



TEST DATA OF SUS3053R3

Regulated DC Power Supply
Mar 22, 2005

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Hayato Nakatsubo Design Engineer

COSEL CO.,LTD.



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Model	SUS3053R3	Temperature	25°C																																																																															
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<p>The graph plots Input Current [A] on the Y-axis (0.0 to 1.0) against Load Current [A] on the X-axis (0.0 to 0.6). Three curves are shown for different input voltages: 4.5V (solid line with triangles), 5V (dashed line with squares), and 9V (dash-dot line with circles). A slanted line is drawn through the origin, representing the rated load current range.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 4.5[V]</th> <th>Input Volt. 5[V]</th> <th>Input Volt. 9[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>0.030</td><td>0.030</td><td>0.043</td></tr> <tr><td>0.12</td><td>0.137</td><td>0.125</td><td>0.095</td></tr> <tr><td>0.24</td><td>0.247</td><td>0.223</td><td>0.146</td></tr> <tr><td>0.36</td><td>0.362</td><td>0.324</td><td>0.198</td></tr> <tr><td>0.48</td><td>0.480</td><td>0.427</td><td>0.251</td></tr> <tr><td>0.60</td><td>0.606</td><td>0.536</td><td>0.305</td></tr> <tr><td>0.66</td><td>0.671</td><td>0.592</td><td>0.333</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. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	0.00	0.030	0.030	0.043	0.12	0.137	0.125	0.095	0.24	0.247	0.223	0.146	0.36	0.362	0.324	0.198	0.48	0.480	0.427	0.251	0.60	0.606	0.536	0.305	0.66	0.671	0.592	0.333	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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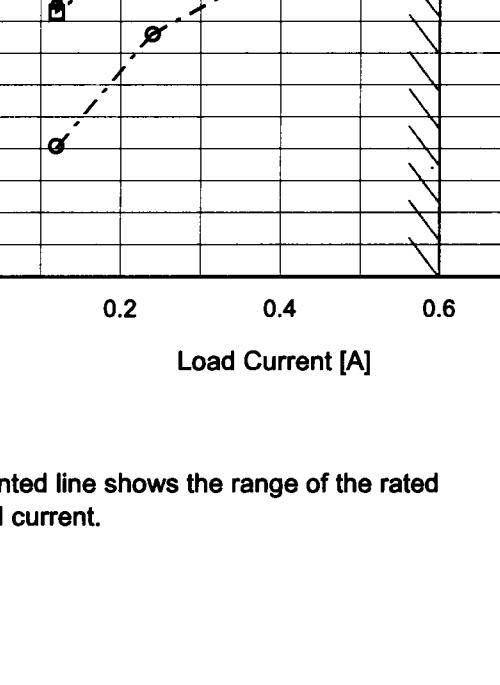
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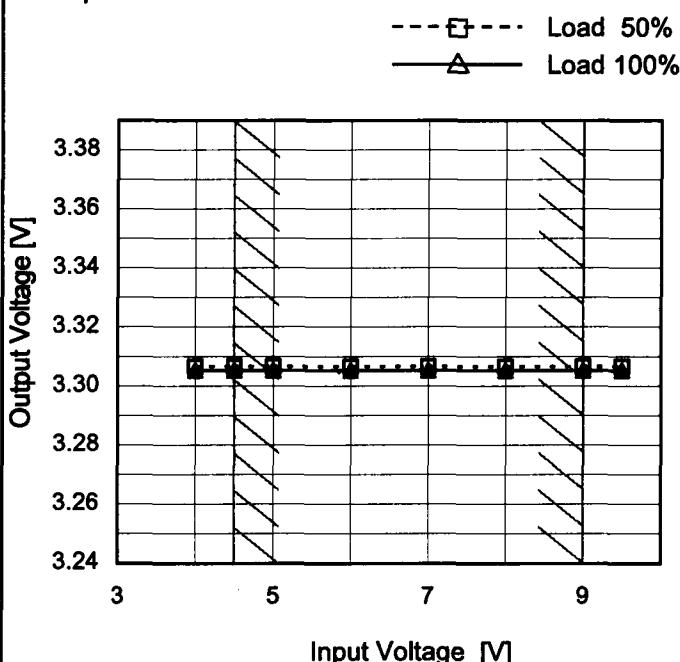
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Model	SUS3053R3
Item	Line Regulation
Object	+3.3V0.6A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	3.307	3.305
4.5	3.307	3.305
5.0	3.307	3.305
6.0	3.307	3.305
7.0	3.307	3.305
8.0	3.307	3.305
9.0	3.307	3.305
9.5	3.307	3.305
--	-	-

