



TEST DATA OF SUCS3053R3

Regulated DC Power Supply
Mar 22, 2005

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Hayato Nakatsubo
Hayato Nakatsubo Design Engineer

COSEL CO.,LTD.

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(Final Page 18)

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Model

SUCS3053R3

Item

Input Current (by Input Voltage)

Object

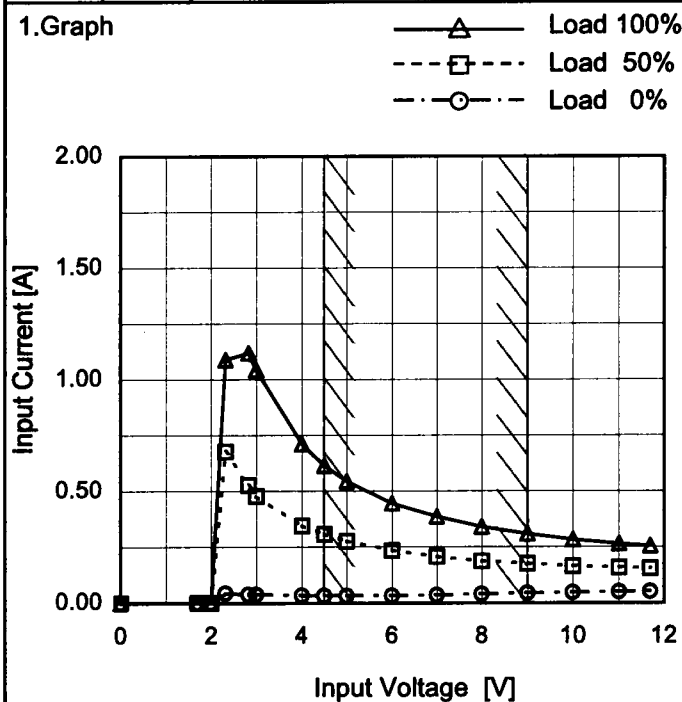
Temperature

25°C

Testing Circuitry

Figure A

1.Graph

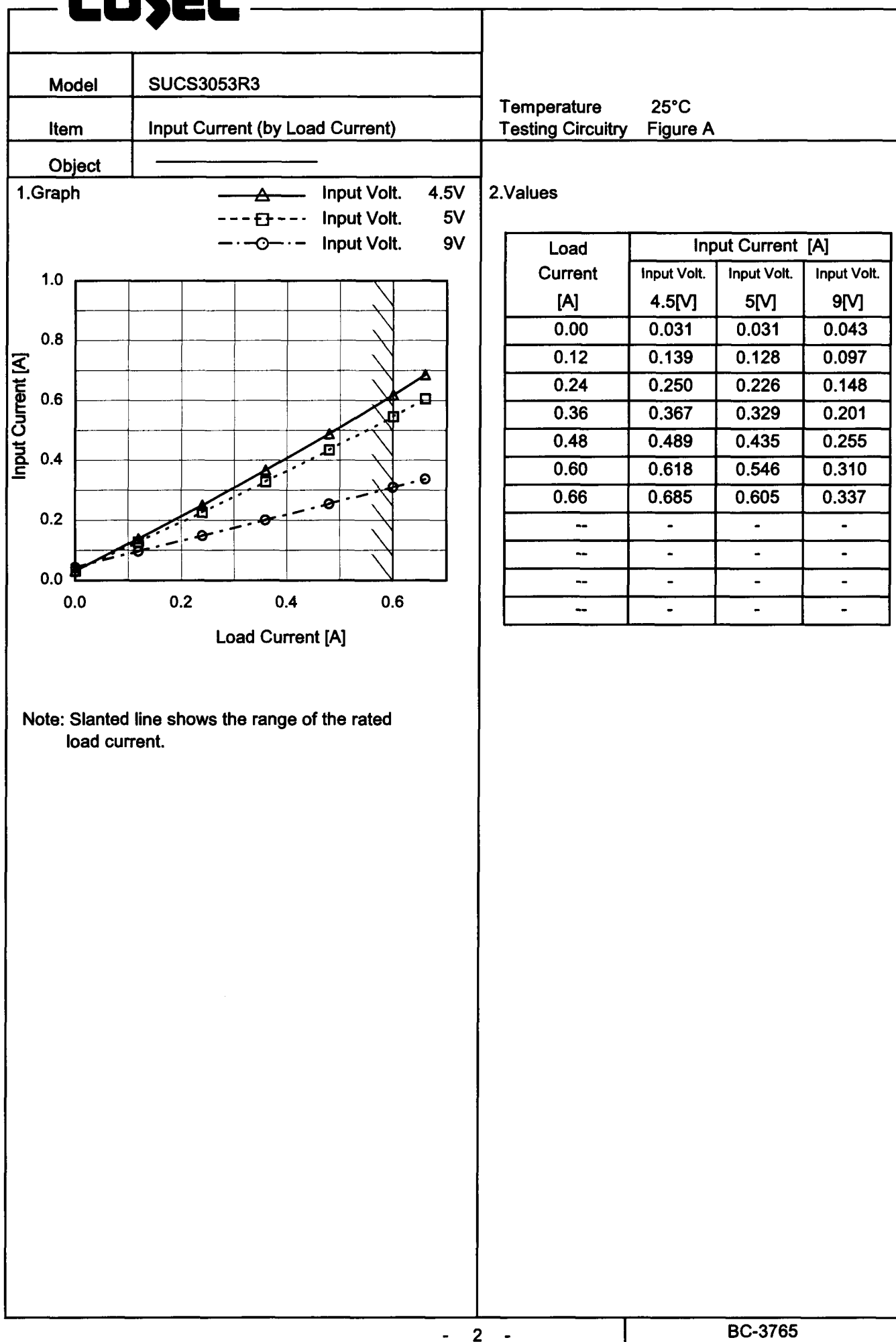


Note: Slanted line shows the range of the rated input voltage.

