

TEST DATA OF LFP150F-48-Y

Regulated DC Power Supply
February 4, 2013

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Yoshiaki Shimizu Design Manager

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Soshi Nakamura Design Engineer

COSEL CO.,LTD.

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Model	LFP150F-48-Y																																																					
Item	Input Current (by Load Current)	Temperature	25°C																																																			
Object		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><div>-·-○-·-</div><div>Input Volt. 230V</div></div></div> <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Current [A]</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>0.088</td><td>0.084</td><td>0.087</td></tr><tr><td>0.60</td><td>0.416</td><td>0.254</td><td>0.240</td></tr><tr><td>1.20</td><td>0.735</td><td>0.407</td><td>0.377</td></tr><tr><td>1.80</td><td>1.063</td><td>0.559</td><td>0.513</td></tr><tr><td>2.40</td><td>1.397</td><td>0.719</td><td>0.645</td></tr><tr><td>3.00</td><td>1.712</td><td>0.877</td><td>0.781</td></tr><tr><td>3.20</td><td>1.828</td><td>0.929</td><td>0.828</td></tr><tr><td>3.52</td><td>2.014</td><td>1.013</td><td>0.903</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]	Input Current [A]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	0.088	0.084	0.087	0.60	0.416	0.254	0.240	1.20	0.735	0.407	0.377	1.80	1.063	0.559	0.513	2.40	1.397	0.719	0.645	3.00	1.712	0.877	0.781	3.20	1.828	0.929	0.828	3.52	2.014	1.013	0.903	--	-	-	-	--	-	-	-	--	-	-	-		
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Note: Slanted line shows the range of the rated load current.																																																						

Model

LFP150F-48-Y

Item

Input Power (by Load Current)

Object

1.Graph

—△—

Input Volt.

100V

---□---

Input Volt.

200V

---○---

Input Volt.

230V

Input Power [W]

500

400

300

200

100

0

0.0

1.0

2.0

3.0

4.0

Load Current [A]

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	5.8	5.7	5.9
0.60	40.1	39.5	40.1
1.20	72.4	71.0	70.7
1.80	105.3	103.0	102.9
2.40	138.7	134.5	134.2
3.00	170.3	166.3	165.6
3.20	181.8	176.8	176.2
3.52	200.3	193.8	193.2
--	-	-	-
--	-	-	-
--	-	-	-

