	1.0	12.095	2.0	12.095	3.0	12.095	4.0	12.095	5.0	12.095	6.0	12.095	7.0	12.095	8.0	12.095
Time since start [H]	Output Voltage [V]																								
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<div><p>Input Volt. 48V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>-12.097</td></tr><tr><td>0.5</td><td>-12.105</td></tr><tr><td>1.0</td><td>-12.105</td></tr><tr><td>2.0</td><td>-12.105</td></tr><tr><td>3.0</td><td>-12.105</td></tr><tr><td>4.0</td><td>-12.105</td></tr><tr><td>5.0</td><td>-12.105</td></tr><tr><td>6.0</td><td>-12.105</td></tr><tr><td>7.0</td><td>-12.105</td></tr><tr><td>8.0</td><td>-12.105</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	-12.097	0.5	-12.105	1.0	-12.105	2.0	-12.105	3.0	-12.105	4.0	-12.105	5.0	-12.105	6.0	-12.105	7.0	-12.105	8.0	-12.105
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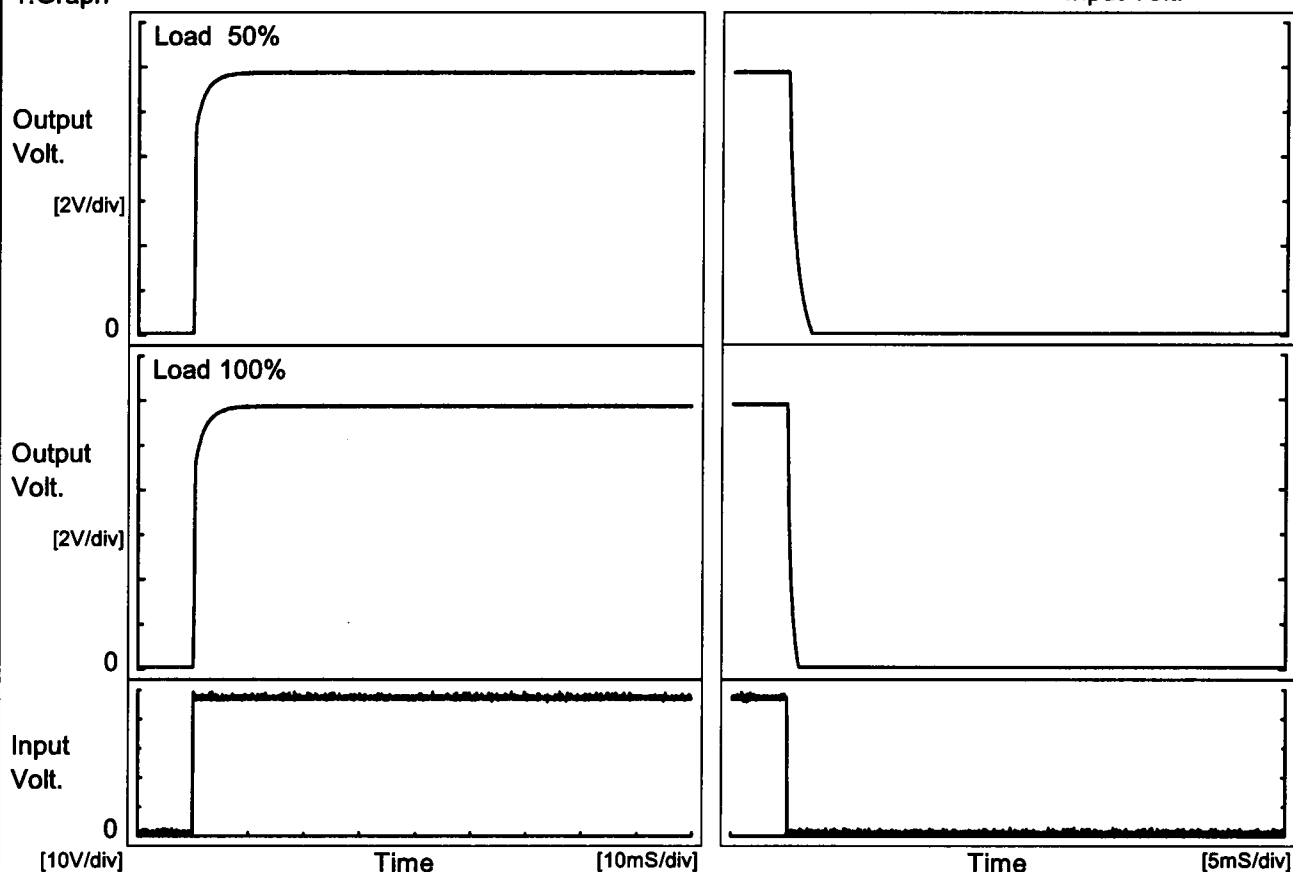
BC-3763