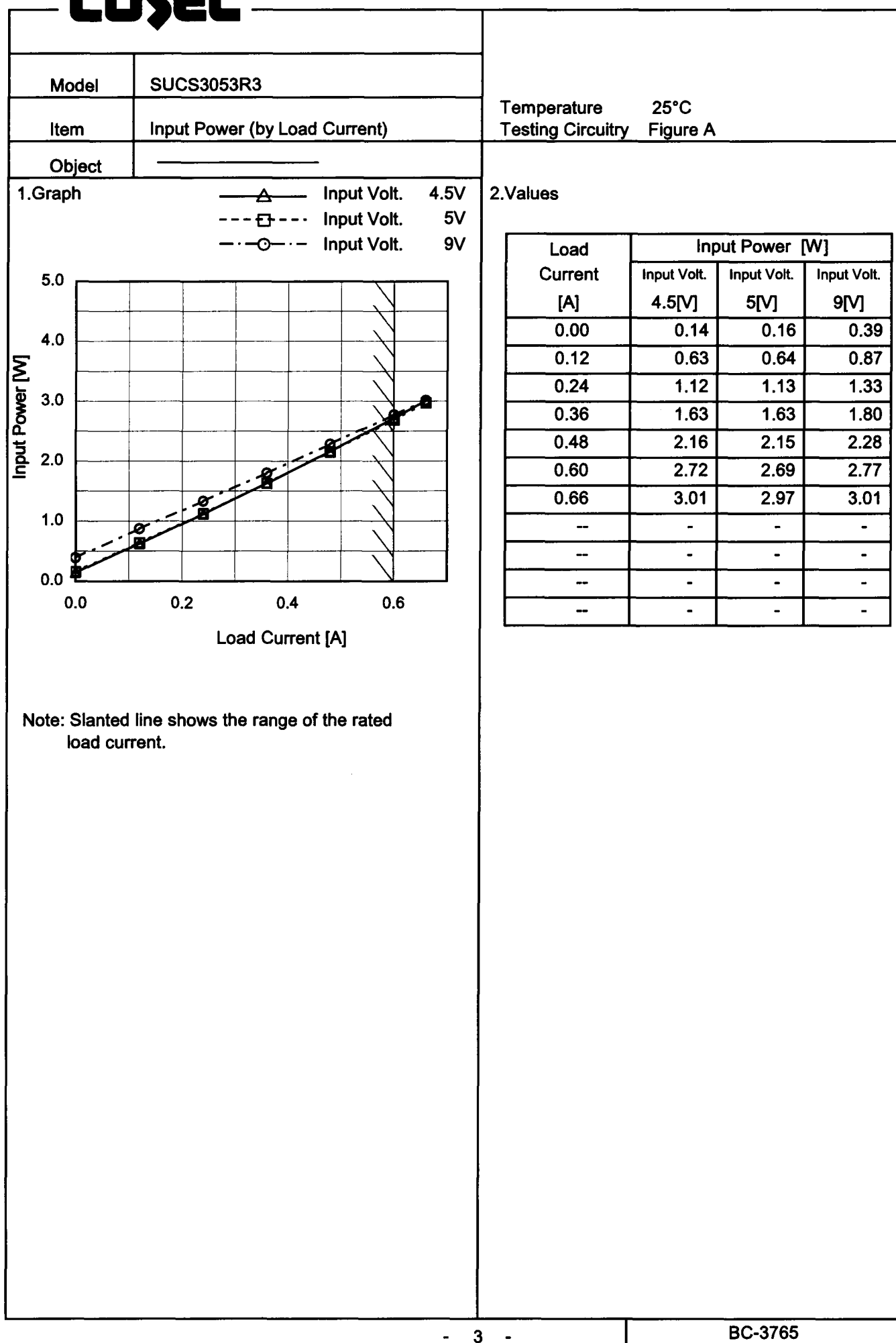
2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.00	0.000	0.000	0.000
1.70	0.000	0.000	0.000
2.00	0.000	0.000	0.000
2.32	0.043	0.678	1.089
2.83	0.038	0.527	1.119
3.00	0.037	0.479	1.043
4.00	0.033	0.344	0.711
4.50	0.032	0.307	0.615
5.00	0.031	0.276	0.544
6.00	0.032	0.234	0.446
7.00	0.035	0.206	0.386
8.00	0.039	0.187	0.340
9.00	0.043	0.175	0.308
10.00	0.047	0.164	0.283
11.02	0.049	0.158	0.264
11.70	0.050	0.154	0.254
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Model		SUCS3053R3		Temperature Testing Circuitry	25°C Figure A																																
Item		Efficiency (by Input Voltage)																																			
Object																																					
1.Graph				2.Values																																	
<div><div><div><div></div><div></div></div><div>Load 50%</div></div><div><div><div></div><div></div></div><div>Load 100%</div></div></div> <table><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>4.0</td><td>72.5</td><td>71.5</td></tr><tr><td>4.5</td><td>72.6</td><td>73.2</td></tr><tr><td>5.0</td><td>72.3</td><td>73.9</td></tr><tr><td>6.0</td><td>70.8</td><td>74.3</td></tr><tr><td>7.0</td><td>68.9</td><td>74.1</td></tr><tr><td>8.0</td><td>66.1</td><td>73.2</td></tr><tr><td>9.0</td><td>63.4</td><td>71.7</td></tr><tr><td>9.5</td><td>61.4</td><td>71.0</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>				Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	4.0	72.5	71.5	4.5	72.6	73.2	5.0	72.3	73.9	6.0	70.8	74.3	7.0	68.9	74.1	8.0	66.1	73.2	9.0	63.4	71.7	9.5	61.4	71.0	--	-	-		
