参考資料

COSEL

TEST DATA OF PBA100F-3R3

Regulated DC Power Supply
Mar.30. 2004

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COSEL CO.,LTD.

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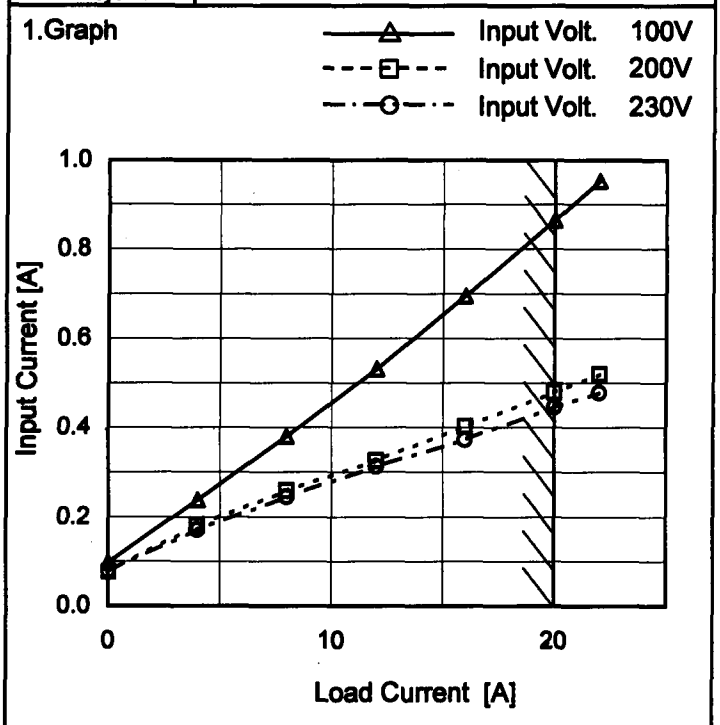
Model	PBA100F-3R3
Item	Input Current (by Load Current)
Object	———————

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	0.098	0.077	0.078
4	0.238	0.182	0.172
8	0.380	0.259	0.246
12	0.531	0.326	0.313
16	0.696	0.403	0.373
20	0.865	0.480	0.447
22	0.953	0.520	0.479
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

BC-3565

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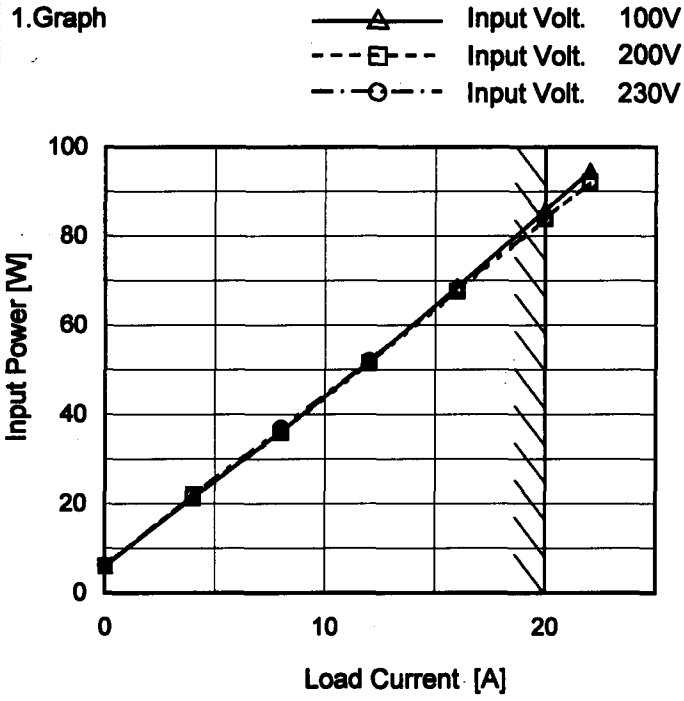
Model	PBA100F-3R3
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

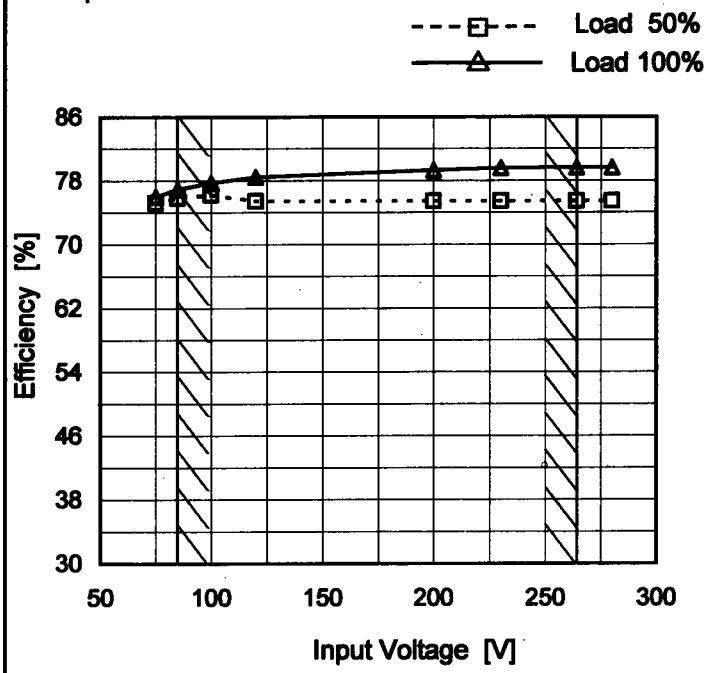
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	6.10	6.00	6.00
4	21.36	22.00	22.00
8	36.25	36.00	37.00
12	51.82	51.50	52.00
16	68.60	67.60	68.00
20	85.84	83.90	84.00
22	94.64	92.20	92.10
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

COSEL

Model	PBA100F-3R3
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	75.3	76.0
85	75.9	76.9
100	76.3	77.8
120	75.5	78.5
200	75.5	79.3
230	75.5	79.6
264	75.5	79.6
280	75.5	79.6
--	-	-

