



TEST DATA OF PBA300F-15

Regulated DC Power Supply
May 27, 2004

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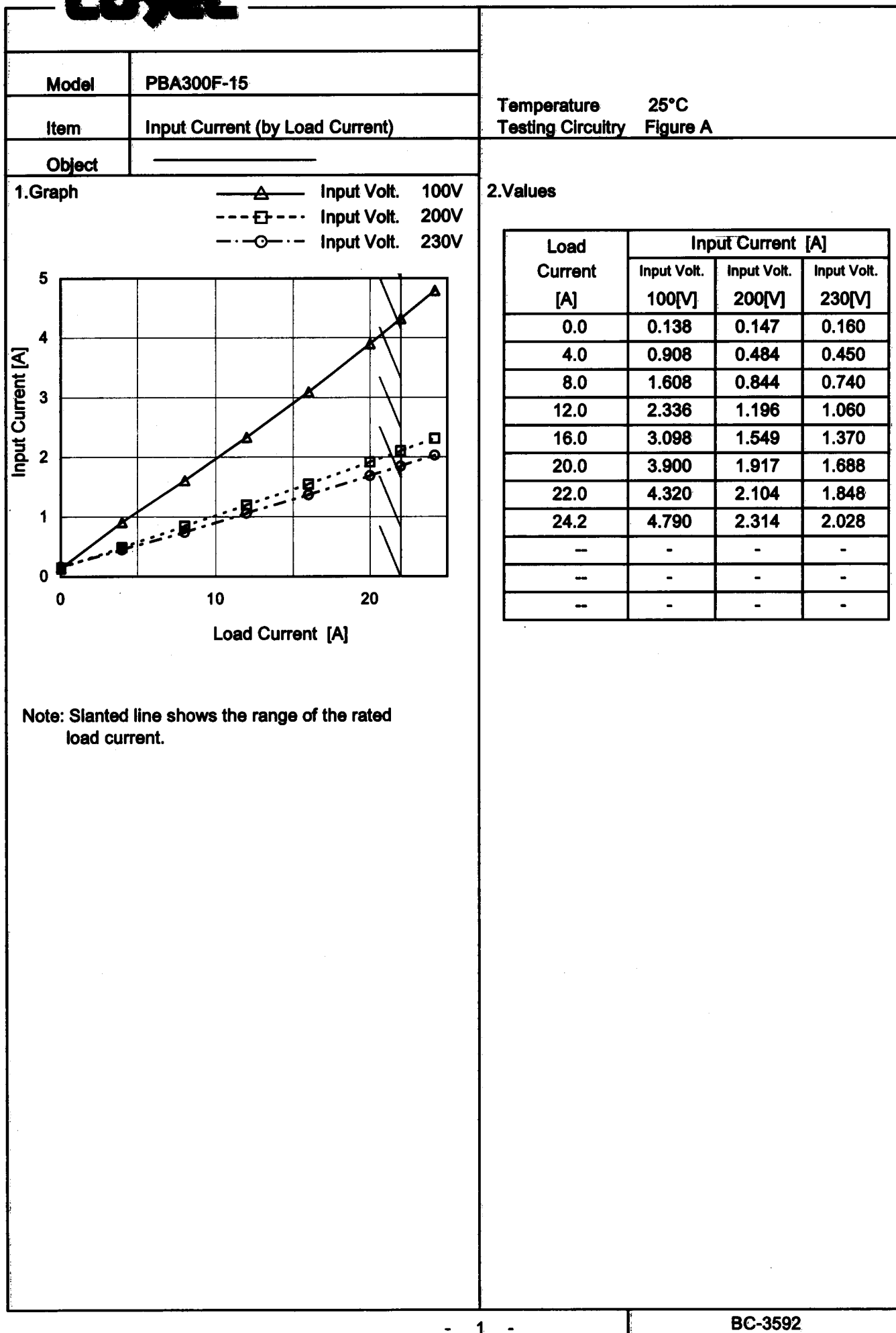
COSEL CO.,LTD.



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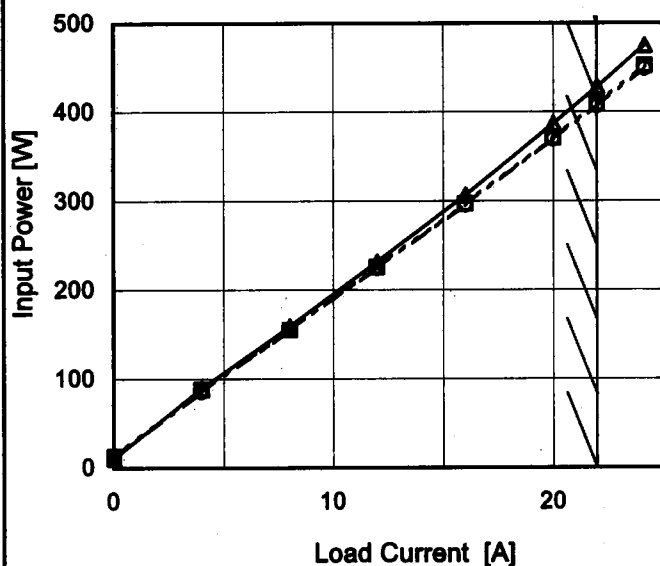
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Model	PBA300F-15
Item	Input Power (by Load Current)
Object	

