



TEST DATA OF SUS61205 SUCS61205

Regulated DC Power Supply
Feb 18, 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	SUS61205/SUCCS61205	Temperature	25°C																																																																							
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<p>The graph plots Efficiency [%] on the y-axis (30 to 90) against Input Voltage [V] on the x-axis (6 to 22). 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>78.2</td><td>78.2</td></tr> <tr><td>9</td><td>77.7</td><td>78.9</td></tr> <tr><td>10</td><td>77.5</td><td>79.4</td></tr> <tr><td>12</td><td>76.7</td><td>79.5</td></tr> <tr><td>15</td><td>74.5</td><td>78.9</td></tr> <tr><td>18</td><td>71.3</td><td>77.4</td></tr> <tr><td>20</td><td>68.8</td><td>76.3</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8	78.2	78.2	9	77.7	78.9	10	77.5	79.4	12	76.7	79.5	15	74.5	78.9	18	71.3	77.4	20	68.8	76.3								
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COSEL

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Item	Line Regulation
Object	+5V1.2A

1. Graph

--- □ --- Load 50%
— △ — Load 100%

Output Voltage [V]

Input Voltage [V]

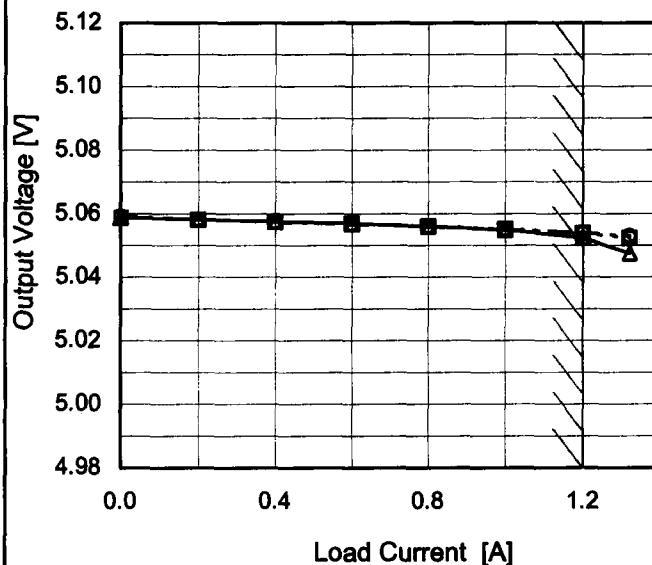
Note: Slanted line shows the range of the rated input voltage.