Temperature

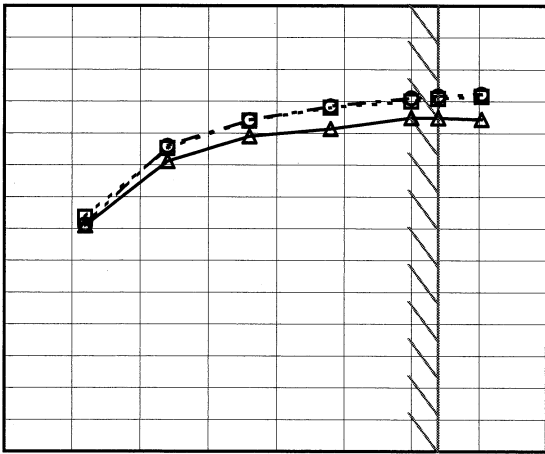
25°C

Testing Circuitry

Figure A

BC-10709

Model		LFP150F-48-Y	
Item		Efficiency (by Input Voltage)	
Object			
1.Graph		2.Values	
<div><div><div><div><div></div><div></div></div><div></div></div><div>Load 50%</div></div><div><div><div><div></div><div></div></div><div></div></div><div>Load 100%</div></div></div> <div><div><div>Efficiency [%]</div><div></div></div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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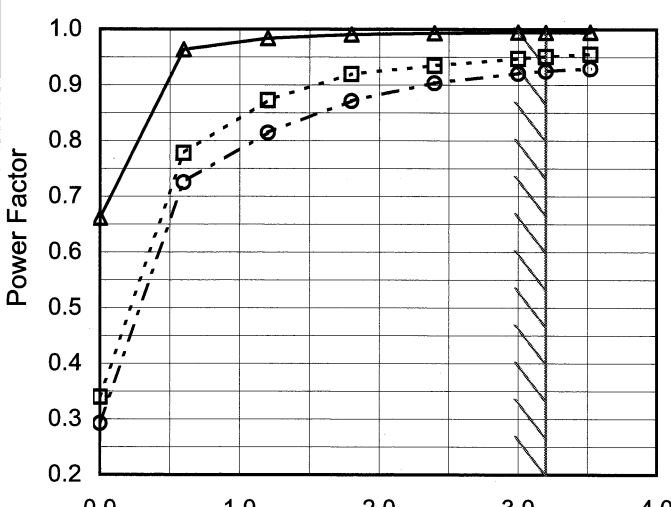
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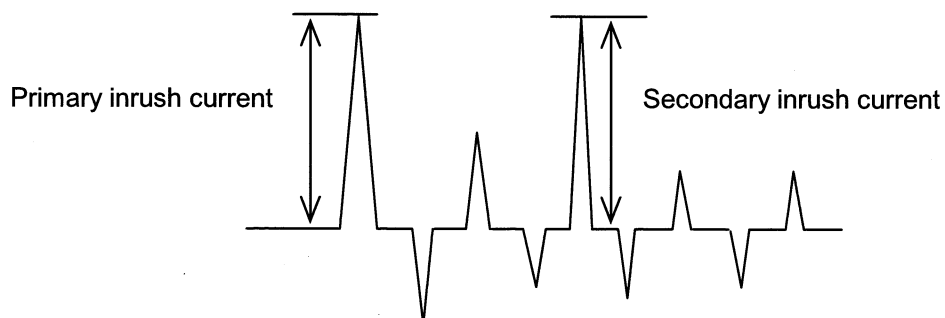
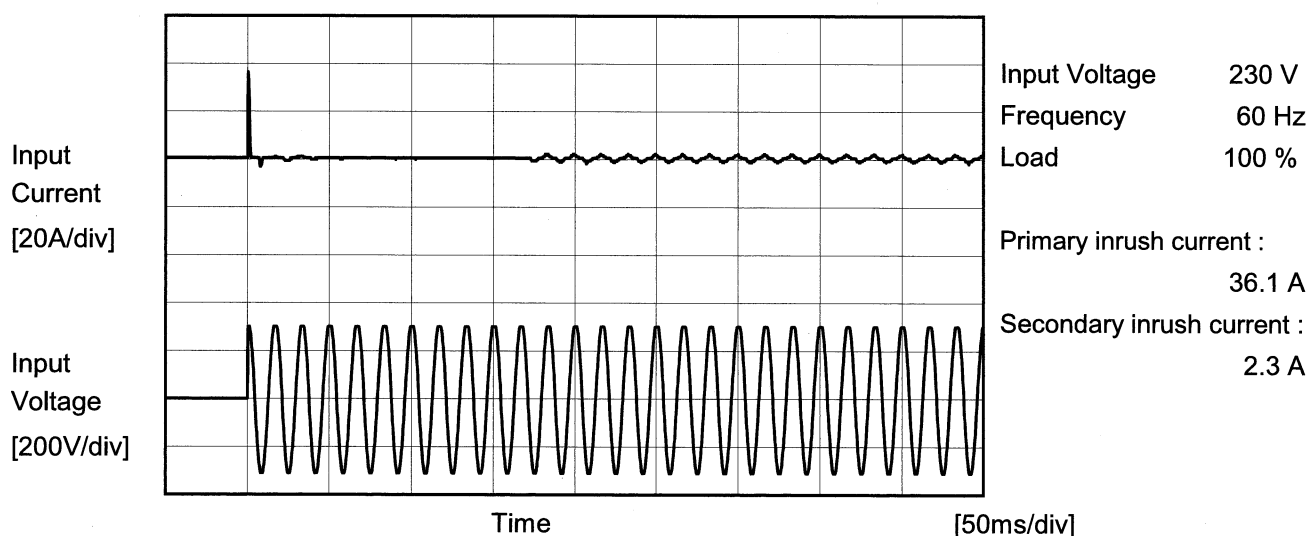
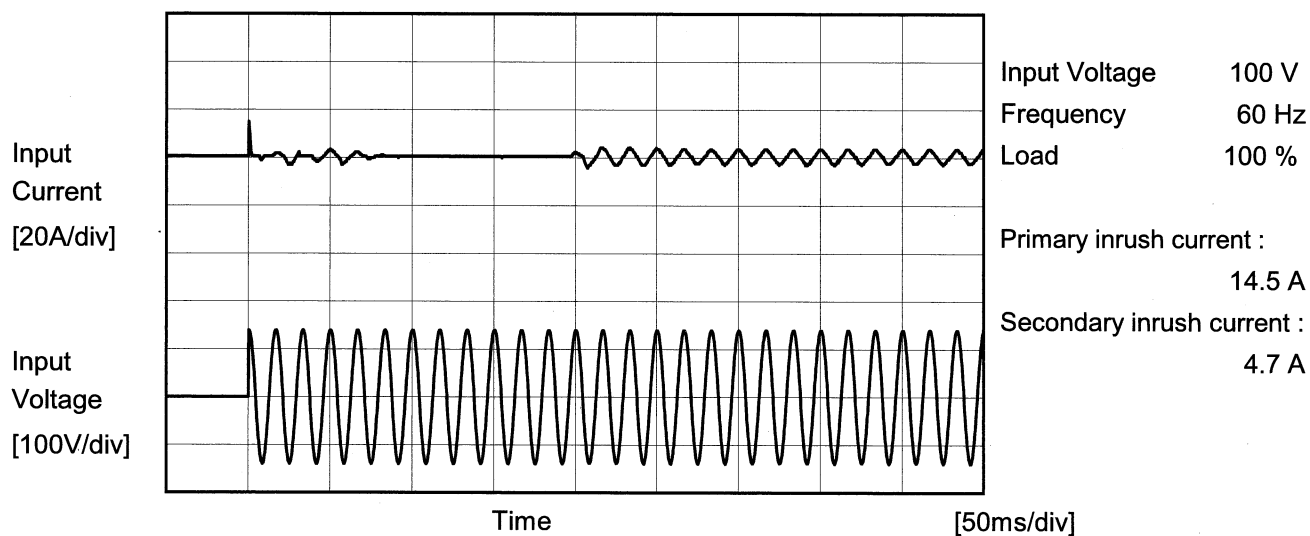
Model		LFP150F-48-Y		Temperature		25°C																																	
Item		Power Factor (by Input Voltage)		Testing Circuitry		Figure A																																	
Object																																							
1.Graph				2.Values																																			
<div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div>Load 50%</div><div>Load 100%</div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Power Factor</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>75</td><td>0.994</td><td>0.996</td></tr><tr><td>85</td><td>0.993</td><td>0.997</td></tr><tr><td>100</td><td>0.988</td><td>0.995</td></tr><tr><td>120</td><td>0.980</td><td>0.992</td></tr><tr><td>200</td><td>0.907</td><td>0.950</td></tr><tr><td>230</td><td>0.851</td><td>0.924</td></tr><tr><td>264</td><td>0.790</td><td>0.870</td></tr><tr><td>280</td><td>0.637</td><td>0.697</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>				Input Voltage [V]	Power Factor		Load 50%	Load 100%	75	0.994	0.996	85	0.993	0.997	100	0.988	0.995	120	0.980	0.992	200	0.907	0.950	230	0.851	0.924	264	0.790	0.870	280	0.637	0.697	--	-	-				
Input Voltage [V]	Power Factor																																						
	Load 50%	Load 100%																																					
75	0.994	0.996																																					
85	0.993	0.997																																					
100	0.988	0.995																																					
120	0.980	0.992																																					
200	0.907	0.950																																					
230	0.851	0.924																																					
264	0.790	0.870																																					
280	0.637	0.697																																					
--	-	-																																					
Note: Slanted line shows the range of the rated input voltage.																																							

