



TEST DATA OF SFS104815

Regulated DC Power Supply
Aug.10. 2004

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COSEL CO.,LTD.

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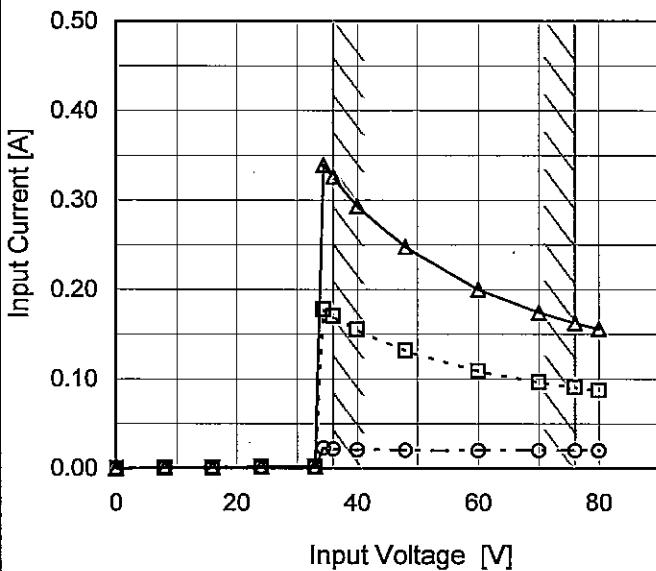
(Final Page 19)

Model	SFS104815
Item	Input Current (by Input Voltage)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1.Graph

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



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

2.Values

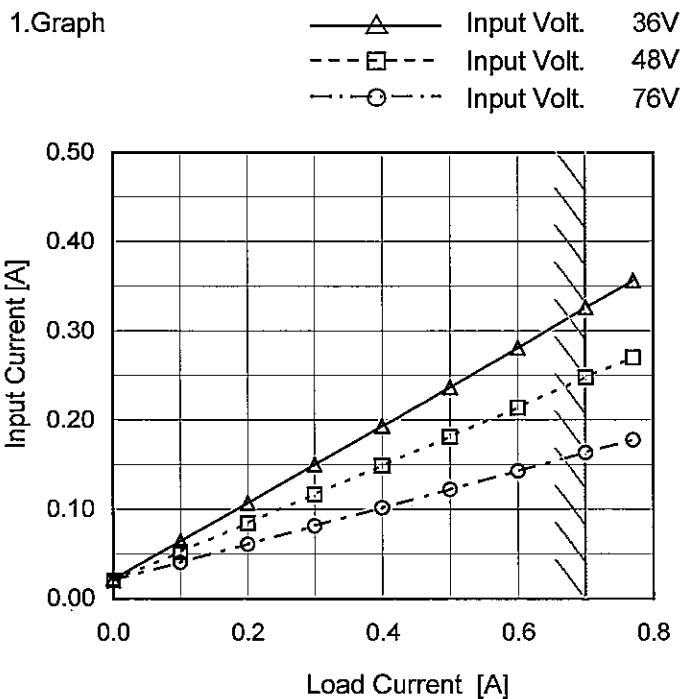
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
8	0.001	0.001	0.001
16	0.001	0.001	0.001
24	0.002	0.002	0.002
33	0.002	0.002	0.002
34	0.023	0.178	0.340
36	0.022	0.170	0.326
40	0.021	0.155	0.293
48	0.020	0.132	0.248
60	0.020	0.109	0.200
70	0.020	0.097	0.175
76	0.020	0.091	0.163
80	0.020	0.087	0.156
--	-	-	-
--	-	-	-
--	-	-	-

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Model SFS104815

Item Input Current (by Load Current)

Object _____

Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.022	0.020	0.020
0.10	0.064	0.052	0.040
0.20	0.107	0.084	0.061
0.30	0.150	0.117	0.081
0.40	0.193	0.149	0.102
0.50	0.237	0.181	0.122
0.60	0.281	0.214	0.143
0.70	0.326	0.248	0.163
0.77	0.356	0.270	0.178
--	-	-	-
--	-	-	-

