

TEST DATA OF SFS30242R5

Regulated DC Power Supply
Dec 28,2004

Approved by : Isao Yasuda
Isao Yasuda Design Manager

Prepared by : Tatsuya Mano
Tatsuya Mano Design Engineer

COSEL CO.,LTD.

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Model		SFS30242R5		Temperature 25°C																																																																								
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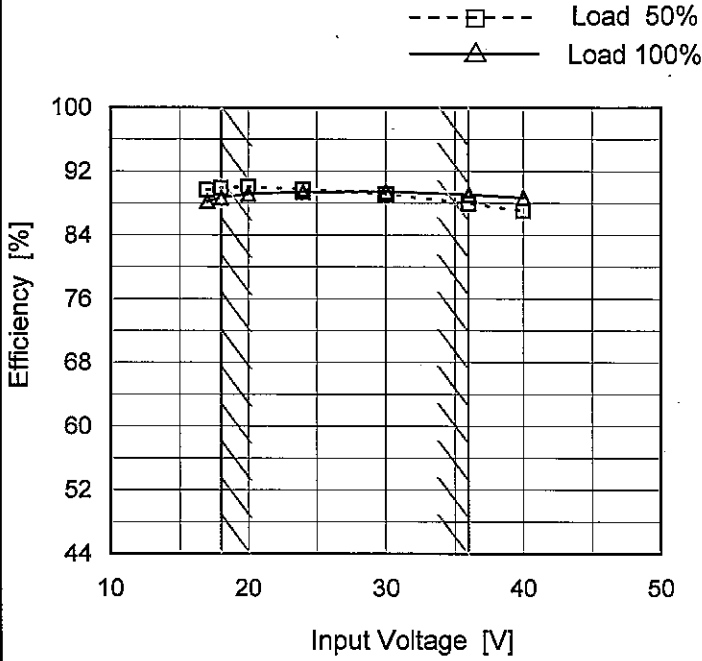
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Model	SFS30242R5
Item	Efficiency (by Input Voltage)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

2. Values

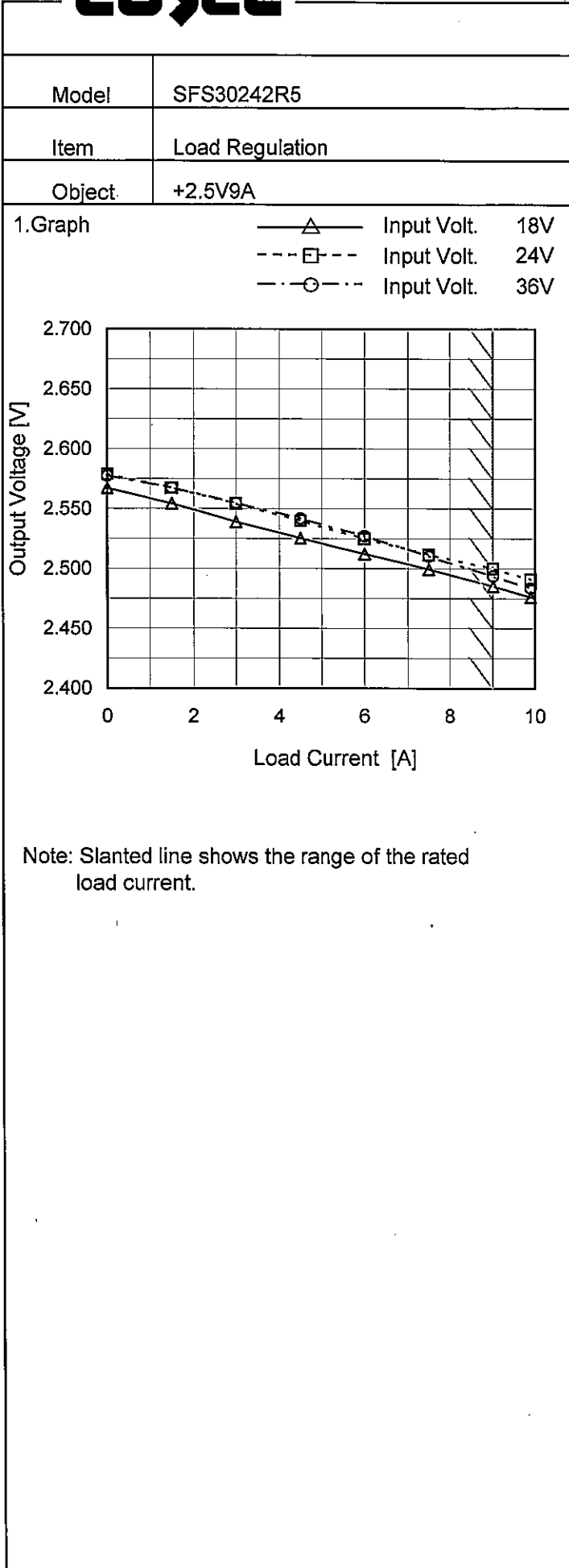
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	89.7	88.3
18	89.9	88.7
20	90.1	89.2
24	89.7	89.4
30	89.2	89.5
36	88.0	89.1
40	87.0	88.7
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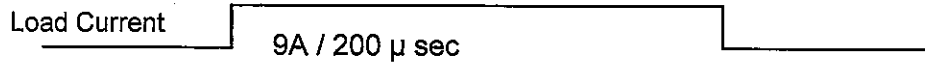
Temperature 25°C
Testing Circuitry Figure A

