

# TEST DATA OF SUS1R5483R3

Regulated DC Power Supply  
Sep 28, 2004

Approved by : Tetsuo Sugimori  
Tetsuo Sugimori Design Manager

Prepared by : Masahiro Shima  
Masahiro Shima Design Engineer

**COSEL CO.,LTD.**

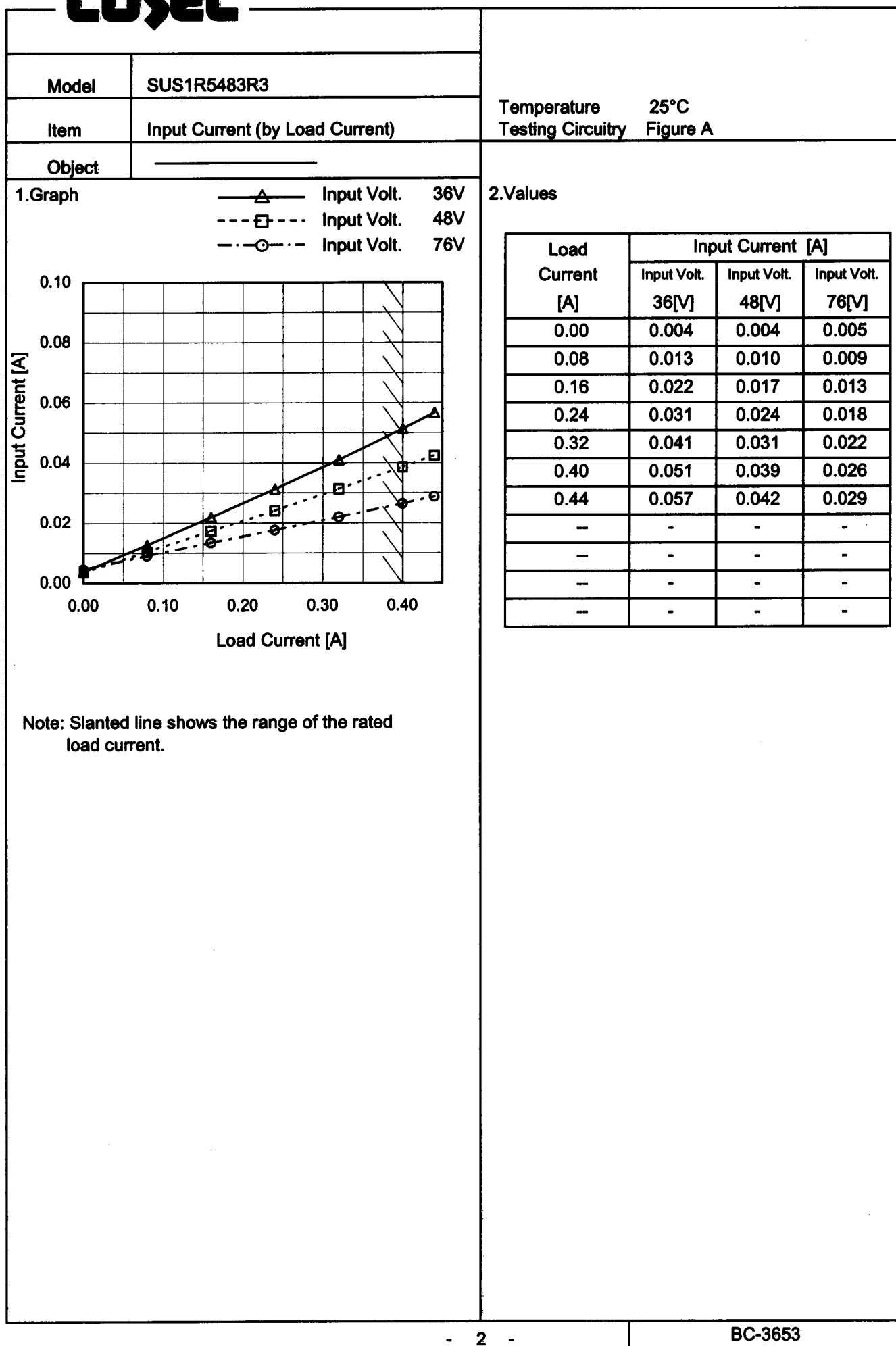
## CONTENTS

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

