参考資料

COSEL

TEST DATA OF PBA600F-3R3

Regulated DC Power Supply
Sep.27. 2003

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COSEL CO.,LTD.

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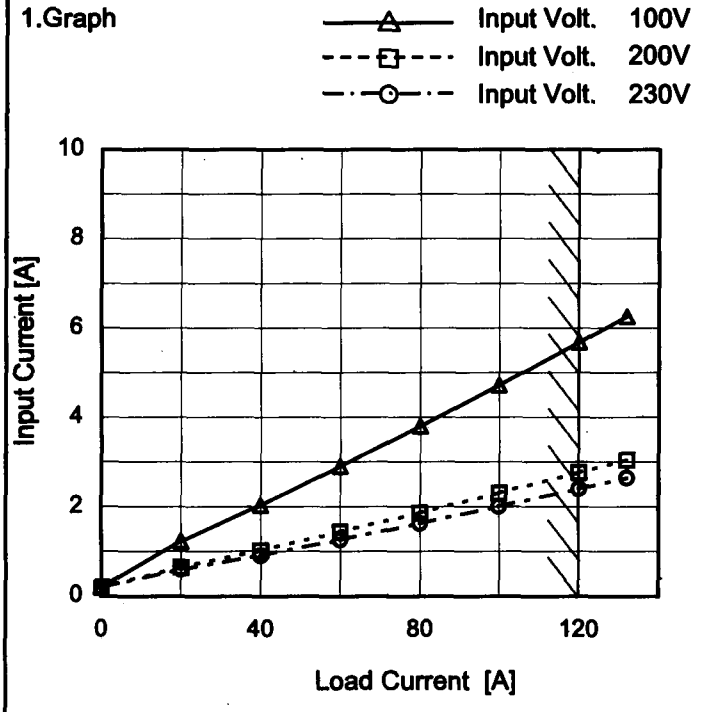
Model	PBA600F-3R3
Item	Input Current (by Load Current)
Object	————————

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	0.202	0.196	0.188
20	1.232	0.650	0.594
40	2.032	1.022	0.906
60	2.900	1.434	1.254
80	3.800	1.860	1.622
100	4.720	2.304	2.002
120	5.680	2.764	2.400
132	6.260	3.044	2.642
--	-	-	-
--	-	-	-
--	-	-	-

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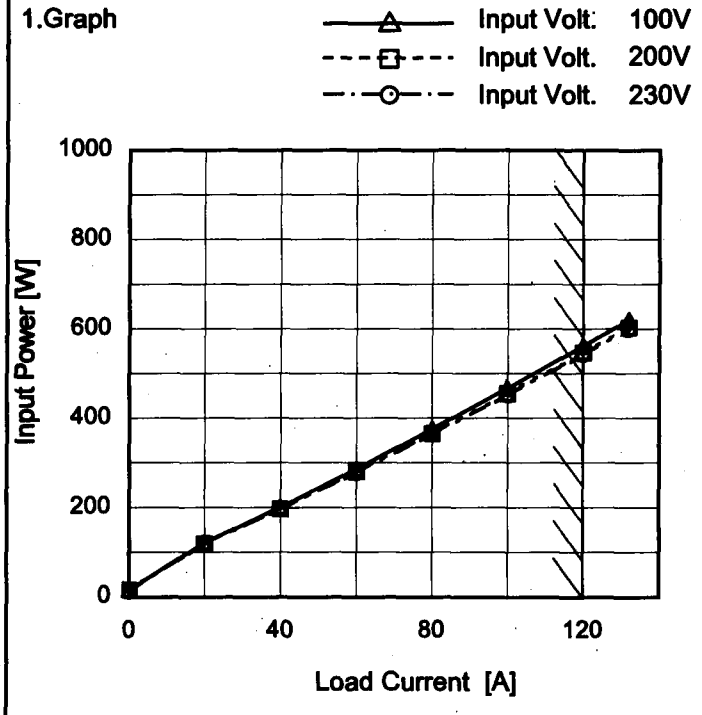
Model	PBA600F-3R3
Item	Input Power (by Load Current)
Object	———————

