

# TEST DATA OF SUS6123R3 SU CS6123R3

Regulated DC Power Supply  
Feb 18, 2005

Approved by : Tetsuo Sugimori  
Tetsuo Sugimori Design Manager

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Yoshikazu Mizuno Design Engineer

**COSEL CO.,LTD.**



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Model	SUS6123R3/SUCCS6123R3	Temperature Testing Circuitry	25°C Figure A																																																																							
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1.Graph		2.Values																																																																								
<p>The graph plots Input Current [A] on the y-axis (0.0 to 1.2) against Input Voltage [V] on the x-axis (0 to 24). Three curves are shown: Load 100% (solid triangles), Load 50% (dashed squares), and Load 0% (dotted circles). A vertical dashed line at approximately 8V indicates the rated input voltage range.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Load 0%</th> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>2.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>4.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>6.0</td><td>0.002</td><td>0.002</td><td>0.002</td></tr> <tr><td>7.6</td><td>0.063</td><td>0.071</td><td>0.068</td></tr> <tr><td>7.8</td><td>0.061</td><td>0.409</td><td>0.776</td></tr> <tr><td>8.0</td><td>0.060</td><td>0.392</td><td>0.764</td></tr> <tr><td>9.0</td><td>0.054</td><td>0.347</td><td>0.669</td></tr> <tr><td>10.0</td><td>0.051</td><td>0.316</td><td>0.597</td></tr> <tr><td>12.0</td><td>0.047</td><td>0.266</td><td>0.496</td></tr> <tr><td>14.0</td><td>0.046</td><td>0.232</td><td>0.428</td></tr> <tr><td>16.0</td><td>0.046</td><td>0.209</td><td>0.378</td></tr> <tr><td>18.0</td><td>0.047</td><td>0.192</td><td>0.341</td></tr> <tr><td>20.0</td><td>0.048</td><td>0.179</td><td>0.311</td></tr> <tr><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>		Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	2.0	0.001	0.001	0.001	4.0	0.001	0.001	0.001	6.0	0.002	0.002	0.002	7.6	0.063	0.071	0.068	7.8	0.061	0.409	0.776	8.0	0.060	0.392	0.764	9.0	0.054	0.347	0.669	10.0	0.051	0.316	0.597	12.0	0.047	0.266	0.496	14.0	0.046	0.232	0.428	16.0	0.046	0.209	0.378	18.0	0.047	0.192	0.341	20.0	0.048	0.179	0.311	-	-	-	-	-	-	-	-
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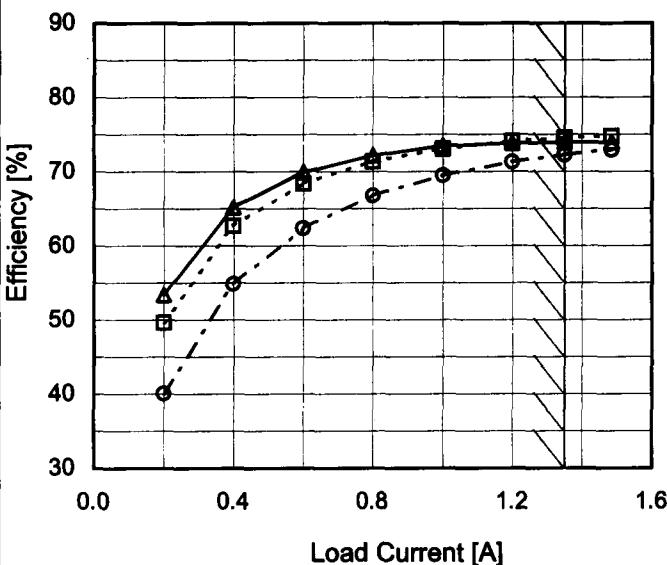
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Item	Efficiency (by Load Current)	Temperature Testing Circuitry	25°C Figure A
Object			
1.Graph			
	—▲— Input Volt. 9V	—□— Input Volt. 12V	—○— Input Volt. 18V
			
	Efficiency [%]	Load Current [A]	2.Values
Load Current [A]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.000	-	-	-
0.200	53.4	49.6	40.1
0.400	65.2	62.7	54.9
0.600	69.9	68.4	62.4
0.800	72.2	71.4	66.8
1.000	73.5	73.1	69.5
1.200	73.8	74.1	71.3
1.350	74.0	74.5	72.3
1.485	74.0	74.8	72.9
--	-	-	-
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Note: Slanted line shows the range of the rated load current.