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



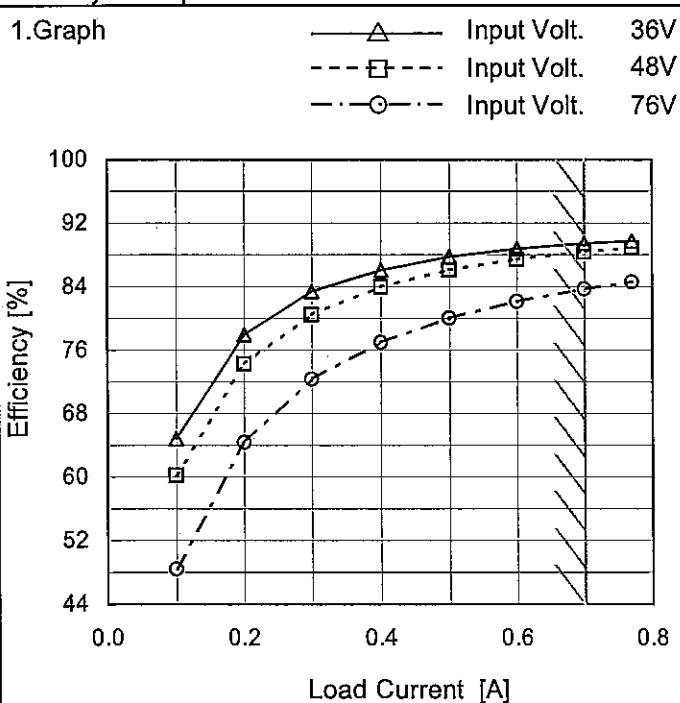
Model	SFS104815					
Item	Input Power (by Load Current)	Temperature 25°C	Testing Circuitry Figure A			
Object						
1.Graph						
—△— Input Volt. 36V - - -□--- Input Volt. 48V - - -○--- Input Volt. 76V						
Note: Slanted line shows the range of the rated load current.						
2.Values						
Load Current [A]	Input Power [W]					
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]			
0.00	0.82	1.00	1.62			
0.10	2.35	2.54	3.15			
0.20	3.89	4.08	4.71			
0.30	5.44	5.63	6.27			
0.40	7.00	7.18	7.83			
0.50	8.57	8.75	9.38			
0.60	10.15	10.31	10.95			
0.70	11.74	11.89	12.51			
0.77	12.86	13.00	13.62			
--	-	-	-			
--	-	-	-			

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Model	SFS104815	Temperature	25°C																														
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A																														
Object	_____																																
1. Graph			2. Values																														
<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 general downward trend as input voltage increases. A slanted line on the graph indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Load 50% [%]</th> <th>Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>34</td><td>84.5</td><td>88.7</td></tr> <tr><td>36</td><td>85.0</td><td>89.5</td></tr> <tr><td>40</td><td>84.5</td><td>89.4</td></tr> <tr><td>48</td><td>82.5</td><td>88.4</td></tr> <tr><td>55</td><td>80.8</td><td>87.4</td></tr> <tr><td>60</td><td>79.5</td><td>86.7</td></tr> <tr><td>70</td><td>76.3</td><td>84.7</td></tr> <tr><td>76</td><td>74.9</td><td>83.7</td></tr> <tr><td>78</td><td>74.5</td><td>83.5</td></tr> </tbody> </table>				Input Voltage [V]	Load 50% [%]	Load 100% [%]	34	84.5	88.7	36	85.0	89.5	40	84.5	89.4	48	82.5	88.4	55	80.8	87.4	60	79.5	86.7	70	76.3	84.7	76	74.9	83.7	78	74.5	83.5
Input Voltage [V]	Load 50% [%]	Load 100% [%]																															
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48	82.5	88.4																															
55	80.8	87.4																															
60	79.5	86.7																															
70	76.3	84.7																															
76	74.9	83.7																															
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<p>Note: Slanted line shows the range of the rated input voltage.</p>																																	

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Model	SFS104815
Item	Efficiency (by Load Current)
Object	_____



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

Temperature 25°C
 Testing Circuitry Figure A

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	-	-	-
0.10	64.9	60.2	48.4
0.20	78.0	74.3	64.4
0.30	83.4	80.5	72.4
0.40	86.1	84.0	77.0
0.50	87.8	86.1	80.0
0.60	88.8	87.4	82.1
0.70	89.5	88.4	83.7
0.77	89.7	88.9	84.6
--	-	-	-
--	-	-	-

