

# TEST DATA OF SUS1R50505

Regulated DC Power Supply

Sep 13, 2004

Approved by :

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Design Engineer

**COSEL CO.,LTD.**



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Model	SUS1R50505	Temperature Testing Circuitry	25°C Figure A																																																																							
Item	Input Current (by Input Voltage)																																																																									
Object	_____																																																																									
1.Graph	<p>Legend:</p> <ul style="list-style-type: none"> <li>Load 100% (Solid line with triangles)</li> <li>Load 50% (Dashed line with squares)</li> <li>Load 0% (Dashed line with circles)</li> </ul>																																																																									
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Note: Slanted line shows the range of the rated input voltage.

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Model	SUS1R50505	Temperature Testing Circuitry	25°C Figure A																																																			
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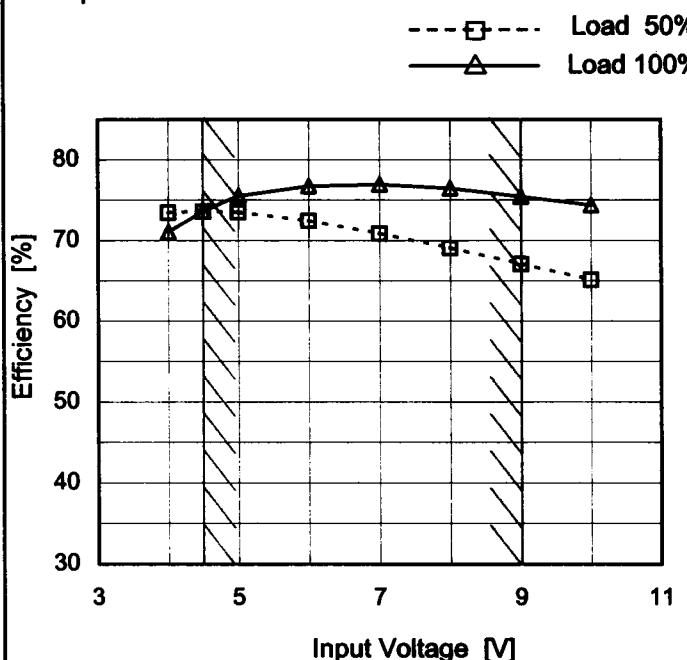
**COSEL**

Model	SUS1R50505	Temperature Testing Circuitry	25°C Figure A	
Item	Input Power (by Load Current)			
Object	_____			
1.Graph		—△— Input Volt. 4.5V - -□--- Input Volt. 5V - -○--- Input Volt. 9V		
Note: Slanted line shows the range of the rated load current.			<b>2.Values</b>	
Load Current [A]	Input Power [W]			
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	
0.00	0.14	0.15	0.23	
0.06	0.49	0.50	0.61	
0.12	0.84	0.85	0.96	
0.18	1.21	1.21	1.30	
0.24	1.61	1.59	1.65	
0.30	2.03	1.98	2.00	
0.33	2.25	2.19	2.17	
-	-	-	-	
-	-	-	-	
-	-	-	-	
-	-	-	-	

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Model	SUS1R50505
Item	Efficiency (by Input Voltage)
Object	_____

## 1.Graph



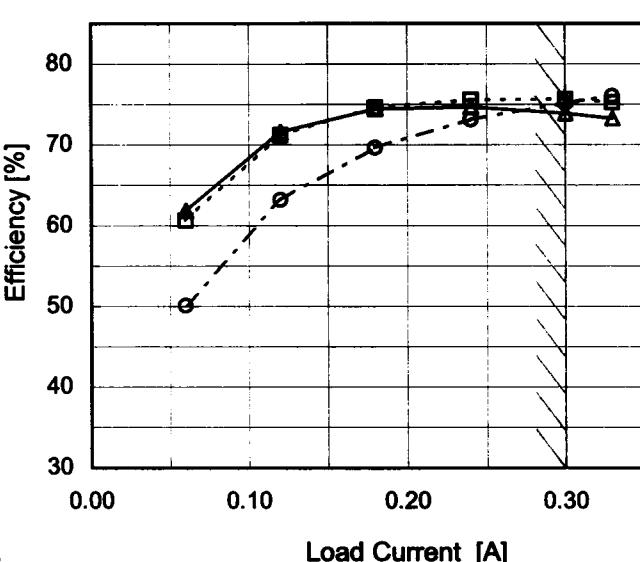
Note: Slanted line shows the range of the rated input voltage.

