

TEST DATA OF SPLFA75F-24

Regulated DC Power Supply
May 18, 2011

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COSEL CO.,LTD.

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(Final Page 24)

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Model

SPLFA75F-24

Item

Input Current (by Load Current)

Object

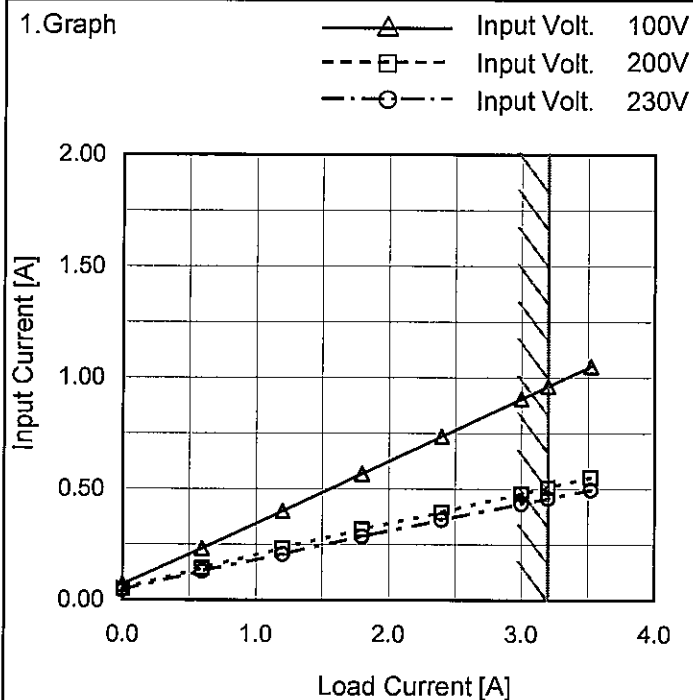
Temperature

25°C

Testing Circuitry

Figure A

1. Graph



2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.071	0.051	0.045
0.60	0.231	0.142	0.129
1.20	0.399	0.233	0.205
1.80	0.567	0.318	0.286
2.40	0.736	0.395	0.361
3.00	0.904	0.478	0.432
3.20	0.960	0.506	0.457
3.52	1.051	0.552	0.496
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Model SPLFA75F-24

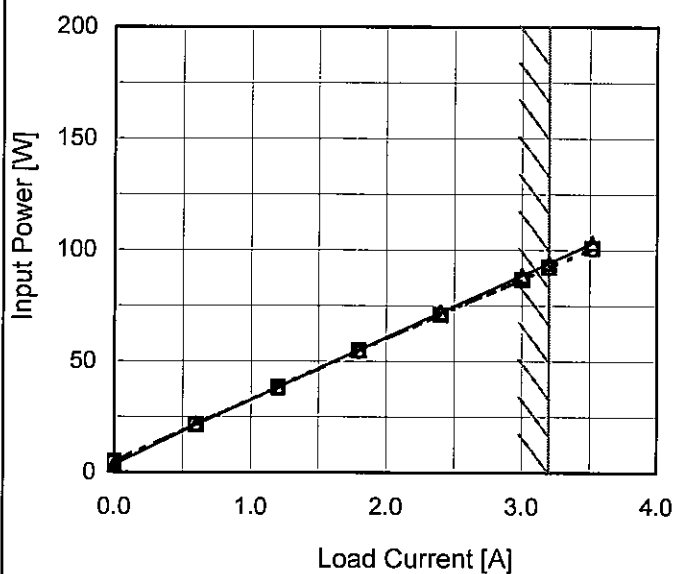
Item Input Power (by Load Current)

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph

—△— Input Volt. 100V
 ---□--- Input Volt. 200V
 ---○--- Input Volt. 230V



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

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	3.5	5.1	4.6
0.60	21.4	21.6	21.7
1.20	38.2	38.5	38.0
1.80	55.0	55.1	54.5
2.40	71.8	70.9	70.9
3.00	88.5	86.7	86.6
3.20	94.1	92.2	92.0
3.52	103.2	100.9	100.5
--	-	-	-
--	-	-	-
--	-	-	-

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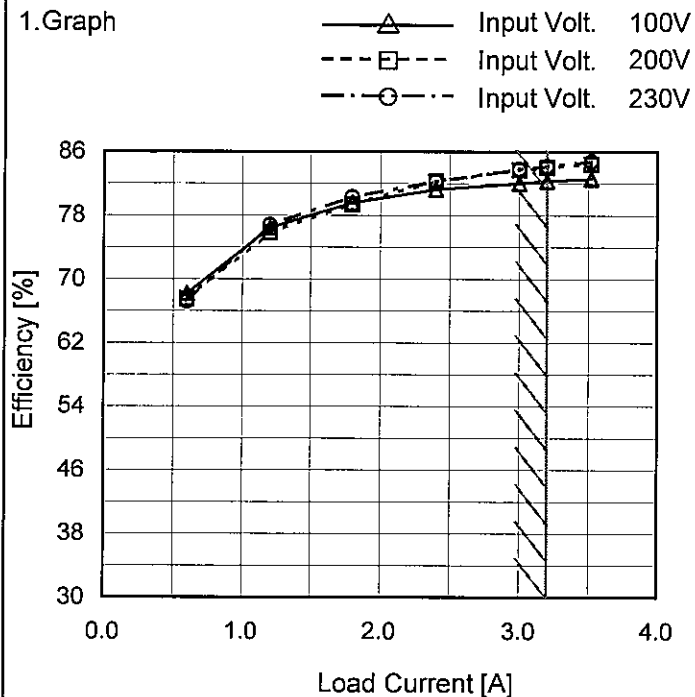
Model SPLFA75F-24

Item Efficiency (by Load Current)

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.60	68.2	67.5	67.2
1.20	76.4	75.8	76.8
1.80	79.6	79.4	80.3
2.40	81.3	82.3	82.3
3.00	82.0	83.7	83.8
3.20	82.3	84.0	84.2
3.52	82.6	84.4	84.8
--	-	-	-
--	-	-	-
--	-	-	-

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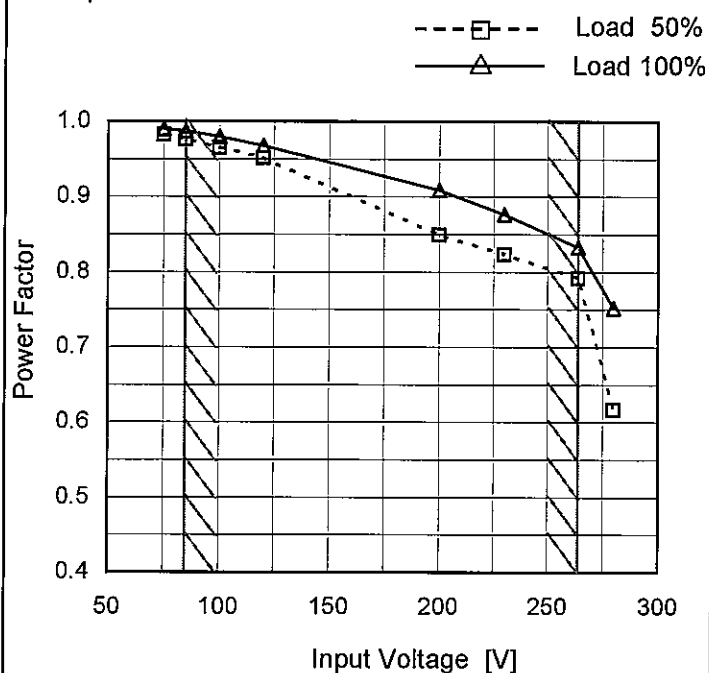
Model SPLFA75F-24