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Model SFS104815

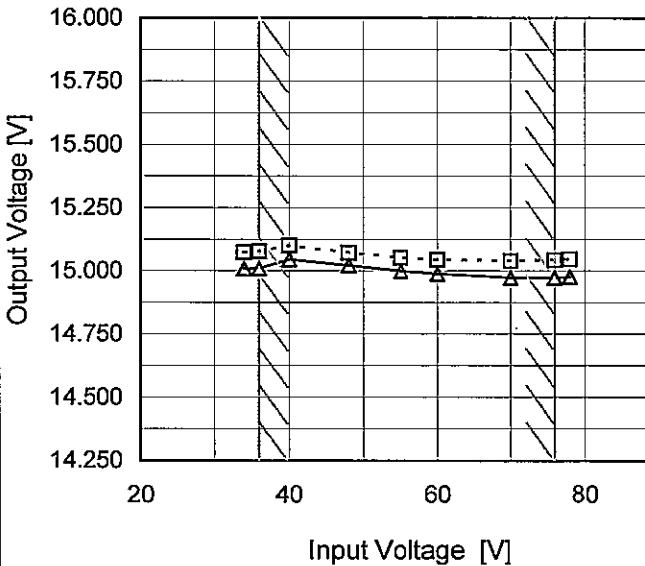
Item Line Regulation

Object +15V0.7A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

--- □ --- Load 50%
 —△— Load 100%



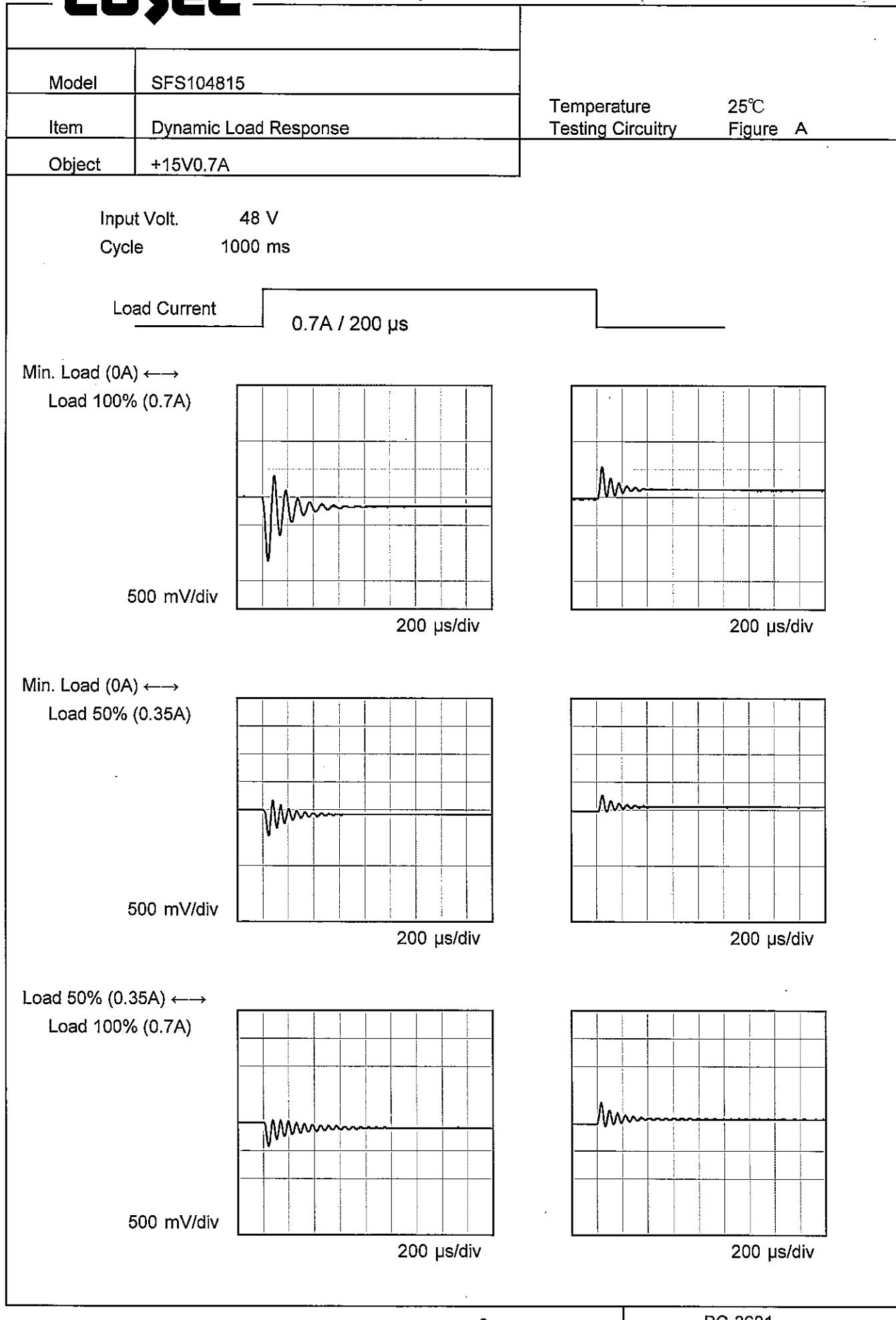
2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
34	15.073	15.009
36	15.078	15.010
40	15.100	15.046
48	15.072	15.022
55	15.053	15.001
60	15.045	14.989
70	15.039	14.973
76	15.044	14.974
78	15.047	14.976

