



TEST DATA OF SUS31205

Regulated DC Power Supply
Nov 19, 2007

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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)

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Model	SUS31205
Item	Input Current (by Input Voltage)
Object	<p>1.Graph</p> <p>Input Current [A]</p> <p>Input Voltage [V]</p> <p>Legend:</p> <ul style="list-style-type: none"> Load 100% (Open Triangle) Load 50% (Open Square) Load 0% (Open Circle) <p>Note: Slanted line shows the range of the rated input voltage.</p>

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	0.634	0.052
3.0	0.047	0.681	0.642
3.4	0.041	0.691	0.649
4.0	0.035	0.564	0.662
5.0	0.030	0.410	0.694
5.8	0.027	0.349	0.714
6.0	0.026	0.336	0.692
8.0	0.023	0.244	0.488
9.0	0.022	0.216	0.423
10.0	0.022	0.195	0.384
12.0	0.022	0.164	0.315
14.0	0.023	0.143	0.271
16.0	0.024	0.128	0.237
18.0	0.025	0.117	0.212
20.0	0.027	0.109	0.193
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Model	SUS31205	Temperature	25°C																																																			
Item	Input Current (by Load Current)	Testing Circuitry	Figure A																																																			
Object	_____																																																					
1.Graph	<p>—△— Input Volt. 9V ---□--- Input Volt. 12V ---○--- Input Volt. 18V</p>																																																					
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input 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>0.00</td><td>0.022</td><td>0.022</td><td>0.025</td></tr> <tr><td>0.12</td><td>0.099</td><td>0.078</td><td>0.061</td></tr> <tr><td>0.24</td><td>0.177</td><td>0.135</td><td>0.098</td></tr> <tr><td>0.36</td><td>0.256</td><td>0.193</td><td>0.135</td></tr> <tr><td>0.48</td><td>0.340</td><td>0.253</td><td>0.173</td></tr> <tr><td>0.60</td><td>0.423</td><td>0.315</td><td>0.212</td></tr> <tr><td>0.66</td><td>0.468</td><td>0.346</td><td>0.232</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]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.00	0.022	0.022	0.025	0.12	0.099	0.078	0.061	0.24	0.177	0.135	0.098	0.36	0.256	0.193	0.135	0.48	0.340	0.253	0.173	0.60	0.423	0.315	0.212	0.66	0.468	0.346	0.232	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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Model	SUS31205	Temperature Testing Circuitry	25°C Figure A																																															
Item	Input Power (by Load Current)																																																	
Object																																																		
1.Graph		2.Values																																																
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Model	SUS31205	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 slight decrease in efficiency 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>78.1</td><td>78.4</td></tr> <tr><td>9</td><td>78.1</td><td>79.3</td></tr> <tr><td>10</td><td>78.0</td><td>79.9</td></tr> <tr><td>12</td><td>77.1</td><td>80.3</td></tr> <tr><td>15</td><td>75.1</td><td>80.1</td></tr> <tr><td>18</td><td>72.2</td><td>79.4</td></tr> <tr><td>20</td><td>70.1</td><td>78.1</td></tr> </tbody> </table>				Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8	78.1	78.4	9	78.1	79.3	10	78.0	79.9	12	77.1	80.3	15	75.1	80.1	18	72.2	79.4	20	70.1	78.1								
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<p>Note: Slanted line shows the range of the rated input voltage.</p>																																			

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Model	SUS31205	Temperature	25°C
Item	Efficiency (by Load Current)	Testing Circuitry	Figure A
Object	<hr/>		
1. Graph			
	—△— Input Volt. 9V	—□— Input Volt. 12V	—○— Input Volt. 18V
Efficiency [%]	70	78	78
	62	72	72
	54	68	68
	46	75	75
	38	78	78
	30	80	80
0.0	0.12	0.24	0.36
0.2	68.9	76.6	78.9
0.4	65.2	74.8	78.4
0.6	55.0	68.7	74.4
Load Current [A]	0.48	79.5	79.7
	0.60	79.4	80.4
	0.66	79.1	80.3
	—	—	79.6
	—	—	—
	—	—	—
	—	—	—
	—	—	—