Item Power Factor (by Input Voltage)

Object

 Temperature 25°C
 Testing Circuitry Figure A

1. Graph



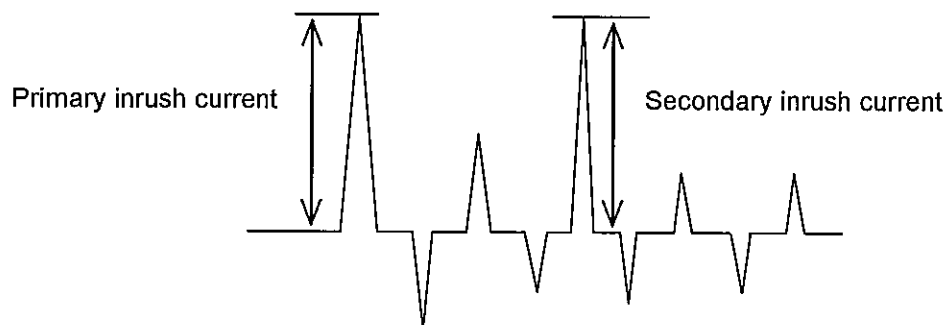
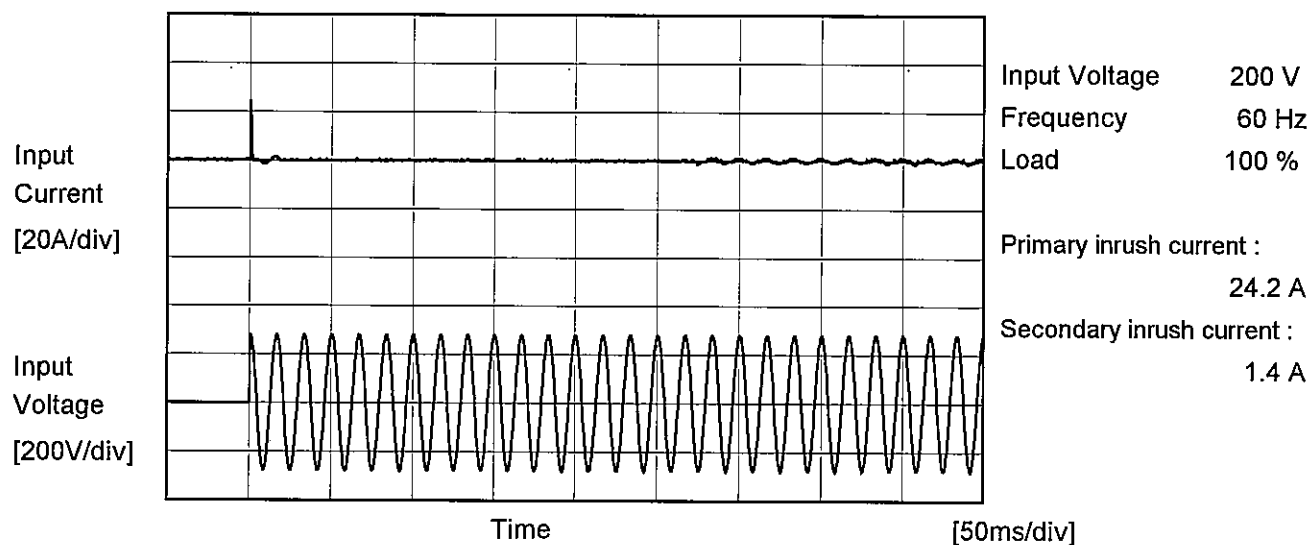
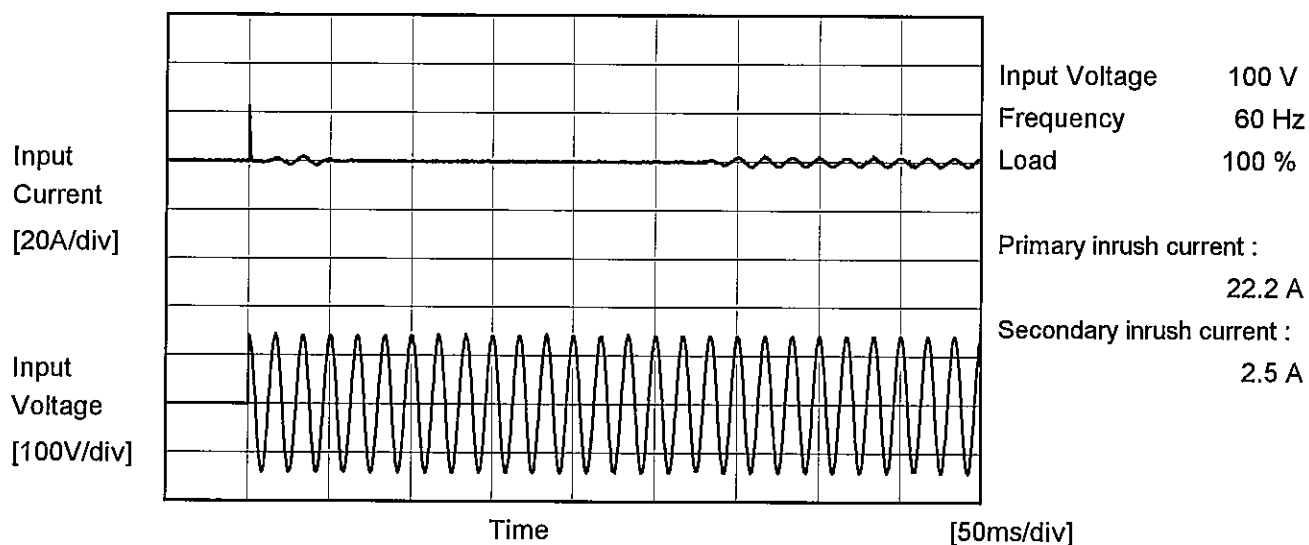
Note: Slanted line shows the range of the rated input voltage.