Temperature 25°C  
Testing Circuitry Figure A

## 2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.0	73.5	71.0
4.5	73.6	73.6
5.0	73.5	75.5
6.0	72.4	76.7
7.0	70.8	76.9
8.0	69.1	76.5
9.0	67.1	75.4
10.0	65.1	74.4
--	-	-

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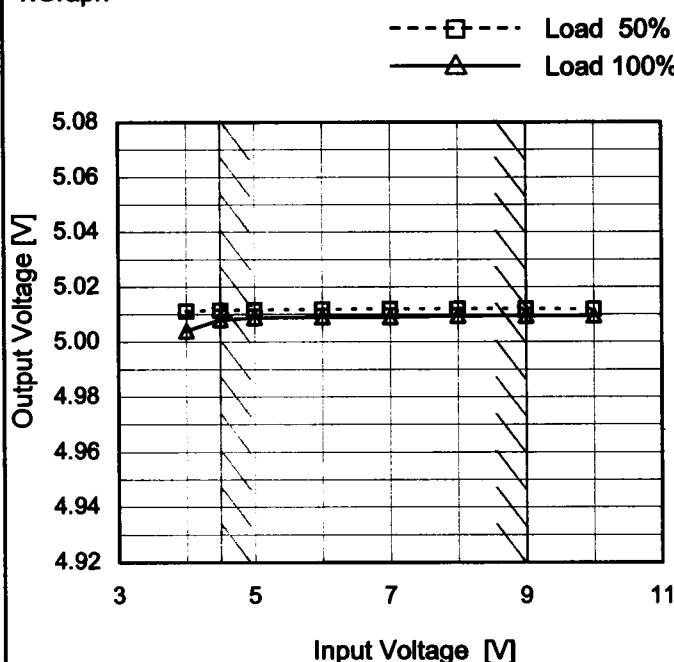
Note: Slanted line shows the range of the rated load current.

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Model	SUS1R50505
Item	Line Regulation
Object	+5V0.3A

Temperature 25°C  
 Testing Circuitry Figure A

## 1.Graph



## 2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	5.011	5.004
4.5	5.012	5.008
5.0	5.012	5.009
6.0	5.012	5.009
7.0	5.012	5.009
8.0	5.012	5.009
9.0	5.012	5.010
10.0	5.012	5.010
-	-	-

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

**COSEL**

Model	SUS1R50505
Item	Load Regulation
Object	+5V0.3A

1.Graph

Output Voltage [V]

Load Current [A]

Legend:

