



TEST DATA OF PBA15F-12

Regulated DC Power Supply
Sep 29, 2005

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COSEL CO.,LTD.

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(Final Page 24)

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Model

PBA15F-12

Item

Input Current (by Load Current)

Object

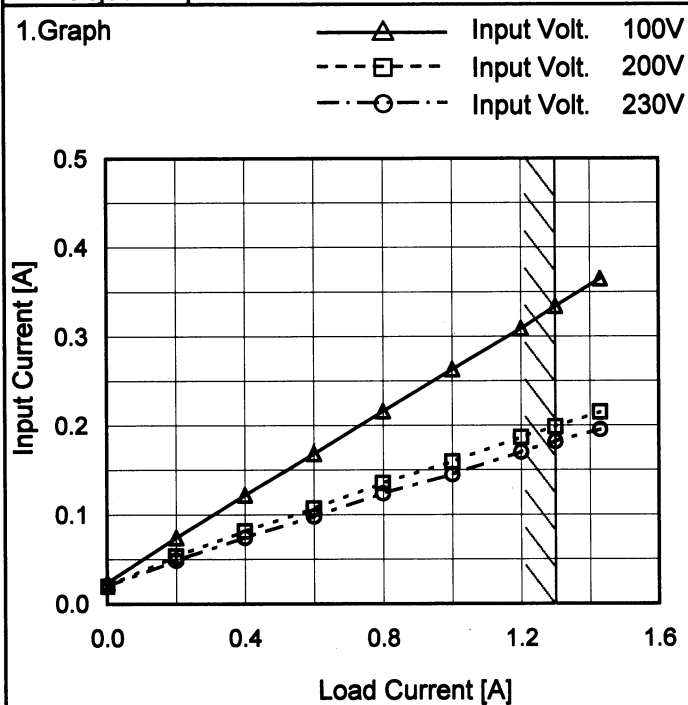
Temperature

25°C

Testing Circuitry

Figure A

1. Graph

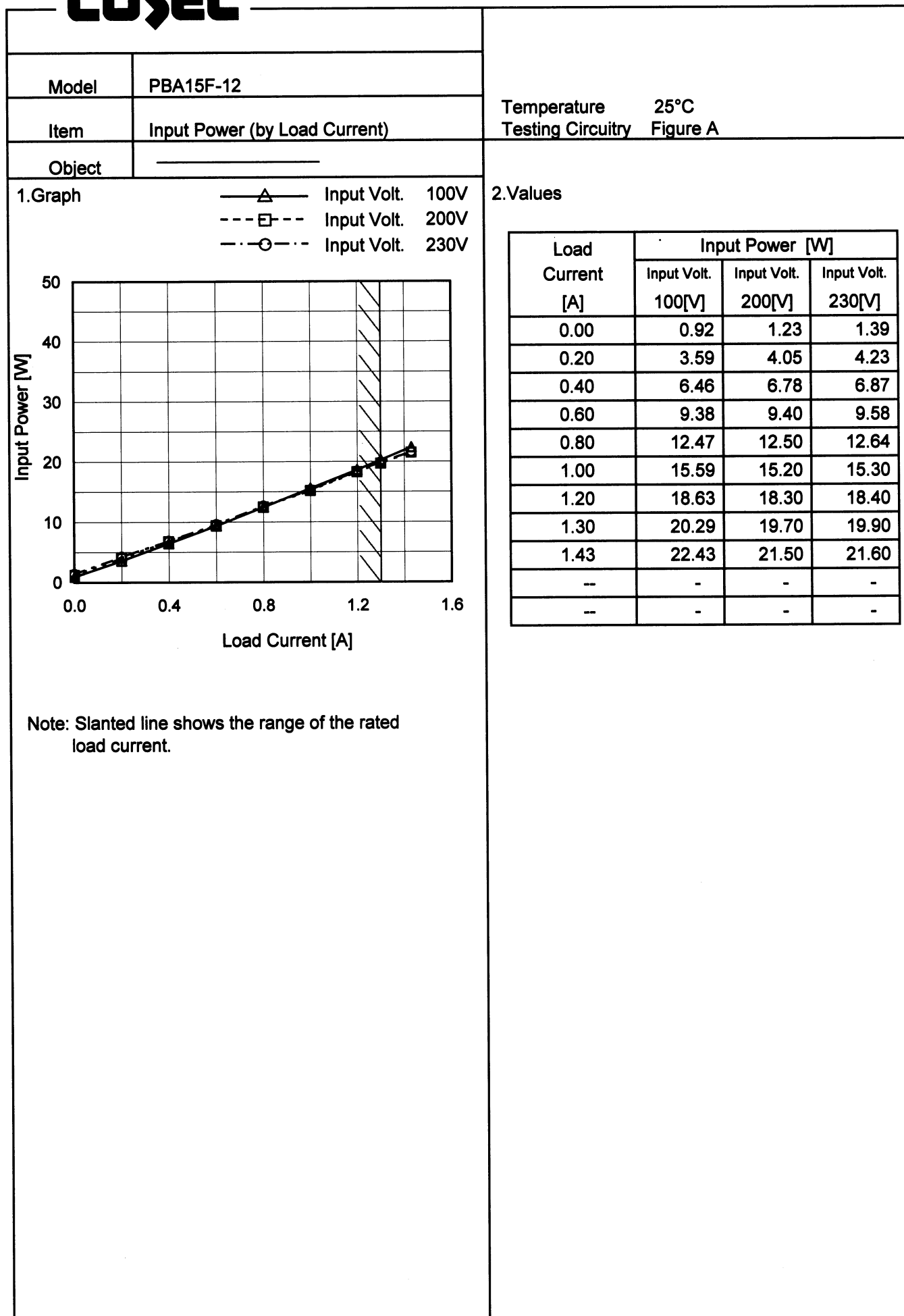


Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.024	0.020	0.020
0.20	0.074	0.053	0.049
0.40	0.122	0.082	0.075
0.60	0.168	0.107	0.098
0.80	0.216	0.135	0.124
1.00	0.263	0.159	0.145
1.20	0.309	0.187	0.170
1.30	0.334	0.199	0.182
1.43	0.365	0.215	0.196
--	-	-	-
--	-	-	-