COSEL

Model	SUW34812	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.13A		

1.Graph

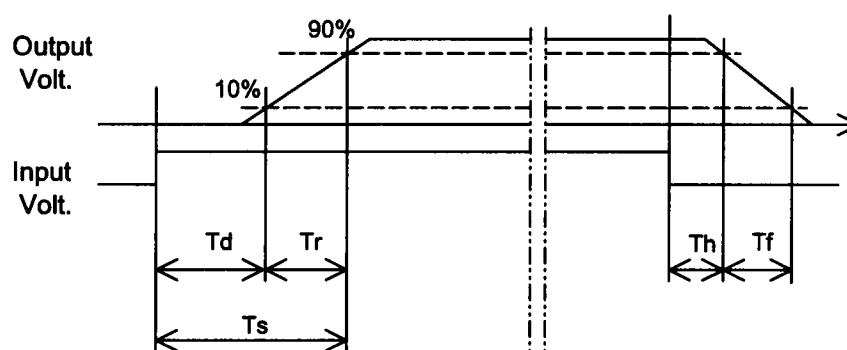
Input Volt. 48 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.1	2.1	2.2	0.1	1.4
100 %	0.1	2.3	2.4	0.1	0.7



COSEL

Model SUW34812

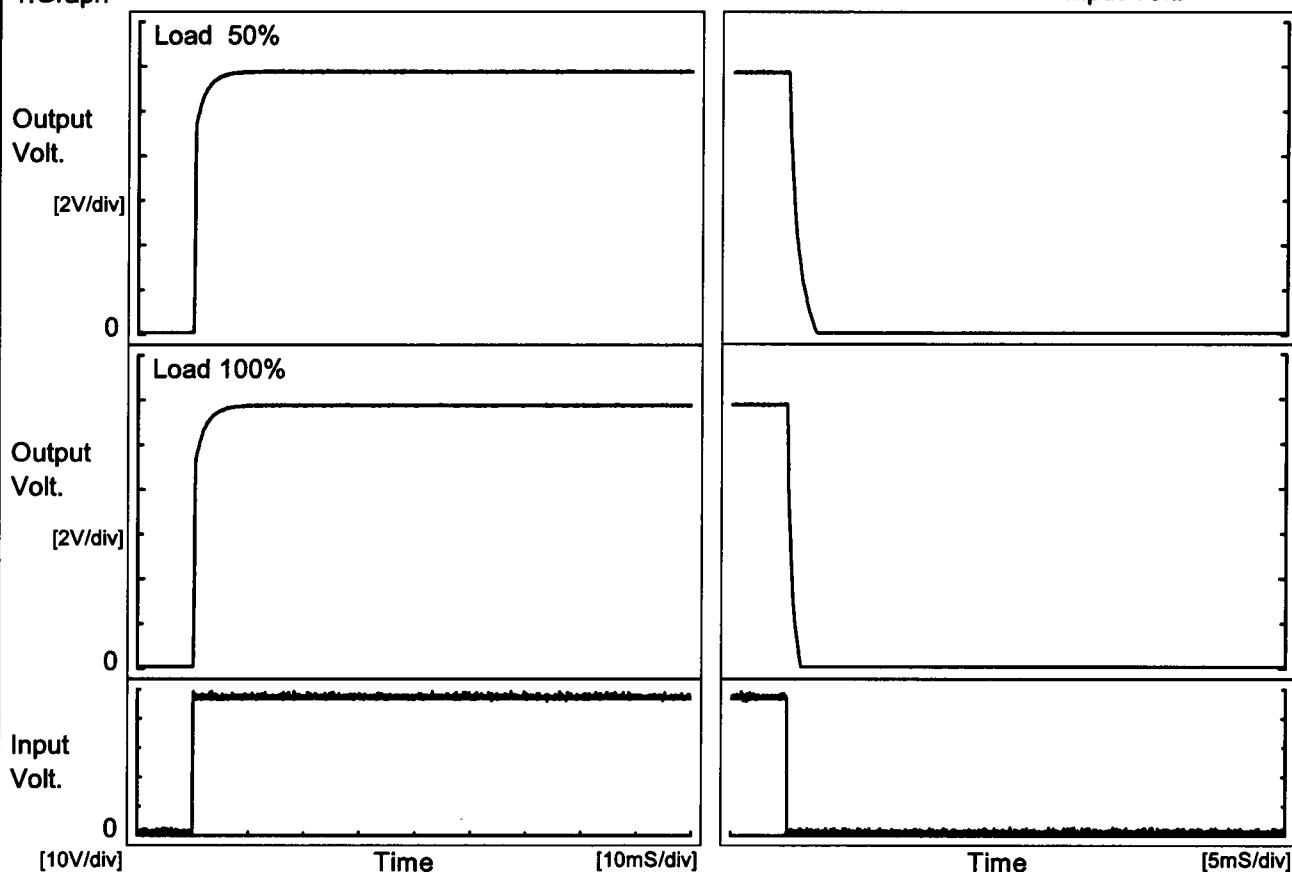
Item Rise and Fall Time

Temperature 25°C
Testing Circuitry Figure A

Object -12V0.13A

1.Graph

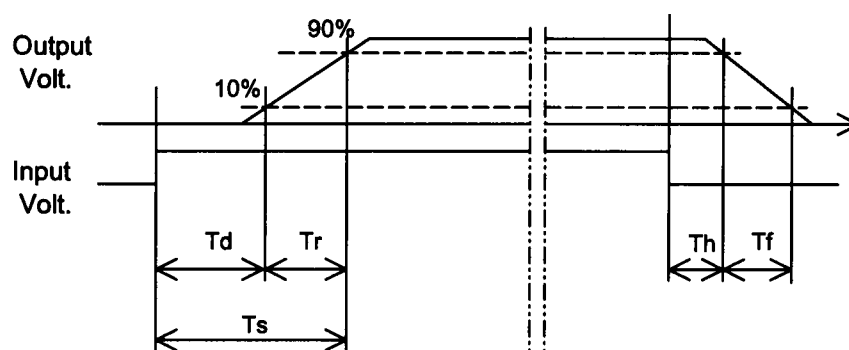
Input Volt. 48 V



2.Values

[mS]