2.Values

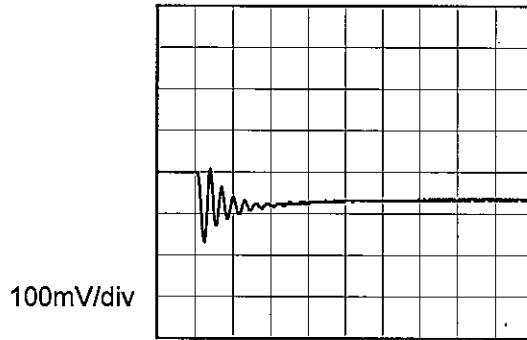
Load Current [A]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	2.567	2.579	2.578
1.5	2.554	2.567	2.567
3.0	2.539	2.554	2.555
4.5	2.526	2.540	2.542
6.0	2.512	2.525	2.527
7.5	2.500	2.512	2.510
9.0	2.485	2.500	2.494
9.9	2.476	2.491	2.484
--	-	-	-
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--	-	-	-

Model	SFS30242R5	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+2.5V9A		

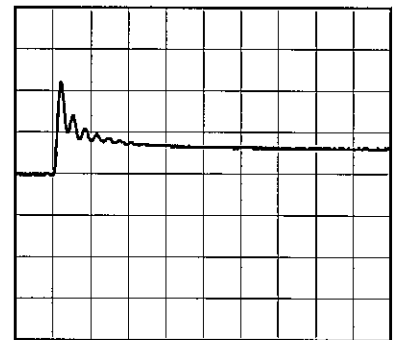
Input Volt. 24 V
Cycle 1000 mS

Load Current  9A / 200 μ sec

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

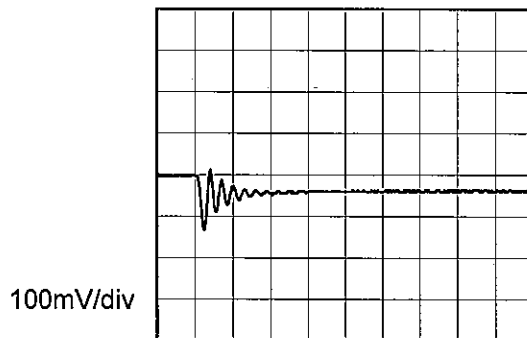


200 μ s/div

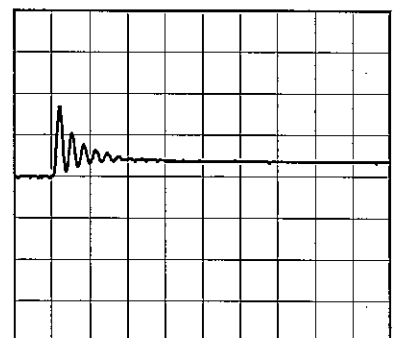


200 μ s/div

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

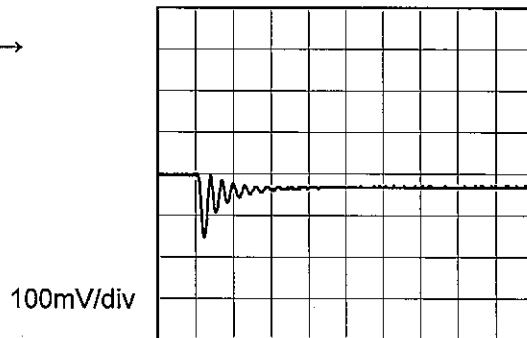


200 μ s/div

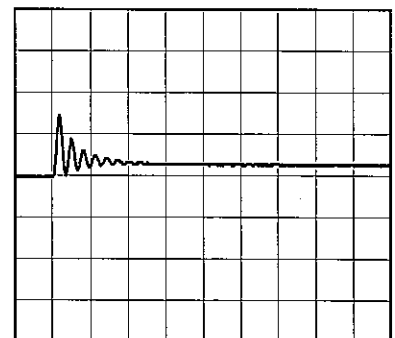


200 μ s/div