Temperature 25°C
Testing Circuitry Figure A

1. Graph

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



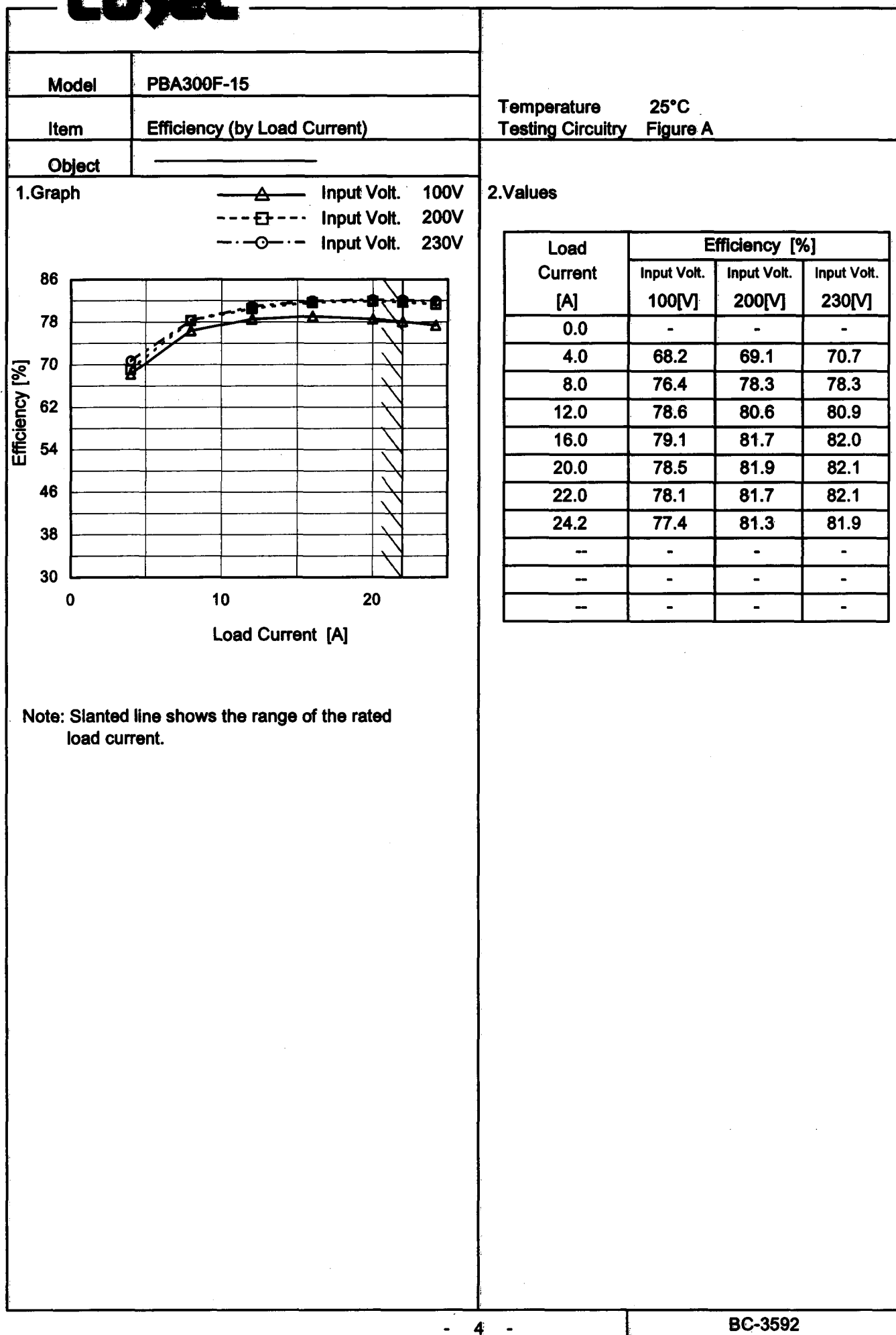
Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	10.8	13.0	12.0
4.0	89.1	88.0	86.0
8.0	159.0	155.0	155.0
12.0	231.8	226.0	225.0
16.0	306.9	297.0	296.0
20.0	387.0	371.0	370.0
22.0	428.0	409.0	407.0
24.2	475.0	452.0	449.0
--	-	-	-
--	-	-	-
--	-	-	-

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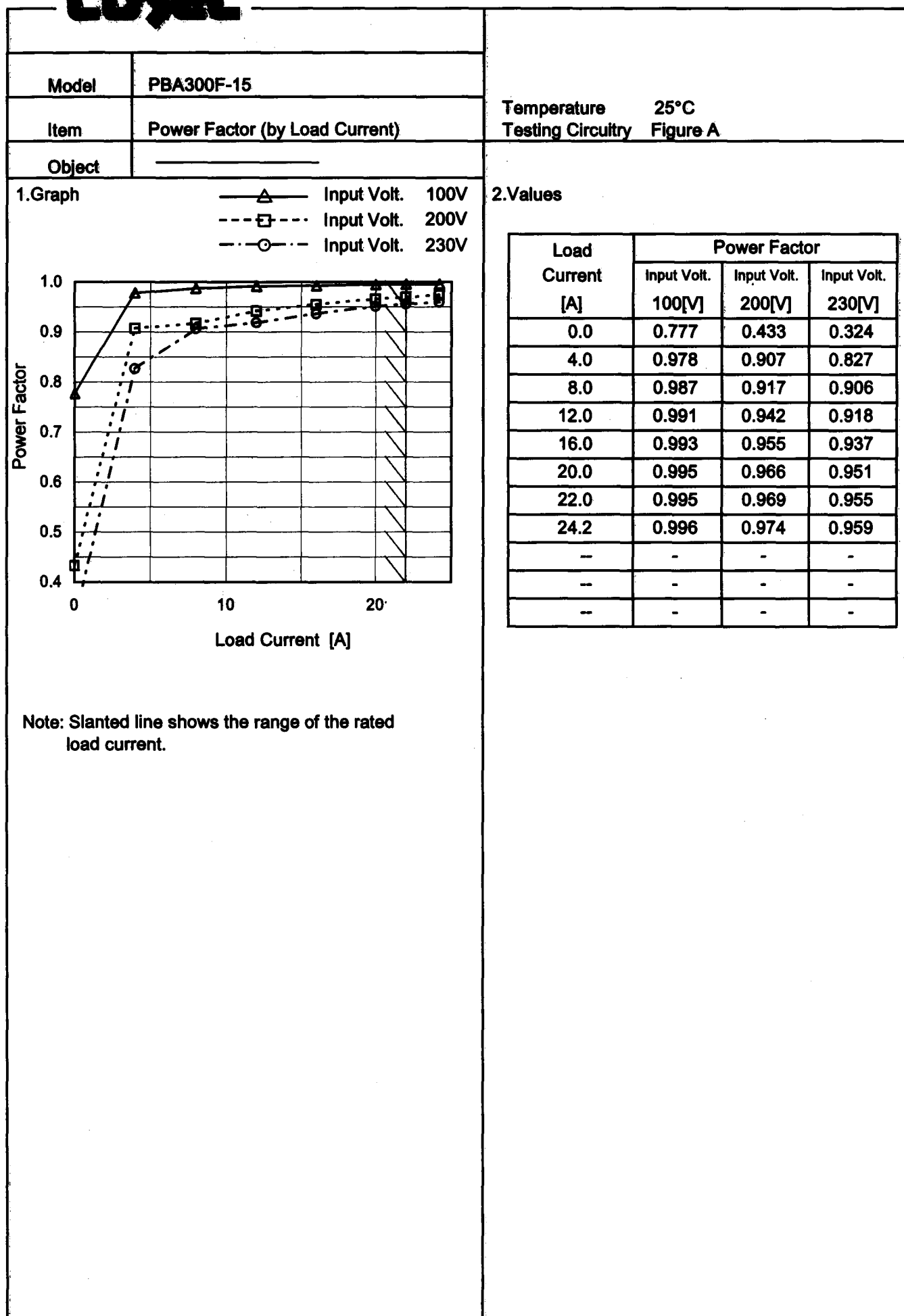