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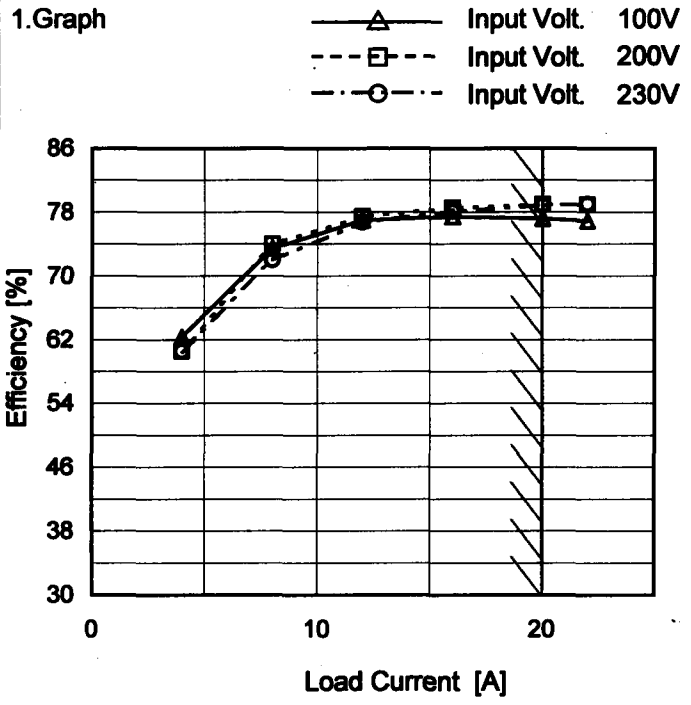
Model	PBA100F-3R3
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	-	-	-
4	62.4	60.6	60.6
8	73.5	74.0	72.0
12	77.0	77.5	76.7
16	77.4	78.6	78.1
20	77.2	79.0	78.9
22	76.9	79.0	79.0
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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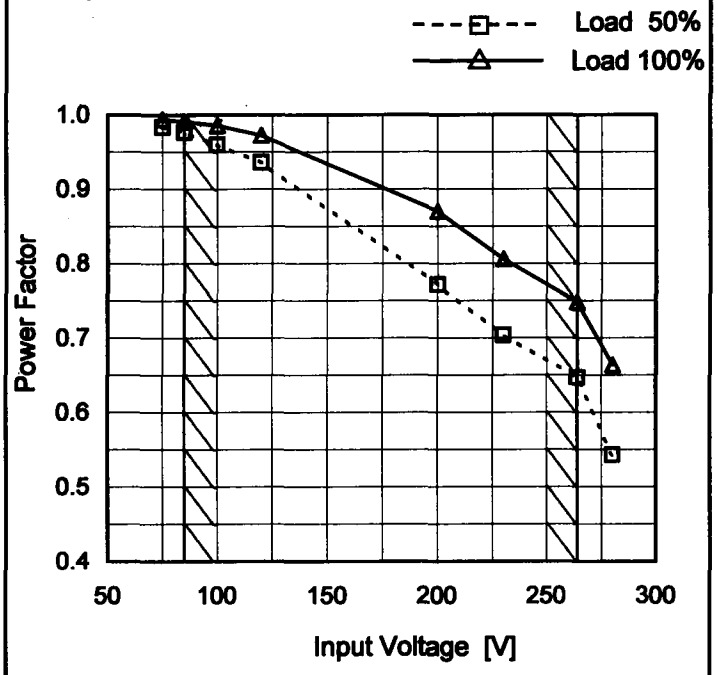
Model	PBA100F-3R3
Item	Power Factor (by Input Voltage)
Object	———————

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	0.984	0.994
85	0.977	0.991
100	0.960	0.986
120	0.936	0.972
200	0.772	0.870
230	0.704	0.806
264	0.647	0.748
280	0.543	0.664
—	-	-

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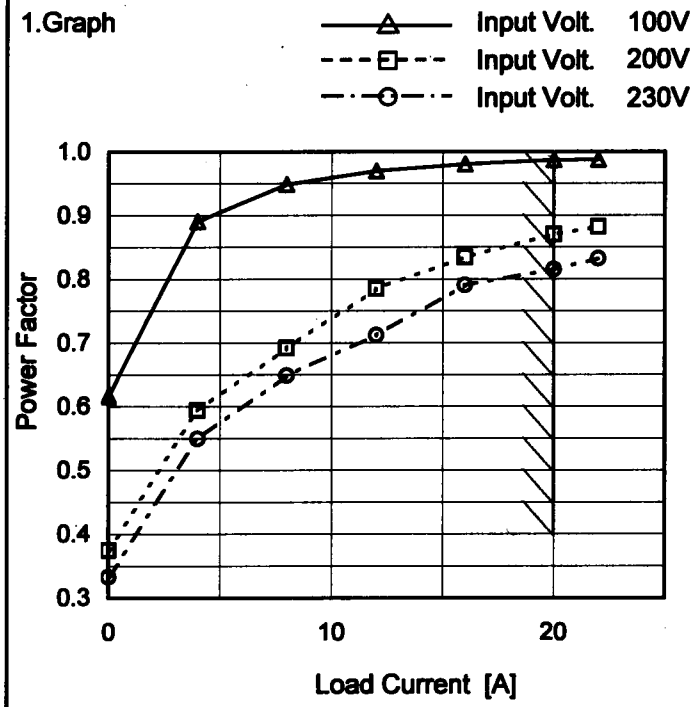
Model	PBA100F-3R3
Item	Power Factor (by Load Current)
Object	———————

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]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	0.616	0.375	0.333
4	0.891	0.595	0.550
8	0.948	0.692	0.649
12	0.970	0.785	0.712
16	0.981	0.835	0.791
20	0.987	0.870	0.816
22	0.987	0.882	0.833
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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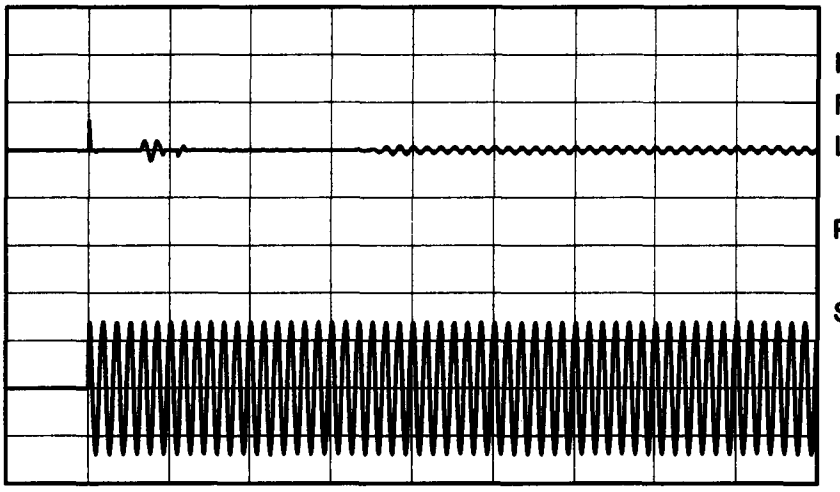
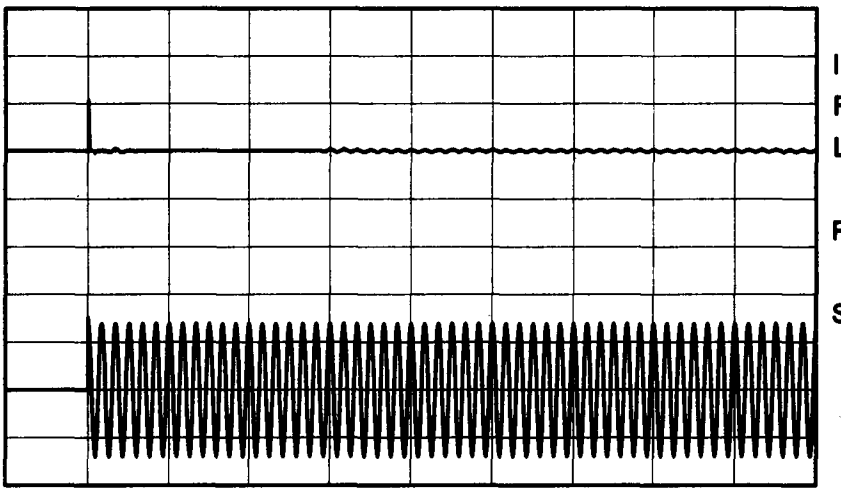
Model	PBA100F-3R3		
Item	Inrush Current	Temperature	25°C
Object	———————	Testing Circuitry	Figure A



