

# TEST DATA OF SUS60512 SUCS60512

Regulated DC Power Supply  
Feb 22, 2005

Approved by : Tetsuo Sugimori  
Tetsuo Sugimori Design Manager

Prepared by : Yoshikazu Mizuno  
Yoshikazu Mizuno Design Engineer

**COSEL CO.,LTD.**



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Model	SUS60512/SUCS60512	Temperature Testing Circuitry 25°C Figure A																																																																							
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<p>The graph plots Efficiency [%] on the y-axis (40 to 100) against Input Voltage [V] on the x-axis (3 to 9). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show efficiency starting around 80% at 4V, peaking near 85% between 7V and 8V, and then slightly decreasing towards 9.5V. A slanted line across the graph indicates the rated input voltage range.</p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>4.0</td> <td>80.7</td> <td>80.0</td> </tr> <tr> <td>4.5</td> <td>81.1</td> <td>81.5</td> </tr> <tr> <td>5.0</td> <td>81.3</td> <td>82.1</td> </tr> <tr> <td>6.0</td> <td>80.9</td> <td>83.4</td> </tr> <tr> <td>7.0</td> <td>79.7</td> <td>83.9</td> </tr> <tr> <td>8.0</td> <td>78.4</td> <td>83.6</td> </tr> <tr> <td>9.0</td> <td>76.8</td> <td>83.4</td> </tr> <tr> <td>9.5</td> <td>75.6</td> <td>82.8</td> </tr> <tr> <td>—</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	4.0	80.7	80.0	4.5	81.1	81.5	5.0	81.3	82.1	6.0	80.9	83.4	7.0	79.7	83.9	8.0	78.4	83.6	9.0	76.8	83.4	9.5	75.6	82.8	—	-	-
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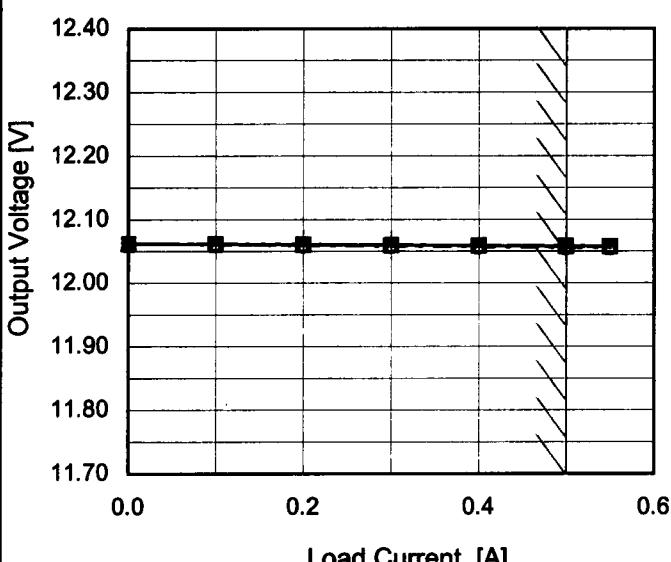
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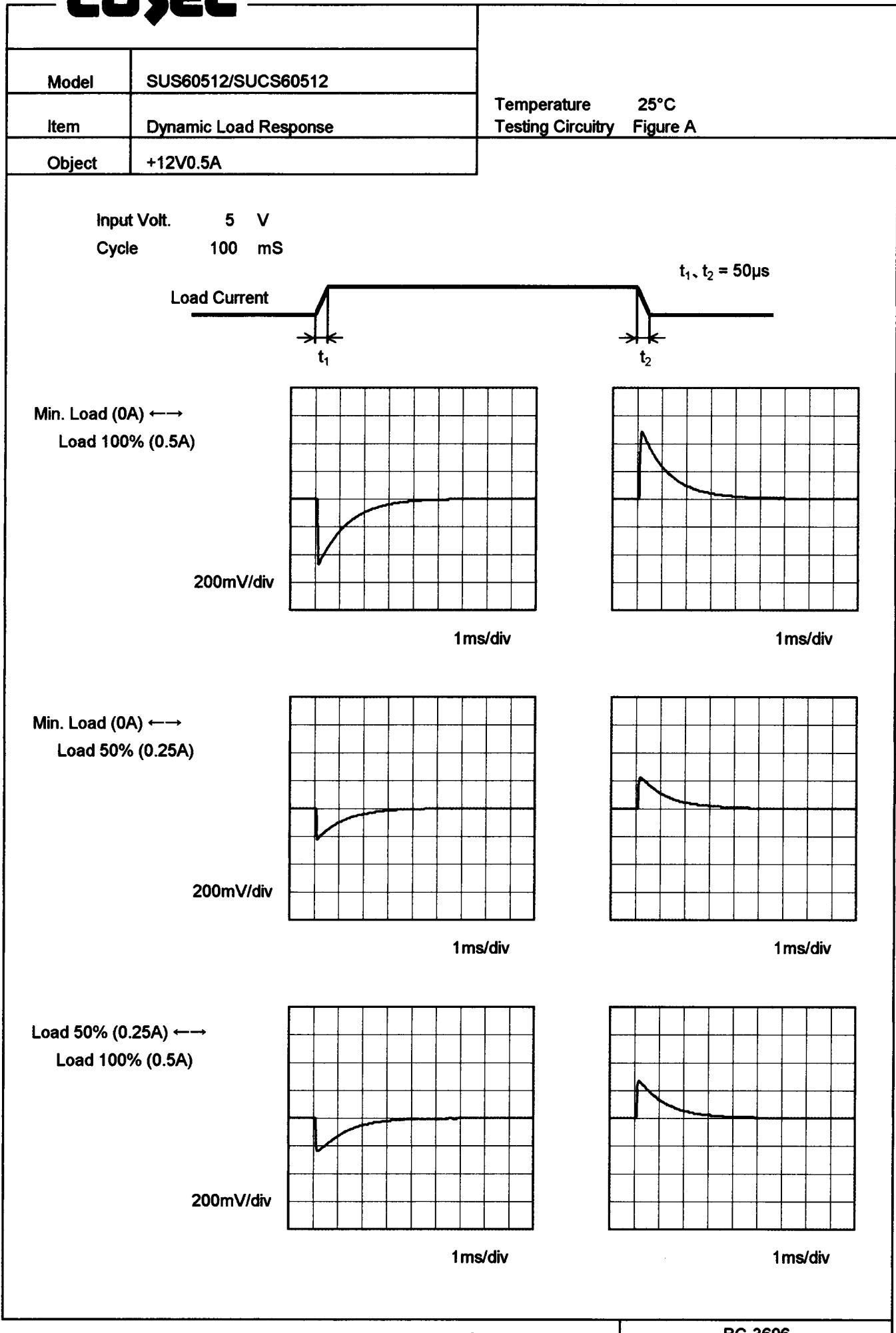
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**COSEL**