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<div><div>—△—</div>Input Volt. 4.5V</div> <div><div>---□---</div>Input Volt. 5V</div> <div><div>-○-</div>Input Volt. 9V</div> <table><thead><tr><th>Load Current [A]</th><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>-</td><td>-</td><td>-</td></tr><tr><td>0.12</td><td>63.5</td><td>61.9</td><td>45.5</td></tr><tr><td>0.24</td><td>70.9</td><td>70.4</td><td>59.5</td></tr><tr><td>0.36</td><td>72.8</td><td>72.9</td><td>65.9</td></tr><tr><td>0.48</td><td>73.2</td><td>73.7</td><td>69.4</td></tr><tr><td>0.60</td><td>72.9</td><td>73.7</td><td>71.4</td></tr><tr><td>0.66</td><td>72.4</td><td>73.4</td><td>72.3</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 Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	0.00	-	-	-	0.12	63.5	61.9	45.5	0.24	70.9	70.4	59.5	0.36	72.8	72.9	65.9	0.48	73.2	73.7	69.4	0.60	72.9	73.7	71.4	0.66	72.4	73.4	72.3	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]																																																
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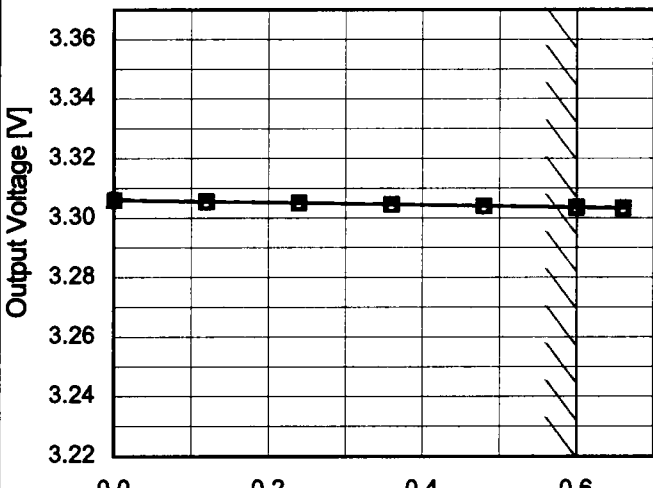
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Model	SUCS3053R3	Temperature 25°C Testing Circuitry Figure A																															
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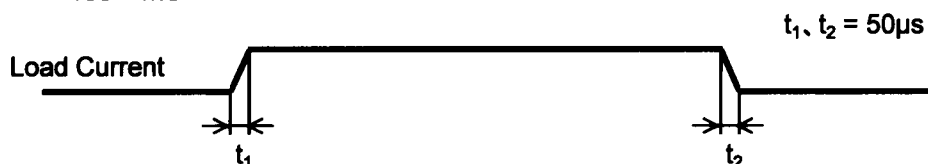
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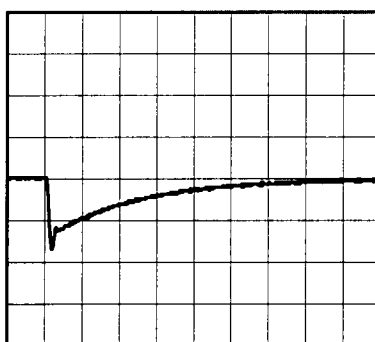
Model	SUCS3053R3	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+3.3V0.6A		

