



TEST DATA OF SFS30483R3/SFCS30483R3

Regulated DC Power Supply
Jun.1. 2007

Approved by : Toshiyuki Tsuru
Toshiyuki Tsuru Design Manager

Prepared by : K. Shibutani
Kenichi Shibutani Design Engineer

COSEL CO.,LTD.

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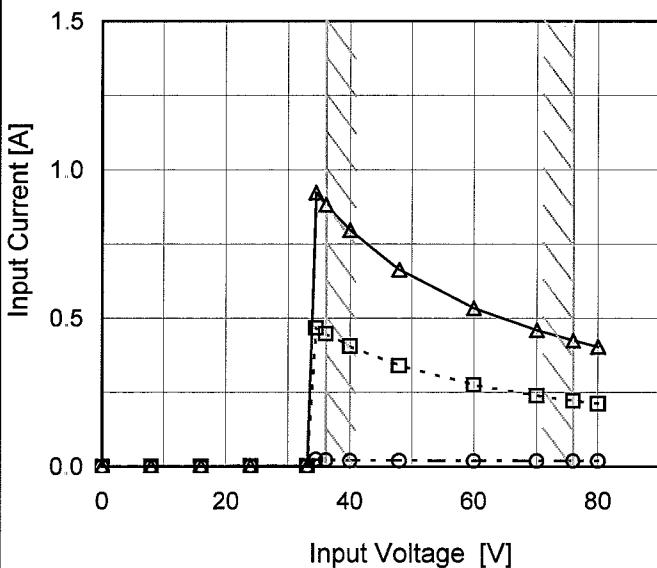
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(Final Page 19)

Model	SFS30483R3/SFCS30483R3
Item	Input Current (by Input Voltage)
Object	_____

1. Graph

—△— Load 100%
 - - -□-- Load 50%
 - - -○-- Load 0%

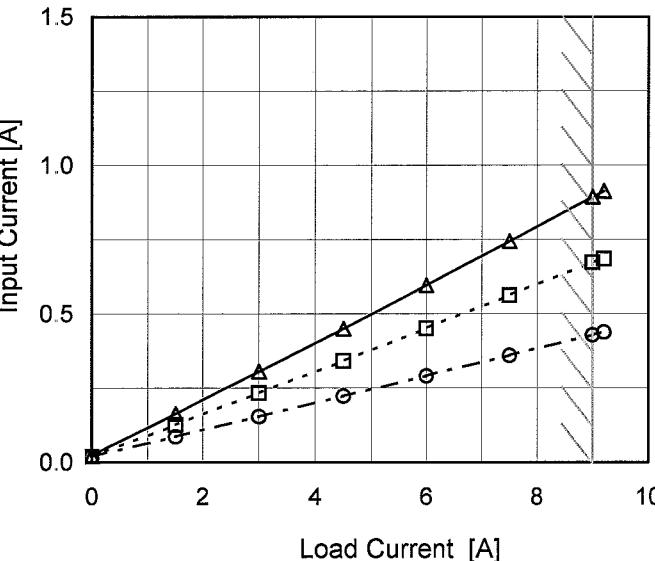


Note: Slanted line shows the range of the rated input voltage.

Temperature 25°C
 Testing Circuitry Figure A

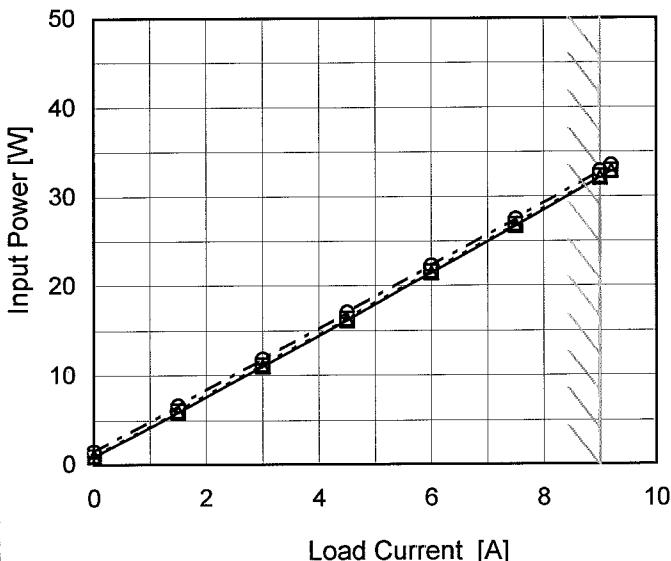
2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
8	0.001	0.001	0.001
16	0.001	0.001	0.001
24	0.002	0.002	0.002
33	0.002	0.002	0.002
34	0.025	0.468	0.923
36	0.023	0.448	0.883
40	0.021	0.406	0.797
48	0.020	0.340	0.664
60	0.019	0.275	0.534
70	0.019	0.239	0.460
76	0.019	0.222	0.425
80	0.019	0.212	0.404
--	-	-	-
--	-	-	-
--	-	-	-