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

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	-	-	-
0.12	68.9	65.2	55.0
0.24	76.6	74.8	68.7
0.36	78.9	78.4	74.4
0.48	79.5	79.7	77.4
0.60	79.4	80.4	79.2
0.66	79.1	80.3	79.6
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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Model	SUS31205																																	
Item	Line Regulation	Temperature 25°C Testing Circuitry Figure A																																
Object	+5V0.6A																																	
1.Graph																																		
<p>Output Voltage [V]</p> <p>Input Voltage [V]</p> <p>Load 50%</p> <p>Load 100%</p>																																		
<p>Note: Slanted line shows the range of the rated input voltage.</p>																																		
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Input Voltage [V]	Output Voltage [V]																																	
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Model	SUS31205
Item	Load Regulation
Object	+5V0.6A

1. Graph

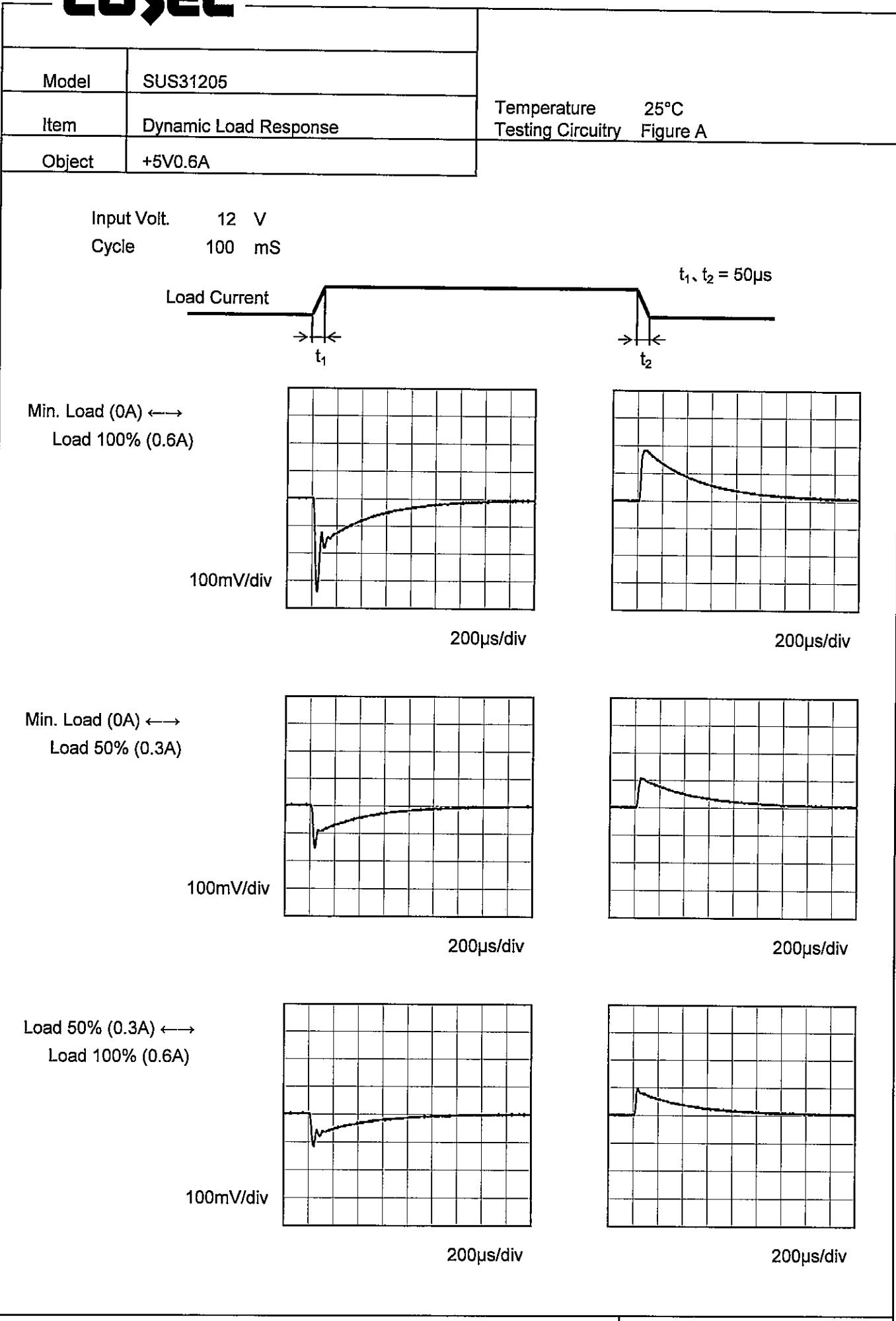
Load Current [A]	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V
0.00	5.041	5.041	5.041
0.12	5.041	5.041	5.041
0.24	5.040	5.040	5.040
0.36	5.040	5.040	5.040
0.48	5.040	5.040	5.040
0.60	5.039	5.039	5.039
0.66	5.039	5.039	5.039
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	5.041	5.041	5.041
0.12	5.041	5.041	5.041
0.24	5.040	5.040	5.040
0.36	5.040	5.040	5.040
0.48	5.040	5.040	5.040
0.60	5.039	5.039	5.039
0.66	5.039	5.039	5.039
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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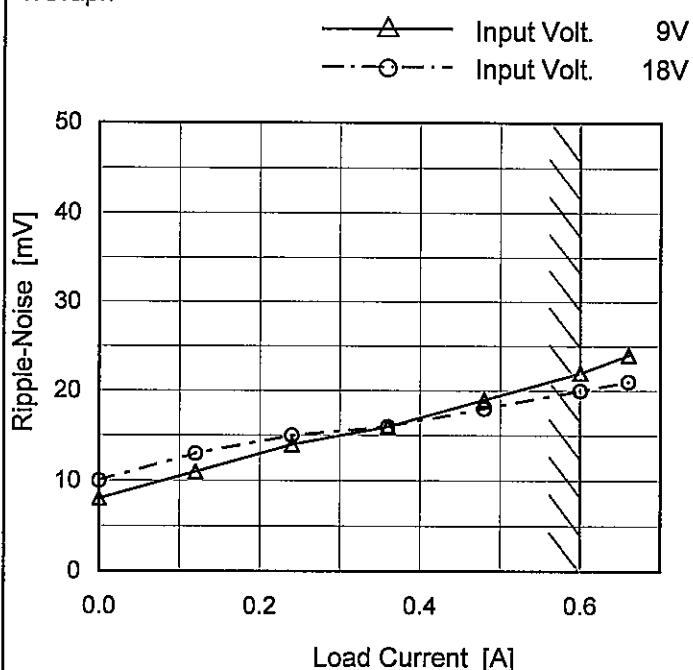
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Model	SUS31205	Temperature	25°C																								
Item	Ripple Voltage (by Load Current)	Testing Circuitry	Figure B																								