- Input Volt. 4.5V
- Input Volt. 5V
- Input Volt. 9V

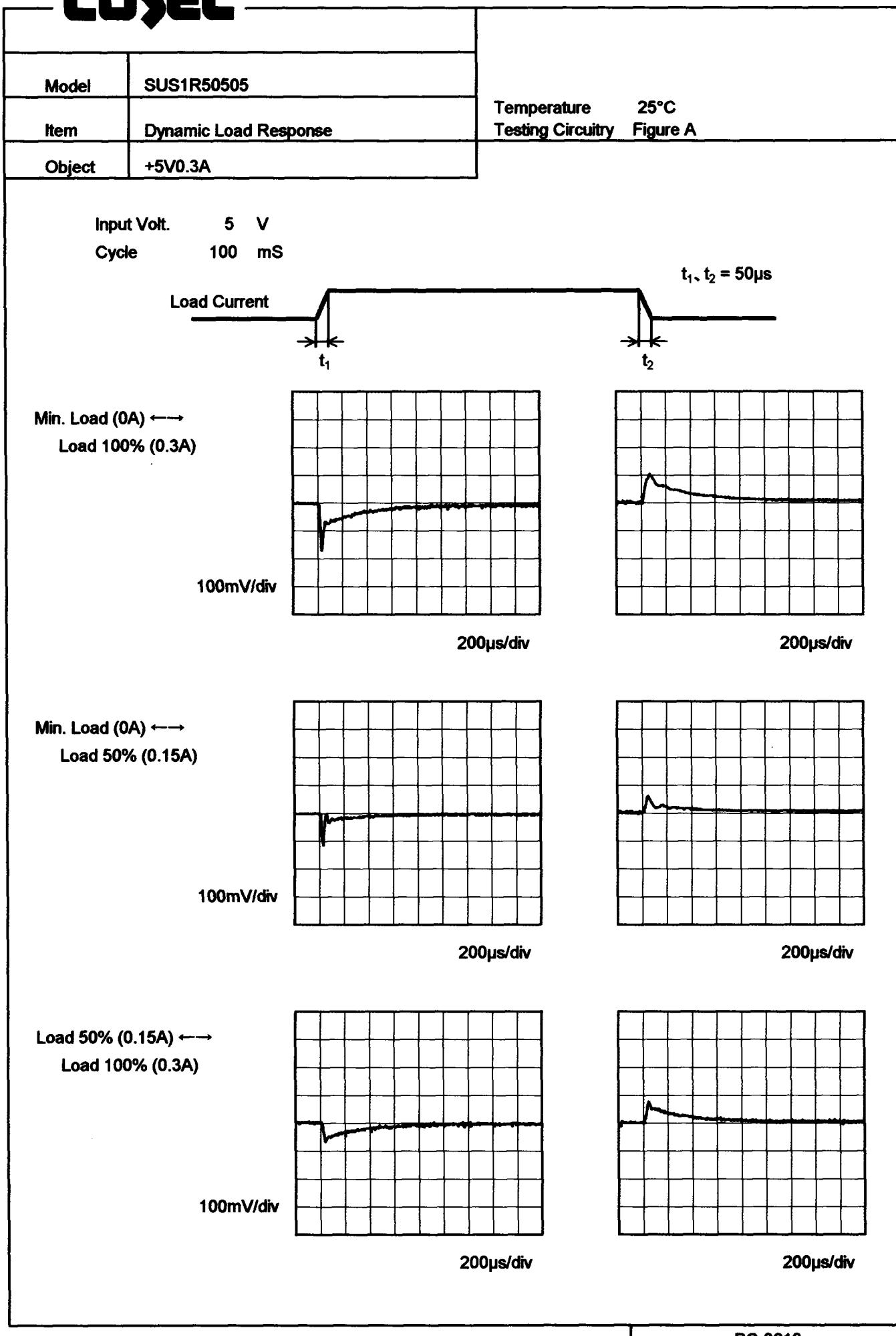
Temperature 25°C  
Testing Circuitry Figure A

## 2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.00	5.013	5.013	5.013
0.06	5.013	5.013	5.013
0.12	5.012	5.012	5.012
0.18	5.012	5.012	5.012
0.24	5.011	5.011	5.011
0.30	5.008	5.010	5.010
0.33	5.005	5.008	5.010
-	-	-	-
-	-	-	-
--	-	-	-
--	-	-	-

