



# TEST DATA OF SUS31212

Regulated DC Power Supply  
Mar 10, 2005

Approved by : Tetsuo Sugimori  
Tetsuo Sugimori Design Manager

Prepared by : Hayato Nakatsubo  
Hayato Nakatsubo Design Engineer

**COSEL CO.,LTD.**



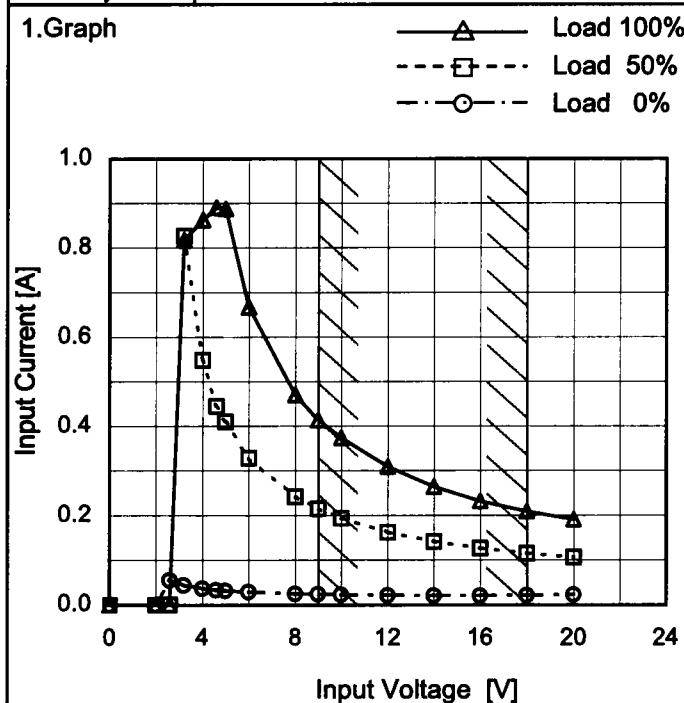
## CONTENTS

1. Input Current (by Input Voltage) . . . . .	1
2. Input Current (by Load Current) . . . . .	2
3. Input Power (by Load Current) . . . . .	3
4. Efficiency (by Input Voltage) . . . . .	4
5. Efficiency (by Load Current) . . . . .	5
6. Line Regulation . . . . .	6
7. Load Regulation . . . . .	7
8. Dynamic Load Response . . . . .	8
9. Ripple Voltage (by Load Current) . . . . .	9
10. Ripple-Noise . . . . .	10
11. Ripple Voltage (by Ambient Temperature) . . . . .	11
12. Ambient Temperature Drift . . . . .	12
13. Output Voltage Accuracy . . . . .	13
14. Time Lapse Drift . . . . .	14
15. Rise and Fall Time . . . . .	15
16. Minimum Input Voltage for Regulated Output Voltage . . . . .	16
17. Overcurrent Protection . . . . .	17
18. Figure of Testing Circuitry . . . . .	18

(Final Page 18)

# COSEL

Model	SUS31212
Item	Input Current (by Input Voltage)
Object	—



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

Temperature 25°C  
Testing Circuitry Figure A

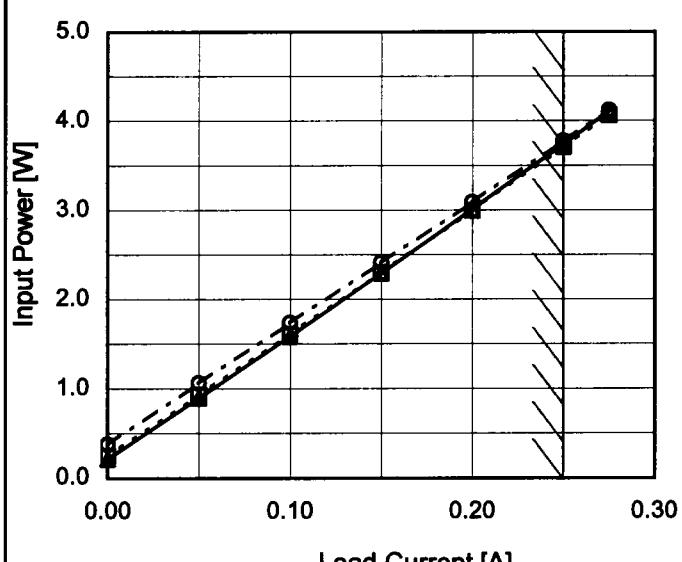
## 2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.000	0.000	0.000
2.6	0.055	0.001	0.000
3.2	0.044	0.827	0.818
4.0	0.037	0.549	0.863
4.6	0.033	0.446	0.891
5.0	0.032	0.410	0.888
6.0	0.029	0.329	0.668
8.0	0.025	0.242	0.471
9.0	0.023	0.216	0.414
10.0	0.022	0.194	0.374
12.0	0.021	0.163	0.309
14.0	0.020	0.142	0.264
16.0	0.020	0.126	0.232
18.0	0.021	0.115	0.209
20.0	0.022	0.106	0.191
--	-	-	-
--	-	-	-