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



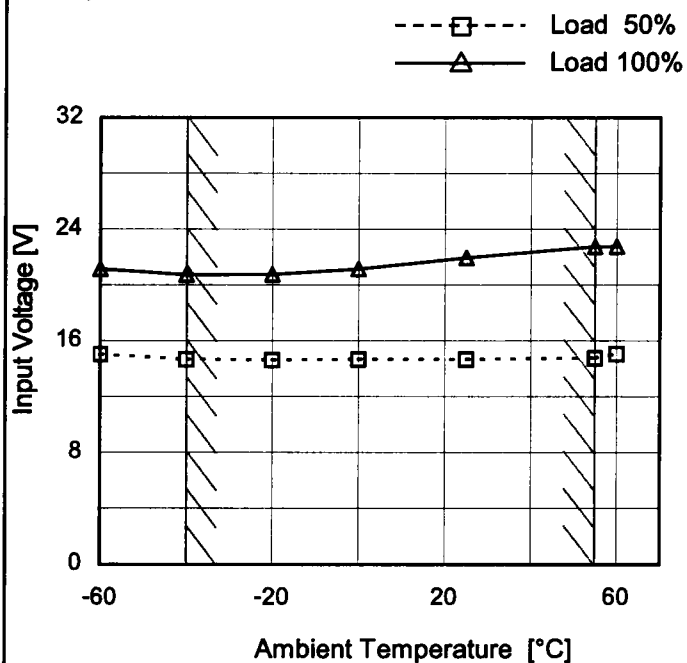
COSEL

Model SUW34812

Item Minimum Input Voltage
for Regulated Output Voltage

Object +12V0.13A

1.Graph



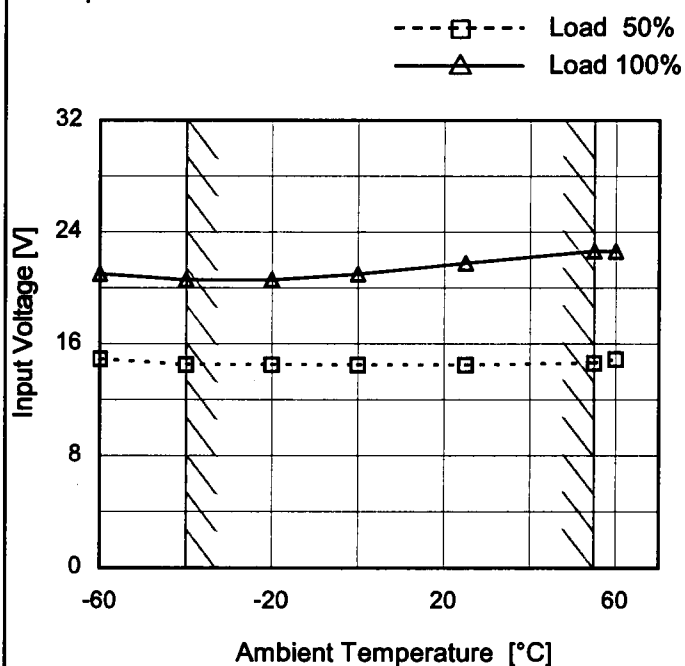
Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.1	21.2
-40	14.7	20.8
-20	14.7	20.8
0	14.7	21.2
25	14.7	22.0
55	14.8	22.8
60	15.1	22.8
--	-	-
--	-	-
--	-	-
--	-	-