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

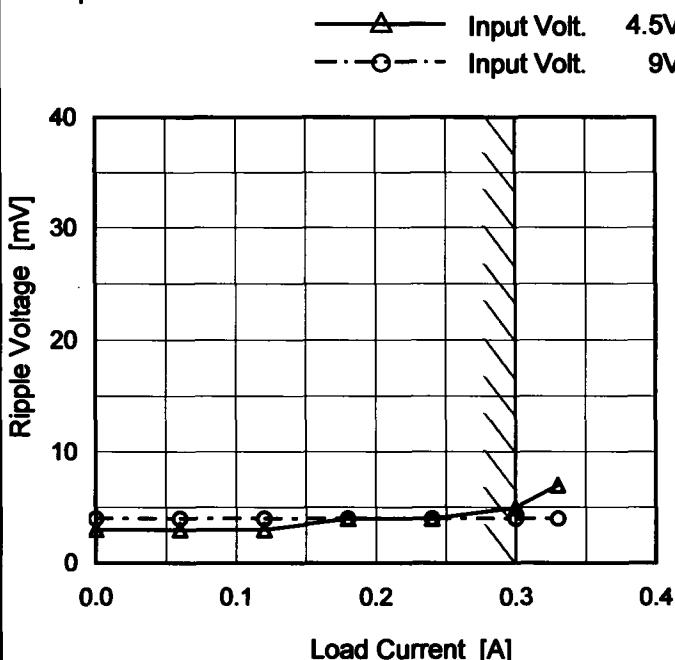
COSEL



**COSEL**

Model	SUS1R50505
Item	Ripple Voltage (by Load Current)
Object	+5V0.3A

## 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]

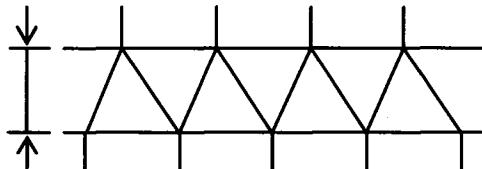


Fig.Complex Ripple Wave Form

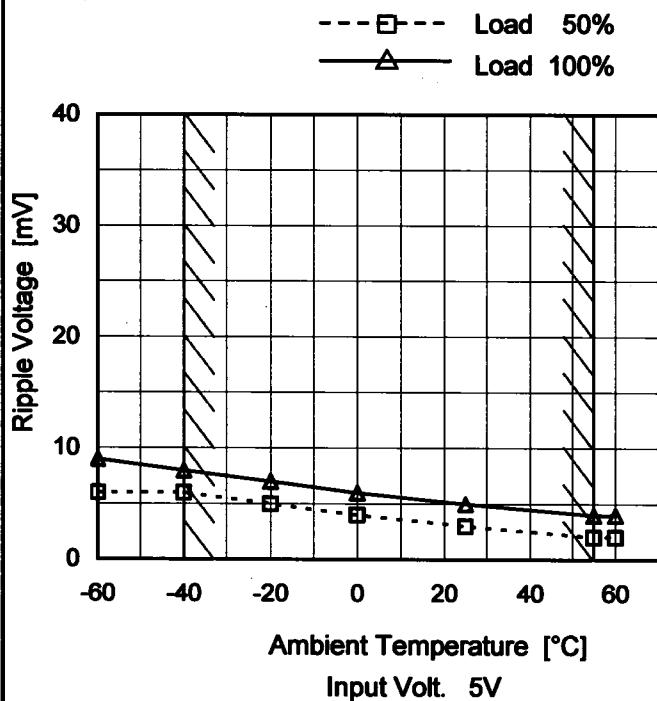
Temperature 25°C  
 Testing Circuitry Figure B

