



TEST DATA OF SFS302415/SFCS302415

Regulated DC Power Supply
May.29. 2007

Approved by : Toshiyuki Tsuri
Toshiyuki Tsuri Design Manager

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Kenichi Shibutani Design Engineer

COSEL CO.,LTD.

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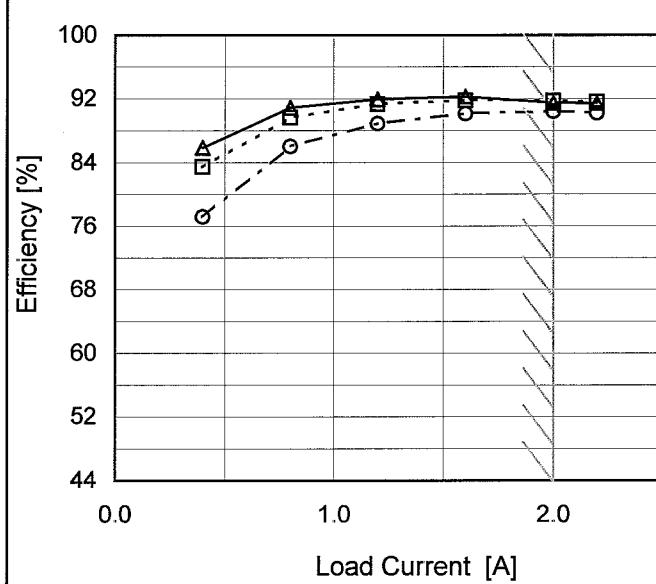
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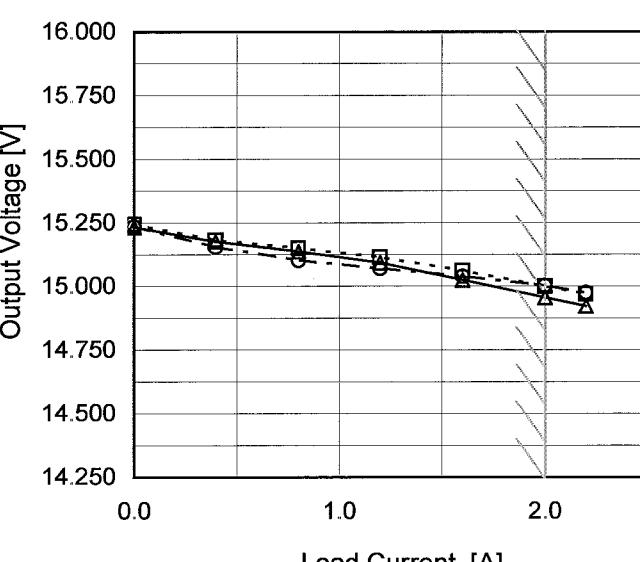
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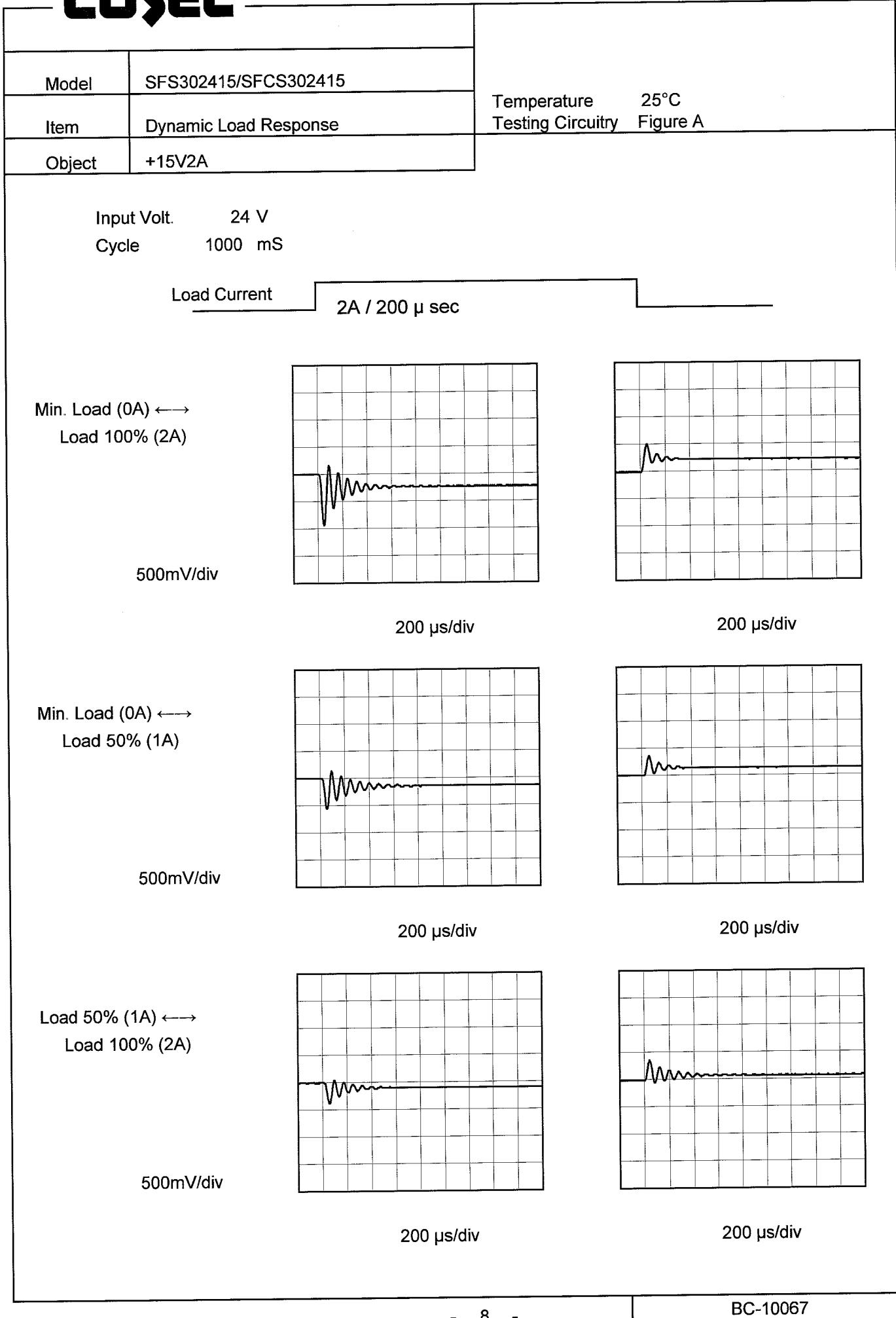
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<p>The graph shows efficiency data for two load conditions: Load 50% (dashed line with squares) and Load 100% (solid line with triangles). The x-axis represents Input Voltage [V] from 10 to 50, and the y-axis represents Efficiency [%] from 44 to 100. The efficiency remains relatively constant around 90-92% across the input voltage range for both load levels. A slanted line on the graph indicates the rated input voltage range.</p>																																		
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Model	SFS302415/SFCS302415	Temperature 25°C Testing Circuitry Figure A																																																					
Item	Load Regulation																																																						
Object	+15V2A																																																						