2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.982	0.990
85	0.976	0.988
100	0.965	0.979
120	0.952	0.968
200	0.850	0.909
230	0.824	0.876
264	0.792	0.833
280	0.616	0.752
--	-	-

Model	SPLFA75F-24																																																					
Item	Power Factor (by Load Current)	Temperature	25°C																																																			
		Testing Circuitry	Figure A																																																			
Object																																																						
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>-○-</div><div>Input Volt.</div><div>230V</div></div></div> <div>Power Factor</div> <div>Load Current [A]</div> <div>Note: Slanted line shows the range of the rated load current.</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Power Factor</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.00</td><td>0.493</td><td>0.500</td><td>0.442</td></tr><tr><td>0.60</td><td>0.926</td><td>0.761</td><td>0.731</td></tr><tr><td>1.20</td><td>0.957</td><td>0.826</td><td>0.807</td></tr><tr><td>1.80</td><td>0.968</td><td>0.866</td><td>0.827</td></tr><tr><td>2.40</td><td>0.974</td><td>0.895</td><td>0.852</td></tr><tr><td>3.00</td><td>0.979</td><td>0.906</td><td>0.870</td></tr><tr><td>3.20</td><td>0.979</td><td>0.909</td><td>0.875</td></tr><tr><td>3.52</td><td>0.981</td><td>0.913</td><td>0.880</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></table>		Load Current [A]	Power Factor			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	0.493	0.500	0.442	0.60	0.926	0.761	0.731	1.20	0.957	0.826	0.807	1.80	0.968	0.866	0.827	2.40	0.974	0.895	0.852	3.00	0.979	0.906	0.870	3.20	0.979	0.909	0.875	3.52	0.981	0.913	0.880	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Power Factor																																																					
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Model	SPLFA75F-24	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



Model		SPLFA75F-24	Temperature 25°C Testing Circuitry Figure B
Item		Leakage Current	
Object			

1.Results

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.14	0.25	0.31	Operation
	One of phases	0.21	0.46	0.57	Stand by
IEC60950-1	Both phases	0.15	0.29	0.36	Operation
	One of phases	0.22	0.45	0.56	Stand by

The value for "One of phases" is the reference value only.

2.Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

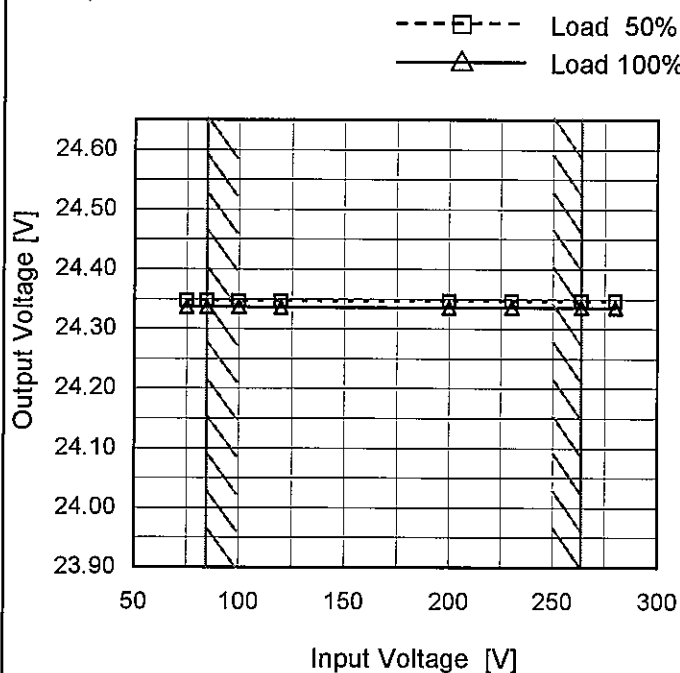
Model SPLFA75F-24

Item Line Regulation

Object +24V3.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

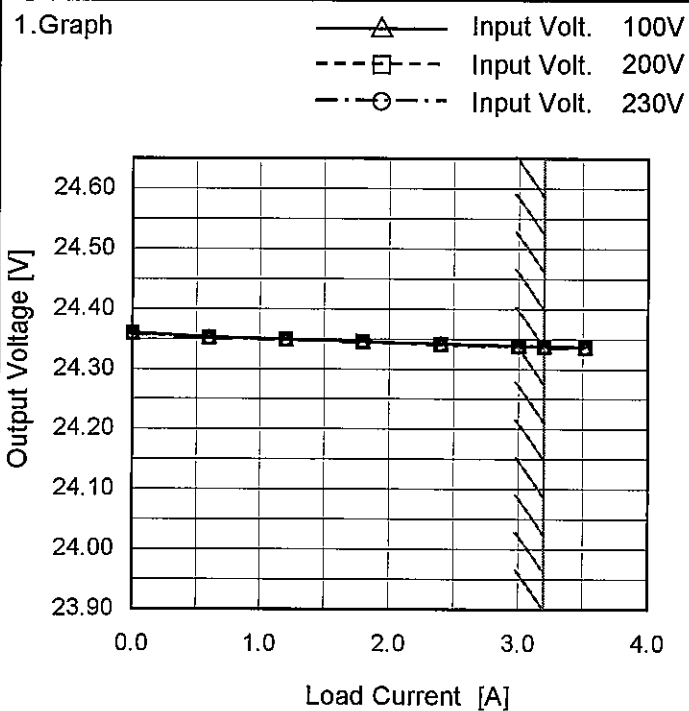
2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	24.348	24.337
85	24.347	24.337
100	24.347	24.337
120	24.346	24.336
200	24.346	24.336
230	24.346	24.336
264	24.346	24.336
280	24.346	24.335
--	-	-