## 2. Values

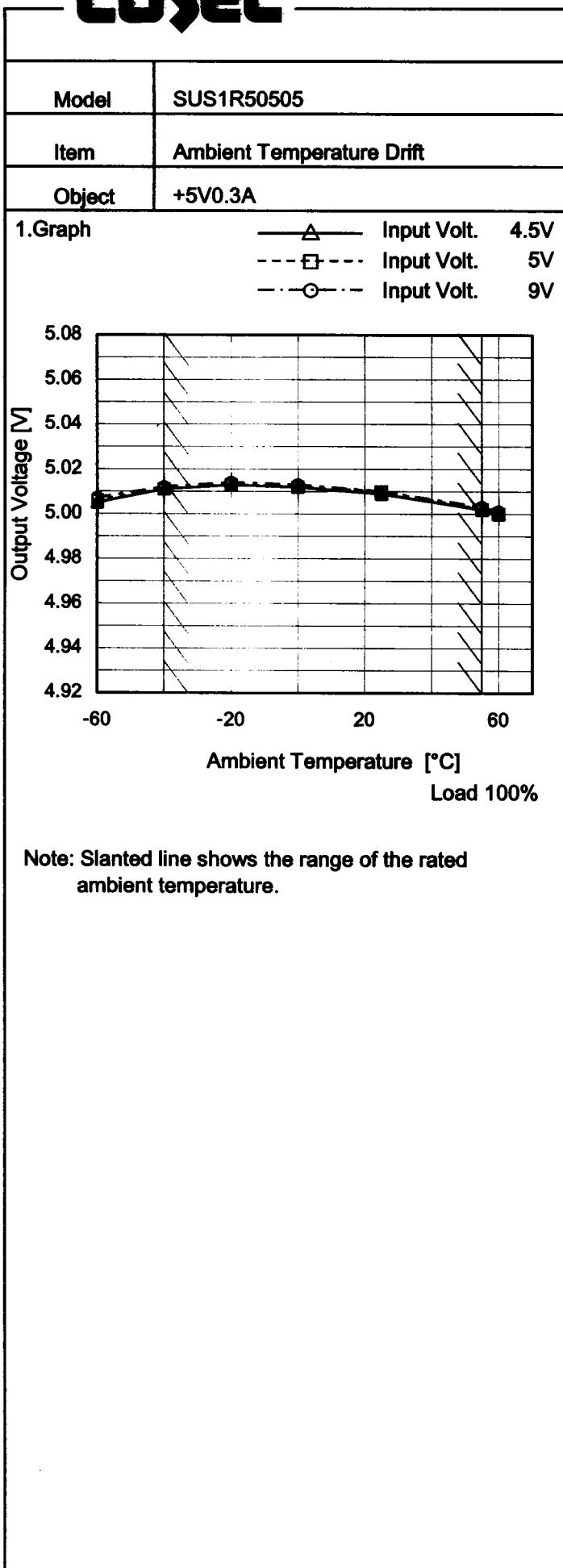
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	3	4
0.06	3	4
0.12	3	4
0.18	4	4
0.24	4	4
0.30	5	4
0.33	7	4
-	-	-
-	-	-
-	-	-
-	-	-

**COSEL**

Model	SUS1R50505	Temperature	25°C																																						
Item	Ripple-Noise	Testing Circuitry	Figure B																																						
Object	+5V0.3A																																								
1. Graph																																									
<p>Graph showing Ripple-Noise [mV] vs Load Current [A]. The graph shows two curves: one for Input Volt. 4.5V (solid line with triangle markers) and one for Input Volt. 9V (dashed line with circle markers). The x-axis is Load Current [A] from 0.0 to 0.4. The y-axis is Ripple-Noise [mV] from 0 to 40. Both curves show a slight increase in noise as load current increases. A slanted line indicates the range of the rated load current.</p>																																									
<p>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.</p> <p><b>Ripple Noise[mVp-p]</b></p> <p>Fig.Complex Ripple Noise Wave Form</p>																																									
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Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 4.5 [V]	Input Volt. 9 [V]																																							
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**COSEL**
**Model SUS1R50505**
**Item Ripple Voltage (by Ambient Temp.)**
**Object +5V0.3A**
**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	6	9
-40	6	8
-20	5	7
0	4	6
25	3	5
55	2	4
60	2	4
--	-	-
--	-	-
--	-	-
--	-	-

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Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
-60	5.005	5.006	5.007
-40	5.011	5.011	5.012
-20	5.013	5.013	5.014
0	5.012	5.012	5.013
25	5.009	5.010	5.010
55	5.002	5.002	5.003
60	5.000	5.000	5.001
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



