



TEST DATA OF PBA150F-9

Regulated DC Power Supply
Apr.8. 2004

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COSEL CO.,LTD.

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(Final Page 24)



Model		PBA150F-9	
Item		Input Current (by Load Current)	
Object			

1.Graph

—△—

Input Volt.

100V

---□---

Input Volt.

200V

---○---

Input Volt.

230V

5.0

4.0

3.0

2.0

1.0

0.0

0

4

8

12

16

20

Input Current [A]

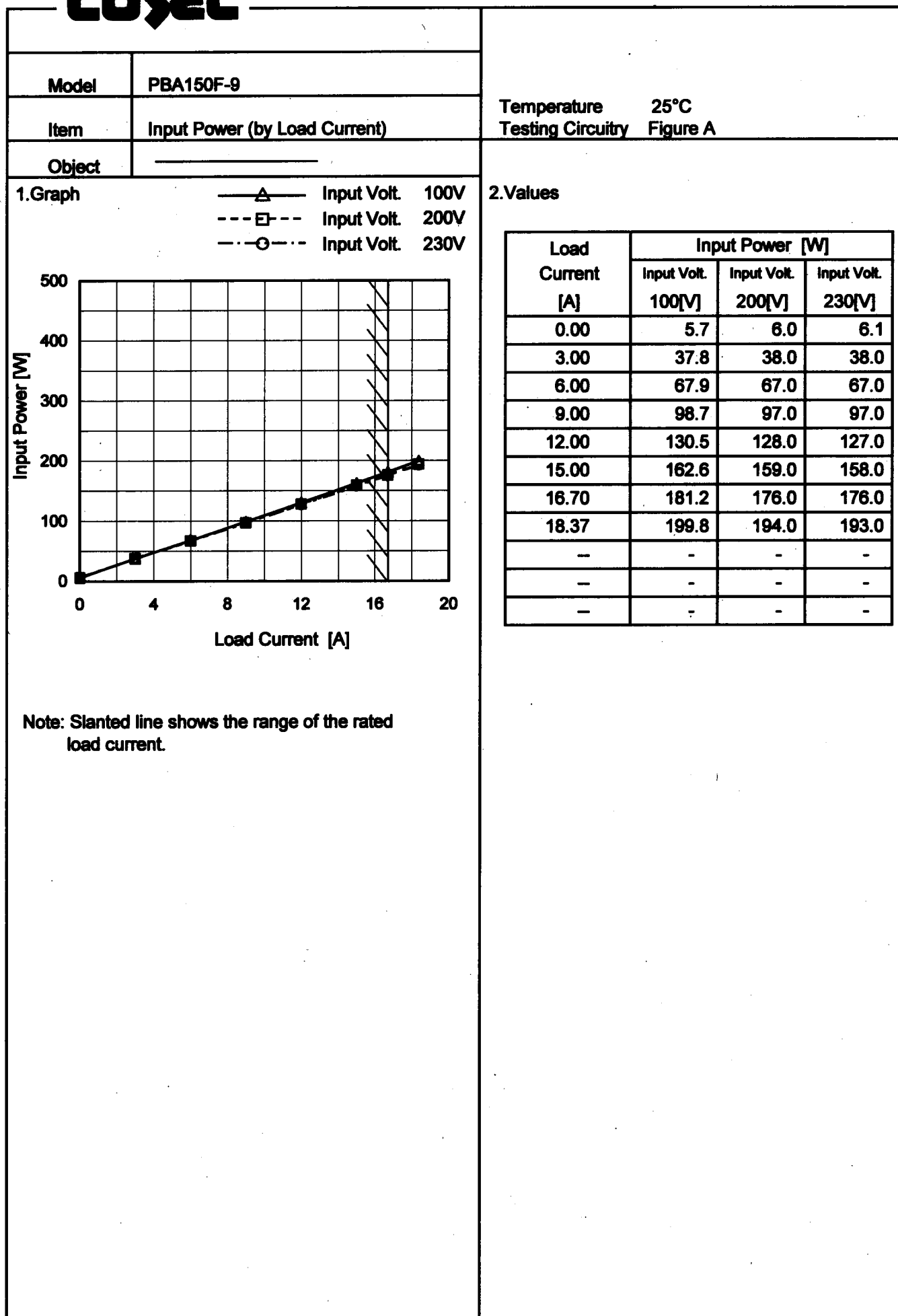
Load Current [A]

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

2.Values

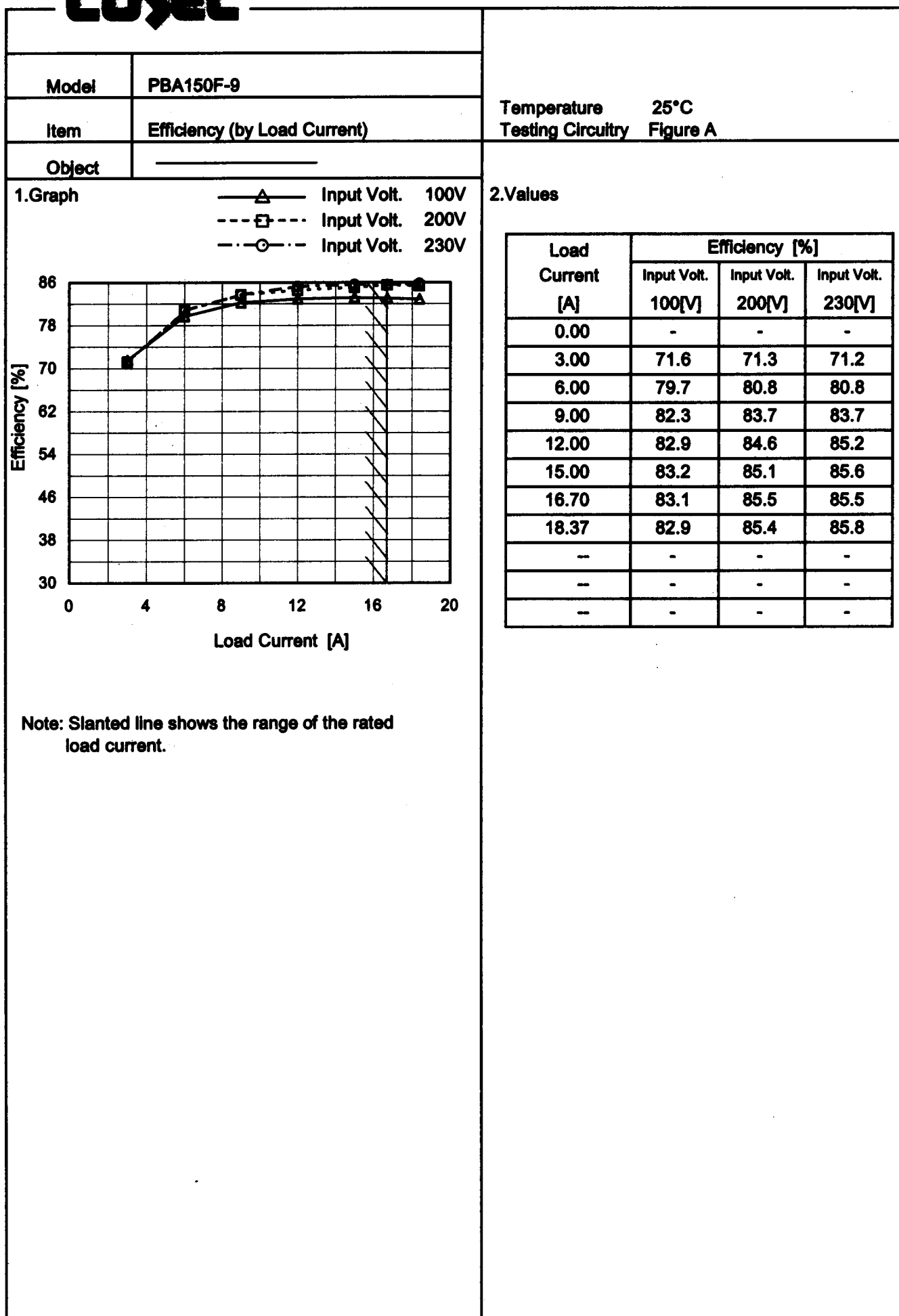
Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.102	0.066	0.064
3.00	0.398	0.264	0.248
6.00	0.694	0.394	0.370
9.00	1.000	0.534	0.490
12.00	1.314	0.682	0.614
15.00	1.636	0.836	0.742
16.70	1.822	0.922	0.818
18.37	2.007	1.010	0.892
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--	-	-	-
--	-	-	-