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

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Model	SFS104815	Temperature	25°C																																						
Item	Ripple Voltage (by Load Current)	Testing Circuitry	Figure C																																						
Object	+15V0.7A																																								
1.Graph																																									
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Measured by 100MHz Ossiloscope. Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.																																									
	<p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																								

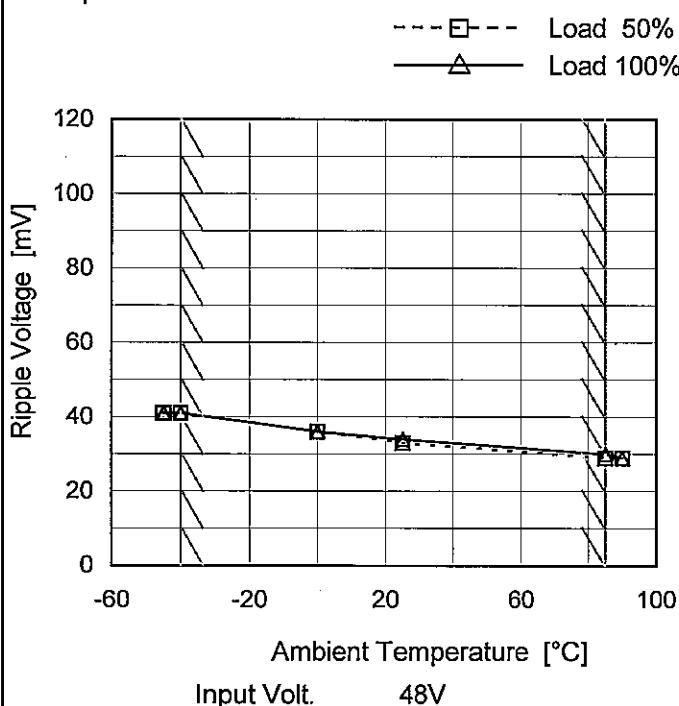
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Model	SFS104815	Temperature	25°C																																						
Item	Ripple-Noise	Testing Circuitry	Figure C																																						
Object	+15V0.7A																																								
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Load Current [A]	Ripple-Noise [mV]																																								
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Measured by 100MHz Ossiloscope. 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																																									

Model	SFS104815
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.7A

Testing Circuitry Figure C

1.Graph



2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-45	41	41
-40	41	41
0	36	36
25	33	34
85	29	30
90	29	29
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

