



TEST DATA OF SFS15481R8

Regulated DC Power Supply
Oct.23. 2003

Approved by : Isao Yasuda
Isao Yasuda Design Manager

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Kenichi Tsukada Design Engineer

COSEL CO.,LTD.

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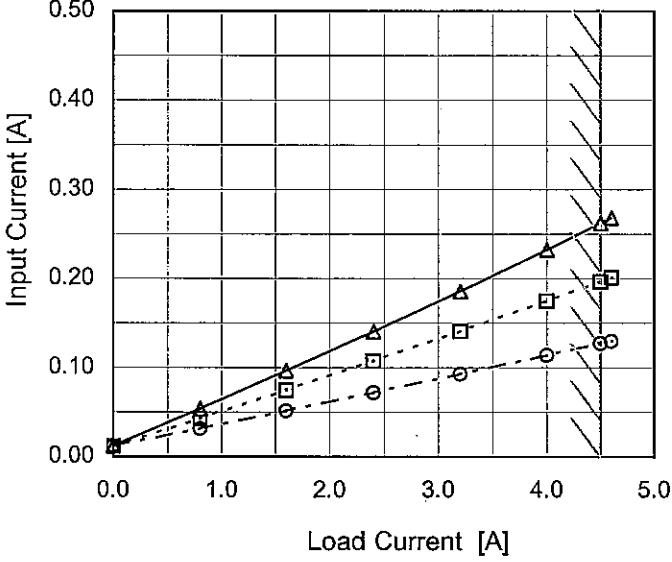
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Model	SFS15481R8	Temperature 25°C Testing Circuitry Figure A																																																																									
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	<p>The graph plots Efficiency [%] on the y-axis (44 to 100) against Load Current [A] on the x-axis (0.0 to 5.0). Three data series are shown for different input voltages: 36V (solid line with triangles), 48V (dashed line with squares), and 76V (dash-dot line with circles). All curves show efficiency increasing with load current. A slanted line on the graph indicates the rated load current range.</p> <table border="1"> <caption>Data points estimated from the graph</caption> <thead> <tr> <th>Load Current [A]</th> <th>36V [%]</th> <th>48V [%]</th> <th>76V [%]</th> </tr> </thead> <tbody> <tr><td>0.8</td><td>75.3</td><td>71.5</td><td>61.3</td></tr> <tr><td>1.6</td><td>83.6</td><td>81.4</td><td>74.5</td></tr> <tr><td>2.4</td><td>86.0</td><td>84.7</td><td>79.6</td></tr> <tr><td>3.2</td><td>86.5</td><td>85.8</td><td>82.1</td></tr> <tr><td>4.0</td><td>86.3</td><td>85.9</td><td>83.1</td></tr> <tr><td>4.5</td><td>85.9</td><td>85.8</td><td>83.4</td></tr> <tr><td>4.6</td><td>85.8</td><td>85.7</td><td>83.4</td></tr> </tbody> </table>	Load Current [A]	36V [%]	48V [%]	76V [%]	0.8	75.3	71.5	61.3	1.6	83.6	81.4	74.5	2.4	86.0	84.7	79.6	3.2	86.5	85.8	82.1	4.0	86.3	85.9	83.1	4.5	85.9	85.8	83.4	4.6	85.8	85.7	83.4																					
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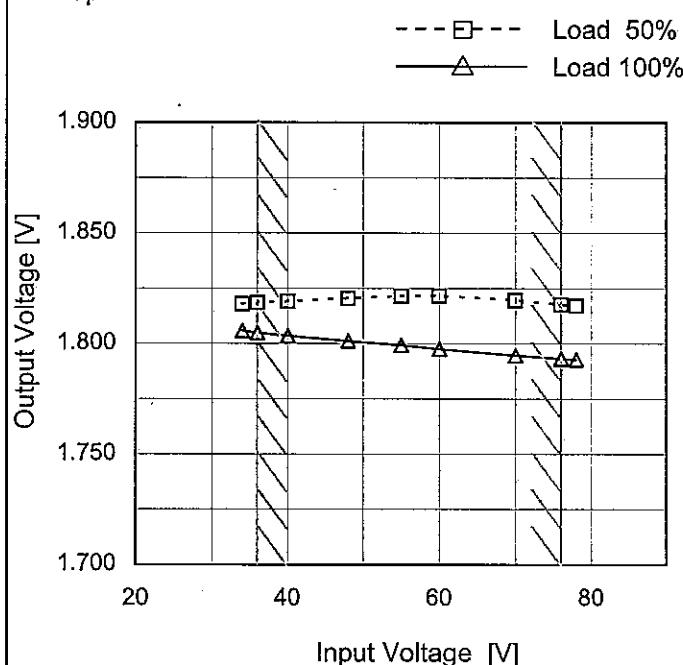
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Model	SFS15481R8
Item	Line Regulation
Object	+1.8V4.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