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Model	PBA150F-9	Temperature 25°C Testing Circuitry Figure A																															
Item	Efficiency (by Input Voltage)																																
Object																																	
1.Graph		2.Values																															
<div><div>---□--- Load 50%</div><div>—△— Load 100%</div><table><thead><tr><th>Input Voltage [V]</th><th>Load 50% Efficiency [%]</th><th>Load 100% Efficiency [%]</th></tr></thead><tbody><tr><td>75</td><td>80.5</td><td>80.8</td></tr><tr><td>85</td><td>81.4</td><td>82.1</td></tr><tr><td>100</td><td>82.1</td><td>83.2</td></tr><tr><td>120</td><td>82.6</td><td>84.2</td></tr><tr><td>200</td><td>82.8</td><td>85.5</td></tr><tr><td>230</td><td>82.8</td><td>85.5</td></tr><tr><td>264</td><td>82.8</td><td>86.0</td></tr><tr><td>280</td><td>82.8</td><td>86.0</td></tr><tr><td>—</td><td>-</td><td>-</td></tr></tbody></table></div>		Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]	75	80.5	80.8	85	81.4	82.1	100	82.1	83.2	120	82.6	84.2	200	82.8	85.5	230	82.8	85.5	264	82.8	86.0	280	82.8	86.0	—	-	-		
Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]																															
75	80.5	80.8																															
85	81.4	82.1																															
100	82.1	83.2																															
120	82.6	84.2																															
200	82.8	85.5																															
230	82.8	85.5																															
264	82.8	86.0																															
280	82.8	86.0																															
—	-	-																															
Note: Slanted line shows the range of the rated input voltage.																																	

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Model		PBA150F-9	
Item		Power Factor (by Input Voltage)	
Object			

1.Graph

Load 50%

Load 100%

Power Factor

1.0

0.9

0.8

0.7

0.6

0.5

0.4

50

100

150

200

250

300

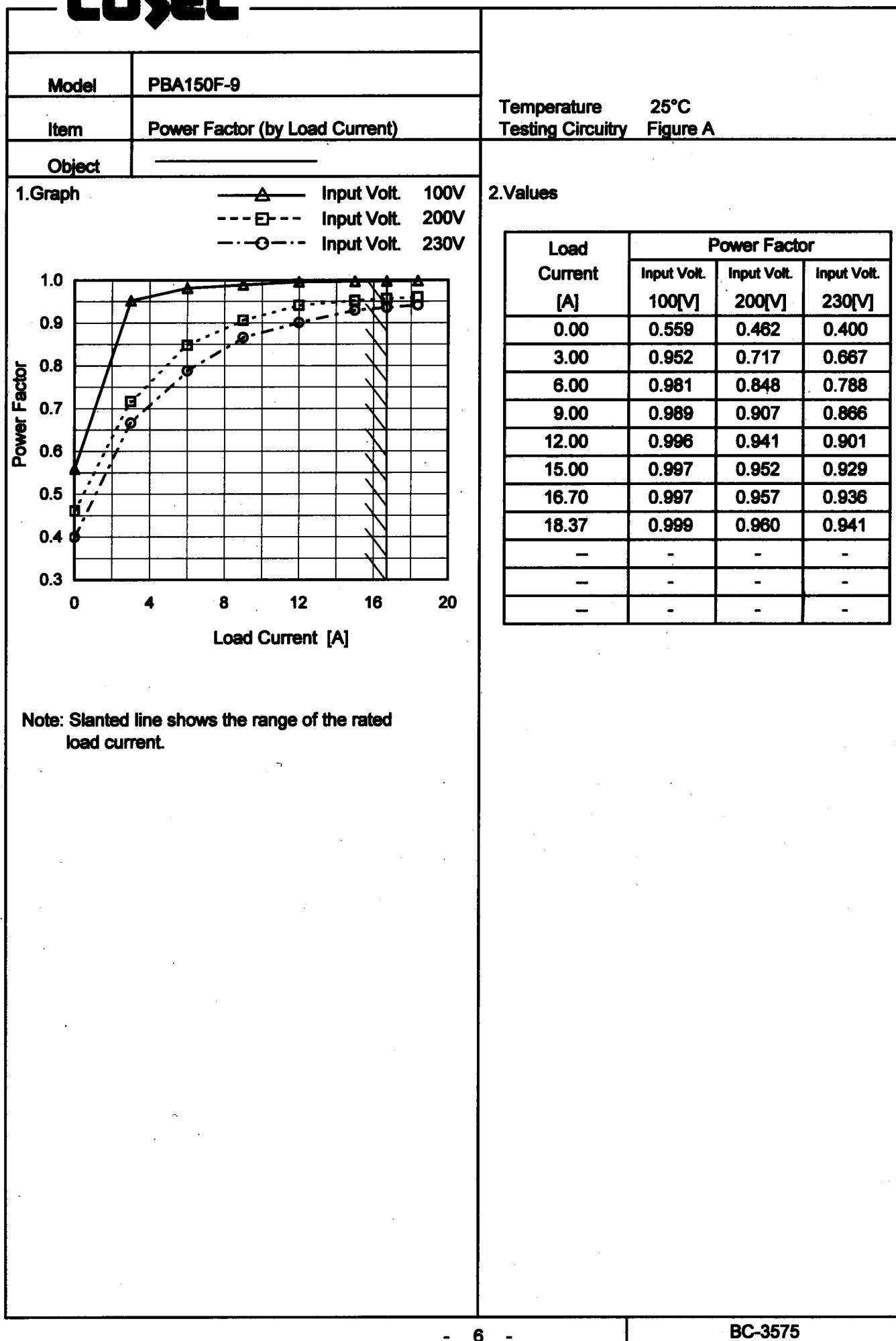
Input Voltage [V]