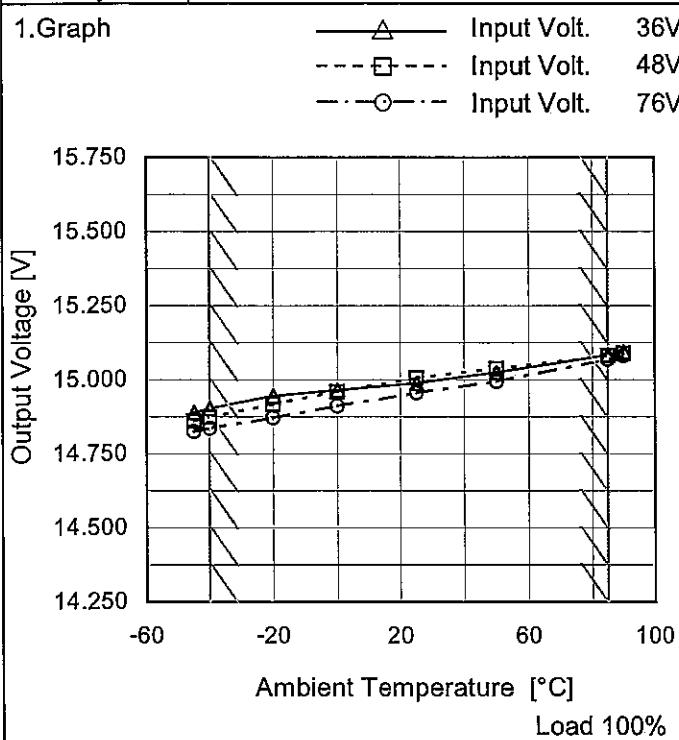
Measured by 100 MHz Oscilloscope.

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

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Model	SFS104815
Item	Ambient Temperature Drift
Object	+15V0.7A

Testing Circuitry Figure A



2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-45	14.891	14.860	14.826
-40	14.904	14.873	14.836
-20	14.946	14.919	14.872
0	14.965	14.960	14.911
25	14.989	15.006	14.956
50	15.026	15.038	14.994
85	15.084	15.082	15.069
90	15.095	15.089	15.081
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SFS104815	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+15V0.7A	

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 ~ 0.7A

* 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	36	0	15.282	± 223	± 1.5
Minimum Voltage	-40	76	0.7	14.836		

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Model	SFS104815	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+15V0.7A																								
1. Graph			2. Values																						
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V Load 100%</p>			<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>15.013</td></tr> <tr><td>0.5</td><td>15.021</td></tr> <tr><td>1.0</td><td>15.021</td></tr> <tr><td>2.0</td><td>15.021</td></tr> <tr><td>3.0</td><td>15.021</td></tr> <tr><td>4.0</td><td>15.021</td></tr> <tr><td>5.0</td><td>15.021</td></tr> <tr><td>6.0</td><td>15.021</td></tr> <tr><td>7.0</td><td>15.021</td></tr> <tr><td>8.0</td><td>15.021</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	15.013	0.5	15.021	1.0	15.021	2.0	15.021	3.0	15.021	4.0	15.021	5.0	15.021	6.0	15.021	7.0	15.021	8.0	15.021
Time since start [H]	Output Voltage [V]																								
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Model SFS104815