Model		LFP150F-48-Y		Temperature 25°C	
Item		Power Factor (by Load Current)		Testing Circuitry Figure A	
Object		_____			
1.Graph					
		—△— Input Volt. 100V		2.Values	
		---□--- Input Volt. 200V			
		---○--- Input Volt. 230V			
Power Factor					
Load Current [A]					
Note: Slanted line shows the range of the rated load current.					

Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.662	0.340	0.293
0.60	0.964	0.778	0.725
1.20	0.984	0.872	0.815
1.80	0.991	0.920	0.871
2.40	0.993	0.935	0.904
3.00	0.995	0.947	0.921
3.20	0.995	0.951	0.924
3.52	0.995	0.955	0.929
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LFP150F-48-Y	Temperature 25°C Testing Circuitry Figure A	
Item	Inrush Current		
Object			



COSEL

		Temperature 25°C Testing Circuitry Figure B
Model	LFP150F-48-Y	
Item	Leakage Current	
Object	_____	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.28	0.40	0.46	Operation
	One of phases	0.24	0.52	0.63	Stand by
IEC60950-1	Both phases	0.16	0.41	0.45	Operation
	One of phases	0.26	0.63	0.64	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.

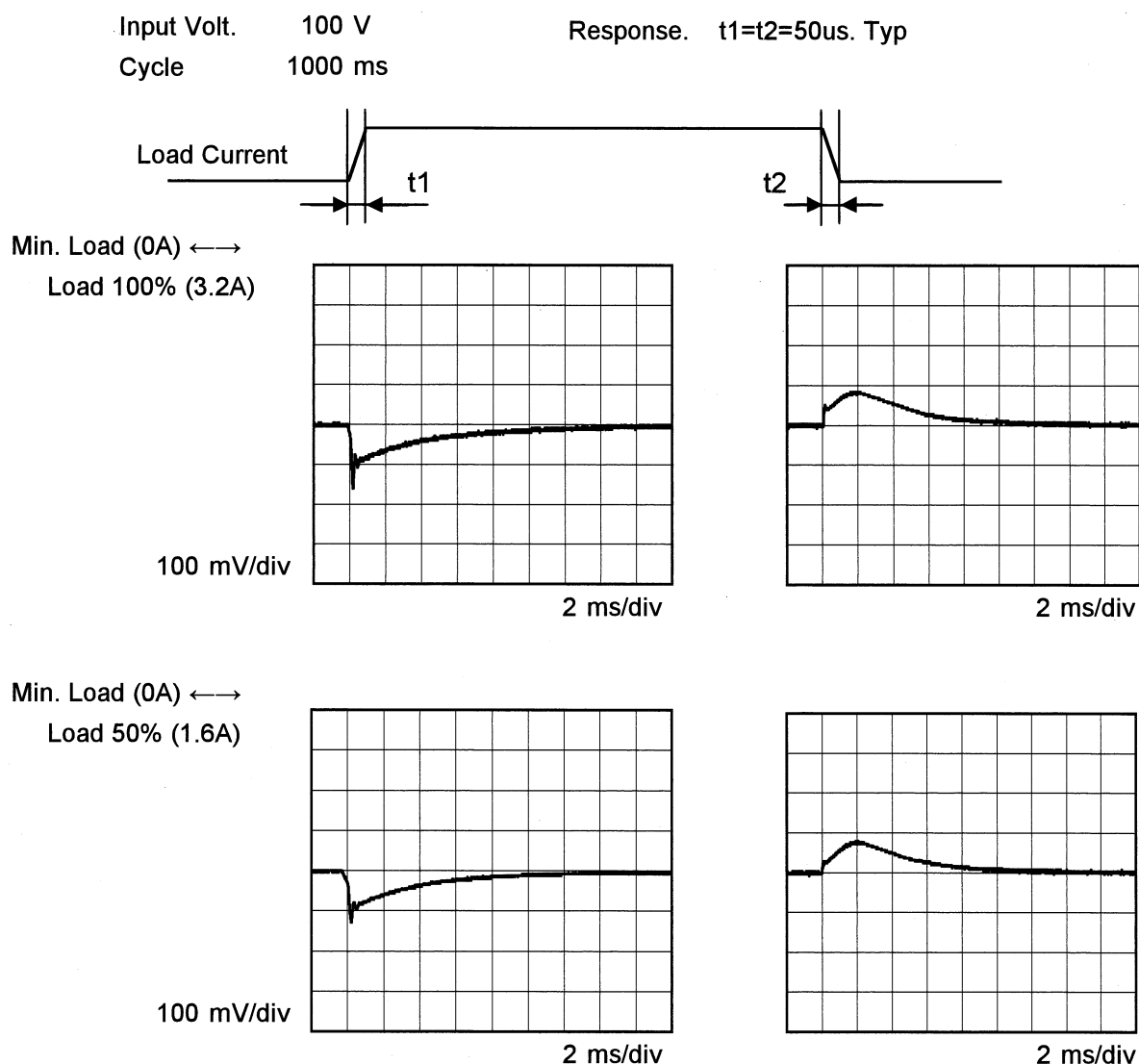
Model	LFP150F-48-Y																																
Item	Line Regulation	Temperature	25°C																														
Object	+48V3.2A	Testing Circuitry	Figure A																														
1.Graph		2.Values																															
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th>Input Voltage [V]</th><th>Output Voltage [V] Load 50%</th><th>Output Voltage [V] Load 100%</th></tr></thead><tbody><tr><td>75</td><td>48.674</td><td>48.670</td></tr><tr><td>85</td><td>48.673</td><td>48.669</td></tr><tr><td>100</td><td>48.673</td><td>48.669</td></tr><tr><td>120</td><td>48.673</td><td>48.669</td></tr><tr><td>200</td><td>48.673</td><td>48.669</td></tr><tr><td>230</td><td>48.672</td><td>48.668</td></tr><tr><td>264</td><td>48.672</td><td>48.668</td></tr><tr><td>280</td><td>48.672</td><td>48.667</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p>		Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%	75	48.674	48.670	85	48.673	48.669	100	48.673	48.669	120	48.673	48.669	200	48.673	48.669	230	48.672	48.668	264	48.672	48.668	280	48.672	48.667	--	-	-		
Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
75	48.674	48.670																															
85	48.673	48.669																															
100	48.673	48.669																															
120	48.673	48.669																															
200	48.673	48.669																															
230	48.672	48.668																															
264	48.672	48.668																															
280	48.672	48.667																															
--	-	-																															