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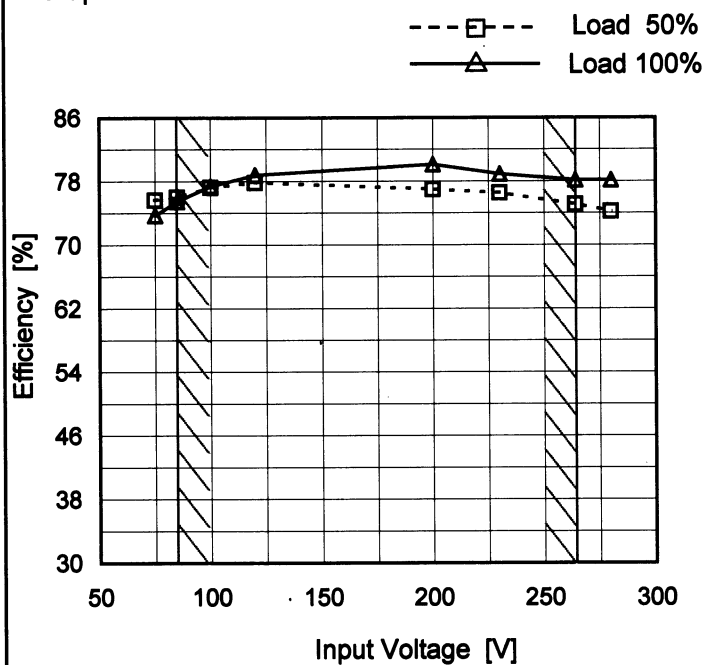
Model PBA15F-12

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%
75	75.7	73.7
85	76.0	75.5
100	77.2	77.4
120	77.8	78.8
200	77.0	80.1
230	76.6	78.9
264	75.1	78.2
280	74.2	78.2
--	-	-

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Model

PBA15F-12

Item

Efficiency (by Load Current)

Object

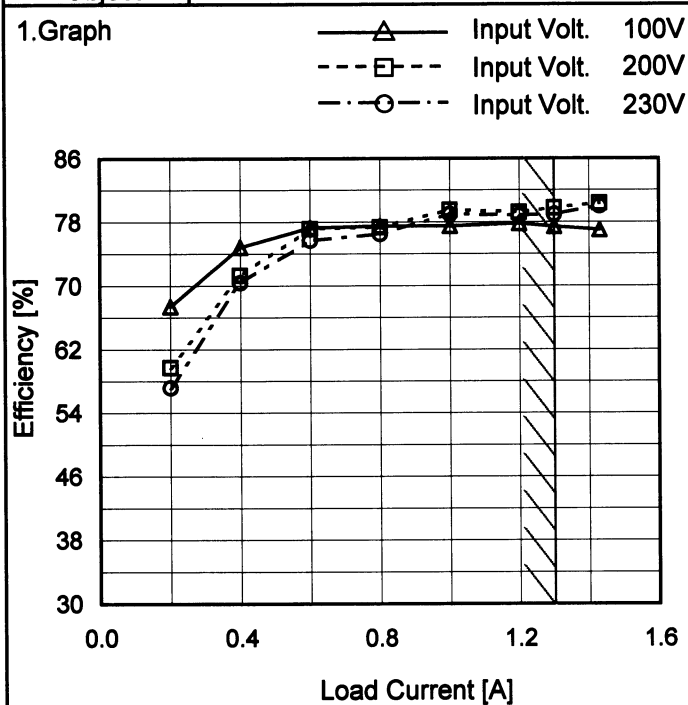
Temperature

25°C

Testing Circuitry

Figure A

1. Graph



2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.20	67.4	59.7	57.2
0.40	74.9	71.3	70.4
0.60	77.3	77.1	75.7
0.80	77.5	77.3	76.5
1.00	77.5	79.5	79.0
1.20	77.8	79.3	78.8
1.30	77.4	79.8	78.9
1.43	77.0	80.4	80.0
--	-	-	-
--	-	-	-

