

TEST DATA OF SUTW60512

Regulated DC Power Supply
March 16, 2009

Approved by : *Kazunari Asano*
Kazunari Asano Design Manager

Prepared by : *Sho Saito*
Sho Saito Design Engineer

COSEL CO.,LTD.

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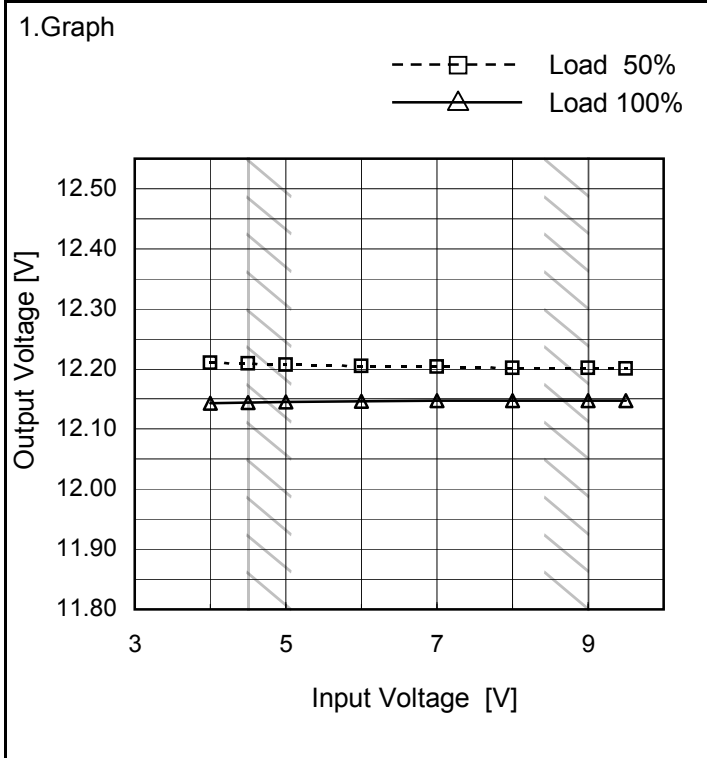


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Model	SUTW60512
Item	Line Regulation
Object	+12V0.25A

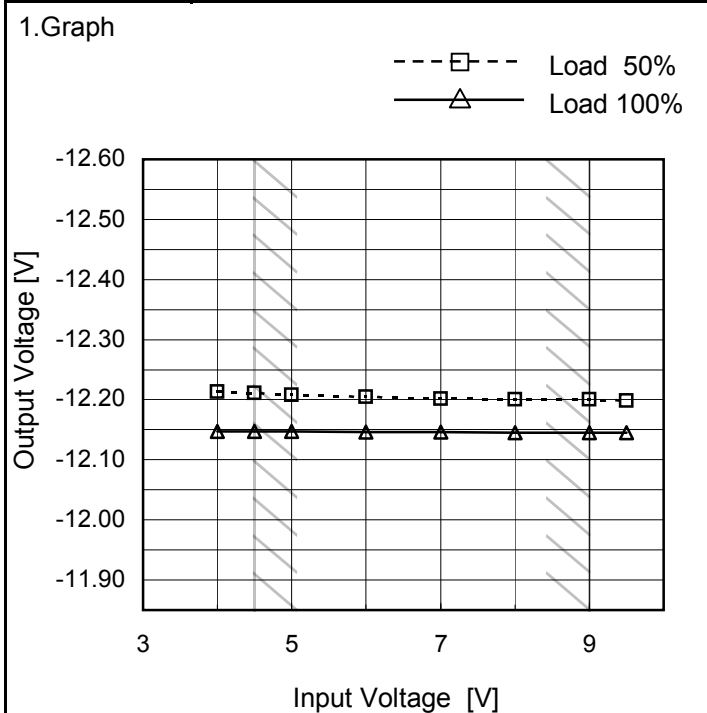
Temperature 25°C
Testing Circuitry Figure A



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	12.210	12.143
4.5	12.209	12.145
5.0	12.207	12.145
6.0	12.205	12.146
7.0	12.203	12.147
8.0	12.202	12.147
9.0	12.201	12.147
9.5	12.201	12.148
--	-	-