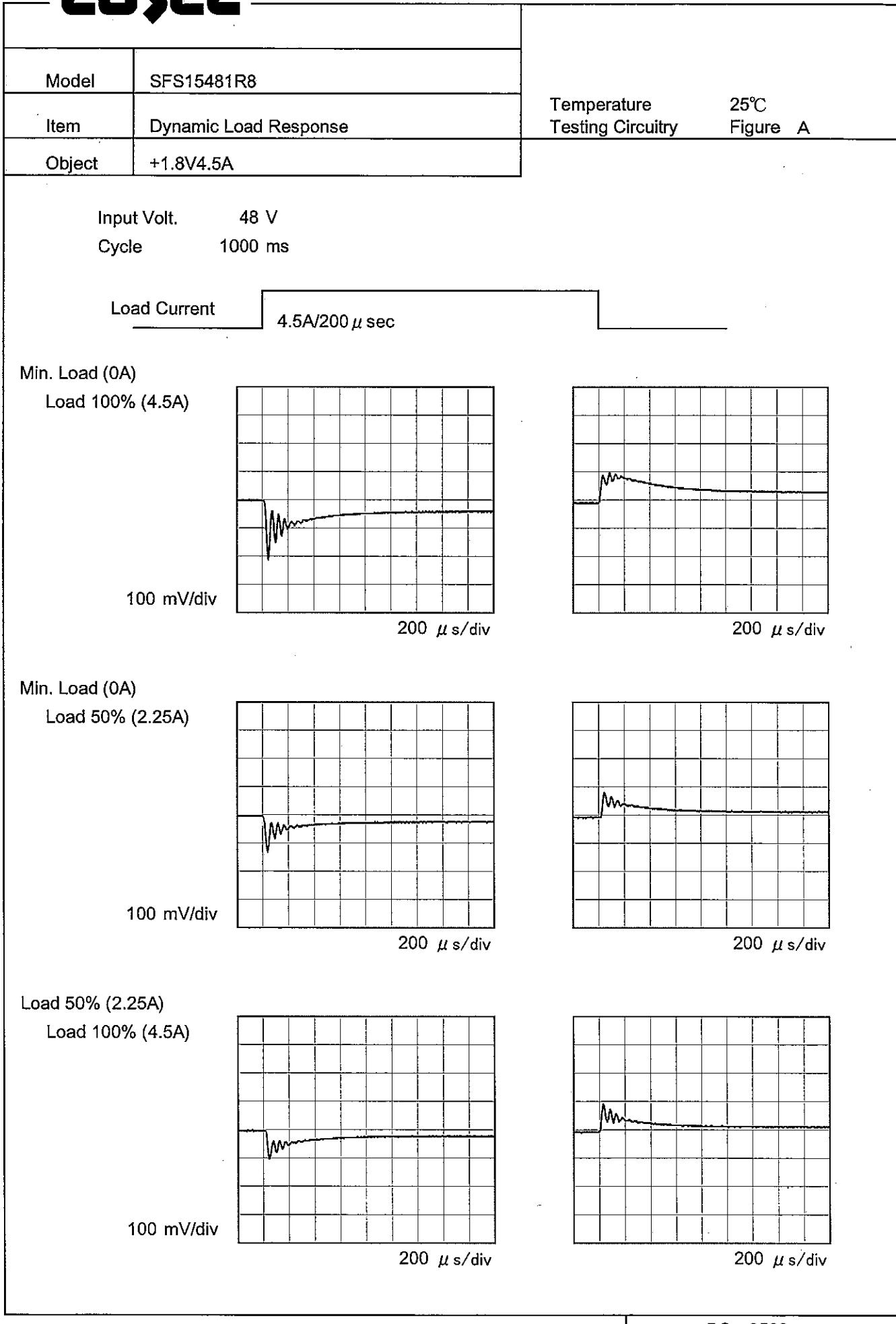
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
34	1.818	1.806
36	1.819	1.805
40	1.819	1.804
48	1.821	1.801
55	1.822	1.799
60	1.822	1.798
70	1.820	1.795
76	1.818	1.793
78	1.817	1.793