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Model

PBA15F-12

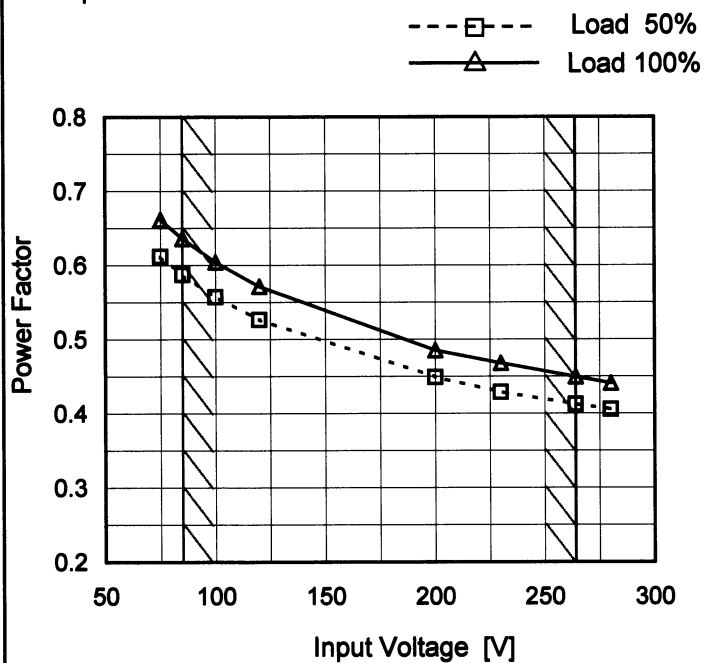
Item

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

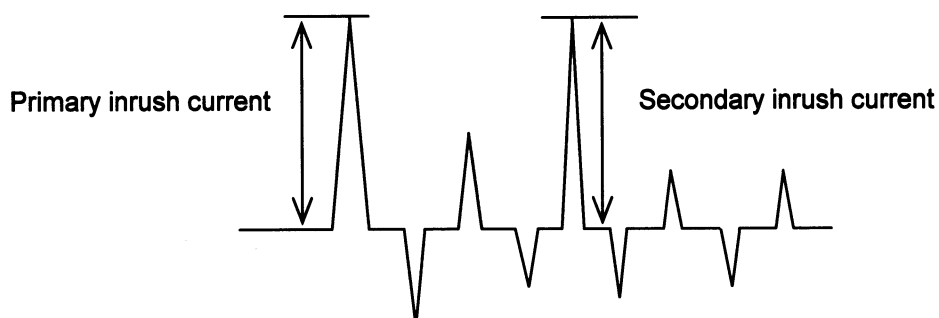
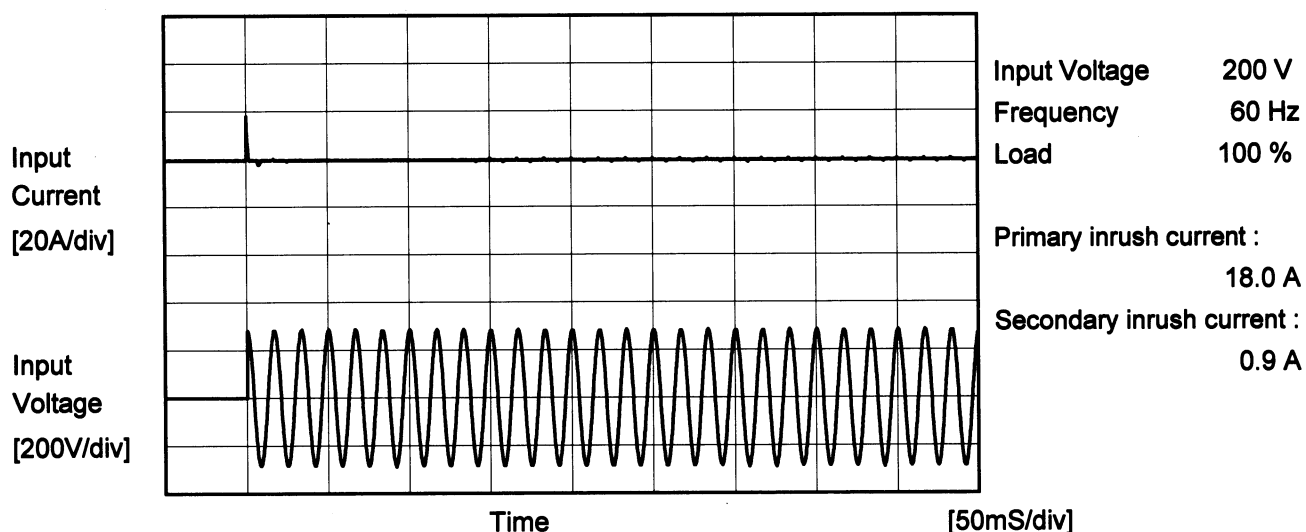
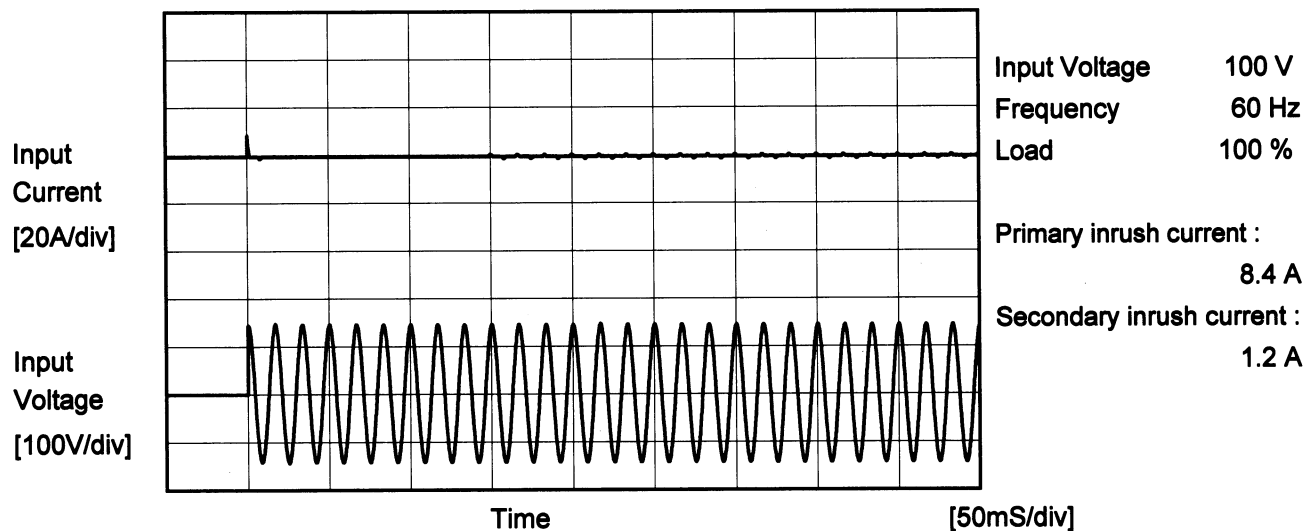
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.612	0.661
85	0.588	0.636
100	0.557	0.604
120	0.527	0.572
200	0.449	0.485
230	0.429	0.468
264	0.412	0.450
280	0.406	0.441
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Model		PBA15F-12		Temperature		25°C																																																				
Item		Power Factor (by Load Current)		Testing Circuitry		Figure A																																																				
Object																																																										
1.Graph				2.Values																																																						
<div><div><div><div><div></div><div></div></div><div>Input Volt.</div><div>100V</div></div><div><div><div></div><div></div></div><div>Input Volt.</div><div>200V</div></div><div><div><div></div><div></div></div><div>Input Volt.</div><div>230V</div></div></div><p>Note: Slanted line shows the range of the rated load current.</p></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>0.385</td><td>0.309</td><td>0.304</td></tr><tr><td>0.20</td><td>0.482</td><td>0.379</td><td>0.375</td></tr><tr><td>0.40</td><td>0.528</td><td>0.415</td><td>0.400</td></tr><tr><td>0.60</td><td>0.557</td><td>0.439</td><td>0.424</td></tr><tr><td>0.80</td><td>0.577</td><td>0.461</td><td>0.443</td></tr><tr><td>1.00</td><td>0.592</td><td>0.476</td><td>0.458</td></tr><tr><td>1.20</td><td>0.603</td><td>0.489</td><td>0.469</td></tr><tr><td>1.30</td><td>0.607</td><td>0.495</td><td>0.475</td></tr><tr><td>1.43</td><td>0.615</td><td>0.500</td><td>0.480</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	0.385	0.309	0.304	0.20	0.482	0.379	0.375	0.40	0.528	0.415	0.400	0.60	0.557	0.439	0.424	0.80	0.577	0.461	0.443	1.00	0.592	0.476	0.458	1.20	0.603	0.489	0.469	1.30	0.607	0.495	0.475	1.43	0.615	0.500	0.480	--	-	-	-	--	-	-	-
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Model	PBA15F-12	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



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		Temperature 25°C Testing Circuitry Figure B
Model	PBA15F-12	
Item	Leakage Current	
Object	_____	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.06	0.12	0.14	Operation
	One of phase	0.10	0.22	0.27	stand by
IEC60950	Both phases	0.07	0.15	0.18	Operation
	One of phase	0.10	0.22	0.27	stand by

The value for "One of phase" 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.