1.Graph	<p>—△— Input Volt. 18V - - -□--- Input Volt. 24V - - ○--- Input Volt. 36V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																					
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Model	SFS302415/SFCS302415	Temperature Testing Circuitry 25°C Figure C																							
Item	Ripple Voltage (by Load Current)																								
Object	+15V2A																								
1. Graph		2. Values																							
<p>The graph plots Ripple Voltage [mV] on the Y-axis (0 to 120) against Load Current [A] on the X-axis (0.0 to 2.5). Two data series are shown: Input Volt. 18V (solid triangles) and Input Volt. 36V (dashed circles). Both series show a slight increase in ripple voltage as load current increases. A slanted line on the right side of the graph indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (18V)</th> <th>Ripple Voltage [mV] (36V)</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>31</td><td>48</td></tr> <tr><td>0.4</td><td>31</td><td>49</td></tr> <tr><td>0.8</td><td>31</td><td>49</td></tr> <tr><td>1.2</td><td>32</td><td>50</td></tr> <tr><td>1.6</td><td>32</td><td>51</td></tr> <tr><td>2.0</td><td>33</td><td>52</td></tr> <tr><td>2.2</td><td>34</td><td>52</td></tr> </tbody> </table>		Load Current [A]	Ripple Voltage [mV] (18V)	Ripple Voltage [mV] (36V)	0.0	31	48	0.4	31	49	0.8	31	49	1.2	32	50	1.6	32	51	2.0	33	52	2.2	34	52
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<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>																									