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Item	Input Current (by Load Current)	Temperature 25°C Testing Circuitry Figure A																																																			
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1. Graph	<p style="text-align: center;"> —△— Input Volt. 36V ---□--- Input Volt. 48V ---○--- Input Volt. 76V </p>  <p>The graph plots Input Current [A] on the y-axis against Load Current [A] on the x-axis. Three sets of data points are shown for different input voltages: 36V (solid triangles), 48V (open squares), and 76V (open circles). A solid diagonal line represents the rated load current range, which is approximately between 7.5A and 9.2A.</p>	2. Values																																																			
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1.Graph	<p>—△— Input Volt. 36V - - -□--- Input Volt. 48V - - ○--- Input Volt. 76V</p>  <p>The graph plots Input Power [W] on the y-axis (0 to 50) against Load Current [A] on the x-axis (0 to 10). Three data series are shown for input voltages of 36V, 48V, and 76V. Each series consists of data points connected by straight lines. A slanted line is drawn across the graph, starting from approximately (1.5, 2) and ending at (9.2, 33), representing the rated load current range.</p>																																																					
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Item	Efficiency (by Input Voltage)																																		
Object	<hr/>																																		
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<p>The graph plots Efficiency [%] on the y-axis (72 to 100) against Input Voltage [V] on the x-axis (20 to 80). 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 vertical shaded band highlights the rated input voltage range between approximately 35V and 55V.</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>35</td><td>92.0</td><td>92.0</td></tr> <tr><td>40</td><td>92.2</td><td>92.2</td></tr> <tr><td>45</td><td>91.8</td><td>92.0</td></tr> <tr><td>50</td><td>91.5</td><td>91.8</td></tr> <tr><td>55</td><td>88.5</td><td>89.5</td></tr> <tr><td>60</td><td>88.0</td><td>88.5</td></tr> <tr><td>65</td><td>87.5</td><td>88.0</td></tr> <tr><td>70</td><td>87.0</td><td>87.5</td></tr> <tr><td>75</td><td>86.5</td><td>87.0</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	35	92.0	92.0	40	92.2	92.2	45	91.8	92.0	50	91.5	91.8	55	88.5	89.5	60	88.0	88.5	65	87.5	88.0	70	87.0	87.5	75	86.5	87.0			
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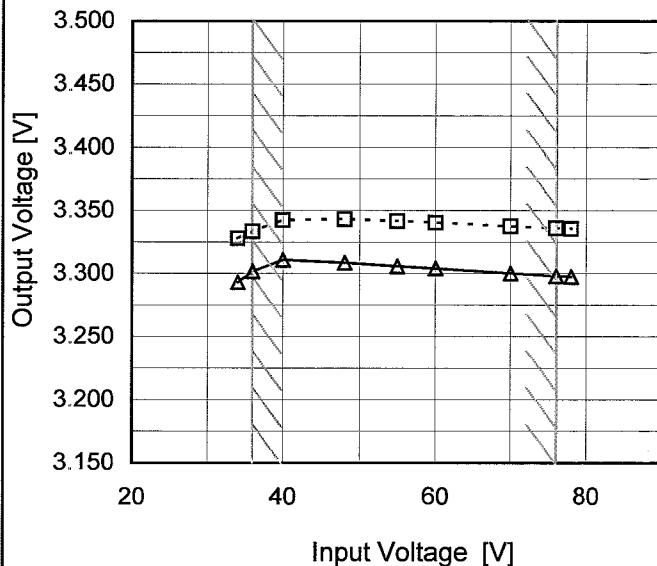
Model SFS30483R3/SFCS30483R3

Item Line Regulation

Object +3.3V9A

1. Graph

--- □--- Load 50%
 —△— Load 100%



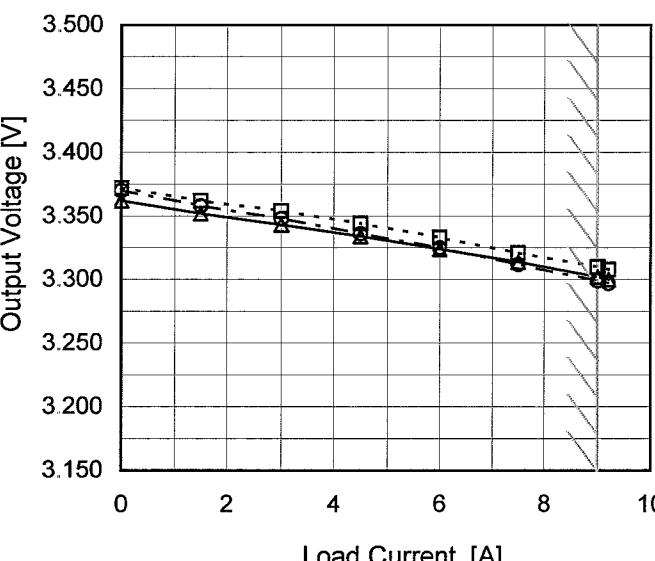
Note: Slanted line shows the range of the rated input voltage.