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



200 μ s/div

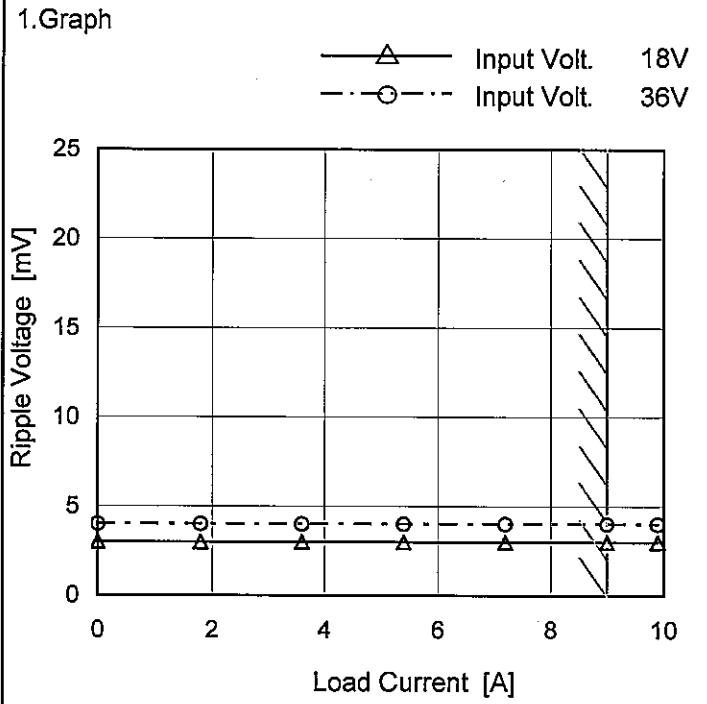


200 μ s/div



Model	SFS30242R5
Item	Ripple Voltage (by Load Current)
Object	+2.5V9A

Temperature 25°C
Testing Circuitry Figure C



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [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
9.9	3	4
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

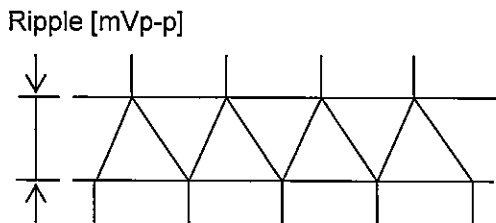


Fig. Complex Ripple Wave Form

Model		SFS30242R5		Temperature 25°C																																							
Item		Ripple-Noise		Testing Circuitry Figure C																																							
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<p>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.</p>																																											
<p>Fig.Complex Ripple Noise Wave Form</p>																																											