Object -12V0.13A

1.Graph

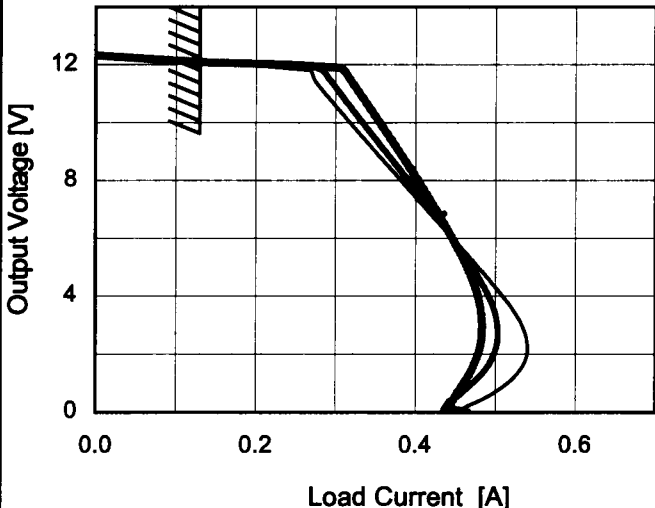


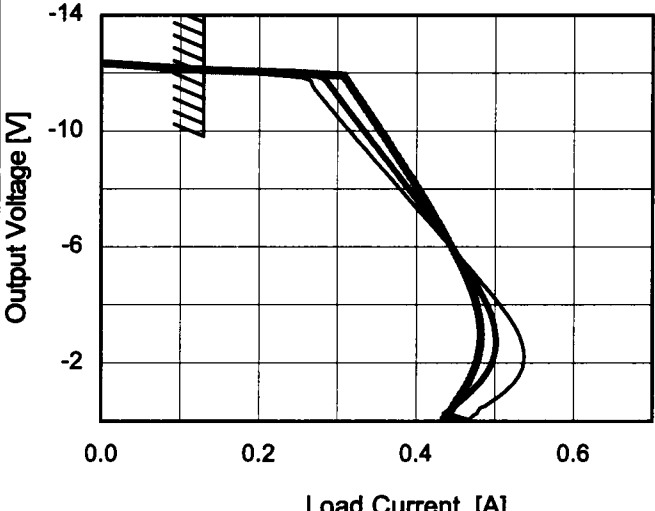
Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.0	21.1
-40	14.5	20.6
-20	14.5	20.6
0	14.5	21.0
25	14.5	21.8
55	14.7	22.7
60	14.9	22.7
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model		SUW34812																																																								
Item		Overcurrent Protection																																																								
Object		+12V0.13A																																																								
1.Graph		<div><div><div></div><div></div><div></div></div><div>Input Volt. 36V</div><div>Input Volt. 48V</div><div>Input Volt. 76V</div></div> 																																																								
2.Values		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>12.0</td><td>0.13</td><td>0.13</td><td>0.13</td></tr><tr><td>11.4</td><td>0.28</td><td>0.30</td><td>0.32</td></tr><tr><td>10.8</td><td>0.29</td><td>0.31</td><td>0.34</td></tr><tr><td>9.6</td><td>0.33</td><td>0.34</td><td>0.37</td></tr><tr><td>8.4</td><td>0.37</td><td>0.38</td><td>0.39</td></tr><tr><td>7.2</td><td>0.41</td><td>0.41</td><td>0.42</td></tr><tr><td>6.0</td><td>0.45</td><td>0.45</td><td>0.45</td></tr><tr><td>4.8</td><td>0.49</td><td>0.48</td><td>0.47</td></tr><tr><td>3.6</td><td>0.52</td><td>0.50</td><td>0.48</td></tr><tr><td>2.4</td><td>0.54</td><td>0.50</td><td>0.48</td></tr><tr><td>1.2</td><td>0.52</td><td>0.48</td><td>0.47</td></tr><tr><td>0.0</td><td>0.47</td><td>0.44</td><td>0.47</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	12.0	0.13	0.13	0.13	11.4	0.28	0.30	0.32	10.8	0.29	0.31	0.34	9.6	0.33	0.34	0.37	8.4	0.37	0.38	0.39	7.2	0.41	0.41	0.42	6.0	0.45	0.45	0.45	4.8	0.49	0.48	0.47	3.6	0.52	0.50	0.48	2.4	0.54	0.50	0.48	1.2	0.52	0.48	0.47	0.0	0.47	0.44	0.47
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Output Voltage [V]	Load Current [A]																																																									
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																							
-12.0	0.13	0.13	0.13																																																							
-11.4	0.27	0.30	0.32																																																							
-10.8	0.29	0.31	0.33																																																							
-9.6	0.33	0.35	0.36																																																							
-8.4	0.37	0.38	0.39																																																							
-7.2	0.40	0.41	0.42																																																							
-6.0	0.45	0.45	0.45																																																							
-4.8	0.48	0.47	0.47																																																							
-3.6	0.52	0.50	0.48																																																							
-2.4	0.54	0.50	0.48																																																							
-1.2	0.52	0.48	0.46																																																							
0.0	0.47	0.44	0.46																																																							