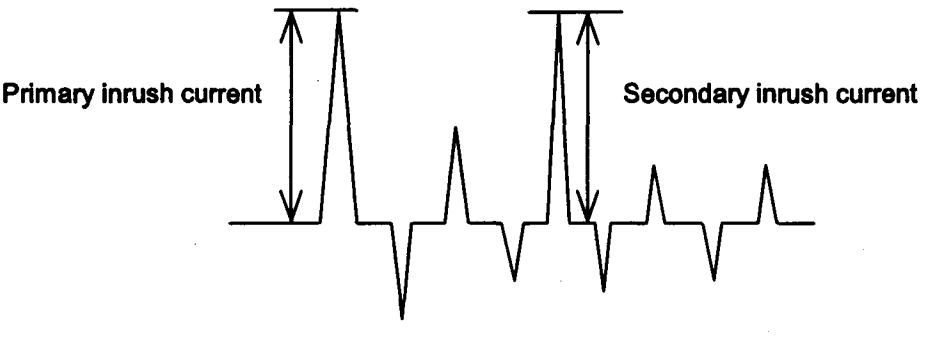
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
12.3 A
Secondary inrush current :
4.5 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
21.3 A
Secondary inrush current :
0.9 A



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Model	PBA100F-3R3		
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B	
Object	———————		

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	230 [V]	
DEN-AN	Both phases	0.15	0.28	0.34	Operation
	One of phase	0.25	0.53	0.62	stand by
IEC60950	Both phases	0.15	0.34	0.38	Operation
	One of phase	0.25	0.58	0.67	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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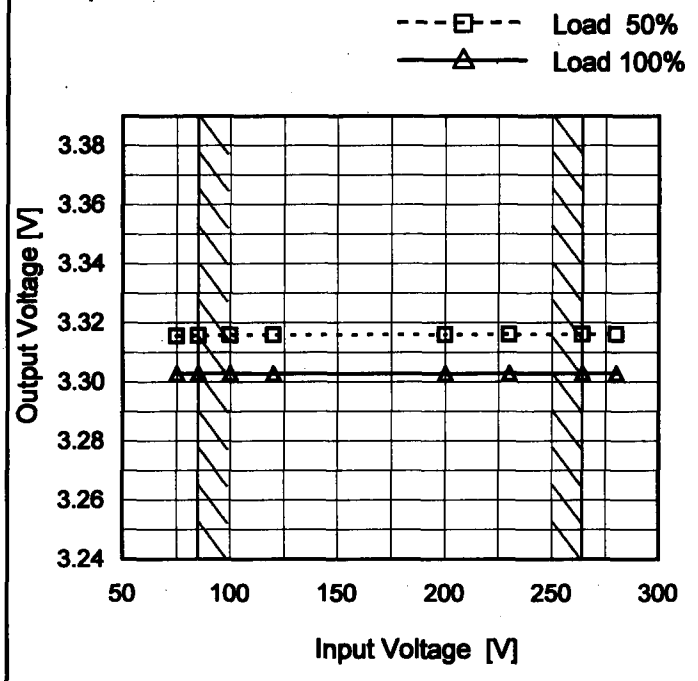
Model	PBA100F-3R3
Item	Line Regulation
Object	+3.3V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

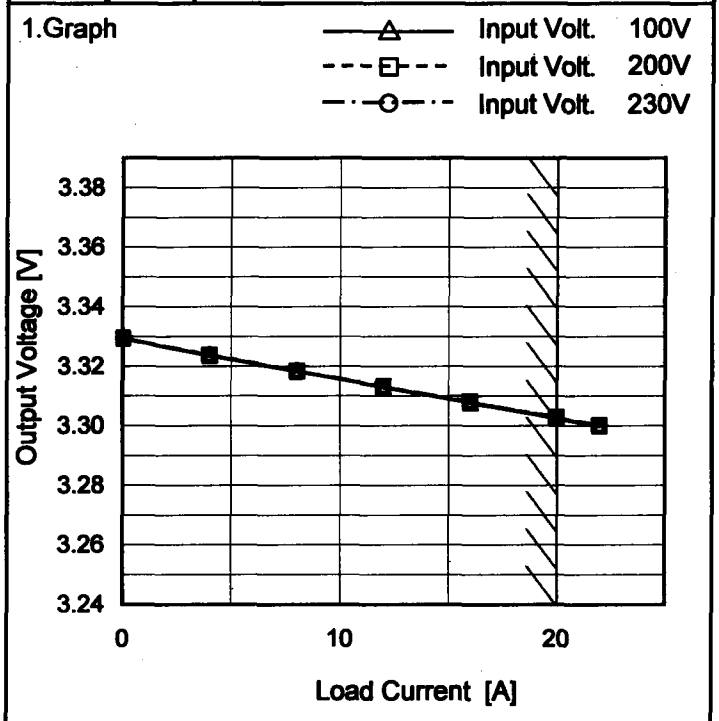
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	3.316	3.303
85	3.316	3.303
100	3.316	3.303
120	3.316	3.303
200	3.316	3.303
230	3.316	3.303
264	3.316	3.303
280	3.316	3.303
—	-	-