Model	SUS1R50505	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+5V0.3A	

### 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 - 0.3A

\* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

### 2. Values

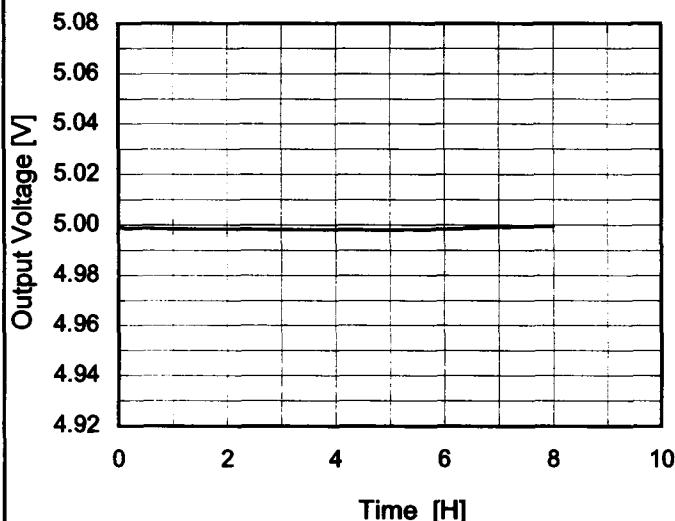
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-20	4.5	0	5.017	±8	±0.2
Minimum Voltage	55	4.5	0.3	5.002		

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Model	SUS1R50505
Item	Time Lapse Drift
Object	+5V0.3A

Temperature 25°C  
 Testing Circuitry Figure A

## 1.Graph



Input Volt. 5V  
 Load 100%

## 2.Values

Time since start [H]	Output Voltage [V]
0.0	5.001
0.5	4.999
1.0	4.999
2.0	4.999
3.0	4.998
4.0	4.998
5.0	4.998
6.0	4.998
7.0	4.999
8.0	5.000

**COSEL**

Model SUS1R50505

Temperature 25°C  
Testing Circuitry Figure AItem Rise and Fall Time  
Object +5V0.3A

## 1. Graph

Input Volt. 4.5 V

Output Volt.

[1V/div]

Load 50%

0

Load 100%

[1V/div]

0

Input Volt.

0

Time

[10mS/div]

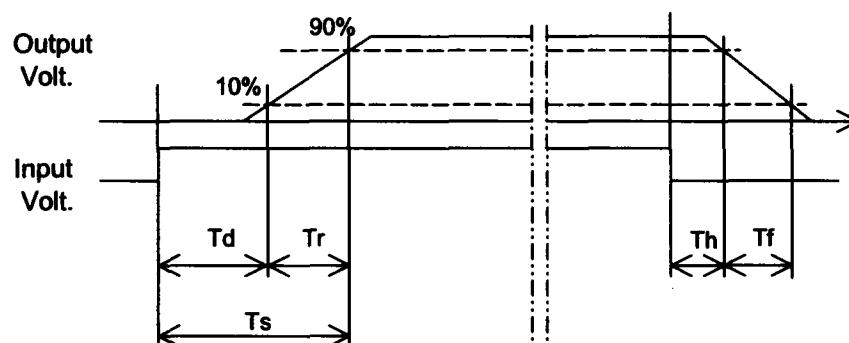
Time

[5mS/div]

## 2. Values

[mS]