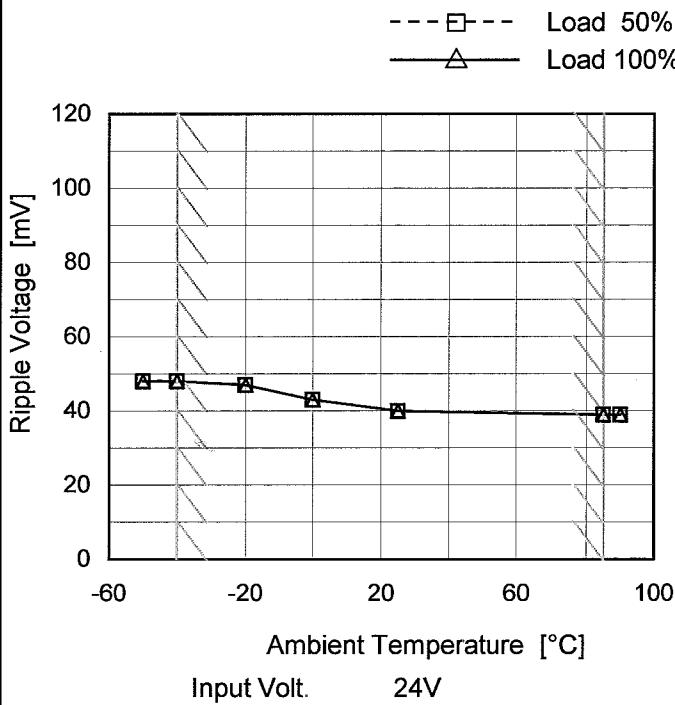
Model	SFS302415/SFCS302415																																						
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Object	+15V2A																																						
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Fig.Complex Ripple Noise Wave Form																																							

Model	SFS302415/SFCS302415
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Item	Ripple Voltage (by Ambient Temp.)
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Object	+15V2A
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1. Graph



Measured by 100 MHz Oscilloscope.

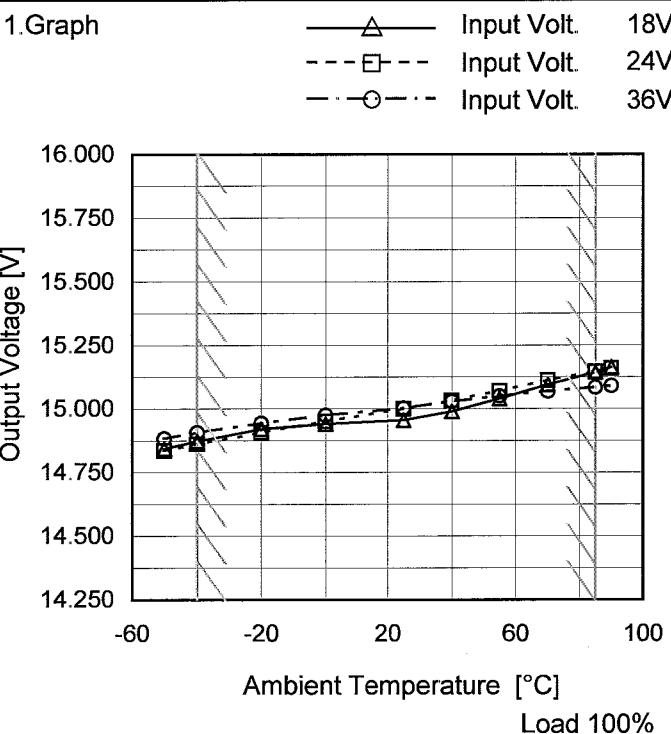
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure C

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	48	48
-40	48	48
-20	47	47
0	43	43
25	40	40
85	39	39
90	39	39
--	-	-
--	-	-
--	-	-
--	-	-

Model	SFS302415/SFCS302415
Item	Ambient Temperature Drift
Object	+15V2A



Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-50	14.845	14.836	14.883
-40	14.873	14.862	14.907
-20	14.921	14.908	14.944
0	14.942	14.951	14.976
25	14.956	15.001	15.003
40	14.990	15.033	15.029
55	15.041	15.071	15.051
70	15.096	15.113	15.070
85	15.144	15.147	15.085
90	15.164	15.159	15.091
--	-	-	-