Model		SFS30242R5	Testing Circuitry Figure C																																							
Item		Ripple Voltage (by Ambient Temp.)																																								
Object		+2.5V9A																																								
1.Graph			2.Values																																							
<p> ---□--- Load 50% —△— Load 100% </p> <p> Input Volt. 24V </p>			<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>-50</td><td>10</td><td>10</td></tr> <tr><td>-40</td><td>9</td><td>9</td></tr> <tr><td>-20</td><td>6</td><td>6</td></tr> <tr><td>0</td><td>5</td><td>5</td></tr> <tr><td>25</td><td>4</td><td>4</td></tr> <tr><td>85</td><td>3</td><td>3</td></tr> <tr><td>90</td><td>3</td><td>3</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>		Ambient Temperature [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-50	10	10	-40	9	9	-20	6	6	0	5	5	25	4	4	85	3	3	90	3	3	--	-	-	--	-	-	--	-	-	--	-	-
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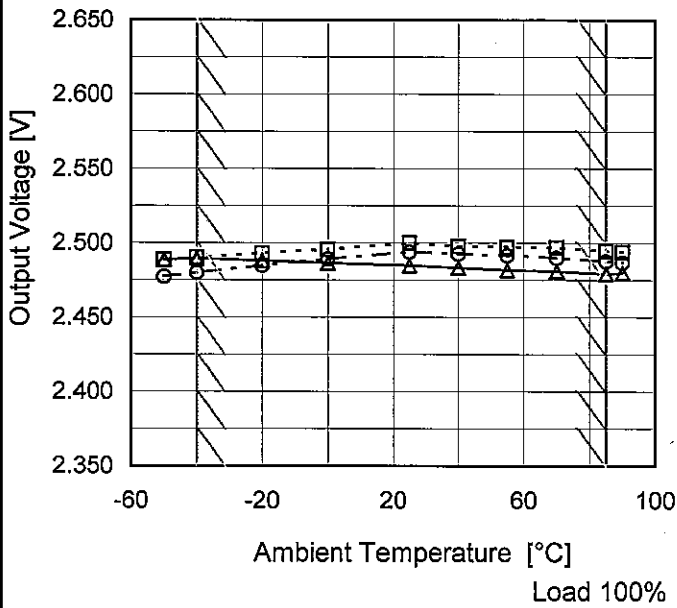


Model	SFS30242R5
Item	Ambient Temperature Drift
Object	+2.5V9A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 18V
 ---□--- Input Volt. 24V
 -·-○-·- Input Volt. 36V



2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-50	2.489	2.489	2.477
-40	2.490	2.490	2.480
-20	2.488	2.493	2.485
0	2.487	2.496	2.489
25	2.485	2.500	2.494
40	2.484	2.498	2.493
55	2.482	2.497	2.492
70	2.481	2.497	2.490
85	2.479	2.495	2.488
90	2.480	2.494	2.487
--	-	-	-

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



Model		SFS30242R5	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+2.5V9A	

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 - 9A

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

* 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	24	0	2.592	±56	±2.2
Minimum Voltage	-40	36	9	2.480		