Model SPLFA75F-24

Item Load Regulation

Object +24V3.2A

Temperature 25°C
Testing Circuitry Figure A

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

2. Values

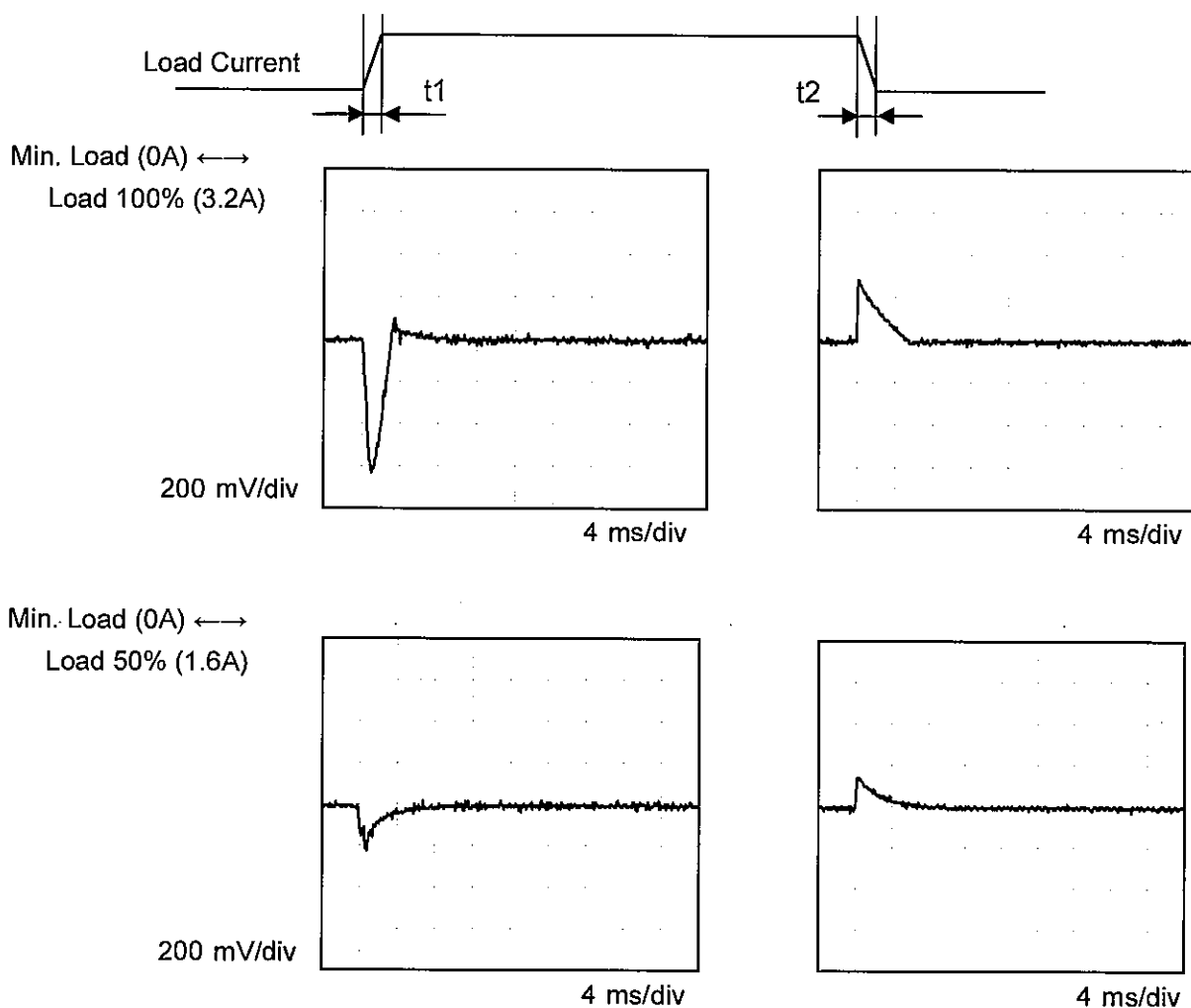
Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	24.360	24.359	24.359
0.60	24.353	24.352	24.351
1.20	24.349	24.349	24.348
1.80	24.346	24.345	24.345
2.40	24.342	24.341	24.340
3.00	24.339	24.338	24.337
3.20	24.337	24.337	24.336
3.52	24.336	24.335	24.335
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SPLFA75F-24	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+24V3.2A		

Input Volt. 100 V
Cycle 1000 ms

Response. $t_1=t_2=50\mu\text{s}$. Typ



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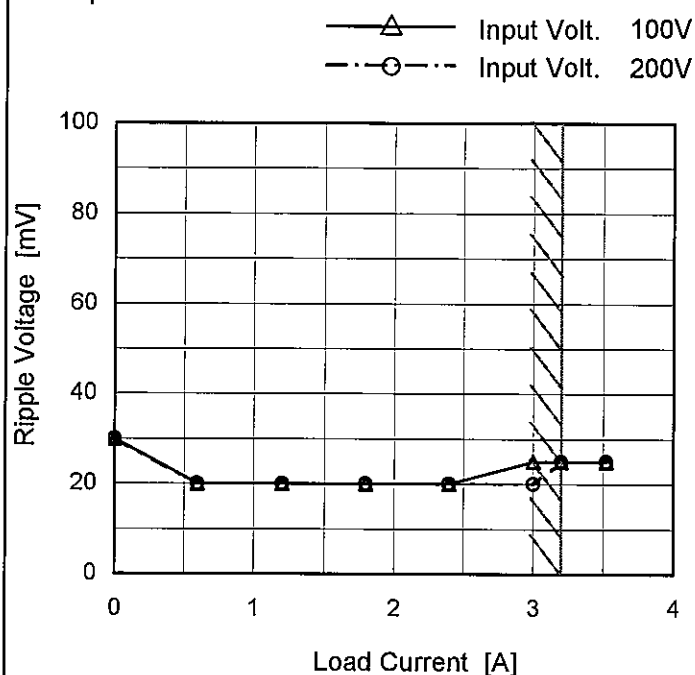
Model SPLFA75F-24

Item Ripple Voltage (by Load Current)

Object +24V3.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	30	30
0.60	20	20
1.20	20	20
1.80	20	20
2.40	20	20
3.00	25	20
3.20	30	30
3.52	35	30
--	-	-
--	-	-
--	-	-

Measured by 20 MHz Oscilloscope.

Ripple Voltage is shown as p-p in the figure below.

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

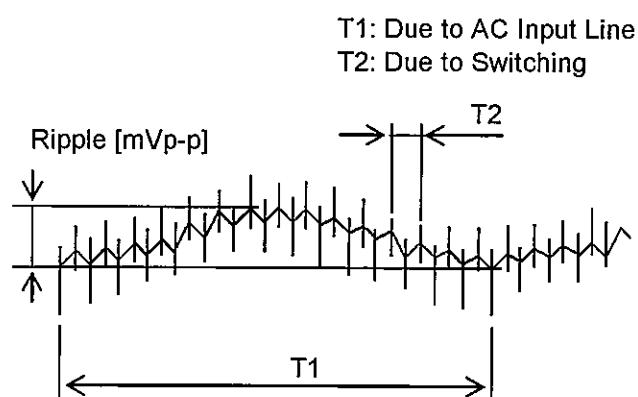


Fig. Complex Ripple Wave Form

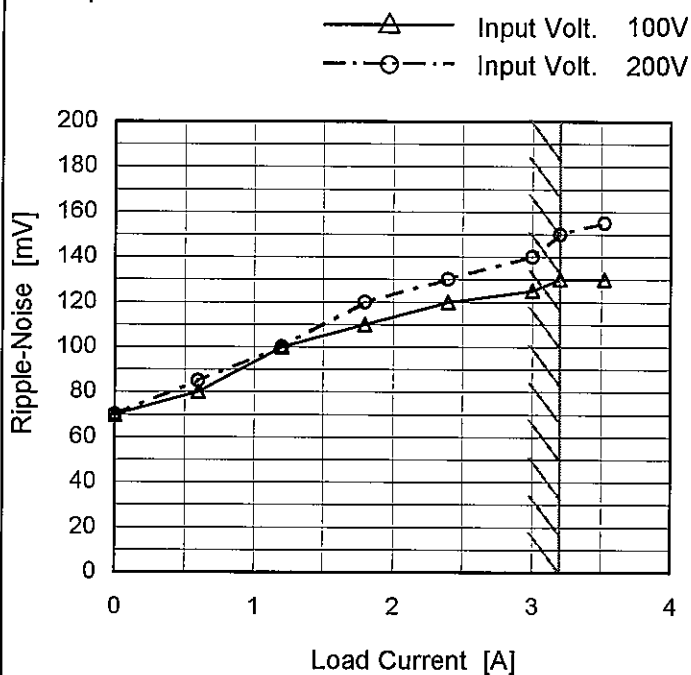
Model SPLFA75F-24

Item Ripple-Noise

Object +24V3.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



Measured by 20 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. 100 [V]	Input Volt. 200 [V]
0.00	70	70
0.60	80	85
1.20	100	100
1.80	110	120
2.40	120	130
3.00	125	140
3.20	130	150
3.52	130	155
--	-	-
--	-	-
--	-	-