Model		PBA300F-15		Temperature		25°C	
Item		Efficiency (by Input Voltage)		Testing Circuitry		Figure A	
Object							
1.Graph				2.Values			
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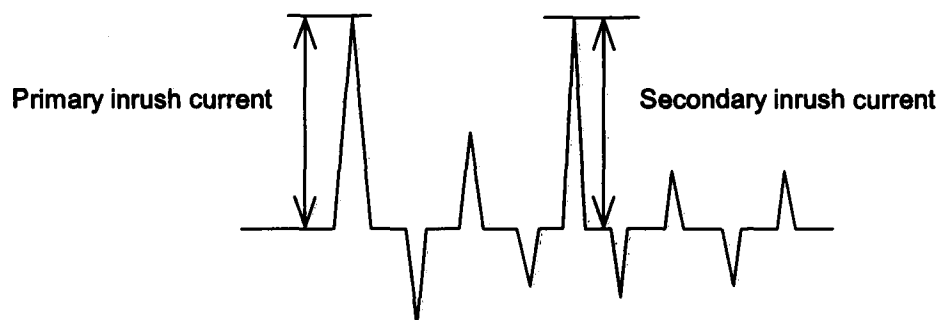
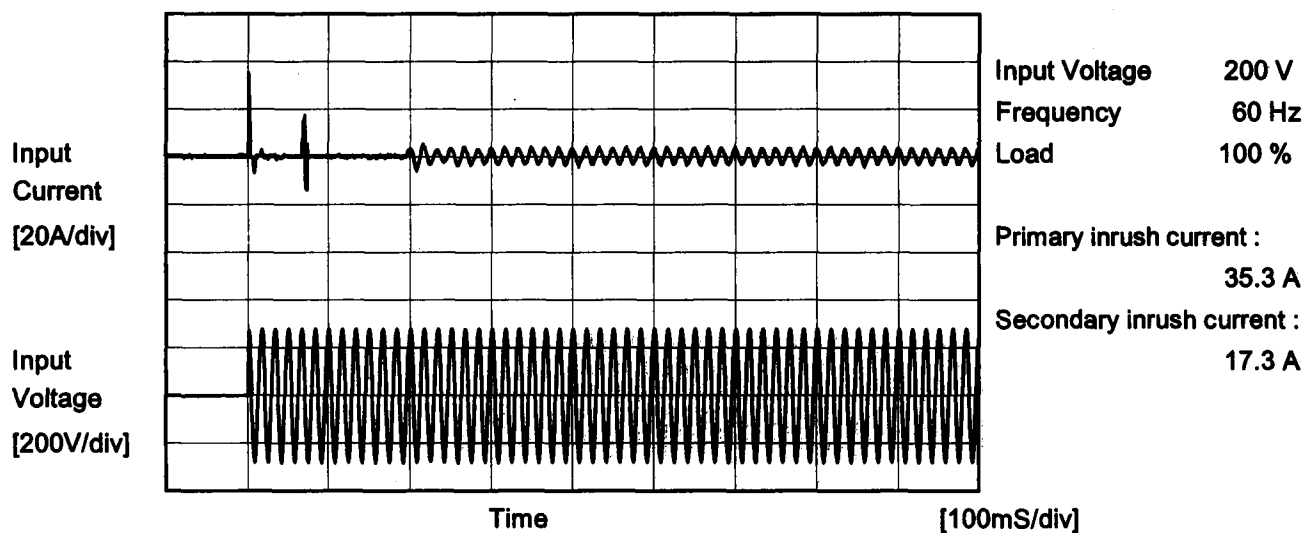
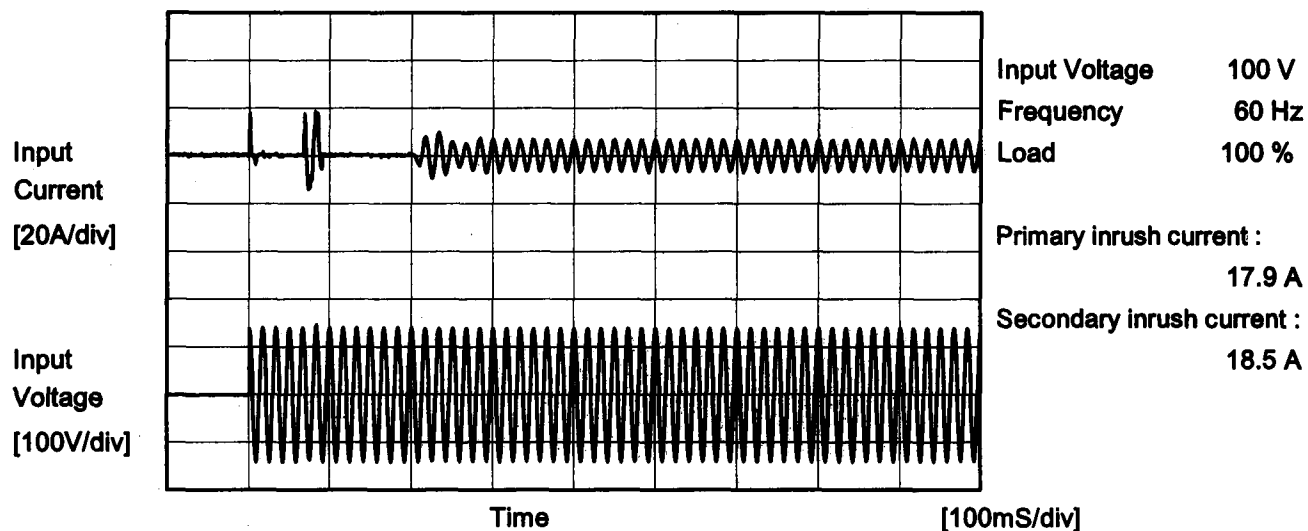
Model		PBA300F-15		Temperature		25°C	
Item		Power Factor (by Input Voltage)		Testing Circuitry		Figure A	
Object							