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	15.4	15.0	13.0
20	121.2	119.0	119.0
40	200.3	197.0	196.0
60	285.6	280.0	278.0
80	376.0	366.0	364.0
100	467.0	455.0	452.0
120	562.0	547.0	543.0
132	620.0	603.0	599.0
--	-	-	-
--	-	-	-
--	-	-	-

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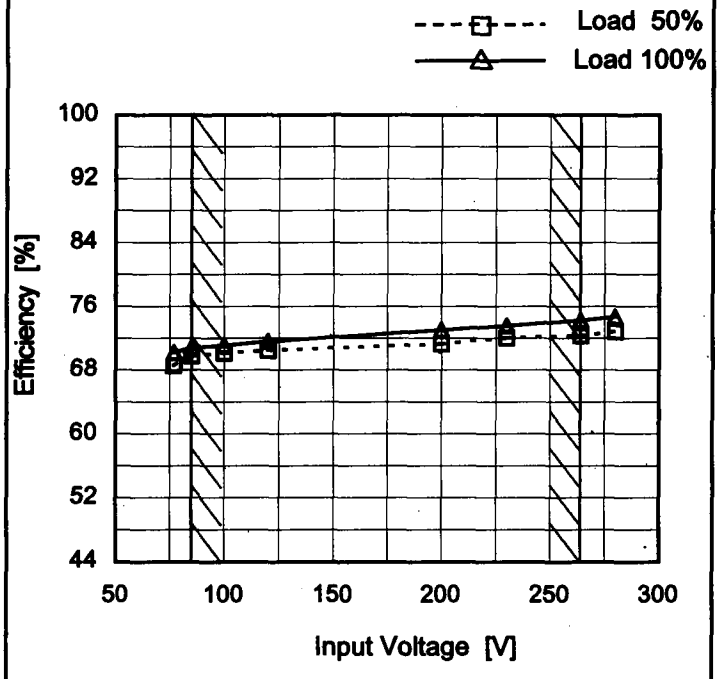
Model	PBA600F-3R3
Item	Efficiency (by Input Voltage)
Object	———————————

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%
77	68.6	70.2
85	69.8	70.8
100	70.2	71.1
120	70.5	71.6
200	71.3	73.0
230	72.0	73.6
264	72.3	74.3
280	72.8	74.7
--	-	-

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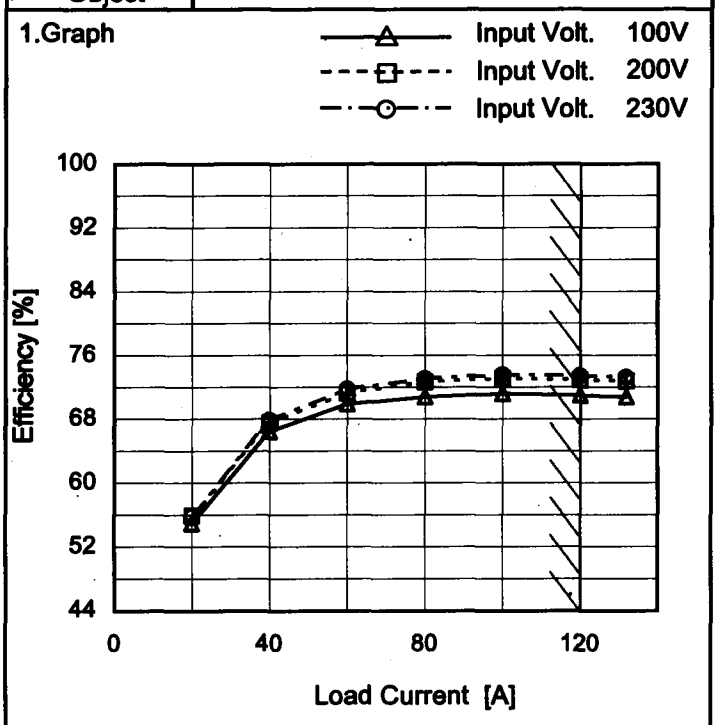
Model	PBA600F-3R3
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
20	54.9	56.0	55.9
40	66.5	67.6	67.9
60	69.9	71.3	71.8
80	70.8	72.7	73.1
100	71.2	73.1	73.6
120	71.0	72.9	73.5
132	70.8	72.8	73.2
--	-	-	-
--	-	-	-
--	-	-	-