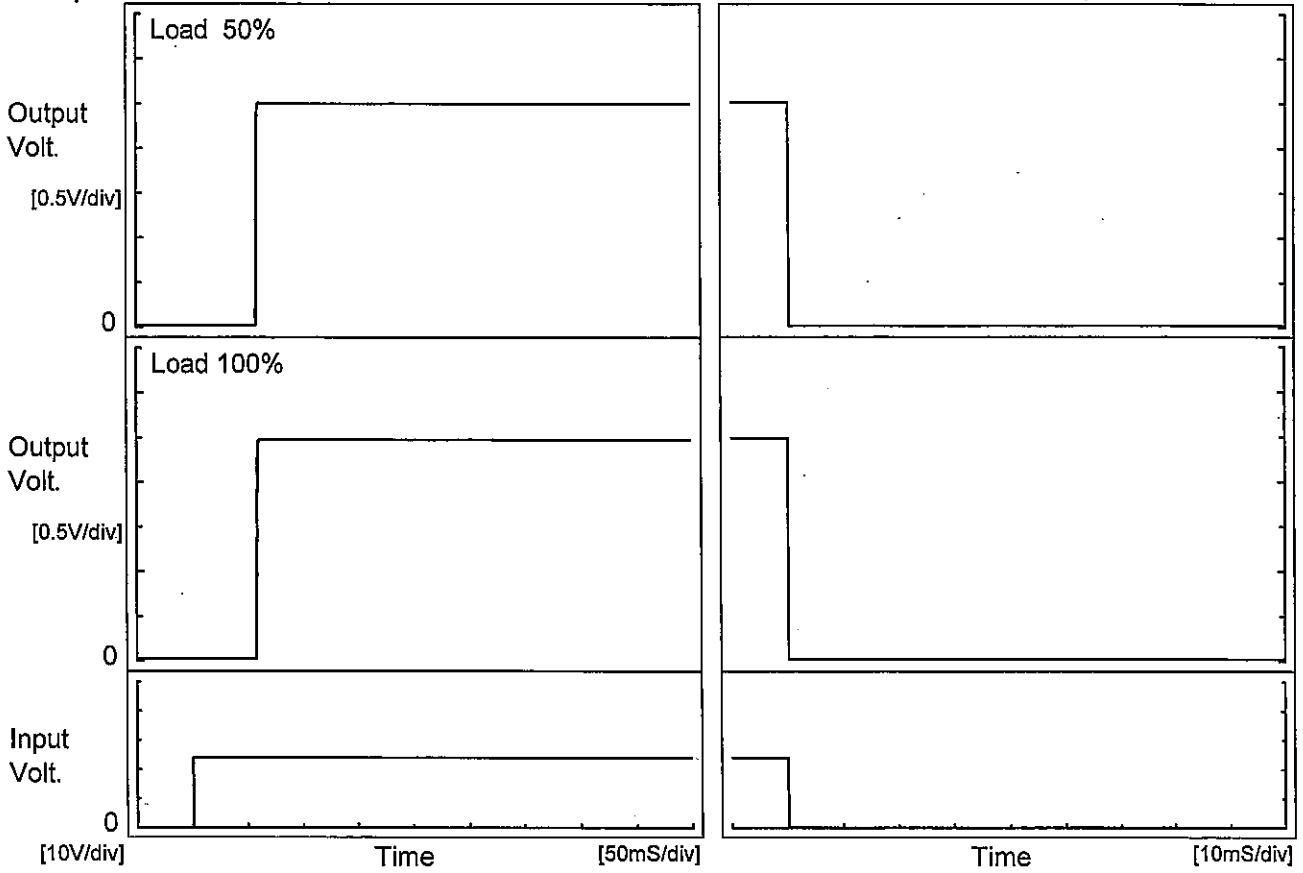
COSEL																								
Model	SFS30242R5	Temperature 25°C Testing Circuitry Figure A																						
Item	Time Lapse Drift																							
Object	+2.5V9A																							
1.Graph		2.Values																						
<p style="text-align: center;">Time [H]</p> <p>Input Volt. 24V Load 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>2.499</td></tr> <tr><td>0.5</td><td>2.500</td></tr> <tr><td>1.0</td><td>2.500</td></tr> <tr><td>2.0</td><td>2.500</td></tr> <tr><td>3.0</td><td>2.500</td></tr> <tr><td>4.0</td><td>2.500</td></tr> <tr><td>5.0</td><td>2.500</td></tr> <tr><td>6.0</td><td>2.500</td></tr> <tr><td>7.0</td><td>2.500</td></tr> <tr><td>8.0</td><td>2.500</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	2.499	0.5	2.500	1.0	2.500	2.0	2.500	3.0	2.500	4.0	2.500	5.0	2.500	6.0	2.500	7.0	2.500	8.0	2.500
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Model	SFS30242R5	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+2.5V9A		