Object	+5V0.6A																										
1.Graph			2.Values																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 50 mV, and the X-axis ranges from 0.0 to 0.6 A. Two curves are plotted: one for Input Volt. 9V (solid line with triangle markers) and one for Input Volt. 18V (dashed line with circle markers). Both curves show an increase in ripple voltage as load current increases. A slanted line indicates the range of the rated load current.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (9V)</th> <th>Ripple Voltage [mV] (18V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>3</td><td>3</td></tr> <tr><td>0.12</td><td>3</td><td>3</td></tr> <tr><td>0.24</td><td>5</td><td>3</td></tr> <tr><td>0.36</td><td>8</td><td>4</td></tr> <tr><td>0.48</td><td>11</td><td>5</td></tr> <tr><td>0.60</td><td>17</td><td>7</td></tr> <tr><td>0.66</td><td>21</td><td>7</td></tr> </tbody> </table>				Load Current [A]	Ripple Voltage [mV] (9V)	Ripple Voltage [mV] (18V)	0.00	3	3	0.12	3	3	0.24	5	3	0.36	8	4	0.48	11	5	0.60	17	7	0.66	21	7
Load Current [A]	Ripple Voltage [mV] (9V)	Ripple Voltage [mV] (18V)																									
0.00	3	3																									
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0.66	21	7																									
<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>Diagram illustrating a Complex Ripple Wave Form. The waveform consists of a series of sharp, triangular pulses superimposed on a DC level. The vertical axis is labeled "Ripple [mVp-p]" with arrows indicating the measurement range.</p>																											
<p>Fig.Complex Ripple Wave Form</p>																											

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Model	SUS31205
Item	Ripple-Noise
Object	+5V0.6A

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.