Object	-12V0.25A
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2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	-12.213	-12.147
4.5	-12.211	-12.147
5.0	-12.208	-12.147
6.0	-12.205	-12.147
7.0	-12.202	-12.146
8.0	-12.200	-12.145
9.0	-12.200	-12.145
9.5	-12.199	-12.145
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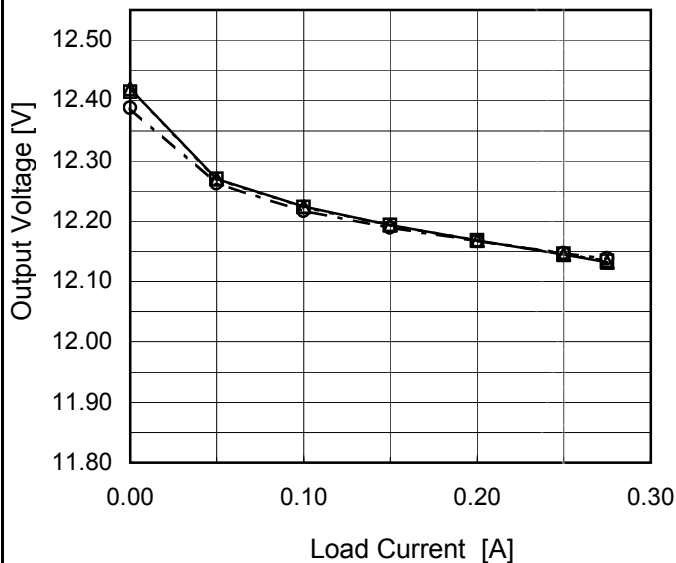
Note: Slanted line shows the range of the rated input voltage.



Model	SUTW60512
Item	Load Regulation
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

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

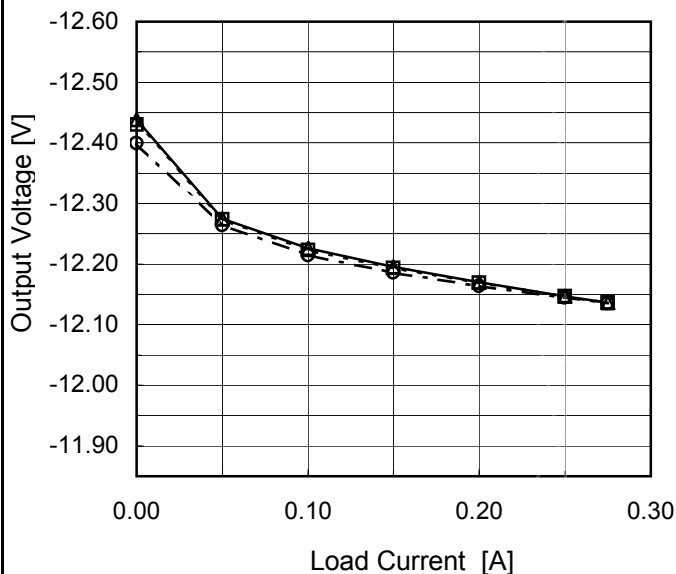


2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.000	12.420	12.415	12.387
0.050	12.270	12.270	12.262
0.100	12.224	12.223	12.217
0.150	12.194	12.193	12.189
0.200	12.168	12.168	12.167
0.250	12.144	12.146	12.147
0.275	12.133	12.135	12.138
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-12V0.25A
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1.Graph
 —△— Input Volt. 4.5V
 ---□--- Input Volt. 5V
 -·-○-·- Input Volt. 9V



2.Values

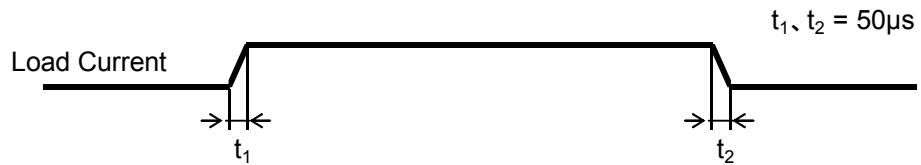
Load Current [A]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.000	-12.438	-12.430	-12.399
0.050	-12.275	-12.274	-12.264
0.100	-12.226	-12.223	-12.215
0.150	-12.195	-12.193	-12.186
0.200	-12.170	-12.169	-12.163
0.250	-12.147	-12.147	-12.145
0.275	-12.136	-12.136	-12.136
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Note: Slanted line shows the range of the rated load current.