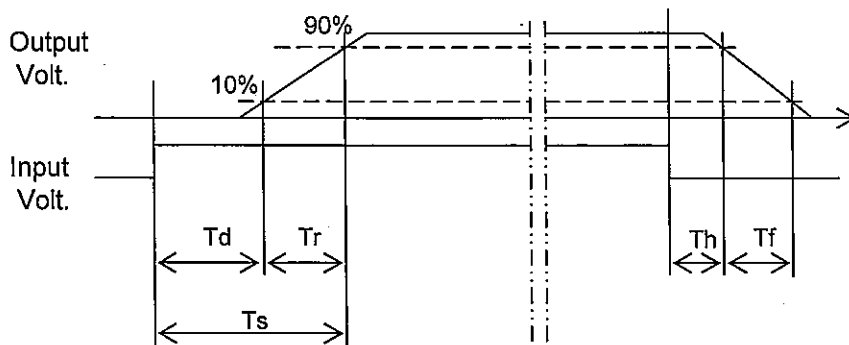
1. Graph

Input Volt. 24 V



2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		58.3	0.5	58.8	0.1	0.5
100 %		58.0	0.5	58.5	0.1	0.2

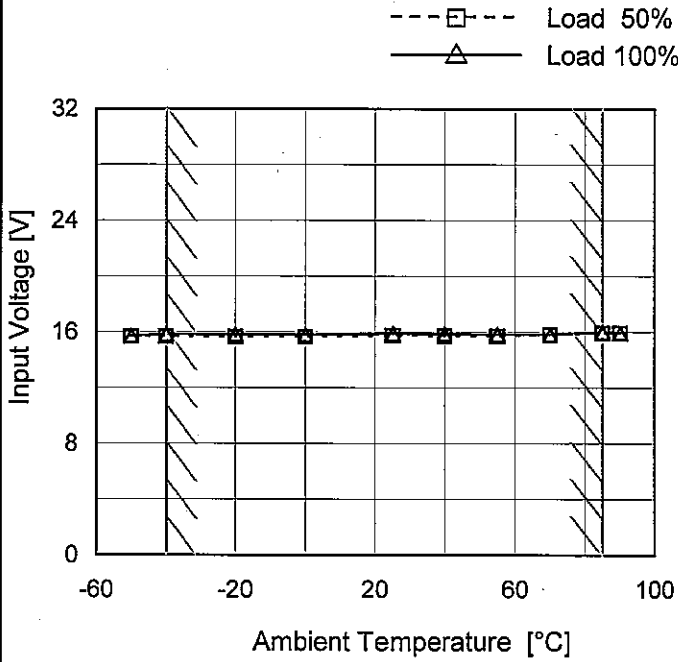




Model	SFS30242R5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+2.5V9A

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%
-50	15.7	15.8
-40	15.7	15.9
-20	15.7	15.9
0	15.7	15.9
25	15.8	15.9
40	15.8	15.9
55	15.8	15.9
70	15.9	15.9
85	16.0	16.0
90	16.0	16.0
--	-	-