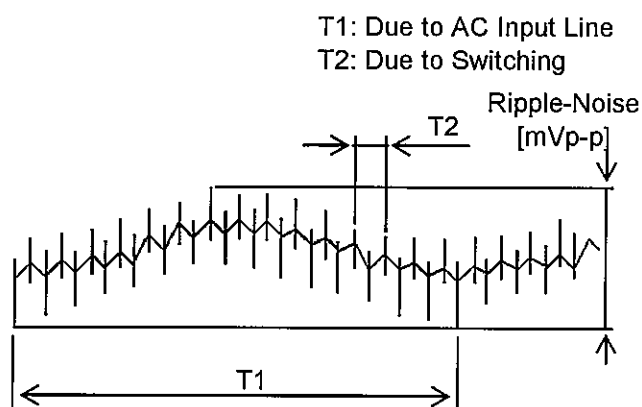


Fig. Complex Ripple Wave Form

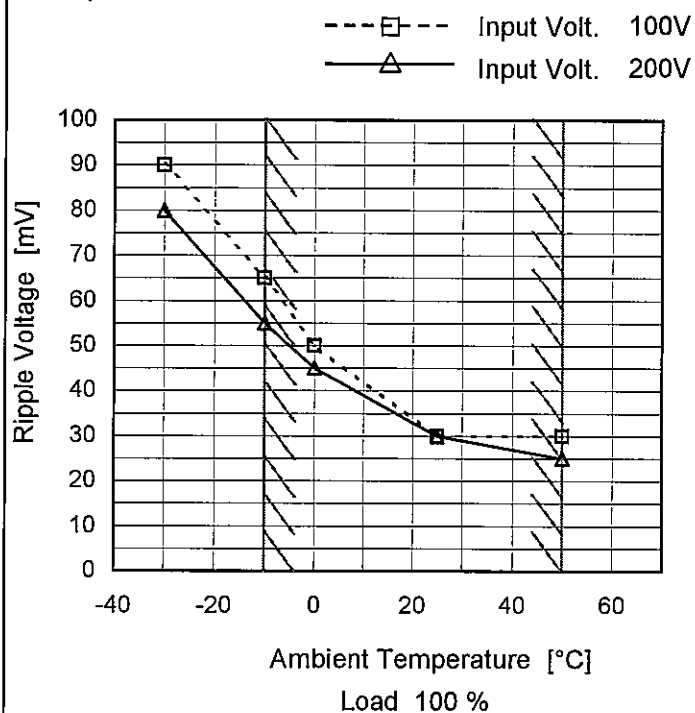
Model SPLFA75F-24

Item Ripple Voltage (by Ambient Temp.)

Object +24V3.2A

Testing Circuitry Figure A

1. Graph



Measured by 20 MHz Oscilloscope.

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

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	90	80
-10	65	55
0	50	45
25	30	30
50	30	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model SPLFA75F-24

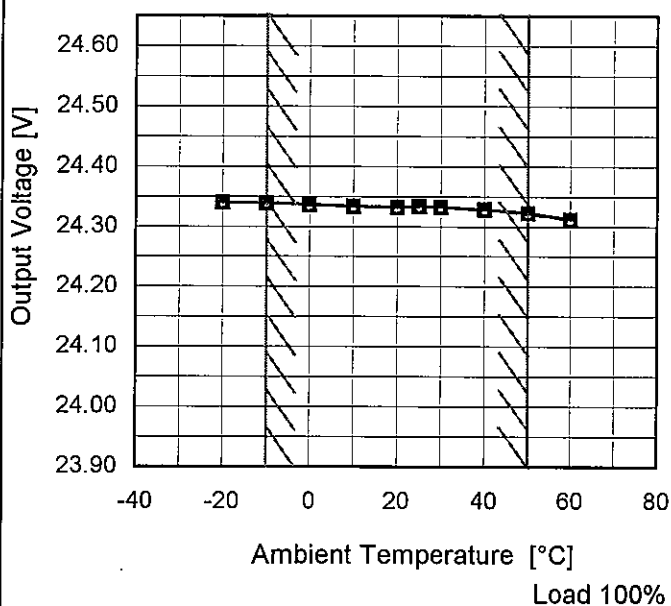
Item Ambient Temperature Drift

Object +24V3.2A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 100V
 ---□--- Input Volt. 200V
 ---○--- Input Volt. 230V



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

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	24.340	24.340	24.340
-10	24.339	24.339	24.339
0	24.337	24.336	24.336
10	24.334	24.333	24.333
20	24.333	24.331	24.331
25	24.334	24.333	24.334
30	24.333	24.332	24.332
40	24.329	24.328	24.328
50	24.323	24.322	24.322
60	24.312	24.311	24.311
--	-	-	-

		Testing Circuitry Figure A
Model	SPLFA75F-24	
Item	Output Voltage Accuracy	
Object	+24V3.2A	

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 : -10 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 3.2A

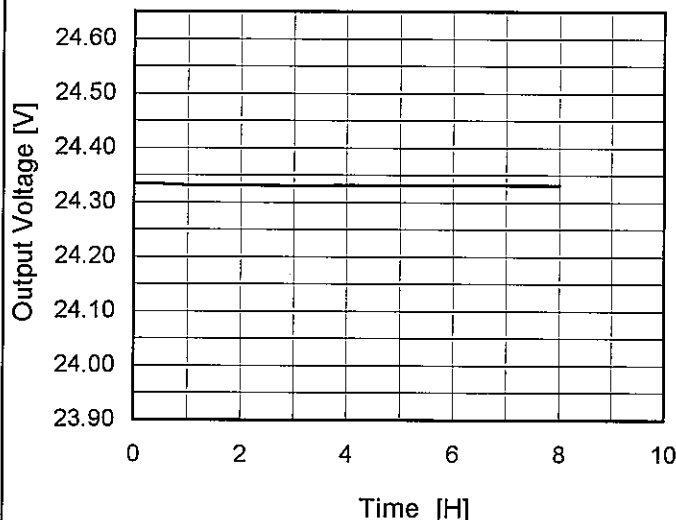
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	-10	85	0	24.360	±19	±0.1
Minimum Voltage	50	264	3.2	24.322		