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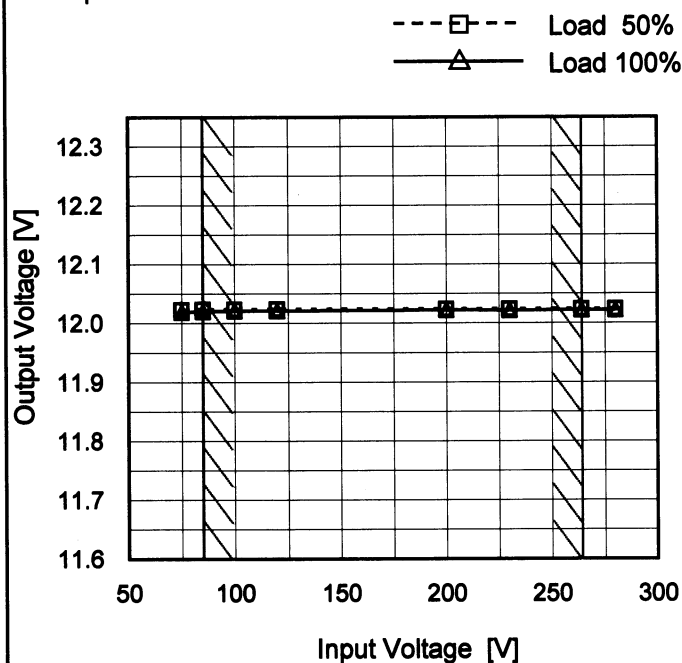
Model PBA15F-12

Item Line Regulation

Object +12V1.3A

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	12.023	12.019
85	12.024	12.020
100	12.024	12.021
120	12.024	12.022
200	12.024	12.022
230	12.024	12.022
264	12.024	12.022
280	12.024	12.022
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Model

PBA15F-12

Item

Load Regulation

Object

+12V1.3A

Temperature

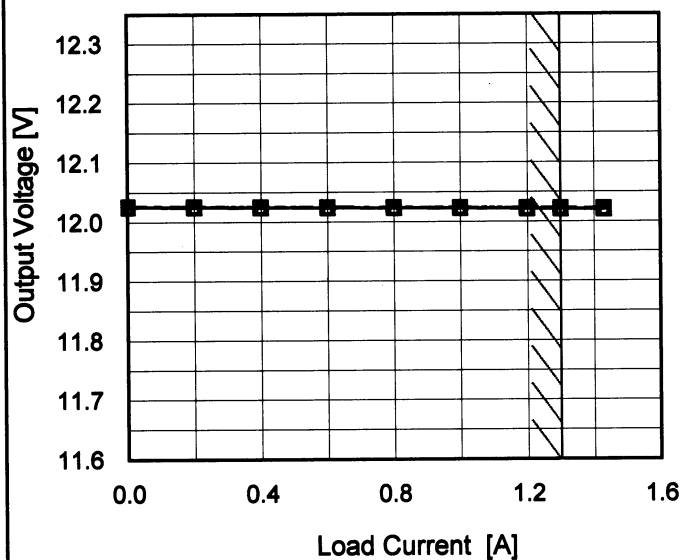
25°C

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]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	12.026	12.026	12.026
0.20	12.025	12.026	12.026
0.40	12.025	12.025	12.025
0.60	12.024	12.025	12.025
0.80	12.024	12.024	12.024
1.00	12.023	12.023	12.024
1.20	12.022	12.023	12.023
1.30	12.021	12.023	12.022
1.43	12.021	12.022	12.022
--	-	-	-
--	-	-	-

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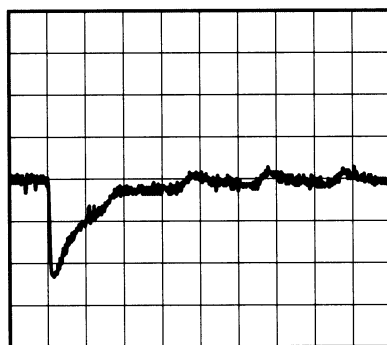
Model	PBA15F-12	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V1.3A		

Input Volt. 100 V
Cycle 1000 ms

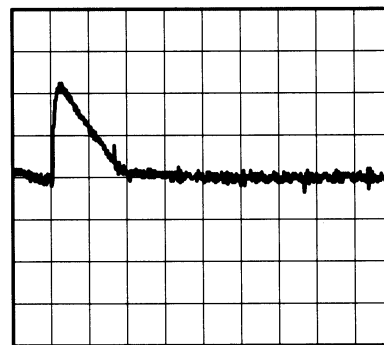
Load Current

Min. Load (0A) ←→
Load 100% (1.3A)

100 mV/div



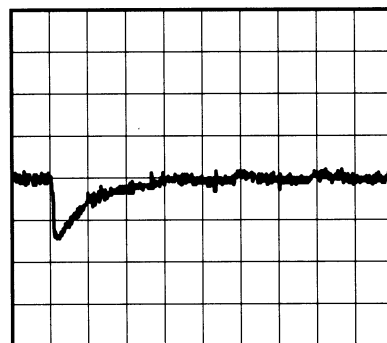
5 ms/div



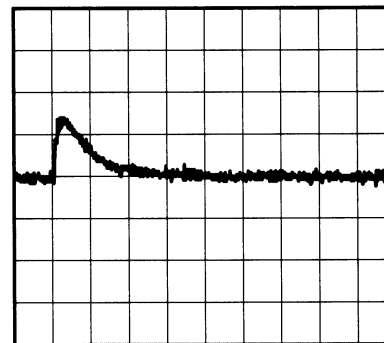
5 ms/div

Min. Load (0A) ←→
Load 50% (0.65A)