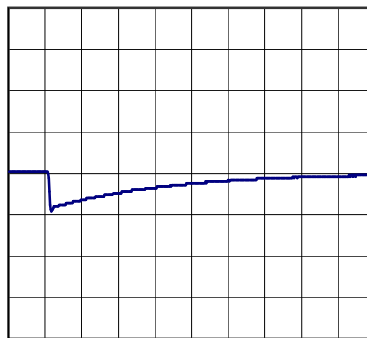
Model	SUTW60512	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.25A		

Input Volt. 48 V
 Cycle 100 mS

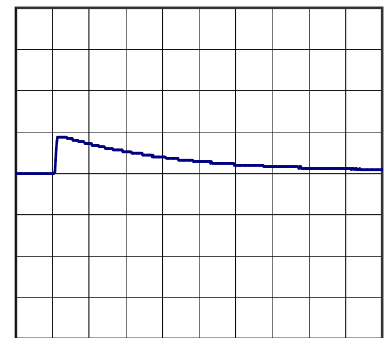


Min. Load (0A) \longleftrightarrow
 Load 100% (0.25A)

500mV/div



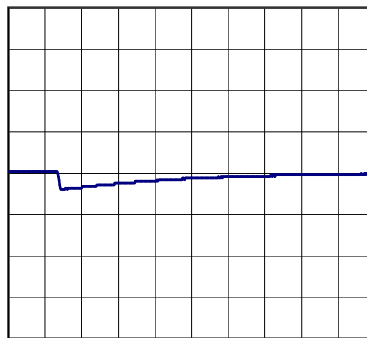
500µs/div



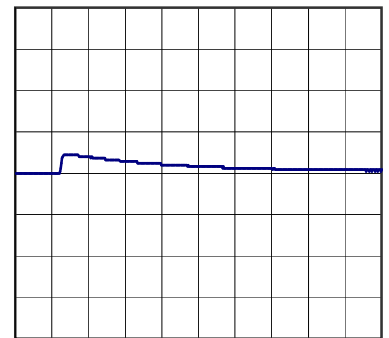
500µs/div

Min. Load (0A) \longleftrightarrow
 Load 50% (0.125A)

500mV/div



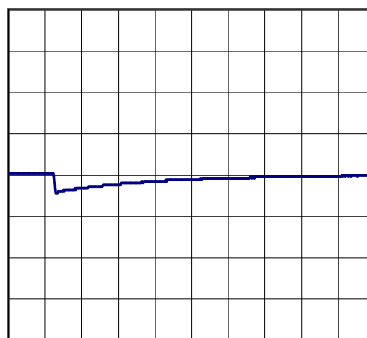
500µs/div



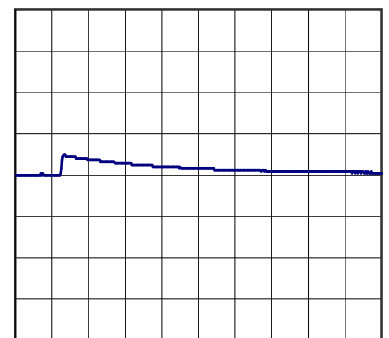
500µs/div

Load 50% (0.125A) \longleftrightarrow
 Load 100% (0.25A)

500mV/div



500µs/div

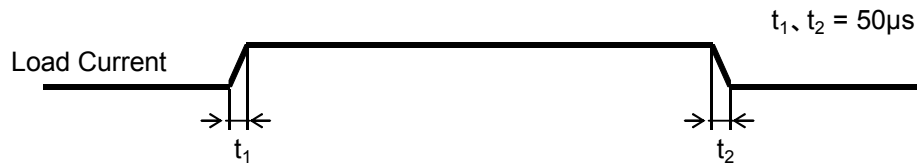


500µs/div



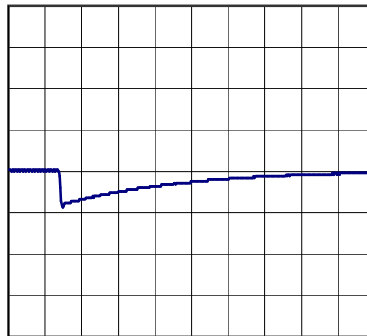
Model	SUTW60512	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-12V0.25A		

Input Volt. 48 V
 Cycle 100 mS

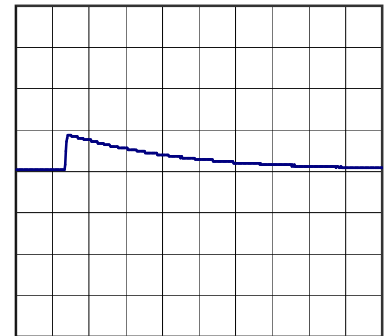


Min. Load (0A) ←→
 Load 100% (0.25A)