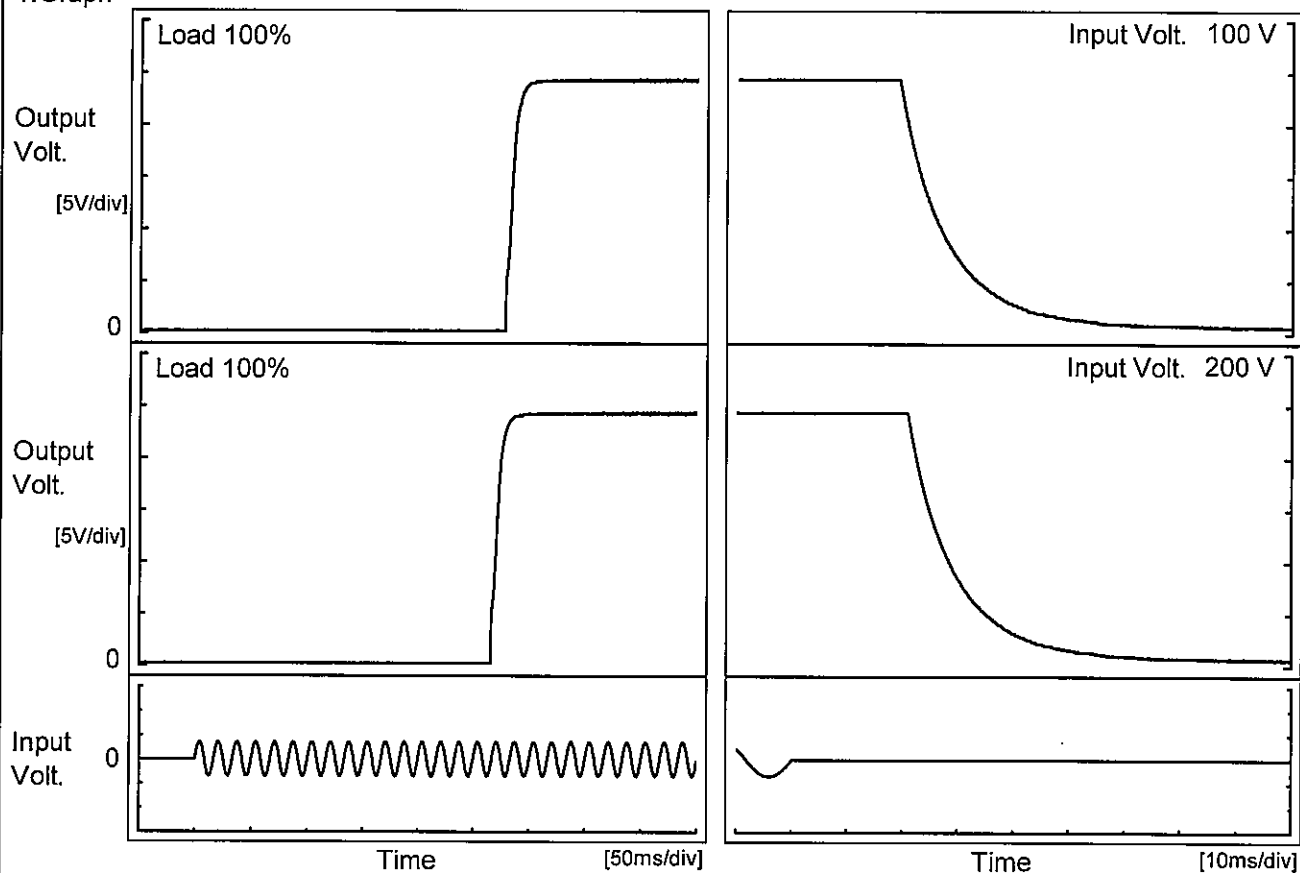
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Model	SPLFA75F-24																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+24V3.2A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 100V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>24.339</td></tr><tr><td>0.5</td><td>24.334</td></tr><tr><td>1.0</td><td>24.332</td></tr><tr><td>2.0</td><td>24.331</td></tr><tr><td>3.0</td><td>24.331</td></tr><tr><td>4.0</td><td>24.331</td></tr><tr><td>5.0</td><td>24.331</td></tr><tr><td>6.0</td><td>24.332</td></tr><tr><td>7.0</td><td>24.332</td></tr><tr><td>8.0</td><td>24.331</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	24.339	0.5	24.334	1.0	24.332	2.0	24.331	3.0	24.331	4.0	24.331	5.0	24.331	6.0	24.332	7.0	24.332	8.0	24.331
Time since start [H]	Output Voltage [V]																								
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8.0	24.331																								
* The characteristic of AC200V is equal.																									

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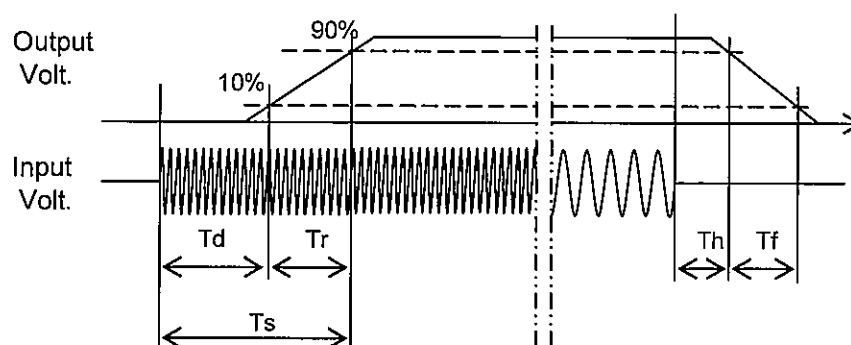
Model	SPLFA75F-24	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+24V3.2A		

1. Graph



2. Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		279.0	12.0	291.0	20.2	20.6
200 V		266.3	11.8	278.1	21.9	20.6



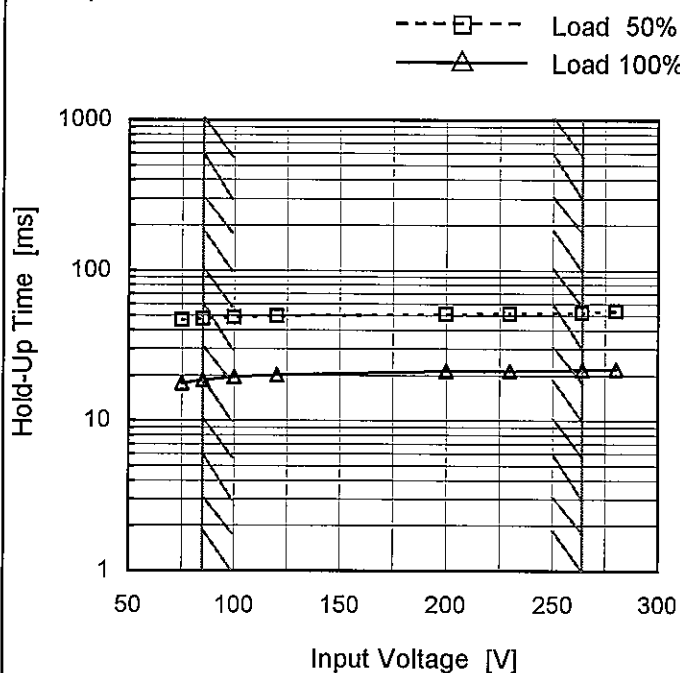
Model SPLFA75F-24

Item Hold-Up Time

Object +24V3.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.
Note: Slanted line shows the range of the rated input voltage.