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

2.Values

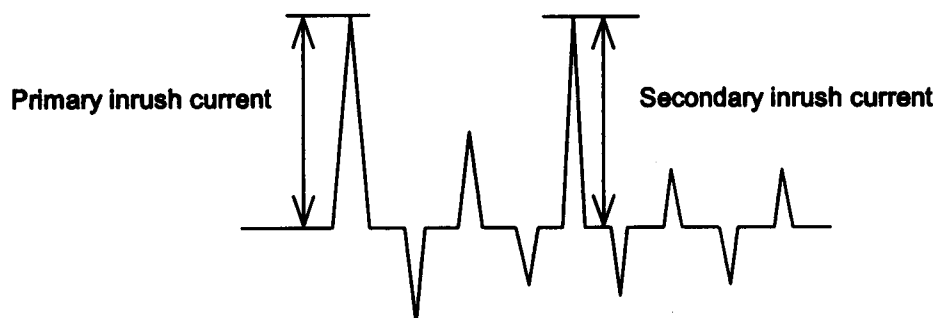
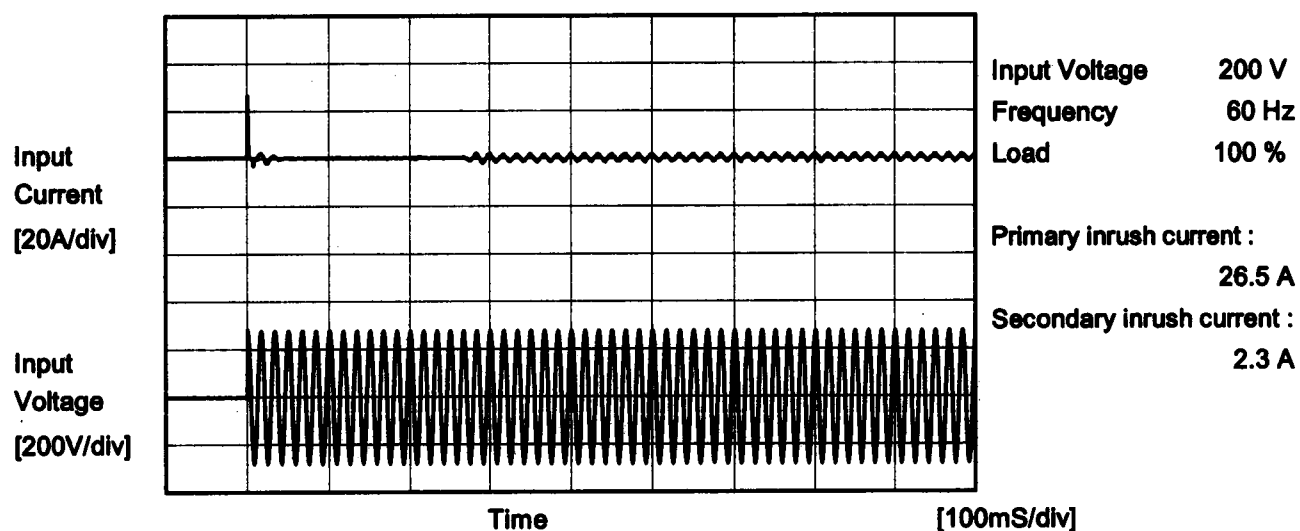
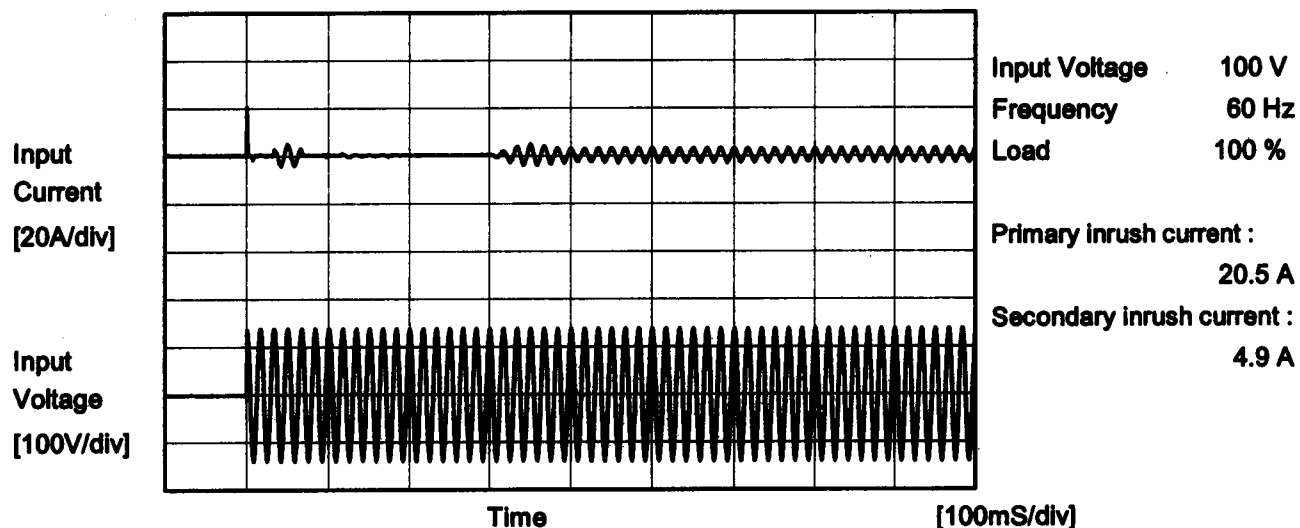
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.999	0.999
85	0.997	0.999
100	0.989	0.998
120	0.976	0.994
200	0.901	0.957
230	0.850	0.936
264	0.734	0.907
280	0.657	0.850
--	-	-