1.Graph

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Model	PBA300F-15	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



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Model		PBA300F-15	Temperature 25°C Testing Circuitry Figure B
Item		Leakage Current	
Object			

1.Results

[mA]

Standards		Input Volt.			Note
		100[V]	200[V]	240[V]	
DEN-AN	Both phases	0.14	0.25	0.29	Operation
	One of phase	0.23	0.45	0.54	stand by
IEC60950	Both phases	0.14	0.25	0.29	Operation
	One of phase	0.23	0.45	0.54	stand by

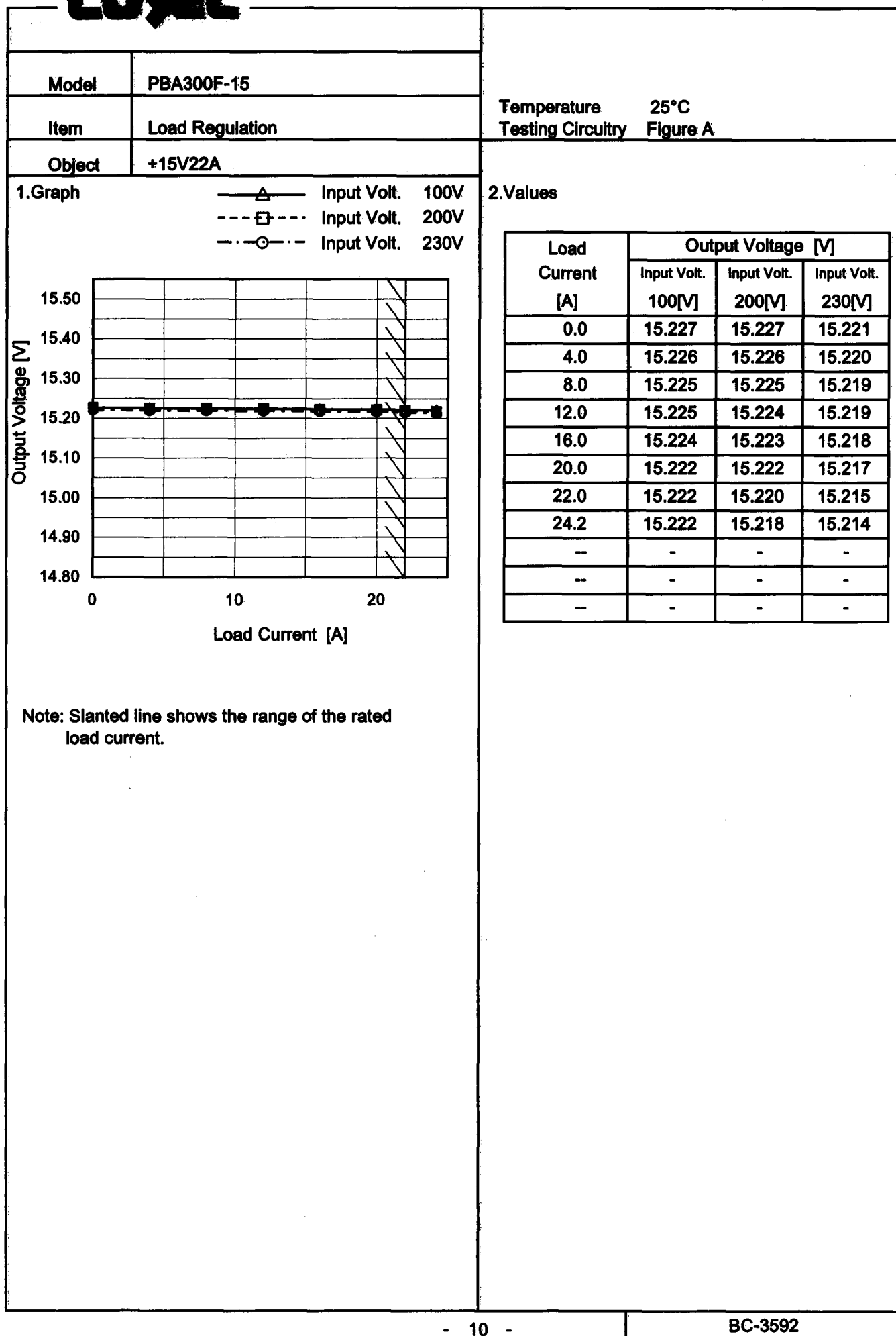
The value for "One phase" is the reference value only.

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	PBA300F-15	Temperature 25°C Testing Circuitry Figure A																															
Item	Line Regulation																																
Object	+15V22A																																
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>80</td><td>15.227</td><td>15.219</td></tr><tr><td>85</td><td>15.226</td><td>15.219</td></tr><tr><td>100</td><td>15.225</td><td>15.219</td></tr><tr><td>120</td><td>15.224</td><td>15.219</td></tr><tr><td>200</td><td>15.223</td><td>15.220</td></tr><tr><td>230</td><td>15.221</td><td>15.218</td></tr><tr><td>264</td><td>15.221</td><td>15.213</td></tr><tr><td>280</td><td>15.222</td><td>15.210</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%	80	15.227	15.219	85	15.226	15.219	100	15.225	15.219	120	15.224	15.219	200	15.223	15.220	230	15.221	15.218	264	15.221	15.213	280	15.222	15.210	--	-	-		
Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
80	15.227	15.219																															
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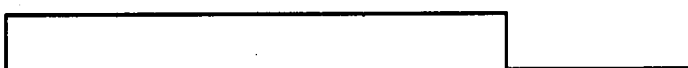
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Model	PBA300F-15	Temperature	25°C
Item	Dynamic Load Response 動的負荷変動	Testing Circuitry	Figure A
Object	+15V22A		

Input Volt. 100 V
Cycle 1000 ms

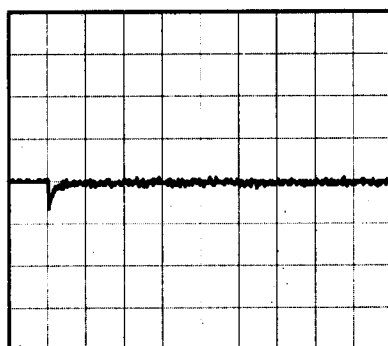
Load Current



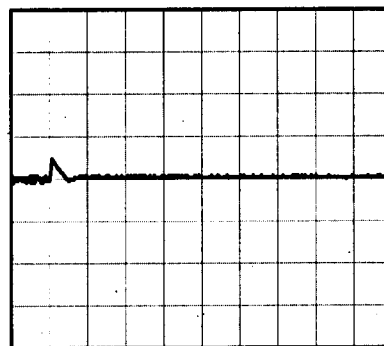
Min. Load (0A) \longleftrightarrow

Load 100% (22A)

100 mV/div



10 ms/div

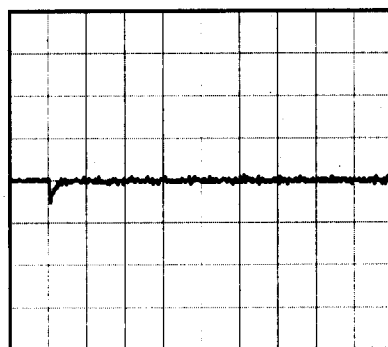


10 ms/div

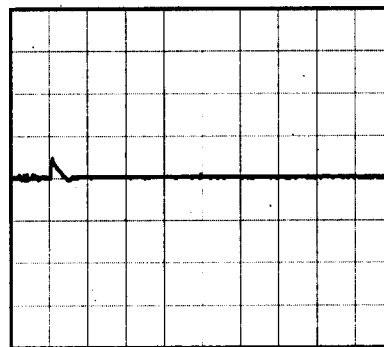
Min. Load (0A) \longleftrightarrow

Load 50% (11A)

100 mV/div



10 ms/div



10 ms/div

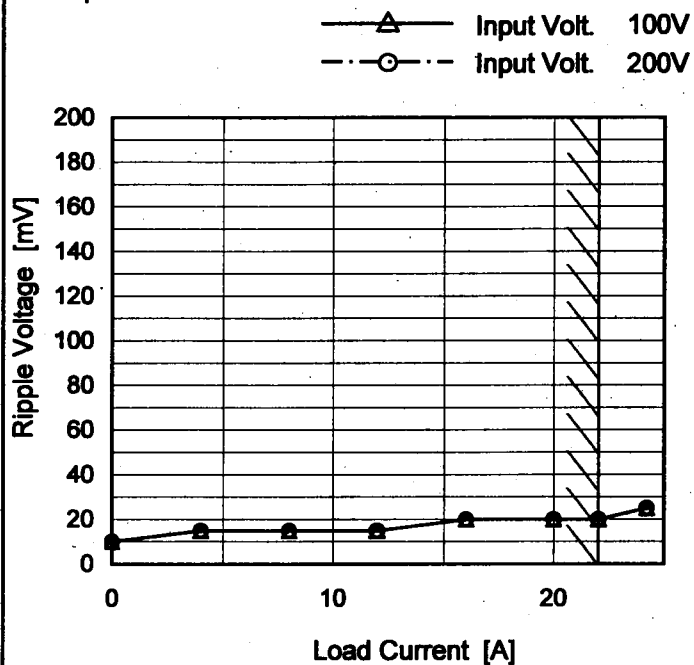
* The characteristic of AC200V is equal.

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Model	PBA300F-15
Item	Ripple Voltage (by Load Current)
Object	+15V22A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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.