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

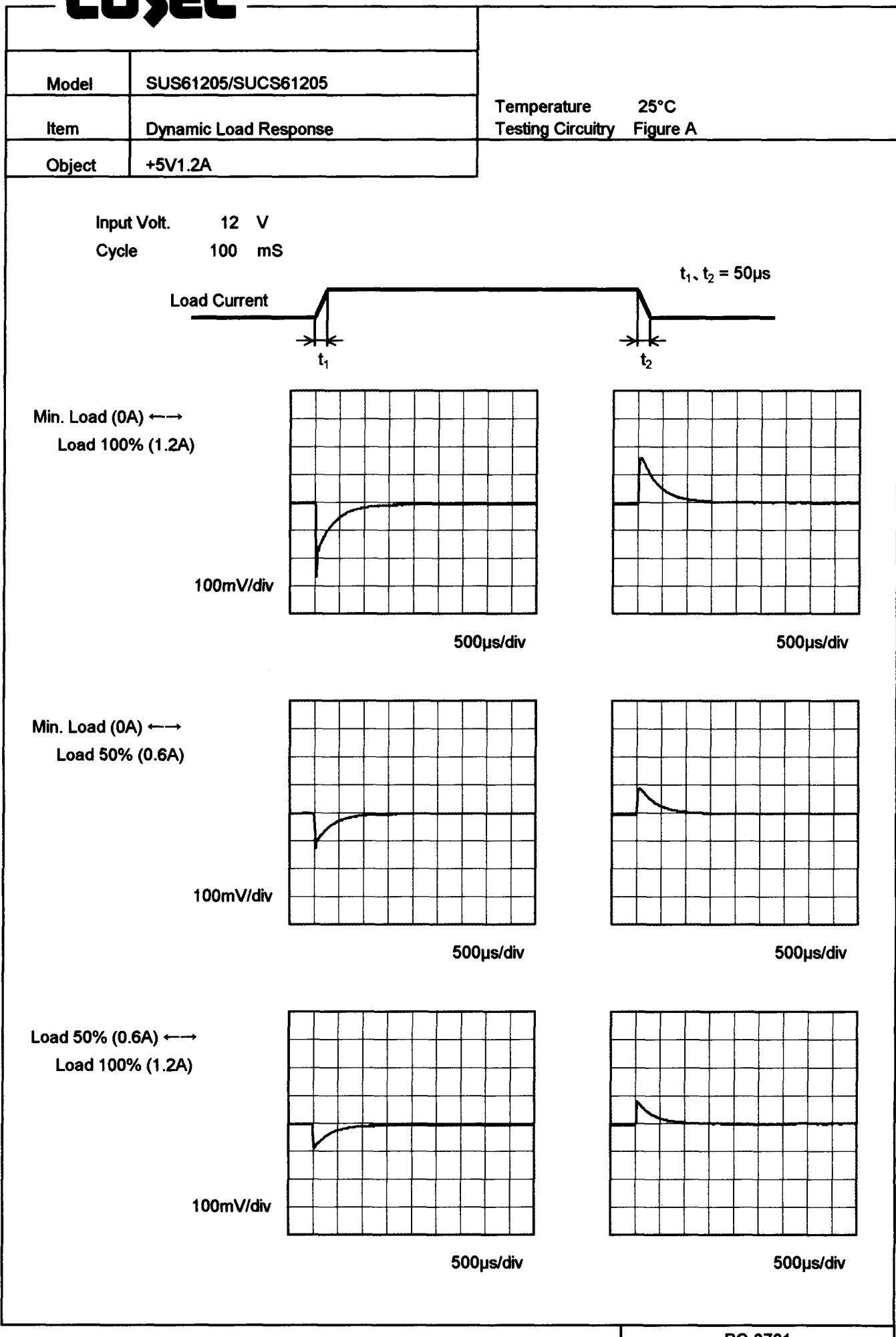
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
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9	5.057	5.053
10	5.057	5.053
12	5.057	5.054
15	5.057	5.054
18	5.057	5.054
20	5.057	5.054
--	-	-
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COSEL

Model	SUS61205/SUCS61205																																																				
Item	Load Regulation	Temperature 25°C	Testing Circuitry Figure A																																																		
Object	+5V1.2A																																																				
1.Graph	<p>—△— Input Volt. 9V - - □ - - Input Volt. 12V - - ○ - - Input Volt. 18V</p> 	2.Values																																																			
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Note: Slanted line shows the range of the rated load current.

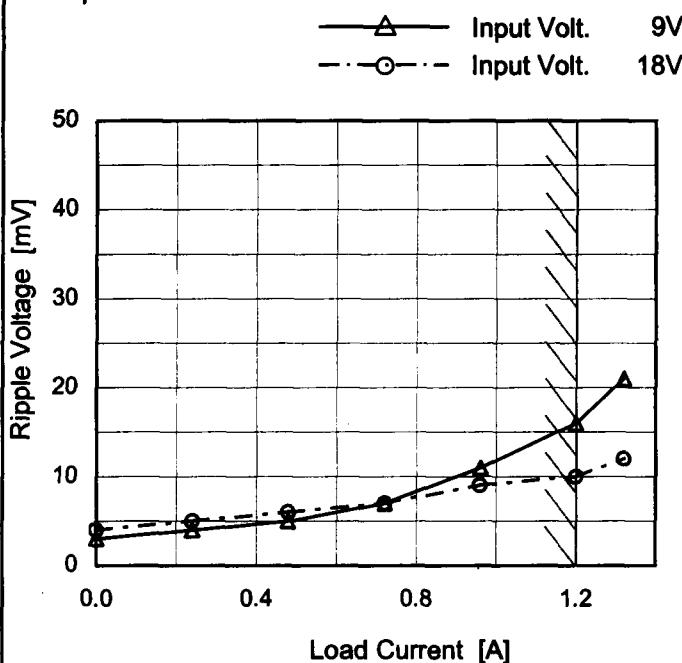
COSEL



COSEL

Model	SUS61205/SUCCS61205
Item	Ripple Voltage (by Load Current)
Object	+5V1.2A

1.Graph



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.