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Model	PBA150F-9	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



		Temperature 25°C Testing Circuitry Figure B
Model	PBA150F-9	
Item	Leakage Current	
Object	_____	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	230 [V]	
DEN-AN	Both phases	0.19	0.37	0.43	Operation
	One of phase	0.27	0.54	0.62	stand by
IEC60950	Both phases	0.19	0.38	0.48	Operation
	One of phase	0.27	0.58	0.71	stand by

The value for "One 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		PBA150F-9	
Item		Line Regulation	
Object		+9V16.7A	

1.Graph

□

Load 50%

△

Load 100%

Output Voltage [V]

9.10

9.08

9.06

9.04

9.02

9.00

8.98

8.96

50

100

150

200

250

300

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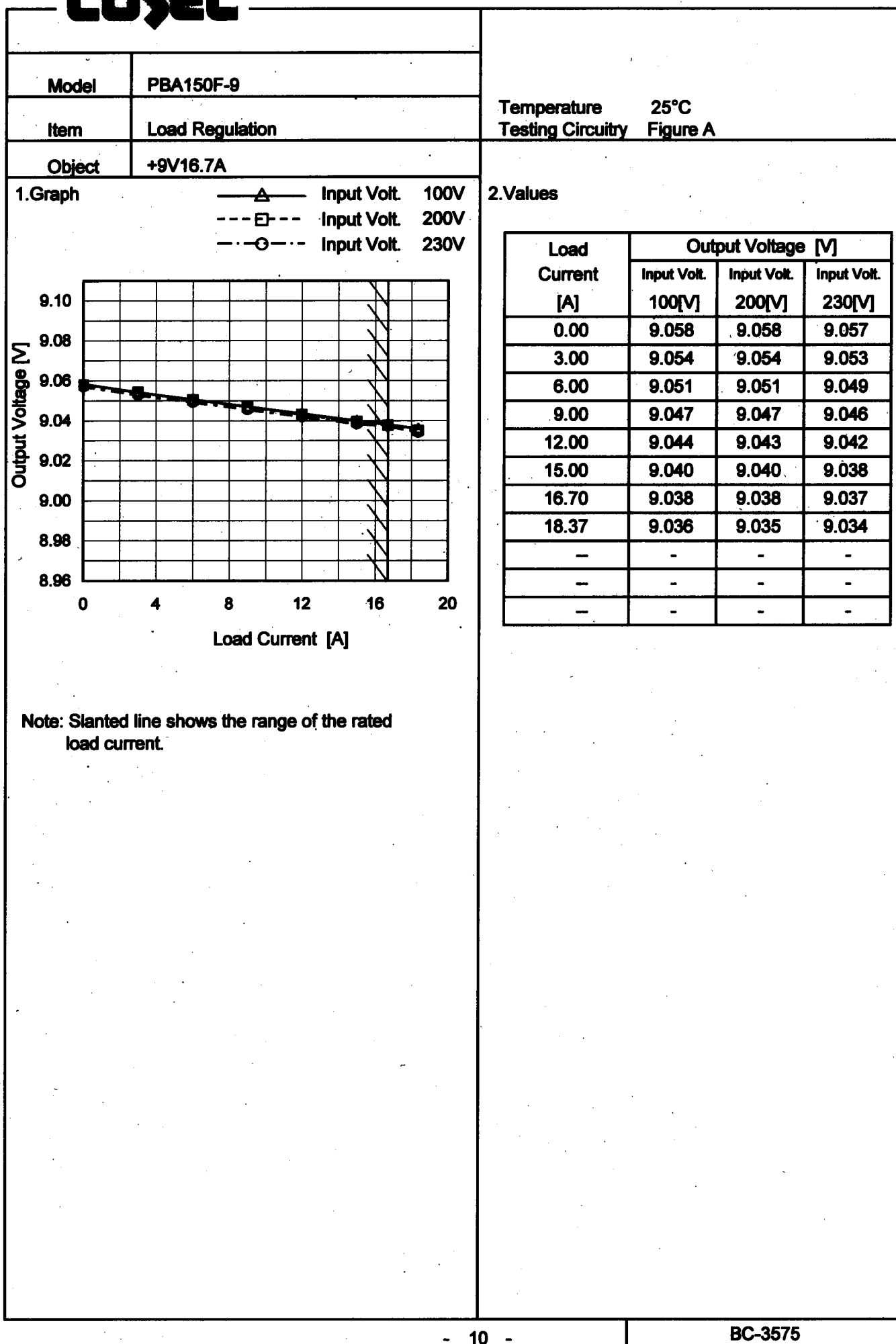
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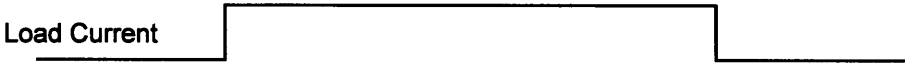
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Model	PBA150F-9
Item	Dynamic Load Response
Object	+9V16.7A

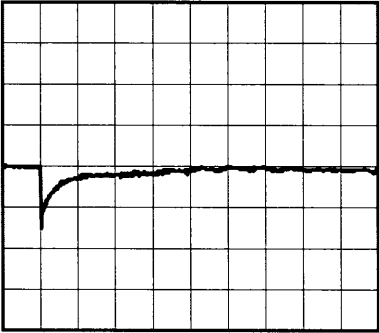
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 ms

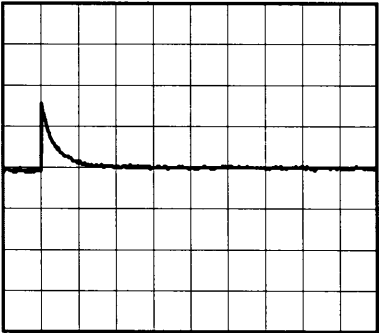


Min. Load (0A) ←→
Load 100% (16.7A)

100 mV/div



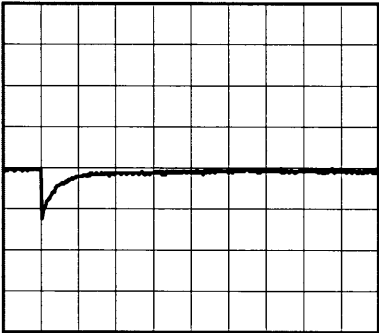
10 ms/div



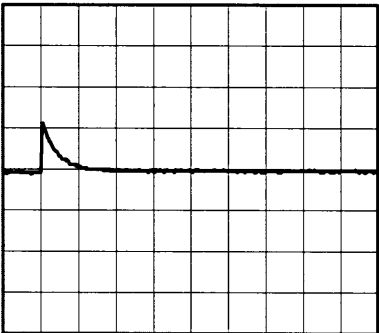
10 ms/div

Min. Load (0A) ←→
Load 50% (8.35A)