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	10	10
4.0	15	15
8.0	15	15
12.0	15	15
16.0	20	20
20.0	20	20
22.0	20	20
24.2	25	25
—	—	—
—	—	—
—	—	—

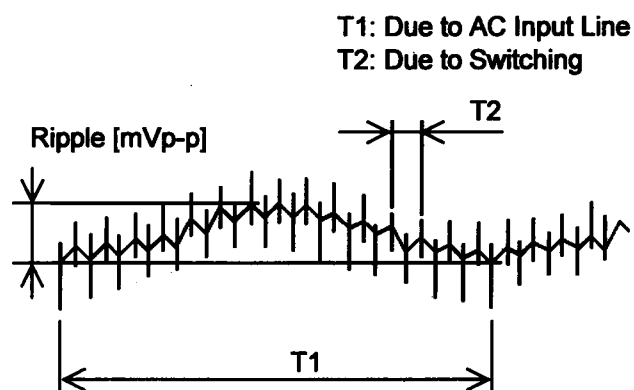


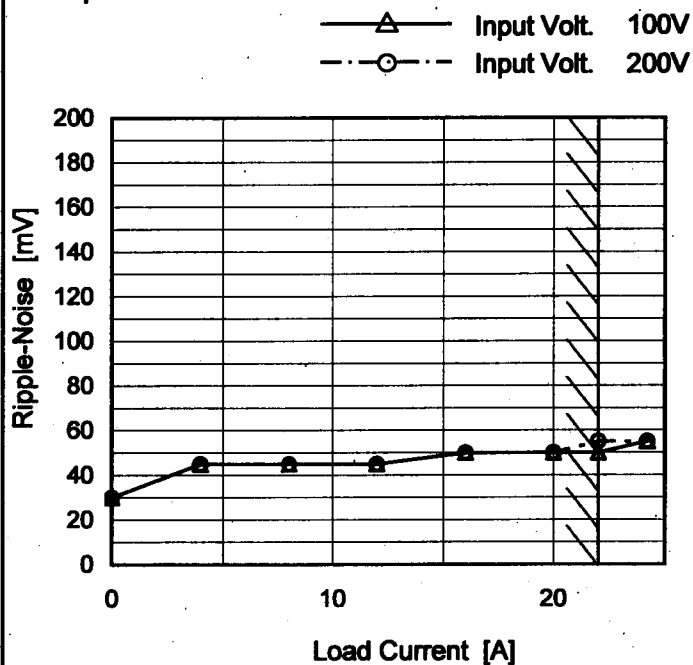
Fig. Complex Ripple Wave Form

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Model	PBA300F-15
Item	Ripple-Noise
Object	+15V22A

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]
0.0	30	30
4.0	45	45
8.0	45	45
12.0	45	45
16.0	50	50
20.0	50	50
22.0	50	55
24.2	55	55
—	—	—
—	—	—
—	—	—

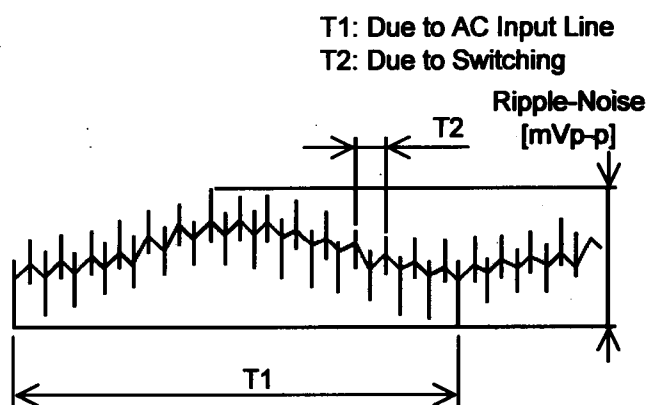
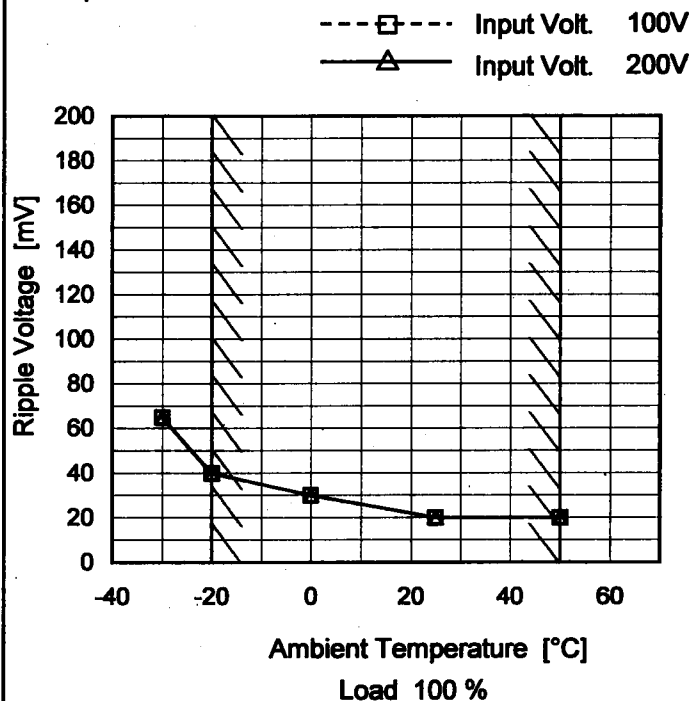


Fig. Complex Ripple Wave Form

COSEL

Model	PBA300F-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V22A

1. Graph



Measured by 20 MHz Oscilloscope.

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

Testing Circuitry Figure A

2. Values

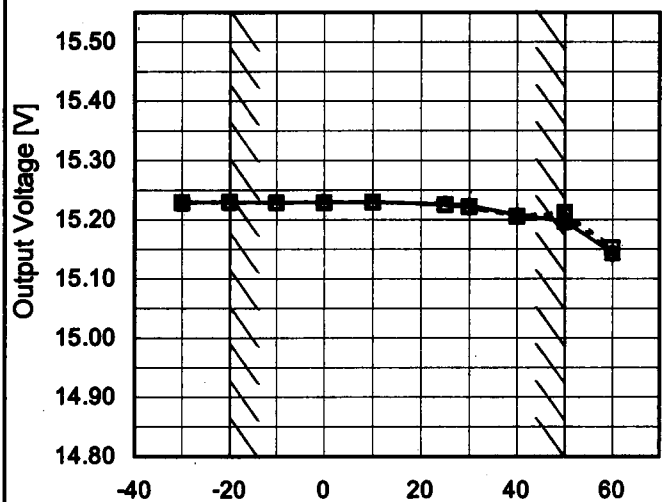
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	65	65
-20	40	40
0	30	30
25	20	20
50	20	20
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	PBA300F-15
Item	Ambient Temperature Drift
Object	+15V22A

1. Graph

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



Ambient Temperature [°C]

Load 100%

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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-30	15.229	15.229	15.229
-20	15.230	15.230	15.229
-10	15.229	15.229	15.229
0	15.229	15.229	15.230
10	15.230	15.230	15.230
25	15.227	15.226	15.225
30	15.224	15.222	15.221
40	15.208	15.206	15.206
50	15.197	15.212	15.210
60	15.145	15.152	15.143
—	—	—	—

COSEL

		Testing Circuitry Figure A
Model	PBA300F-15	
Item	Output Voltage Accuracy	
Object	+15V22A	