500mV/div



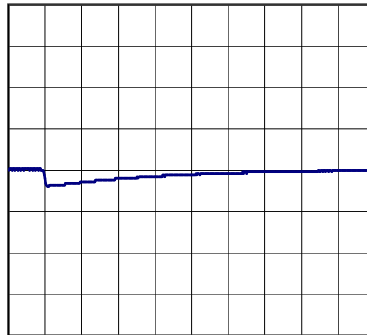
500µs/div



500µs/div

Min. Load (0A) ←→
 Load 50% (0.125A)

500mV/div



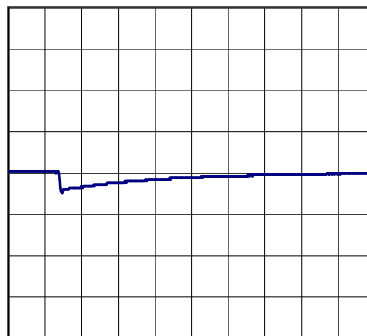
500µs/div



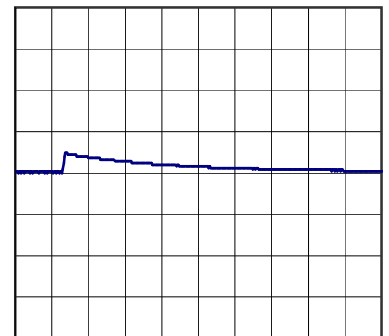
500µs/div

Load 50% (0.125A) ←→
 Load 100% (0.25A)

500mV/div



500µs/div



500µs/div

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COSEL		
Model	SUTW60512	
Item	Output Voltage Accuracy	Testing Circuitry Figure A

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 - 0.25A (AVR 2) : 0 - 0.25A

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

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

2. Values

Object		+12V0.25A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	4.5	0	12.427	±287	±2.4
Minimum Voltage	55	4.5	0.25	11.854		

Object		-12V0.25A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	4.5	0	-12.445	±286	±2.4
Minimum Voltage	55	4.5	0.25	-11.873		