100 mV/div



10 ms/div



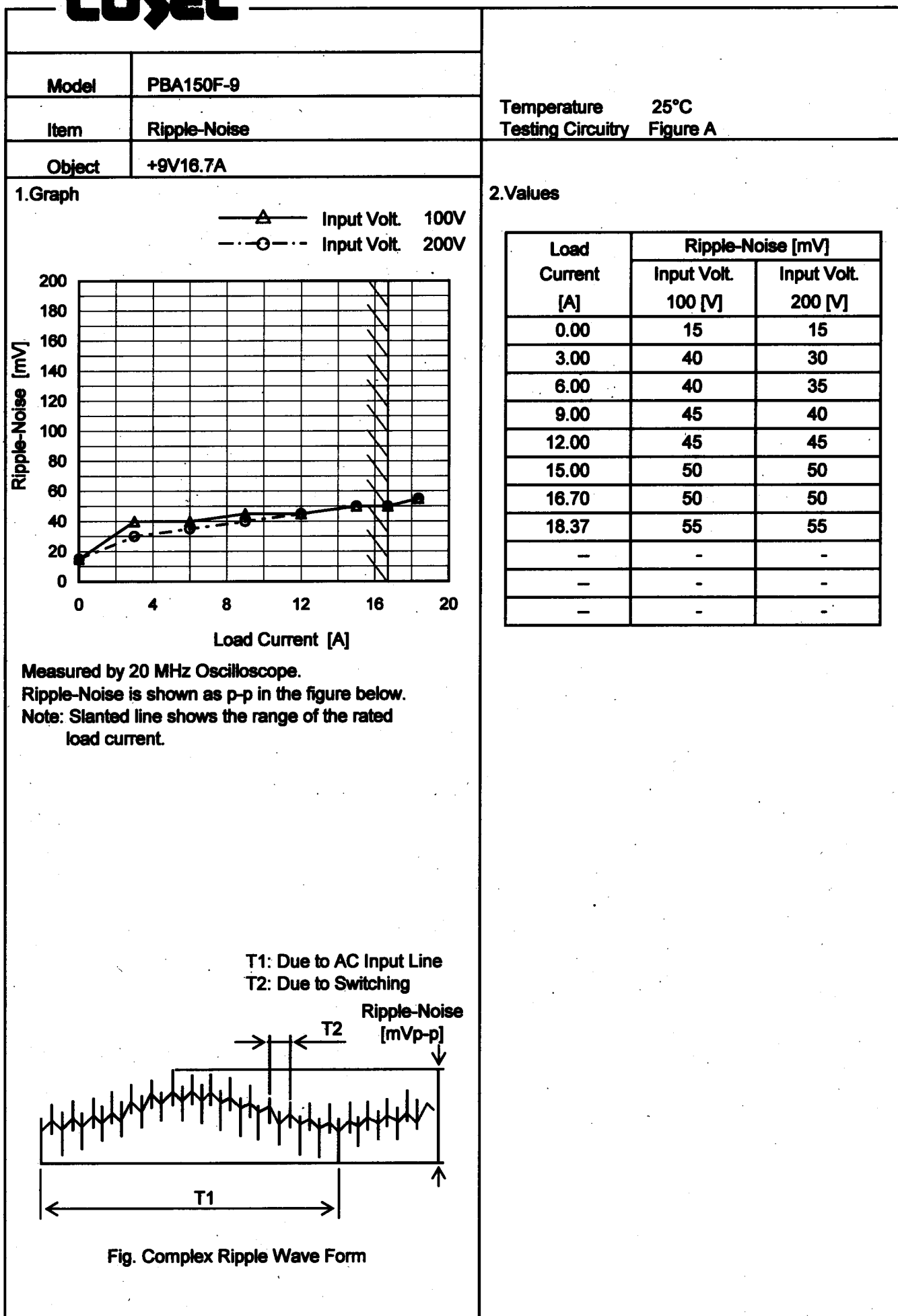
10 ms/div

* The characteristic of AC200V is equal.

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Model	PBA150F-9	Temperature	25°C																																						
Item	Ripple Voltage (by Load Current)	Testing Circuitry	Figure A																																						
Object	+9V16.7A																																								
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>Ripple Voltage [mV]</p> <p>Load Current [A]</p>		<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. 200 [V]</th></tr><tr><td>0.00</td><td>10</td><td>10</td></tr><tr><td>3.00</td><td>25</td><td>25</td></tr><tr><td>6.00</td><td>25</td><td>25</td></tr><tr><td>9.00</td><td>30</td><td>30</td></tr><tr><td>12.00</td><td>30</td><td>30</td></tr><tr><td>15.00</td><td>35</td><td>35</td></tr><tr><td>16.70</td><td>35</td><td>35</td></tr><tr><td>18.37</td><td>40</td><td>35</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. 200 [V]	0.00	10	10	3.00	25	25	6.00	25	25	9.00	30	30	12.00	30	30	15.00	35	35	16.70	35	35	18.37	40	35	—	—	—	—	—	—	—	—	—
Load Current [A]	Ripple Voltage [mV]																																								
	Input Volt. 100 [V]	Input Volt. 200 [V]																																							
0.00	10	10																																							
3.00	25	25																																							
6.00	25	25																																							
9.00	30	30																																							
12.00	30	30																																							
15.00	35	35																																							
16.70	35	35																																							
18.37	40	35																																							
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<p>Measured by 20 MHz Oscilloscope.</p> <p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p>																																									
<div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div> <p>Ripple [mVp-p]</p> <p>T1</p> <p>T2</p>																																									
Fig. Complex Ripple Wave Form																																									

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COSEL

Model		PBA150F-9	
Item		Ripple Voltage (by Ambient Temp.)	
Object		+9V16.7A	
1.Graph			
<div><div><div>---E---</div><div>Input Volt. 100V</div></div><div><div>—△—</div><div>Input Volt. 200V</div></div></div> <p>Ripple Voltage [mV]</p> <p>Ambient Temperature [°C]</p> <p>Load 100 %</p>			
Measured by 20 MHz Oscilloscope.			
Note: Slanted line shows the range of the rated ambient temperature.			