COSEL

Model	PBA100F-3R3
Item	Load Regulation
Object	+3.3V20A

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]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	3.329	3.329	3.329
4	3.324	3.324	3.324
8	3.318	3.319	3.319
12	3.313	3.313	3.313
16	3.308	3.308	3.308
20	3.303	3.303	3.303
22	3.300	3.300	3.300
–	-	-	-
–	-	-	-
–	-	-	-
–	-	-	-

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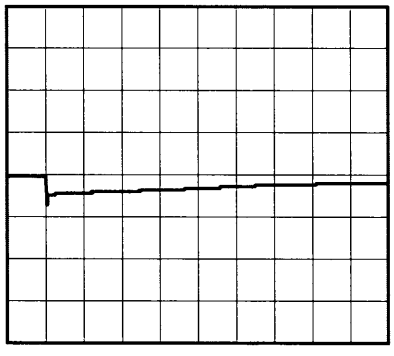
Model	PBA100F-3R3
Item	Dynamic Load Response
Object	+3.3V20A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 ms

Load Current

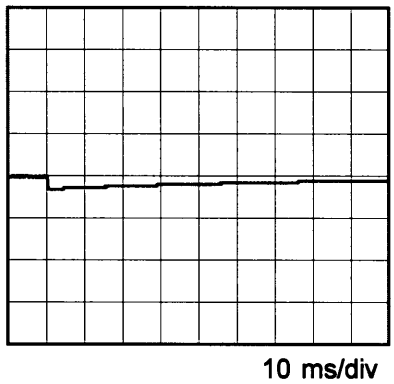
Min. Load (0A) ←→
Load 100% (20A)



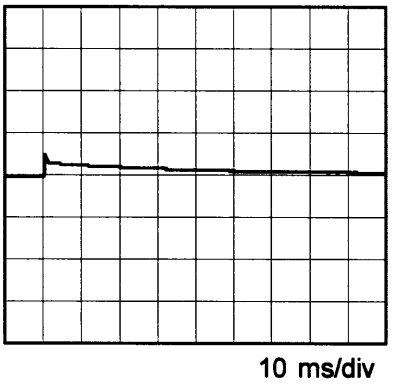
100 mV/div
10 ms/div

10 ms/div

Min. Load (0A) ←→
Load 50% (10A)



100 mV/div
10 ms/div



10 ms/div

* The characteristic of AC200V is equal.

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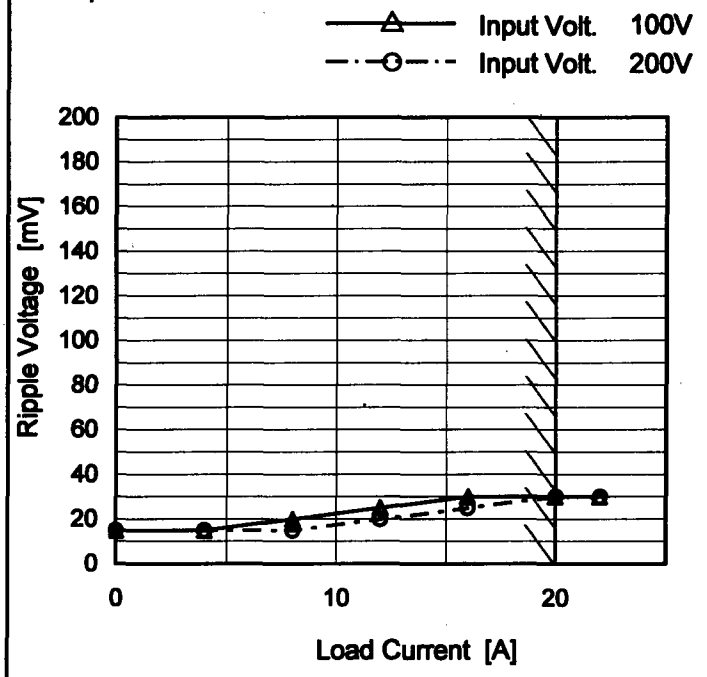
Model	PBA100F-3R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V20A

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.

T1: Due to AC Input Line
T2: Due to Switching

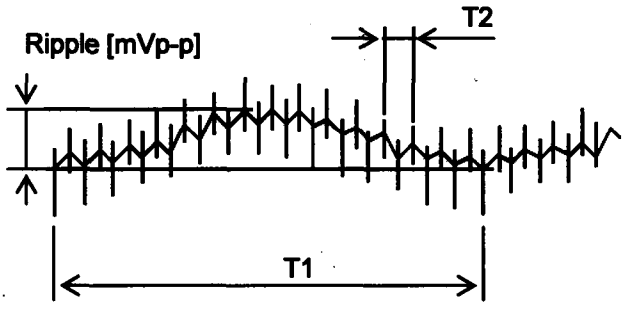


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0	15	15
4	15	15
8	20	15
12	25	20
16	30	25
20	30	30
22	30	30
–	-	-
–	-	-
–	-	-
–	-	-

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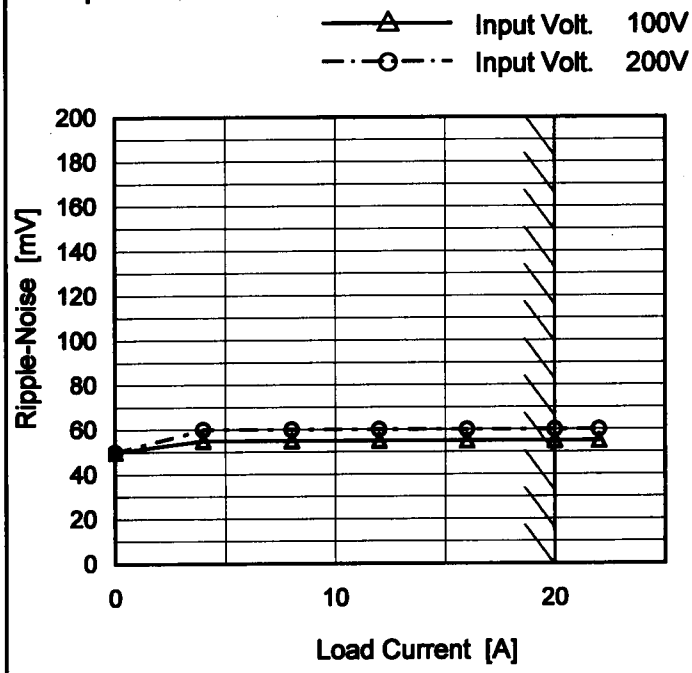
Model	PBA100F-3R3
Item	Ripple-Noise
Object	+3.3V20A