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

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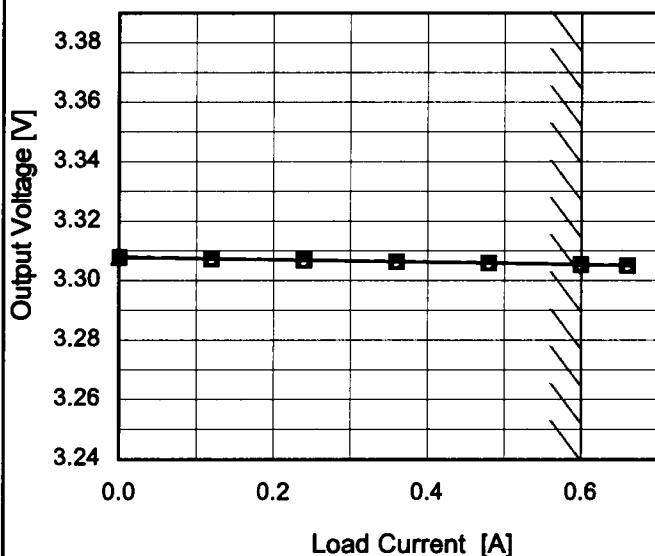
Model SUS3053R3

Item Load Regulation

Object +3.3V0.6A

1.Graph

—△— Input Volt. 4.5V
 - - -□- - Input Volt. 5V
 - -○- - Input Volt. 9V



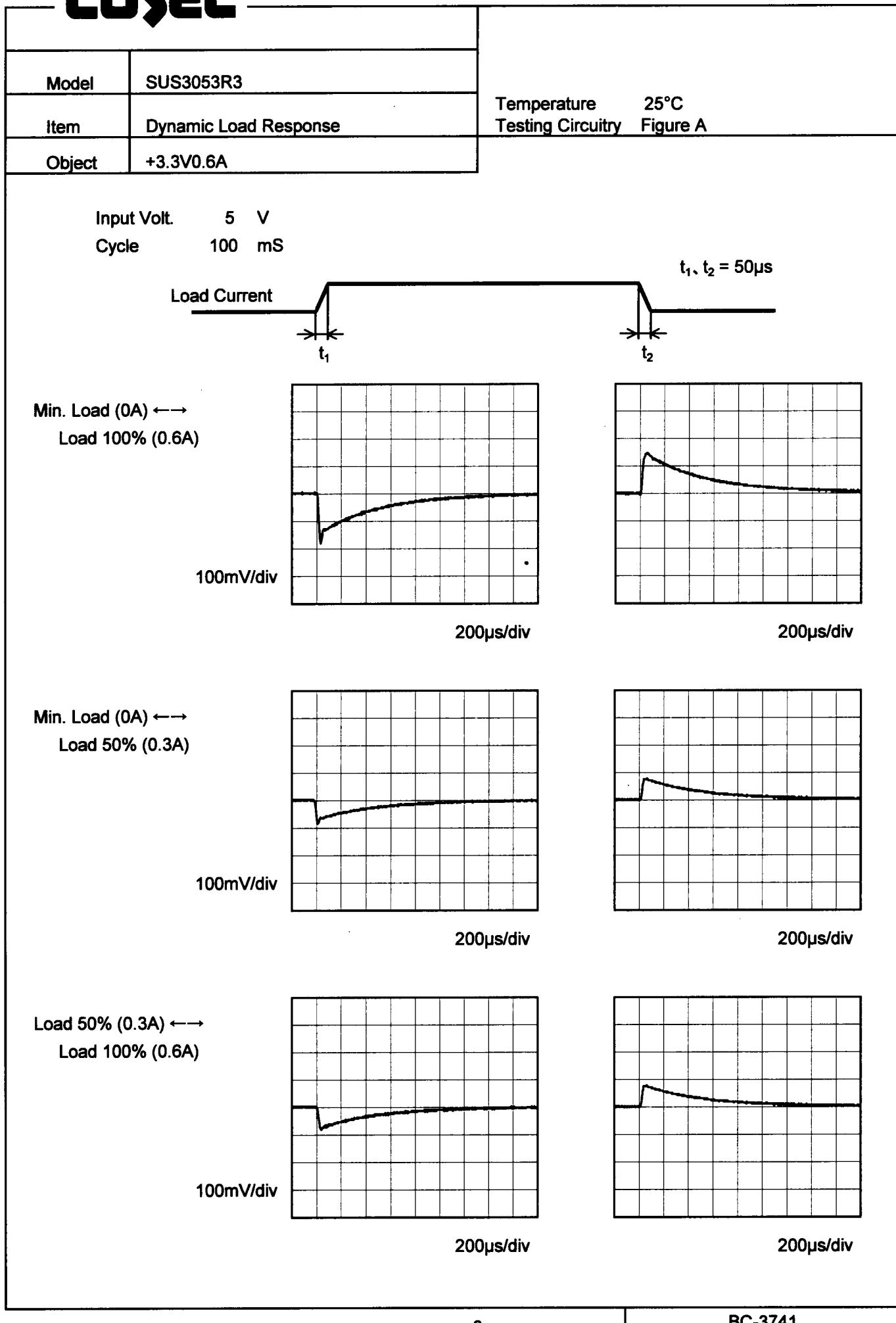
Note: Slanted line shows the range of the rated load current.