Model	LFP150F-48-Y		
Item	Load Regulation	Temperature	25°C
Object	+48V3.2A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> 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COSEL

Model	LFP150F-48-Y	Temperature Testing Circuitry	25° C Figure A
Item	Dynamic Load Response		
Object	+48V3.2A		



COSEL

Model		LFP150F-48-Y																																							
Item		Ripple Voltage (by Load Current)																																							
Object		+48V3.2A																																							
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 100V</div><div>-·-○-·- Input Volt. 230V</div></div><div>Y-axis: Ripple Voltage [mV] (0 to 200) X-axis: Load Current [A] (0.0 to 4.0)</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 230 [V]</th></tr><tr><td>0.00</td><td>10</td><td>10</td></tr><tr><td>0.60</td><td>25</td><td>25</td></tr><tr><td>1.20</td><td>35</td><td>35</td></tr><tr><td>1.80</td><td>40</td><td>40</td></tr><tr><td>2.40</td><td>50</td><td>50</td></tr><tr><td>3.00</td><td>50</td><td>55</td></tr><tr><td>3.20</td><td>50</td><td>55</td></tr><tr><td>3.52</td><td>60</td><td>60</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></table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 100 [V]	Input Volt. 230 [V]	0.00	10	10	0.60	25	25	1.20	35	35	1.80	40	40	2.40	50	50	3.00	50	55	3.20	50	55	3.52	60	60	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
	Input Volt. 100 [V]	Input Volt. 230 [V]																																							
0.00	10	10																																							
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3.52	60	60																																							
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<div><div>Measured by 20 MHz Oscilloscope.</div><div>Ripple Voltage is shown as p-p in the figure below.</div><div>Note: Slanted line shows the range of the rated load current.</div></div>																																									
<div><div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><div>Y-axis: Ripple [mVp-p]</div></div>																																									
Fig. Complex Ripple Wave Form																																									

Model	LFP150F-48-Y																																								
Item	Ripple-Noise	Temperature	25°C																																						
		Testing Circuitry	Figure C																																						
Object	+24V3.2A																																								
1.Graph		2.Values																																							
<div><div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>-·-○-·-</div><div>Input Volt. 230V</div></div></div> <p>Ripple-Noise [mV]</p> <p>Load Current [A]</p> <p>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.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 230 [V]</th></tr><tr><td>0.00</td><td>30</td><td>30</td></tr><tr><td>0.60</td><td>40</td><td>40</td></tr><tr><td>1.20</td><td>55</td><td>55</td></tr><tr><td>1.80</td><td>65</td><td>70</td></tr><tr><td>2.40</td><td>75</td><td>80</td></tr><tr><td>3.00</td><td>80</td><td>85</td></tr><tr><td>3.20</td><td>80</td><td>85</td></tr><tr><td>3.52</td><td>85</td><td>85</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></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 100 [V]	Input Volt. 230 [V]	0.00	30	30	0.60	40	40	1.20	55	55	1.80	65	70	2.40	75	80	3.00	80	85	3.20	80	85	3.52	85	85	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 100 [V]	Input Volt. 230 [V]																																							
0.00	30	30																																							
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1.20	55	55																																							
1.80	65	70																																							
2.40	75	80																																							
3.00	80	85																																							
3.20	80	85																																							
3.52	85	85																																							
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--	-	-																																							
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<div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div> <p>Ripple-Noise [mVp-p]</p> <p>T1</p> <p>T2</p>																																									
Fig. Complex Ripple Wave Form																																									

