

TEST DATA OF SFS304810

Regulated DC Power Supply
Apr.5. 2004

Approved by : Isao Yasuda Design Manager

Prepared by : Tatsuya Mano Design Engineer

COSEL CO.,LTD.

CONTENTS

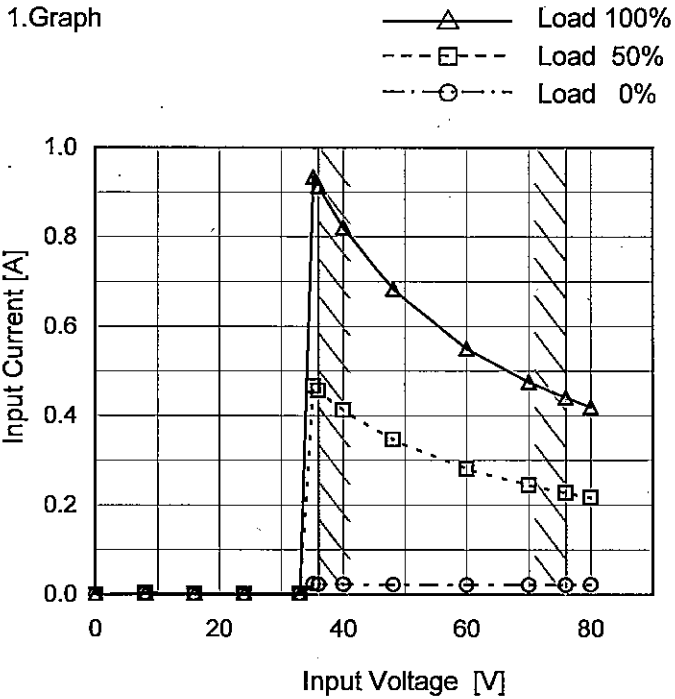
1.Input Current (by Input Voltage)	1
2.Input Current (by Load Current)	2
3.Input Power (by Load Current)	3
4.Efficiency (by Input Voltage)	4
5.Efficiency (by Load Current)	5
6.Line Regulation	6
7.Load Regulation	7
8.Dynamic Load Response	8
9.Ripple Voltage (by Load Current)	9
10.Ripple-Noise	10
11.Ripple Voltage (by Ambient Temperature)	11
12.Ambient Temperature Drift	12
13.Output Voltage Accuracy	13
14.Time Lapse Drift	14
15.Rise and Fall Time	15
16.Minimum Input Voltage for Regulated Output Voltage	16
17.Overcurrent Protection	17
18.Overvoltage Protection	18
19.Figure of Testing Circuitry	19

(Final Page 19)



Model	SFS304810
Item	Input Current (by Input Voltage)
Object	_____

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	0.003	0.003	0.003
16	0.002	0.002	0.002
24	0.002	0.002	0.002
33	0.002	0.002	0.002
35	0.023	0.467	0.934
36	0.023	0.457	0.914
40	0.023	0.413	0.821
48	0.022	0.347	0.684
60	0.022	0.282	0.551
70	0.022	0.245	0.476
76	0.022	0.228	0.441
80	0.022	0.217	0.419
-	-	-	-
-	-	-	-
-	-	-	-