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

COSEL

Model	SFS15481R8	Temperature	25°C																																																			
Item	Load Regulation	Testing Circuitry	Figure A																																																			
Object	+1.8V4.5A																																																					
1.Graph	<p>—△— Input Volt. 36V - - - □ - - Input Volt. 48V - - ○ - - Input Volt. 76V</p>																																																					
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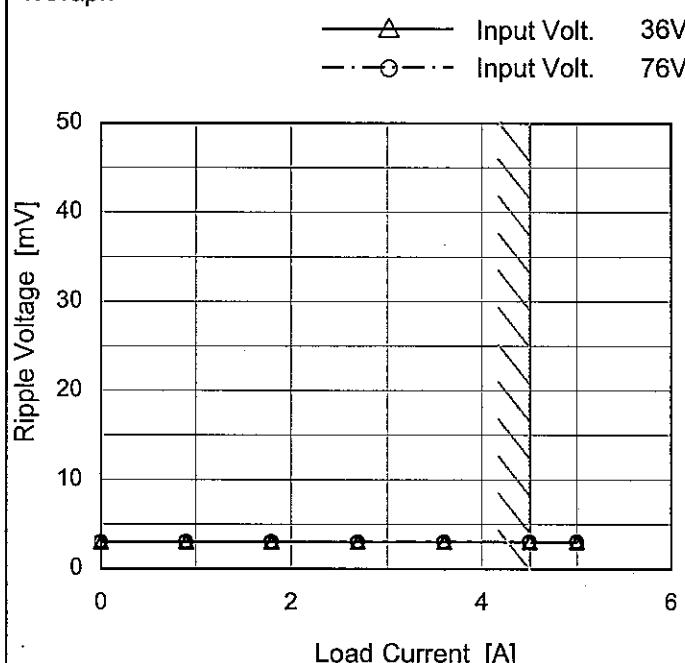
COSEL

COSEL

Model	SFS15481R8
Item	Ripple Voltage (by Load Current)
Object	+1.8V4.5A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	3	3
0.9	3	3
1.8	3	3
2.7	3	3
3.6	3	3
4.5	3	3
5.0	3	3
--	-	-
--	-	-
--	-	-
--	-	-

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]