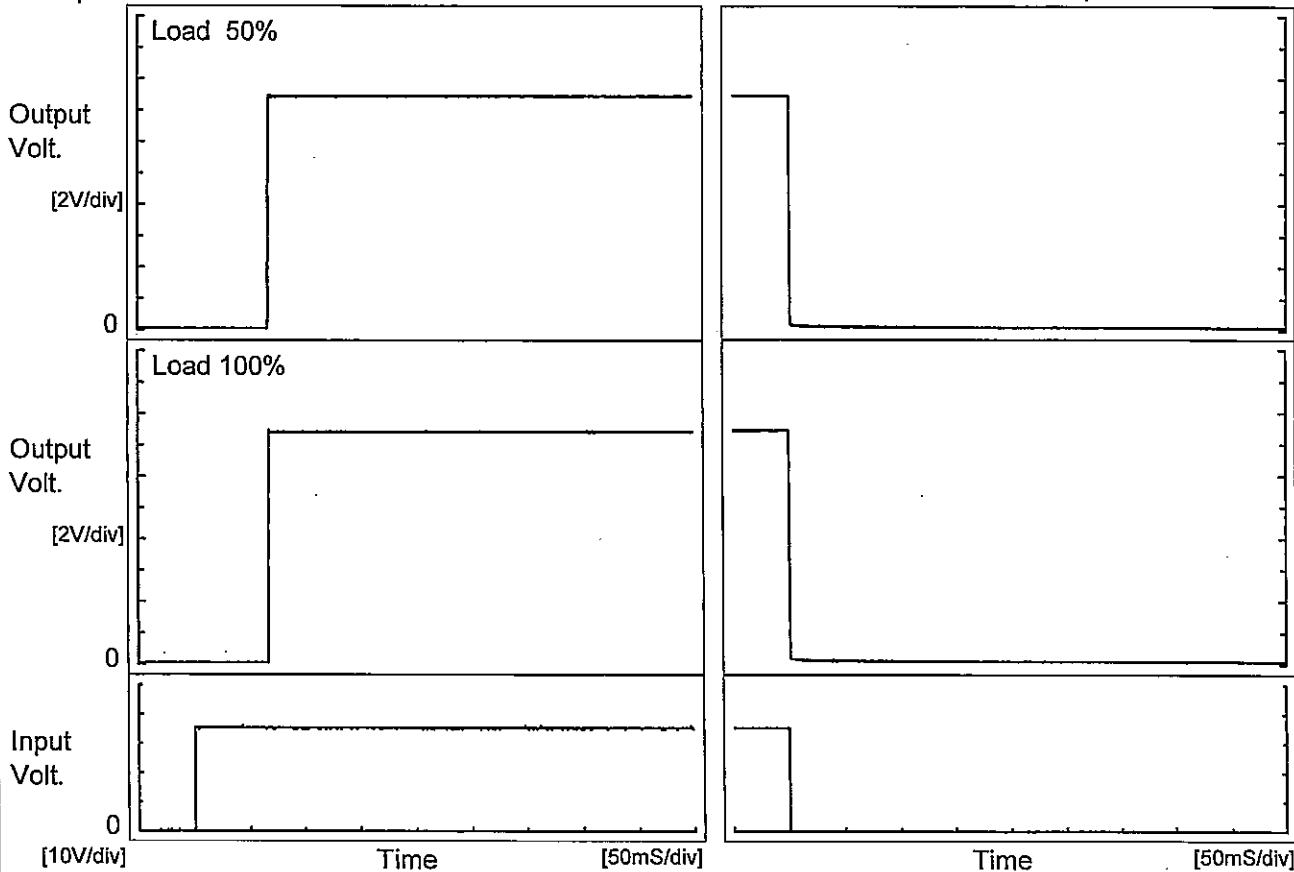
Item Rise and Fall Time

Object +15V0.7A

Temperature 25°C
Testing Circuitry Figure A

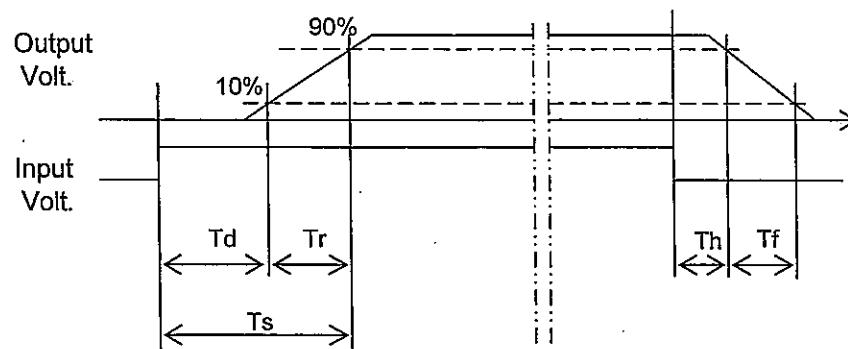
1. Graph

Input Volt. 36 V



2. Values

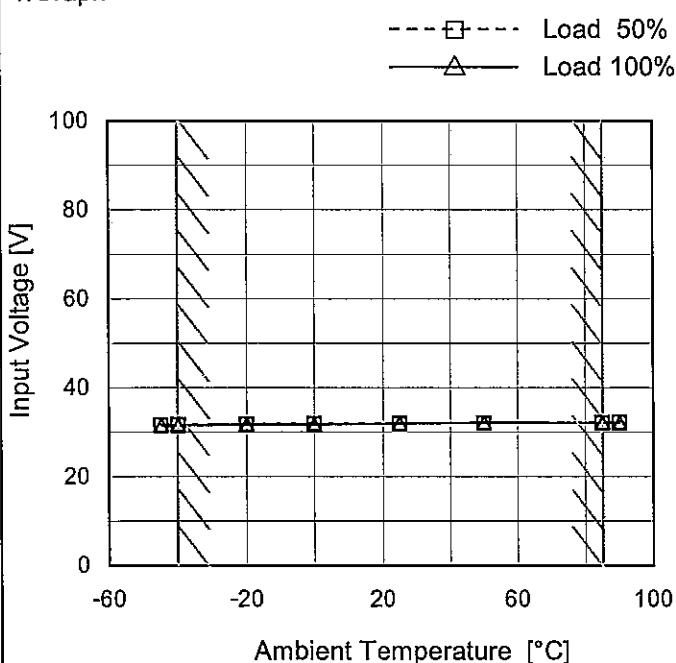
Load	Time	Td	Tr	Ts	Th	Tf	[mS]
50 %		67.0	0.8	67.8	0.3	1.3	
100 %		67.0	0.9	67.9	0.3	1.0	