Input Volt. 5 V
Cycle 100 mS

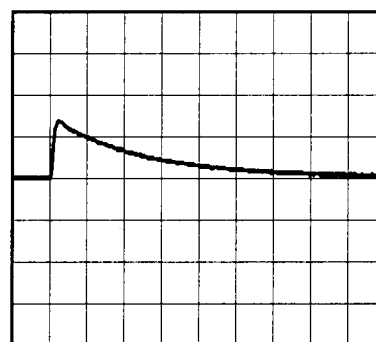


Min. Load (0A) \longleftrightarrow
Load 100% (0.6A)

100mV/div



200µs/div



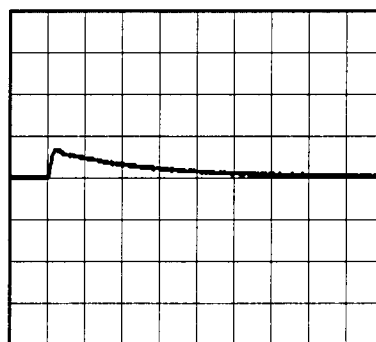
200µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.3A)

100mV/div



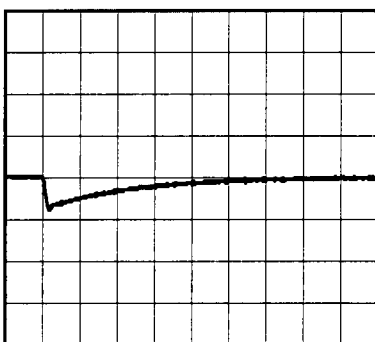
200µs/div



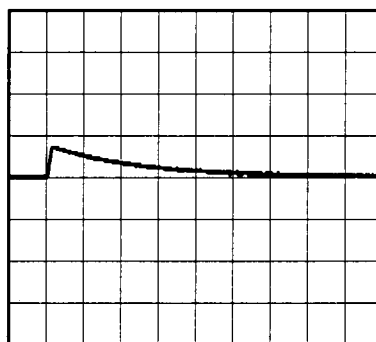
200µs/div

Load 50% (0.3A) \longleftrightarrow
Load 100% (0.6A)

100mV/div



200µs/div



200µs/div

Model	SUCS3053R3	Temperature	25°C																																						
Item	Ripple-Noise	Testing Circuitry	Figure B																																						
Object	+3.3V0.6A																																								
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 4.5V</div><div>- -○- - Input Volt. 9V</div></div><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></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 4.5 [V]</th><th>Input Volt. 9 [V]</th></tr><tr><td>0.00</td><td>4</td><td>4</td></tr><tr><td>0.12</td><td>7</td><td>6</td></tr><tr><td>0.24</td><td>9</td><td>8</td></tr><tr><td>0.36</td><td>12</td><td>10</td></tr><tr><td>0.48</td><td>14</td><td>12</td></tr><tr><td>0.60</td><td>16</td><td>14</td></tr><tr><td>0.66</td><td>18</td><td>15</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></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 4.5 [V]	Input Volt. 9 [V]	0.00	4	4	0.12	7	6	0.24	9	8	0.36	12	10	0.48	14	12	0.60	16	14	0.66	18	15	--	-	-	--	-	-	--	-	-	--	-	-
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<div><div><div>Ripple Noise[mVp-p]</div></div><p>Fig.Complex Ripple Noise Wave Form</p></div>																																									

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Model		SUCS3053R3																																																				
Item		Ambient Temperature Drift																																																				
Object		+3.3V0.6A																																																				
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<div><div><div>—△—</div><div>Input Volt.</div><div>4.5V</div></div><div><div>---□---</div><div>Input Volt.</div><div>5V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>9V</div></div></div> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p></div> <div>Note: Slanted line shows the range of the rated ambient temperature.</div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 4.5[V]</th><th>Input Volt. 5[V]</th><th>Input Volt. 9[V]</th></tr><tr><td>-60</td><td>3.289</td><td>3.290</td><td>3.290</td></tr><tr><td>-40</td><td>3.297</td><td>3.298</td><td>3.298</td></tr><tr><td>-20</td><td>3.303</td><td>3.303</td><td>3.303</td></tr><tr><td>0</td><td>3.305</td><td>3.305</td><td>3.305</td></tr><tr><td>25</td><td>3.305</td><td>3.305</td><td>3.304</td></tr><tr><td>55</td><td>3.300</td><td>3.300</td><td>3.300</td></tr><tr><td>60</td><td>3.300</td><td>3.299</td><td>3.299</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></table>		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	3.297	3.298	3.298	-20	3.303	3.303	3.303	0	3.305	3.305	3.305	25	3.305	3.305	3.304	55	3.300	3.300	3.300	60	3.300	3.299	3.299	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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		Testing Circuitry Figure A
Model	SUCS3053R3	
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 = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