 Temperature 25°C
 Testing Circuitry Figure A

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.00	3.308	3.308	3.308
0.12	3.307	3.307	3.307
0.24	3.307	3.307	3.307
0.36	3.306	3.306	3.306
0.48	3.306	3.306	3.306
0.60	3.305	3.305	3.305
0.66	3.305	3.305	3.305
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--	-	-	-
--	-	-	-
--	-	-	-

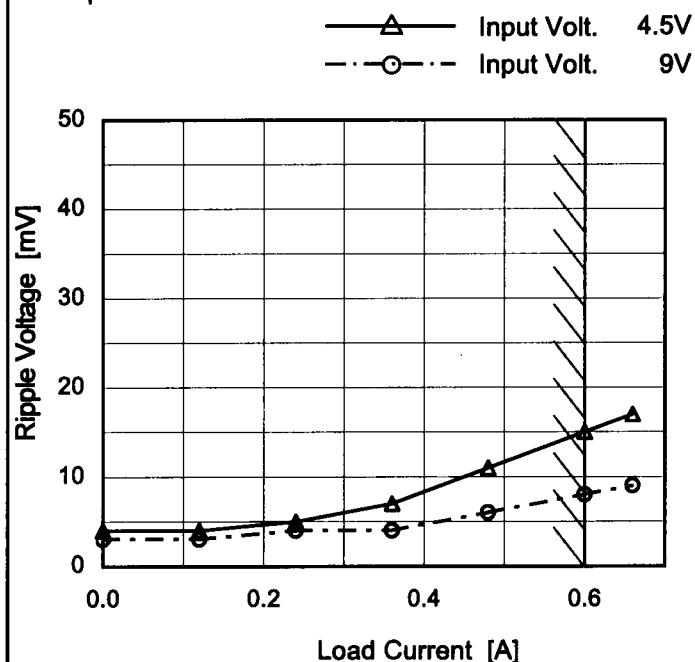
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Model	SUS3053R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V0.6A

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.