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
34	3.328	3.293
36	3.334	3.302
40	3.342	3.311
48	3.343	3.309
55	3.342	3.306
60	3.340	3.304
70	3.338	3.300
76	3.336	3.298
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1.Graph	<p style="text-align: center;"> —△— Input Volt. 36V ---□--- Input Volt. 48V ---○--- Input Volt. 76V </p>  <p>The graph plots Output Voltage [V] on the Y-axis (3.150 to 3.500) against Load Current [A] on the X-axis (0 to 10). Three data series are shown for input voltages of 36V, 48V, and 76V. The 36V series (solid triangles) starts at ~3.362V at 0A and drops to ~3.300V at 9.2A. The 48V series (open squares) starts at ~3.372V at 0A and drops to ~3.308V at 9.2A. The 76V series (open circles) starts at ~3.370V at 0A and drops to ~3.325V at 9.2A. A slanted line is drawn through the data points, representing the rated load current range.</p>	2.Values																																																				
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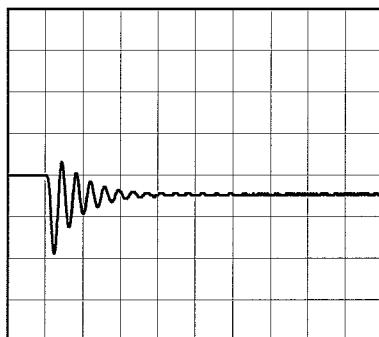
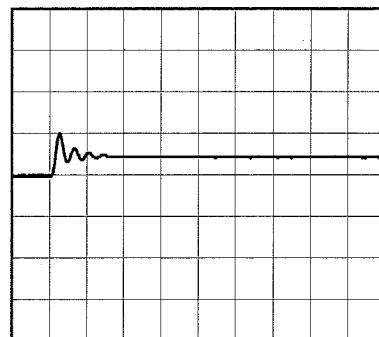
Model	SFS30483R3/SFCS30483R3	Temperature Testing Circuitry 25°C Figure A
Item	Dynamic Load Response	
Object	+3.3V9A	

Input Volt. 48 V
 Cycle 1000 mS

Load Current 9A / 200 μ sec

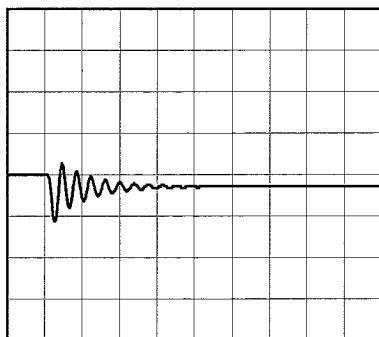
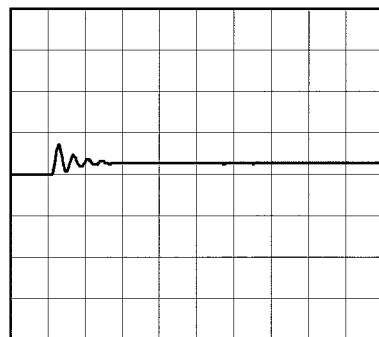
Min. Load (0A) \longleftrightarrow
 Load 100% (9A)

200mV/div

200 μ s/div200 μ s/div

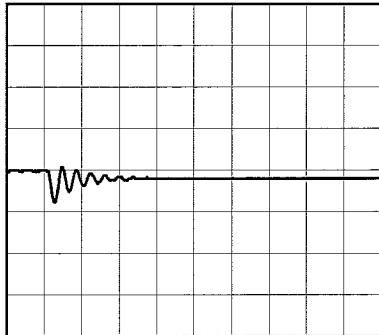
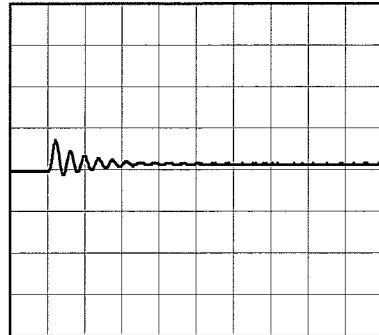
Min. Load (0A) \longleftrightarrow
 Load 50% (4.5A)

200mV/div

200 μ s/div200 μ s/div

Load 50% (4.5A) \longleftrightarrow
 Load 100% (9A)