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]	Ripple-Noise [mV] Input Volt. 200 [V]
0	50	50
4	55	60
8	55	60
12	55	60
16	55	60
20	55	60
22	55	60
–	-	-
–	-	-
–	-	-
–	-	-

T1: Due to AC Input Line
T2: Due to Switching

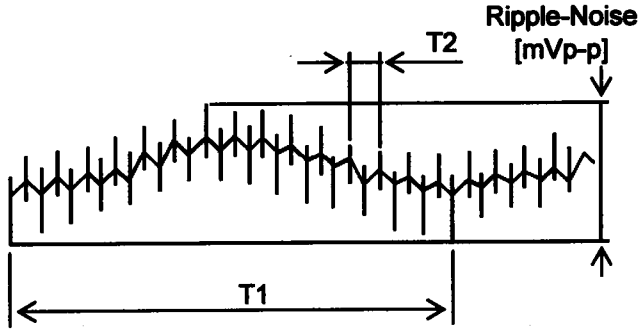


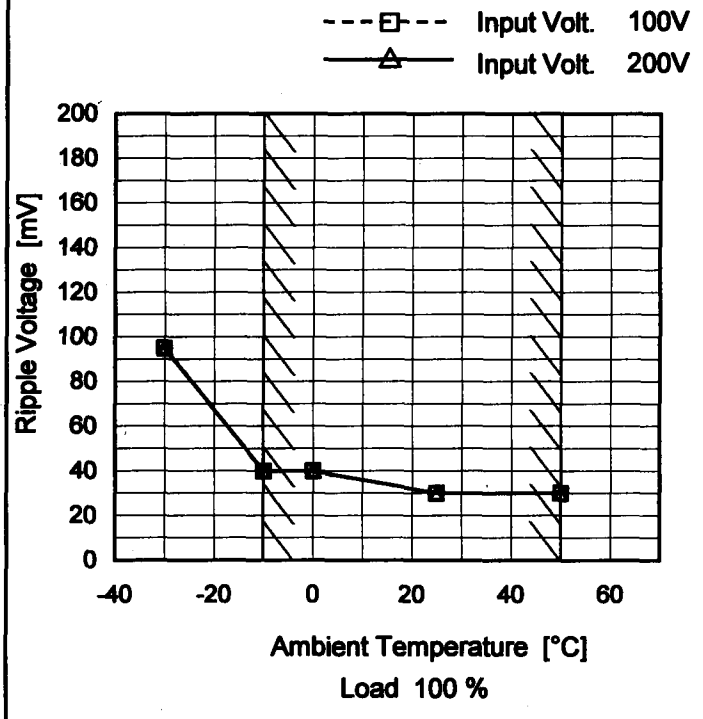
Fig. Complex Ripple Wave Form

COSEL

Model	PBA100F-3R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V20A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

2.Values

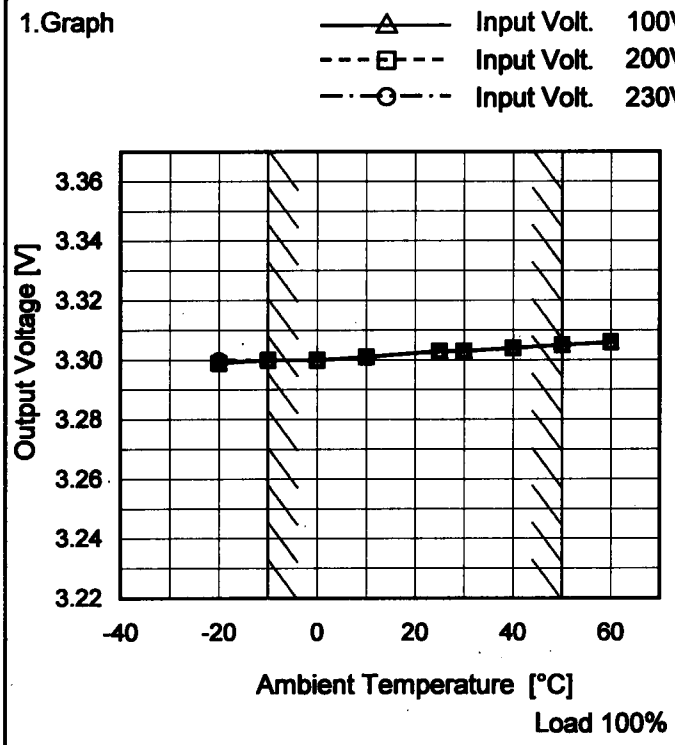
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	95	95
-10	40	40
0	40	40
25	30	30
50	30	30
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA100F-3R3
Item	Ambient Temperature Drift
Object	+3.3V20A

Testing Circuitry Figure A

1.Graph



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	3.299	3.299	3.300
-10	3.300	3.300	3.300
0	3.300	3.300	3.300
10	3.301	3.301	3.301
25	3.303	3.303	3.303
30	3.303	3.303	3.303
40	3.304	3.304	3.304
50	3.305	3.305	3.305
60	3.306	3.306	3.306
—	-	-	-
—	-	-	-

COSEL

Model	PBA100F-3R3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V20A	

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 - 20A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

2.Values

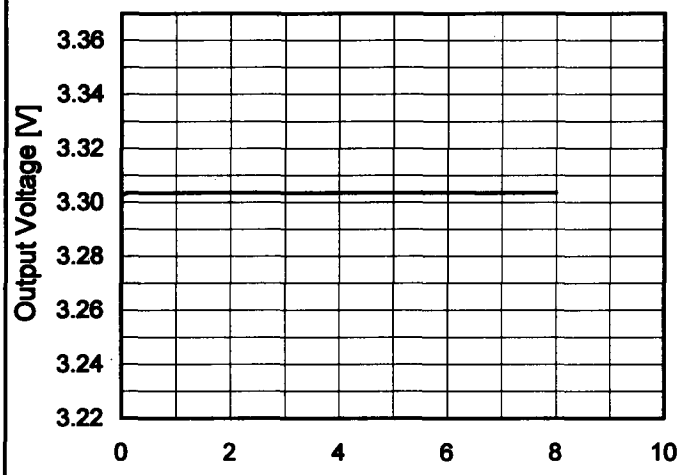
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	264	0	3.333	±17	±0.5
Minimum Voltage	-10	200	20	3.300		

COSEL

Model	PBA100F-3R3
Item	Time Lapse Drift
Object	+3.3V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	3.303
0.5	3.304
1.0	3.304
2.0	3.304
3.0	3.304
4.0	3.304
5.0	3.304
6.0	3.304
7.0	3.304
8.0	3.304