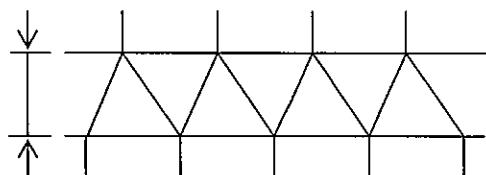


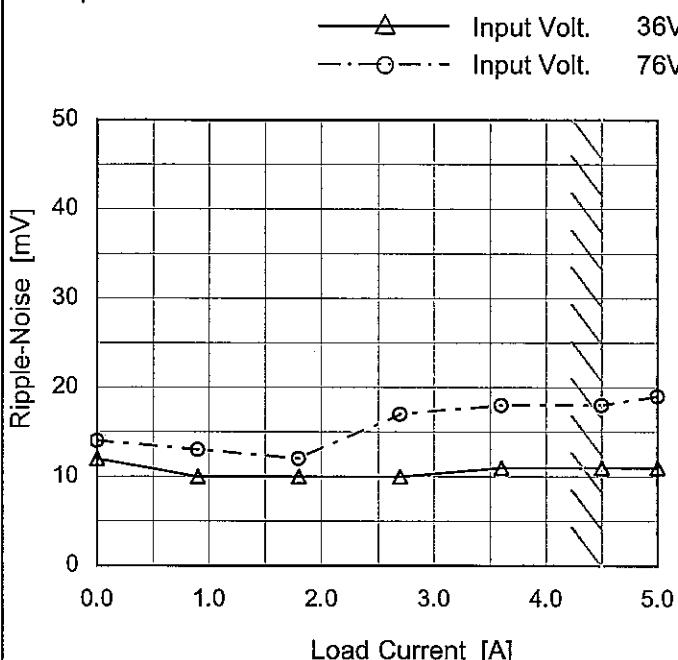
Fig.Complex Ripple Wave Form

COSEL

Model	SFS15481R8
Item	Ripple-Noise
Object	+1.8V4.5A

Temperature 25°C
Testing Circuitry Figure C

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.

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	12	14
0.9	10	13
1.8	10	12
2.7	10	17
3.6	11	18
4.5	11	18
5.0	11	19
--	-	-
--	-	-
--	-	-
--	-	-

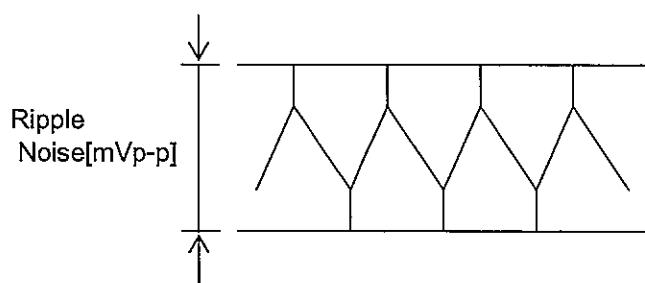


Fig.Complex Ripple Noise Wave Form

Model	SFS15481R8	Testing Circuitry Figure C																																							
Item	Ripple Voltage (by Ambient Temp.)																																								
Object	+1.8V4.5A																																								
1.Graph		2.Values																																							
<p>Graph showing Ripple Voltage [mV] vs Ambient Temperature [°C]. The Y-axis ranges from 0 to 50 mV, and the X-axis ranges from -60 to 100 °C. Two data series are plotted: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a sharp increase in ripple voltage starting around -40°C, reaching approximately 45 mV at 85°C. A slanted line indicates the rated ambient temperature range from -40°C to 85°C.</p> <p>Input Volt. 48V</p>																																									
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COSEL

Model	SFS15481R8	Testing Circuitry Figure A																																																					
Item	Ambient Temperature Drift																																																						
Object	+1.8V4.5A																																																						
1.Graph	<p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Legend: Input Volt. 36V (solid line with triangles), Input Volt. 48V (dashed line with squares), Input Volt. 76V (dotted line with circles)</p>																																																						
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Note: Slanted line shows the range of the rated ambient temperature.



Model	SFS15481R8	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+1.8V4.5A	

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 - 4.5A

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

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	48	0	1.843	± 34	± 1.9
Minimum Voltage	85	76	4.5	1.775		

COSEL

Model	SFS15481R8
Item	Time Lapse Drift
Object	+1.8V4.5A

1.Graph

Output Voltage [V]	1.800					
Time [H]	0	2	4	6	8	10

Input Volt. 48V
Load 100%

Temperature 25°C
Testing Circuitry Figure A

2.Values

Time since start [H]	Output Voltage [V]
0.0	1.803
0.5	1.801
1.0	1.801
2.0	1.801
3.0	1.801
4.0	1.801
5.0	1.801
6.0	1.801
7.0	1.801
8.0	1.801