**COSEL**

Model	SUS31212	Temperature	25°C																																																				
Item	Input Current (by Load Current)	Testing Circuitry	Figure A																																																				
Object	—																																																						
1. Graph		2. Values																																																					
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>9[V]</th> <th>12[V]</th> <th>18[V]</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>0.023</td><td>0.021</td><td>0.021</td></tr> <tr><td>0.050</td><td>0.100</td><td>0.078</td><td>0.059</td></tr> <tr><td>0.100</td><td>0.177</td><td>0.135</td><td>0.096</td></tr> <tr><td>0.150</td><td>0.257</td><td>0.192</td><td>0.134</td></tr> <tr><td>0.200</td><td>0.338</td><td>0.251</td><td>0.171</td></tr> <tr><td>0.250</td><td>0.420</td><td>0.311</td><td>0.210</td></tr> <tr><td>0.275</td><td>0.457</td><td>0.341</td><td>0.229</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> </tbody> </table>			Load Current [A]	Input Current [A]			9[V]	12[V]	18[V]	0.000	0.023	0.021	0.021	0.050	0.100	0.078	0.059	0.100	0.177	0.135	0.096	0.150	0.257	0.192	0.134	0.200	0.338	0.251	0.171	0.250	0.420	0.311	0.210	0.275	0.457	0.341	0.229	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Current [A]																																																						
	9[V]	12[V]	18[V]																																																				
0.000	0.023	0.021	0.021																																																				
0.050	0.100	0.078	0.059																																																				
0.100	0.177	0.135	0.096																																																				
0.150	0.257	0.192	0.134																																																				
0.200	0.338	0.251	0.171																																																				
0.250	0.420	0.311	0.210																																																				
0.275	0.457	0.341	0.229																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
<p>Note: Slanted line shows the range of the rated load current.</p>																																																							

**COSEL**

Model	SUS31212	Temperature	25°C																																																			
Item	Input Power (by Load Current)	Testing Circuitry	Figure A																																																			
Object	_____																																																					
1. Graph		—△— Input Volt. 9V - -□--- Input Volt. 12V - -○--- Input Volt. 18V																																																				
		2. Values																																																				
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>9[V]</th> <th>12[V]</th> <th>18[V]</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>0.21</td> <td>0.25</td> <td>0.38</td> </tr> <tr> <td>0.050</td> <td>0.90</td> <td>0.93</td> <td>1.06</td> </tr> <tr> <td>0.100</td> <td>1.58</td> <td>1.61</td> <td>1.74</td> </tr> <tr> <td>0.150</td> <td>2.29</td> <td>2.30</td> <td>2.41</td> </tr> <tr> <td>0.200</td> <td>3.01</td> <td>3.00</td> <td>3.09</td> </tr> <tr> <td>0.250</td> <td>3.74</td> <td>3.71</td> <td>3.78</td> </tr> <tr> <td>0.275</td> <td>4.11</td> <td>4.07</td> <td>4.12</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		Load Current [A]	Input Power [W]			9[V]	12[V]	18[V]	0.000	0.21	0.25	0.38	0.050	0.90	0.93	1.06	0.100	1.58	1.61	1.74	0.150	2.29	2.30	2.41	0.200	3.01	3.00	3.09	0.250	3.74	3.71	3.78	0.275	4.11	4.07	4.12	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Power [W]																																																					
	9[V]	12[V]	18[V]																																																			
0.000	0.21	0.25	0.38																																																			
0.050	0.90	0.93	1.06																																																			
0.100	1.58	1.61	1.74																																																			
0.150	2.29	2.30	2.41																																																			
0.200	3.01	3.00	3.09																																																			
0.250	3.74	3.71	3.78																																																			
0.275	4.11	4.07	4.12																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
Note: Slanted line shows the range of the rated load current.																																																						

**COSEL**

Model	SUS31212	Temperature	25°C																																																								
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A																																																								
Object	—																																																										
1.Graph		2.Values																																																									
<p>The graph plots Efficiency [%] on the y-axis (30 to 86) against Input Voltage [V] on the x-axis (4 to 24). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a general downward trend as input voltage increases. A slanted line on the graph indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>8</td><td>78.4</td><td>80.0</td></tr> <tr><td>9</td><td>78.2</td><td>80.7</td></tr> <tr><td>10</td><td>78.0</td><td>81.2</td></tr> <tr><td>12</td><td>77.4</td><td>81.6</td></tr> <tr><td>15</td><td>75.6</td><td>81.3</td></tr> <tr><td>18</td><td>72.9</td><td>80.0</td></tr> <tr><td>20</td><td>71.0</td><td>79.1</td></tr> </tbody> </table>		Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8	78.4	80.0	9	78.2	80.7	10	78.0	81.2	12	77.4	81.6	15	75.6	81.3	18	72.9	80.0	20	71.0	79.1	<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>8</td><td>78.4</td><td>80.0</td></tr> <tr><td>9</td><td>78.2</td><td>80.7</td></tr> <tr><td>10</td><td>78.0</td><td>81.2</td></tr> <tr><td>12</td><td>77.4</td><td>81.6</td></tr> <tr><td>15</td><td>75.6</td><td>81.3</td></tr> <tr><td>18</td><td>72.9</td><td>80.0</td></tr> <tr><td>20</td><td>71.0</td><td>79.1</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	8	78.4	80.0	9	78.2	80.7	10	78.0	81.2	12	77.4	81.6	15	75.6	81.3	18	72.9	80.0	20	71.0	79.1	--	-	-	--	-	-
Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]																																																									
8	78.4	80.0																																																									
9	78.2	80.7																																																									
10	78.0	81.2																																																									
12	77.4	81.6																																																									
15	75.6	81.3																																																									
18	72.9	80.0																																																									
20	71.0	79.1																																																									
Input Voltage [V]	Efficiency [%]																																																										
	Load 50%	Load 100%																																																									
8	78.4	80.0																																																									
9	78.2	80.7																																																									
10	78.0	81.2																																																									
12	77.4	81.6																																																									
15	75.6	81.3																																																									
18	72.9	80.0																																																									
20	71.0	79.1																																																									
--	-	-																																																									
--	-	-																																																									