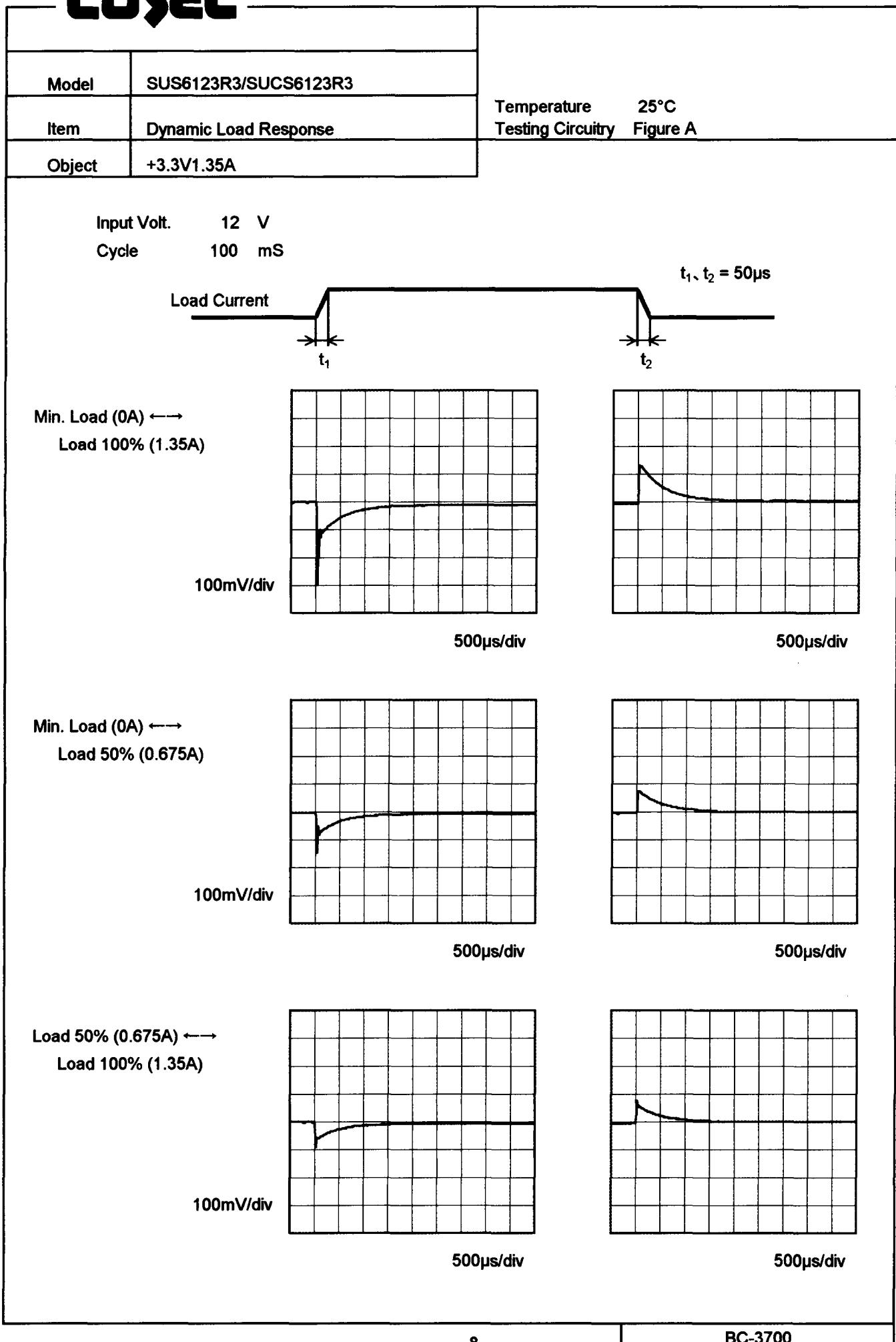
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Item	Line Regulation	Temperature 25°C Testing Circuitry Figure A																																
Object	+3.3V1.35A																																	
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<p>Output Voltage [V]</p> <p>Input Voltage [V]</p> <p>Legend: ---□--- Load 50% —△— Load 100%</p>																																		
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0.200	3.304	3.304	3.304																																																		
0.400	3.303	3.303	3.303																																																		
0.600	3.302	3.302	3.302																																																		
0.800	3.301	3.301	3.301																																																		
1.000	3.300	3.300	3.300																																																		
1.200	3.298	3.299	3.298																																																		
1.350	3.297	3.297	3.297																																																		
1.485	3.295	3.296	3.296																																																		
--	-	-	-																																																		
--	-	-	-																																																		