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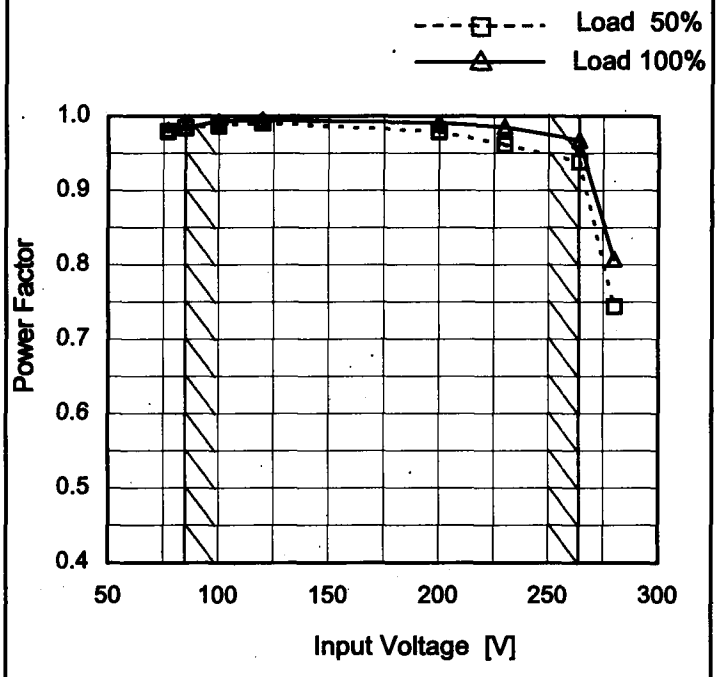
Model	PBA600F-3R3
Item	Power Factor (by Input Voltage)
Object	———————————

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%
77	0.979	0.981
85	0.985	0.984
100	0.987	0.993
120	0.991	0.995
200	0.979	0.991
230	0.962	0.985
264	0.939	0.968
280	0.745	0.808
--	-	-

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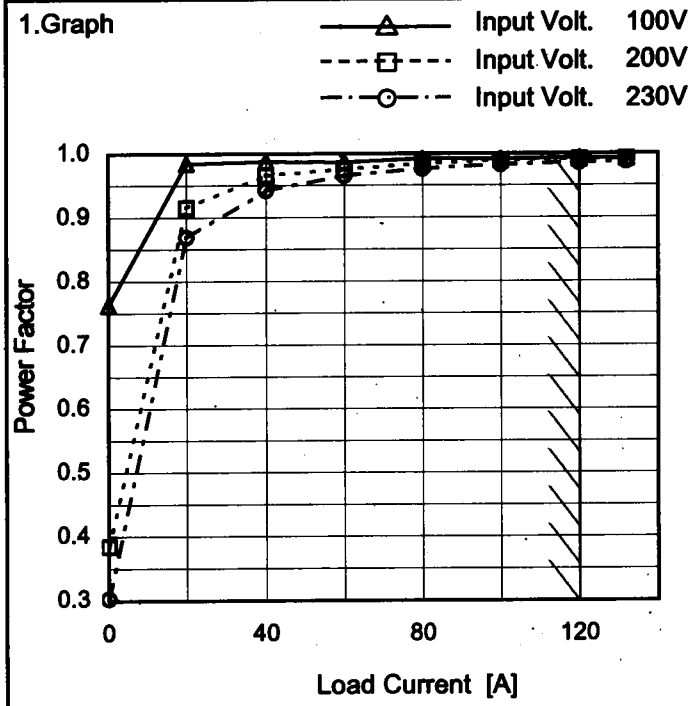
Model	PBA600F-3R3
Item	Power Factor (by Load Current)
Object	———————

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	0.762	0.385	0.302
20	0.985	0.915	0.869
40	0.987	0.966	0.942
60	0.987	0.976	0.965
80	0.992	0.984	0.976
100	0.992	0.989	0.983
120	0.993	0.991	0.985
132	0.992	0.992	0.987
--	-	-	-
--	-	-	-
--	-	-	-