100 mV/div



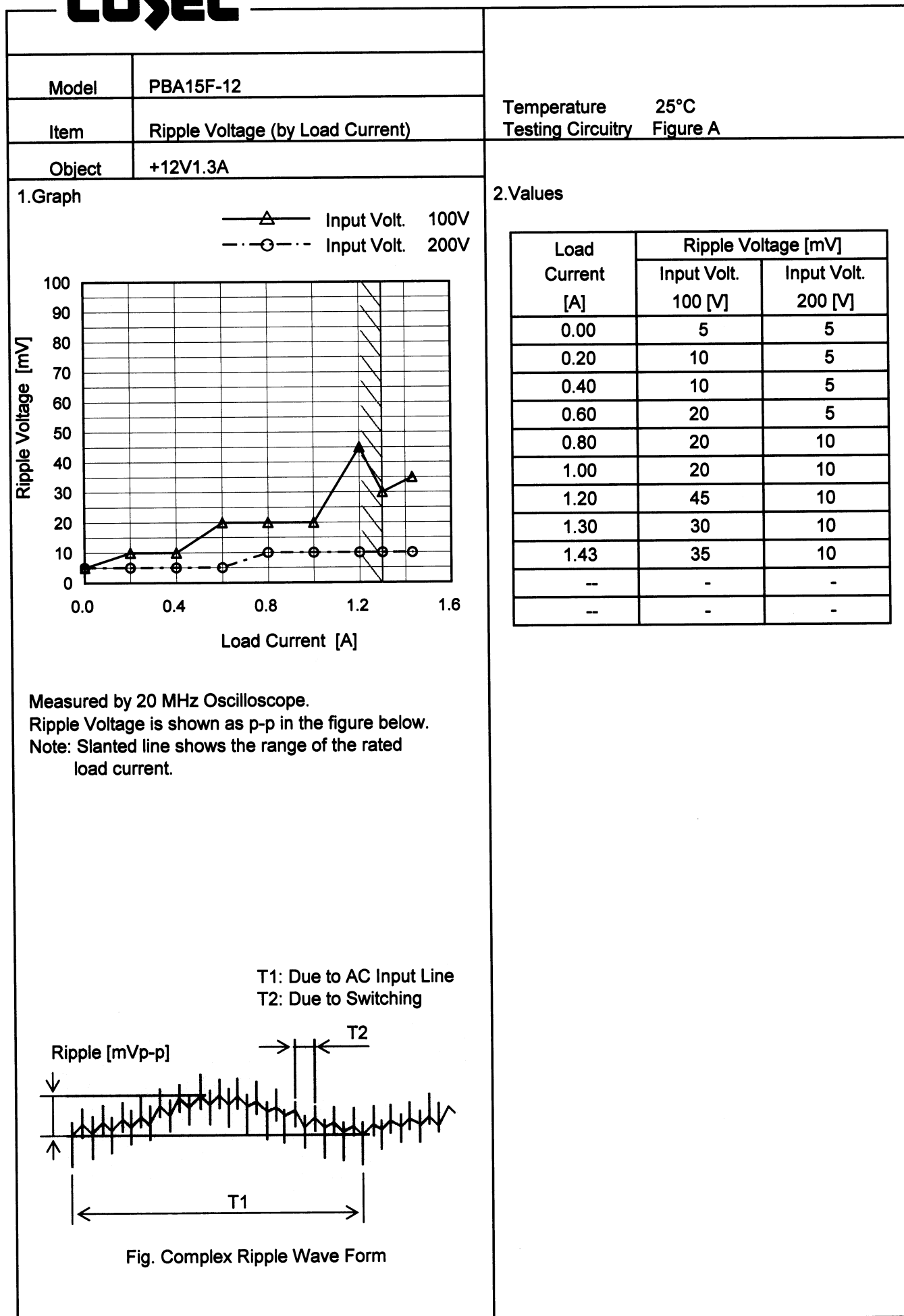
5 ms/div



5 ms/div

* The characteristic of AC200V is equal.

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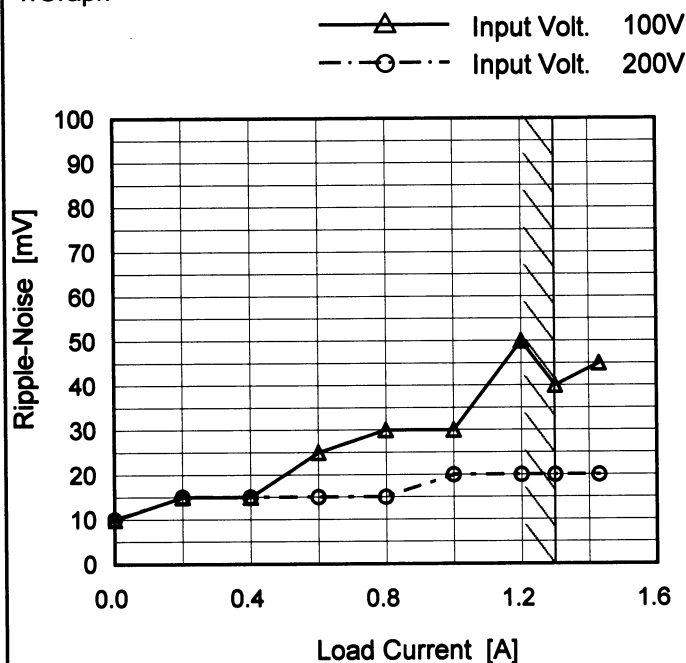
Model PBA15F-12

Item Ripple-Noise

Object +12V1.3A

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	10	10
0.20	15	15
0.40	15	15
0.60	25	15
0.80	30	15
1.00	30	20
1.20	50	20
1.30	40	20
1.43	45	20
--	-	-
--	-	-

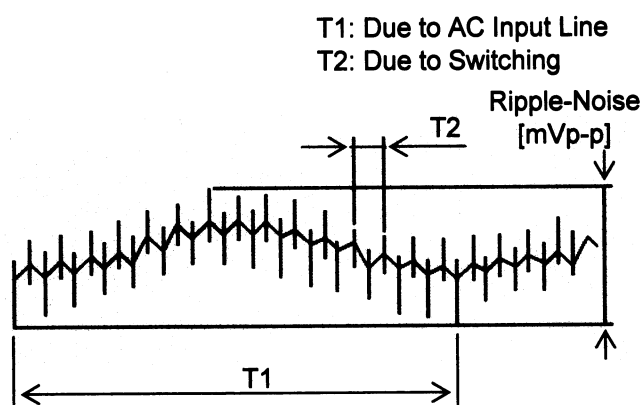


Fig. Complex Ripple Wave Form

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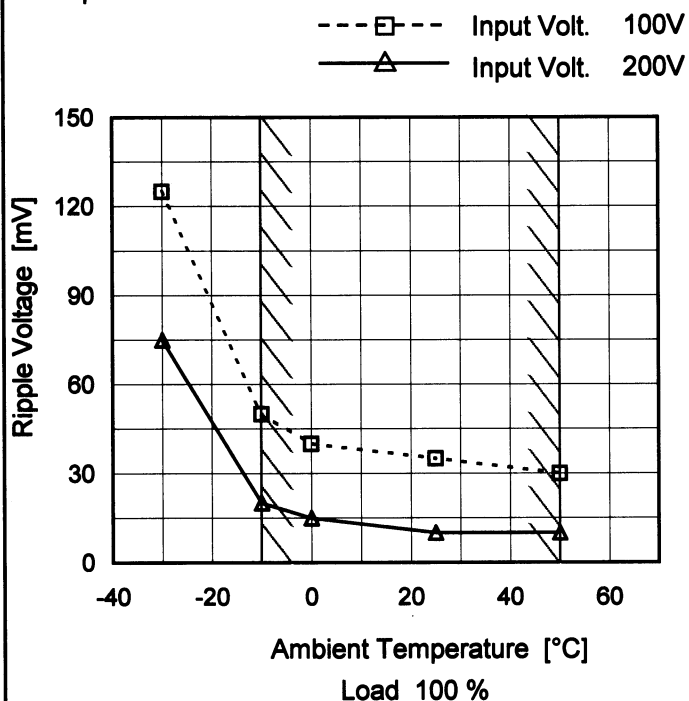
Model PBA15F-12

Item Ripple Voltage (by Ambient Temp.)