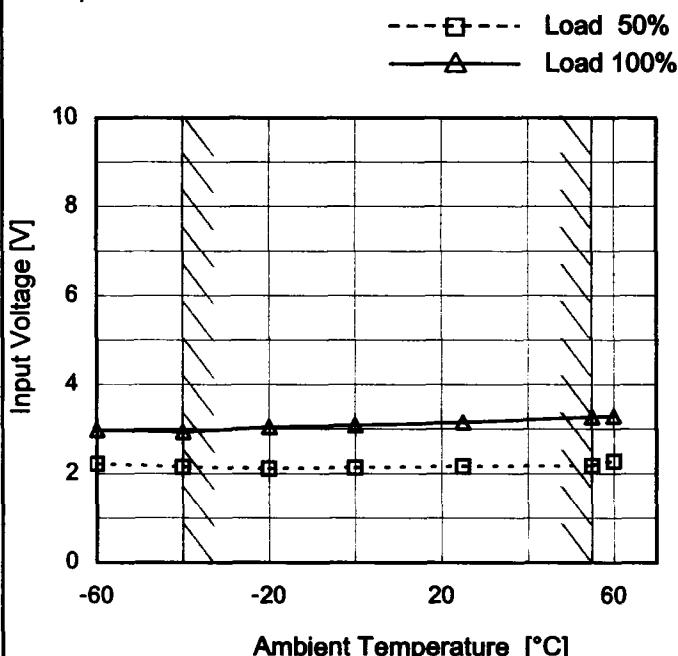
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.1	0.7	0.8	0.1	2.4
100 %		0.1	0.8	0.9	0.1	1.2



**COSEL**

Model	SUS1R50505
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V0.3A

## 1.Graph



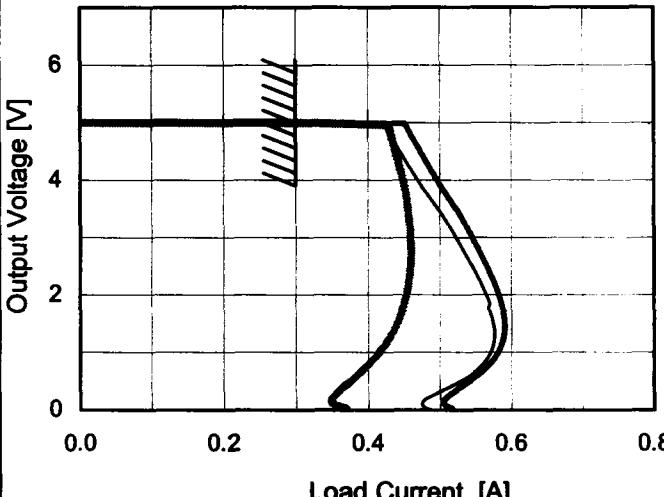
Note: Slanted line shows the range of the rated ambient temperature.

## Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	2.3	3.0
-40	2.2	3.0
-20	2.2	3.1
0	2.2	3.1
25	2.2	3.2
55	2.2	3.3
60	2.3	3.3
-	-	-
-	-	-
-	-	-
-	-	-

**COSEL**

Model	SUS1R50505
Item	Overcurrent Protection
Object	+5V0.3A
1.Graph	<p style="text-align: center;"> <span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black;"></span> Input Volt. 4.5V  <span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black;"></span> Input Volt. 5V  <span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black;"></span> Input Volt. 9V         </p>  <p>Note: Slanted line shows the range of the rated load current.</p>

 Temperature 25°C  
 Testing Circuitry Figure A

## 2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
5.00	0.30	0.30	0.30
4.75	0.43	0.46	0.43
4.50	0.44	0.47	0.44
4.00	0.47	0.50	0.45
3.50	0.50	0.52	0.46
3.00	0.52	0.55	0.46
2.50	0.54	0.57	0.46
2.00	0.57	0.58	0.45
1.50	0.57	0.59	0.44
1.00	0.57	0.58	0.42
0.50	0.53	0.54	0.38
0.00	0.49	0.53	0.39