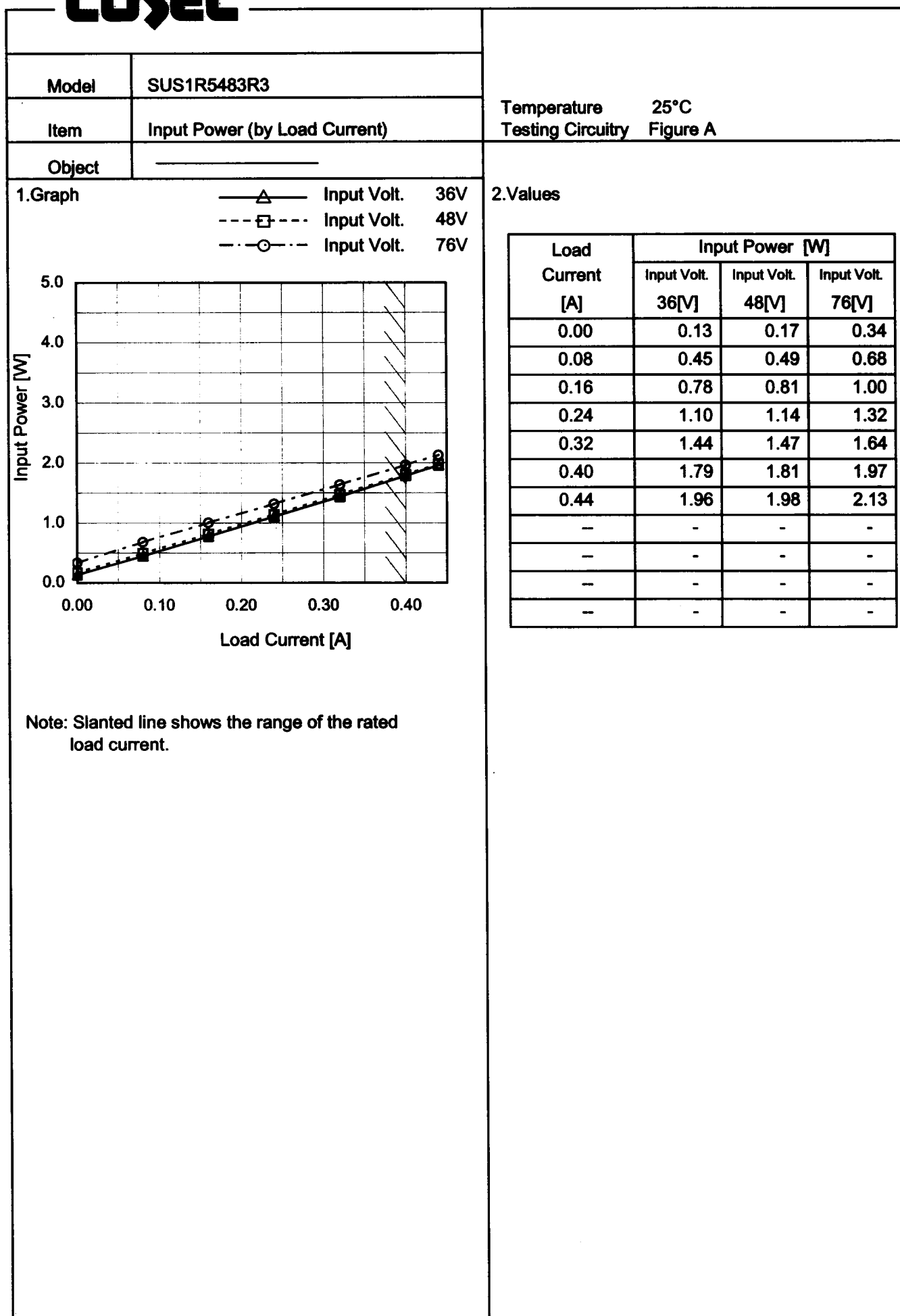
(Final Page 18)

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Model		SUS1R5483R3																																																																								
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Model		SUS1R5483R3	
Item		Efficiency (by Input Voltage)	
Object			
1.Graph		2.Values	