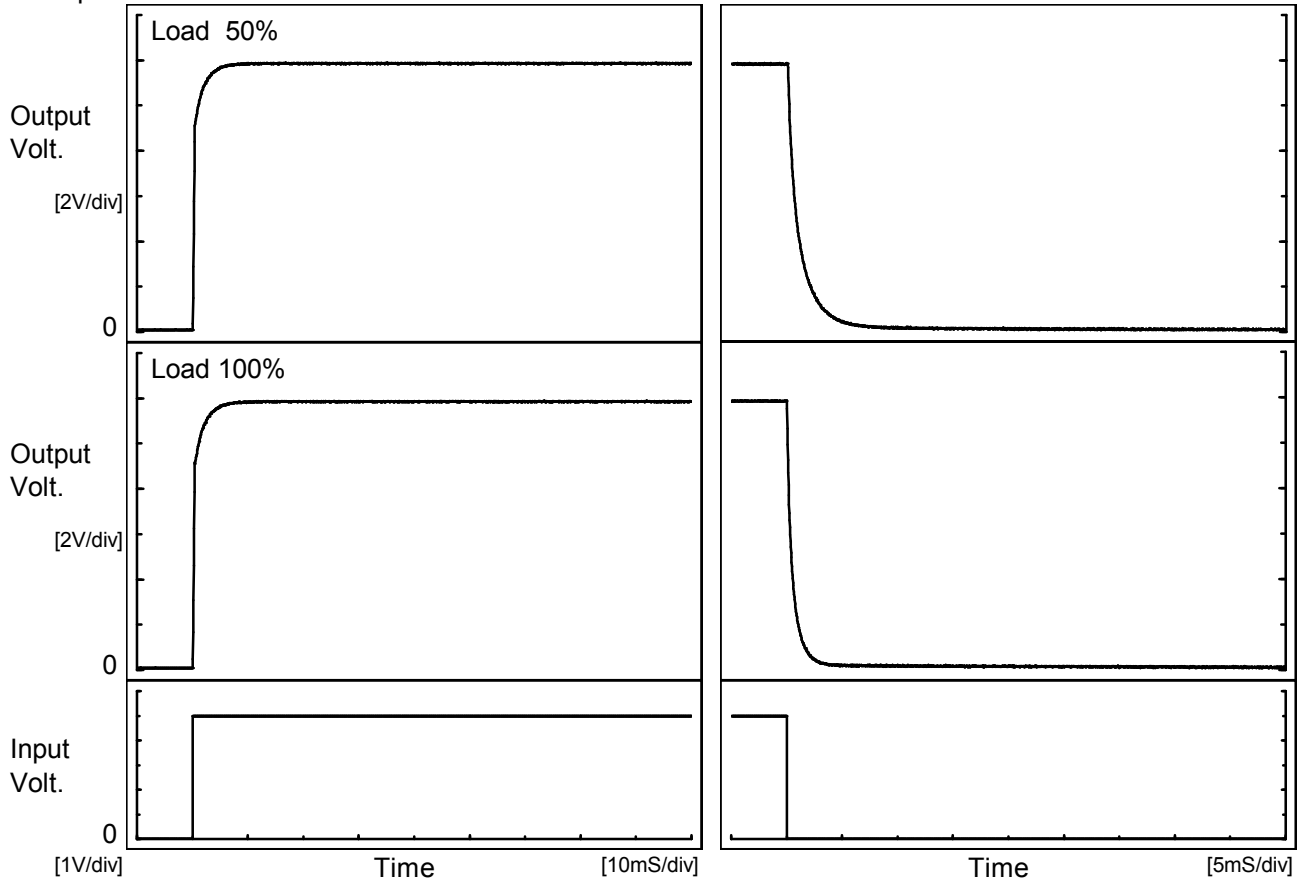
COSEL																									
Model	SUTW60512	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+12V0.25A																								
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p style="text-align: center;">Input Volt. 5V Load 100%</p>		<p>2.Values</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>12.140</td></tr> <tr><td>0.5</td><td>12.143</td></tr> <tr><td>1.0</td><td>12.143</td></tr> <tr><td>2.0</td><td>12.143</td></tr> <tr><td>3.0</td><td>12.143</td></tr> <tr><td>4.0</td><td>12.143</td></tr> <tr><td>5.0</td><td>12.143</td></tr> <tr><td>6.0</td><td>12.143</td></tr> <tr><td>7.0</td><td>12.143</td></tr> <tr><td>8.0</td><td>12.143</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	12.140	0.5	12.143	1.0	12.143	2.0	12.143	3.0	12.143	4.0	12.143	5.0	12.143	6.0	12.143	7.0	12.143	8.0	12.143
Time since start [H]	Output Voltage [V]																								
0.0	12.140																								
0.5	12.143																								
1.0	12.143																								
2.0	12.143																								
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Object	-12V0.25A																								
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p style="text-align: center;">Input Volt. 5V Load 100%</p>		<p>2.Values</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>-12.146</td></tr> <tr><td>0.5</td><td>-12.150</td></tr> <tr><td>1.0</td><td>-12.150</td></tr> <tr><td>2.0</td><td>-12.150</td></tr> <tr><td>3.0</td><td>-12.150</td></tr> <tr><td>4.0</td><td>-12.150</td></tr> <tr><td>5.0</td><td>-12.150</td></tr> <tr><td>6.0</td><td>-12.151</td></tr> <tr><td>7.0</td><td>-12.151</td></tr> <tr><td>8.0</td><td>-12.151</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	-12.146	0.5	-12.150	1.0	-12.150	2.0	-12.150	3.0	-12.150	4.0	-12.150	5.0	-12.150	6.0	-12.151	7.0	-12.151	8.0	-12.151
Time since start [H]	Output Voltage [V]																								
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Model		SUTW60512	Temperature	25°C
Item		Rise and Fall Time	Testing Circuitry	Figure A
Object		+12V0.25A		

1. Graph

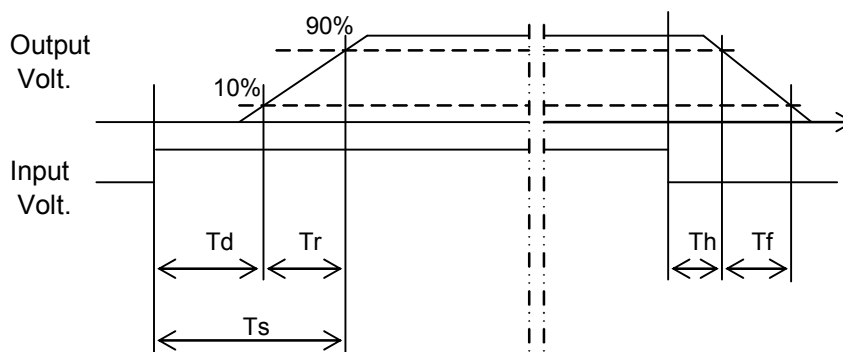
Input Volt. 5 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.2	2.0	2.2	0.1	2.7
100 %	0.2	2.1	2.3	0.1	1.3