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



Model	SFS302415/SFCS302415
Item	Output Voltage Accuracy
Object	+15V2A

Testing Circuitry Figure A

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 : 18 - 36V

Load Current : 0 - 2A

* 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	18	0	15.447	± 293	± 2.0
Minimum Voltage	-40	24	2.5	14.862		

Model	SFS302415/SFCS302415	Temperature Testing Circuitry 25°C Figure A																						
Item	Time Lapse Drift																							
Object	+15V2A																							
1. Graph		2. Values																						
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 24V 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>15.004</td></tr> <tr><td>0.5</td><td>15.001</td></tr> <tr><td>1.0</td><td>15.001</td></tr> <tr><td>2.0</td><td>15.001</td></tr> <tr><td>3.0</td><td>15.001</td></tr> <tr><td>4.0</td><td>15.001</td></tr> <tr><td>5.0</td><td>15.001</td></tr> <tr><td>6.0</td><td>15.001</td></tr> <tr><td>7.0</td><td>15.001</td></tr> <tr><td>8.0</td><td>15.001</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	15.004	0.5	15.001	1.0	15.001	2.0	15.001	3.0	15.001	4.0	15.001	5.0	15.001	6.0	15.001	7.0	15.001	8.0	15.001
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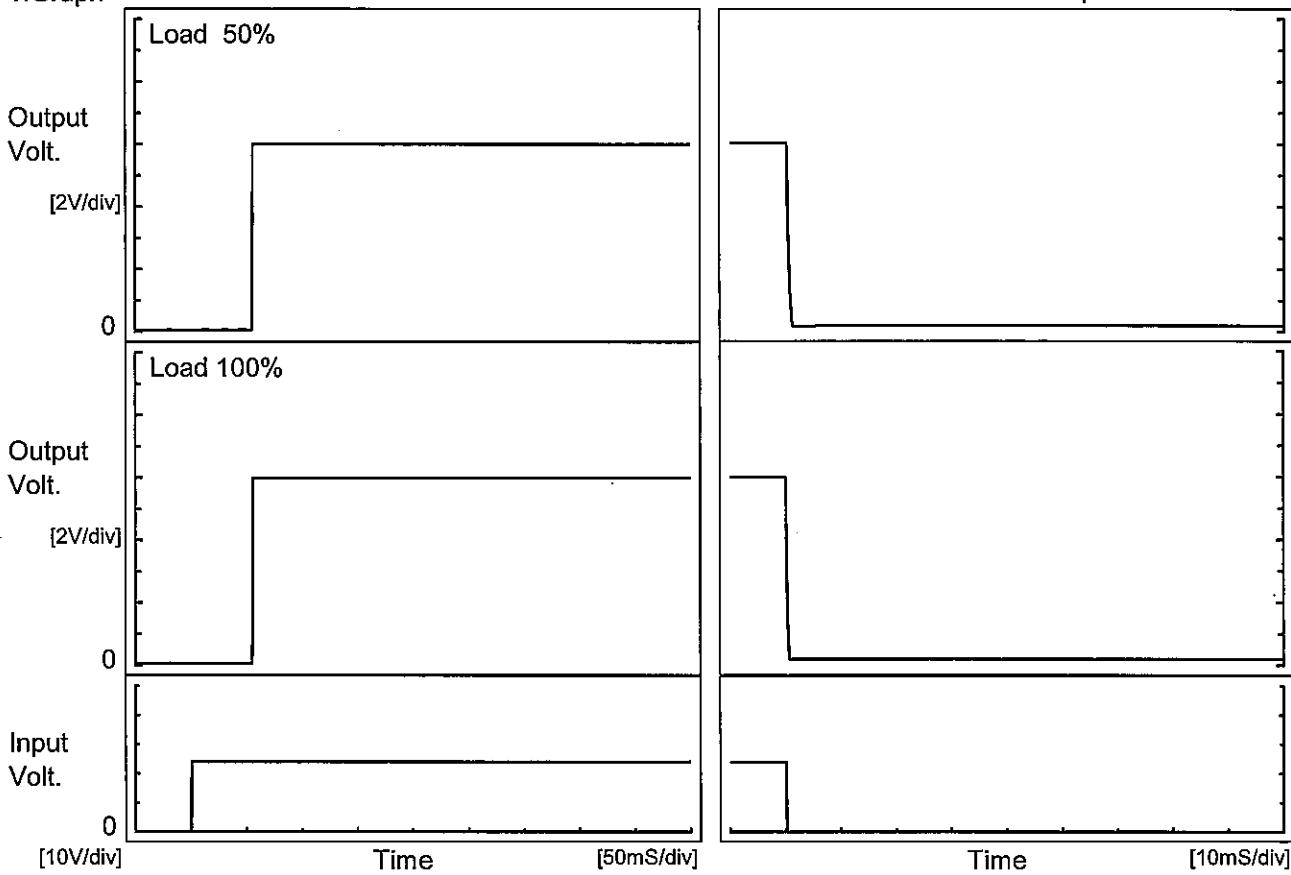
Model SFS302415/SFCS302415