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

**COSEL**

**COSEL**

<p><b>Model</b> SUS6123R3/SUCS6123R3</p> <p><b>Item</b> Ripple Voltage (by Load Current)</p> <p><b>Object</b> +3.3V1.35A</p>	<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
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<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>																																							

# COSEL

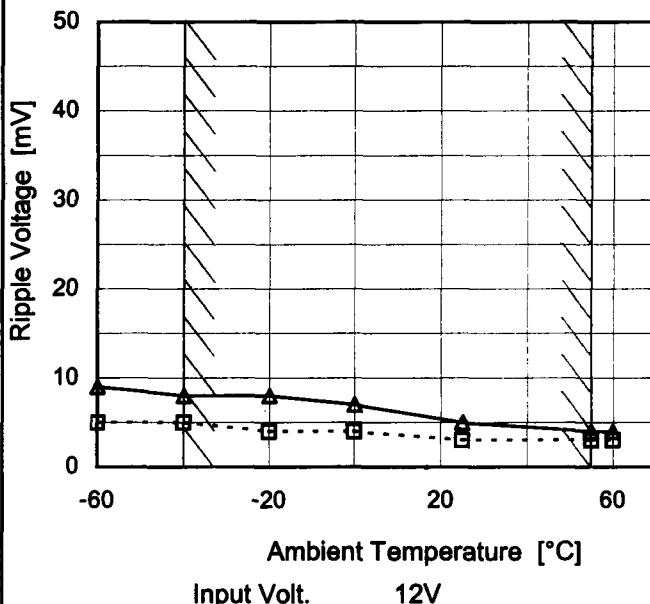
Model	SUS6123R3/SUCCS6123R3																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+3.3V1.35A																																							
1. Graph																																								
<p style="text-align: center;"> <span style="display: inline-block; width: 15px; height: 10px; border-left: 2px solid black; border-bottom: 2px solid black; transform: rotate(45deg);"></span> Input Volt. 9V  <span style="display: inline-block; width: 15px; height: 10px; border-top: 2px dashed black; border-bottom: 2px dashed black; border-left: 1px solid black; border-right: 1px solid black; border-radius: 5px; margin: 0 5px;"></span> Input Volt. 18V         </p>																																								
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<p>Fig.Complex Ripple Noise Wave Form</p>																																								

# COSEL

<p><b>Model</b> SUS6123R3/SUCCS6123R3</p> <p><b>Item</b> Ripple Voltage (by Ambient Temp.)</p> <p><b>Object</b> +3.3V1.35A</p>	<b>Testing Circuitry</b> <b>Figure B</b>																																						
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**1.Graph**

---□--- Load 50%  
—△— Load 100%



Measured by 100 MHz Oscilloscope.

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

**COSEL**

Model	SUS6123R3/SUCS6123R3																																																										
Item	Ambient Temperature Drift																																																										
Object	+3.3V1.35A																																																										
1.Graph																																																											
<p>The graph plots Output Voltage [V] on the Y-axis (3.24 to 3.36) against Ambient Temperature [°C] on the X-axis (-60 to 60). Three data series are shown for Input Voltages of 9V, 12V, and 18V. All series show a slight increase in output voltage with increasing temperature, staying within a narrow band between 3.291V and 3.298V. A slanted line at approximately 55°C indicates the rated ambient temperature range.</p>			Testing Circuitry Figure A																																																								
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Model	SUS6123R3/SUCS6123R3	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+3.3V1.35A	