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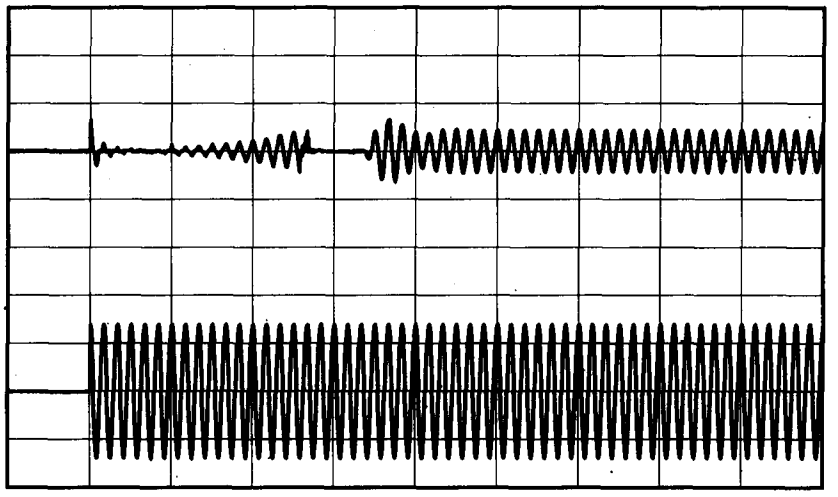
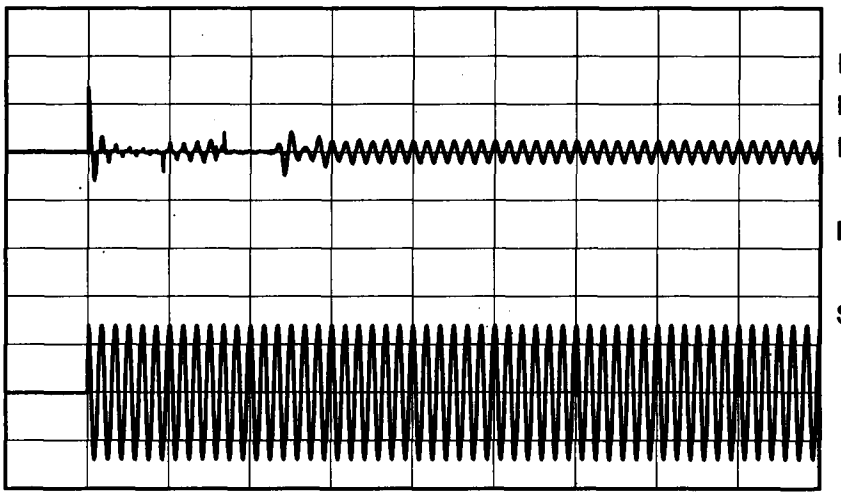
Model	PBA600F-3R3
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



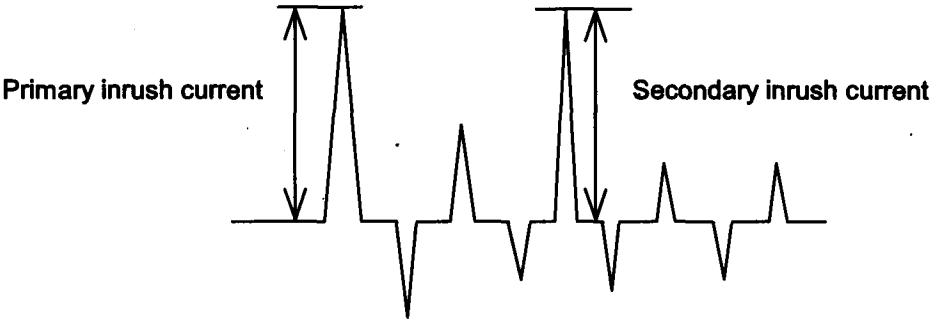
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
13.2 A
Secondary inrush current :
13.2 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
27.0 A
Secondary inrush current :
9.6 A



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Model	PBA600F-3R3	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	———	

1.Results

[mA]