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	4	3
0.12	4	3
0.24	5	4
0.36	7	4
0.48	11	6
0.60	15	8
0.66	17	9
--	-	-
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]

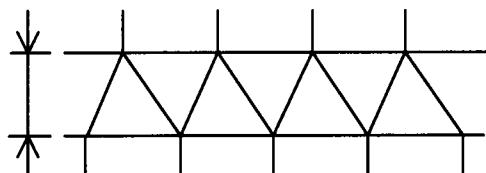


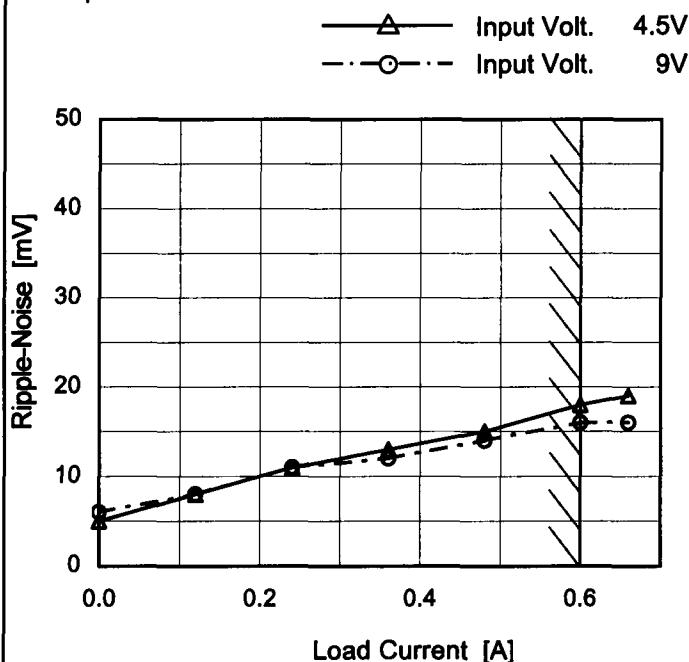
Fig.Complex Ripple Wave Form

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Model	SUS3053R3
Item	Ripple-Noise
Object	+3.3V0.6A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	5	6
0.12	8	8
0.24	11	11
0.36	13	12
0.48	15	14
0.60	18	16
0.66	19	16
--	-	-
--	-	-
--	-	-
--	-	-

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.

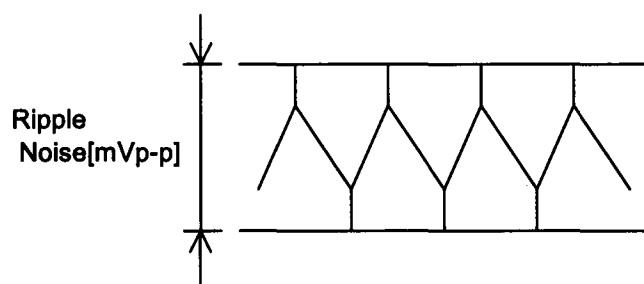


Fig.Complex Ripple Noise Wave Form

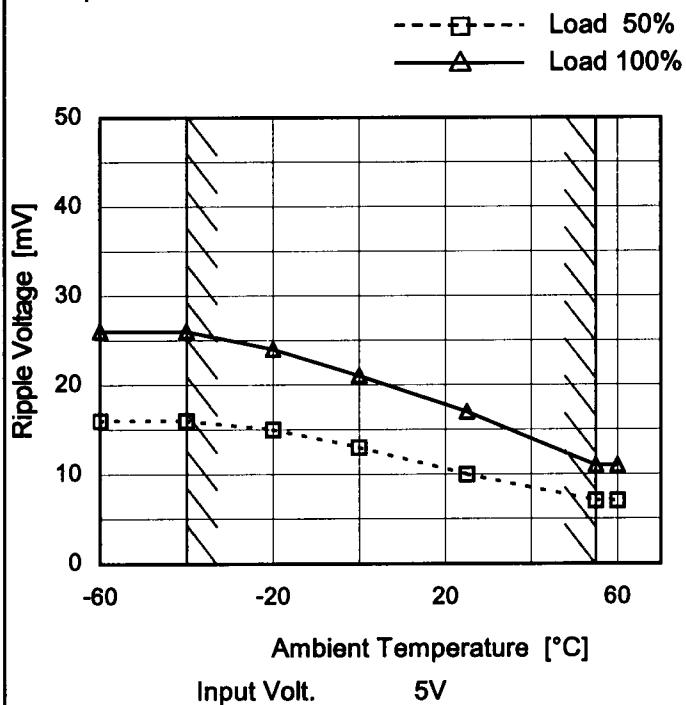
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Model SUS3053R3