200mV/div

200 μ s/div200 μ s/div

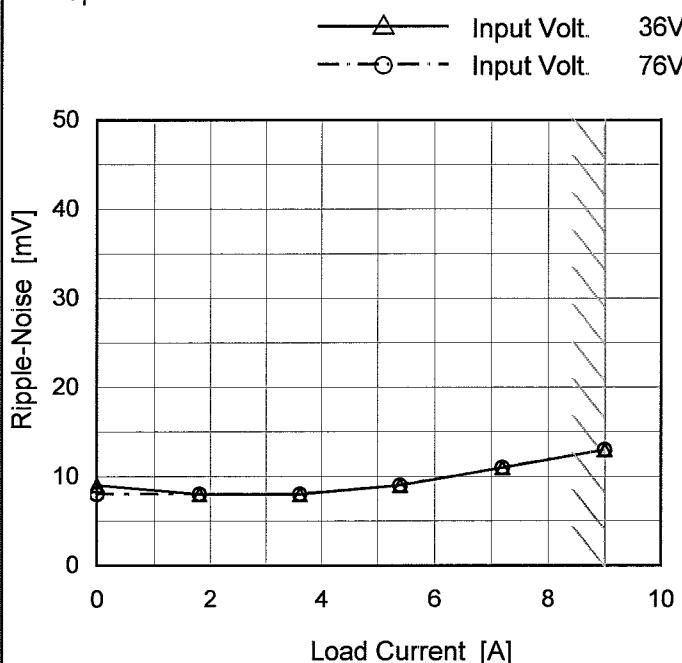
COSEL

Model	SFS30483R3/SFCS30483R3																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure C																																						
Object	+3.3V9A																																							
1. Graph																																								
<p>—△— Input Volt. 36V ---○--- Input Volt. 76V</p> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>																																								
<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>Fig. Complex Ripple Wave Form</p>																																								
<p>2. Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>0.0</td><td>3</td><td>4</td></tr> <tr> <td>1.8</td><td>3</td><td>4</td></tr> <tr> <td>3.6</td><td>3</td><td>4</td></tr> <tr> <td>5.4</td><td>3</td><td>4</td></tr> <tr> <td>7.2</td><td>3</td><td>4</td></tr> <tr> <td>9.0</td><td>3</td><td>4</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> <tr> <td>--</td><td>-</td><td>-</td></tr> </tbody> </table>			Load Current [A]	Ripple Voltage [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.0	3	4	1.8	3	4	3.6	3	4	5.4	3	4	7.2	3	4	9.0	3	4	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
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COSEL

Model	SFS30483R3/SFCS30483R3
Item	Ripple-Noise
Object	+3.3V9A

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.

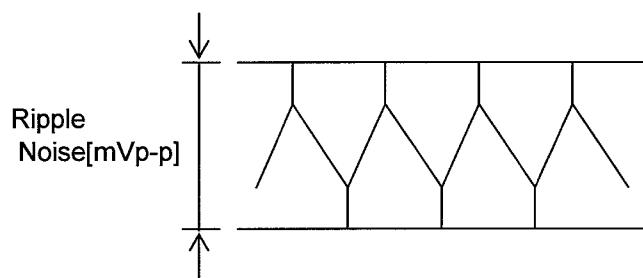


Fig. Complex Ripple Noise Wave Form

Temperature 25°C
Testing Circuitry Figure C

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	9	8
1.8	8	8
3.6	8	8
5.4	9	9
7.2	11	11
9.0	13	13
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

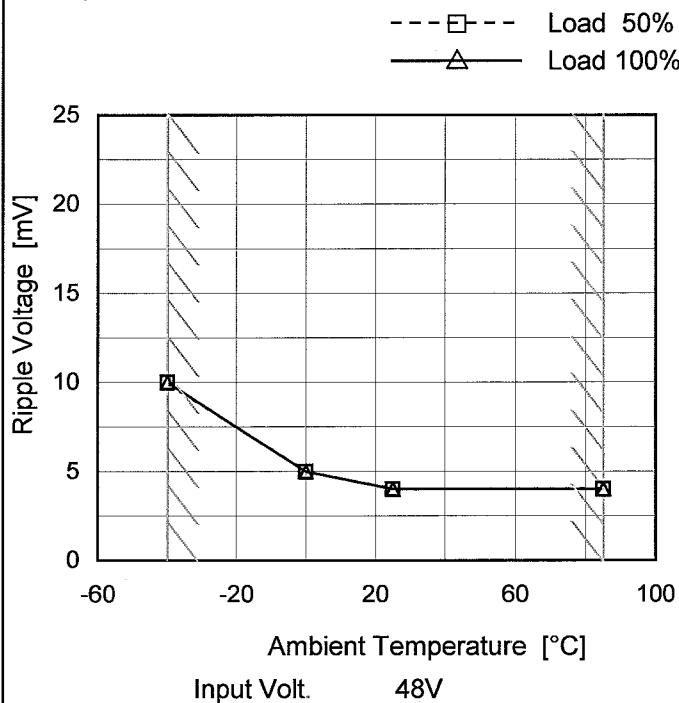


Model SFS30483R3/SFCS30483R3

Item Ripple Voltage (by Ambient Temp.)

Object +3.3V9A

1. Graph



Measured by 100 MHz Oscilloscope.