Model	LFP150F-48-Y																																																																												
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure C																																																																											
Object	+24V3.2A																																																																												
1.Graph		2.Values																																																																											
<div><div><div>---□---</div><div>Input Volt. 100V</div></div><div><div>—△—</div><div>Input Volt. 230V</div></div></div> <table><thead><tr><th>Ambient Temperature [°C]</th><th>100V [mV]</th><th>230V [mV]</th></tr></thead><tbody><tr><td>-30</td><td>80</td><td>85</td></tr><tr><td>-10</td><td>70</td><td>75</td></tr><tr><td>0</td><td>65</td><td>70</td></tr><tr><td>25</td><td>50</td><td>55</td></tr><tr><td>50</td><td>50</td><td>55</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><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> <p>Measured by 20 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.</p>		Ambient Temperature [°C]	100V [mV]	230V [mV]	-30	80	85	-10	70	75	0	65	70	25	50	55	50	50	55	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	<table><thead><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 230 [V]</th></tr></thead><tbody><tr><td>-30</td><td>80</td><td>85</td></tr><tr><td>-10</td><td>70</td><td>75</td></tr><tr><td>0</td><td>65</td><td>70</td></tr><tr><td>25</td><td>50</td><td>55</td></tr><tr><td>50</td><td>50</td><td>55</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><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>		Ambient Temperature [°C]	Ripple Voltage [mV]		Input Volt. 100 [V]	Input Volt. 230 [V]	-30	80	85	-10	70	75	0	65	70	25	50	55	50	50	55	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	100V [mV]	230V [mV]																																																																											
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Model	LFP150F-48-Y																																																					
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																				
Object	+48V3.2A																																																					
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>---□---</div><div>Input Volt. 200V</div></div><div><div>---○---</div><div>Input Volt. 230V</div></div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>-20</td><td>48.642</td><td>48.641</td><td>48.641</td></tr><tr><td>-10</td><td>48.644</td><td>48.643</td><td>48.643</td></tr><tr><td>0</td><td>48.645</td><td>48.645</td><td>48.644</td></tr><tr><td>10</td><td>48.646</td><td>48.645</td><td>48.645</td></tr><tr><td>20</td><td>48.655</td><td>48.655</td><td>48.655</td></tr><tr><td>25</td><td>48.656</td><td>48.656</td><td>48.655</td></tr><tr><td>30</td><td>48.658</td><td>48.657</td><td>48.657</td></tr><tr><td>40</td><td>48.660</td><td>48.660</td><td>48.659</td></tr><tr><td>50</td><td>48.652</td><td>48.651</td><td>48.651</td></tr><tr><td>60</td><td>48.637</td><td>48.636</td><td>48.636</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	-20	48.642	48.641	48.641	-10	48.644	48.643	48.643	0	48.645	48.645	48.644	10	48.646	48.645	48.645	20	48.655	48.655	48.655	25	48.656	48.656	48.655	30	48.658	48.657	48.657	40	48.660	48.660	48.659	50	48.652	48.651	48.651	60	48.637	48.636	48.636	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
-20	48.642	48.641	48.641																																																			
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0	48.645	48.645	48.644																																																			
10	48.646	48.645	48.645																																																			
20	48.655	48.655	48.655																																																			
25	48.656	48.656	48.655																																																			
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50	48.652	48.651	48.651																																																			
60	48.637	48.636	48.636																																																			
--	-	-	-																																																			



		Testing Circuitry Figure A
Model	LFP150F-48-Y	
Item	Output Voltage Accuracy	
Object	+48V3.2A	

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

2. Values

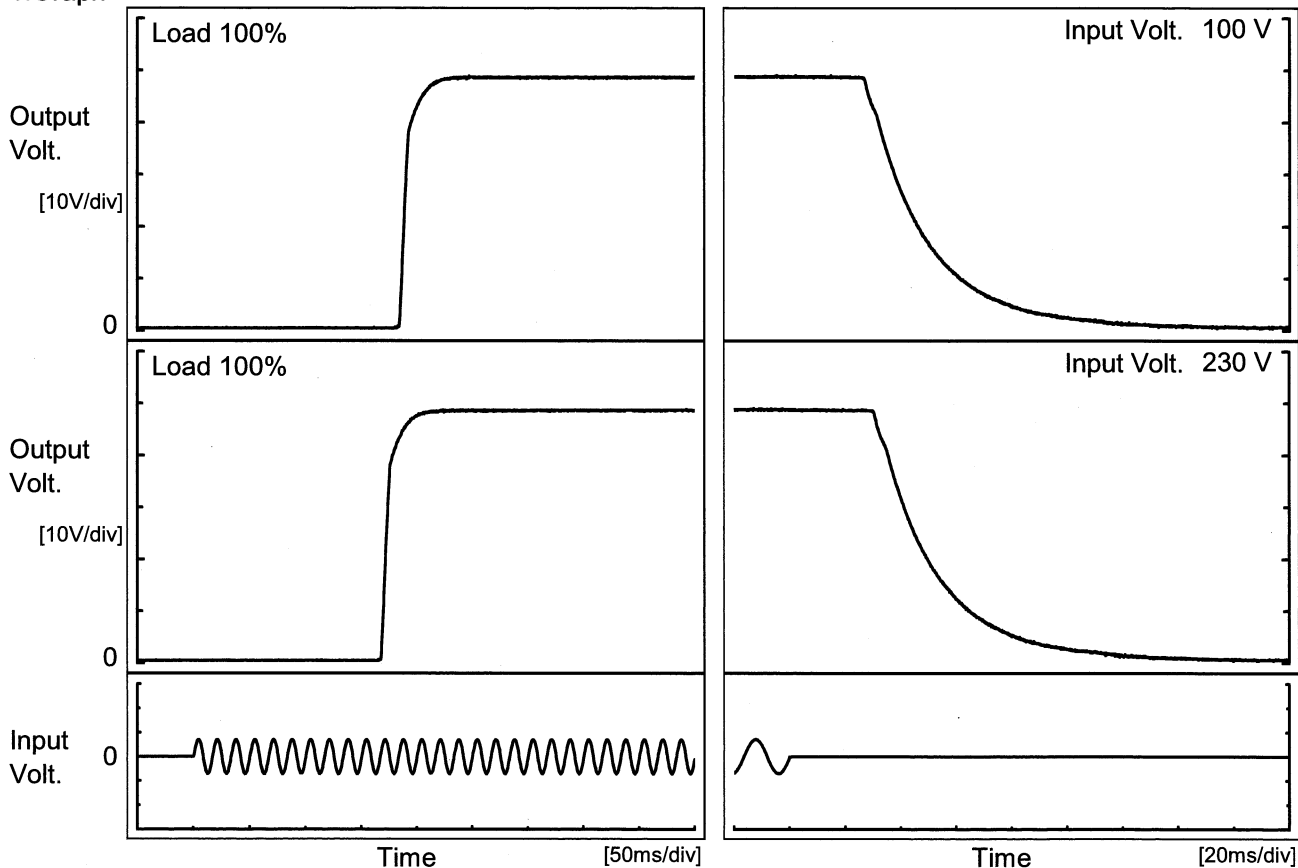
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	200	0	48.675	±17	±0.1
Minimum Voltage	-10	264	3.2	48.642		