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

**COSEL**

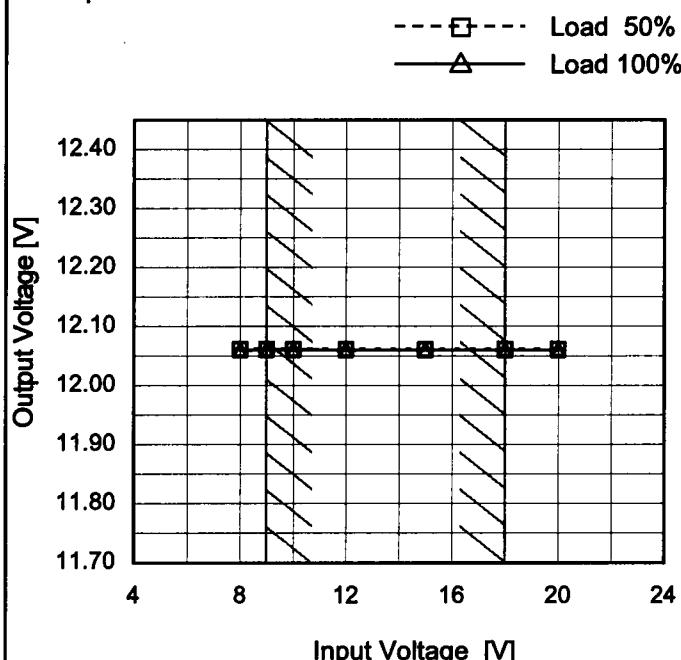
Model	SUS31212	Temperature	25°C																																																			
Item	Efficiency (by Load Current)	Testing Circuitry	Figure A																																																			
Object	_____																																																					
1.Graph																																																						
<p>Graph showing Efficiency (%) vs Load Current (A) for three input voltages: 9V, 12V, and 18V. The x-axis ranges from 0.00 to 0.30 A, and the y-axis ranges from 30% to 86%. Three curves are plotted: 9V (solid line with triangles), 12V (dashed line with squares), and 18V (dash-dot line with circles). All curves show efficiency increasing with load current. A slanted line indicates the rated load current range.</p>																																																						
2.Values																																																						
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Efficiency [%]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> </tr> </thead> <tbody> <tr> <td>0.000</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>0.050</td><td>67.6</td><td>65.1</td><td>56.9</td></tr> <tr> <td>0.100</td><td>76.4</td><td>75.1</td><td>69.6</td></tr> <tr> <td>0.150</td><td>79.1</td><td>78.8</td><td>75.2</td></tr> <tr> <td>0.200</td><td>80.3</td><td>80.7</td><td>78.3</td></tr> <tr> <td>0.250</td><td>80.8</td><td>81.4</td><td>80.0</td></tr> <tr> <td>0.275</td><td>80.8</td><td>81.7</td><td>80.6</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> </tbody> </table>				Load Current [A]	Efficiency [%]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.000	-	-	-	0.050	67.6	65.1	56.9	0.100	76.4	75.1	69.6	0.150	79.1	78.8	75.2	0.200	80.3	80.7	78.3	0.250	80.8	81.4	80.0	0.275	80.8	81.7	80.6	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Efficiency [%]																																																					
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]																																																			
0.000	-	-	-																																																			
0.050	67.6	65.1	56.9																																																			
0.100	76.4	75.1	69.6																																																			
0.150	79.1	78.8	75.2																																																			
0.200	80.3	80.7	78.3																																																			
0.250	80.8	81.4	80.0																																																			
0.275	80.8	81.7	80.6																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
<p>Note: Slanted line shows the range of the rated load current.</p>																																																						

**COSEL**

Model	SUS31212
Item	Line Regulation
Object	+12V0.25A

Temperature 25°C  
Testing Circuitry Figure A

## 1.Graph

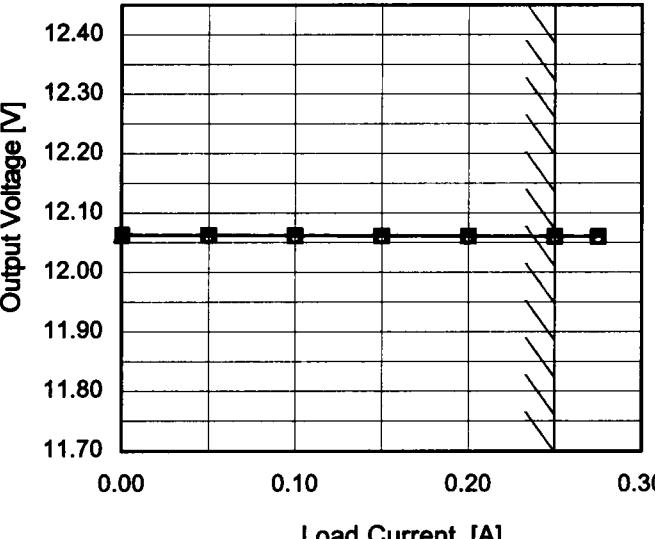


## 2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8	12.062	12.060
9	12.062	12.061
10	12.062	12.061
12	12.062	12.060
15	12.061	12.060
18	12.062	12.060
20	12.062	12.060
--	-	-
--	-	-