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



Model		SFS304810		Temperature 25°C																																																				
Item		Input Current (by Load Current)		Testing Circuitry Figure A																																																				
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1.Graph		<p>—△— Input Volt. 36V</p> <p>- - -□- - Input Volt. 48V</p> <p>- - -○- - Input Volt. 76V</p>		2.Values																																																				
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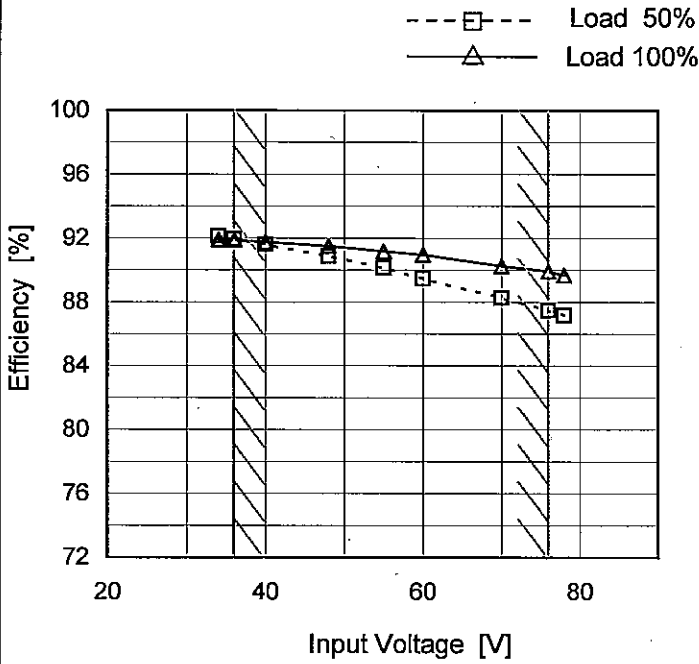
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Model	SFS304810
Item	Efficiency (by Input Voltage)
Object	_____

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%
34	92.1	91.9
36	91.9	91.9
40	91.6	91.7
48	90.9	91.5
55	90.1	91.2
60	89.5	91.0
70	88.3	90.3
76	87.5	89.9
78	87.2	89.7



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Model		SFS304810	Temperature		25°C																																
Item		Line Regulation	Testing Circuitry		Figure A																																
Object		+10V3A																																			
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<p>Legend: ---□--- Load 50% —△— Load 100%</p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>34</td><td>10.121</td><td>10.051</td></tr> <tr><td>36</td><td>10.122</td><td>10.048</td></tr> <tr><td>40</td><td>10.121</td><td>10.041</td></tr> <tr><td>48</td><td>10.121</td><td>10.033</td></tr> <tr><td>55</td><td>10.122</td><td>10.028</td></tr> <tr><td>60</td><td>10.121</td><td>10.025</td></tr> <tr><td>70</td><td>10.118</td><td>10.024</td></tr> <tr><td>76</td><td>10.112</td><td>10.024</td></tr> <tr><td>78</td><td>10.110</td><td>10.024</td></tr> </tbody> </table>			Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	34	10.121	10.051	36	10.122	10.048	40	10.121	10.041	48	10.121	10.033	55	10.122	10.028	60	10.121	10.025	70	10.118	10.024	76	10.112	10.024	78	10.110	10.024
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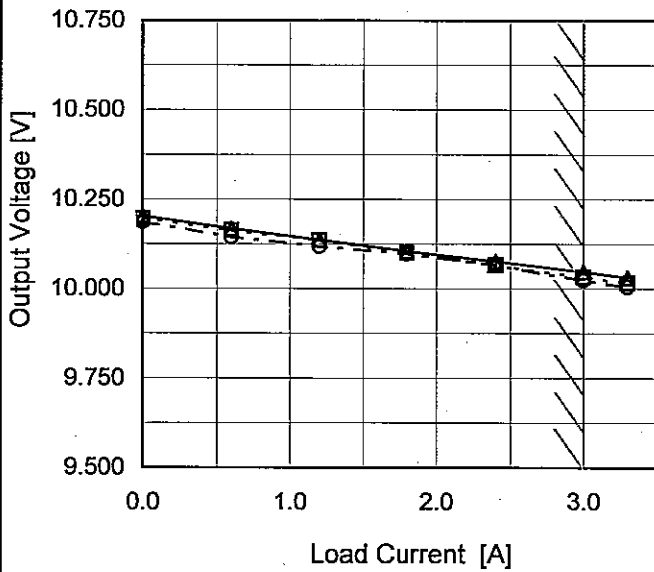


Model	SFS304810
Item	Load Regulation
Object	+10V3A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

- △— Input Volt. 36V
- - -□- - - Input Volt. 48V
- - -○- - - Input Volt. 76V



2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	10.203	10.197	10.187
0.6	10.168	10.164	10.144
1.2	10.137	10.136	10.119
1.8	10.105	10.101	10.098
2.4	10.076	10.067	10.067
3.0	10.048	10.033	10.024
3.3	10.032	10.017	10.006
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