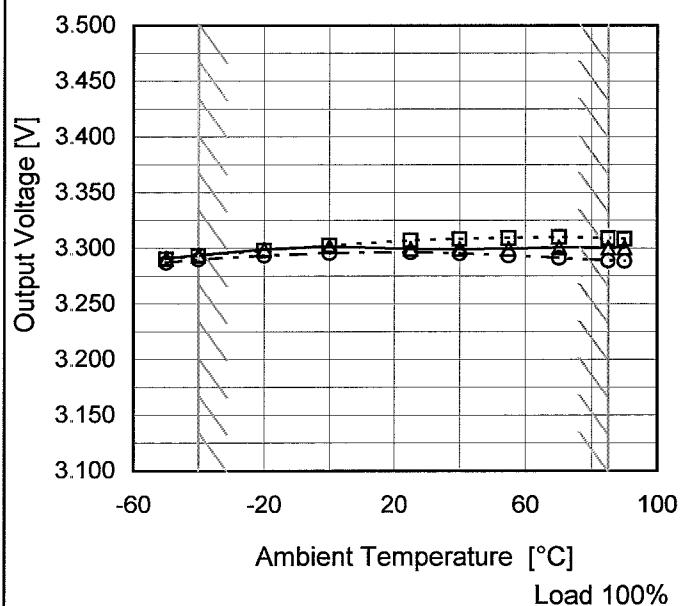
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure C

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	10	10
0	5	5
25	4	4
85	4	4
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS30483R3/SFCS30483R3	Testing Circuitry Figure A																																																					
Item	Ambient Temperature Drift																																																						
Object	+3.3V9A																																																						
1.Graph	<p>—△— Input Volt. 36V - - -□- - Input Volt. 48V - - -○- - Input Volt. 76V</p>  <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>	2.Values																																																					
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--	-	-	-																																																				

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



Model	SFS30483R3/SFCS30483R3	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+3.3V9A	

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 - 85°C

Input Voltage : 36 - 76V

Load Current : 0 - 9A

* 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

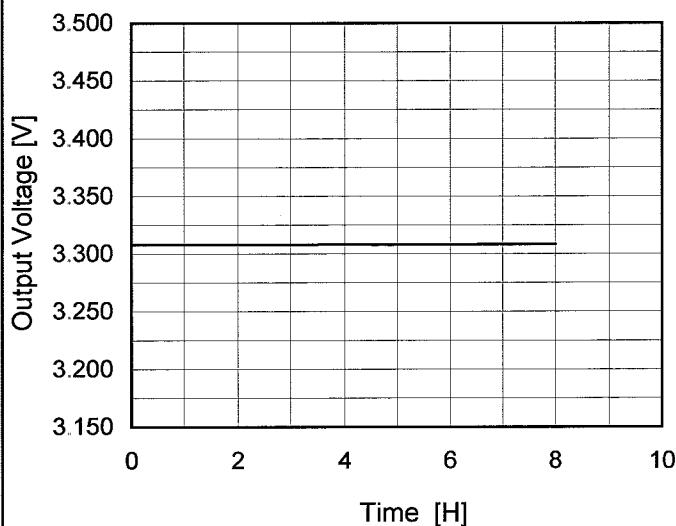
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	48	0	3.386	± 49	± 1.5
Minimum Voltage	85	76	9	3.289		

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Time Lapse Drift
Object	+3.3V9A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