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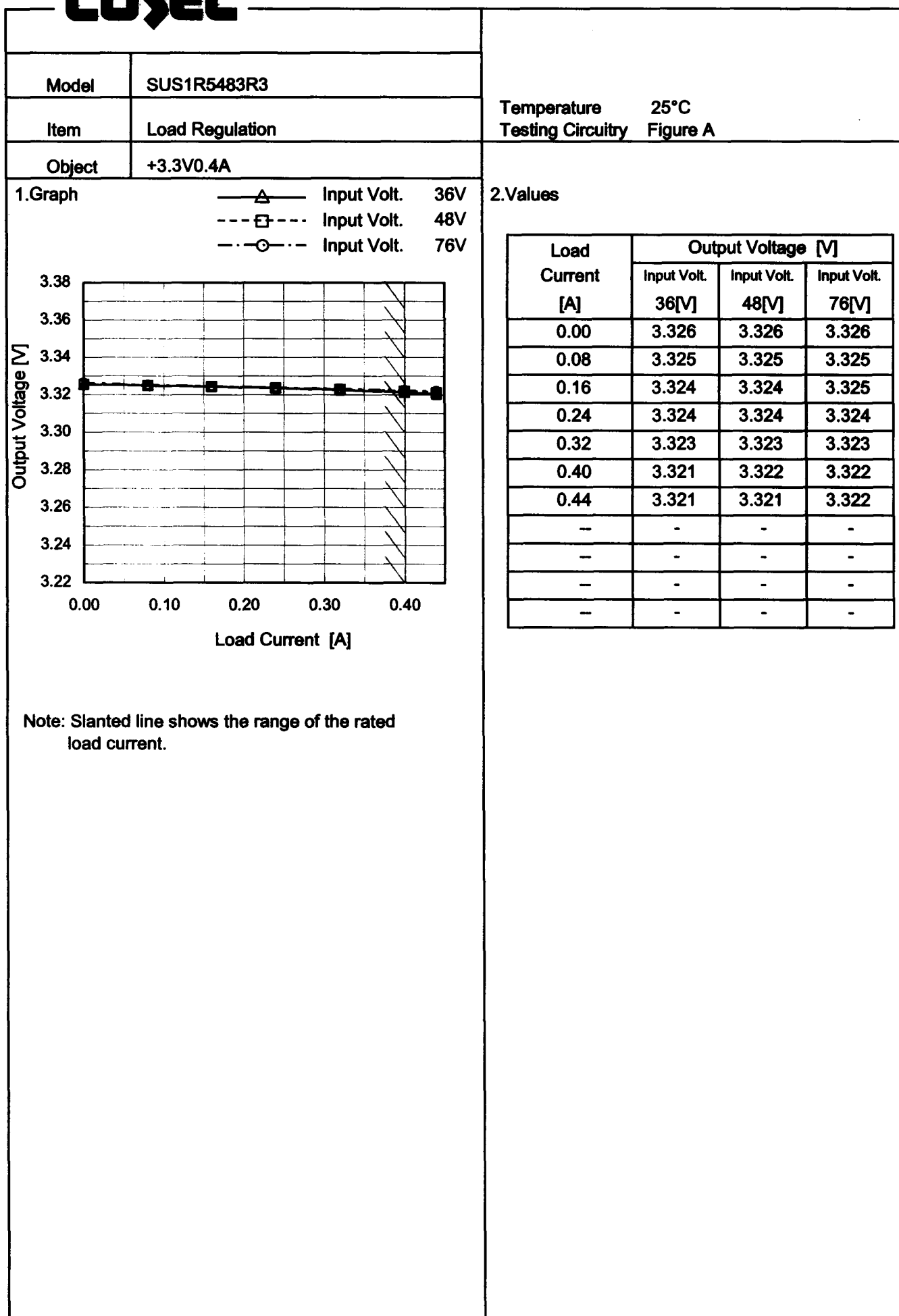
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<div><div><div>—△—</div><div>Input Volt.</div><div>36V</div></div><div><div>- - □ - -</div><div>Input Volt.</div><div>48V</div></div><div><div>- - ○ - -</div><div>Input Volt.</div><div>76V</div></div></div> <table><thead><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr></thead><tbody><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.08</td><td>58.9</td><td>54.1</td><td>39.1</td></tr><tr><td>0.16</td><td>68.5</td><td>65.2</td><td>53.0</td></tr><tr><td>0.24</td><td>72.1</td><td>69.9</td><td>60.5</td></tr><tr><td>0.32</td><td>73.6</td><td>72.1</td><td>64.8</td></tr><tr><td>0.40</td><td>74.2</td><td>73.4</td><td>67.5</td></tr><tr><td>0.44</td><td>74.4</td><td>73.8</td><td>68.5</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> <p>Note: Slanted line shows the range of the rated load current.</p>		Load Current [A]	Efficiency [%]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	-	-	-	0.08	58.9	54.1	39.1	0.16	68.5	65.2	53.0	0.24	72.1	69.9	60.5	0.32	73.6	72.1	64.8	0.40	74.2	73.4	67.5	0.44	74.4	73.8	68.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
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Model	SUS1R5483R3																																		
Item	Line Regulation	Temperature	25°C																																
Object	+3.3V0.4A	Testing Circuitry	Figure A																																
1.Graph		2.Values																																	
<div><div>---□---</div> Load 50%</div> <div><div>—△—</div> Load 100%</div> <p>Output Voltage [V]</p> <p>Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>33</td><td>3.324</td><td>3.321</td></tr><tr><td>36</td><td>3.324</td><td>3.322</td></tr><tr><td>40</td><td>3.324</td><td>3.322</td></tr><tr><td>48</td><td>3.324</td><td>3.322</td></tr><tr><td>55</td><td>3.324</td><td>3.322</td></tr><tr><td>60</td><td>3.324</td><td>3.322</td></tr><tr><td>70</td><td>3.324</td><td>3.322</td></tr><tr><td>76</td><td>3.324</td><td>3.322</td></tr><tr><td>80</td><td>3.324</td><td>3.323</td></tr></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	33	3.324	3.321	36	3.324	3.322	40	3.324	3.322	48	3.324	3.322	55	3.324	3.322	60	3.324	3.322	70	3.324	3.322	76	3.324	3.322	80	3.324	3.323
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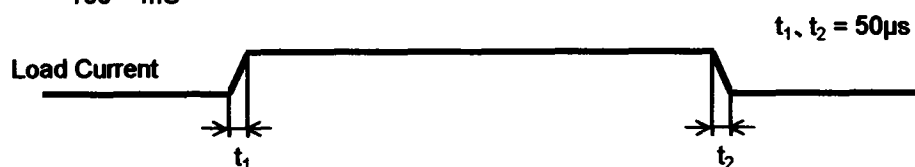