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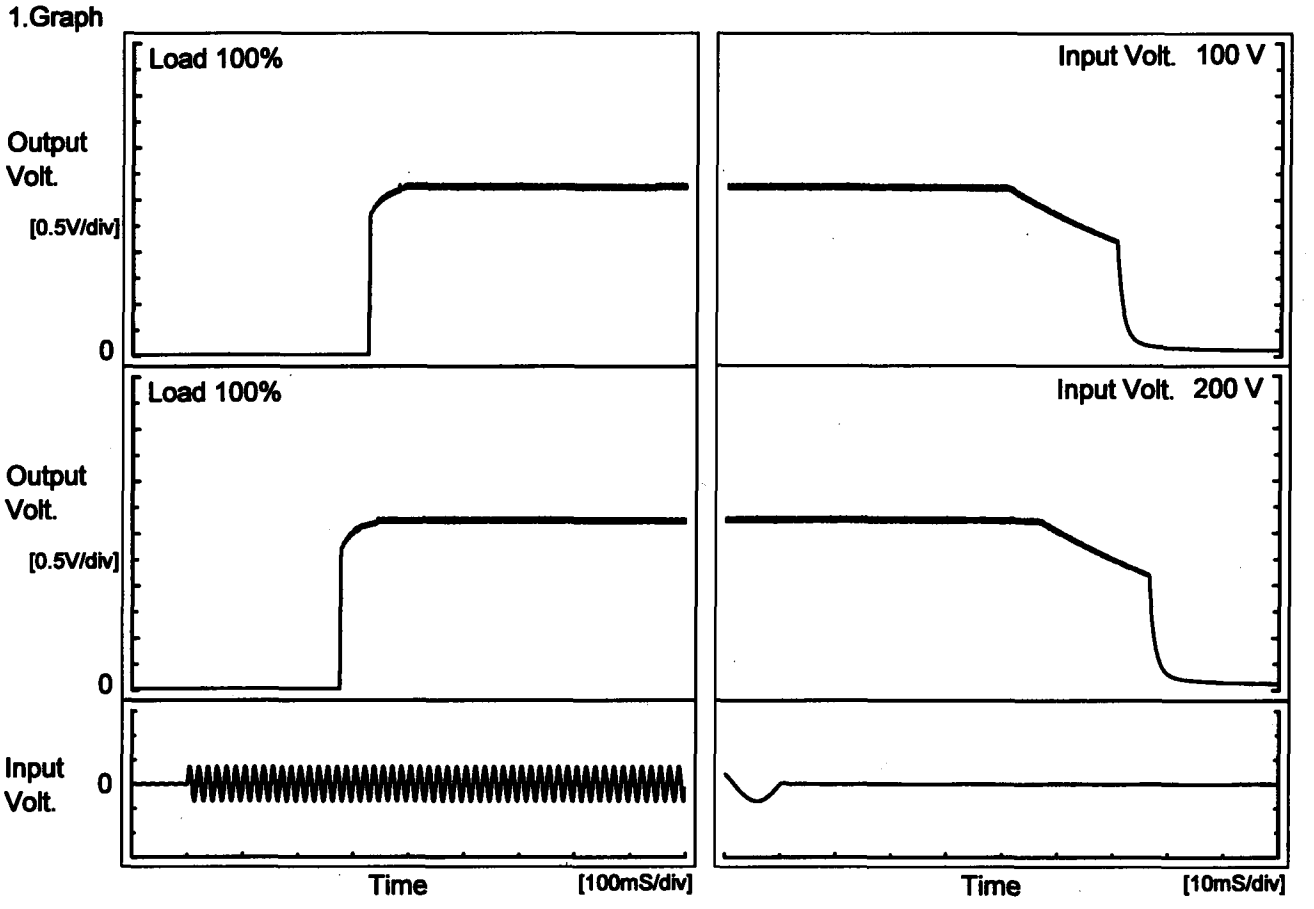
Model	PBA100F-3R3		
Item	Rise and Fall Time	Temperature	25°C
		Testing Circuitry	Figure A
Object	+3.3V20A		

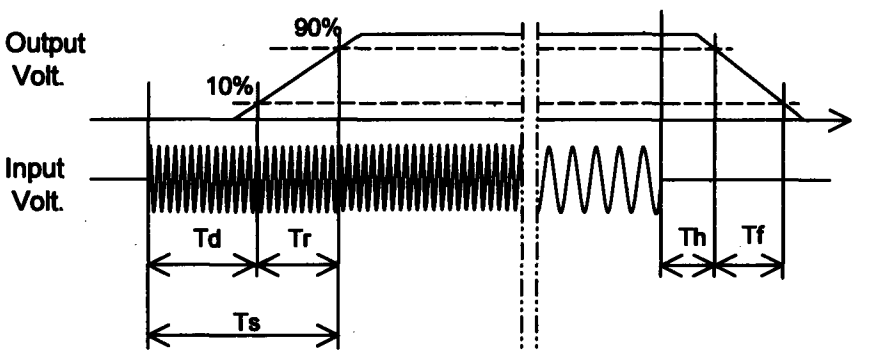
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	325.5	20.0	345.5	45.1	18.3
200 V	275.0	20.0	295.0	51.0	18.6



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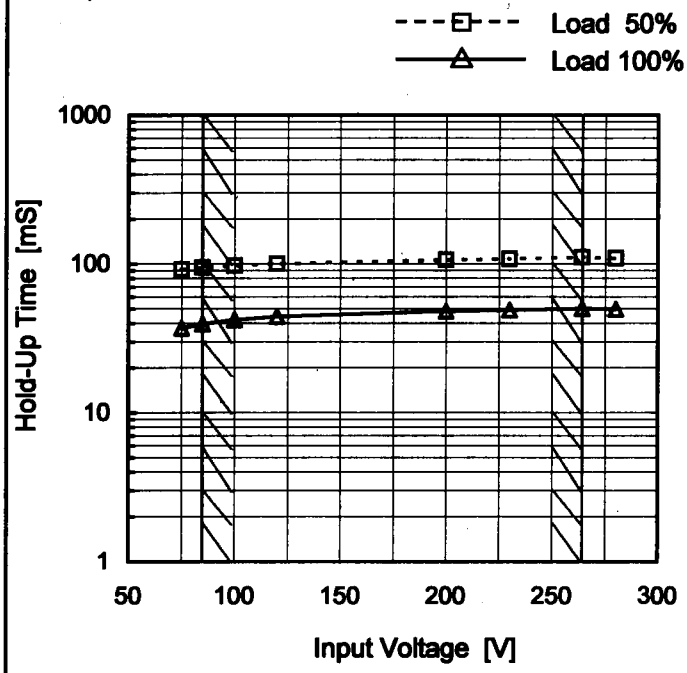
Model	PBA100F-3R3
Item	Hold-Up Time
Object	+3.3V20A