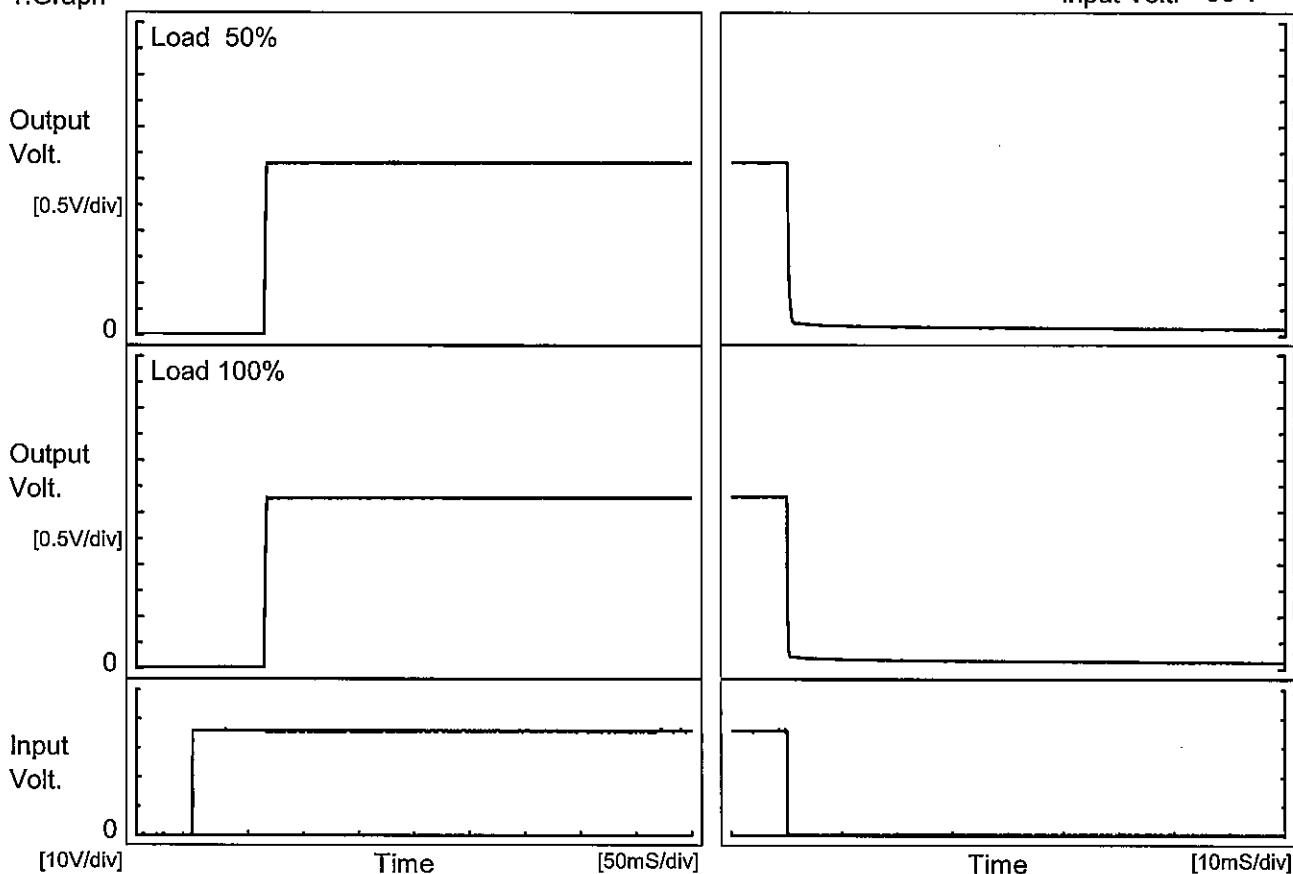
Input Volt. 48V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	3.308
0.5	3.308
1.0	3.308
2.0	3.308
3.0	3.308
4.0	3.308
5.0	3.308
6.0	3.308
7.0	3.308
8.0	3.308

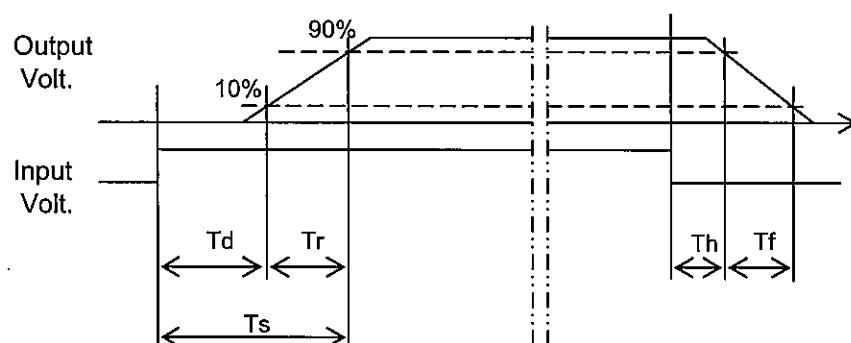
Model	SFS30483R3/SFCS30483R3	Temperature Testing Circuitry Figure A
Item	Rise and Fall Time	
Object	+3.3V9A	

1. Graph



2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[mS]
50 %		65.0	0.5	65.5	0.1	0.8	
100 %		65.0	0.5	65.5	0.1	0.4	