Standards		Input Volt.			Note
		100[V]	200[V]	240[V]	
DEN-AN	Both phases	0.30	0.47	0.58	Operation
	One of phase	0.38	0.77	0.98	stand by
IEC60950	Both phases	0.24	0.42	0.56	Operation
	One of phase	0.34	0.77	0.91	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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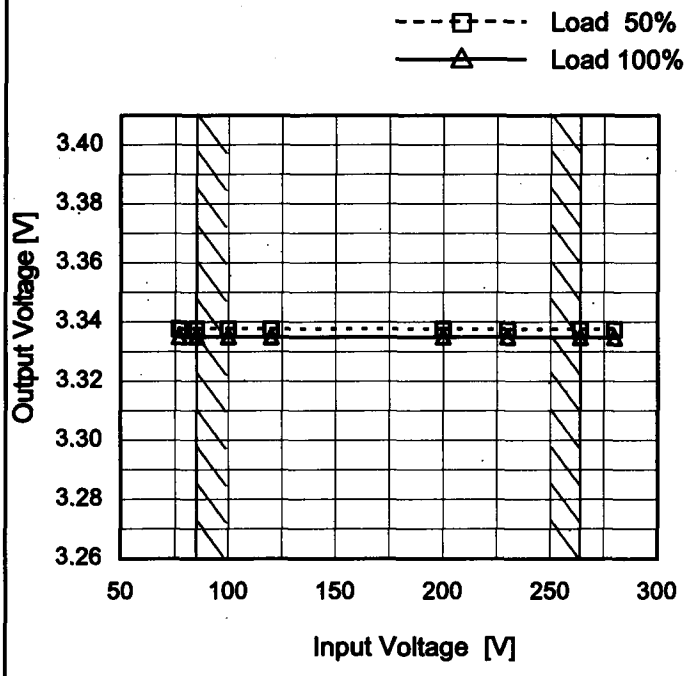
Model	PBA600F-3R3
Item	Line Regulation
Object	+3.3V120A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

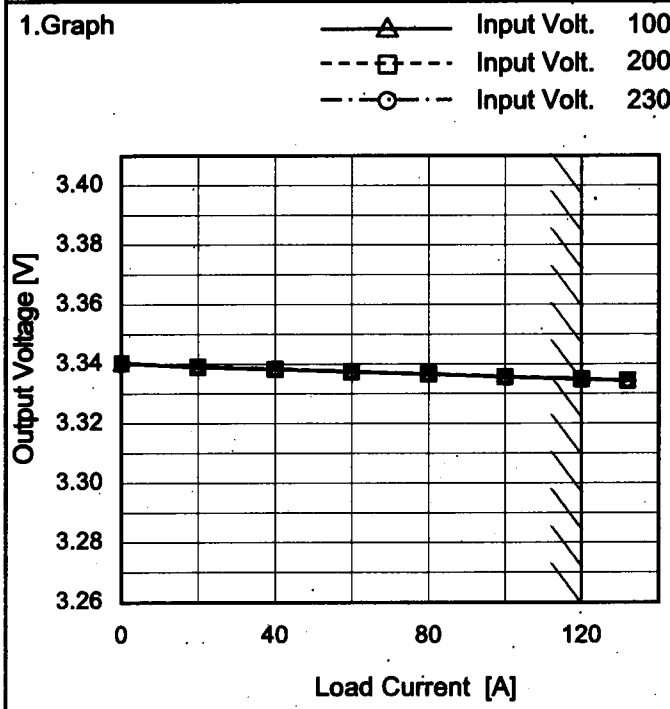
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
77	3.338	3.335
85	3.338	3.335
100	3.338	3.335
120	3.338	3.335
200	3.338	3.335
230	3.338	3.335
264	3.338	3.335
280	3.338	3.335
--	-	-

COSEL

Model	PBA600F-3R3
Item	Load Regulation
Object	+3.3V120A

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	3.340	3.340	3.340
20	3.339	3.339	3.339
40	3.338	3.338	3.338
60	3.337	3.338	3.338
80	3.337	3.337	3.337
100	3.336	3.336	3.336
120	3.335	3.335	3.335
132	3.334	3.335	3.334
--	-	-	-
--	-	-	-
--	-	-	-

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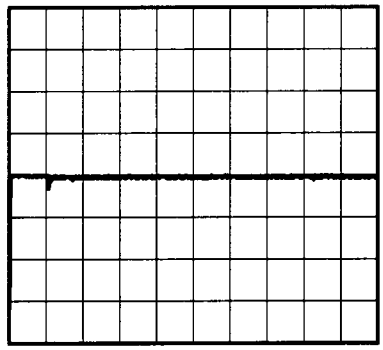
Model	PBA600F-3R3
Item	Dynamic Load Response
Object	+3.3V120A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