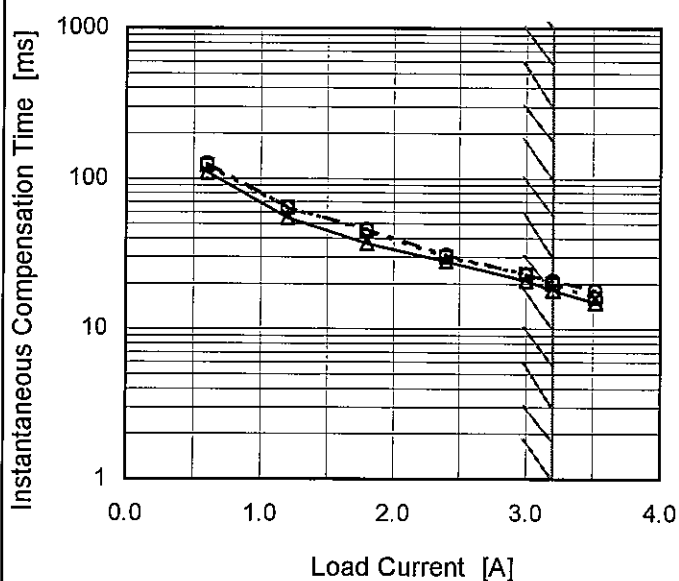
2. Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	47	18
85	48	19
100	49	20
120	50	20
200	51	21
230	52	21
264	52	22
280	54	22
---	-	-

Model	SPLFA75F-24
Item	Instantaneous Interruption Compensation
Object	+24V3.2A

1. Graph

—△— Input Volt. 100V
 ---□--- Input Volt. 200V
 -○- - Input Volt. 230V



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

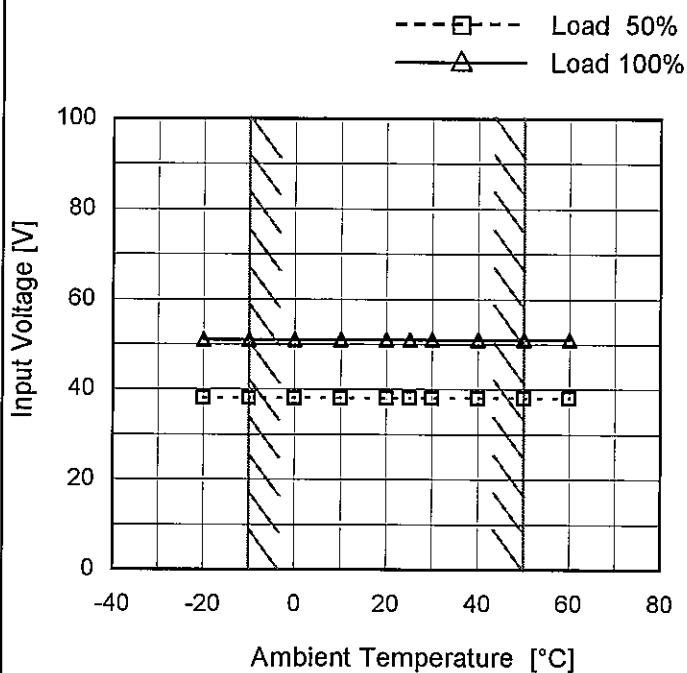
Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Time [ms]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.60	110	122	126
1.20	55	64	64
1.80	37	45	46
2.40	28	30	31
3.00	21	23	23
3.20	18	20	21
3.52	15	16	18
--	-	-	-
--	-	-	-
--	-	-	-

Model	SPLFA75F-24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V3.2A

1. Graph



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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	38	51
-10	38	51
0	38	51
10	38	51
20	38	51
25	38	51
30	38	51
40	38	51
50	38	51
60	38	51
--	-	-

Model	SPLFA75F-24																																											
Item	Overcurrent Protection	Temperature	25°C																																									
Object	+24V3.2A	Testing Circuitry	Figure A																																									
1.Graph		2.Values																																										
<div><div><div></div><div>Input Volt. 100V</div></div><div><div></div><div>Input Volt. 200V</div></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>Intermittent operation occurs when the output voltage is from 23.7V to 0V.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="2">Load Current [A]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th></tr><tr><td>24.0</td><td>3.73</td><td>3.74</td></tr><tr><td>22.8</td><td>-</td><td>-</td></tr><tr><td>21.6</td><td>-</td><td>-</td></tr><tr><td>19.2</td><td>-</td><td>-</td></tr><tr><td>16.8</td><td>-</td><td>-</td></tr><tr><td>14.4</td><td>-</td><td>-</td></tr><tr><td>12.0</td><td>-</td><td>-</td></tr><tr><td>9.6</td><td>-</td><td>-</td></tr><tr><td>7.2</td><td>-</td><td>-</td></tr><tr><td>4.8</td><td>-</td><td>-</td></tr><tr><td>2.4</td><td>-</td><td>-</td></tr><tr><td>0.0</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 200[V]	24.0	3.73	3.74	22.8	-	-	21.6	-	-	19.2	-	-	16.8	-	-	14.4	-	-	12.0	-	-	9.6	-	-	7.2	-	-	4.8	-	-	2.4	-	-	0.0	-	-
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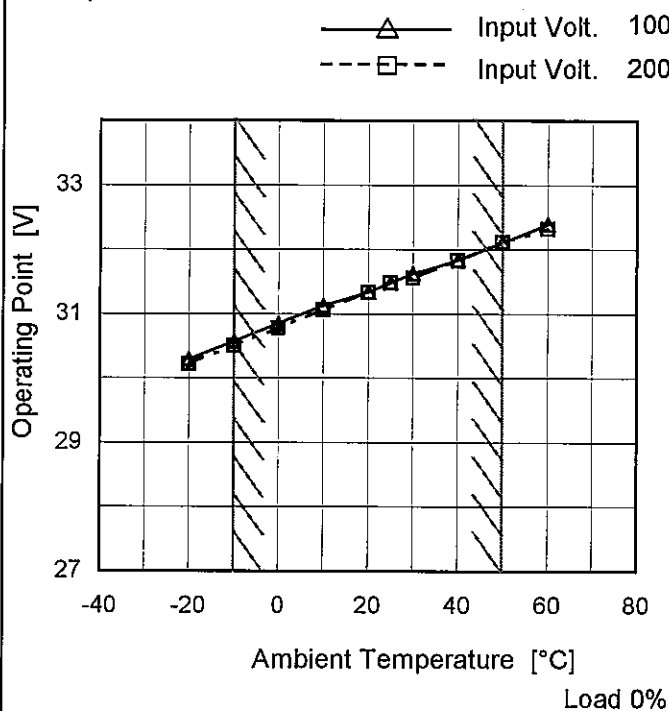
Model SPLFA75F-24