Temperature 25°C
 Testing Circuitry Figure B

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	8	10
0.12	11	13
0.24	14	15
0.36	16	16
0.48	19	18
0.60	22	20
0.66	24	21
--	-	-
--	-	-
--	-	-
--	-	-

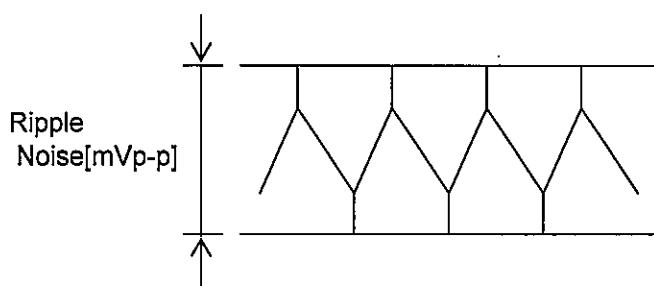


Fig.Complex Ripple Noise Wave Form

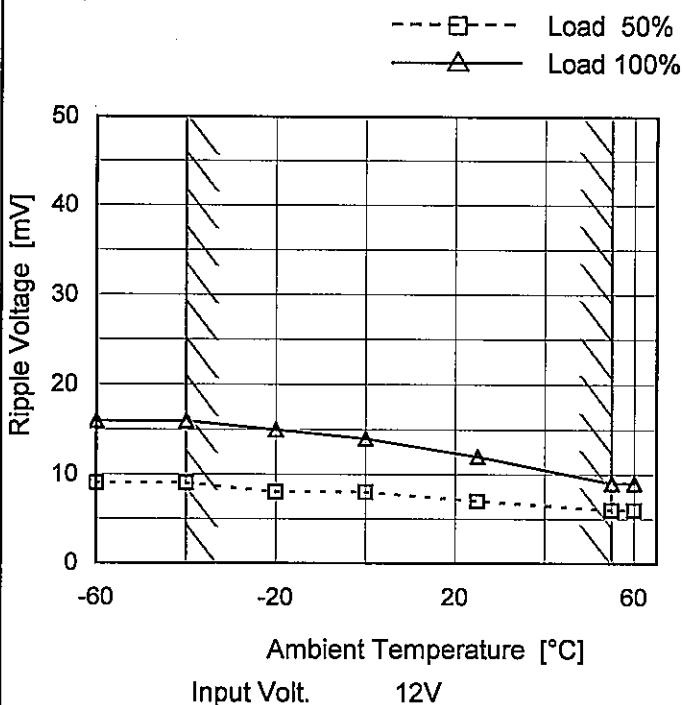
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Model SUS31205

Item Ripple Voltage (by Ambient Temp.)

Object +5V0.6A

1. Graph



Measured by 100 MHz Oscilloscope.

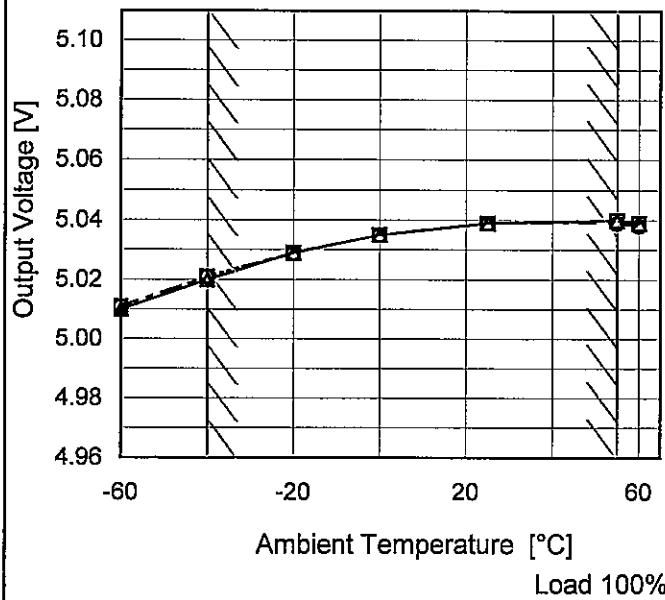
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	9	16
-40	9	16
-20	8	15
0	8	14
25	7	12
55	6	9
60	6	9
--	-	-
--	-	-
--	-	-
--	-	-