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Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																						
Object	+12V0.5A																																							
1.Graph																																								
<p>—△— Input Volt. 4.5V ---○--- Input Volt. 9V</p> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>																																								
<p>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.</p> <p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																								
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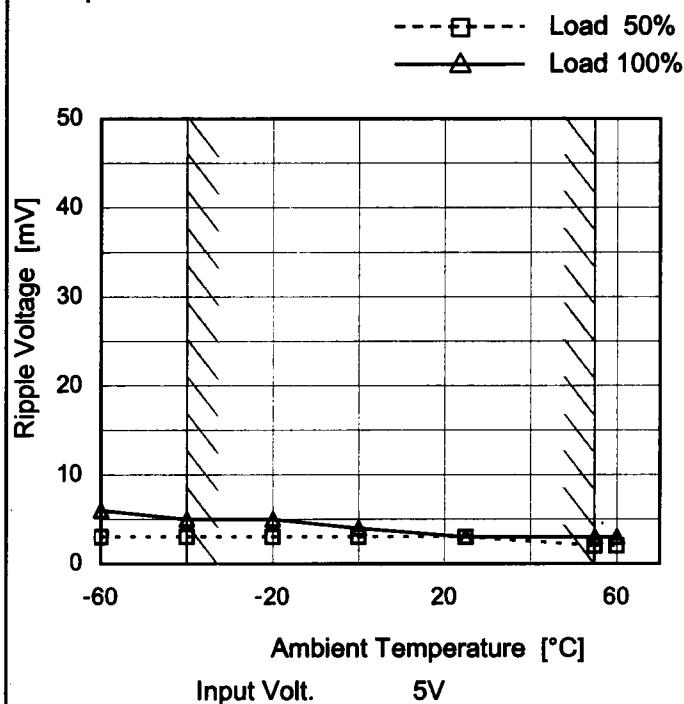
**COSEL**

Model	SUS60512/SUCS60512																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+12V0.5A																																							
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**COSEL**

Model	SUS60512/SUCS60512
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.5A

## 1. Graph



Measured by 100 MHz Oscilloscope.