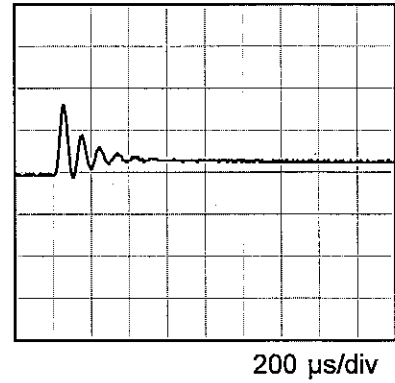
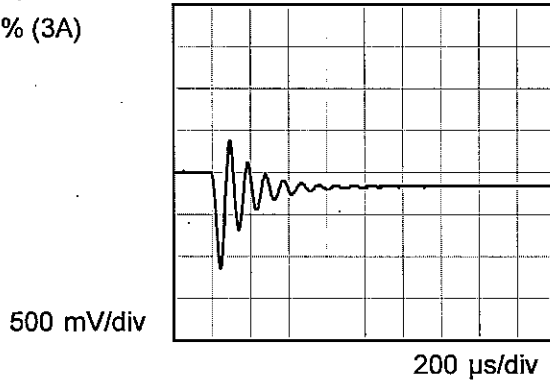
Note: Slanted line shows the range of the rated load current.

Model	SFS304810	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+10V3A		

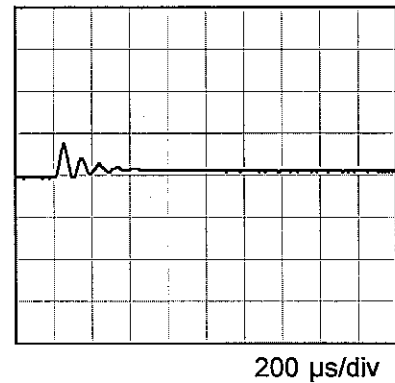
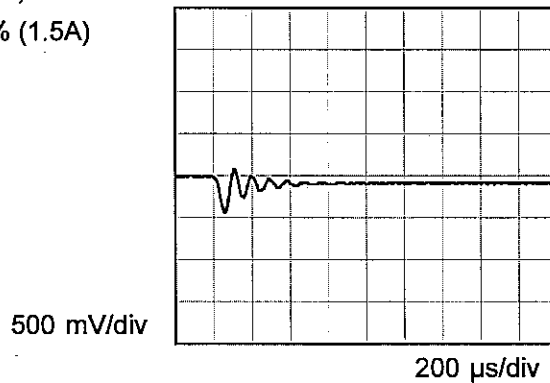
Input Volt. 48 V
 Cycle 1000 ms

Load Current 3A / 200 μ s

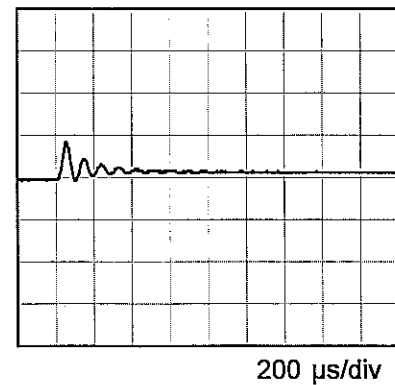
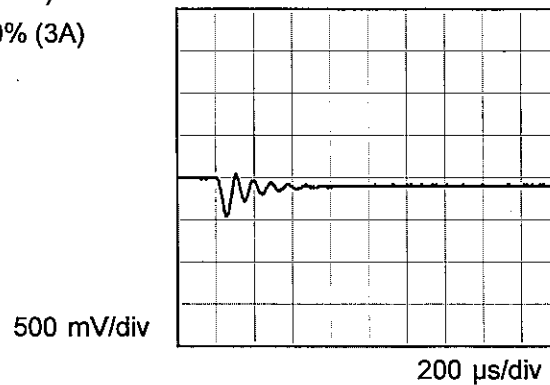
Min. Load (0A) \longleftrightarrow
 Load 100% (3A)



Min. Load (0A) \longleftrightarrow
 Load 50% (1.5A)