Model SFS15481R8

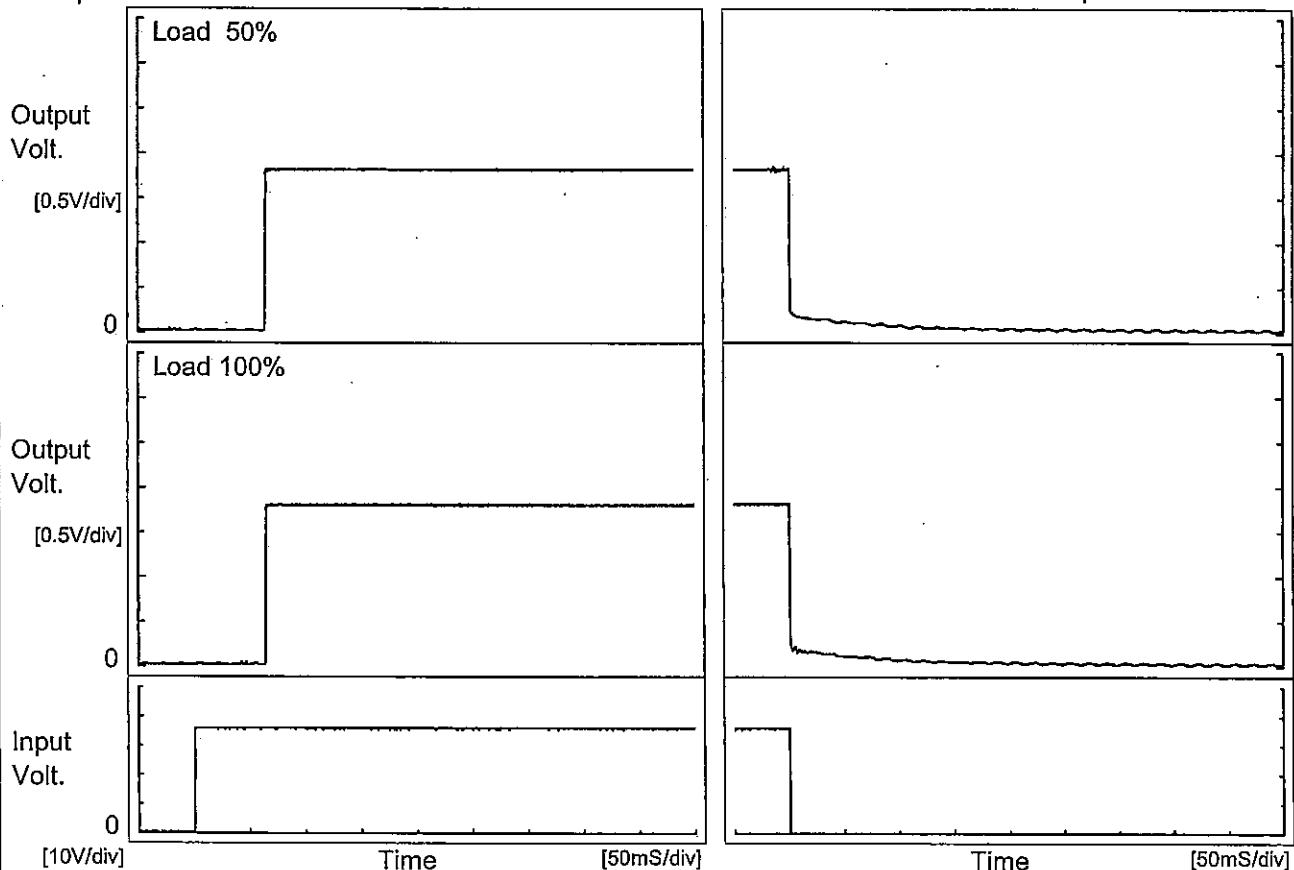
Item Rise and Fall Time

Object +1.8V4.5A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

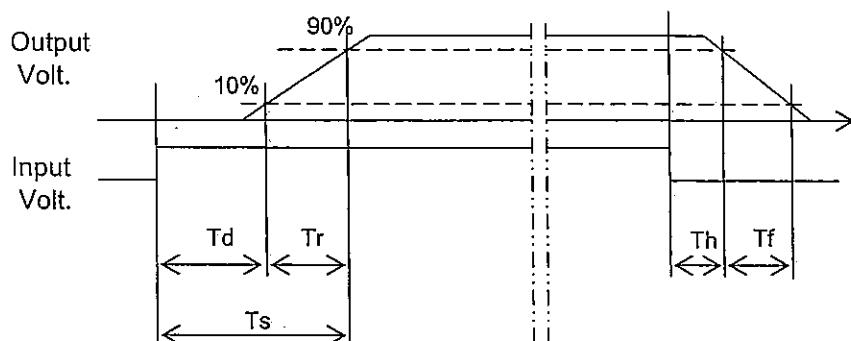
Input Volt. 36 V



2. Values

[mS]

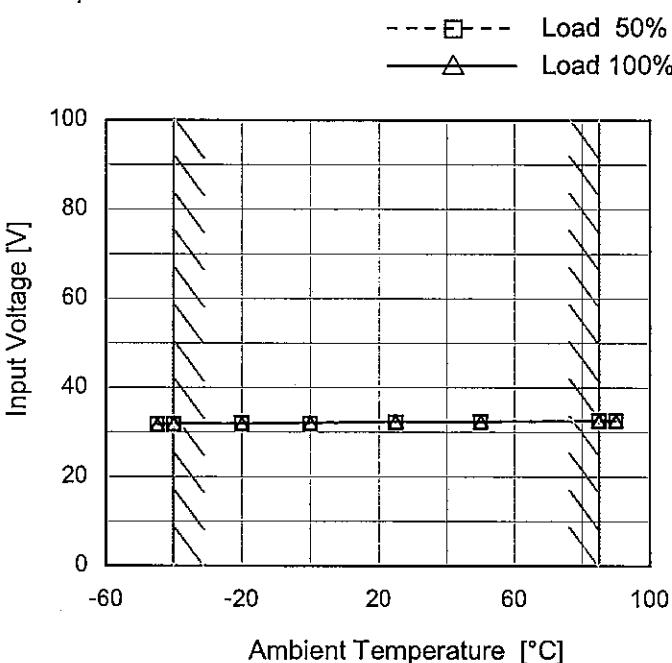
Load	Time	Td	Tr	Ts	Th	Tf
50 %		64.3	0.7	65.0	0.3	3.8
100 %		66.0	0.7	66.7	0.3	1.8



Model	SFS15481R8