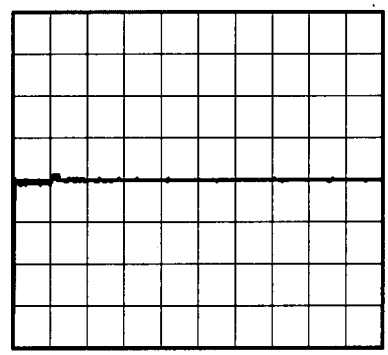
Load Current

Min.Load (0A) ⟷
Load 100% (120A)



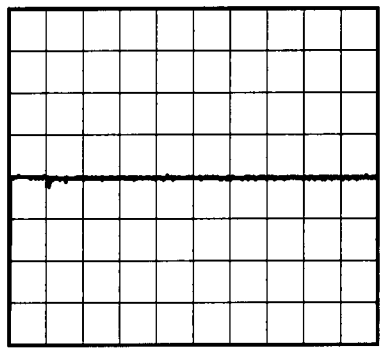
100mV/div

10ms/div



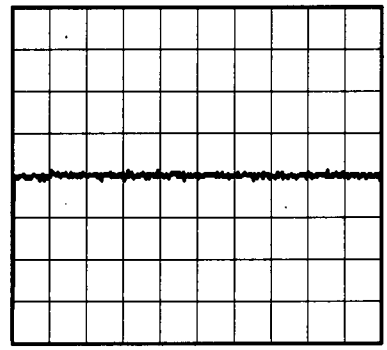
10ms/div

Min.Load (0A) ⟷
Load 50% (60A)



100mV/div

10ms/div



10ms/div

* The characteristic of AC200V is equal.

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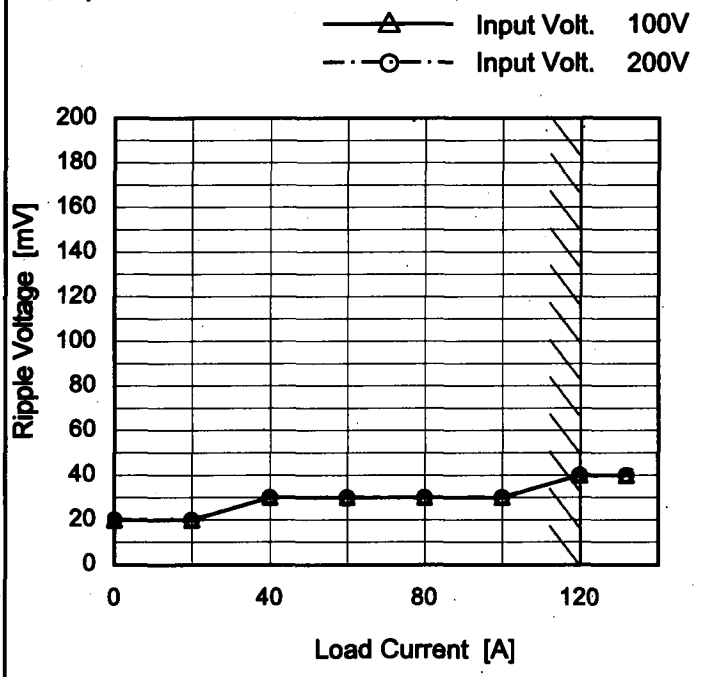
Model	PBA600F-3R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V120A

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

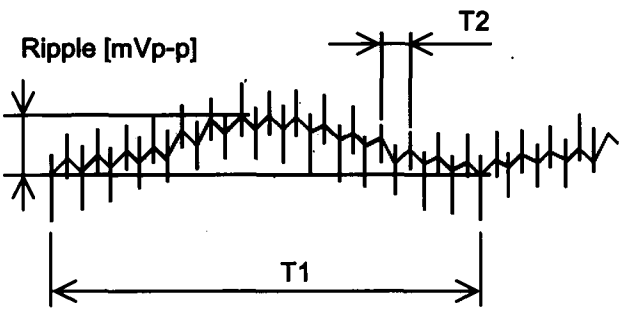


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0	20	20
20	20	20
40	30	30
60	30	30
80	30	30
100	30	30
120	40	40
132	40	40
--	-	-
--	-	-
--	-	-