Ripple [mVp-p]

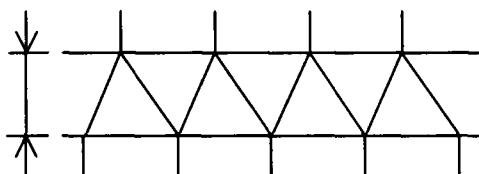


Fig.Complex Ripple Wave Form

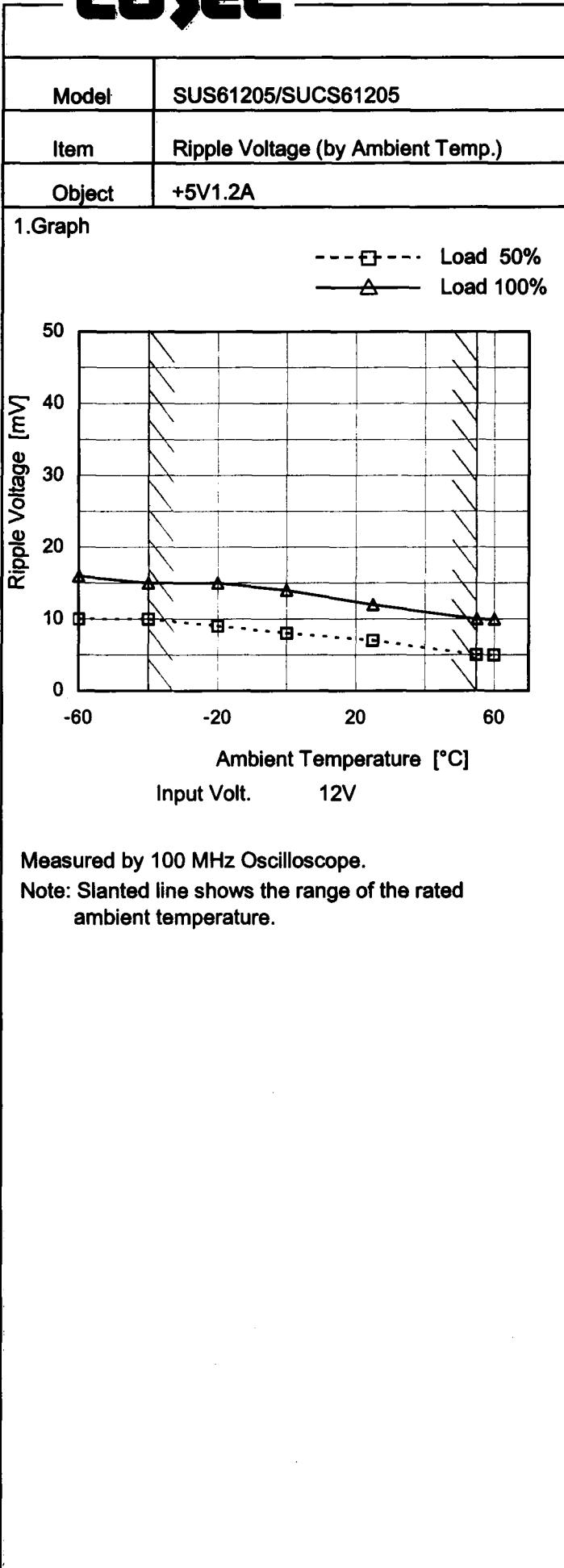
Temperature 25°C
 Testing Circuitry Figure B

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	3	4
0.24	4	5
0.48	5	6
0.72	7	7
0.96	11	9
1.20	16	10
1.32	21	12
-	-	-
-	-	-
-	-	-
-	-	-

COSEL

Model	SUS61205/SUCS61205																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+5V1.2A																																							
1.Graph																																								
<p>Graph showing Ripple-Noise [mV] vs Load Current [A]. The graph shows two curves: one for Input Volt. 9V (solid line with triangle markers) and one for Input Volt. 18V (dashed line with circle markers). The x-axis is Load Current [A] from 0.0 to 1.2. The y-axis is Ripple-Noise [mV] from 0 to 100. Both curves show an increase in noise with load current. A slanted line on the graph indicates the range of the rated load current.</p>																																								
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COSEL


Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	16
-40	10	15
-20	9	15
0	8	14
25	7	12
55	5	10
60	5	10
-	-	-
-	-	-
-	-	-
-	-	-