Testing Circuitry		Figure A	
2.Values			
Ambient Temperature [°C]	Ripple Voltage [mV]		
	Input Volt. 100 [V]	Input Volt. 200 [V]	
-30	155	155	
-10	60	60	
0	50	50	
25	35	35	
50	35	35	
—	-	-	
—	-	-	
—	-	-	
—	-	-	
—	-	-	
—	-	-	
—	-	-	

- 14 -

BC-3575

Testing Circuitry Figure A



Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt.	Input Volt.	Input Volt.
	100[V]	200[V]	230[V]
-20	9.046	9.046	9.046
-10	9.045	9.044	9.044
0	9.045	9.045	9.045
10	9.047	9.047	9.047
25	9.047	9.047	9.047
30	9.047	9.046	9.046
40	9.043	9.042	9.042
50	9.038	9.038	9.037
60	9.033	9.032	9.031
--	-	-	-
--	-	-	-

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COSEL

		Testing Circuitry Figure A
Model	PBA150F-9	
Item	Output Voltage Accuracy	
Object	+9V16.7A	

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 - 16.7A

* 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	25	85	0	9.067	±17	±0.2
Minimum Voltage	50	264	16.7	9.034		

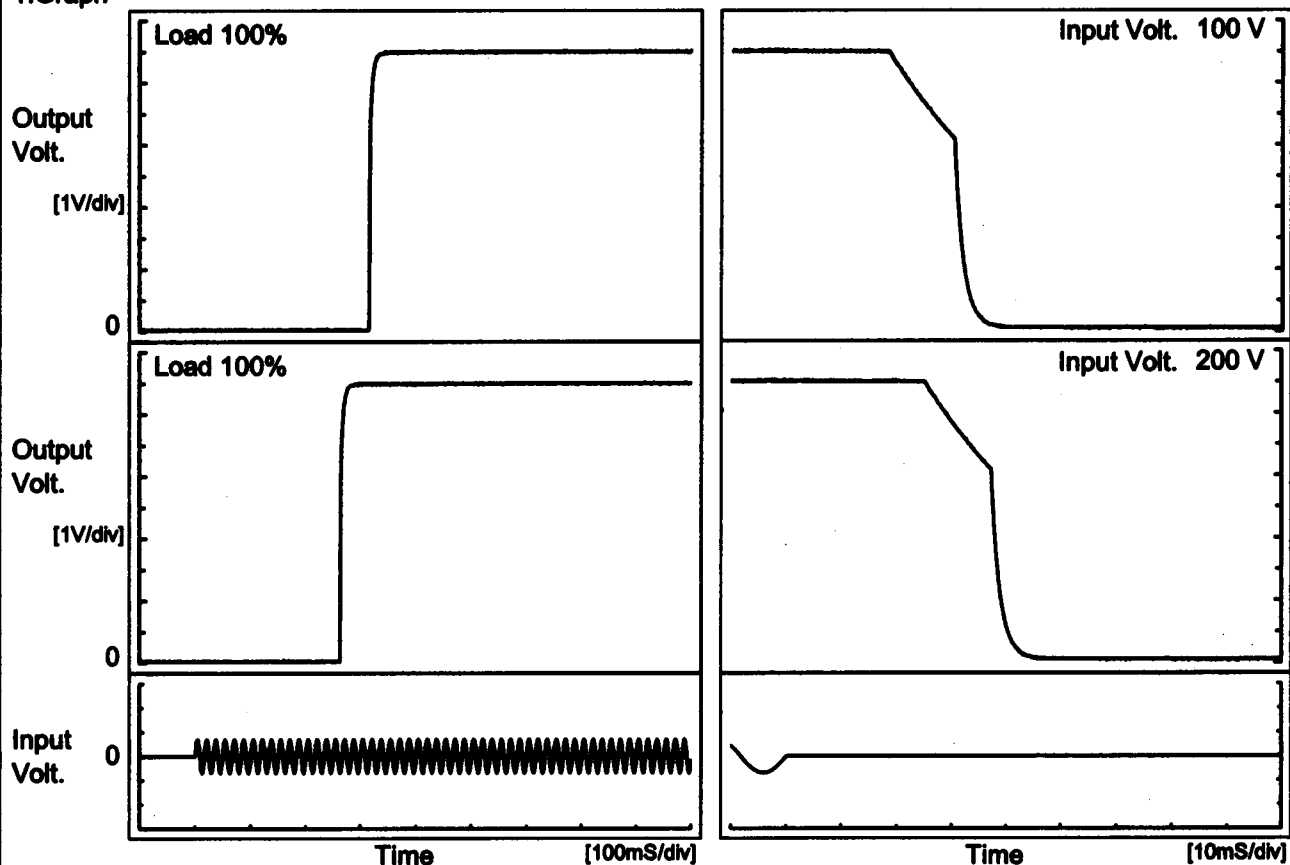
COSEL

Model	PBA150F-9		
Item	Time Lapse Drift	Temperature	25°C
Object	+9V16.7A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></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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COSEL

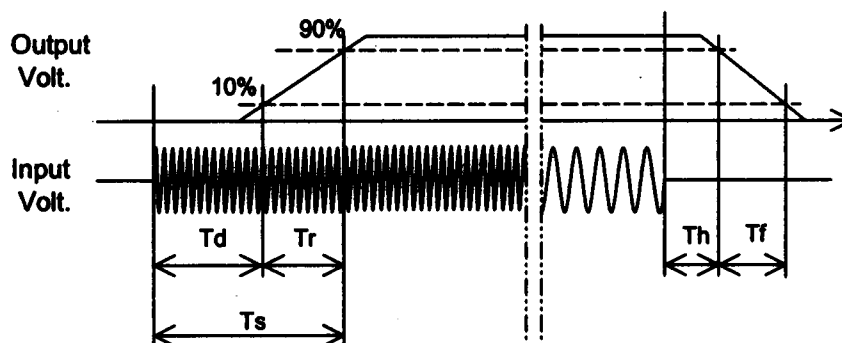
Model	PBA150F-9	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+9V16.7A		

1.Graph



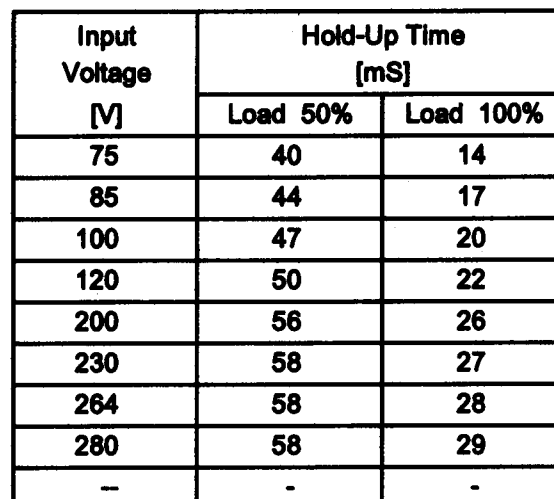
2.Values

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	316.0	6.5	322.5	21.6	12.1
200 V	263.0	6.5	269.5	28.3	12.3