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.8V4.5A

Testing Circuitry Figure A

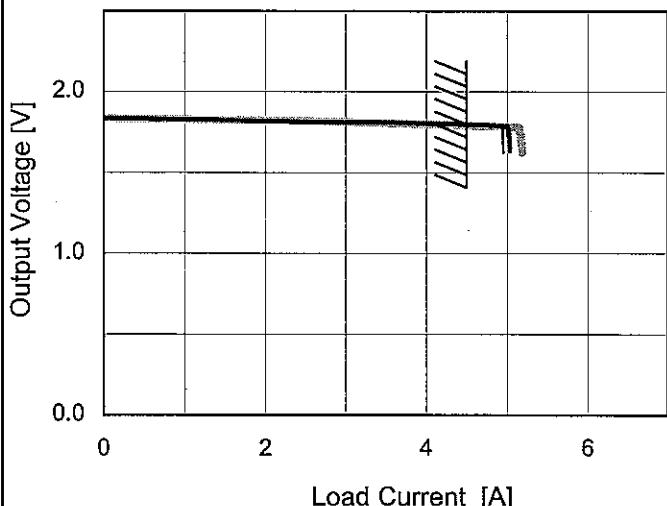
1.Graph



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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-45	31.9	31.8
-40	31.9	32.0
-20	32.1	32.0
0	32.0	32.2
25	32.3	32.4
50	32.4	32.4
85	32.7	32.6
90	32.7	32.6
--	-	-
--	-	-
--	-	-