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

## Testing Circuitry Figure B

## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	3	6
-40	3	5
-20	3	5
0	3	4
25	3	3
55	2	3
60	2	3
-	-	-
-	-	-
-	-	-
-	-	-

**COSEL**

Model	SUS60512/SUCS60512	Testing Circuitry Figure A																																																					
Item	Ambient Temperature Drift																																																						
Object	+12V0.5A																																																						
1.Graph	<p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <ul style="list-style-type: none"> <li>—▲— Input Volt. 4.5V</li> <li>---□--- Input Volt. 5V</li> <li>---○--- Input Volt. 9V</li> </ul>																																																						
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Model	SUS60512/SUCS60512	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V0.5A	

### 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 : 0 - 0.5A

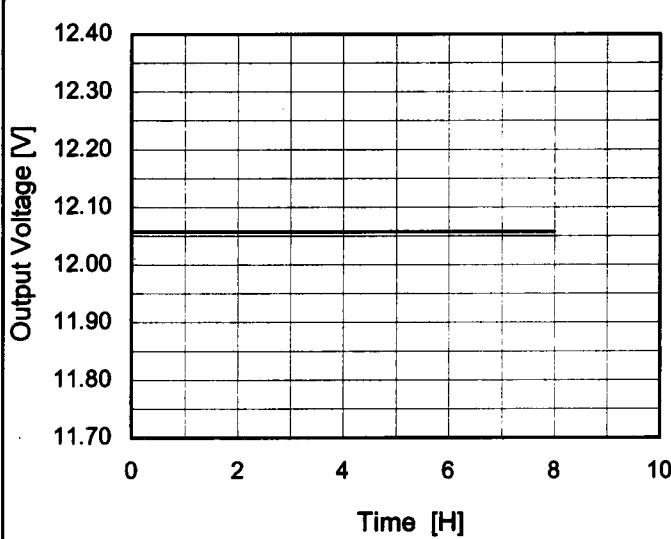
\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