COSEL

<p>Model SUS61205/SUCCS61205</p> <p>Item Ambient Temperature Drift</p> <p>Object +5V1.2A</p>	Testing Circuitry Figure A																																																				
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	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</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>-60</td><td>5.027</td><td>5.031</td><td>5.034</td></tr> <tr> <td>-40</td><td>5.037</td><td>5.040</td><td>5.041</td></tr> <tr> <td>-20</td><td>5.044</td><td>5.047</td><td>5.047</td></tr> <tr> <td>0</td><td>5.050</td><td>5.051</td><td>5.052</td></tr> <tr> <td>25</td><td>5.053</td><td>5.054</td><td>5.054</td></tr> <tr> <td>55</td><td>5.053</td><td>5.053</td><td>5.053</td></tr> <tr> <td>60</td><td>5.052</td><td>5.053</td><td>5.053</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>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	-60	5.027	5.031	5.034	-40	5.037	5.040	5.041	-20	5.044	5.047	5.047	0	5.050	5.051	5.052	25	5.053	5.054	5.054	55	5.053	5.053	5.053	60	5.052	5.053	5.053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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1.Graph	<p>—△— Input Volt. 9V</p> <p>---□--- Input Volt. 12V</p> <p>--○-- Input Volt. 18V</p> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>																																																				
Note: Slanted line shows the range of the rated ambient temperature.																																																					



Model	SUS61205/SUCCS61205	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+5V1.2A	

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 - 1.2A

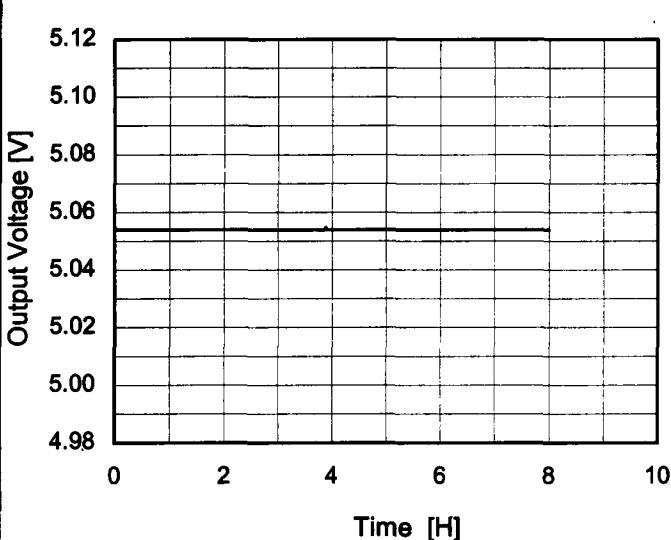
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	18	0	5.060	± 12	± 0.2
Minimum Voltage	-40	9	1.2	5.037		

COSEL

Model	SUS61205/SUCS61205	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+5V1.2A																								
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>5.055</td></tr> <tr><td>0.5</td><td>5.054</td></tr> <tr><td>1.0</td><td>5.054</td></tr> <tr><td>2.0</td><td>5.054</td></tr> <tr><td>3.0</td><td>5.054</td></tr> <tr><td>4.0</td><td>5.054</td></tr> <tr><td>5.0</td><td>5.054</td></tr> <tr><td>6.0</td><td>5.054</td></tr> <tr><td>7.0</td><td>5.054</td></tr> <tr><td>8.0</td><td>5.054</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	5.055	0.5	5.054	1.0	5.054	2.0	5.054	3.0	5.054	4.0	5.054	5.0	5.054	6.0	5.054	7.0	5.054	8.0	5.054
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COSEL