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Model	SUS1R5483R3
Item	Dynamic Load Response
Object	+3.3V0.4A

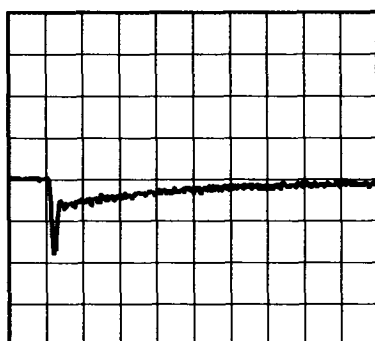
Temperature 25°C  
Testing Circuitry Figure A

Input Volt. 48 V  
Cycle 100 mS

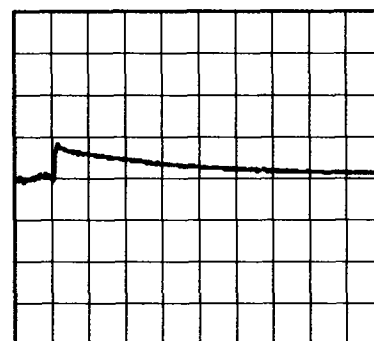


Min. Load (0A)  $\longleftrightarrow$   
Load 100% (0.4A)

100mV/div



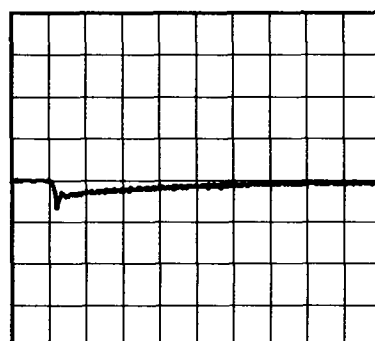
200µs/div



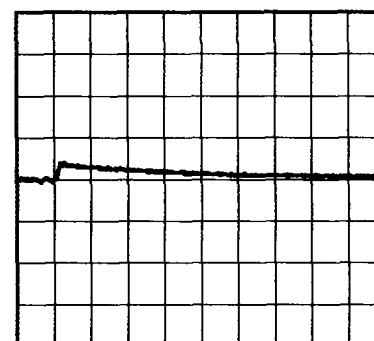
200µs/div

Min. Load (0A)  $\longleftrightarrow$   
Load 50% (0.2A)