Object +12V1.3A

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	125	75
-10	50	20
0	40	15
25	35	10
50	30	10
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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Model

PBA15F-12

Item

Ambient Temperature Drift

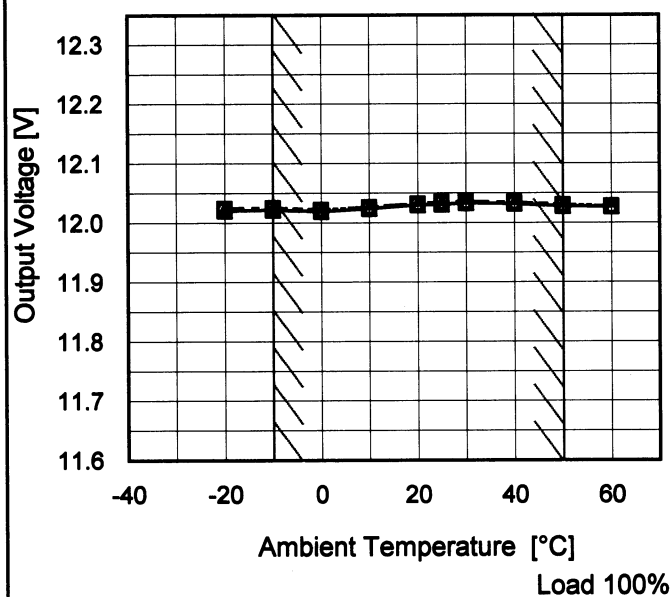
Object

+12V1.3A

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	12.021	12.024	12.024
-10	12.022	12.025	12.025
0	12.019	12.022	12.022
10	12.024	12.026	12.026
20	12.030	12.032	12.032
25	12.031	12.034	12.034
30	12.033	12.035	12.035
40	12.032	12.034	12.034
50	12.028	12.030	12.030
60	12.027	12.028	12.028
--	-	-	-

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		Testing Circuitry Figure A
Model	PBA15F-12	
Item	Output Voltage Accuracy	
Object	+12V1.3A	

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 - 1.3A

* 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	30	264	0	12.038	±10	±0.1
Minimum Voltage	0	85	1.3	12.019		

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Model		PBA15F-12	
Item		Time Lapse Drift	
Object		+12V1.3A	

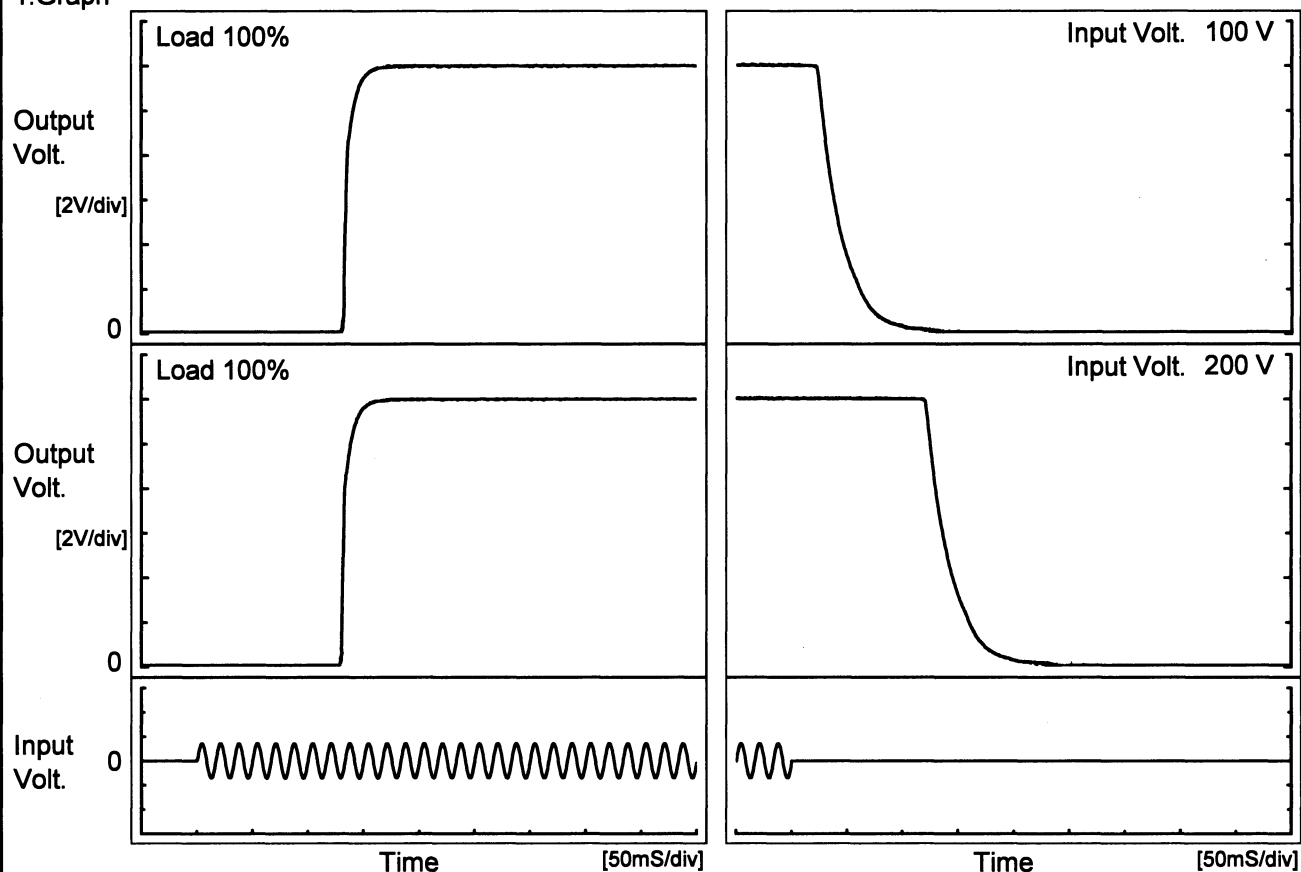
1.Graph

Output Voltage [V]

COSEL

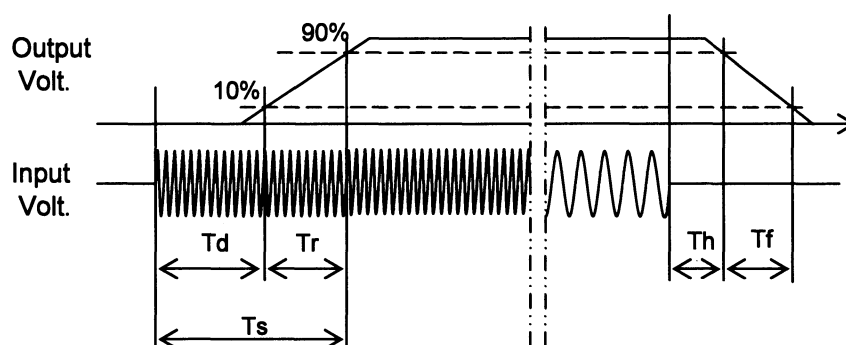
Model	PBA15F-12	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V1.3A		

1. Graph



2. Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		132.3	13.0	145.3	24.8	44.0
200 V		130.3	12.5	142.8	123.3	44.5