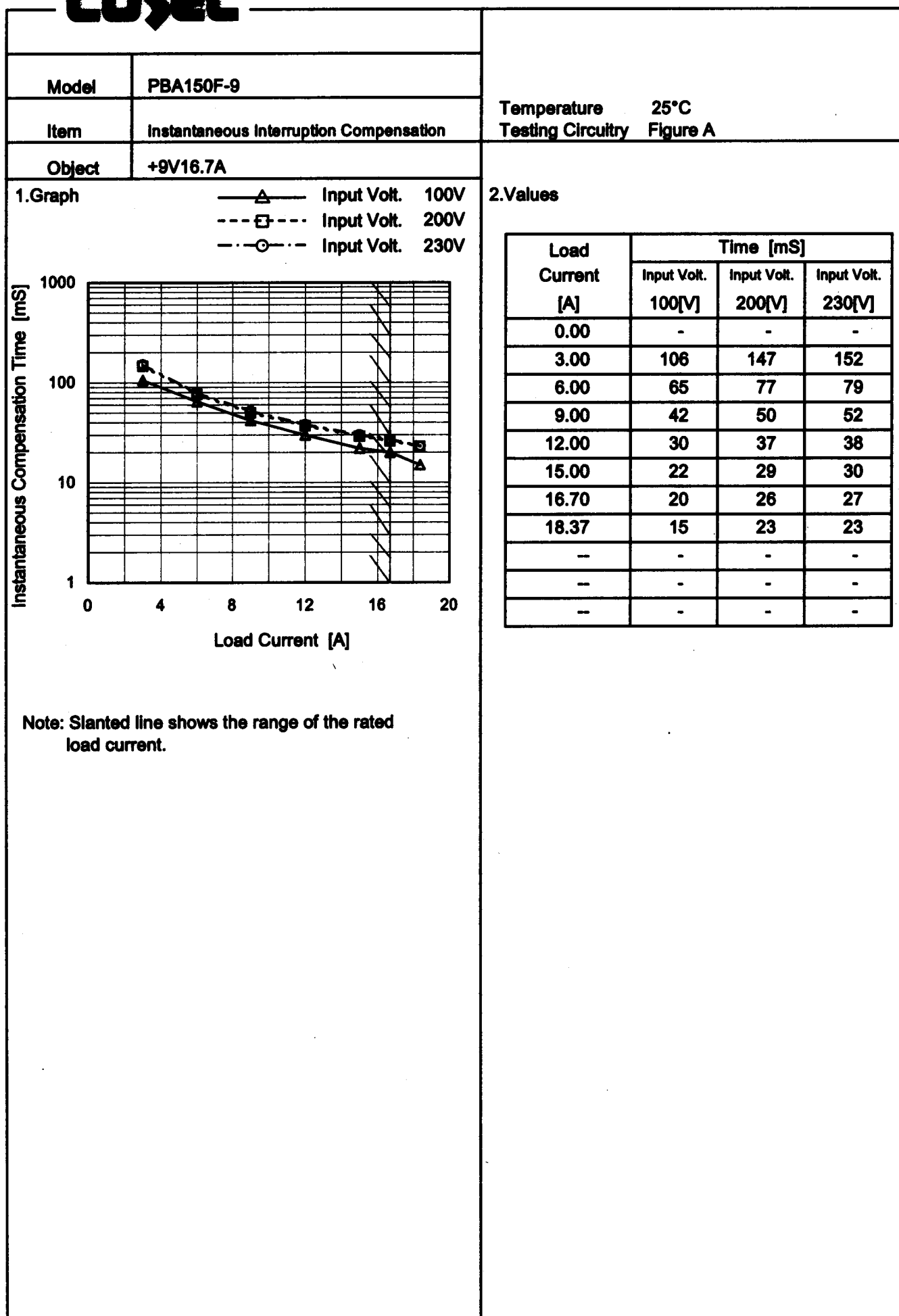
Temperature 25°C
Testing Circuitry Figure A

2.Values



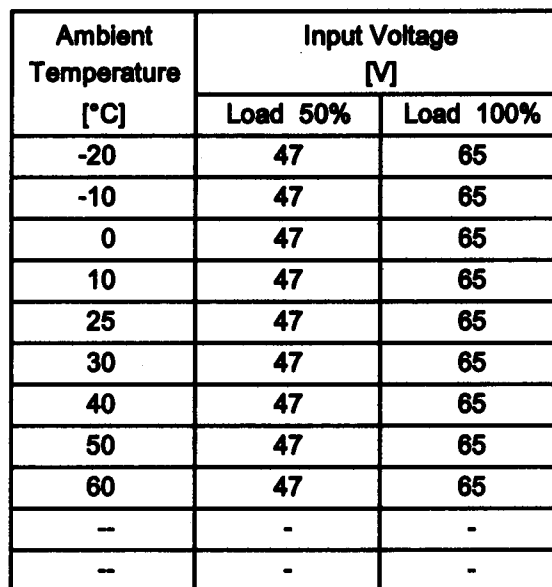
This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy. Note: Slanted line shows the range of the rated input voltage.

COSEL



Testing Circuitry Figure A

2.Values



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COSEL

Model		PBA150F-9	
Item		Overcurrent Protection	
Object		+9V16.7A	

1.Graph

Input Volt. 100V

Input Volt. 200V

Output Voltage [V]

12

8

4

0

0

10

20

30

Load Current [A]