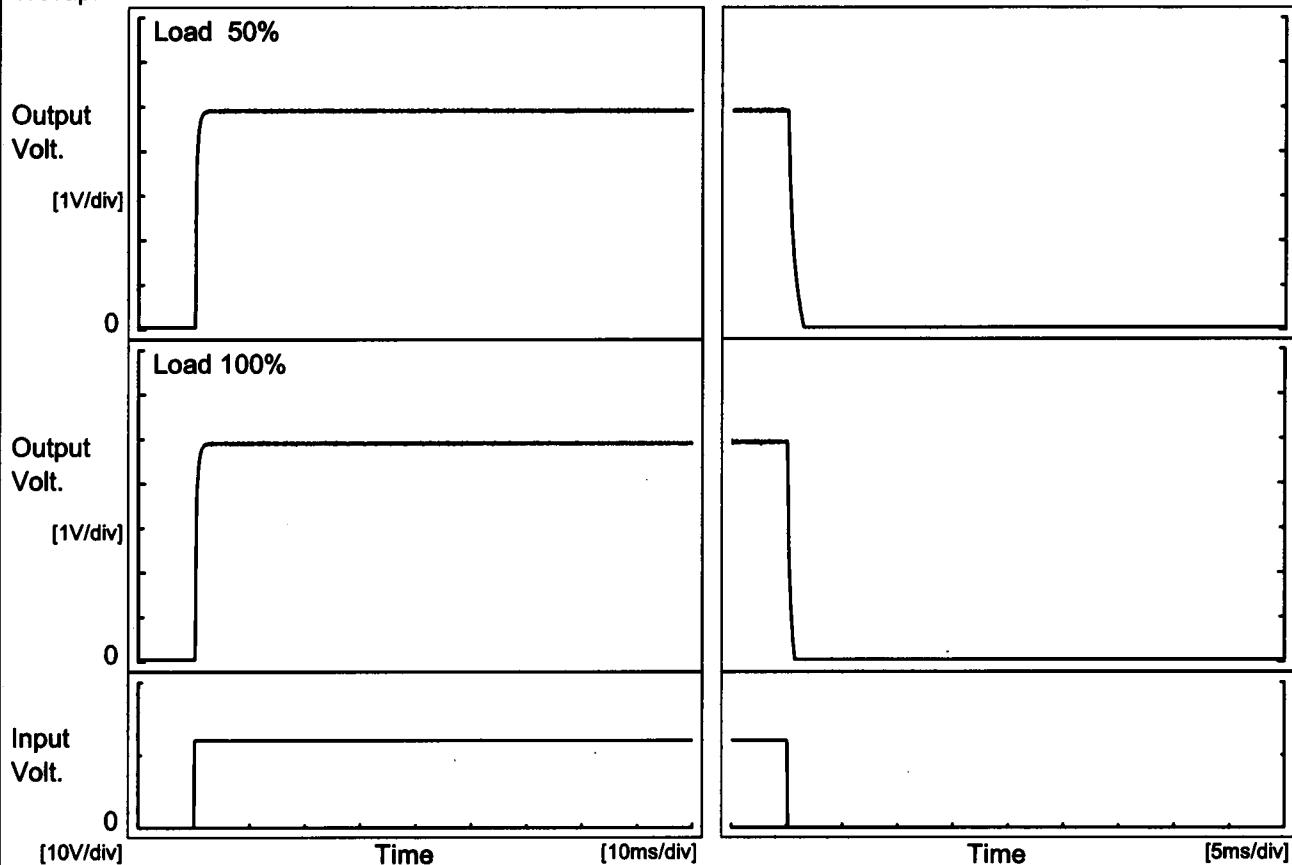
Model SUS61205/SUCS61205

Item Rise and Fall Time

Object +5V1.2A

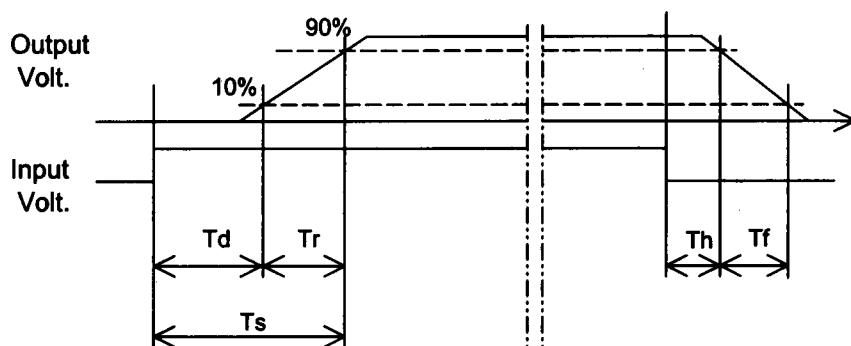
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		0.2	0.7	0.9	0.1	1.0	
100 %		0.2	0.8	1.0	0.1	0.5	