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	92	37
85	95	40
100	98	42
120	101	44
200	107	48
230	108	49
264	111	50
280	110	50
–	-	-

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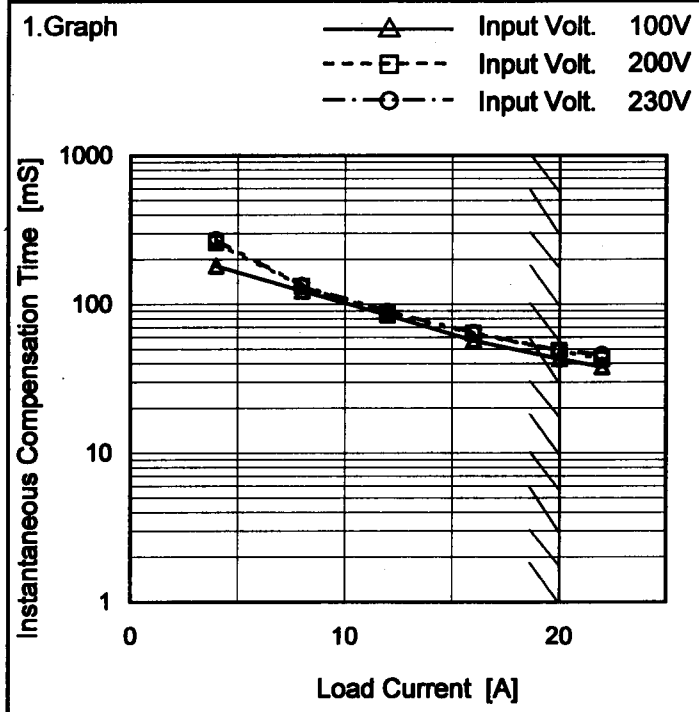
Model	PBA100F-3R3
Item	Instantaneous Interruption Compensation
Object	+3.3V20A

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	-	-	-
4	181	260	274
8	123	133	135
12	85	88	90
16	57	64	65
20	43	49	49
22	38	43	46
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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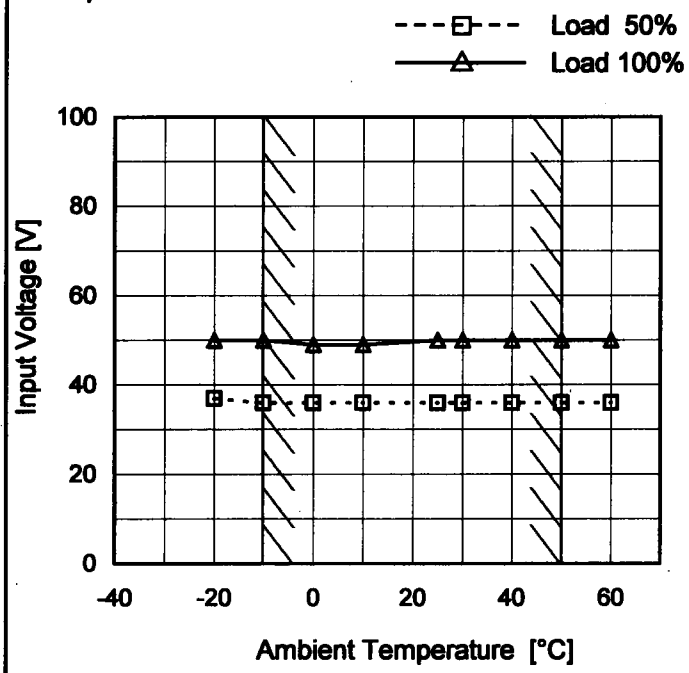
Model	PBA100F-3R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V20A

Testing Circuitry Figure A

1.Graph



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

2.Values

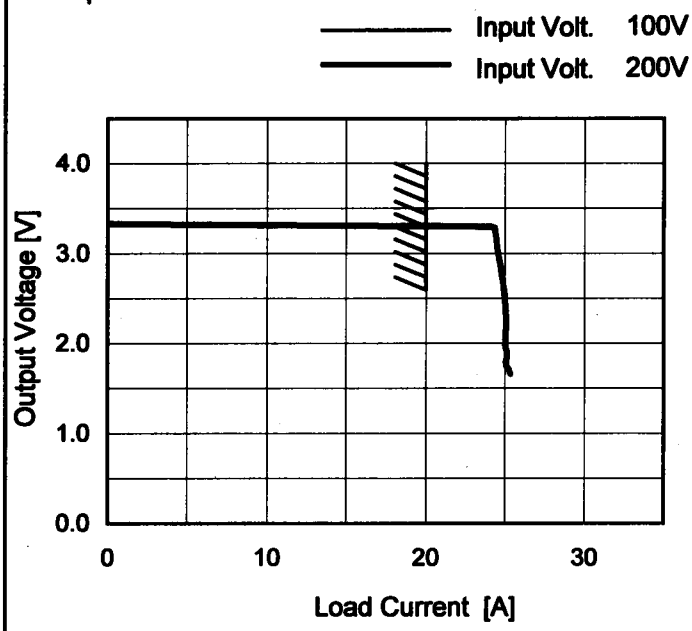
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	37	50
-10	36	50
0	36	49
10	36	49
25	36	50
30	36	50
40	36	50
50	36	50
60	36	50
—	-	-
—	-	-

COSEL

Model	PBA100F-3R3
Item	Overcurrent Protection
Object	+3.3V20A

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 1.65V to 0V.

2.Values

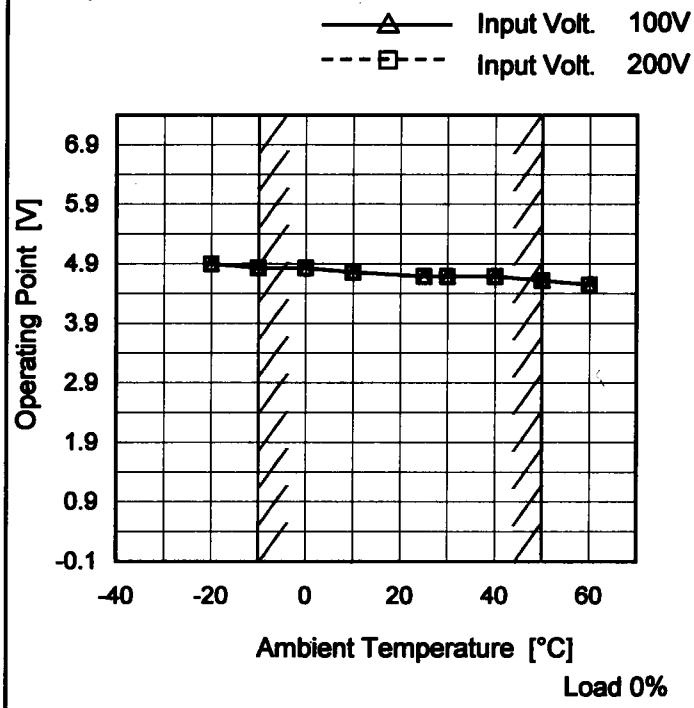
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
3.300	22.30	22.10
3.135	24.51	24.48
2.970	24.63	24.60
2.640	24.93	24.90
2.310	25.12	25.09
1.980	25.07	25.02
1.650	25.40	25.36
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA100F-3R3
Item	Overvoltage Protection
Object	+3.3V20A