Model	LFP150F-48-Y	Temperature 25°C Testing Circuitry Figure A																							
Item	Time Lapse Drift																								
Object	+24V3.2A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 230V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>48.665</td></tr><tr><td>0.5</td><td>48.652</td></tr><tr><td>1.0</td><td>48.650</td></tr><tr><td>2.0</td><td>48.650</td></tr><tr><td>3.0</td><td>48.651</td></tr><tr><td>4.0</td><td>48.652</td></tr><tr><td>5.0</td><td>48.652</td></tr><tr><td>6.0</td><td>48.653</td></tr><tr><td>7.0</td><td>48.653</td></tr><tr><td>8.0</td><td>48.653</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	48.665	0.5	48.652	1.0	48.650	2.0	48.650	3.0	48.651	4.0	48.652	5.0	48.652	6.0	48.653	7.0	48.653	8.0	48.653
Time since start [H]	Output Voltage [V]																								
0.0	48.665																								
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7.0	48.653																								
8.0	48.653																								
* The characteristic of AC230V is equal.																									

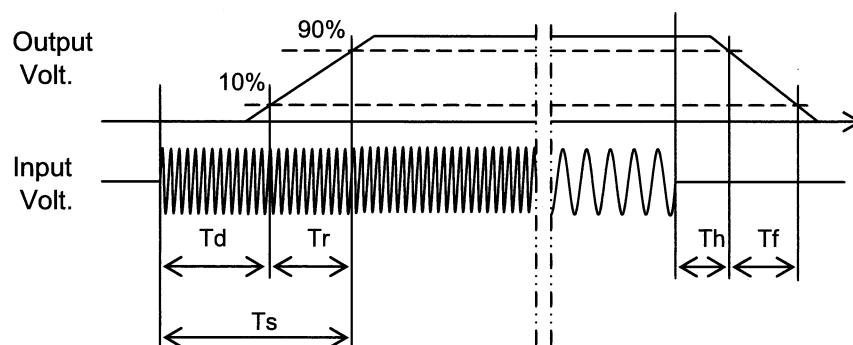
Model	LFP150F-48-Y	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+48V3.2A		

1.Graph



2.Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		185.8	16.3	202.1	29.2	48.6
230 V		169.0	16.0	185.0	32.8	48.2