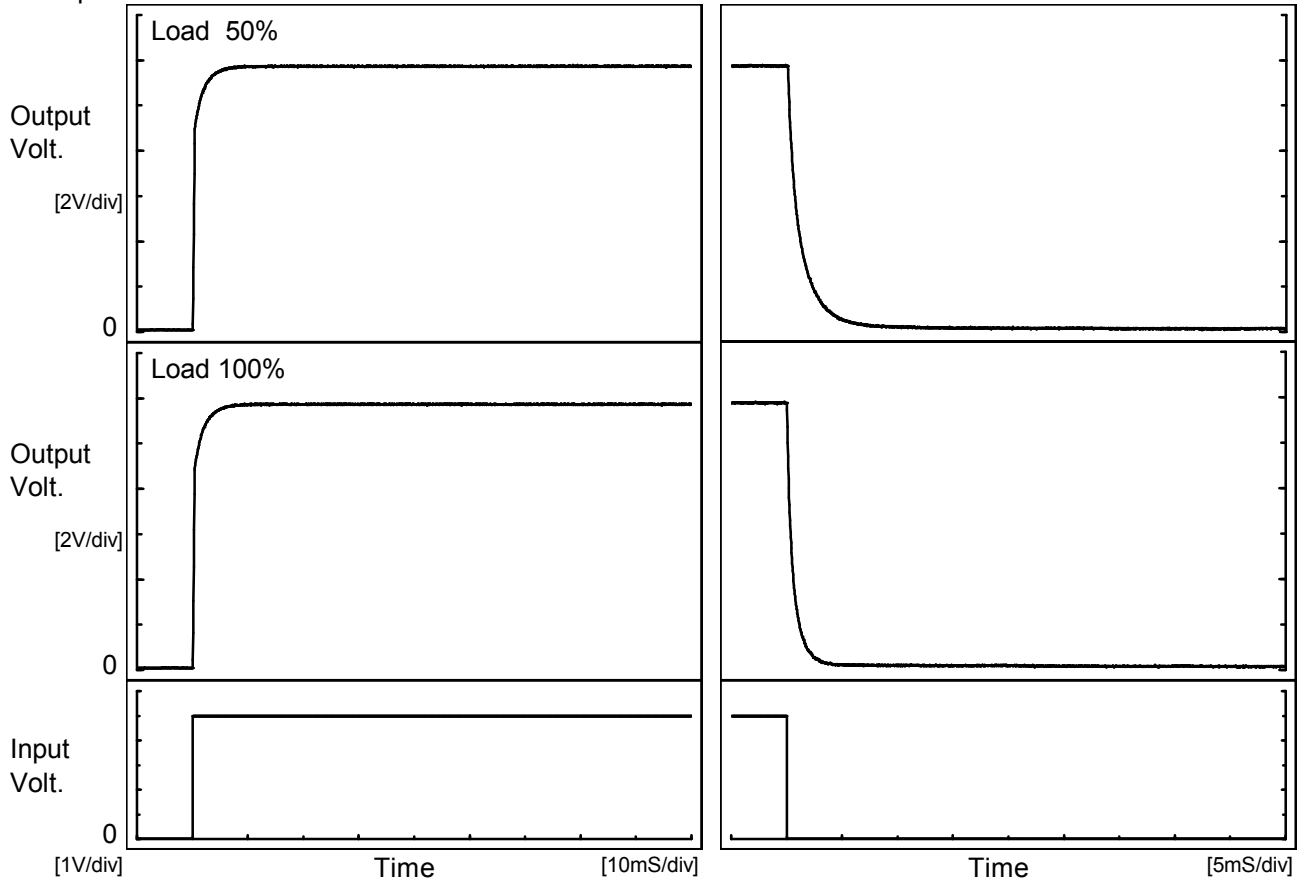




Model		SUTW60512	Temperature	25°C
Item		Rise and Fall Time	Testing Circuitry	Figure A
Object		-12V0.25A		

1. Graph

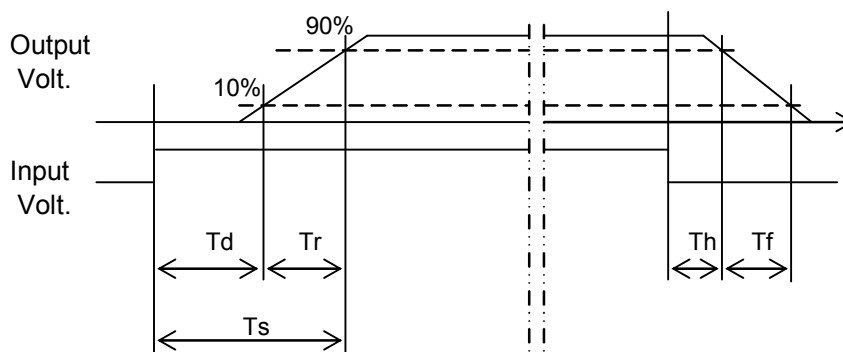
Input Volt. 5 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.2	2.3	2.5	0.1	2.9
100 %	0.2	2.3	2.5	0.1	1.5