Load 50% (1.5A) \longleftrightarrow
 Load 100% (3A)



<p>Model SFS304810</p>		<p>Temperature 25°C Testing Circuitry Figure C</p>																																						
Item	Ripple Voltage (by Load Current)																																							
Object	+10V3A																																							
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 36V</p> <p>- - -○- - - Input Volt. 76V</p> </div> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</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>17</td><td>26</td></tr> <tr><td>0.6</td><td>17</td><td>26</td></tr> <tr><td>1.2</td><td>17</td><td>27</td></tr> <tr><td>1.8</td><td>19</td><td>27</td></tr> <tr><td>2.4</td><td>20</td><td>28</td></tr> <tr><td>3.0</td><td>22</td><td>30</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	17	26	0.6	17	26	1.2	17	27	1.8	19	27	2.4	20	28	3.0	22	30	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
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<p>Measured by 100MHz Ossilloscope. 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>																																								

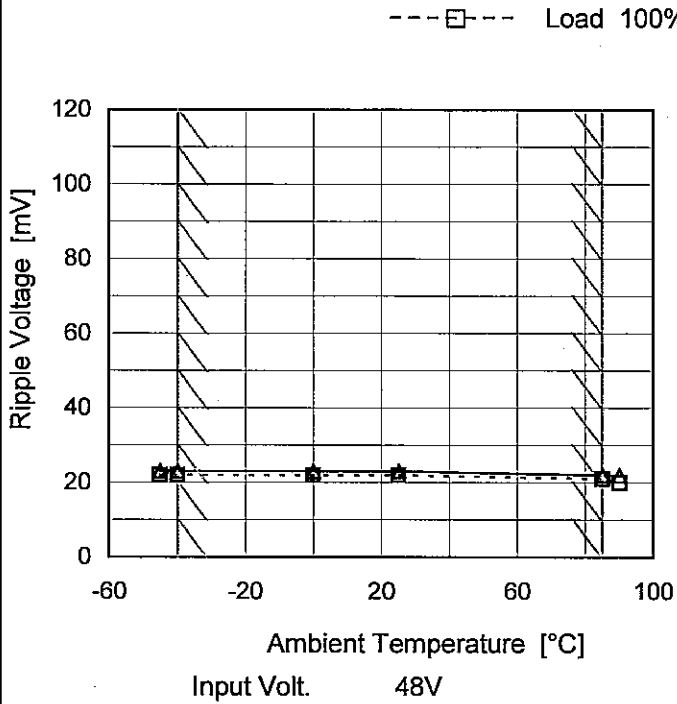
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<p>Fig.Complex Ripple Noise Wave Form</p>																																											



Model	SFS304810
Item	Ripple Voltage (by Ambient Temp.)
Object	+10V3A

Testing Circuitry Figure C

1. Graph



Measured by 100MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-45	22	23
-40	22	23
0	22	23
25	22	23
85	21	22
90	20	22
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-



COSEL																																																					
Model	SFS304810																																																				
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																			
Object	+10V3A																																																				
1. Graph	<p> —△— Input Volt. 36V - - - □ - - - Input Volt. 48V - - - ○ - - - Input Volt. 76V </p> <p style="text-align: center;">Ambient Temperature [°C] Load 100%</p>	2. Values																																																			
		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="3">Output Voltage [V]</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>-50</td><td>10.018</td><td>10.018</td><td>10.018</td></tr> <tr><td>-40</td><td>10.024</td><td>10.023</td><td>10.023</td></tr> <tr><td>-20</td><td>10.035</td><td>10.031</td><td>10.031</td></tr> <tr><td>0</td><td>10.039</td><td>10.030</td><td>10.028</td></tr> <tr><td>25</td><td>10.040</td><td>10.026</td><td>10.022</td></tr> <tr><td>40</td><td>10.040</td><td>10.022</td><td>10.012</td></tr> <tr><td>55</td><td>10.035</td><td>10.015</td><td>10.000</td></tr> <tr><td>70</td><td>10.028</td><td>10.006</td><td>9.983</td></tr> <tr><td>85</td><td>10.025</td><td>10.001</td><td>9.969</td></tr> <tr><td>90</td><td>10.024</td><td>9.997</td><td>9.962</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	-50	10.018	10.018	10.018	-40	10.024	10.023	10.023	-20	10.035	10.031	10.031	0	10.039	10.030	10.028	25	10.040	10.026	10.022	40	10.040	10.022	10.012	55	10.035	10.015	10.000	70	10.028	10.006	9.983	85	10.025	10.001	9.969	90	10.024	9.997	9.962	--	-	-	-
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																																					