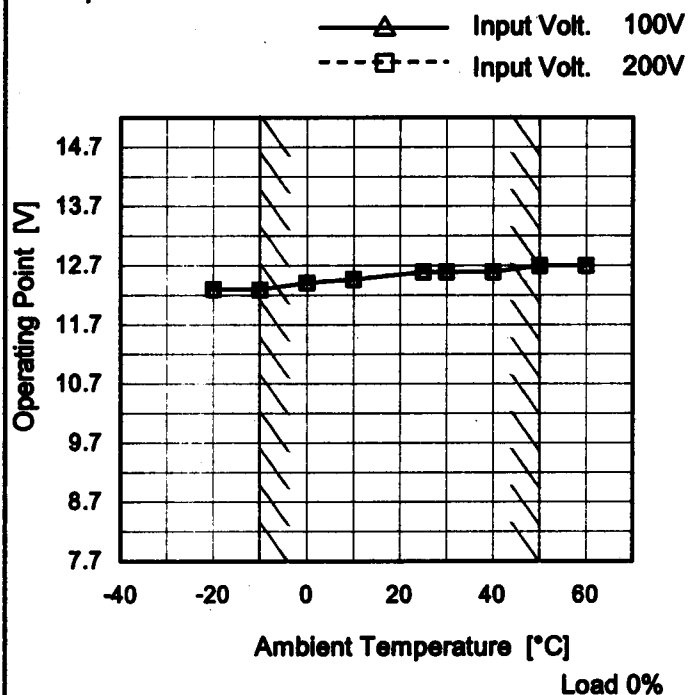
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Model	PBA150F-9
Item	Overvoltage Protection
Object	+9V16.7A

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	12.31	12.31
-10	12.31	12.30
0	12.42	12.42
10	12.48	12.48
25	12.60	12.60
30	12.60	12.60
40	12.60	12.60
50	12.71	12.71
60	12.71	12.71
--	-	-
--	-	-

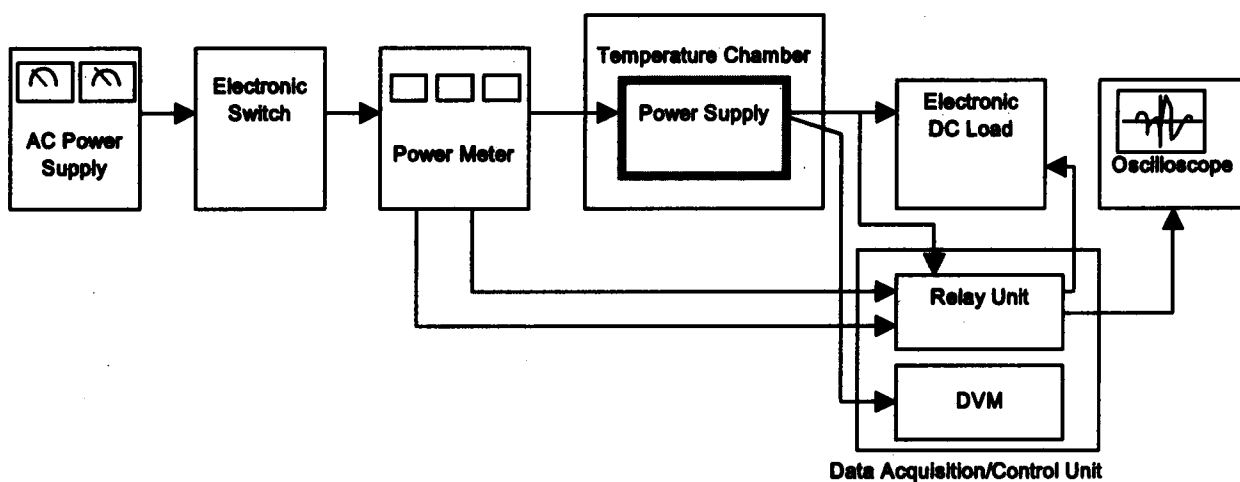


Figure A

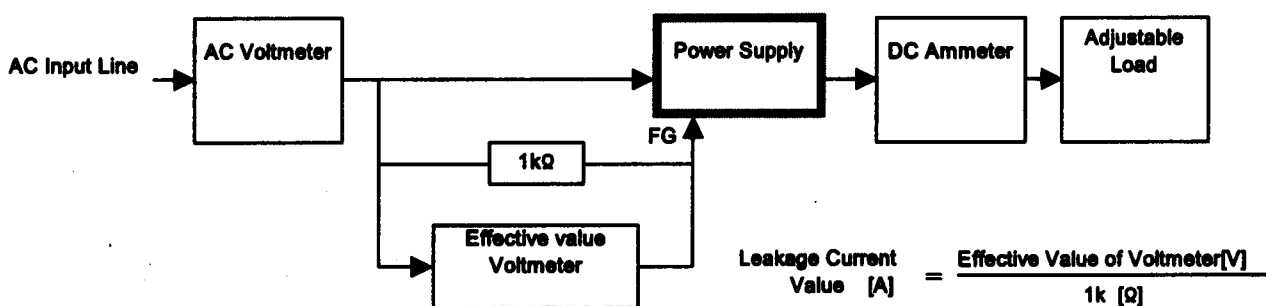


Figure B (DEN-AN)

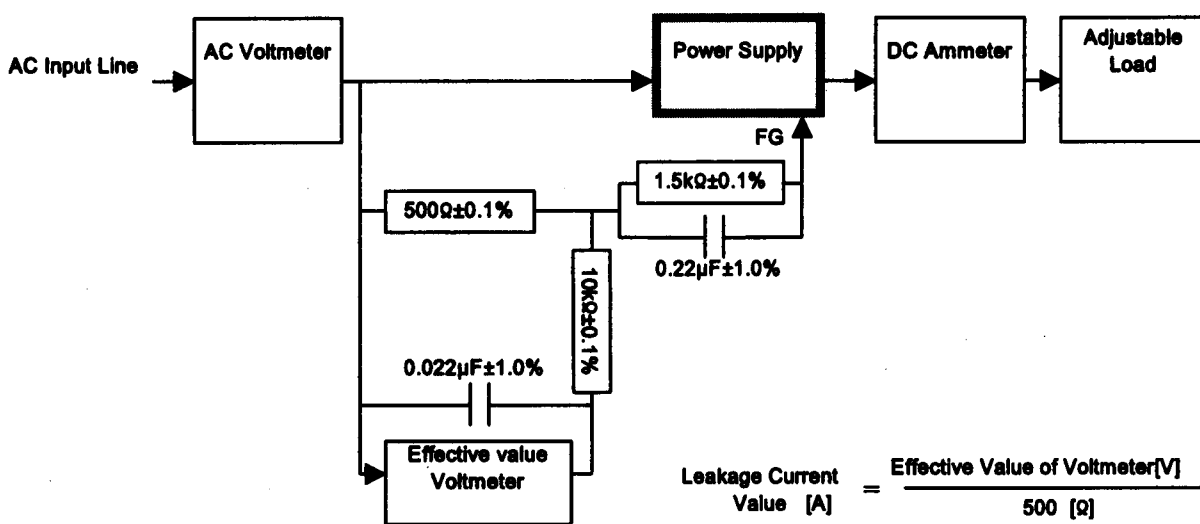


Figure B (IEC60950)