Item Ripple Voltage (by Ambient Temp.)

Object +3.3V0.6A

1. Graph



Measured by 100 MHz Oscilloscope.

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

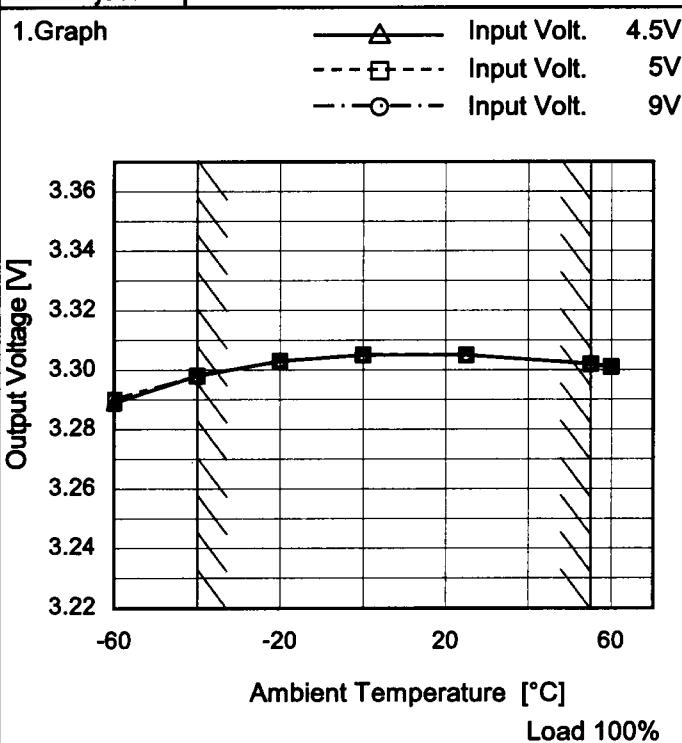
Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	16	26
-40	16	26
-20	15	24
0	13	21
25	10	17
55	7	11
60	7	11
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUS3053R3
Item	Ambient Temperature Drift
Object	+3.3V0.6A



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	3.289	3.290	3.290
-40	3.298	3.298	3.298
-20	3.303	3.303	3.303
0	3.305	3.305	3.305
25	3.305	3.305	3.305
55	3.302	3.302	3.302
60	3.301	3.301	3.301
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SUS3053R3	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+3.3V0.6A	

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 : 4.5 - 9V

Load Current : 0 - 0.6A

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

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	9	0	3.308	± 5	± 0.2
Minimum Voltage	-40	4.5	0.6	3.298		

COSEL

Model	SUS3053R3	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+3.3V0.6A																								
1.Graph																									
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 5V</p> <p>Load 100%</p>																									
2.Values																									
<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>3.307</td></tr> <tr><td>0.5</td><td>3.305</td></tr> <tr><td>1.0</td><td>3.305</td></tr> <tr><td>2.0</td><td>3.305</td></tr> <tr><td>3.0</td><td>3.305</td></tr> <tr><td>4.0</td><td>3.305</td></tr> <tr><td>5.0</td><td>3.305</td></tr> <tr><td>6.0</td><td>3.305</td></tr> <tr><td>7.0</td><td>3.305</td></tr> <tr><td>8.0</td><td>3.305</td></tr> </tbody> </table>				Time since start [H]	Output Voltage [V]	0.0	3.307	0.5	3.305	1.0	3.305	2.0	3.305	3.0	3.305	4.0	3.305	5.0	3.305	6.0	3.305	7.0	3.305	8.0	3.305
Time since start [H]	Output Voltage [V]																								
0.0	3.307																								
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5.0	3.305																								
6.0	3.305																								
7.0	3.305																								
8.0	3.305																								