Model		SFS304810	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+10V3A	

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 - 3A

* 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	36	0	10.247	±139	±1.4
Minimum Voltage	85	76	3	9.969		

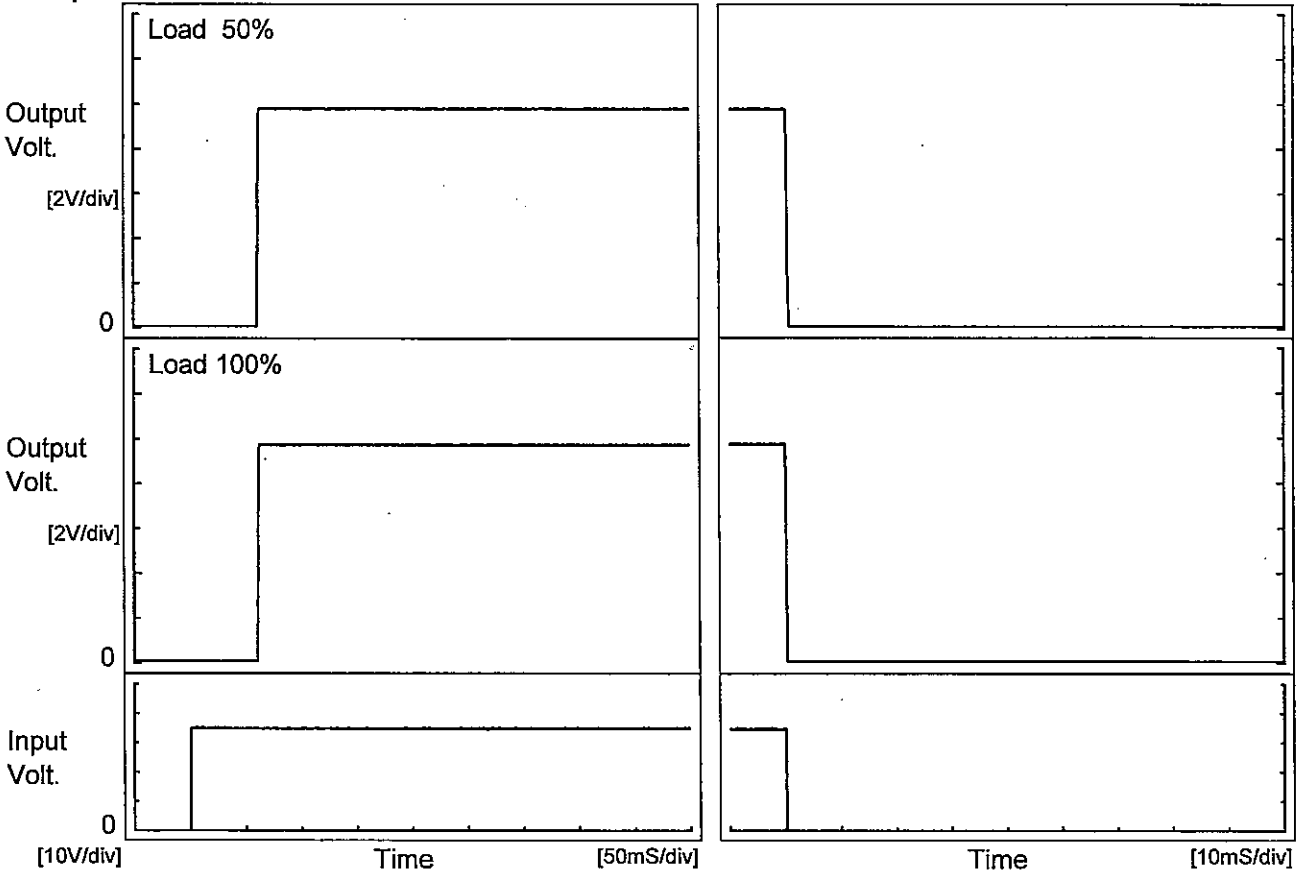


Model		SFS304810	Temperature	25°C																						
Item		Time Lapse Drift	Testing Circuitry	Figure A																						
Object		+10V3A																								
1.Graph			2.Values																							
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V Load 100%</p>			<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>10.041</td></tr> <tr><td>0.5</td><td>10.027</td></tr> <tr><td>1.0</td><td>10.027</td></tr> <tr><td>2.0</td><td>10.027</td></tr> <tr><td>3.0</td><td>10.027</td></tr> <tr><td>4.0</td><td>10.027</td></tr> <tr><td>5.0</td><td>10.027</td></tr> <tr><td>6.0</td><td>10.027</td></tr> <tr><td>7.0</td><td>10.027</td></tr> <tr><td>8.0</td><td>10.027</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	