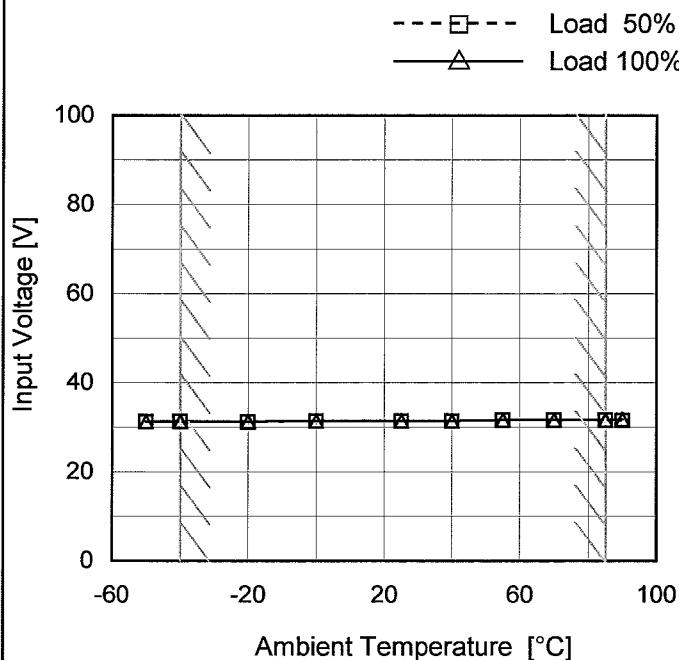
COSEL

Model SFS30483R3/SFCS30483R3

Item Minimum Input Voltage
for Regulated Output Voltage

Object +3.3V9A

1. Graph



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

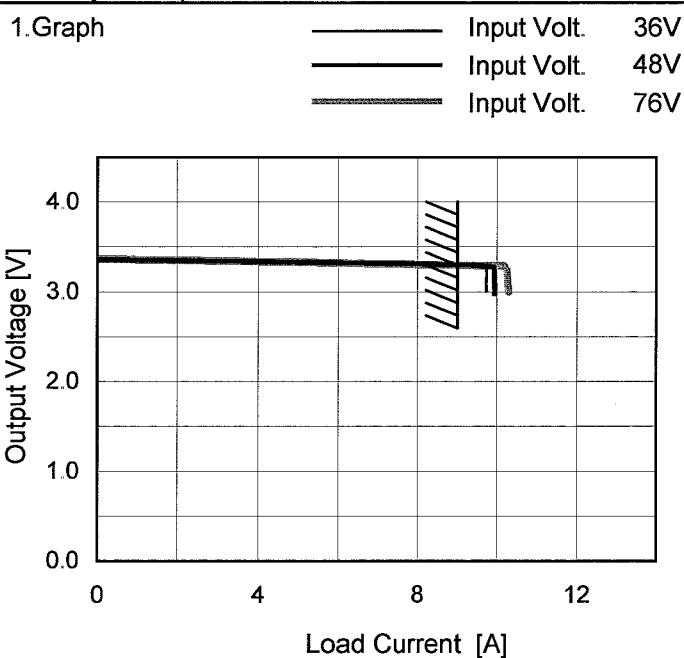
Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	31.3	31.4
-40	31.3	31.4
-20	31.3	31.4
0	31.5	31.5
25	31.5	31.5
40	31.4	31.5
55	31.6	31.7
70	31.7	31.7
85	31.6	31.7
90	31.6	31.9
--	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Overcurrent Protection
Object	+3.3V9A



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

When the output voltage fell to less than 2.97V, the unit shuts off the output by operating low voltage protection.

Temperature 25°C
Testing Circuitry Figure A

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.30	9.43	9.60	9.17
3.14	9.72	9.93	10.27
2.97	9.72	9.93	10.30
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
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COSEL

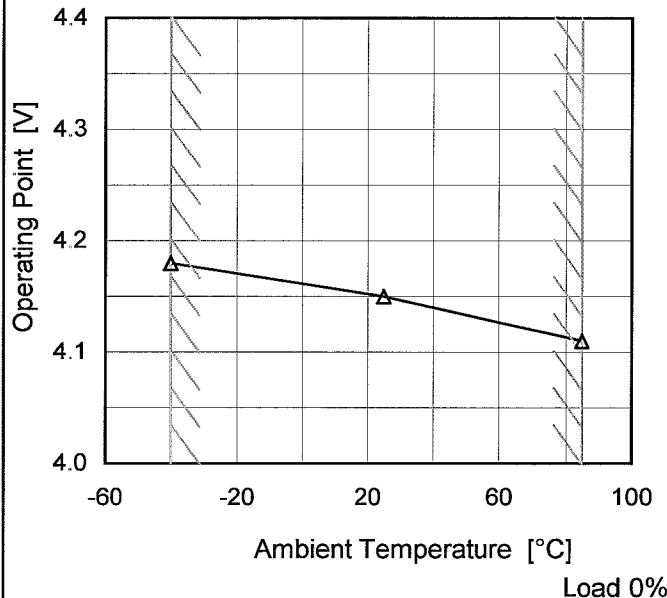
Model SFS30483R3/SFCS30483R3

Item Overvoltage Protection

Object +3.3V9A

1. Graph

Input Volt. 48V



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

Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 48[V]	Input Volt.	Input Volt.
-40	4.18	-	-
25	4.15	-	-
85	4.11	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