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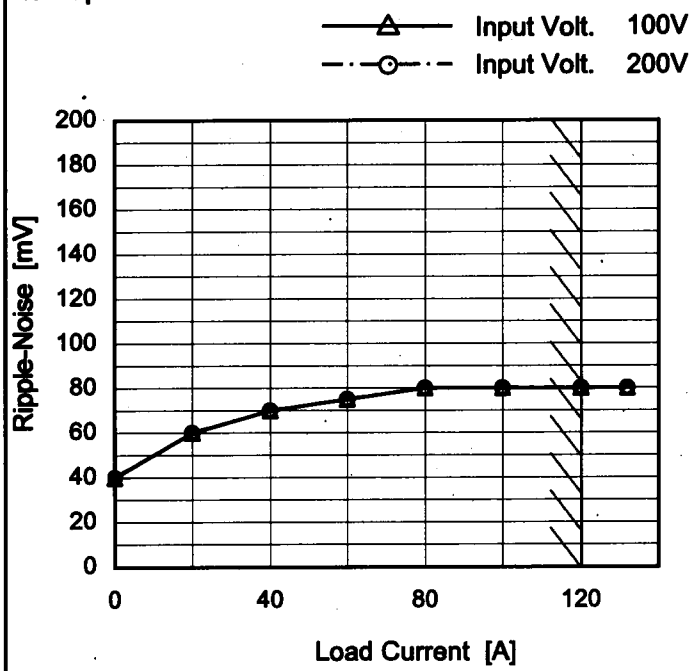
Model	PBA600F-3R3
Item	Ripple-Noise
Object	+3.3V120A

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.

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

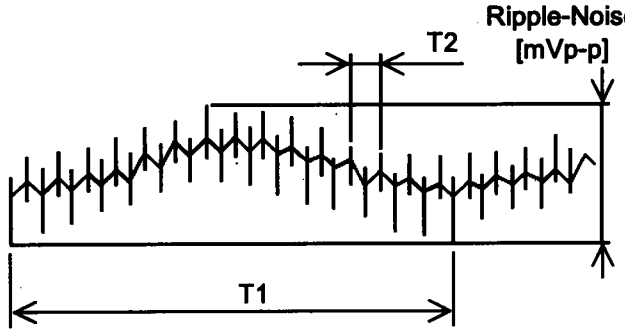


Fig. Complex Ripple Wave Form

2.Values

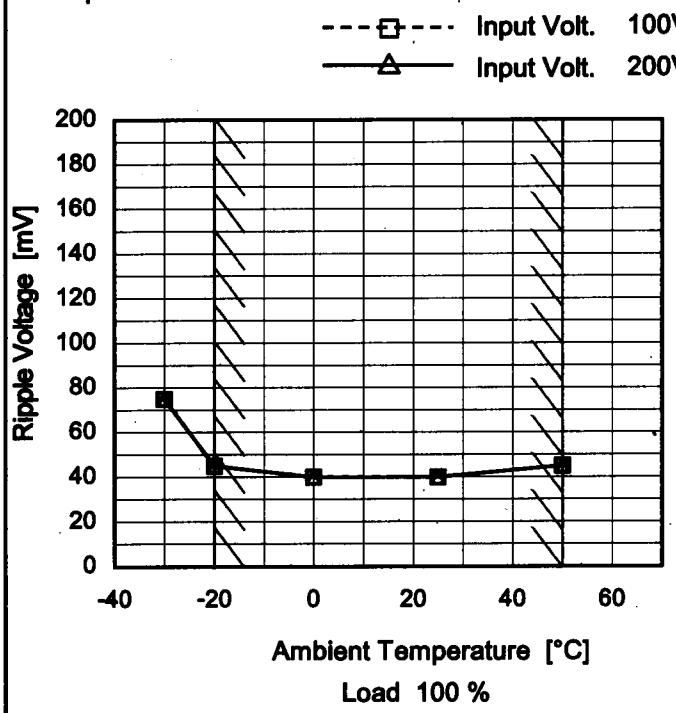
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0	40	40
20	60	60
40	70	70
60	75	75
80	80	80
100	80	80
120	80	80
132	80	80
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA600F-3R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V120A