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Model	SUS31205	Testing Circuitry Figure A		
Item	Ambient Temperature Drift			
Object	+5V0.6A			
1.Graph	<p>—△— Input Volt. 9V - - -□- Input Volt. 12V - - -○- Input Volt. 18V</p>  <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>	2.Values		
		Ambient Temperature [°C]	Output Voltage [V]	
			Input Volt. 9[V]	Input Volt. 12[V]
		-60	5.010	5.011
		-40	5.020	5.021
		-20	5.029	5.029
		0	5.035	5.035
		25	5.039	5.039
		55	5.040	5.040
		60	5.039	5.039
		---	-	-
		---	-	-
		---	-	-
		---	-	-

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



Model	SUS31205	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V0.6A	

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 - 0.6A

* 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

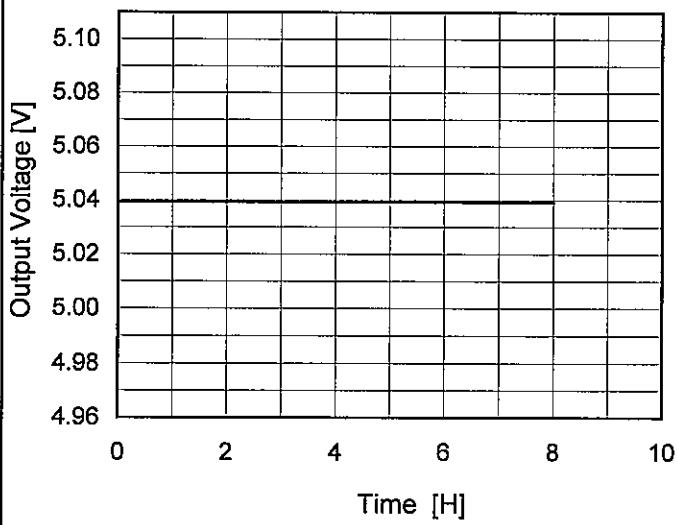
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	18	0	5.042		
Minimum Voltage	-40	9	0.6	5.020	±11	±0.2

COSEL

Model	SUS31205
Item	Time Lapse Drift
Object	+5V0.6A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



Input Volt. 12V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	5.039
0.5	5.039
1.0	5.039
2.0	5.039
3.0	5.039
4.0	5.039
5.0	5.039
6.0	5.039
7.0	5.039
8.0	5.039