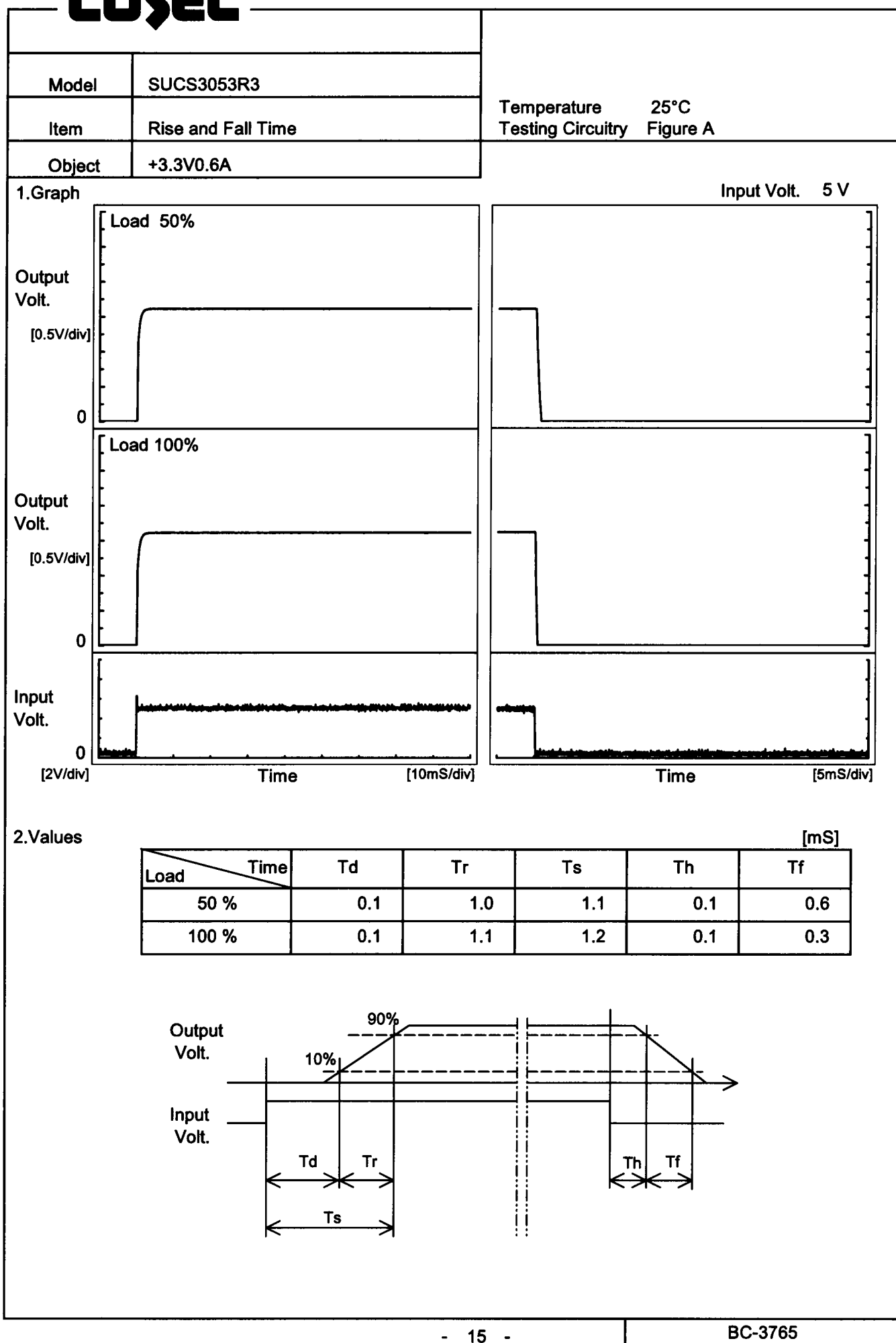
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	0	9	0	3.308	±6	±0.2
Minimum Voltage	-40	4.5	0.6	3.297		