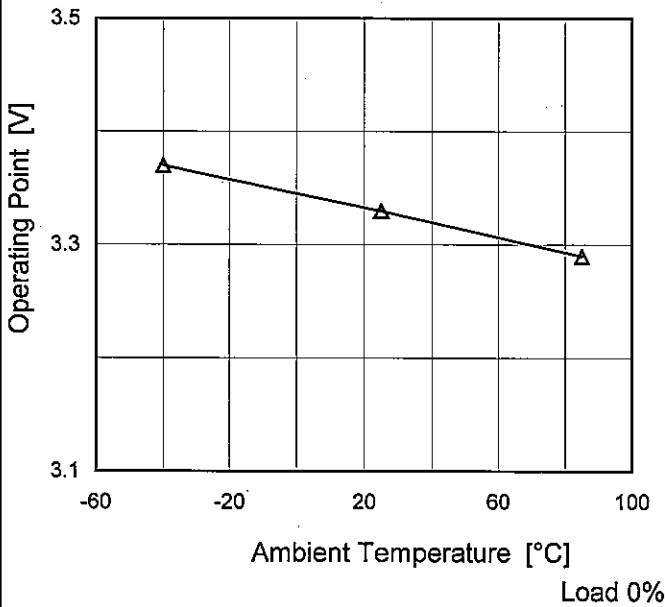
<p>Model SFS30242R5</p>		<p>Temperature 25°C</p>																																																												
<p>Item Overcurrent Protection</p>		<p>Testing Circuitry Figure A</p>																																																												
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<p>1. Graph</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>— Input Volt. 18V</p> <p>— Input Volt. 24V</p> <p>— Input Volt. 36V</p> </div> </div> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>When the output voltage fell to less than 2.25V ,the unit shuts off the output by operating low voltage protection .</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. 18[V]</th> <th>Input Volt. 24[V]</th> <th>Input Volt. 36[V]</th> </tr> </thead> <tbody> <tr> <td>2.50</td> <td>9.66</td> <td>9.10</td> <td>9.74</td> </tr> <tr> <td>2.38</td> <td>10.70</td> <td>10.78</td> <td>10.91</td> </tr> <tr> <td>2.25</td> <td>10.67</td> <td>10.77</td> <td>10.92</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> <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> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	2.50	9.66	9.10	9.74	2.38	10.70	10.78	10.91	2.25	10.67	10.77	10.92	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Model	SFS30242R5
Item	Oversvoltage Protection
Object	+2.5V9A

Testing Circuitry Figure A

1. Graph —△— Input Volt. 24V



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

2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 24[V]	Input Volt.	Input Volt.
-40	3.37	-	-
25	3.33	-	-
85	3.29	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