### 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 : 0 - 1.35A

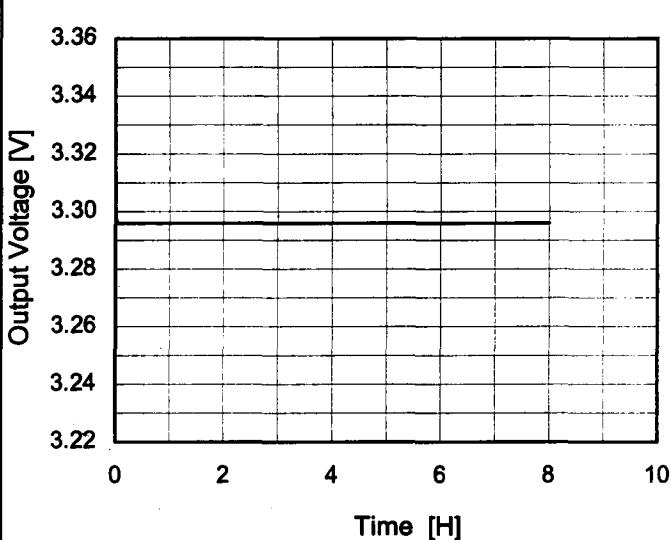
\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	18	0	3.305	±6	±0.2
Minimum Voltage	55	18	1.35	3.293		

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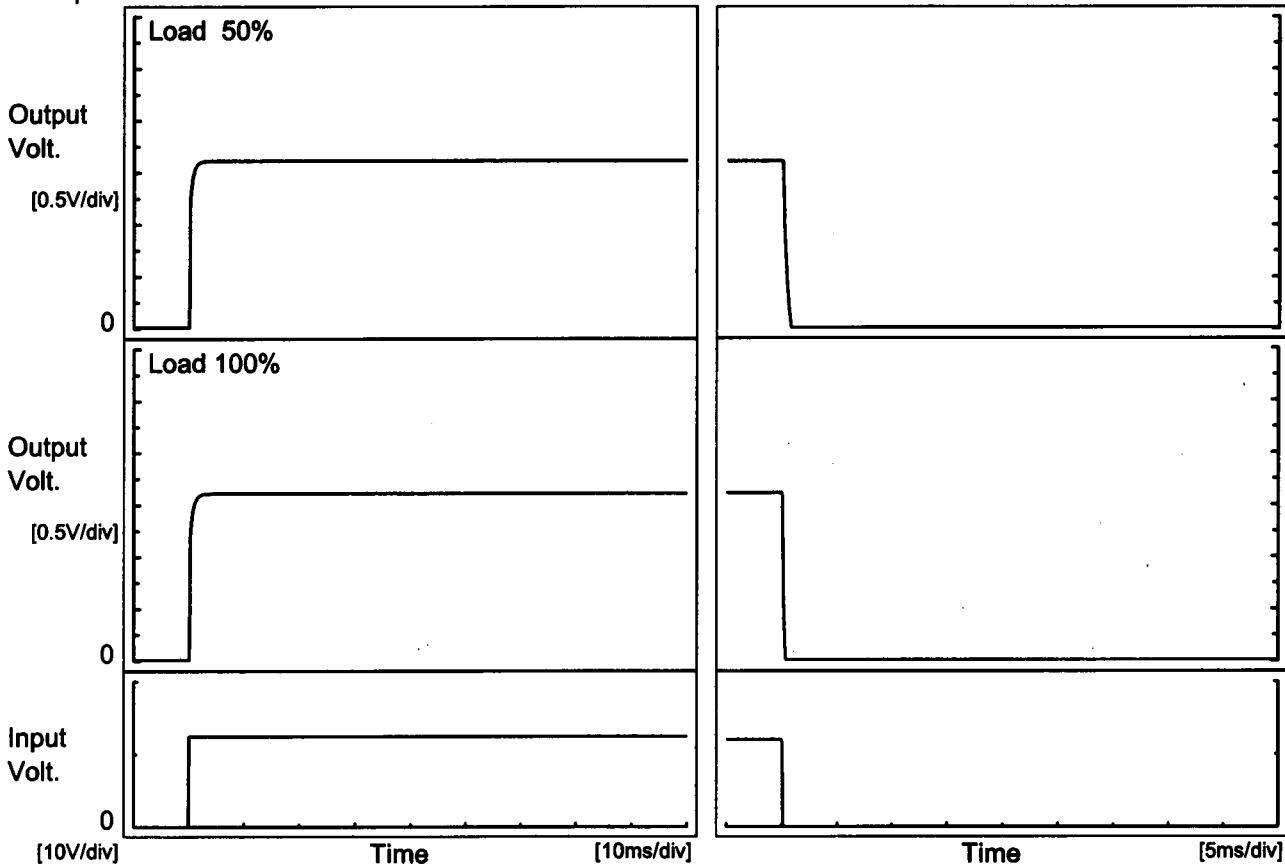
Model	SUS6123R3/SUCS6123R3	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+3.3V1.35A																								
1.Graph			2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V Load 100%</p>			<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>3.298</td></tr> <tr><td>0.5</td><td>3.296</td></tr> <tr><td>1.0</td><td>3.296</td></tr> <tr><td>2.0</td><td>3.296</td></tr> <tr><td>3.0</td><td>3.296</td></tr> <tr><td>4.0</td><td>3.296</td></tr> <tr><td>5.0</td><td>3.296</td></tr> <tr><td>6.0</td><td>3.296</td></tr> <tr><td>7.0</td><td>3.296</td></tr> <tr><td>8.0</td><td>3.296</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	3.298	0.5	3.296	1.0	3.296	2.0	3.296	3.0	3.296	4.0	3.296	5.0	3.296	6.0	3.296	7.0	3.296	8.0	3.296
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7.0	3.296																								
8.0	3.296																								