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Model	SUCS3053R3		
Item	Time Lapse Drift	Temperature	25°C
Object	+3.3V0.6A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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COSEL



Model	SUCS3053R3																																						
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																					
Object	+3.3V0.6A																																						
1.Graph		2.Values																																					
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th>Ambient Temperature [°C]</th><th>Load 50% [V]</th><th>Load 100% [V]</th></tr></thead><tbody><tr><td>-60</td><td>2.1</td><td>2.7</td></tr><tr><td>-40</td><td>2.1</td><td>2.8</td></tr><tr><td>-20</td><td>2.1</td><td>2.8</td></tr><tr><td>0</td><td>2.1</td><td>2.8</td></tr><tr><td>25</td><td>2.1</td><td>2.9</td></tr><tr><td>55</td><td>2.2</td><td>3.0</td></tr><tr><td>60</td><td>2.2</td><td>3.0</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> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		Ambient Temperature [°C]	Load 50% [V]	Load 100% [V]	-60	2.1	2.7	-40	2.1	2.8	-20	2.1	2.8	0	2.1	2.8	25	2.1	2.9	55	2.2	3.0	60	2.2	3.0	--	-	-	--	-	-	--	-	-	--	-	-		
Ambient Temperature [°C]	Load 50% [V]	Load 100% [V]																																					
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Model

SUCS3053R3

Item

Overcurrent Protection

Object

+3.3V0.6A

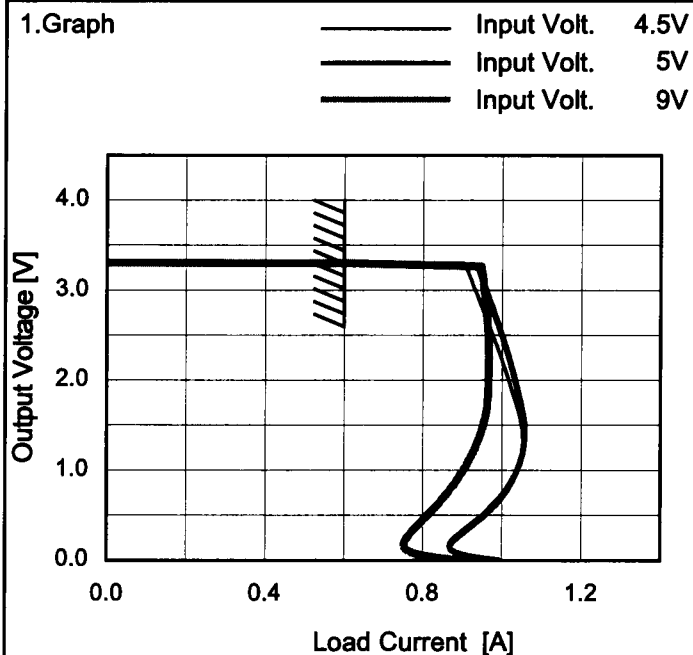
Temperature

25°C

Testing Circuitry

Figure A

1. Graph



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	0.92	0.95	0.95
2.97	0.93	0.96	0.96
2.64	0.96	0.99	0.96
2.31	0.99	1.01	0.97
1.98	1.02	1.04	0.97
1.65	1.04	1.05	0.96
1.32	1.05	1.06	0.94
0.99	1.04	1.04	0.90
0.66	1.00	0.99	0.85
0.33	0.91	0.92	0.77
0.00	0.96	0.99	0.90