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

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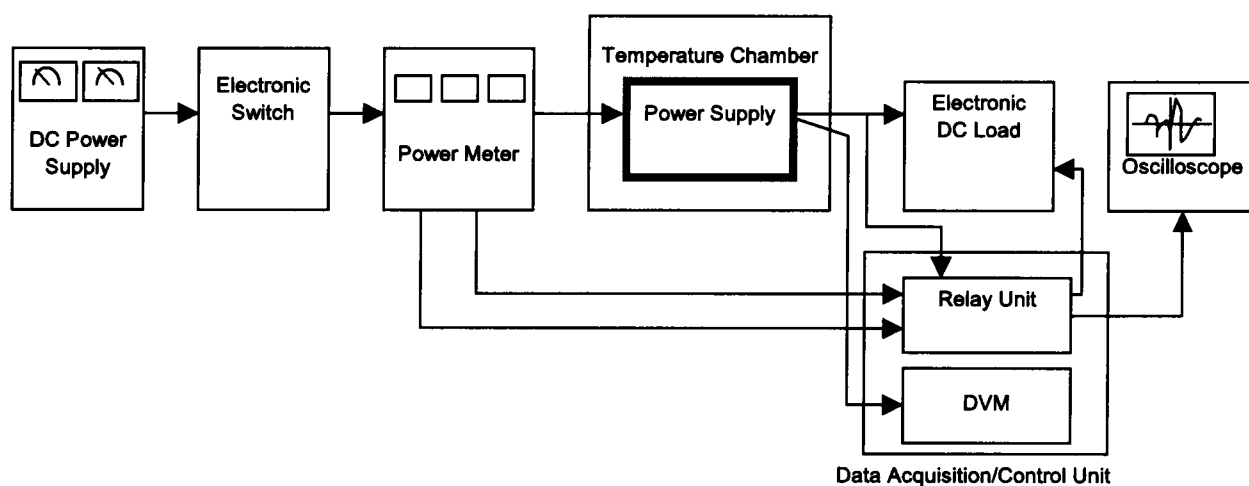


Figure A

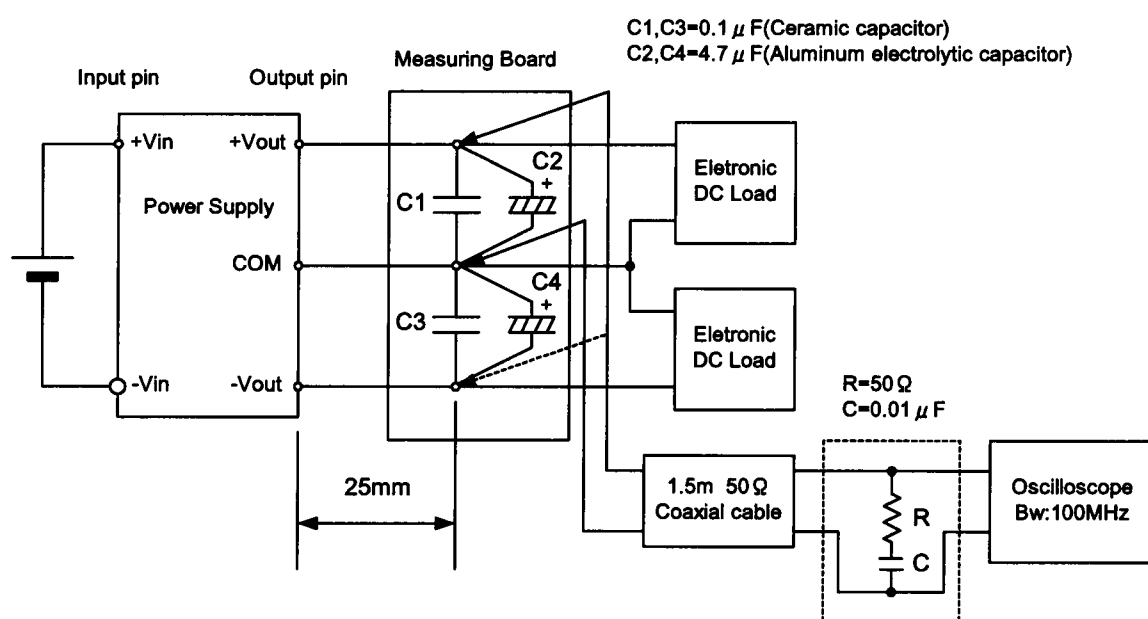


Figure B (Ripple and Ripple noise Characteristic)