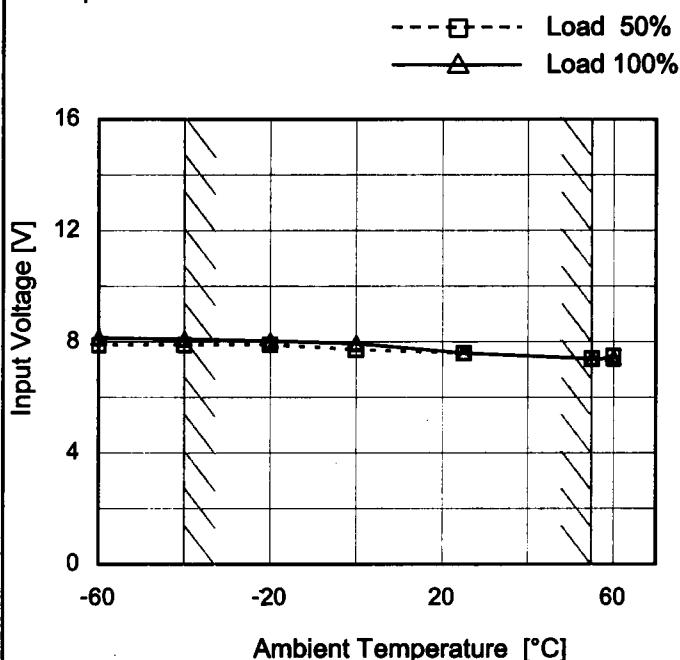


COSEL

Model	SUS61205/SUCS61205
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.2A

Testing Circuitry Figure A

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	7.9	8.2
-40	7.9	8.1
-20	7.9	8.1
0	7.8	8.0
25	7.6	7.6
55	7.4	7.4
60	7.5	7.4
-	-	-
-	-	-
-	-	-
-	-	-

COSEL

Model	SUS61205/SUCS61205	Temperature Testing Circuitry	25°C Figure A																																																							
Item	Overcurrent Protection																																																									
Object	+5V1.2A																																																									
1. Graph		2. Values																																																								
<p>Input Volt. 9V Input Volt. 12V Input Volt. 18V</p> <p>The graph plots Output Voltage [V] on the y-axis (0 to 7) against Load Current [A] on the x-axis (0.0 to 3.0). Three curves are shown for Input Voltages of 9V, 12V, and 18V. All curves show a sharp drop in output voltage as load current increases beyond approximately 1.2A. A slanted line is drawn across the graph, starting from the y-axis at approximately 4.8V and ending at the x-axis at approximately 1.2A, indicating the range of the rated load current.</p>		<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>5.00</td><td>1.21</td><td>1.21</td><td>1.21</td></tr> <tr><td>4.75</td><td>1.77</td><td>1.85</td><td>1.81</td></tr> <tr><td>4.50</td><td>1.80</td><td>1.88</td><td>1.82</td></tr> <tr><td>4.00</td><td>1.86</td><td>1.92</td><td>1.84</td></tr> <tr><td>3.50</td><td>1.91</td><td>1.96</td><td>1.86</td></tr> <tr><td>3.00</td><td>2.02</td><td>2.08</td><td>1.97</td></tr> <tr><td>2.50</td><td>2.13</td><td>2.16</td><td>2.04</td></tr> <tr><td>2.00</td><td>2.18</td><td>2.18</td><td>2.05</td></tr> <tr><td>1.50</td><td>2.21</td><td>2.17</td><td>2.03</td></tr> <tr><td>1.00</td><td>2.17</td><td>2.09</td><td>1.96</td></tr> <tr><td>0.50</td><td>2.03</td><td>1.93</td><td>1.83</td></tr> <tr><td>0.00</td><td>1.72</td><td>1.62</td><td>1.56</td></tr> </tbody> </table>		Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	5.00	1.21	1.21	1.21	4.75	1.77	1.85	1.81	4.50	1.80	1.88	1.82	4.00	1.86	1.92	1.84	3.50	1.91	1.96	1.86	3.00	2.02	2.08	1.97	2.50	2.13	2.16	2.04	2.00	2.18	2.18	2.05	1.50	2.21	2.17	2.03	1.00	2.17	2.09	1.96	0.50	2.03	1.93	1.83	0.00	1.72	1.62	1.56
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COSEL