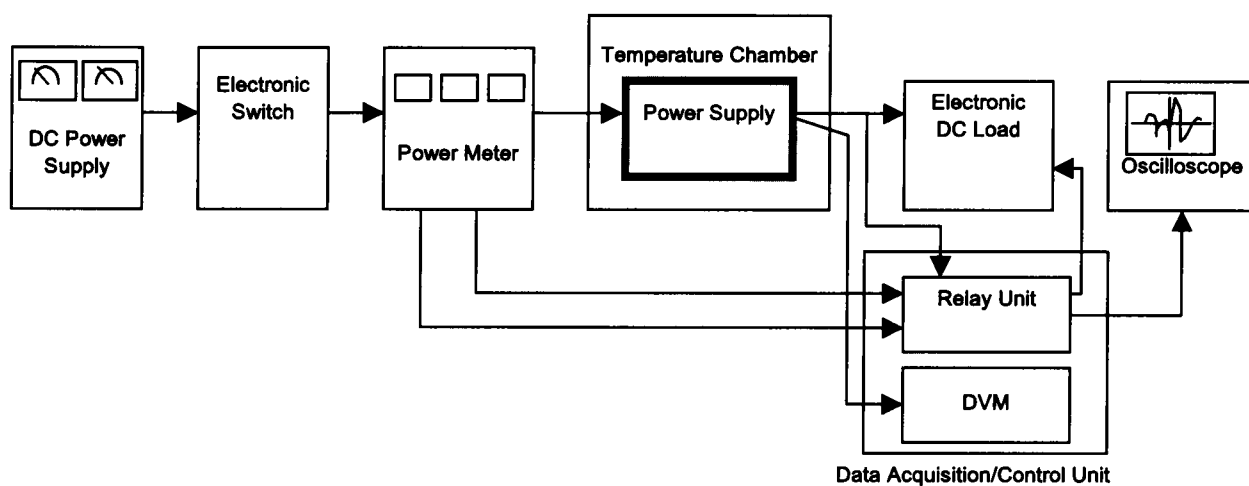


Figure A

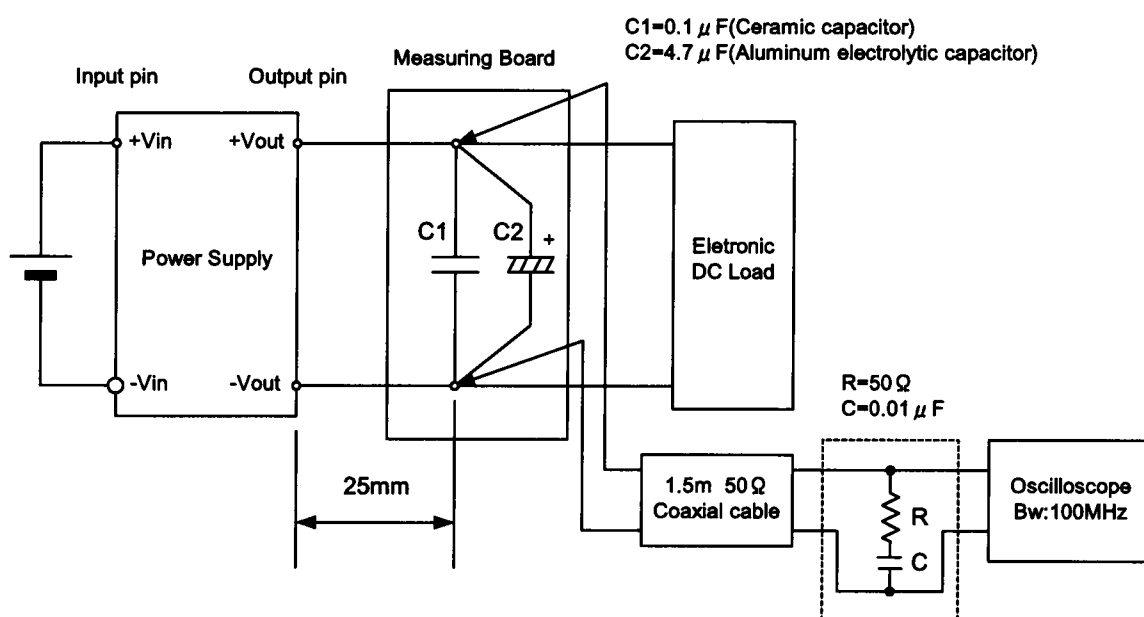


Figure B (Ripple and Ripple noise Characteristic)