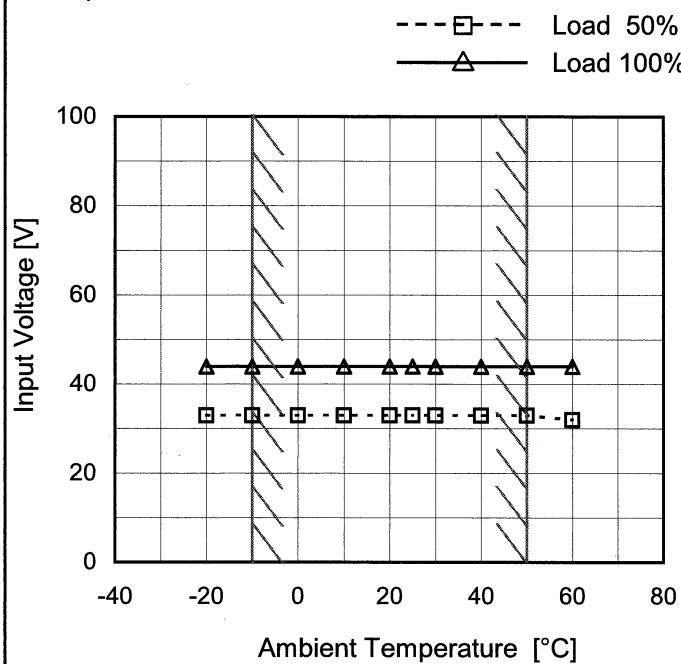


BC-10709

Model	LFP150F-48-Y																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	+48V3.2A	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><div>-·-○-·-</div><div>Input Volt. 230V</div></div></div> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</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>-</td><td>-</td><td>-</td></tr><tr><td>0.60</td><td>123</td><td>156</td><td>156</td></tr><tr><td>1.20</td><td>63</td><td>81</td><td>85</td></tr><tr><td>1.80</td><td>40</td><td>54</td><td>56</td></tr><tr><td>2.40</td><td>31</td><td>39</td><td>39</td></tr><tr><td>3.00</td><td>28</td><td>30</td><td>31</td></tr><tr><td>3.20</td><td>26</td><td>30</td><td>31</td></tr><tr><td>3.52</td><td>24</td><td>24</td><td>27</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]	Time [ms]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	-	-	-	0.60	123	156	156	1.20	63	81	85	1.80	40	54	56	2.40	31	39	39	3.00	28	30	31	3.20	26	30	31	3.52	24	24	27	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
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--	-	-	-																																																			
--	-	-	-																																																			

Model	LFP150F-48-Y
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V3.2A

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%
-20	33	44
-10	33	44
0	33	44
10	33	44
20	33	44
25	33	44
30	33	44
40	33	44
50	33	44
60	32	44
--	-	-

Model	LFP150F-48-Y																																														
Item	Overcurrent Protection	Temperature	25°C																																												
Object	+48V3.2A	Testing Circuitry	Figure A																																												
1.Graph		2.Values																																													
<div><div><div></div>Input Volt. 100V</div><div><div></div>Input Volt. 230V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when the output voltage is from 30V 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. 230[V]</th></tr><tr><td>45.6</td><td>7.51</td><td>7.46</td></tr><tr><td>43.2</td><td>7.54</td><td>7.49</td></tr><tr><td>38.4</td><td>7.60</td><td>7.55</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><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></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 230[V]	45.6	7.51	7.46	43.2	7.54	7.49	38.4	7.60	7.55	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
Output Voltage [V]	Load Current [A]																																														
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Model		LFP150F-48-Y	Testing Circuitry Figure A																																						
Item		Overvoltage Protection																																							
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<div><div><div><div><div></div><div>△</div></div><div>Input Volt. 100V</div></div><div><div><div></div><div>□</div></div><div>Input Volt. 230V</div></div></div><div><p>Operating Point [V]</p><p>Ambient Temperature [°C]</p><p>Load 0%</p><p>Note: Slanted line shows the range of the rated ambient temperature.</p></div></div>			<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Operating Point [V]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>-20</td><td>56.84</td><td>56.67</td></tr><tr><td>-10</td><td>57.26</td><td>57.26</td></tr><tr><td>0</td><td>57.77</td><td>57.66</td></tr><tr><td>10</td><td>58.24</td><td>58.18</td></tr><tr><td>20</td><td>58.65</td><td>58.65</td></tr><tr><td>25</td><td>58.94</td><td>58.83</td></tr><tr><td>30</td><td>59.18</td><td>59.06</td></tr><tr><td>40</td><td>59.65</td><td>59.53</td></tr><tr><td>50</td><td>60.08</td><td>60.08</td></tr><tr><td>60</td><td>60.55</td><td>60.55</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>	Ambient Temperature [°C]	Operating Point [V]		Input Volt. 100[V]	Input Volt. 230[V]	-20	56.84	56.67	-10	57.26	57.26	0	57.77	57.66	10	58.24	58.18	20	58.65	58.65	25	58.94	58.83	30	59.18	59.06	40	59.65	59.53	50	60.08	60.08	60	60.55	60.55	--	-	-
Ambient Temperature [°C]	Operating Point [V]																																								
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50	60.08	60.08																																							
60	60.55	60.55																																							
--	-	-																																							