Model	SFS104815
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.7A

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	31.6	31.6
-40	31.7	31.6
-20	31.9	31.8
0	32.0	31.8
25	32.0	32.0
50	32.1	32.2
85	32.2	32.2
90	32.3	32.2
--	-	-
--	-	-
--	-	-

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Model	SFS104815	Temperature	25°C																																																																							
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																																							
Object	+15V0.7A																																																																									
1.Graph	<p>Input Volt. 36V Input Volt. 48V Input Volt. 76V</p>																																																																									
	<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</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>15.0</td><td>0.72</td><td>0.72</td><td>0.71</td></tr> <tr><td>14.3</td><td>0.88</td><td>0.90</td><td>0.97</td></tr> <tr><td>13.5</td><td>0.89</td><td>0.91</td><td>0.99</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	15.0	0.72	0.72	0.71	14.3	0.88	0.90	0.97	13.5	0.89	0.91	0.99	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.

When the output voltage fell to less than 13.5V, the unit shuts off the output by operating low voltage protection.

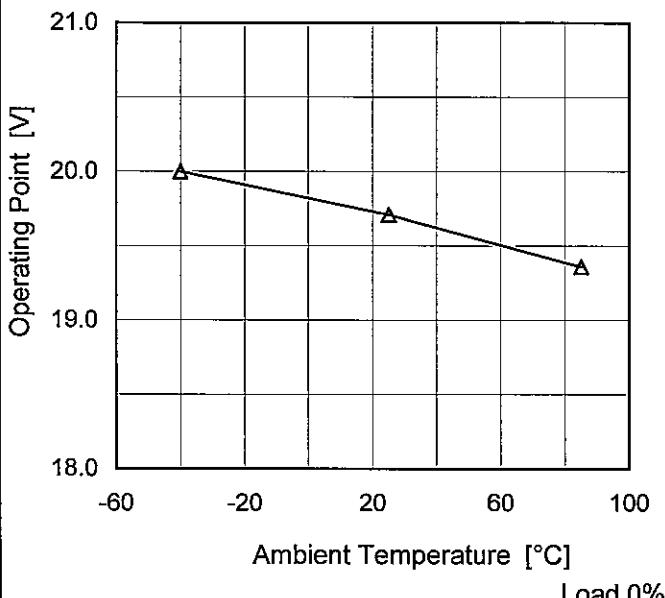
Model SFS104815

Item Overvoltage Protection

Object +15V0.7A

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	20.0	-	-
25	19.7	-	-
85	19.4	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