COSEL

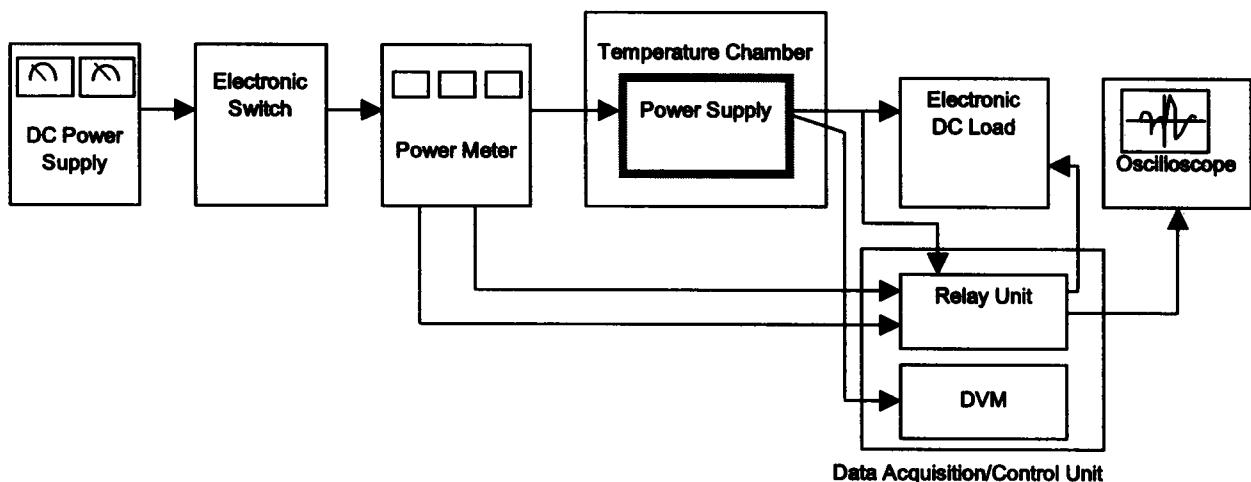


Figure A

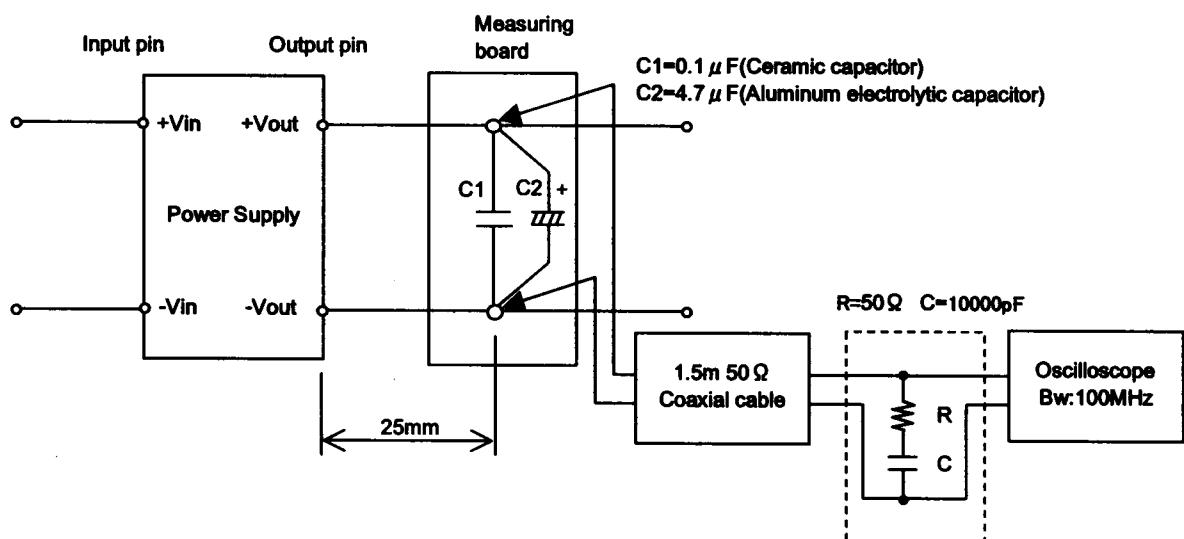


Figure B (Ripple and Ripple noise Characteristic)