100mV/div



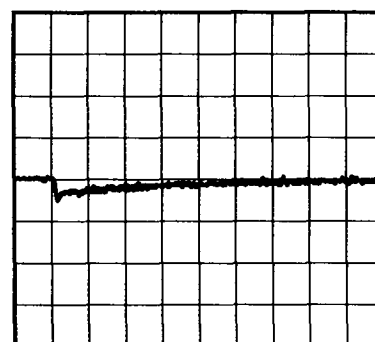
200µs/div



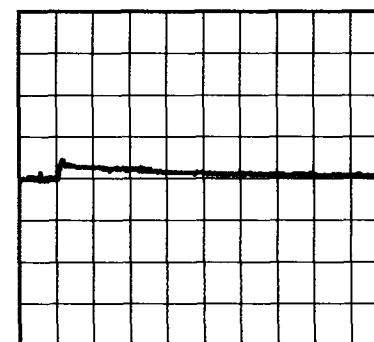
200µs/div

Load 50% (0.2A)  $\longleftrightarrow$   
Load 100% (0.4A)

100mV/div



200µs/div



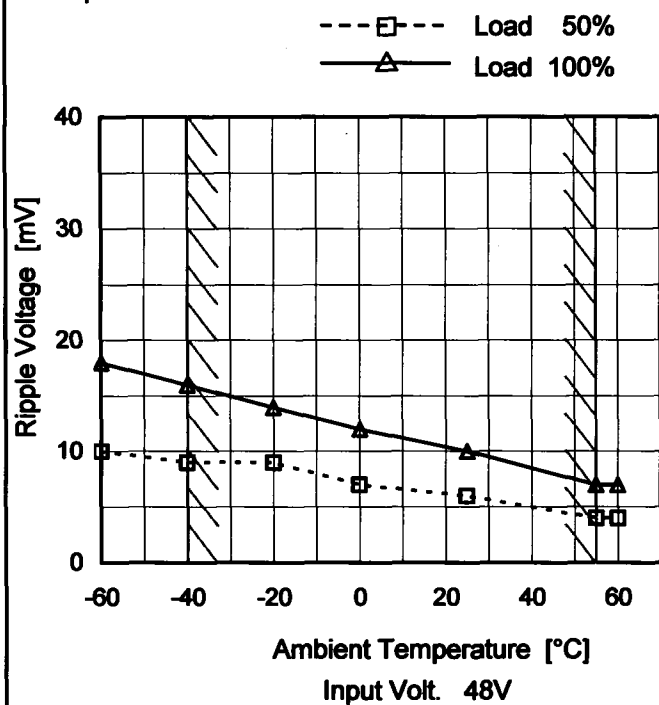
200µs/div

**COSEL**

Model	SUS1R5483R3																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
Object	+3.3V0.4A	Testing Circuitry	Figure B																																						
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 36V</div><div>- - -○- - - Input Volt. 76V</div></div><div>Ripple Voltage [mV]</div><div>Load Current [A]</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 36 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.00</td><td>2</td><td>3</td></tr><tr><td>0.08</td><td>3</td><td>4</td></tr><tr><td>0.16</td><td>5</td><td>5</td></tr><tr><td>0.24</td><td>7</td><td>6</td></tr><tr><td>0.32</td><td>10</td><td>7</td></tr><tr><td>0.40</td><td>16</td><td>8</td></tr><tr><td>0.44</td><td>19</td><td>10</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 Voltage [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.00	2	3	0.08	3	4	0.16	5	5	0.24	7	6	0.32	10	7	0.40	16	8	0.44	19	10	—	—	—	—	—	—	—	—	—	—	—	—
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<div><div>Ripple [mVp-p]</div><div>Fig.Complex Ripple Wave Form</div></div>																																									

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Item	Ripple-Noise	Temperature	25°C																																																																										
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**COSEL****Model** SUS1R5483R3**Item** Ripple Voltage (by Ambient Temp.)**Object** +3.3V0.4A**Testing Circuitry** Figure B**1. Graph**

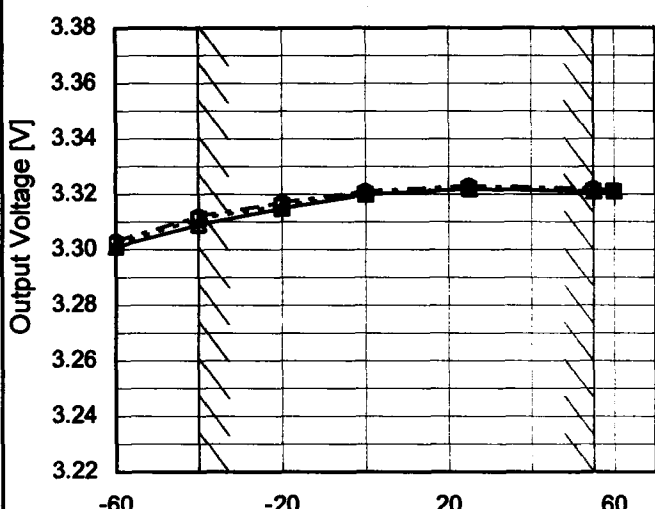
Measured by 100 MHz Oscilloscope.