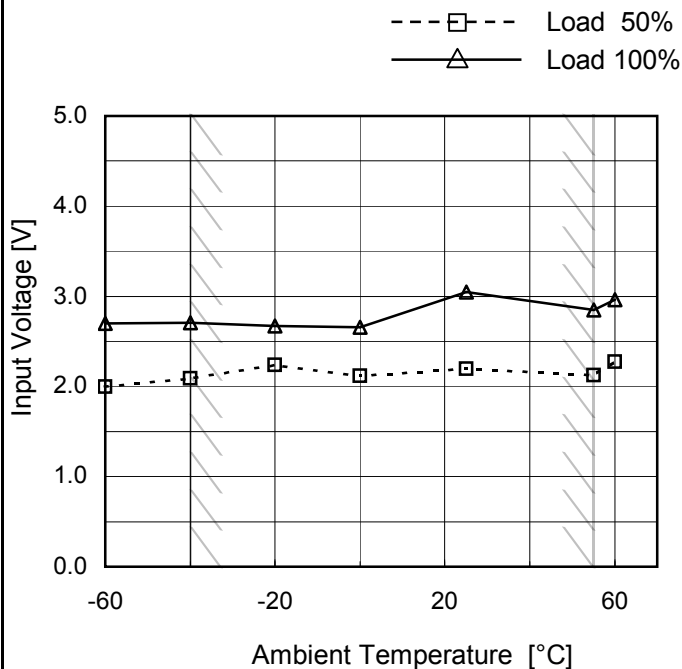




Model	SUTW60512
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.25A

Testing Circuitry Figure A

1.Graph

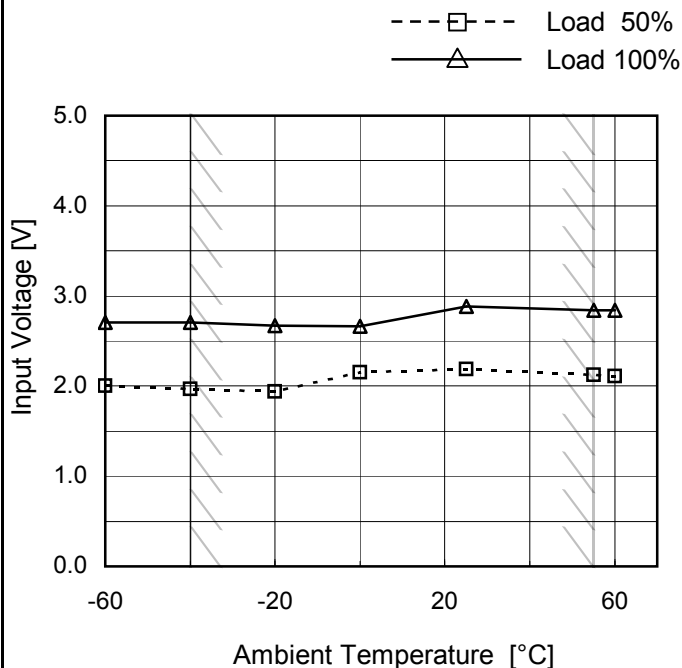


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	2.0	2.7
-40	2.1	2.7
-20	2.3	2.7
0	2.2	2.7
25	2.2	3.1
55	2.2	2.9
60	2.3	3.0
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V0.25A
--------	-----------

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	2.0	2.7
-40	2.0	2.7
-20	2.0	2.7
0	2.2	2.7
25	2.2	2.9
55	2.2	2.9
60	2.2	2.9
--	-	-
--	-	-
--	-	-
--	-	-