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 : -20 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 22A

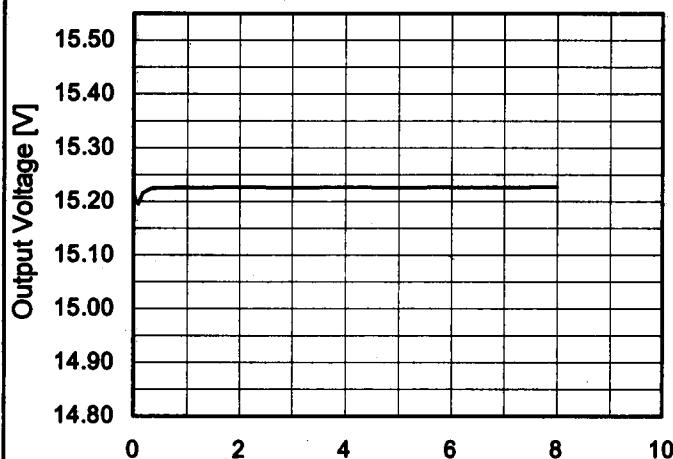
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

* 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	-20	200	0	15.235	±20	±0.1
Minimum Voltage	50	264	22	15.196		

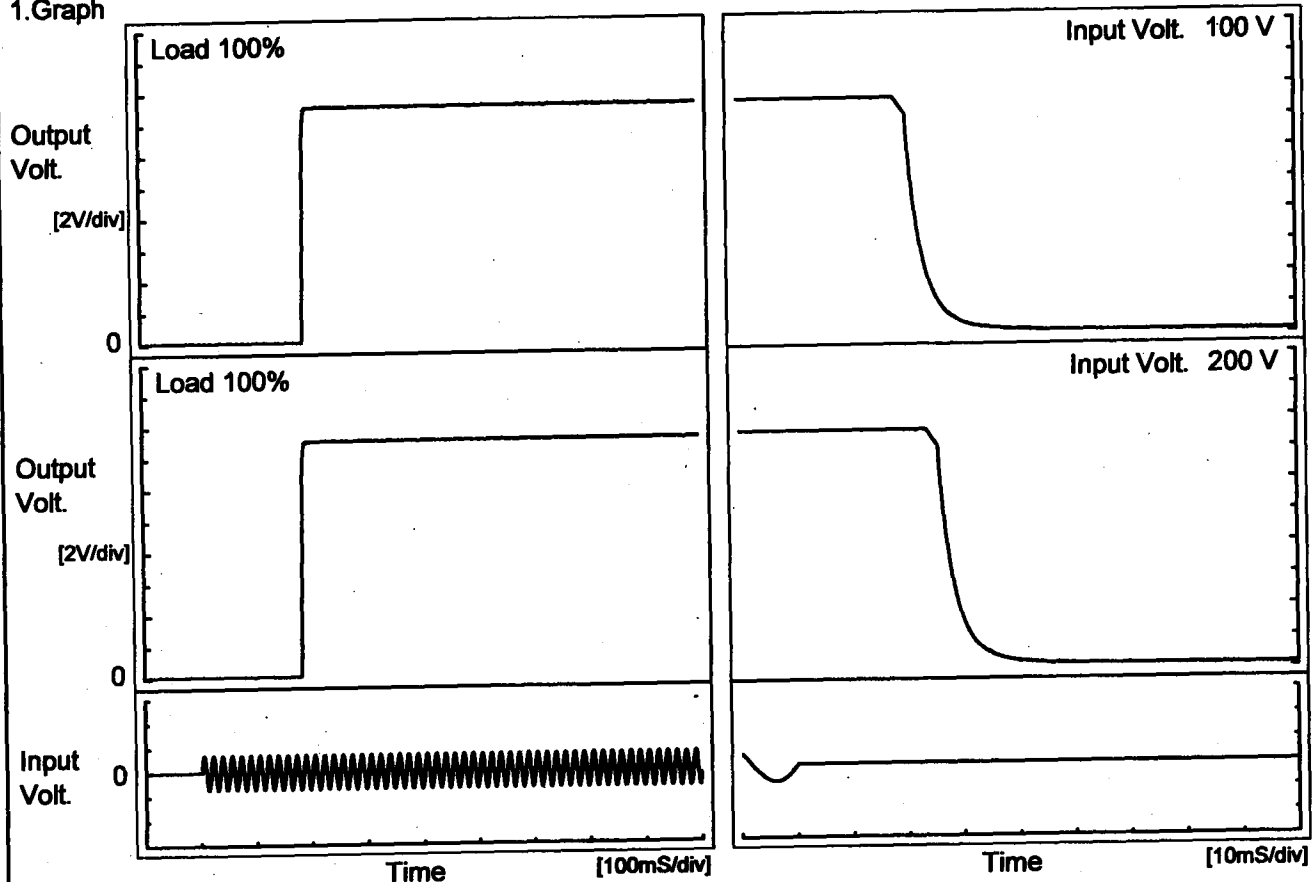
COSEL

Model	PBA300F-15																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+15V22A	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>15.214</td></tr><tr><td>0.5</td><td>15.226</td></tr><tr><td>1.0</td><td>15.226</td></tr><tr><td>2.0</td><td>15.227</td></tr><tr><td>3.0</td><td>15.226</td></tr><tr><td>4.0</td><td>15.227</td></tr><tr><td>5.0</td><td>15.226</td></tr><tr><td>6.0</td><td>15.227</td></tr><tr><td>7.0</td><td>15.227</td></tr><tr><td>8.0</td><td>15.227</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	15.214	0.5	15.226	1.0	15.226	2.0	15.227	3.0	15.226	4.0	15.227	5.0	15.226	6.0	15.227	7.0	15.227	8.0	15.227
Time since start [H]	Output Voltage [V]																								
0.0	15.214																								
0.5	15.226																								
1.0	15.226																								
2.0	15.227																								
3.0	15.226																								
4.0	15.227																								
5.0	15.226																								
6.0	15.227																								
7.0	15.227																								
8.0	15.227																								
* The characteristic of AC200V is equal.																									

COSEL

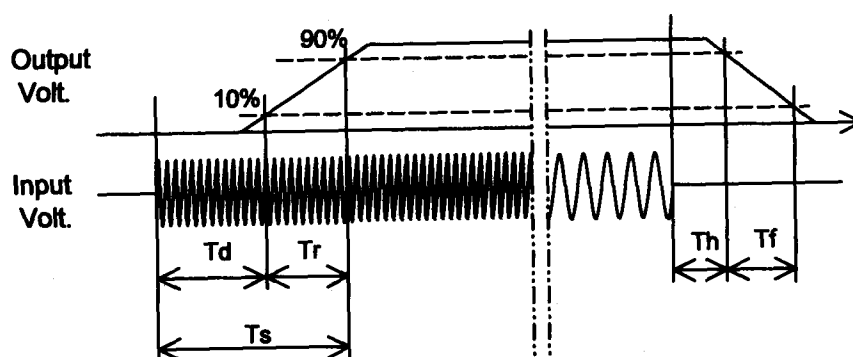
Model	PBA300F-15	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V22A		

1. Graph



2. Values

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	191.0	4.0	195.0	20.3	7.0
200 V	183.5	4.0	187.5	25.7	7.0