Item Overvoltage Protection

Object +24V3.2A

Testing Circuitry Figure A

1. Graph



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

2. Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 100[V]	Input Volt. 200[V]
-20	30.29	30.22
-10	30.57	30.50
0	30.85	30.78
10	31.13	31.06
20	31.34	31.34
25	31.48	31.48
30	31.62	31.55
40	31.83	31.83
50	32.11	32.11
60	32.39	32.32
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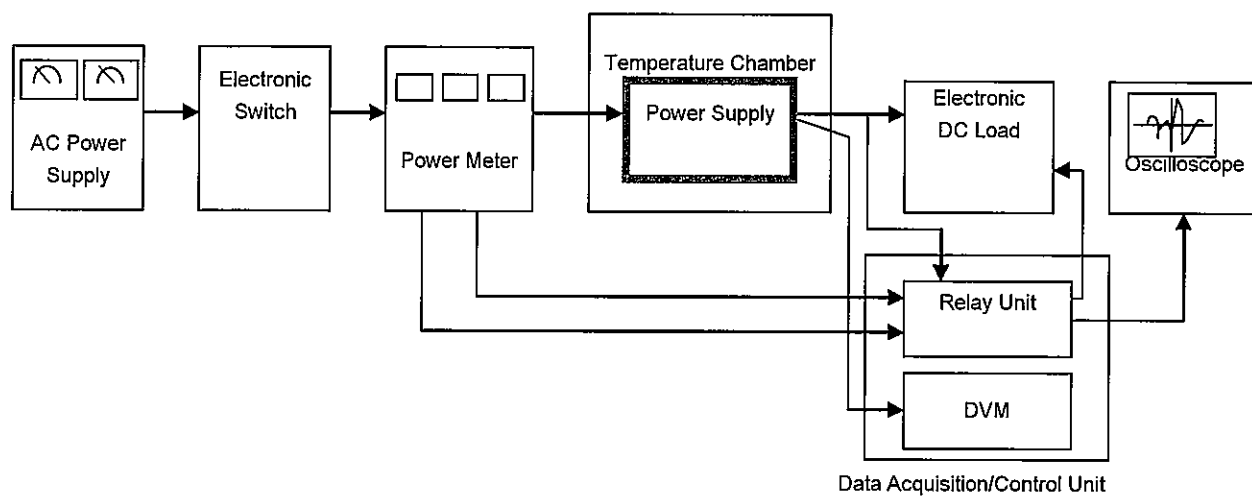


Figure A

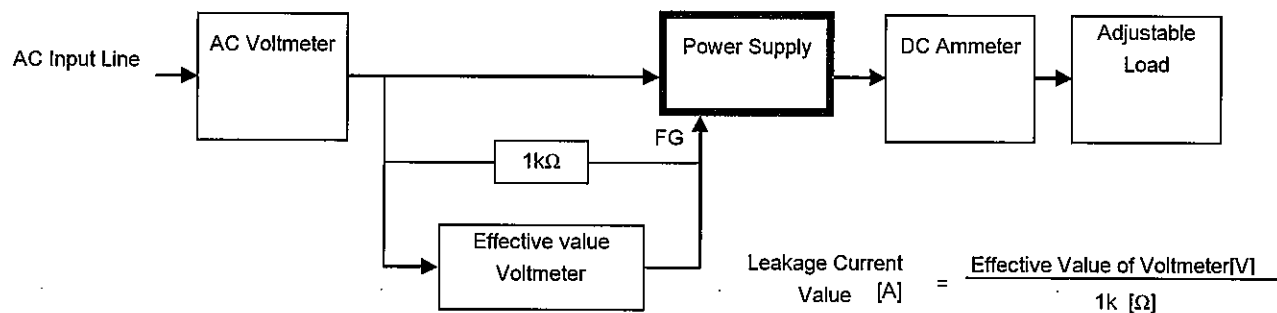


Figure B (DEN-AN)

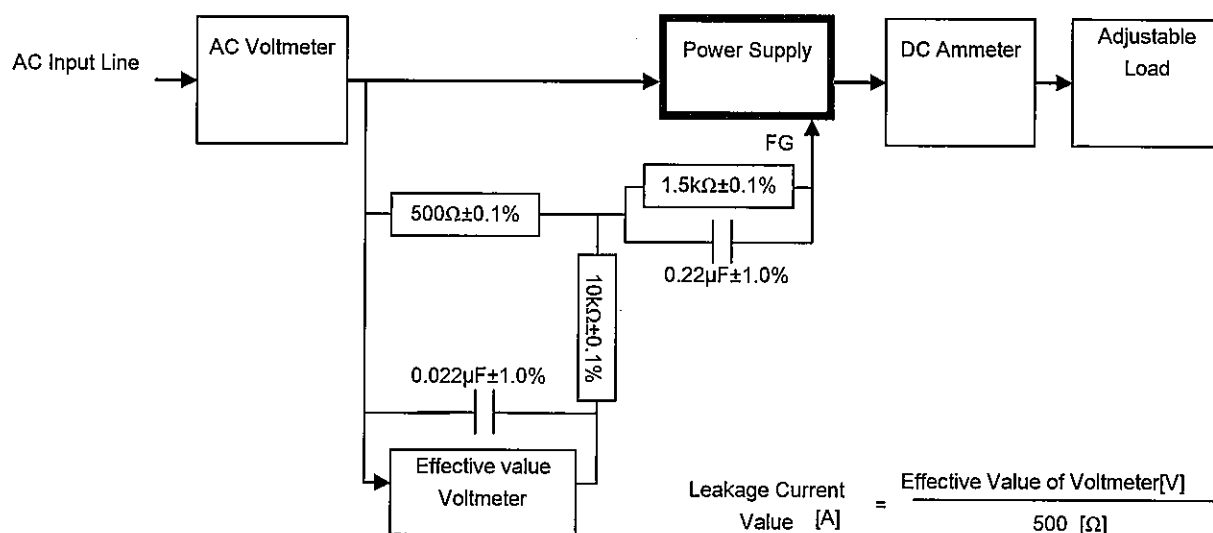


Figure B (IEC60950-1)