COSEL

Model SUS3053R3

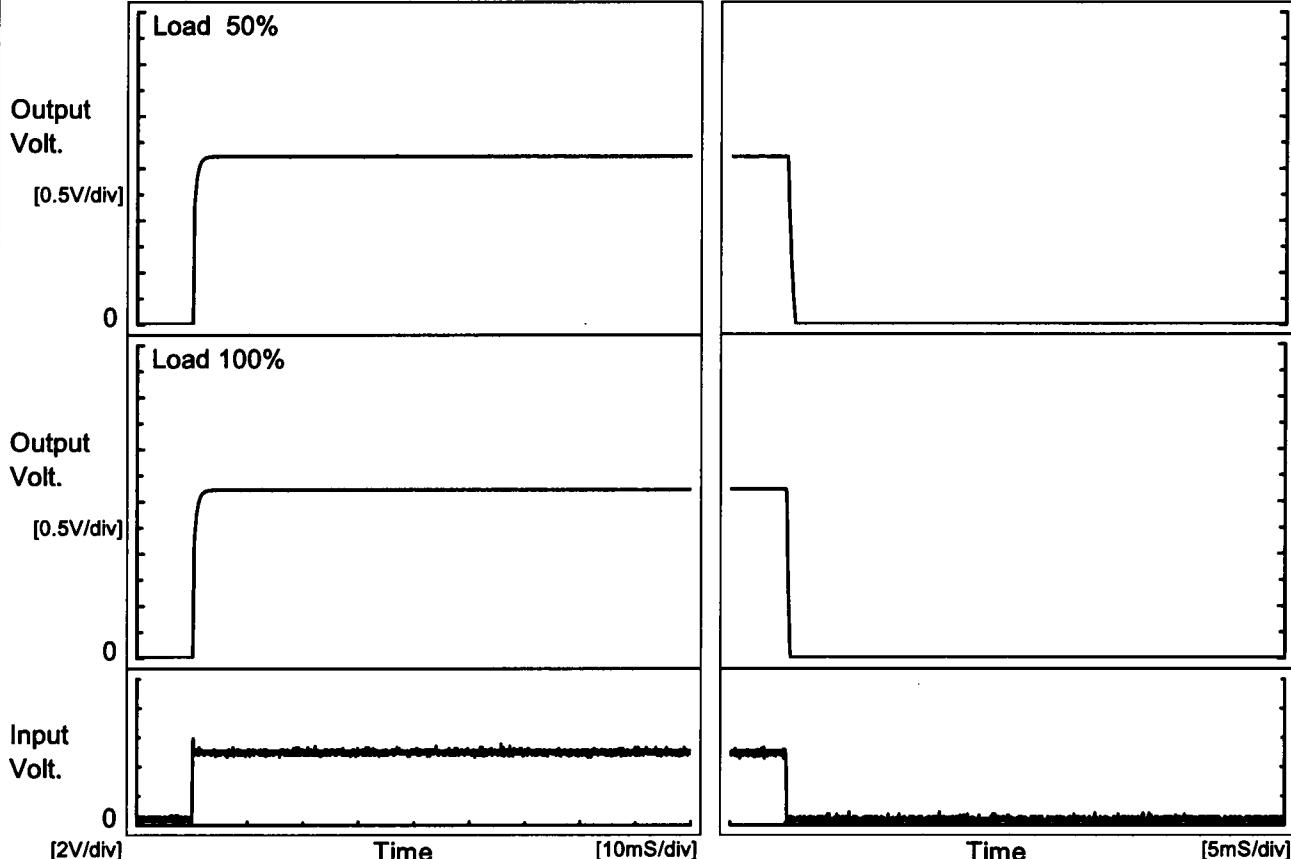
Item Rise and Fall Time

Object +3.3V0.6A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

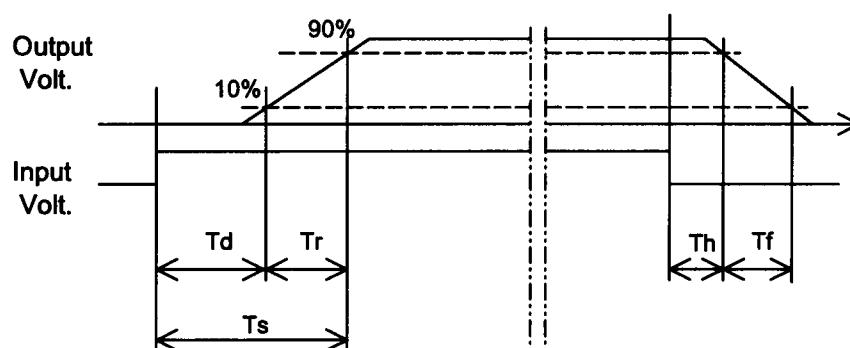
Input Volt. 5 V



2. Values

[mS]

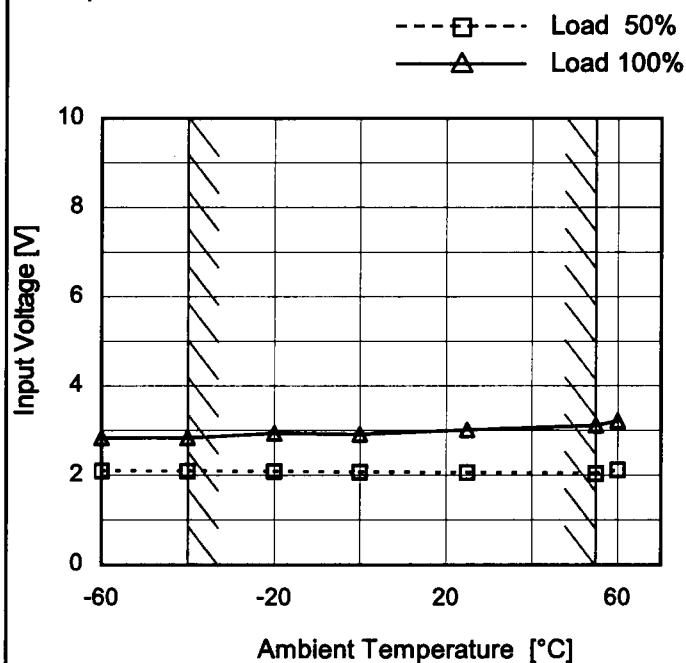
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.1	1.0	1.1	0.1	0.6
100 %		0.1	1.1	1.2	0.1	0.3



COSEL

Model	SUS3053R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V0.6A

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	2.1	2.9
-40	2.1	2.9
-20	2.1	3.0
0	2.1	3.0
25	2.1	3.1
55	2.1	3.2
60	2.2	3.3
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUS3053R3
Item	Overcurrent Protection
Object	+3.3V0.6A

1.Graph

Output Voltage [V]

Load Current [A]

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

 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]
3.30	0.60	0.60	0.60
3.14	0.86	0.88	0.88
2.97	0.88	0.90	0.88
2.64	0.90	0.92	0.89
2.31	0.93	0.95	0.90
1.98	0.96	0.97	0.90
1.65	0.98	0.99	0.89
1.32	0.99	0.99	0.88
0.99	0.98	0.97	0.84
0.66	0.94	0.93	0.79
0.33	0.88	0.86	0.73
0.00	0.92	0.95	0.87