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	4.93	4.93
-10	4.86	4.86
0	4.86	4.86
10	4.79	4.79
25	4.72	4.72
30	4.72	4.72
40	4.72	4.72
50	4.65	4.65
60	4.58	4.58
--	-	-
--	-	-

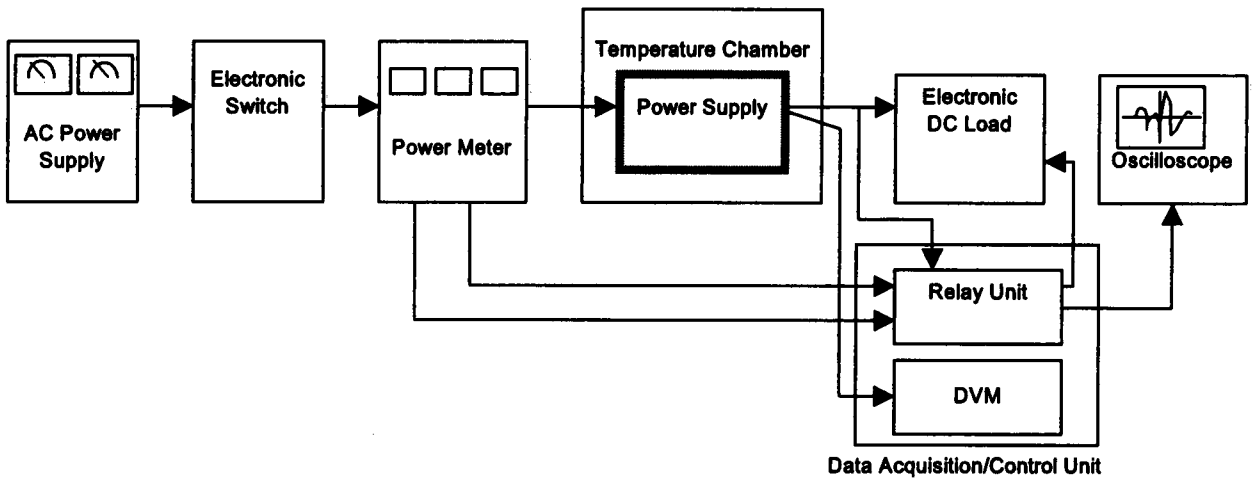


Figure A

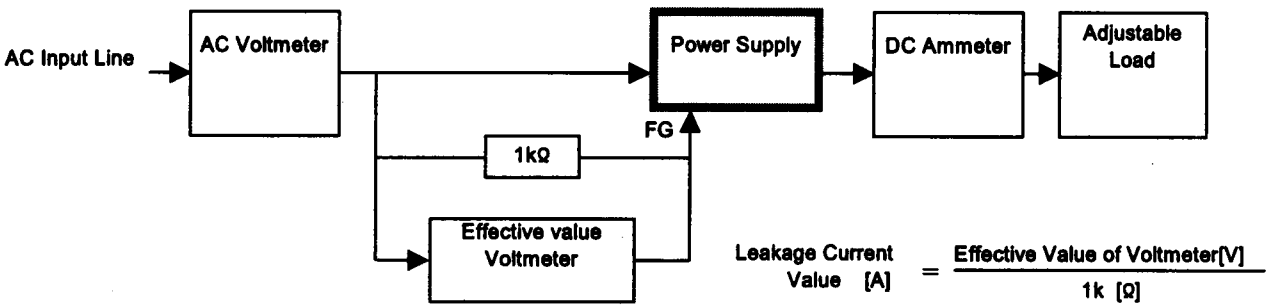


Figure B (DEN-AN)

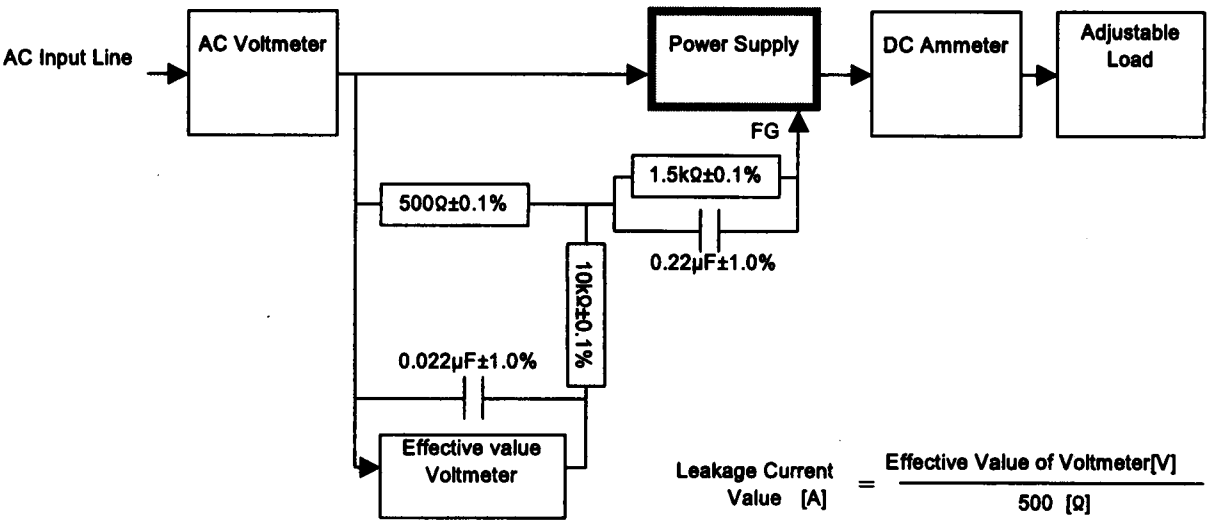


Figure B (IEC60950)