COSEL

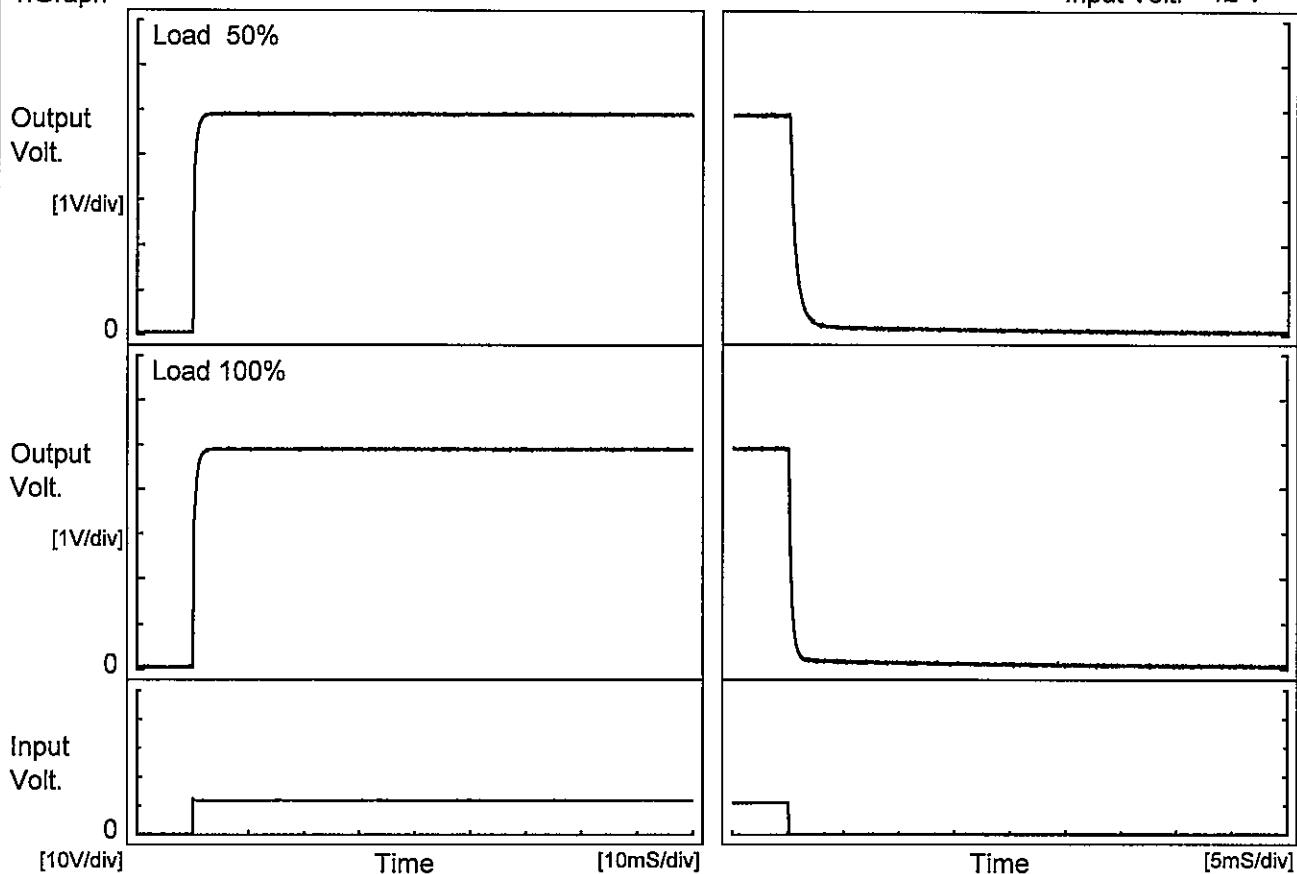
Model SUS31205

Item Rise and Fall Time

Object +5V0.6A

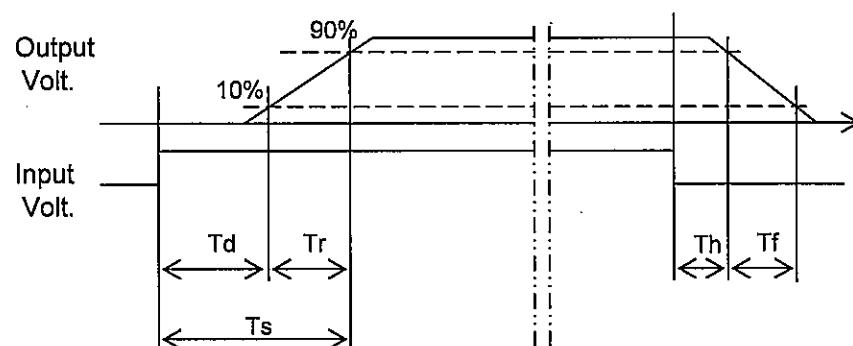
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

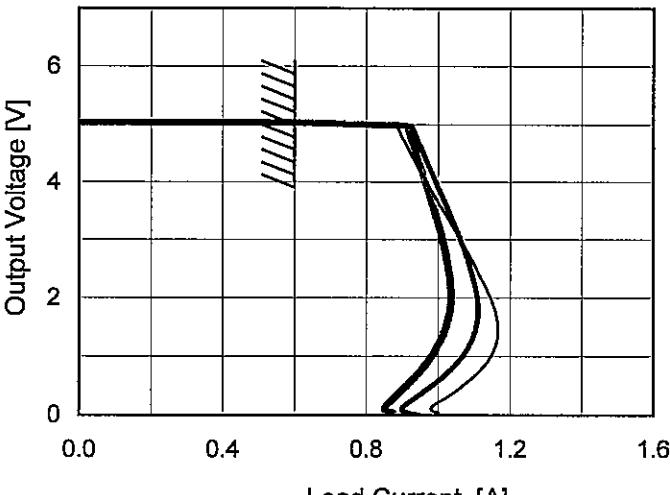
Load	Time	Td	Tr	Ts	Th	Tf	[mS]
50 %		0.1	0.9	1.0	0.2	1.4	
100 %		0.1	1.0	1.1	0.1	0.7	



COSEL

Model	SUS31205																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																							
Object	+5V0.6A																																							
1.Graph																																								
<p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 50% (dashed line with squares)</p> <p>Load 100% (solid line with triangles)</p>																																								
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																								
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COSEL

Model	SUS31205	Temperature	25°C																																																							
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																							
Object	+5V0.6A																																																									
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COSEL