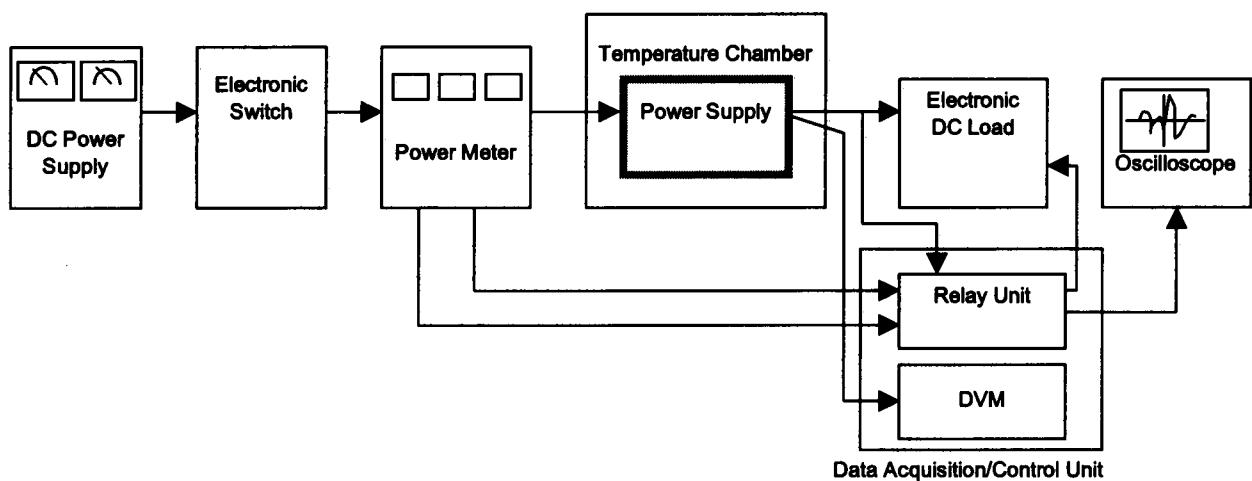


Figure A

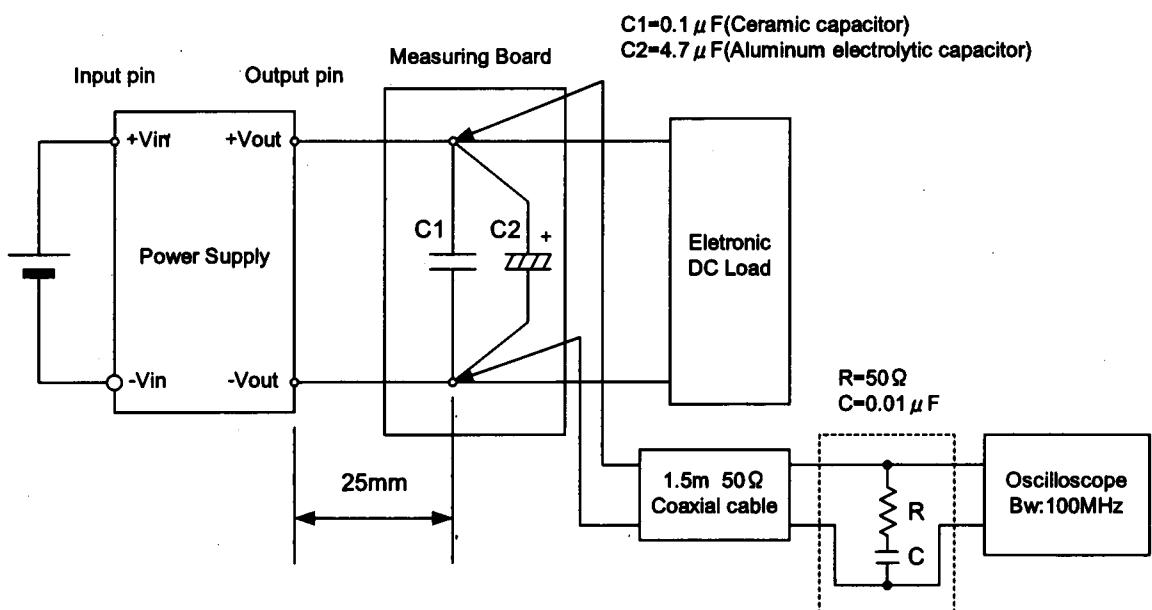


Figure B (Ripple and Ripple noise Characteristic)