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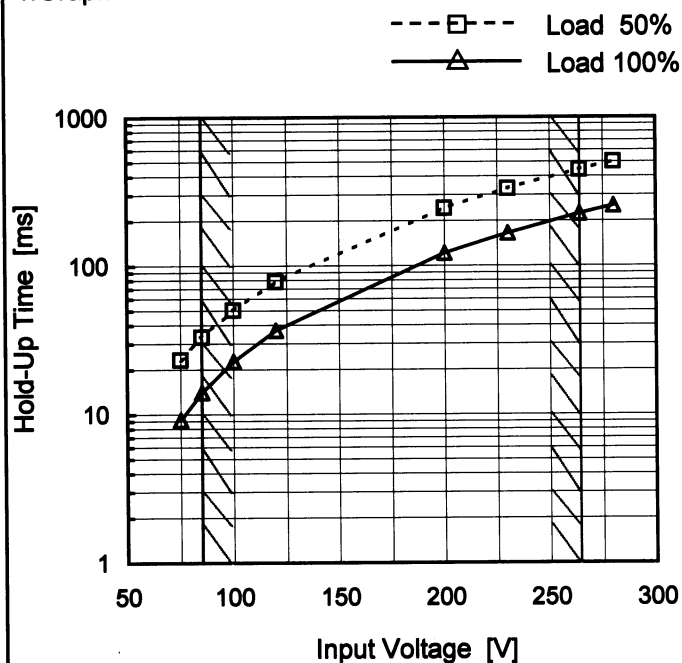
Model PBA15F-12

Item Hold-Up Time

Object +12V1.3A

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	23	9
85	33	14
100	51	23
120	79	37
200	245	122
230	330	166
264	443	224
280	502	255
--	-	-

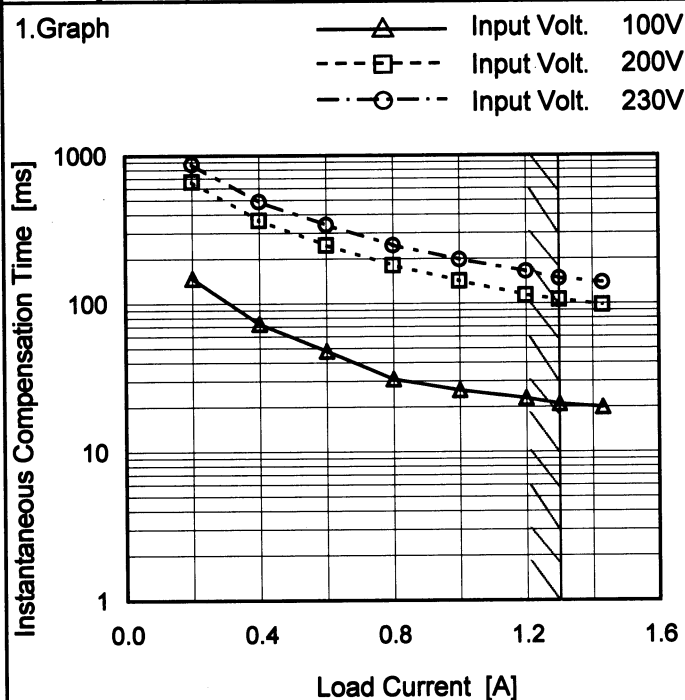
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Model PBA15F-12

Item Instantaneous Interruption Compensation

Object +12V1.3A

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]	Time [ms]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.20	148	665	873
0.40	73	365	490
0.60	48	248	340
0.80	31	181	248
1.00	26	142	198
1.20	23	114	165
1.30	21	106	148
1.43	20	98	139
--	-	-	-
--	-	-	-

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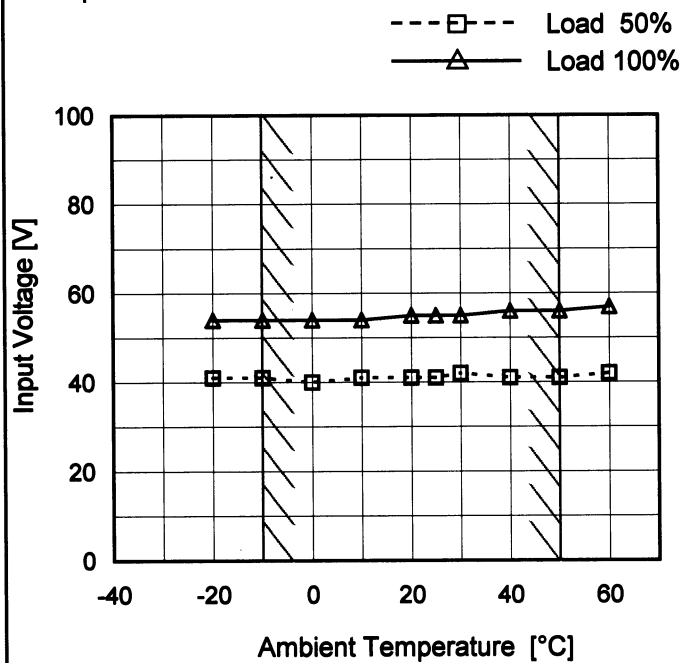
Model PBA15F-12