Model	SFS15481R8	Temperature	25°C
Item	Overcurrent Protection	Testing Circuitry	Figure A
Object	+1.8V4.5A		
1.Graph		Input Volt. 36V Input Volt. 48V Input Volt. 76V	
			
Note: Slanted line shows the range of the rated load current.			
When the output voltage fell to less than 1.62V, the unit shuts off the output by operating low voltage protection.			
			2.Values
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
1.80	4.93	5.01	5.15
1.71	4.95	5.03	5.17
1.62	4.95	5.04	5.18
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
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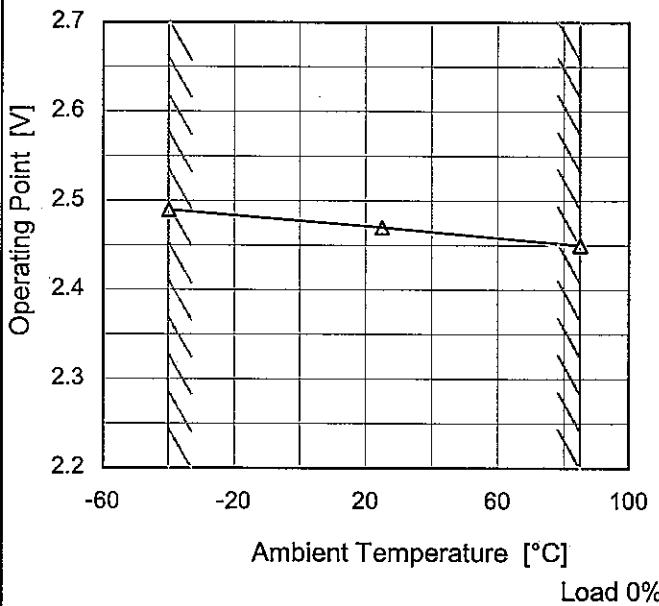
Model SFS15481R8

Item Overvoltage Protection

Object +1.8V4.5A

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	2.49	-	-
25	2.47	-	-
85	2.45	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
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--	-	-	-
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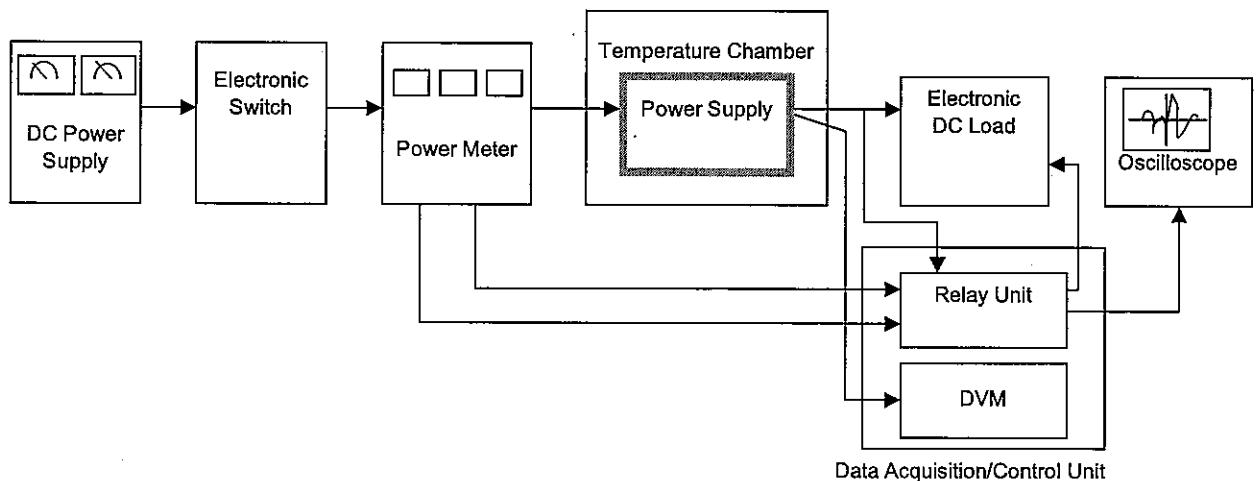