Item Rise and Fall Time

Object +15V2A

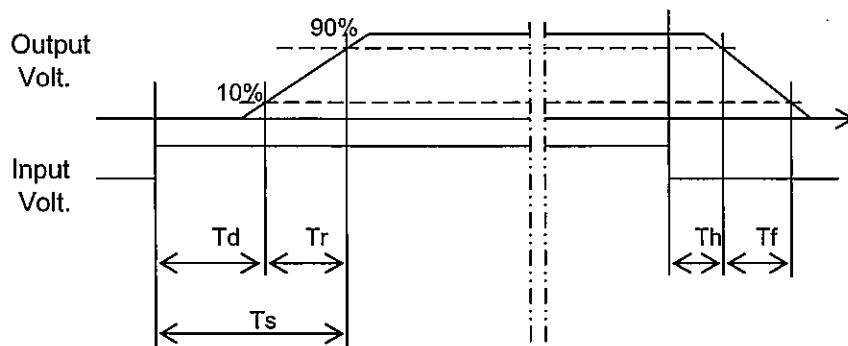
Temperature 25°C
Testing Circuitry Figure A

1. Graph

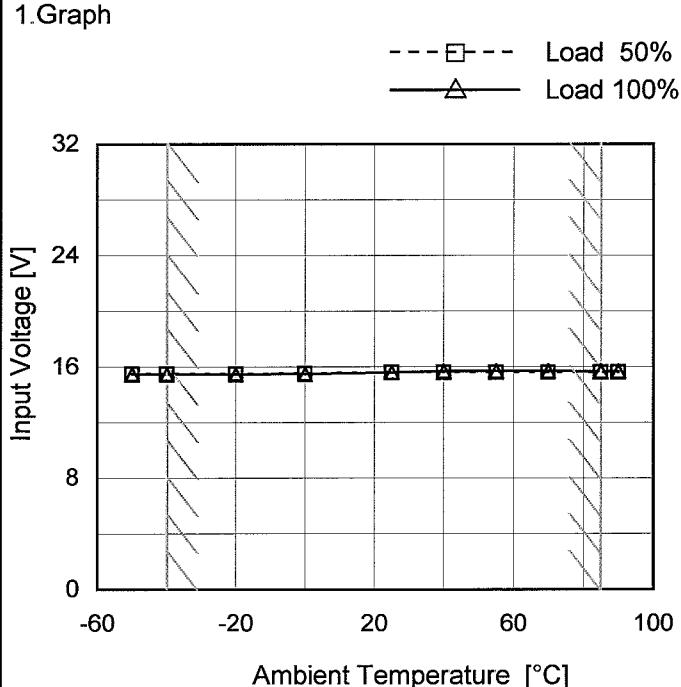


2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[mS]
50 %		55.3	0.5	55.8	0.1	0.8	
100 %		54.5	0.5	55.0	0.1	0.5	



Model	SFS302415/SFCS302415
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V2A