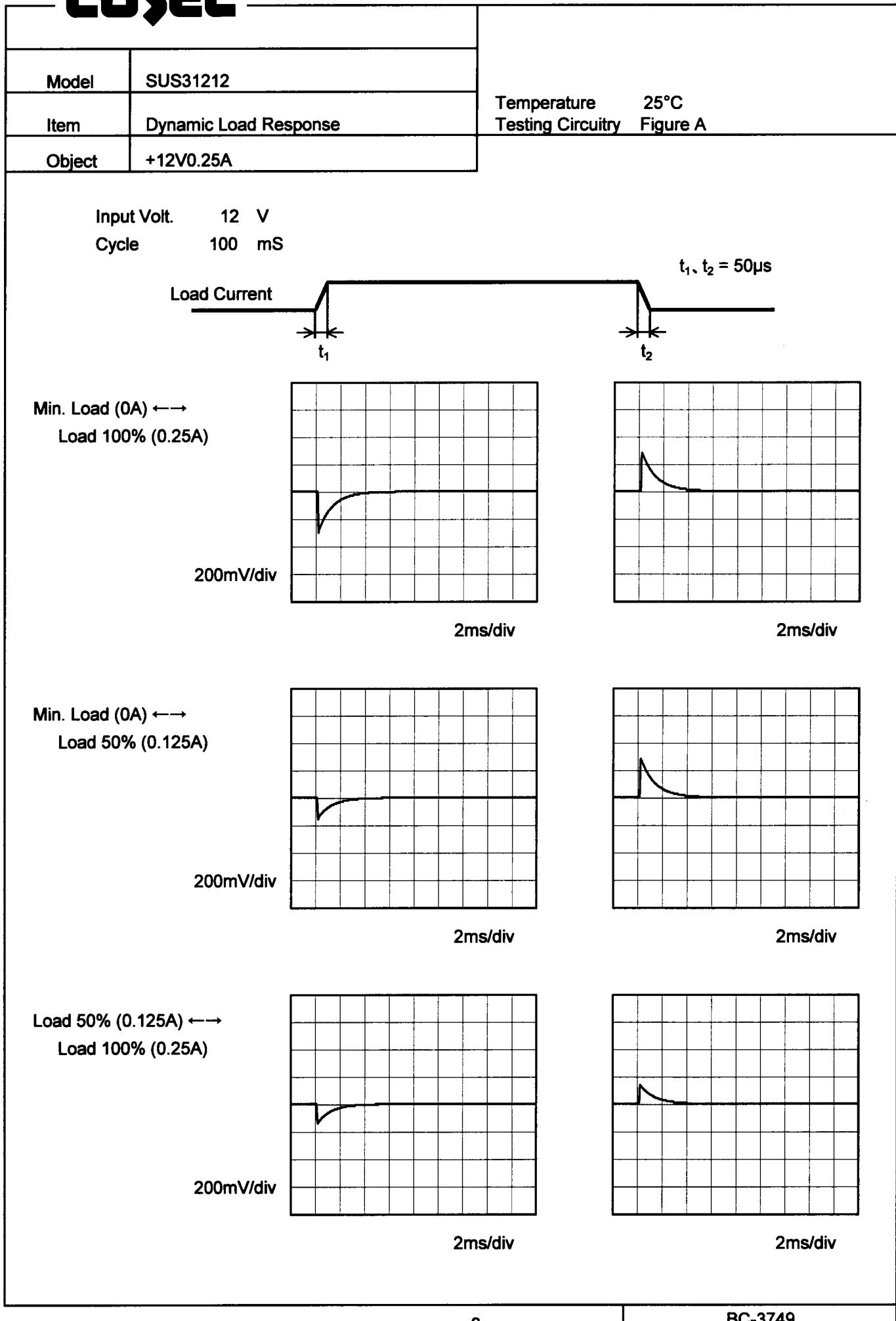
Note: Slanted line shows the range of the rated input voltage.

**COSEL**

Model	SUS31212	Temperature Testing Circuitry 25°C Figure A																																																			
Item	Load Regulation																																																				
Object	+12V0.25A																																																				
1.Graph	<p>—▲— Input Volt. 9V      - - -□- - Input Volt. 12V      - - ○ - - Input Volt. 18V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																			
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>12.063</td><td>12.063</td><td>12.063</td></tr> <tr><td>0.050</td><td>12.063</td><td>12.063</td><td>12.062</td></tr> <tr><td>0.100</td><td>12.062</td><td>12.062</td><td>12.062</td></tr> <tr><td>0.150</td><td>12.062</td><td>12.061</td><td>12.062</td></tr> <tr><td>0.200</td><td>12.061</td><td>12.061</td><td>12.061</td></tr> <tr><td>0.250</td><td>12.060</td><td>12.061</td><td>12.060</td></tr> <tr><td>0.275</td><td>12.060</td><td>12.060</td><td>12.060</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> </tbody> </table>	Load Current [A]	Output Voltage [V]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.000	12.063	12.063	12.063	0.050	12.063	12.063	12.062	0.100	12.062	12.062	12.062	0.150	12.062	12.061	12.062	0.200	12.061	12.061	12.061	0.250	12.060	12.061	12.060	0.275	12.060	12.060	12.060	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]																																																		
0.000	12.063	12.063	12.063																																																		
0.050	12.063	12.063	12.062																																																		
0.100	12.062	12.062	12.062																																																		
0.150	12.062	12.061	12.062																																																		
0.200	12.061	12.061	12.061																																																		
0.250	12.060	12.061	12.060																																																		
0.275	12.060	12.060	12.060																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		

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

COSEL



**COSEL**

Model	SUS31212	Temperature Testing Circuitry 25°C Figure B																																						
Item	Ripple Voltage (by Load Current)																																							
Object	+12V0.25A																																							
1.Graph		2.Values																																						
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 50 mV, and the X-axis ranges from 0.00 to 0.30 A. Two curves are plotted: one for Input Volt. 9V (solid line with open triangle markers) and one for Input Volt. 18V (dashed line with open circle markers). Both curves show a slight increase in ripple voltage as load current increases, with a sharp vertical slant at approximately 0.25A load current.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 9 [V]</th> <th>Input Volt. 18 [V]</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>1</td><td>1</td></tr> <tr><td>0.050</td><td>2</td><td>1</td></tr> <tr><td>0.100</td><td>3</td><td>1</td></tr> <tr><td>0.150</td><td>4</td><td>2</td></tr> <tr><td>0.200</td><td>5</td><td>3</td></tr> <tr><td>0.250</td><td>7</td><td>4</td></tr> <tr><td>0.275</td><td>7</td><td>4</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>	Load Current [A]	Ripple Voltage [mV]		Input Volt. 9 [V]	Input Volt. 18 [V]	0.000	1	1	0.050	2	1	0.100	3	1	0.150	4	2	0.200	5	3	0.250	7	4	0.275	7	4	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 9 [V]	Input Volt. 18 [V]																																						
0.000	1	1																																						
0.050	2	1																																						
0.100	3	1																																						
0.150	4	2																																						
0.200	5	3																																						
0.250	7	4																																						
0.275	7	4																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<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> <p>The diagram shows a waveform consisting of a series of sharp, triangular pulses superimposed on a constant DC level. The pulses have a negative-going slope and a positive-going slope, creating a sawtooth-like appearance. Arrows indicate the peak-to-peak amplitude of the ripples.</p>																																								