10.041	0.5	10.027	1.0	10.027	2.0	10.027	3.0	10.027	4.0	10.027	5.0	10.027	6.0	10.027	7.0	10.027	8.0	10.027
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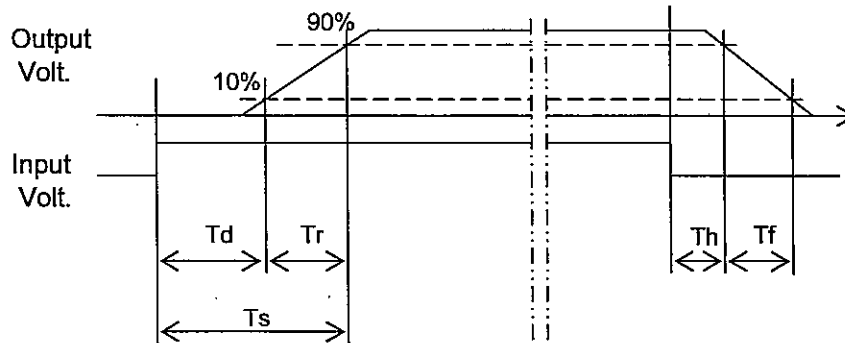
Model	SFS304810	Temperature 25°C Testing Circuitry Figure A
Item	Rise and Fall Time	
Object	+10V3A	

1. Graph



2. Values

Load \ Time	[mS]				
	Td	Tr	Ts	Th	Tf
50 %	60.5	1.1	61.6	0.1	0.5
100 %	60.5	1.2	61.7	0.1	0.3

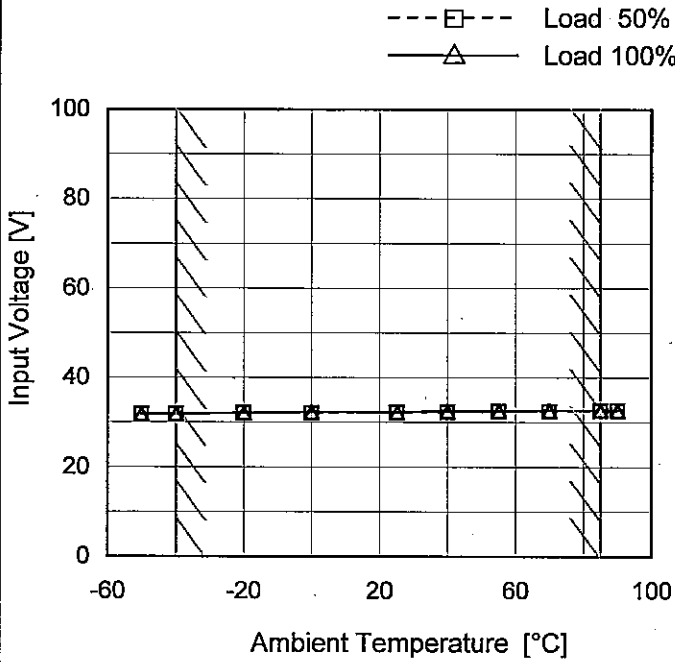




Model	SFS304810
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+10V3A

Testing Circuitry Figure A

1. Graph



2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	31.9	32.0
-40	31.9	32.0
-20	32.1	32.2
0	32.1	32.4
25	32.3	32.4
40	32.3	32.6
55	32.5	32.6
70	32.5	32.8
85	32.7	32.8
90	32.7	32.8
--	-	-