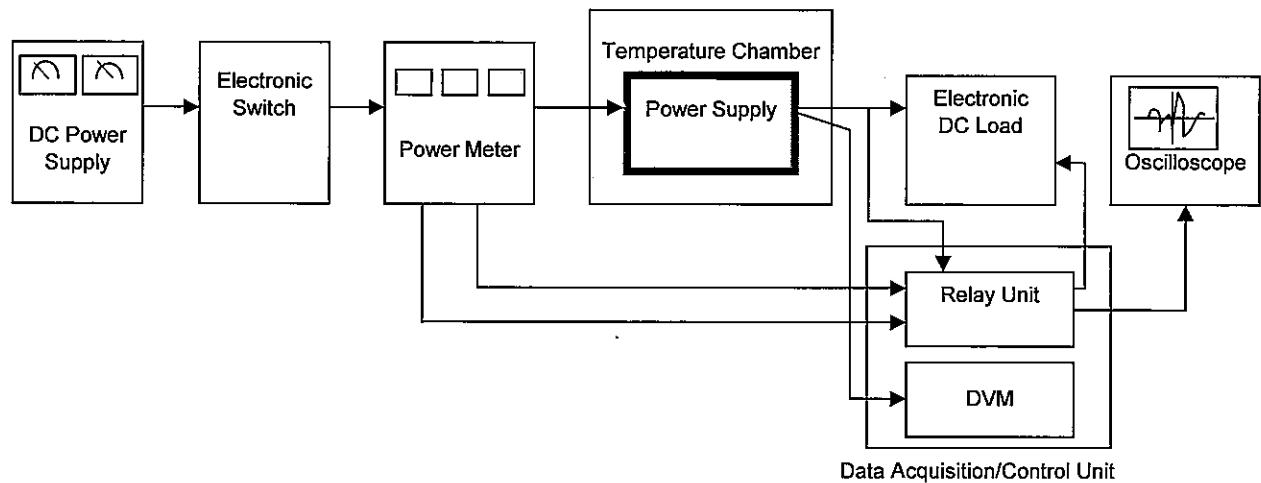


Figure A

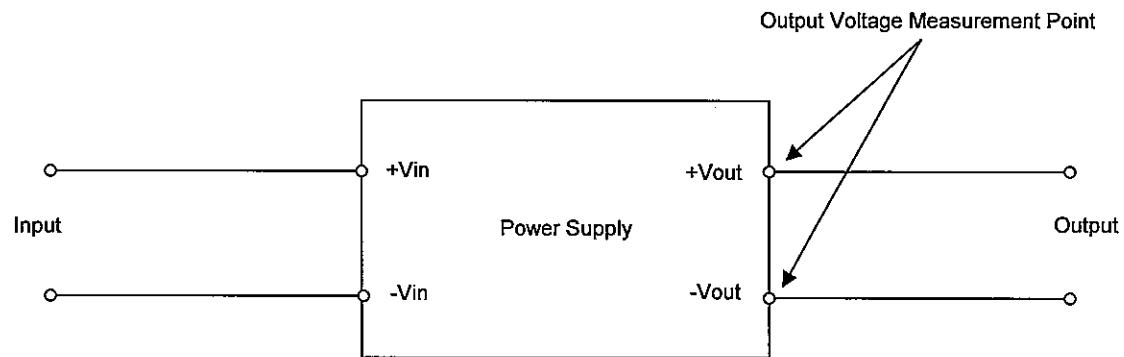


Figure B (General Electric Characteristic)

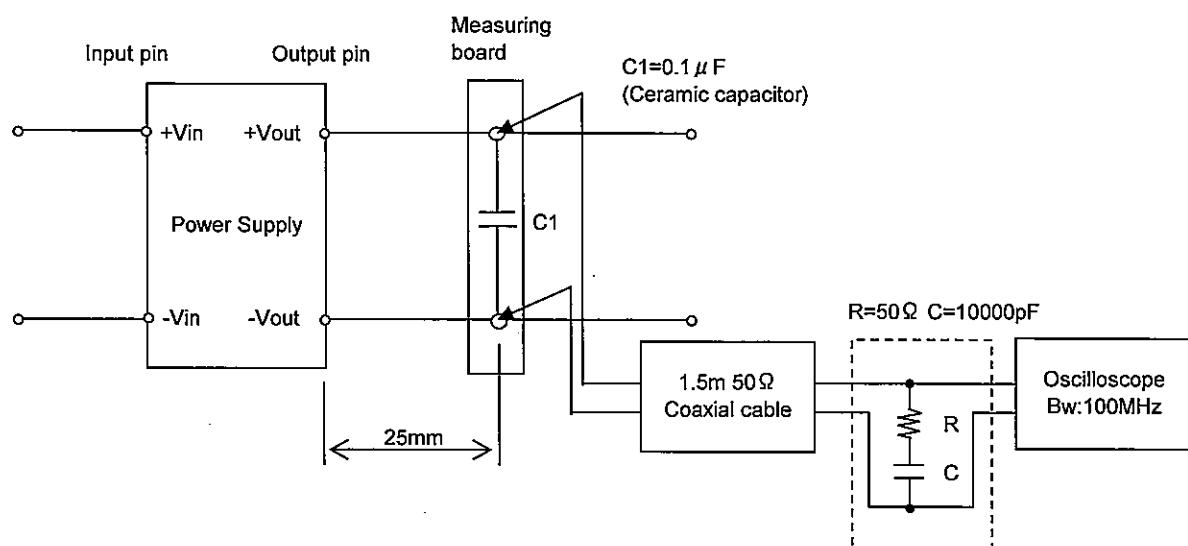


Figure C (Ripple and Ripple noise Characteristic)