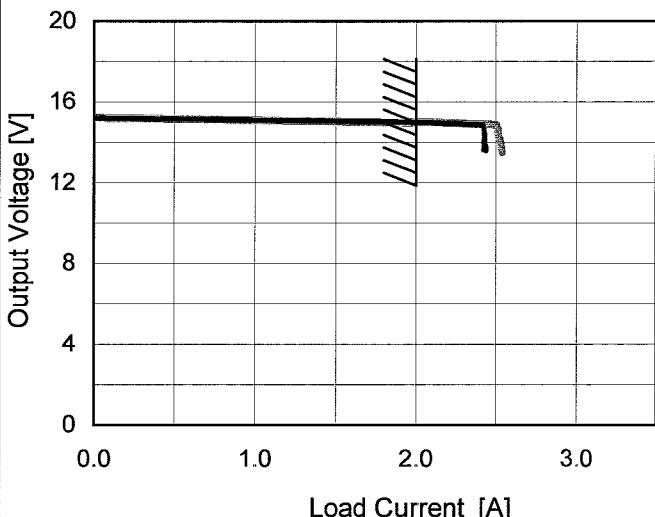


Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	15.5	15.5
-40	15.5	15.5
-20	15.5	15.5
0	15.6	15.5
25	15.7	15.6
40	15.7	15.7
55	15.7	15.7
70	15.7	15.7
85	15.7	15.7
90	15.7	15.7
--	-	-

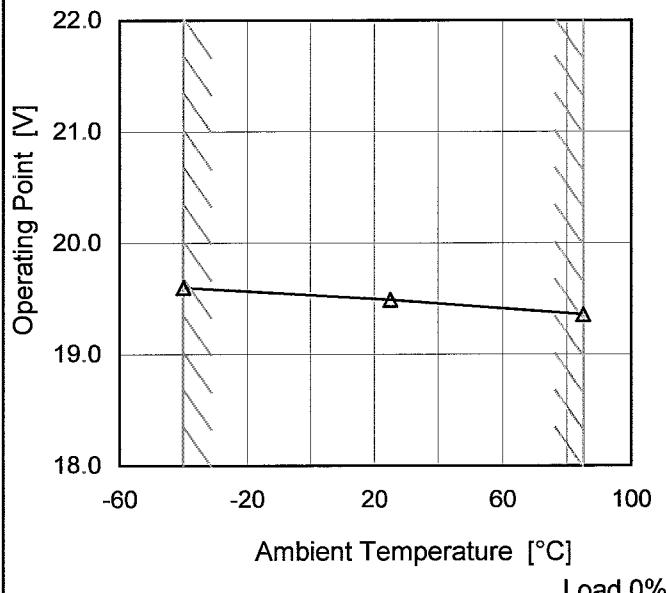
Note: Slanted line shows the range of the rated ambient temperature.

Model	SFS302415/SFCS302415	Temperature Testing Circuitry 25°C Figure A																																																															
Item	Overcurrent Protection																																																																
Object	+15V2A																																																																
1.Graph	<p>Input Volt. 18V Input Volt. 24V Input Volt. 36V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																															
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	<p>Note: Slanted line shows the range of the rated load current.</p> <p>When the output voltage fell to less than 13.5V, the unit shuts off the output by operating low voltage protection.</p>																																																																

Model	SFS302415/SFCS302415
Item	Overvoltage Protection
Object	+15V2A

1. Graph

—△— Input Volt. 24V



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. 24[V]	Input Volt.	Input Volt.
-40	19.60	-	-
25	19.49	-	-
85	19.36	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