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

**2. Values**

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	18
-40	9	16
-20	9	14
0	7	12
25	6	10
55	4	7
60	4	7
—	—	—
—	—	—
—	—	—
—	—	—

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Model		SUS1R5483R3																																																				
Item		Ambient Temperature Drift																																																				
Object		+3.3V0.4A																																																				
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>36V</div></div><div><div>---□---</div><div>Input Volt.</div><div>48V</div></div><div><div>---○---</div><div>Input Volt.</div><div>76V</div></div></div>  <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>																																																				
2.Values		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>-60</td><td>3.301</td><td>3.302</td><td>3.303</td></tr><tr><td>-40</td><td>3.309</td><td>3.311</td><td>3.312</td></tr><tr><td>-20</td><td>3.315</td><td>3.316</td><td>3.317</td></tr><tr><td>0</td><td>3.320</td><td>3.320</td><td>3.321</td></tr><tr><td>25</td><td>3.322</td><td>3.322</td><td>3.323</td></tr><tr><td>55</td><td>3.321</td><td>3.321</td><td>3.322</td></tr><tr><td>60</td><td>3.321</td><td>3.321</td><td>3.321</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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	-60	3.301	3.302	3.303	-40	3.309	3.311	3.312	-20	3.315	3.316	3.317	0	3.320	3.320	3.321	25	3.322	3.322	3.323	55	3.321	3.321	3.322	60	3.321	3.321	3.321	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated ambient temperature.																																																						

**COSEL**

		Testing Circuitry Figure A
Model	SUS1R5483R3	
Item	Output Voltage Accuracy	
Object	+3.3V0.4A	

### 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 : 36 - 76V

Load Current : 0 - 0.4A

\* 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	25	76	0	3.326	±9	±0.3
Minimum Voltage	-40	36	0.4	3.309		

# COSEL

Model	SUS1R5483R3																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+3.3V0.4A																								
1.Graph		2.Values																							
<div><div><div>3.38</div><div>3.36</div><div>3.34</div><div>3.32</div><div>3.30</div><div>3.28</div><div>3.26</div><div>3.24</div><div>3.22</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div><div><div>Input Volt.</div><div>48V</div></div><div><div>Load</div><div>100%</div></div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>3.322</td></tr><tr><td>0.5</td><td>3.322</td></tr><tr><td>1.0</td><td>3.322</td></tr><tr><td>2.0</td><td>3.322</td></tr><tr><td>3.0</td><td>3.322</td></tr><tr><td>4.0</td><td>3.322</td></tr><tr><td>5.0</td><td>3.322</td></tr><tr><td>6.0</td><td>3.322</td></tr><tr><td>7.0</td><td>3.322</td></tr><tr><td>8.0</td><td>3.322</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	3.322	0.5	3.322	1.0	3.322	2.0	3.322	3.0	3.322	4.0	3.322	5.0	3.322	6.0	3.322	7.0	3.322	8.0	3.322
Time since start [H]	Output Voltage [V]																								
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- 14 -