**COSEL**

Model	SUS6123R3/SUCCS6123R3
Item	Rise and Fall Time
Object	+3.3V1.35A

Temperature 25°C  
Testing Circuitry Figure A

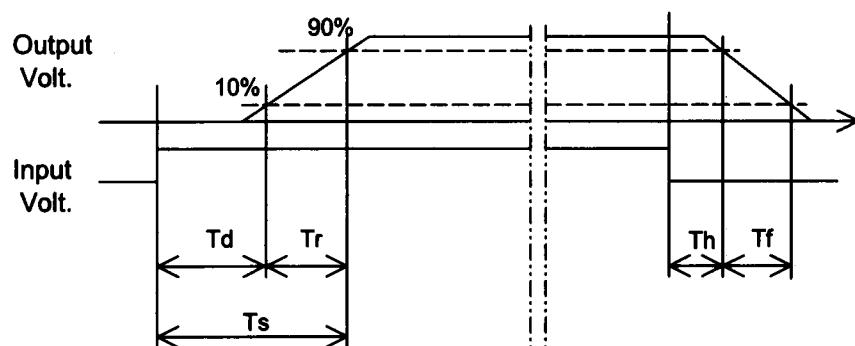
## 1. Graph



## 2. Values

[ms]

Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.2	0.8	1.0	0.1	0.6
100 %		0.2	0.9	1.1	0.1	0.2





<p><b>Model</b></p> <p><b>Item</b></p> <p><b>Object</b></p>	SUS6123R3/SUCS6123R3	<p>Testing Circuitry Figure A</p>																																							
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																									

**COSEL**

Model	SUS6123R3/SUCS6123R3	Temperature Testing Circuitry	25°C Figure A	
Item	Overcurrent Protection			
Object	+3.3V1.35A	2.Values		
1.Graph	<p>Input Volt. 9V</p> <p>Input Volt. 12V</p> <p>Input Volt. 18V</p> <p>The graph plots Output Voltage [V] on the Y-axis (0.0 to 4.0) against Load Current [A] on the X-axis (0.0 to 3.0). Three curves are shown for different input voltages: 9V (top), 12V (middle), and 18V (bottom). Each curve shows a linear decrease in output voltage as load current increases. A slanted line is drawn across the graph, representing the range of the rated load current.</p>	Output Voltage [V]	Load Current [A]	

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

Output Voltage [V]	Load Current [A]		
	9[V]	12[V]	18[V]
3.30	1.35	1.35	1.35
3.14	1.89	2.05	2.13
2.97	1.91	2.06	2.14
2.64	1.95	2.08	2.15
2.31	1.98	2.10	2.15
1.98	2.16	2.30	2.35
1.65	2.21	2.33	2.38
1.32	2.24	2.33	2.38
0.99	2.25	2.30	2.34
0.66	2.21	2.23	2.26
0.33	2.12	2.13	2.15
0.00	2.00	1.98	2.14