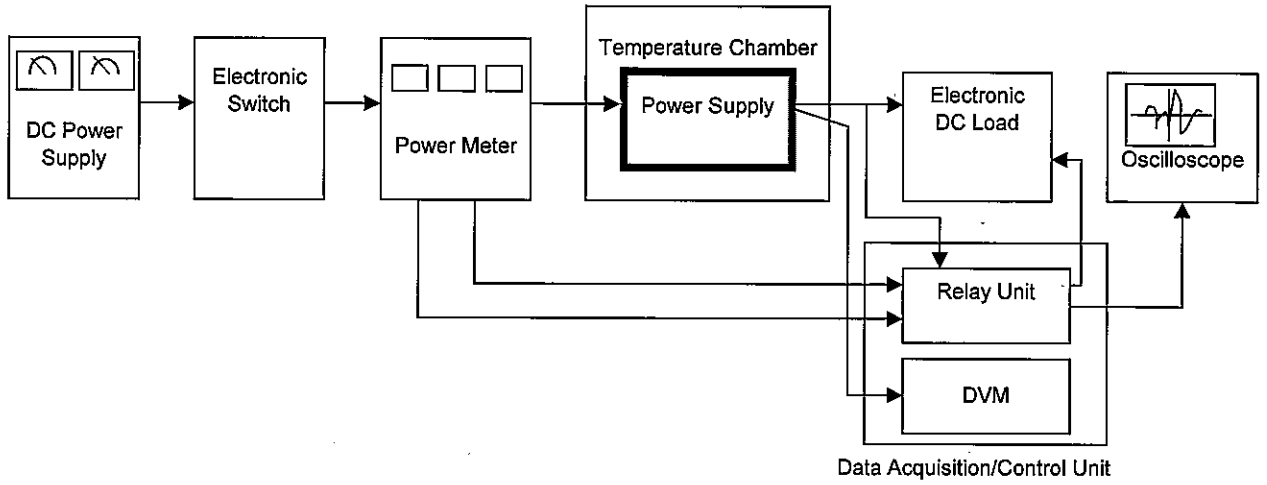


Figure A

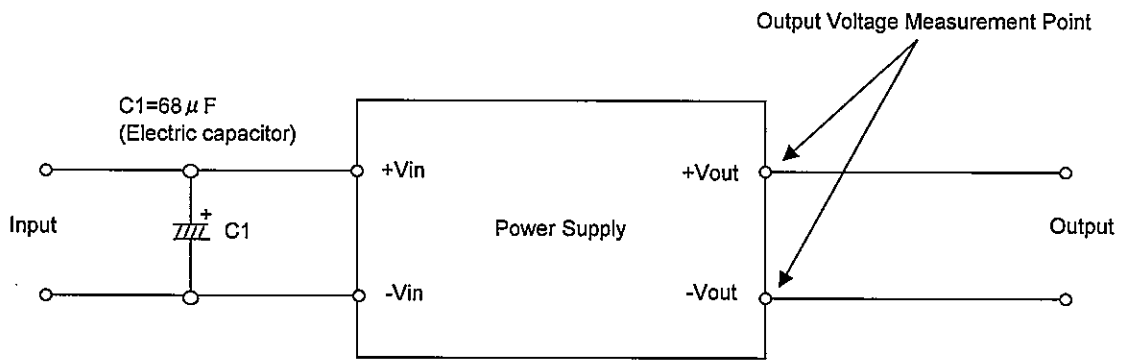


Figure B (General Electric Characteristic)

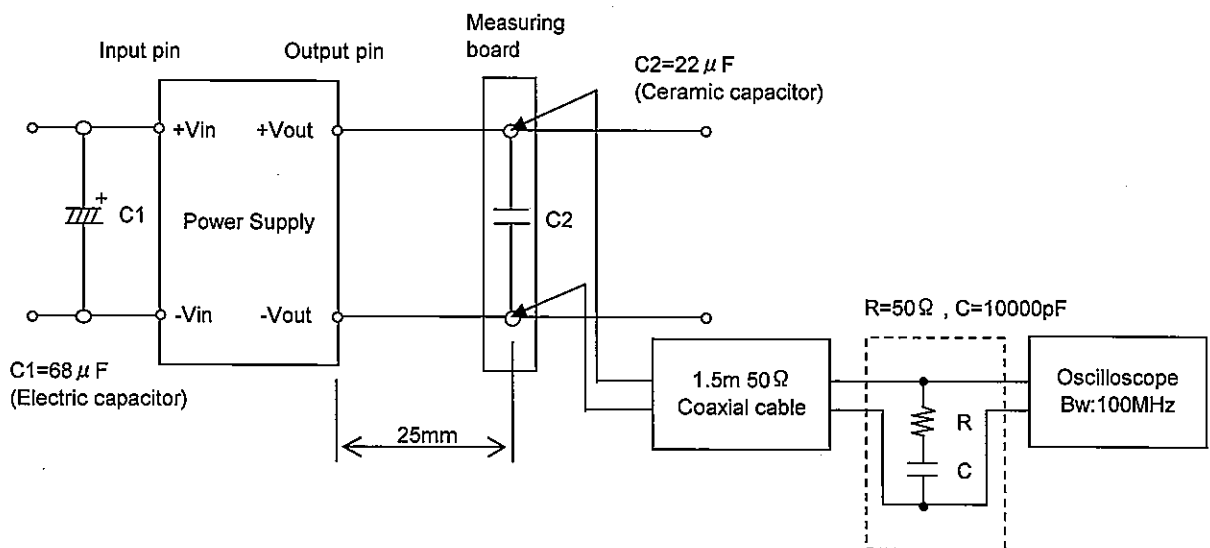


Figure C (Ripple and Ripple noise Characteristic)