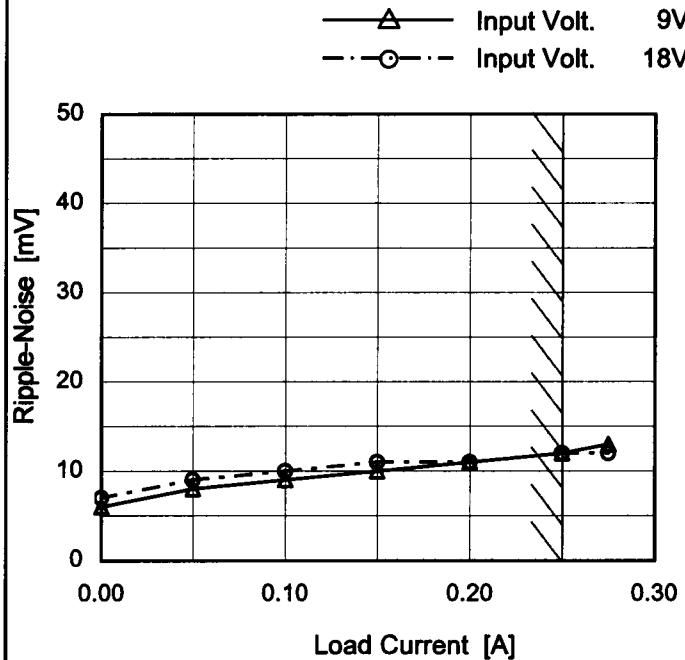
**COSEL**

Model SUS31212

Item Ripple-Noise

Object +12V0.25A

## 1. Graph



Measured by 100 MHz Oscilloscope.

Ripple-Noise is shown as p-p in the figure below.

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

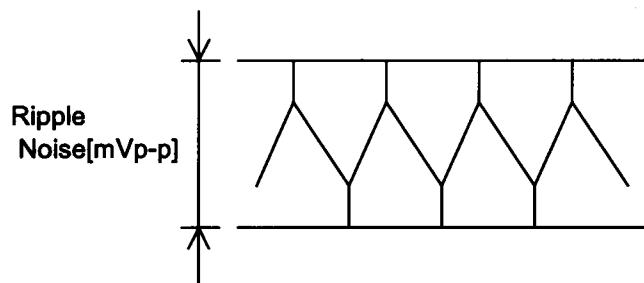


Fig.Complex Ripple Noise Wave Form

Temperature 25°C  
Testing Circuitry Figure B

## 2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.000	6	7
0.050	8	9
0.100	9	10
0.150	10	11
0.200	11	11
0.250	12	12
0.275	13	12
--	-	-
--	-	-
--	-	-
--	-	-

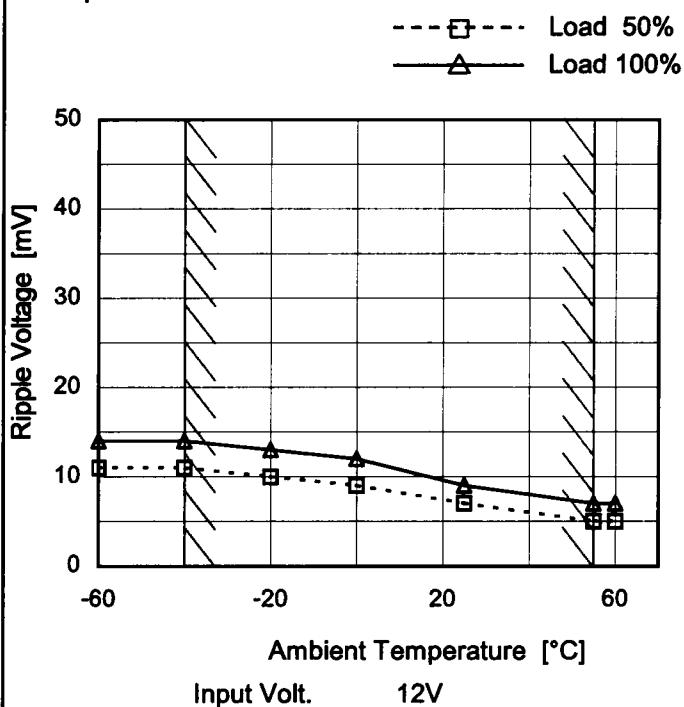
**COSEL**

Model SUS31212

Item Ripple Voltage (by Ambient Temp.)

Object +12V0.25A

## 1. Graph



Measured by 100 MHz Oscilloscope.

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

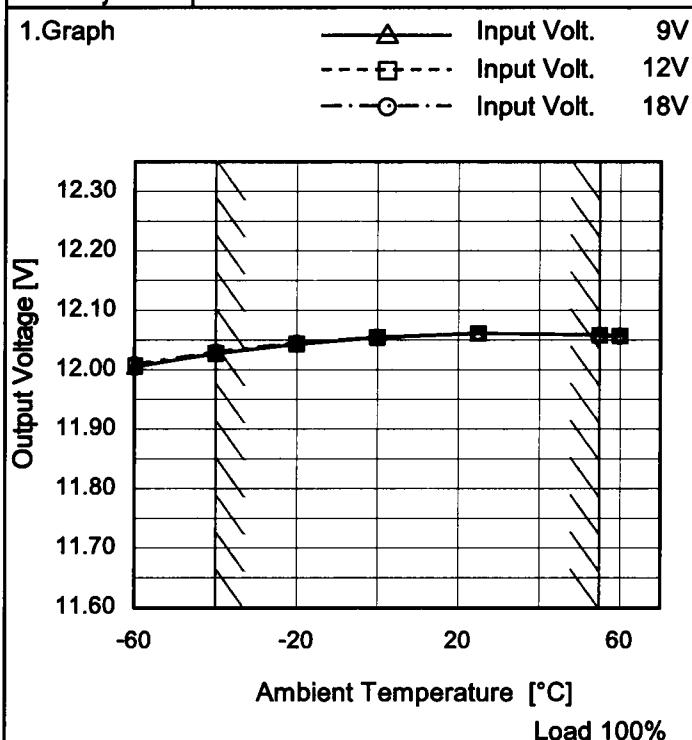
Testing Circuitry Figure B

## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	11	14
-40	11	14
-20	10	13
0	9	12
25	7	9
55	5	7
60	5	7
--	-	-
--	-	-
--	-	-
--	-	-