COSEL

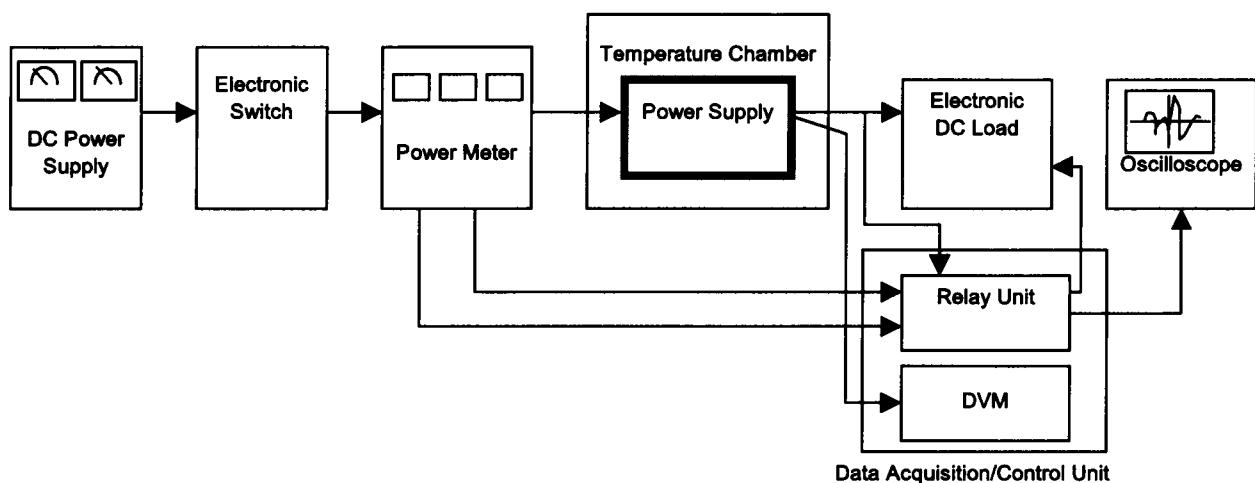


Figure A

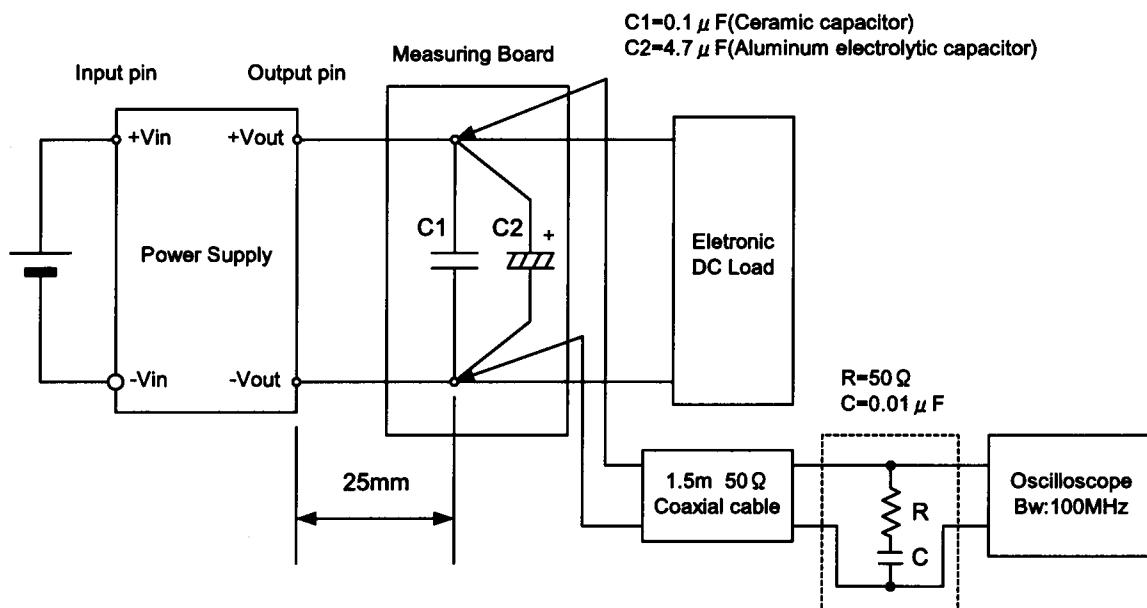


Figure B (Ripple and Ripple noise Characteristic)