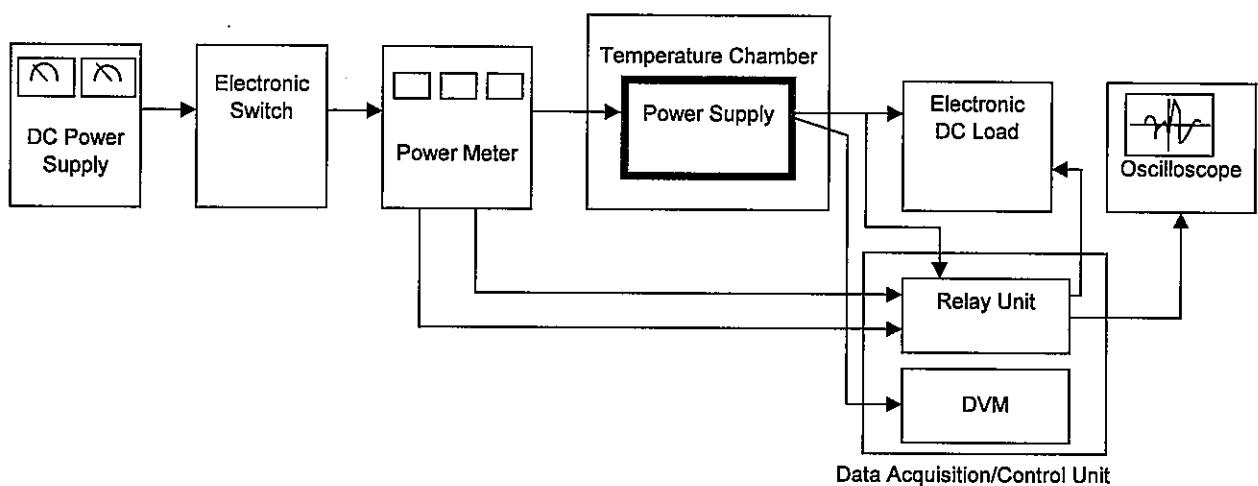


Figure A

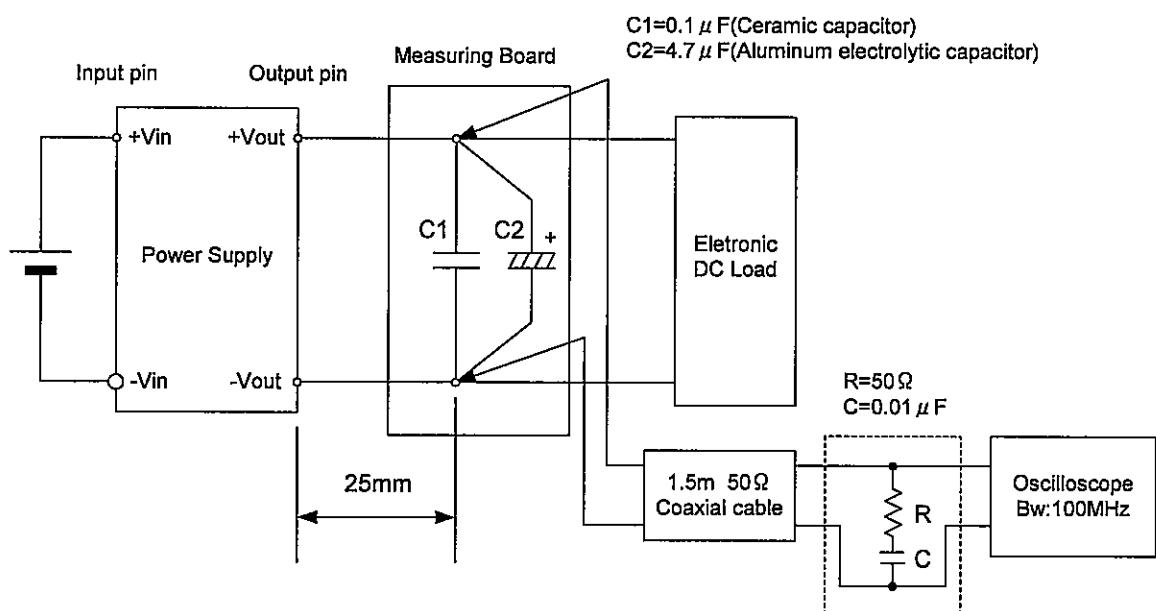


Figure B (Ripple and Ripple noise Characteristic)