Figure A

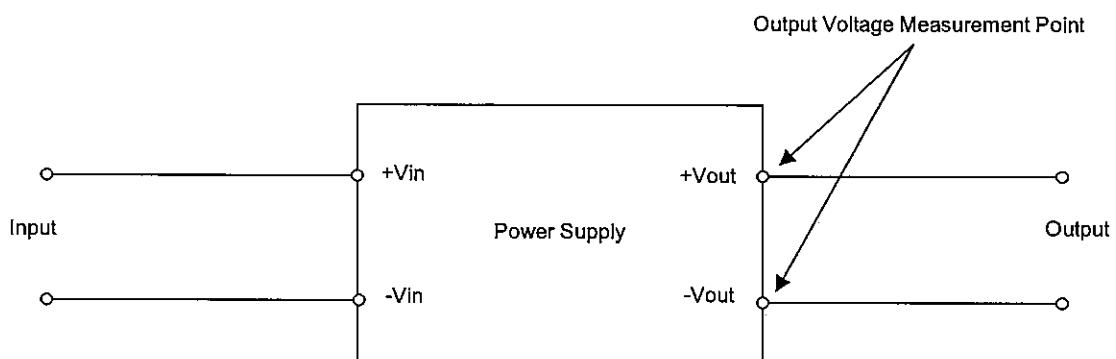


Figure B (General Electric Characteristic)

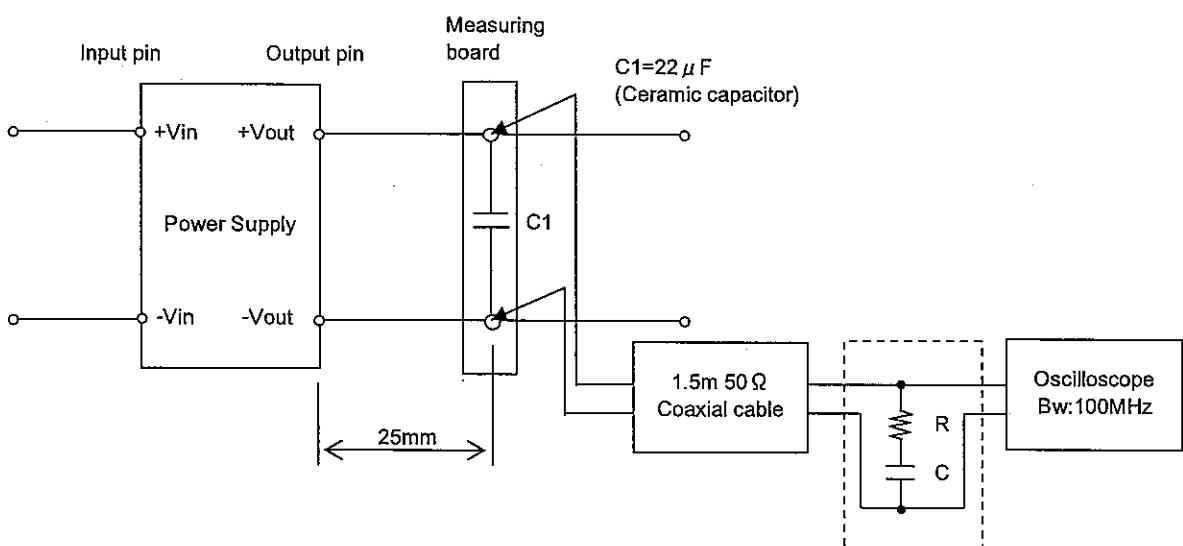


Figure C (Ripple and Ripple noise Characteristic)