COSEL

Model

PBA300F-15

Item

Hold-Up Time

Object

+15V22A

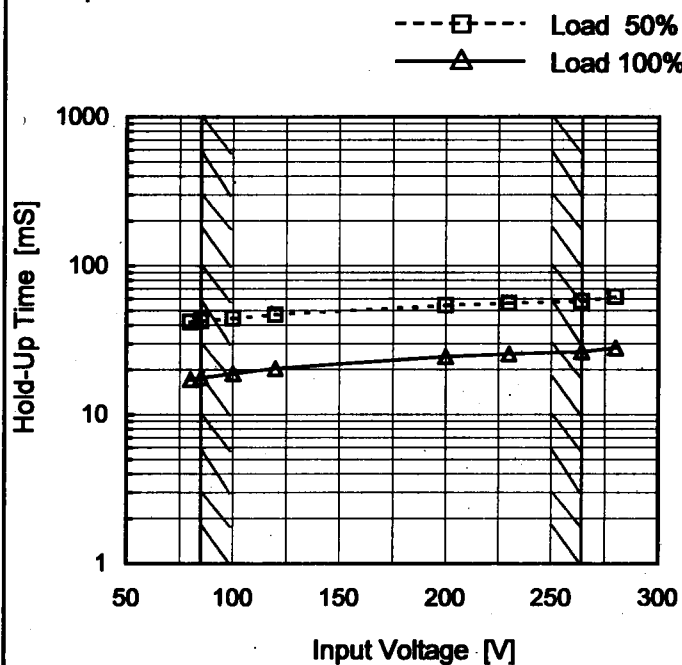
Temperature

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%
80	42	17
85	43	18
100	45	19
120	47	20
200	54	25
230	56	26
264	58	27
280	62	28
—	—	—

COSEL

Model

PBA300F-15

Item

Instantaneous Interruption Compensation

Object

+15V22A

Temperature

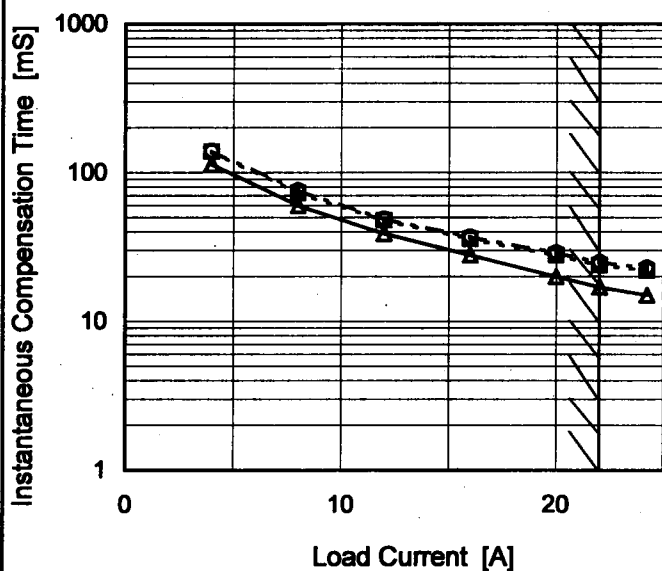
25°C

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.

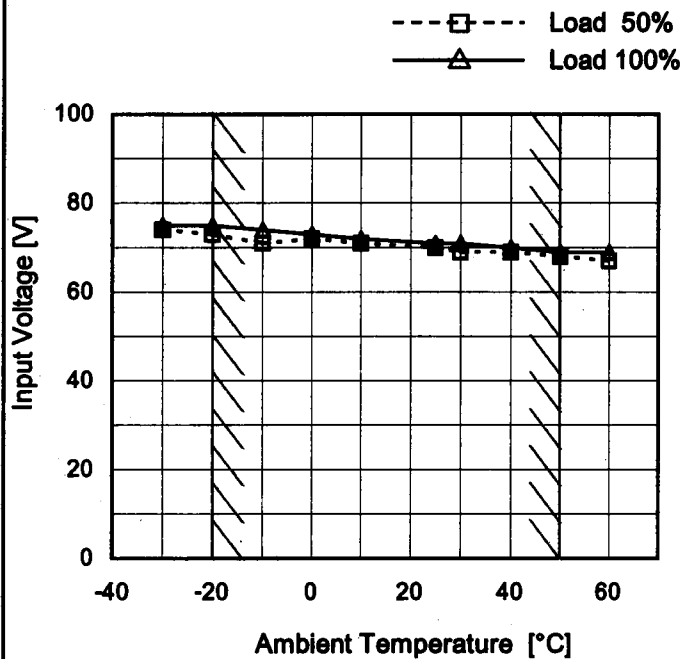
2. Values

Load Current [A]	Time [mS]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
4.0	114	139	140
8.0	60	73	76
12.0	39	48	49
16.0	28	36	37
20.0	20	28	29
22.0	17	24	25
24.2	15	22	23
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	PBA300F-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V22A

1. Graph



Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	74	75
-20	73	75
-10	71	74
0	72	73
10	71	72
25	70	71
30	69	71
40	69	70
50	68	69
60	67	69
--	-	-

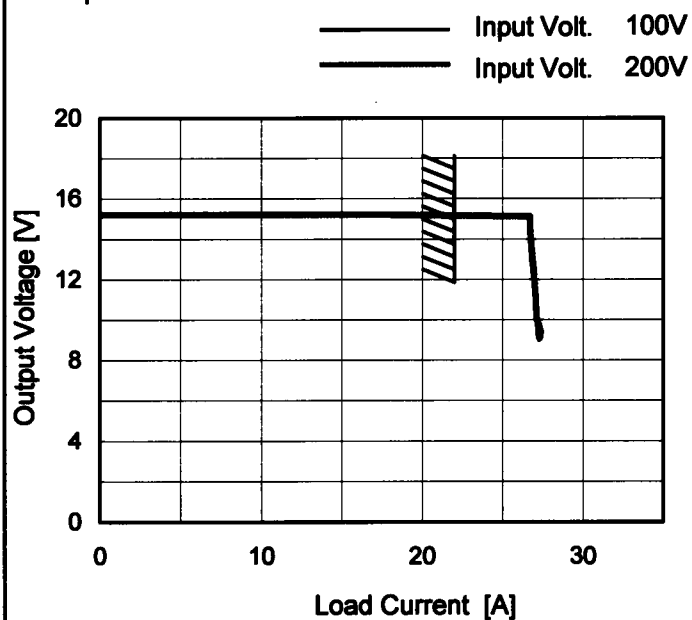
COSEL

Model PBA300F-15

Item Overcurrent Protection

Object +15V22A

Temperature 25°C
Testing Circuitry Figure A

1. Graph


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

Intermittent operation occurs when the output voltage is from 9V to 0V.