Item Minimum Input Voltage
for Regulated Output Voltage

Object +12V1.3A

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%
-20	41	54
-10	41	54
0	40	54
10	41	54
20	41	55
25	41	55
30	42	55
40	41	56
50	41	56
60	42	57
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Model	PBA15F-12	Temperature 25°C Testing Circuitry Figure A																																										
Item	Overcurrent Protection																																											
Object	+12V1.3A																																											
1.Graph		2.Values																																										
<div><div>△</div> Input Volt. 100V</div> <div><div>○</div> Input Volt. 200V</div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when the output voltage is less than rated output voltage.</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>12.0</td><td>2.33</td><td>2.82</td></tr><tr><td>11.4</td><td>-</td><td>-</td></tr><tr><td>10.8</td><td>-</td><td>-</td></tr><tr><td>9.6</td><td>-</td><td>-</td></tr><tr><td>8.4</td><td>-</td><td>-</td></tr><tr><td>7.2</td><td>-</td><td>-</td></tr><tr><td>6.0</td><td>-</td><td>-</td></tr><tr><td>4.8</td><td>-</td><td>-</td></tr><tr><td>3.6</td><td>-</td><td>-</td></tr><tr><td>2.4</td><td>-</td><td>-</td></tr><tr><td>1.2</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]	12.0	2.33	2.82	11.4	-	-	10.8	-	-	9.6	-	-	8.4	-	-	7.2	-	-	6.0	-	-	4.8	-	-	3.6	-	-	2.4	-	-	1.2	-	-	0.0	-	-
Output Voltage [V]	Load Current [A]																																											
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7.2	-	-																																										
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Object	+12V1.3A																																								
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 100V</div><div>---□--- Input Volt. 200V</div></div><div>Operating Point [V]</div><div>Ambient Temperature [°C]</div><div>Load 0%</div></div> <div>Note: Slanted line shows the range of the rated ambient temperature.</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. 200[V]</th></tr><tr><td>-20</td><td>16.09</td><td>16.09</td></tr><tr><td>-10</td><td>16.21</td><td>16.15</td></tr><tr><td>0</td><td>16.27</td><td>16.27</td></tr><tr><td>10</td><td>16.39</td><td>16.39</td></tr><tr><td>20</td><td>16.45</td><td>16.45</td></tr><tr><td>25</td><td>16.51</td><td>16.51</td></tr><tr><td>30</td><td>16.57</td><td>16.57</td></tr><tr><td>40</td><td>16.69</td><td>16.63</td></tr><tr><td>50</td><td>16.75</td><td>16.75</td></tr><tr><td>60</td><td>16.86</td><td>16.80</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Operating Point [V]		Input Volt. 100[V]	Input Volt. 200[V]	-20	16.09	16.09	-10	16.21	16.15	0	16.27	16.27	10	16.39	16.39	20	16.45	16.45	25	16.51	16.51	30	16.57	16.57	40	16.69	16.63	50	16.75	16.75	60	16.86	16.80	--	-	-
Ambient Temperature [°C]	Operating Point [V]																																								
	Input Volt. 100[V]	Input Volt. 200[V]																																							
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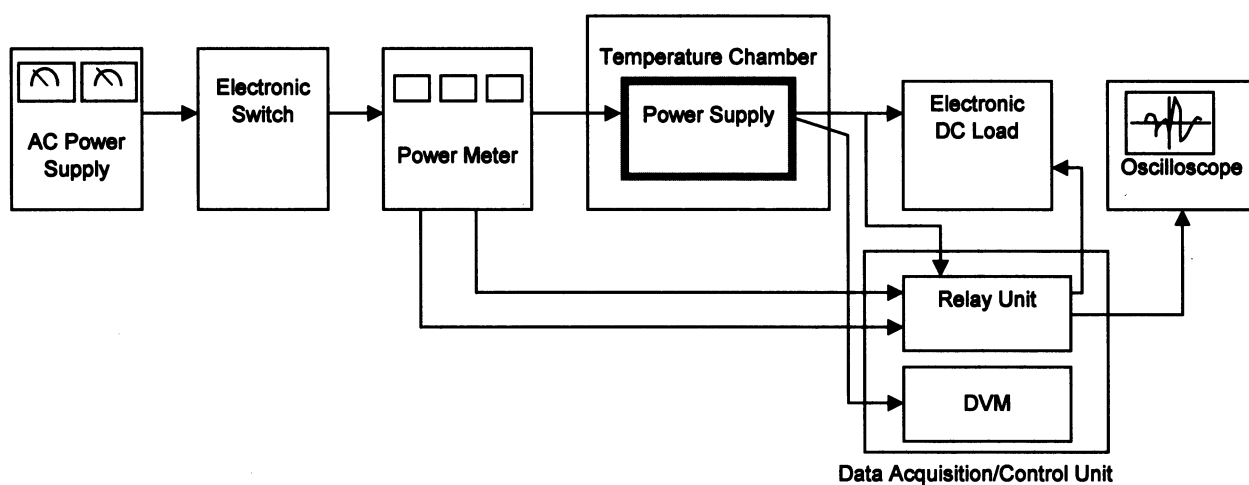


Figure A

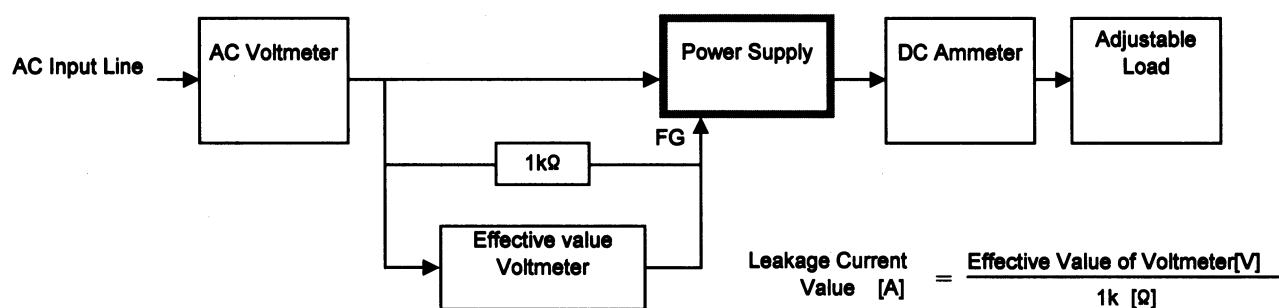


Figure B (DEN-AN)

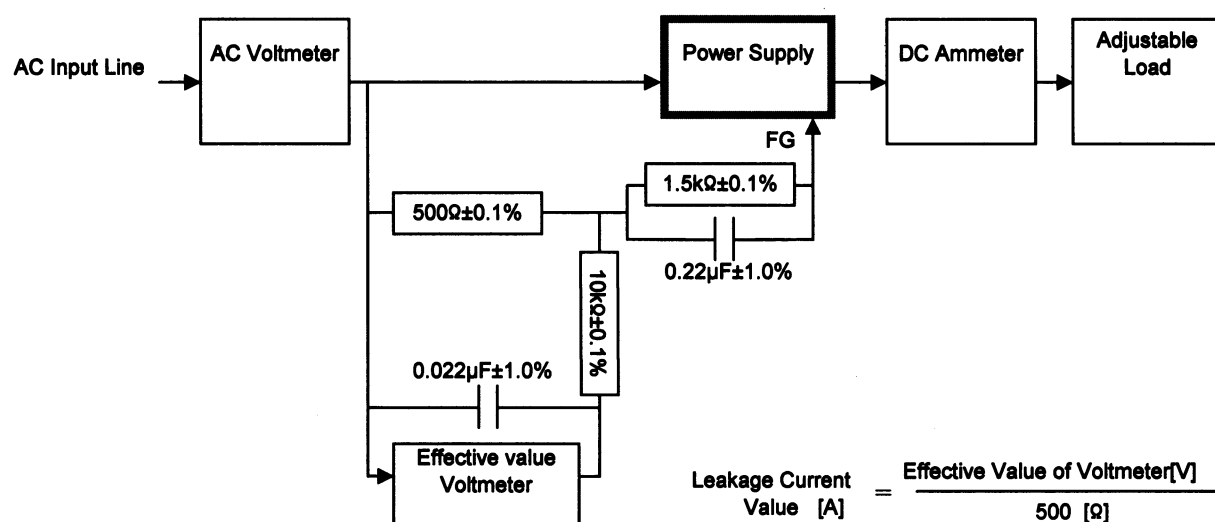


Figure B (IEC60950)