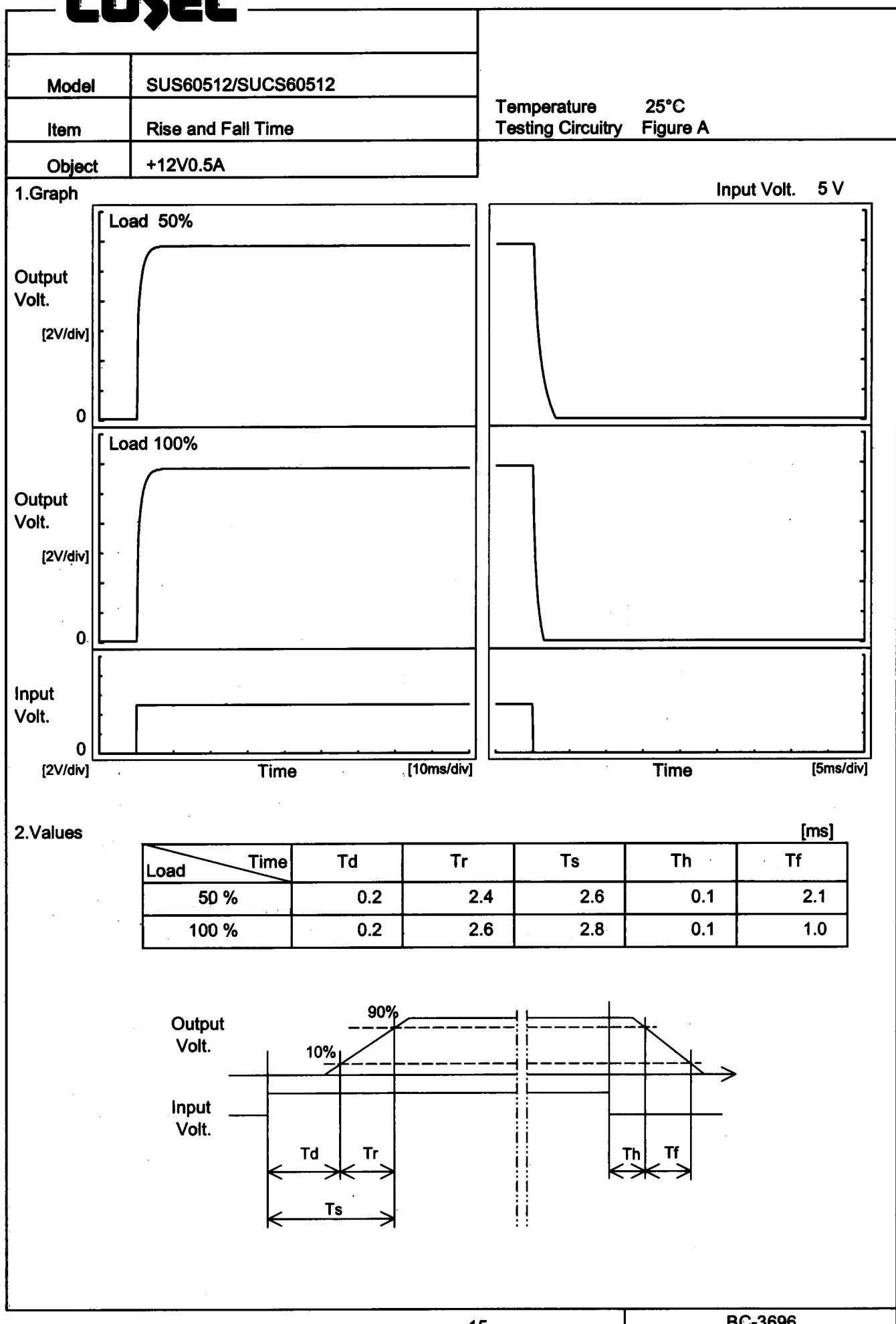
$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	4.5	0	12.062	±18	±0.2
Minimum Voltage	-40	9	0	12.027		

**COSEL**

Model	SUS60512/SUCCS60512	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+12V0.5A																								
1.Graph			2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 5V Load 100%</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>12.060</td></tr> <tr><td>0.5</td><td>12.058</td></tr> <tr><td>1.0</td><td>12.058</td></tr> <tr><td>2.0</td><td>12.058</td></tr> <tr><td>3.0</td><td>12.058</td></tr> <tr><td>4.0</td><td>12.058</td></tr> <tr><td>5.0</td><td>12.058</td></tr> <tr><td>6.0</td><td>12.058</td></tr> <tr><td>7.0</td><td>12.058</td></tr> <tr><td>8.0</td><td>12.058</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	12.060	0.5	12.058	1.0	12.058	2.0	12.058	3.0	12.058	4.0	12.058	5.0	12.058	6.0	12.058	7.0	12.058	8.0	12.058
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**COSEL**

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Model	SUS60512/SUCS60512																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																							
Object	+12V0.5A																																							
1. Graph																																								
<p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Legend:</p> <ul style="list-style-type: none"> <li>Load 50% (Dashed line with squares)</li> <li>Load 100% (Solid line with triangles)</li> </ul>																																								
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Ambient Temperature [°C]	Input Voltage [V]																																							
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Note: Slanted line shows the range of the rated ambient temperature.																																								