COSEL

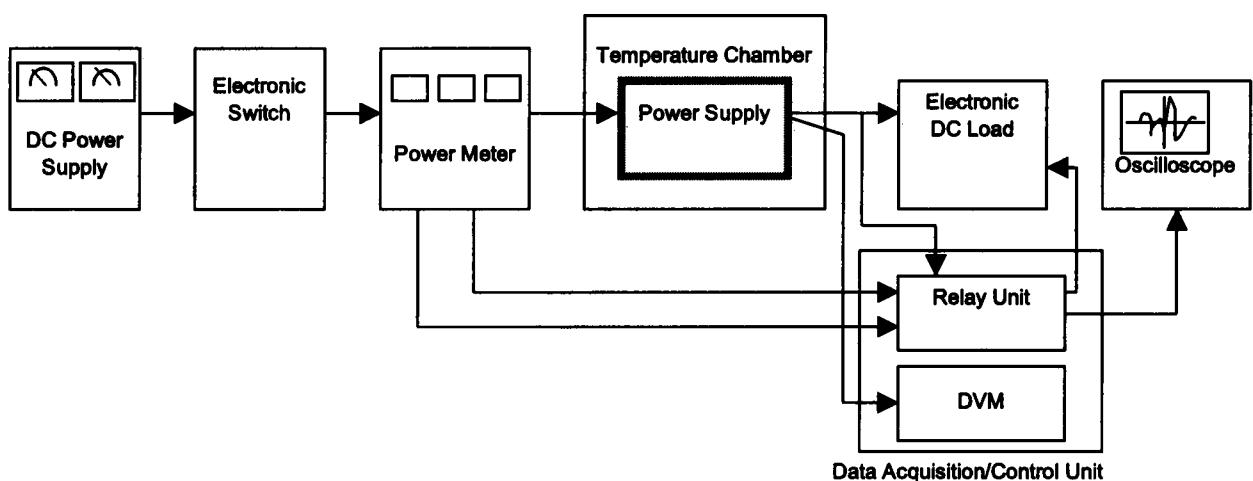


Figure A

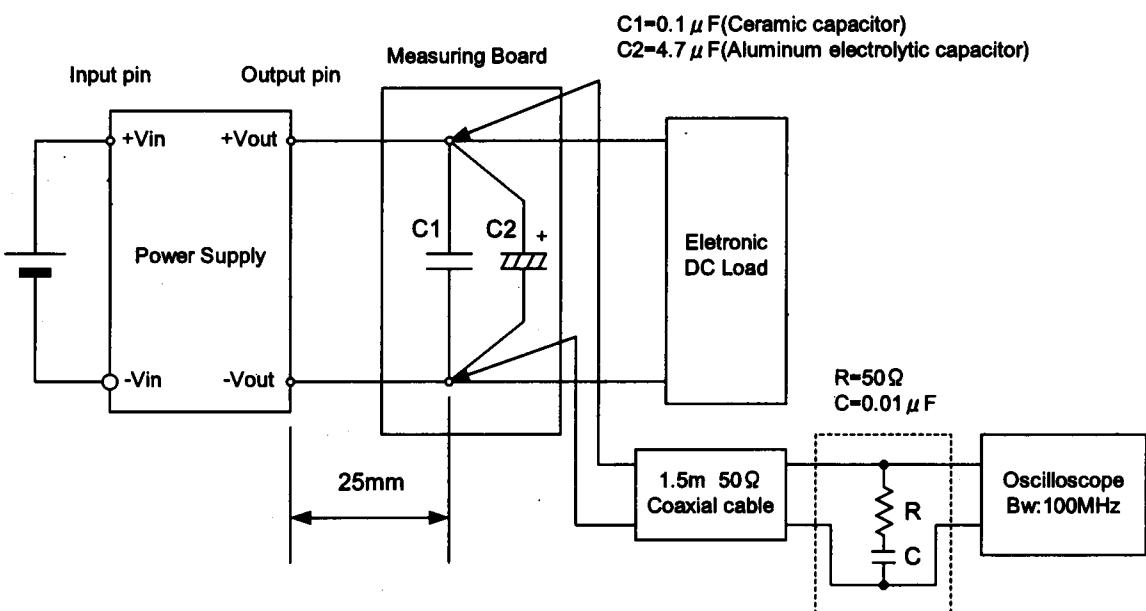


Figure B (Ripple and Ripple noise Characteristic)