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



Model	SFS304810
Item	Overcurrent Protection
Object	+10V3A
<p>1.Graph</p> <p> Input Volt. 36V Input Volt. 48V Input Volt. 76V </p> <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 9.0V ,the unit shuts off the output by operating low voltage protection .</p>	

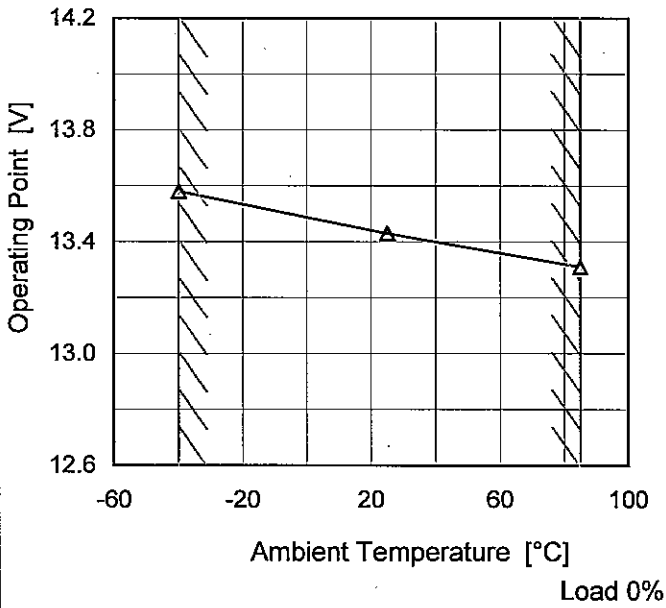
Temperature	25°C		
Testing Circuitry	Figure A		
2.Values			
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
10.0	3.16	3.16	3.16
9.5	3.64	3.68	3.80
9.0	3.64	3.69	3.82
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



Model	SFS304810
Item	Overvoltage Protection
Object	+10V3A

Testing Circuitry Figure A

1.Graph —△— Input Volt. 48V



2.Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 48[V]	Input Volt.	Input Volt.
-40	13.58	-	-
25	13.43	-	-
85	13.31	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