**COSEL**

Model	SUS60512/SUCS60512	Temperature Testing Circuitry	25°C Figure A																																																							
Item	Overcurrent Protection																																																									
Object	+12V0.5A																																																									
1.Graph	<p>Input Volt. 4.5V        Input Volt. 5V        Input Volt. 9V</p> <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																								
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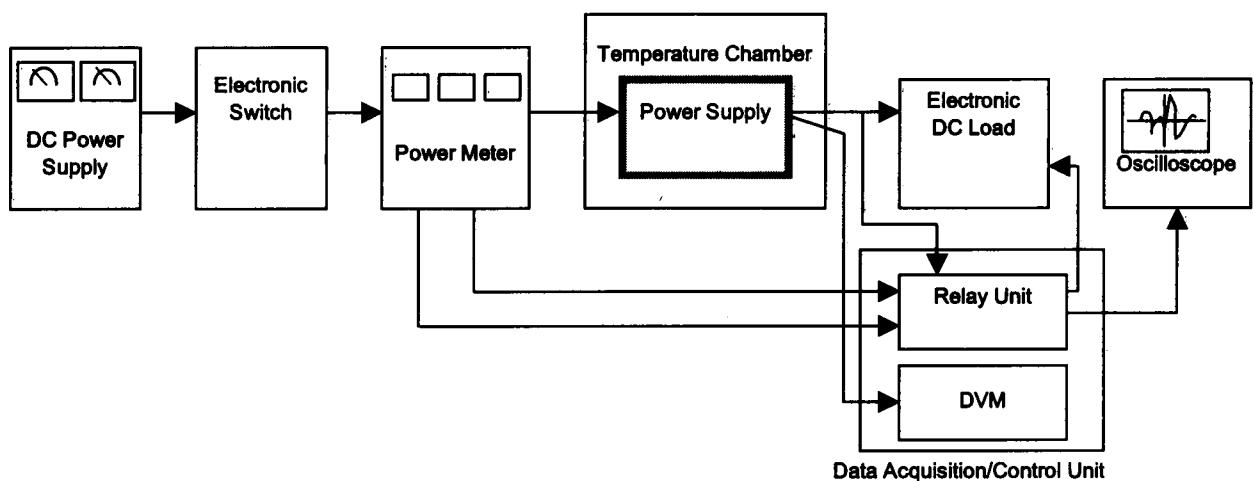


Figure A

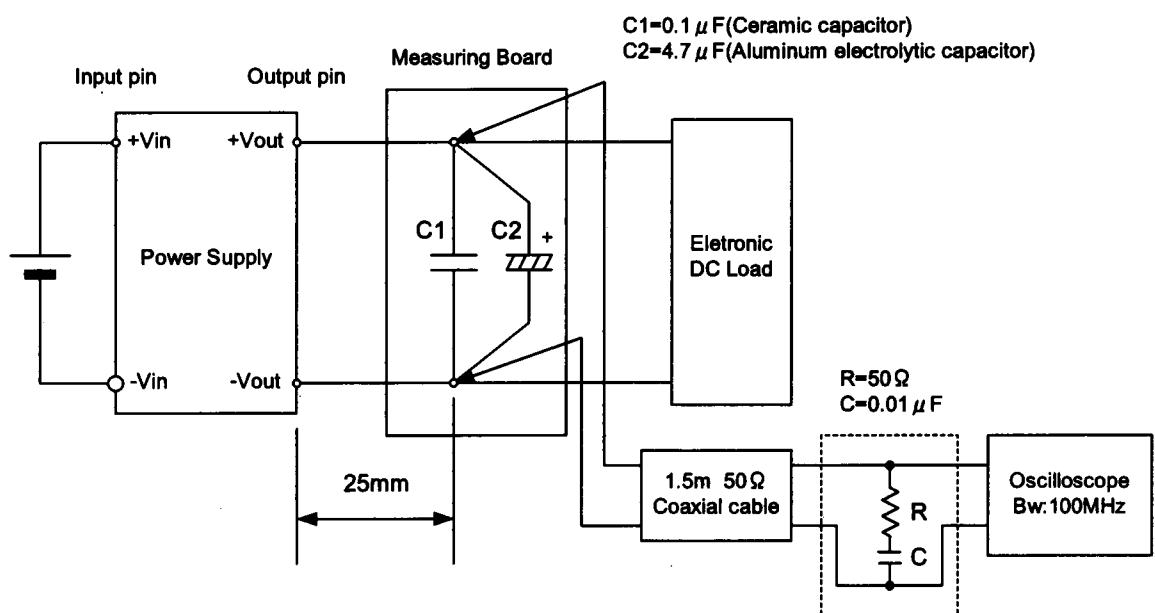


Figure B (Ripple and Ripple noise Characteristic)