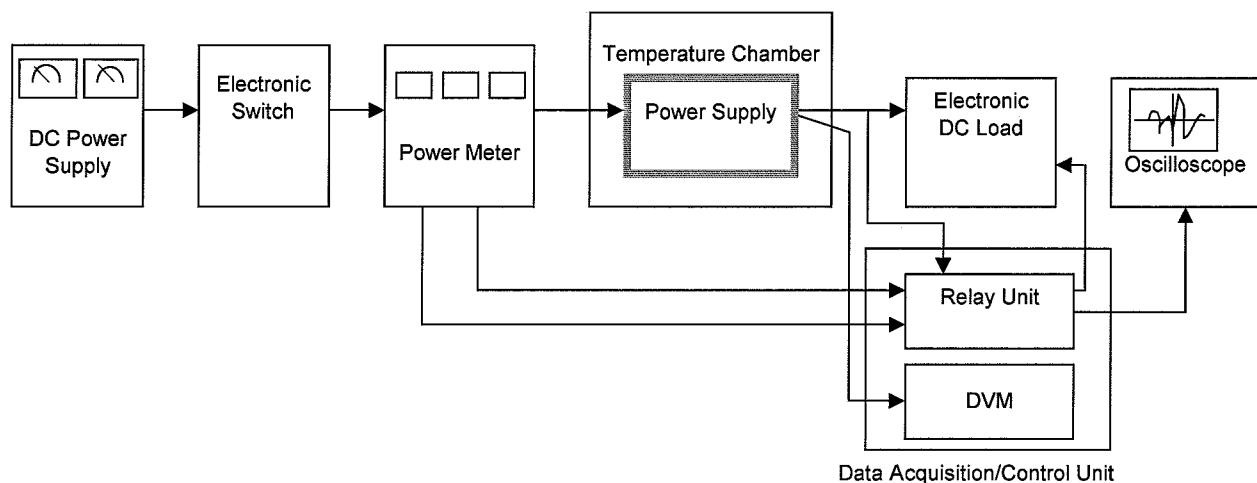


Figure A

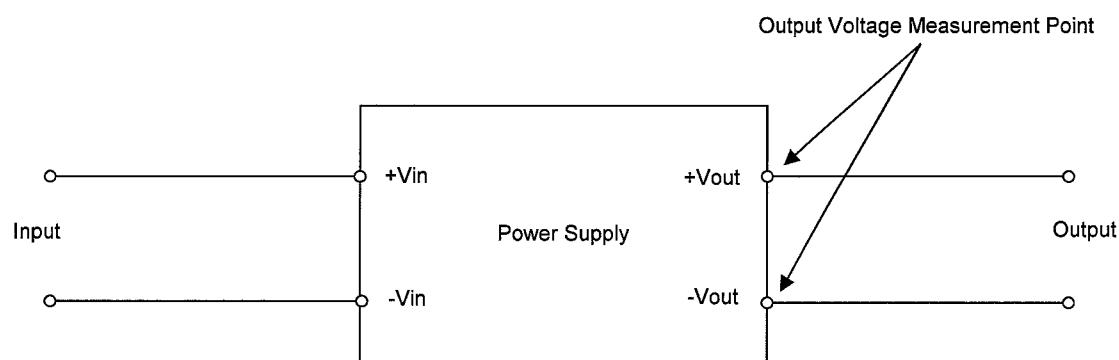


Figure B (General Electric Characteristic)

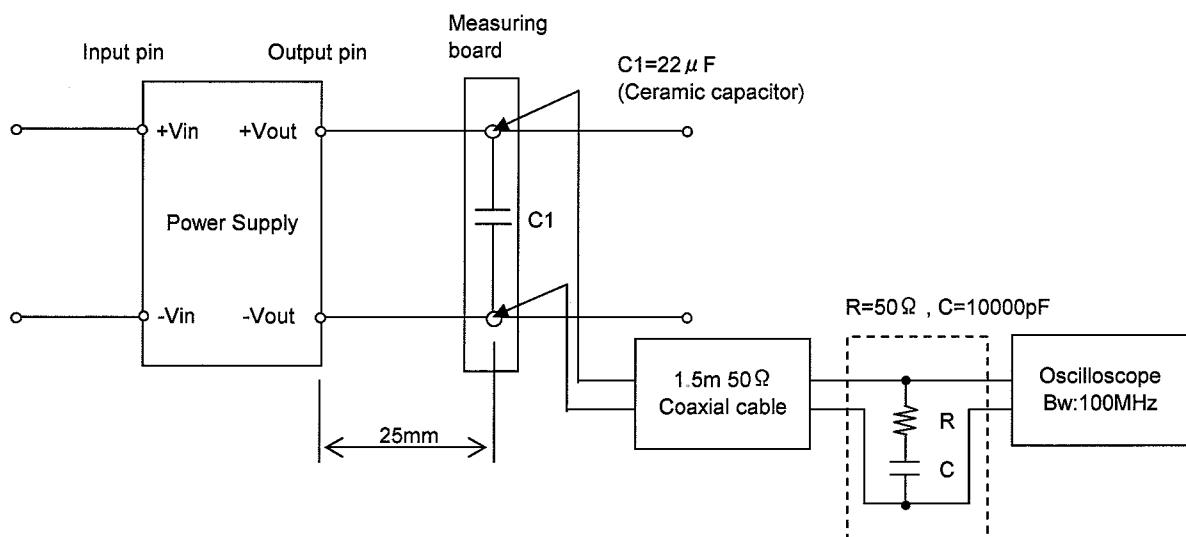


Figure C (Ripple and Ripple noise Characteristic)