2. Values

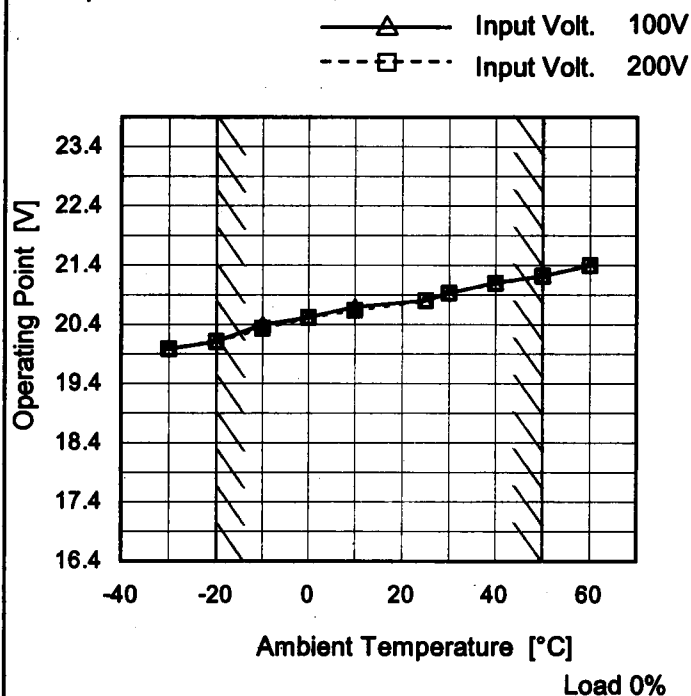
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
15.00	26.68	26.70
14.25	26.71	26.74
13.50	26.76	26.81
12.00	26.93	26.99
10.50	27.08	27.09
9.00	27.27	27.27
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	PBA300F-15
Item	Overvoltage Protection
Object	+15V22A

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]
-30	20.03	20.03
-20	20.15	20.15
-10	20.44	20.38
0	20.56	20.56
10	20.74	20.68
25	20.85	20.85
30	20.97	20.97
40	21.15	21.14
50	21.26	21.26
60	21.44	21.44
--	-	-

COSEL

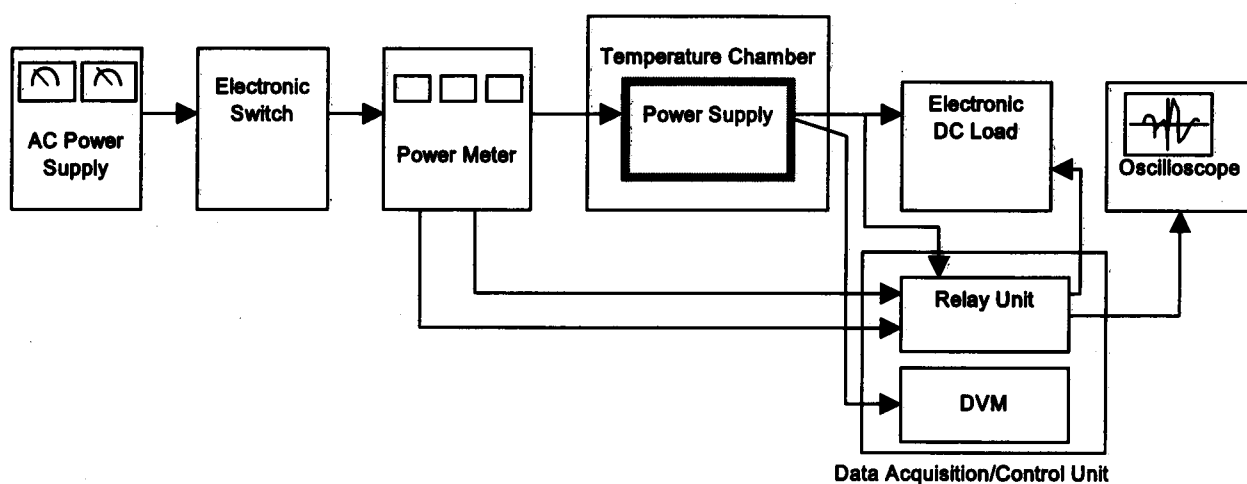


Figure A

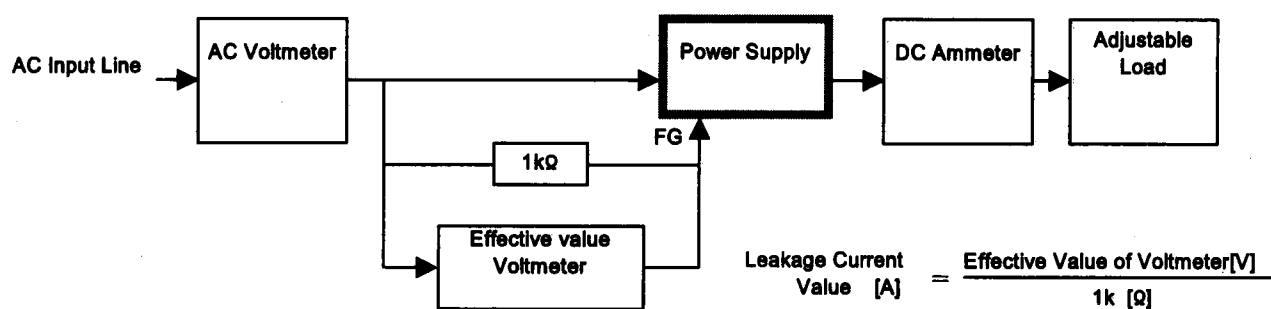


Figure B (DEN-AN)

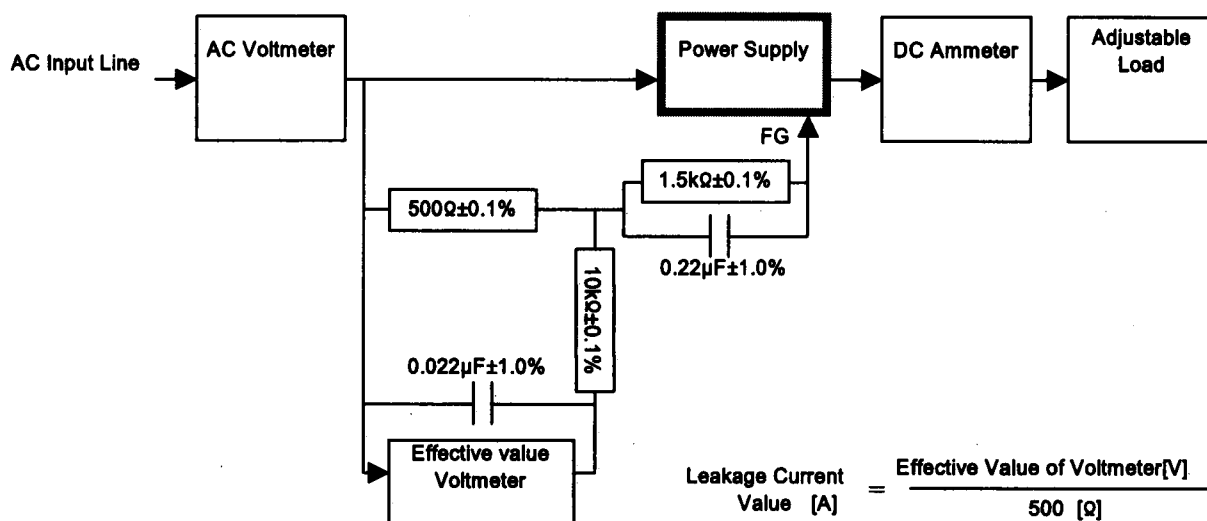


Figure B (IEC60950)