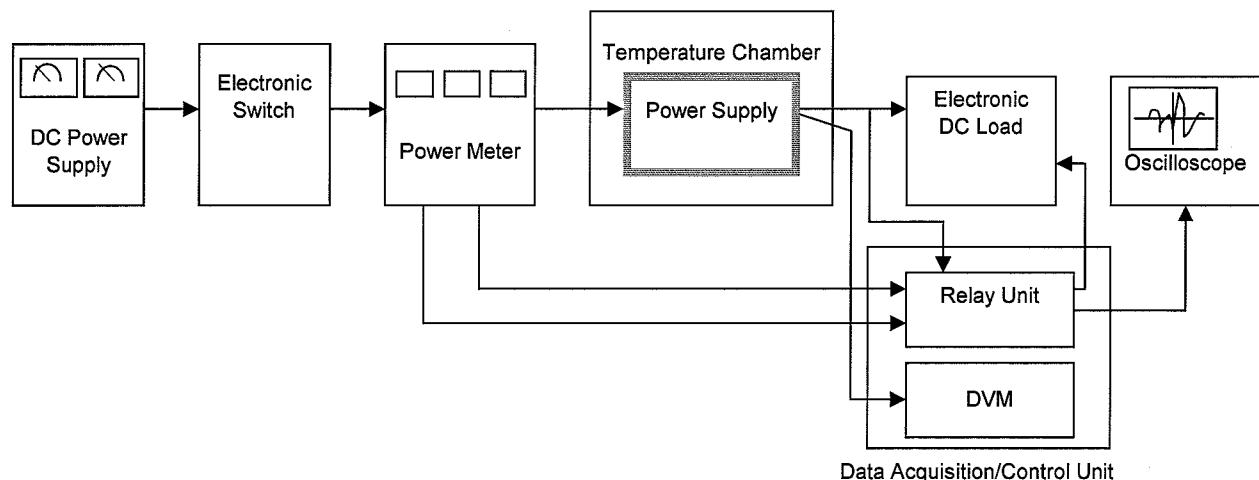


Figure A

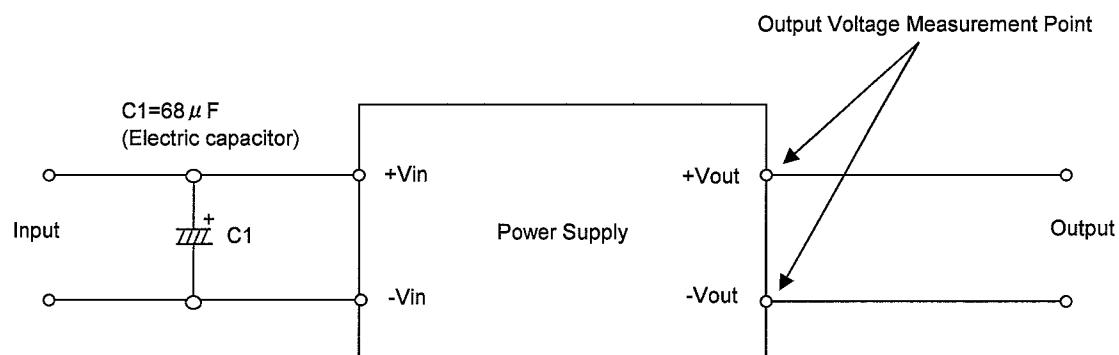


Figure B (General Electric Characteristic)

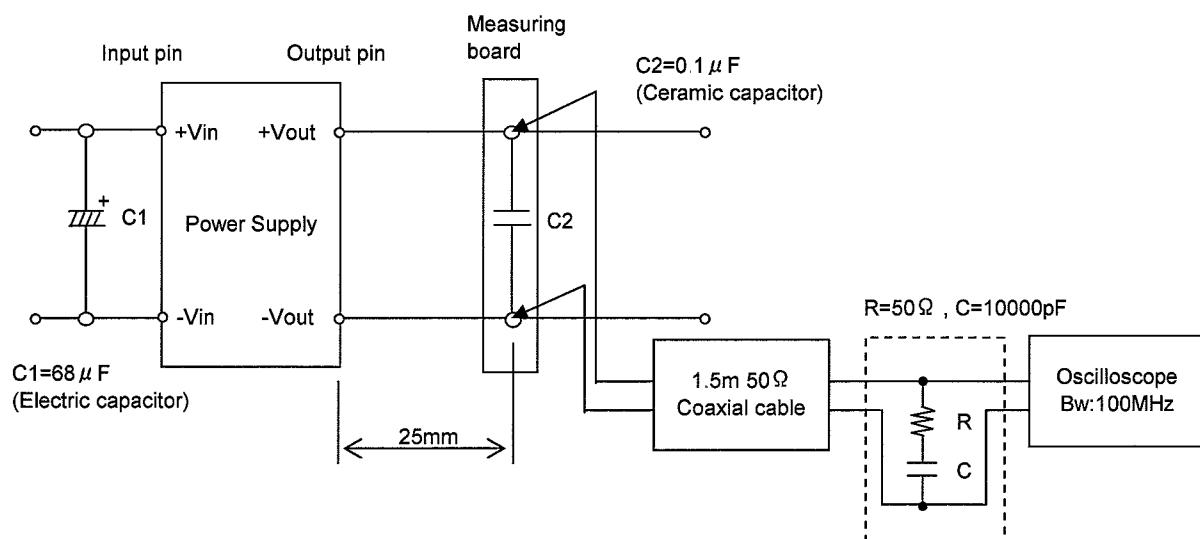


Figure C (Ripple and Ripple noise Characteristic)