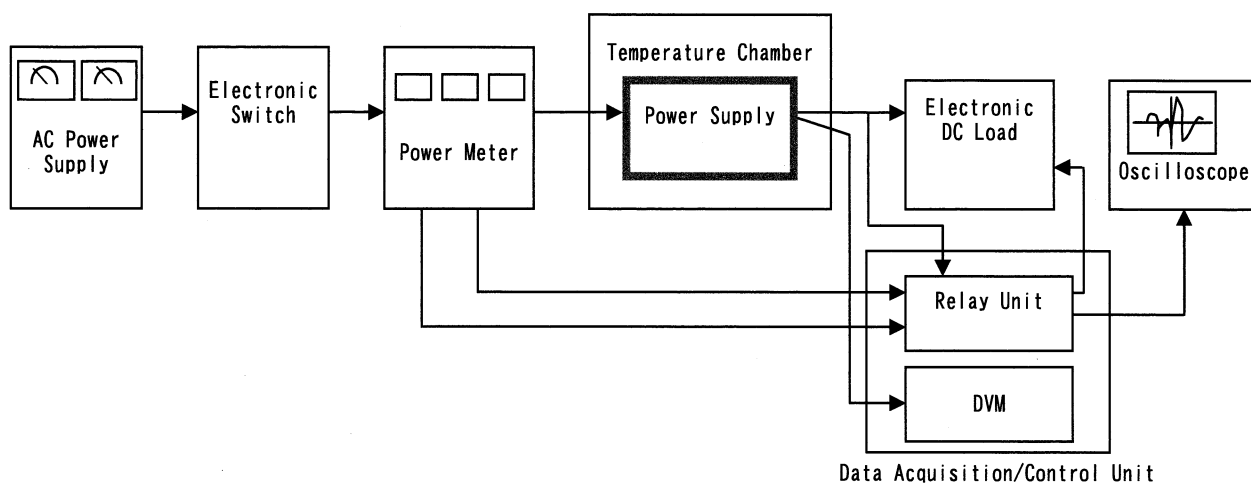


Figure A

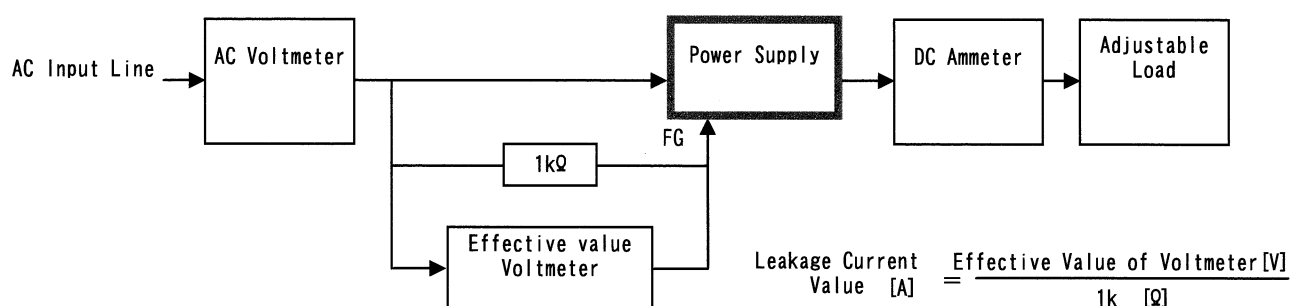


Figure B (DEN-AN)

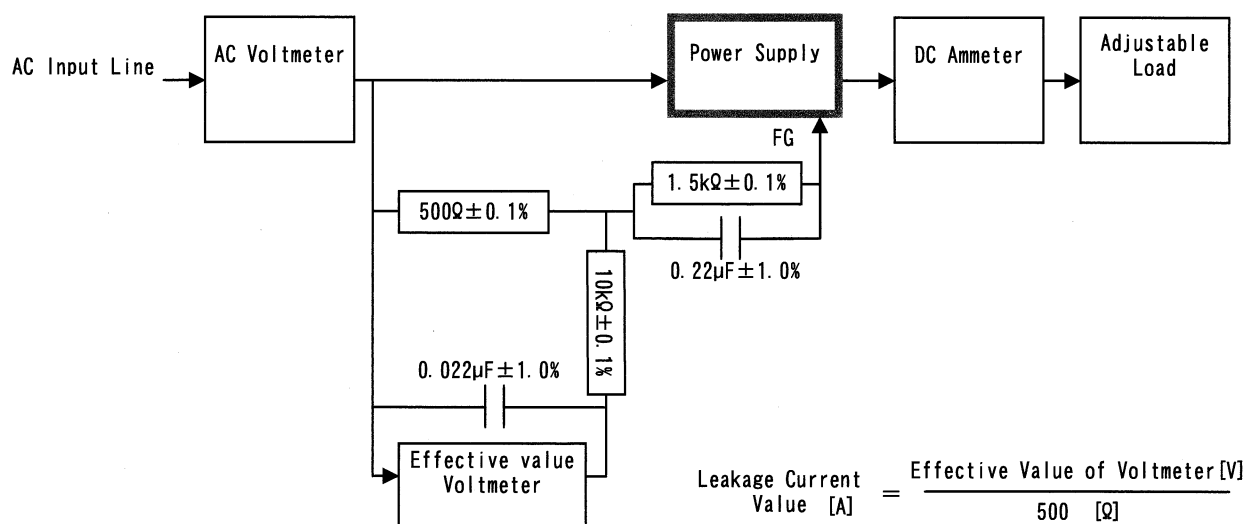


Figure B (IEC60950-1)

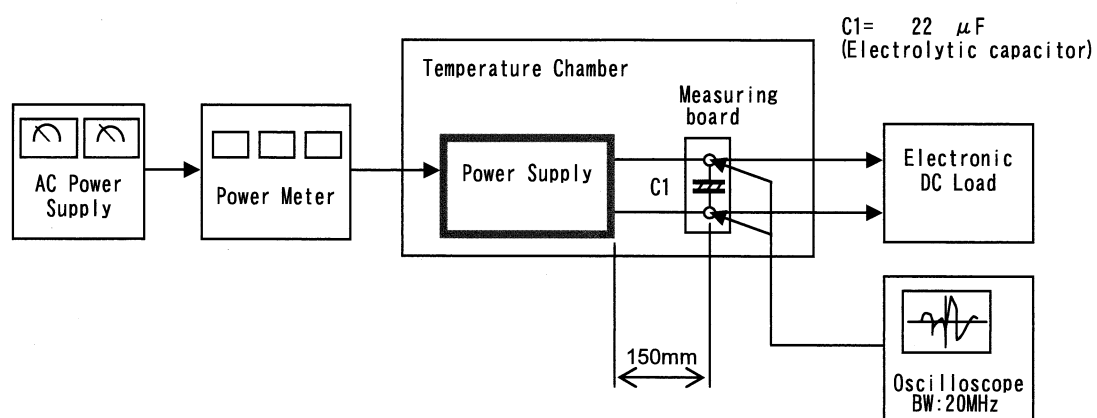


Figure C