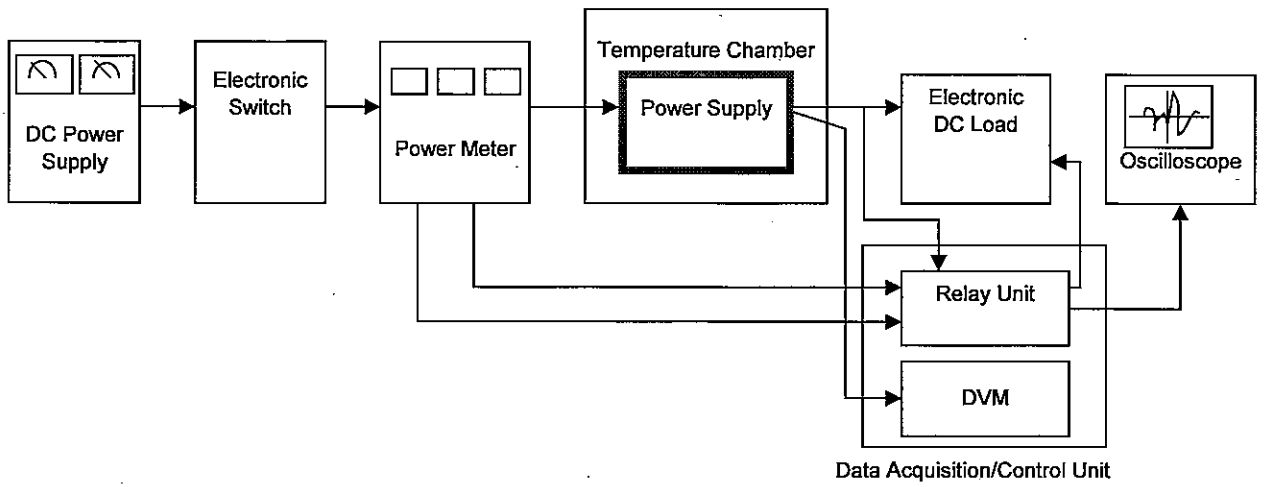


Figure A

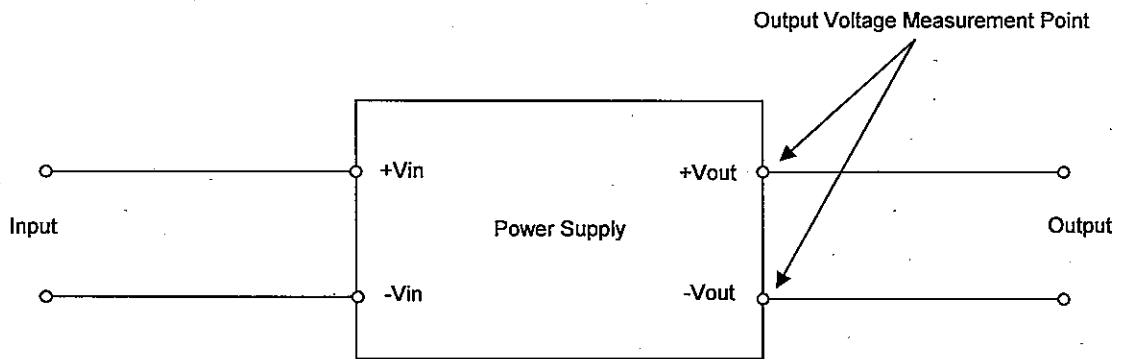


Figure B (General Electric Characteristic)

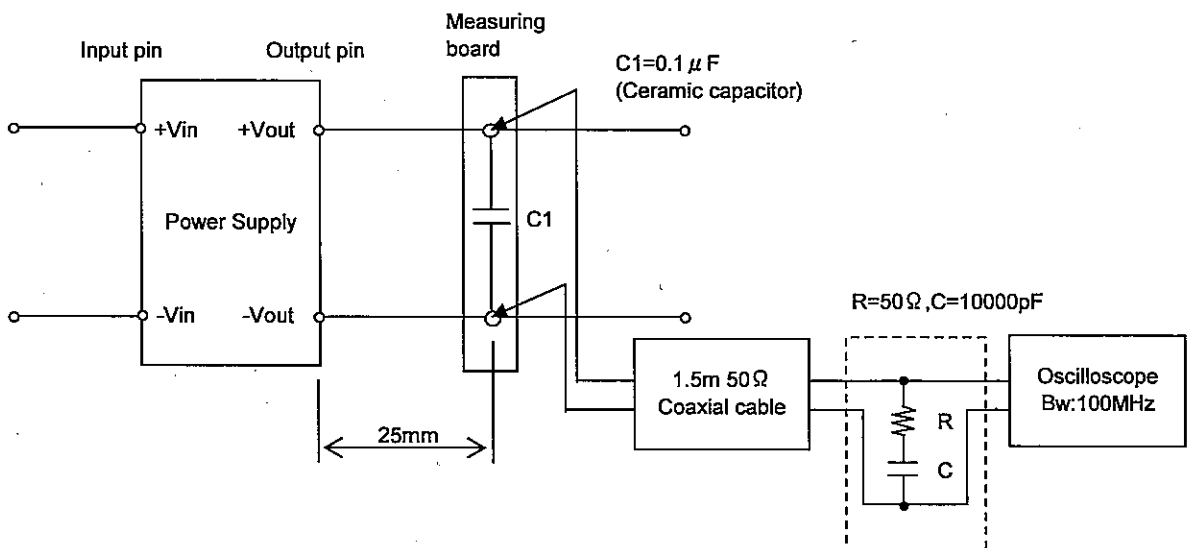


Figure C (Ripple and Ripple noise Characteristic)