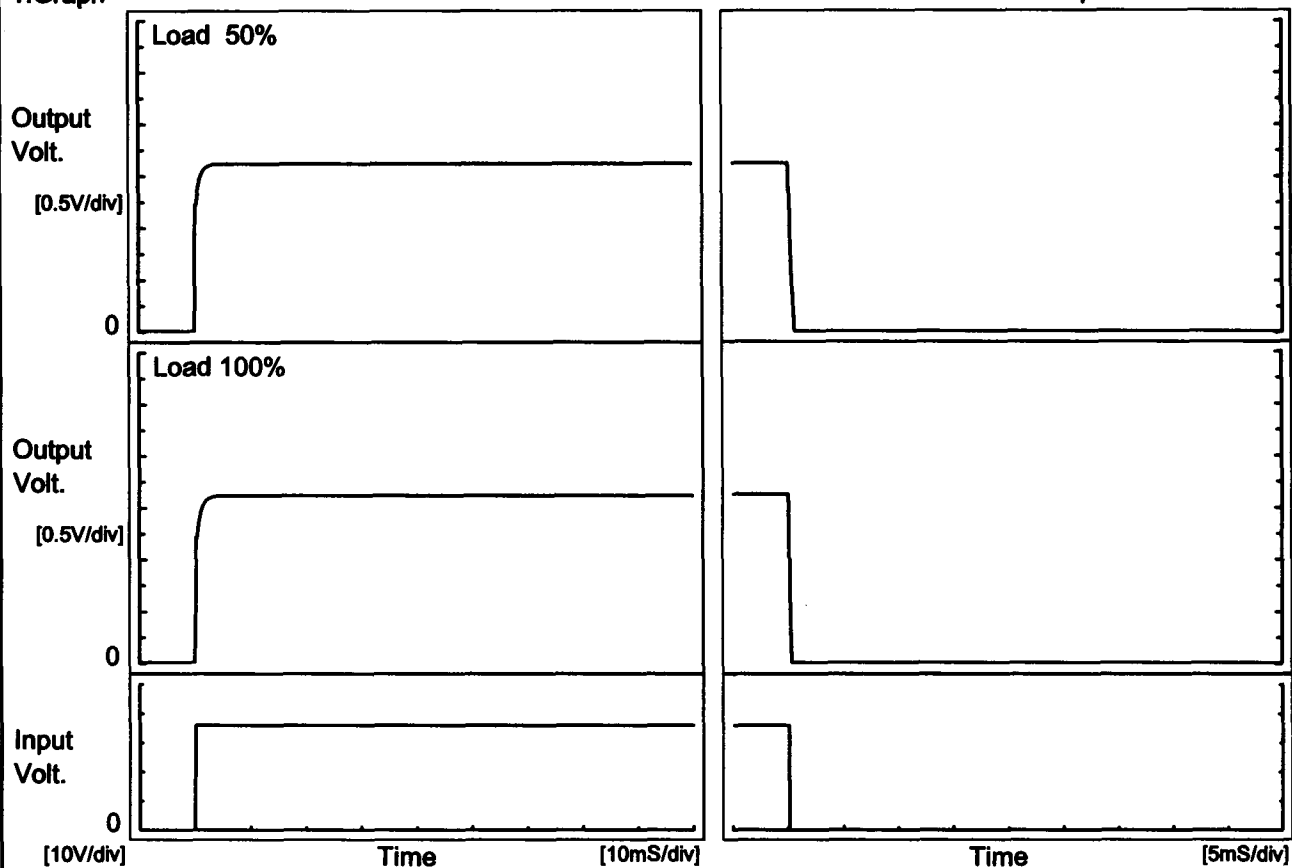
BC-3653



**COSEL**

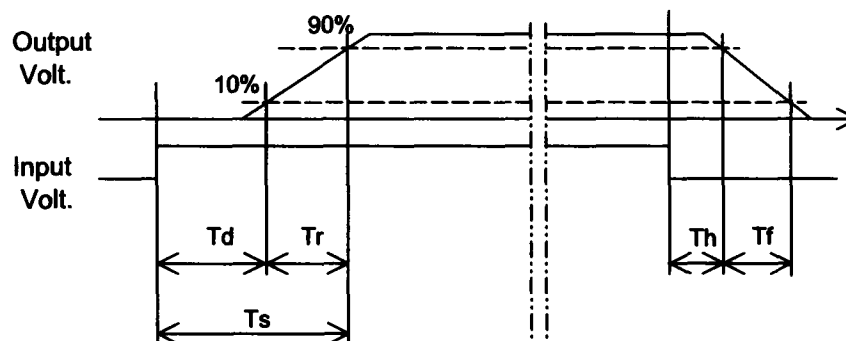
Model	SUS1R5483R3	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+3.3V0.4A		

## 1.Graph



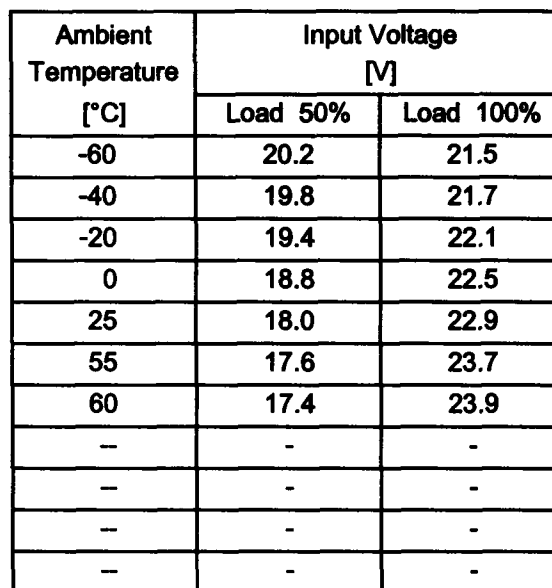
## 2.Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.1	1.2	1.3	0.1	0.5
100 %	0.1	1.3	1.4	0.1	0.3