**COSEL**

Model	SUS31212
Item	Ambient Temperature Drift
Object	+12V0.25A



Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	12.005	12.007	12.009
-40	12.027	12.028	12.030
-20	12.043	12.044	12.045
0	12.054	12.055	12.055
25	12.061	12.061	12.061
55	12.059	12.058	12.058
60	12.057	12.057	12.056
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SUS31212	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+12V0.25A	

### 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 - 0.25A

\* 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	9	0	12.063	$\pm 18$	$\pm 0.2$
Minimum Voltage	-40	9	0.25	12.027		

**COSEL**

Model	SUS31212	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+12V0.25A																								
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>12.063</td></tr> <tr><td>0.5</td><td>12.061</td></tr> <tr><td>1.0</td><td>12.061</td></tr> <tr><td>2.0</td><td>12.061</td></tr> <tr><td>3.0</td><td>12.061</td></tr> <tr><td>4.0</td><td>12.061</td></tr> <tr><td>5.0</td><td>12.061</td></tr> <tr><td>6.0</td><td>12.061</td></tr> <tr><td>7.0</td><td>12.061</td></tr> <tr><td>8.0</td><td>12.061</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	12.063	0.5	12.061	1.0	12.061	2.0	12.061	3.0	12.061	4.0	12.061	5.0	12.061	6.0	12.061	7.0	12.061	8.0	12.061
Time since start [H]	Output Voltage [V]																								
0.0	12.063																								
0.5	12.061																								
1.0	12.061																								
2.0	12.061																								
3.0	12.061																								
4.0	12.061																								
5.0	12.061																								
6.0	12.061																								
7.0	12.061																								
8.0	12.061																								

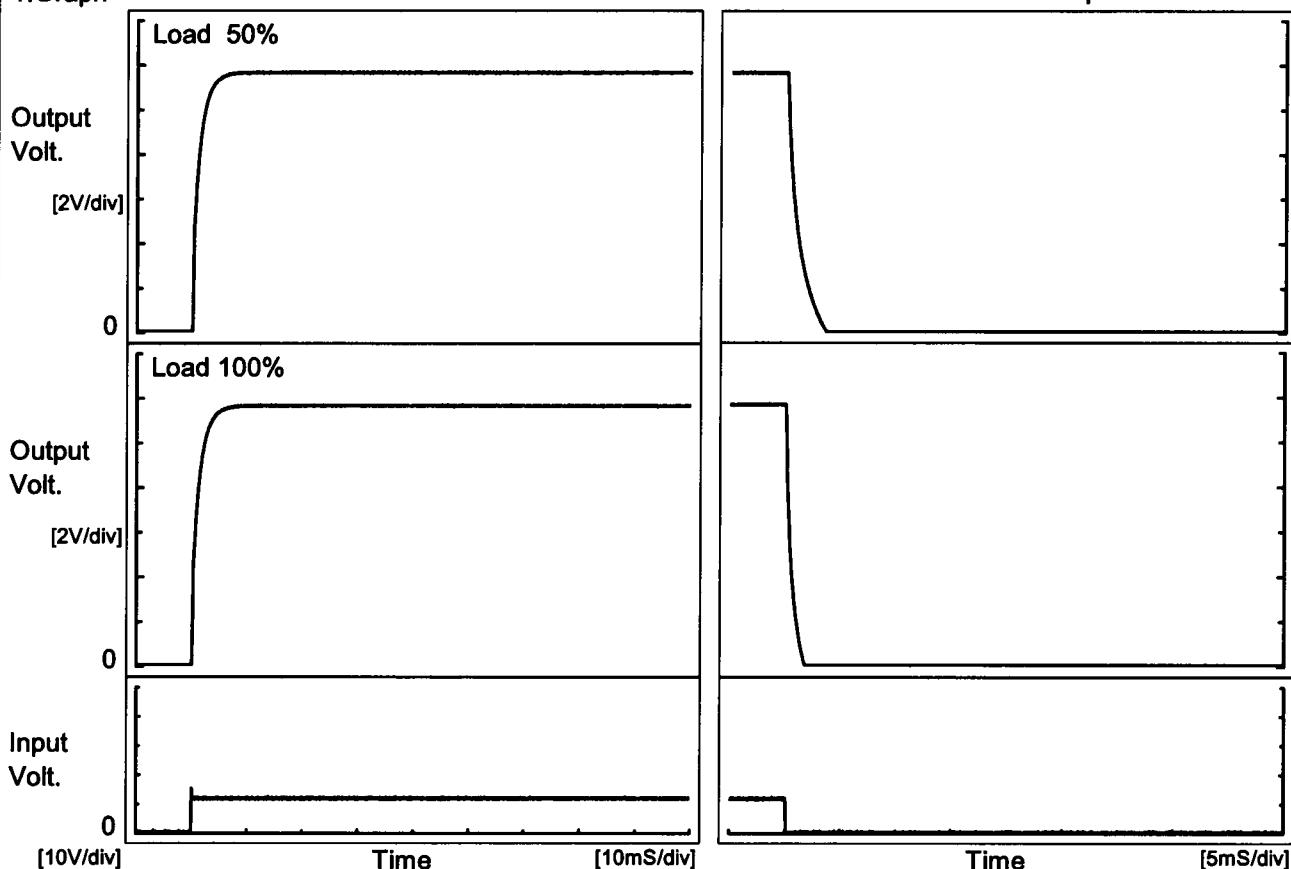
**COSEL**

Model	SUS31212
Item	Rise and Fall Time
Object	+12V0.25A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph

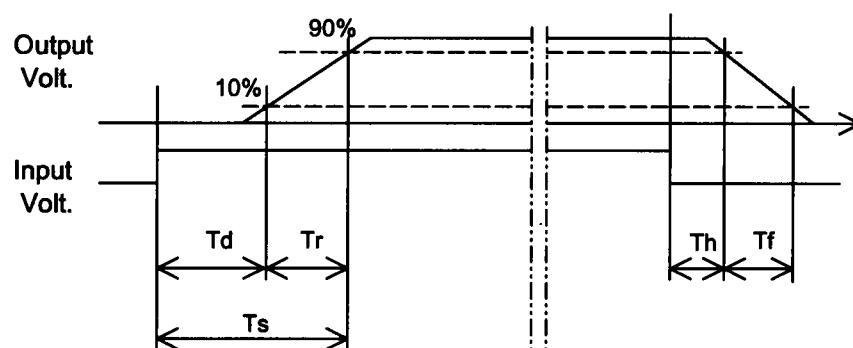
Input Volt. 12 V



## 2. Values

[mS]

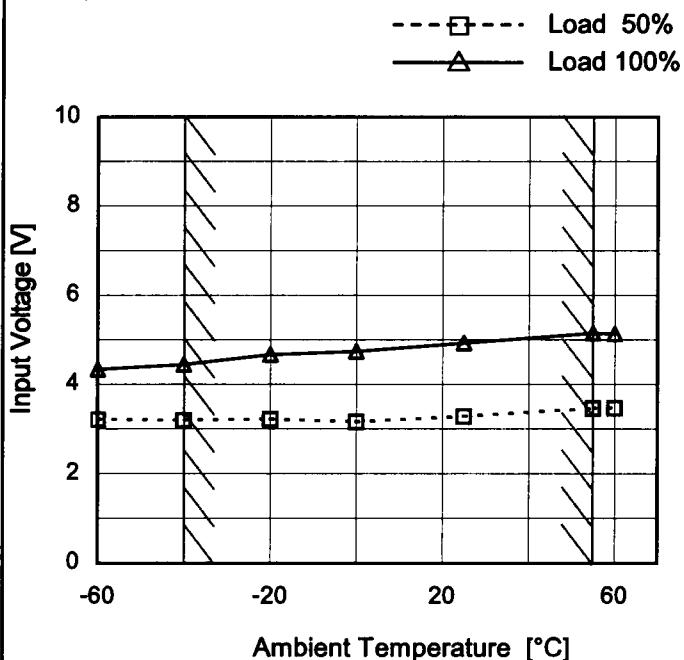
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.1	3.3	3.4	0.1	2.4
100 %		0.1	3.4	3.5	0.1	1.2



**COSEL**

Model	SUS31212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.25A

## 1.Graph



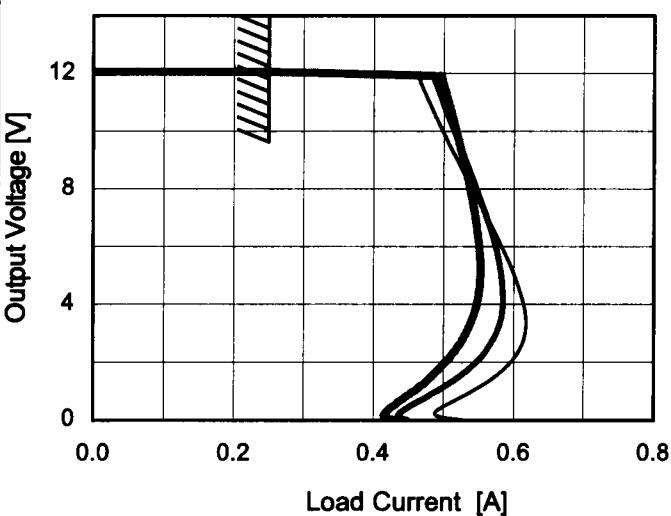
Note: Slanted line shows the range of the rated ambient temperature.

## Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	3.3	4.4
-40	3.2	4.5
-20	3.3	4.7
0	3.2	4.8
25	3.3	5.0
55	3.5	5.2
60	3.5	5.2
--	-	-
--	-	-
--	-	-
--	-	-