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



COSEL																																																										
Model	SUTW60512	Temperature	25°C																																																							
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																							
Object	+12V0.25A																																																									
1.Graph	<p> — Input Volt. 4.5V — Input Volt. 5V — Input Volt. 9V </p>	2.Values																																																								
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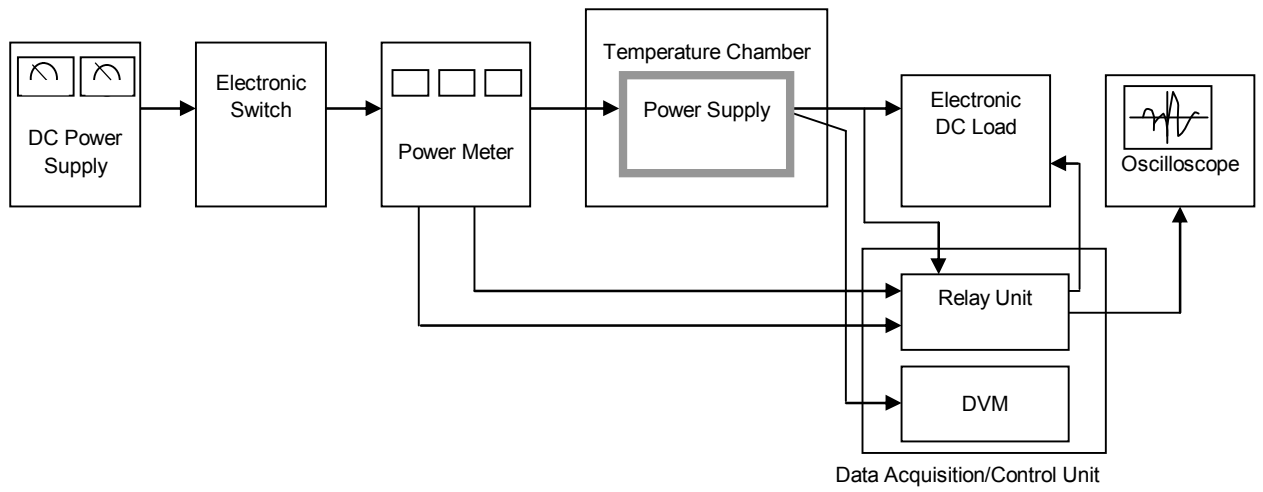


Figure A

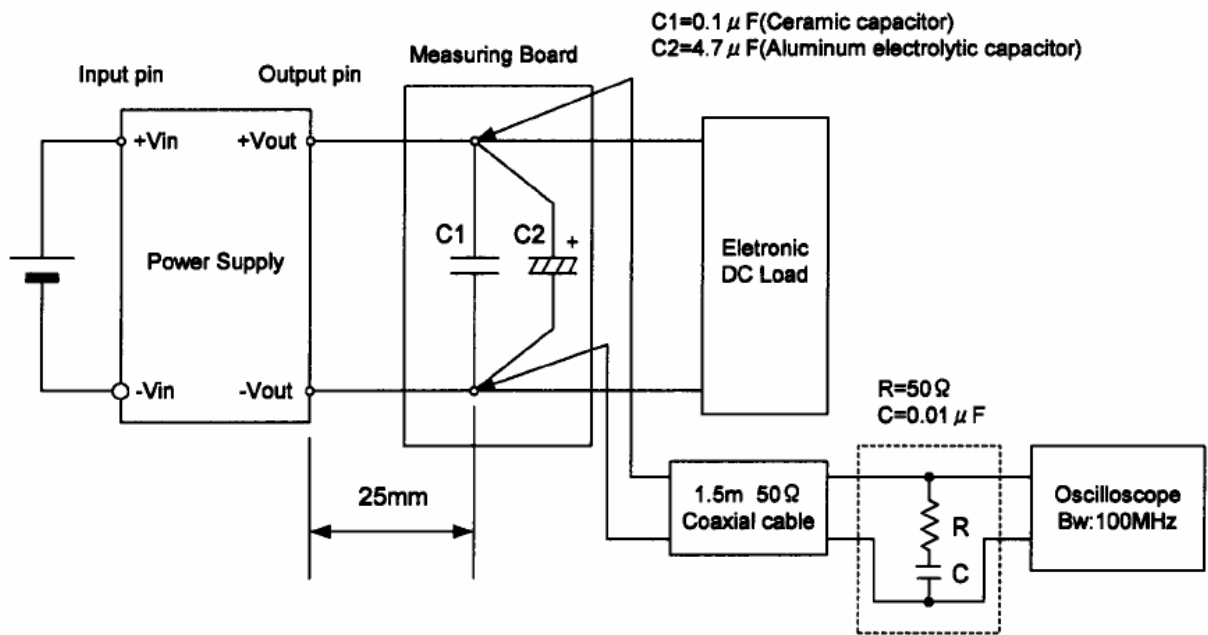


Figure B (Ripple and Ripple noise Characteristic)