### Testing Circuitry Figure A

## 2.Values



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



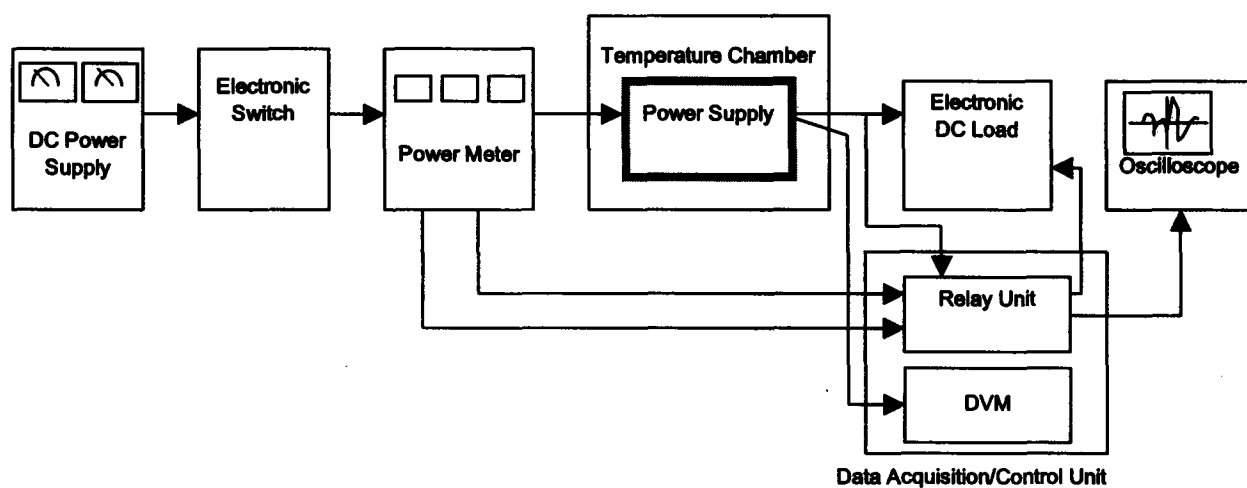


Figure A

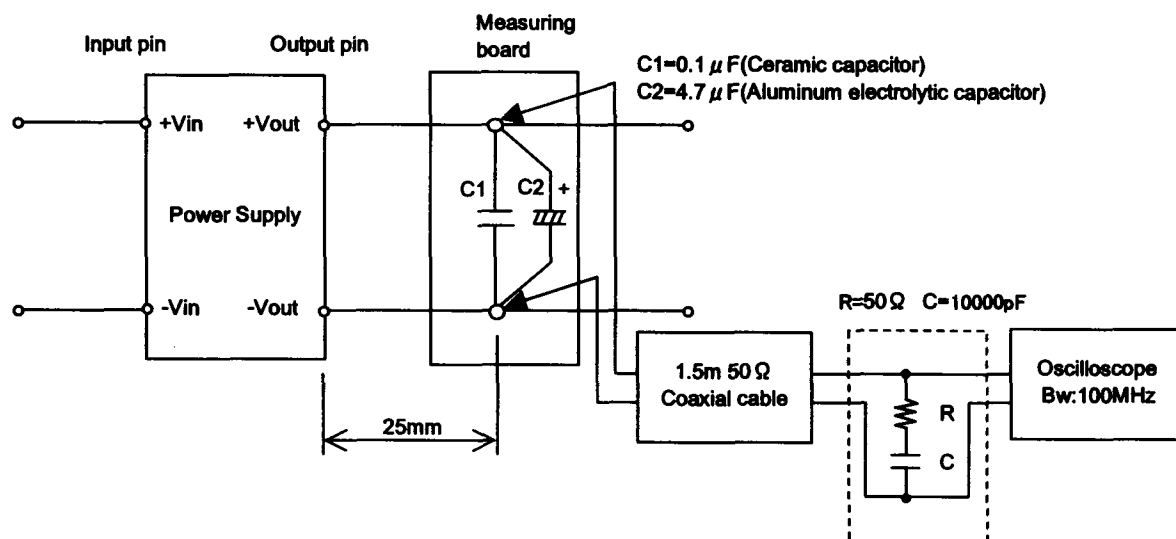


Figure B (Ripple and Ripple noise Characteristic)