**COSEL**

Model	SUS31212	Temperature Testing Circuitry	25°C Figure A																																																							
Item	Overcurrent Protection																																																									
Object	+12V0.25A																																																									
1.Graph		Input Volt. 9V Input Volt. 12V Input Volt. 18V																																																								
 <p>Note: Slanted line shows the range of the rated load current.</p>		2.Values																																																								
		<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> </tr> </thead> <tbody> <tr><td>12.0</td><td>0.25</td><td>0.25</td><td>0.25</td></tr> <tr><td>11.4</td><td>0.47</td><td>0.49</td><td>0.50</td></tr> <tr><td>10.8</td><td>0.48</td><td>0.50</td><td>0.51</td></tr> <tr><td>9.6</td><td>0.51</td><td>0.52</td><td>0.52</td></tr> <tr><td>8.4</td><td>0.53</td><td>0.54</td><td>0.53</td></tr> <tr><td>7.2</td><td>0.56</td><td>0.56</td><td>0.54</td></tr> <tr><td>6.0</td><td>0.58</td><td>0.57</td><td>0.55</td></tr> <tr><td>4.8</td><td>0.60</td><td>0.58</td><td>0.55</td></tr> <tr><td>3.6</td><td>0.62</td><td>0.58</td><td>0.54</td></tr> <tr><td>2.4</td><td>0.61</td><td>0.56</td><td>0.52</td></tr> <tr><td>1.2</td><td>0.56</td><td>0.51</td><td>0.47</td></tr> <tr><td>0.0</td><td>0.53</td><td>0.45</td><td>0.43</td></tr> </tbody> </table>		Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	12.0	0.25	0.25	0.25	11.4	0.47	0.49	0.50	10.8	0.48	0.50	0.51	9.6	0.51	0.52	0.52	8.4	0.53	0.54	0.53	7.2	0.56	0.56	0.54	6.0	0.58	0.57	0.55	4.8	0.60	0.58	0.55	3.6	0.62	0.58	0.54	2.4	0.61	0.56	0.52	1.2	0.56	0.51	0.47	0.0	0.53	0.45	0.43
Output Voltage [V]	Load Current [A]																																																									
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]																																																							
12.0	0.25	0.25	0.25																																																							
11.4	0.47	0.49	0.50																																																							
10.8	0.48	0.50	0.51																																																							
9.6	0.51	0.52	0.52																																																							
8.4	0.53	0.54	0.53																																																							
7.2	0.56	0.56	0.54																																																							
6.0	0.58	0.57	0.55																																																							
4.8	0.60	0.58	0.55																																																							
3.6	0.62	0.58	0.54																																																							
2.4	0.61	0.56	0.52																																																							
1.2	0.56	0.51	0.47																																																							
0.0	0.53	0.45	0.43																																																							

COSEL

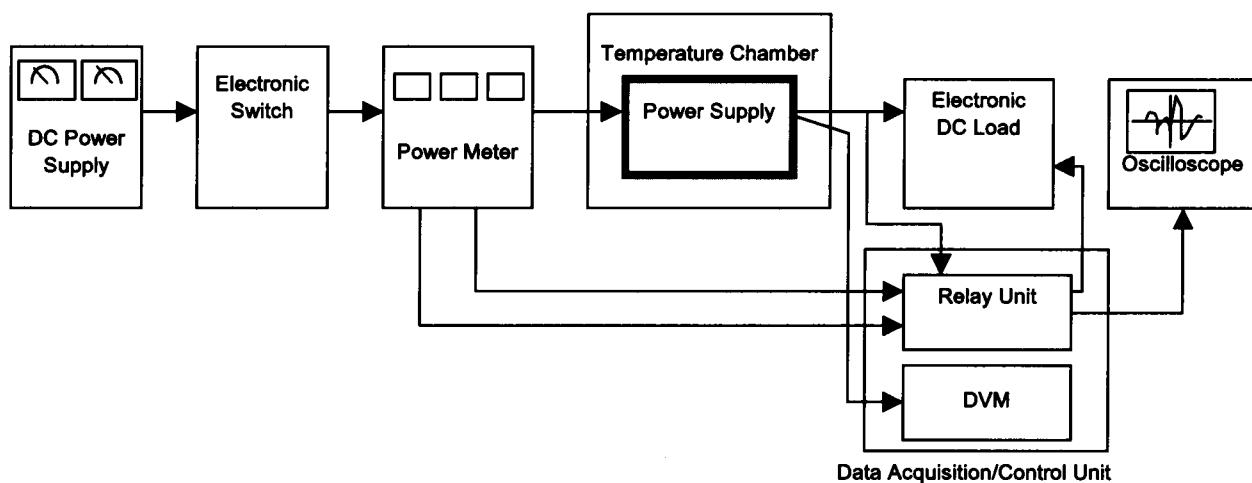


Figure A

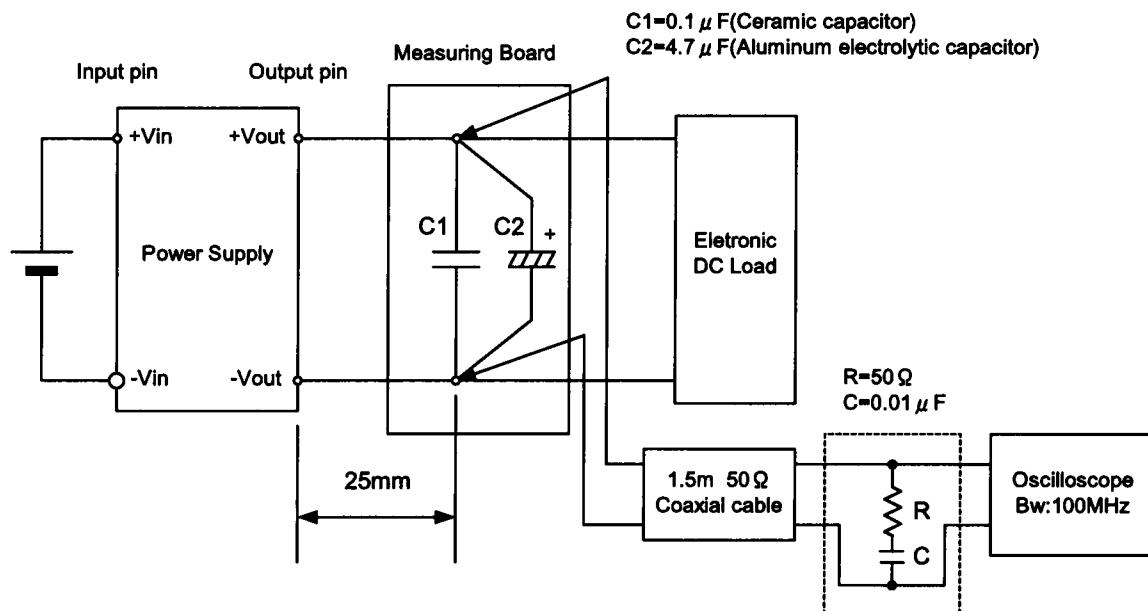


Figure B (Ripple and Ripple noise Characteristic)