Testing Circuitry Figure A

1.Graph



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

2.Values

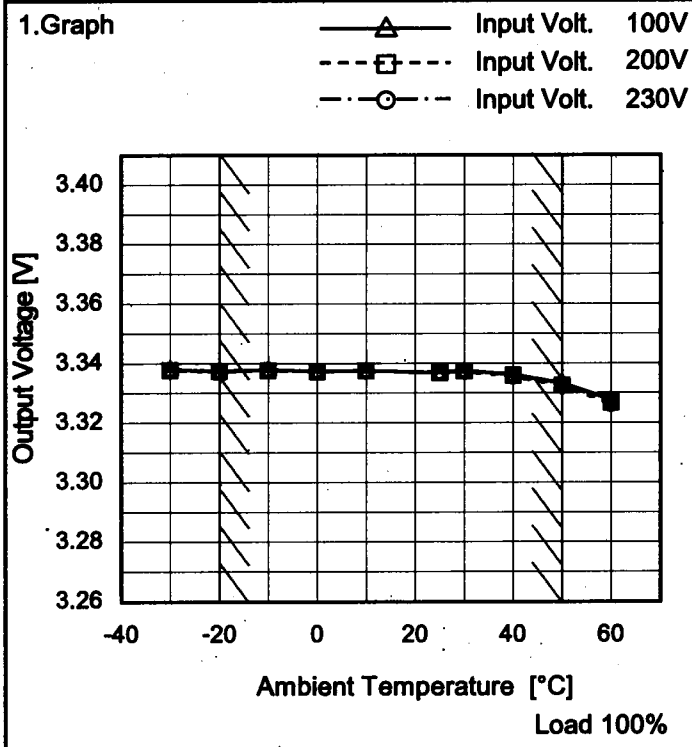
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	75	75
-20	45	45
0	40	40
25	40	40
50	45	45
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA600F-3R3
Item	Ambient Temperature Drift
Object	+3.3V120A

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]
-30	3.338	3.338	3.338
-20	3.337	3.338	3.337
-10	3.338	3.338	3.338
0	3.337	3.337	3.337
10	3.338	3.338	3.337
25	3.337	3.337	3.337
30	3.338	3.337	3.337
40	3.336	3.336	3.336
50	3.333	3.333	3.332
60	3.328	3.327	3.326
--	-	-	-

COSEL

Model	PBA600F-3R3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V120A	

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 - 120A

* 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	25	264	0	3.343	±7	±0.2
Minimum Voltage	50	264	120	3.329		

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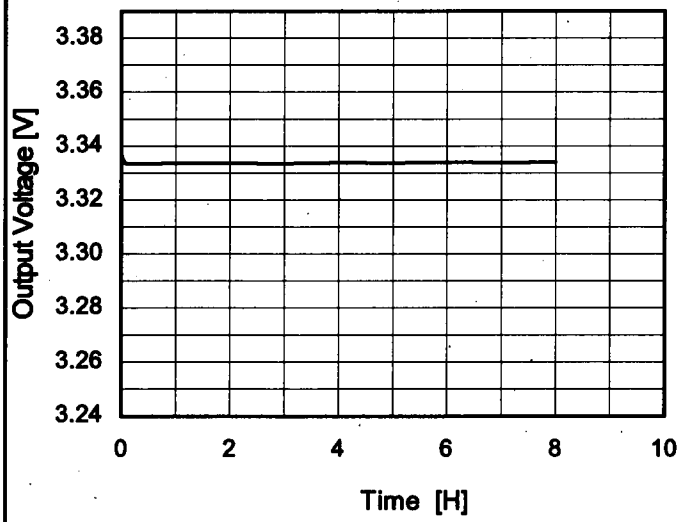
Model	PBA600F-3R3
Item	Time Lapse Drift
Object	+3.3V120A

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	3.337
0.5	3.334
1.0	3.334
2.0	3.334
3.0	3.334
4.0	3.334
5.0	3.334
6.0	3.334
7.0	3.334
8.0	3.334

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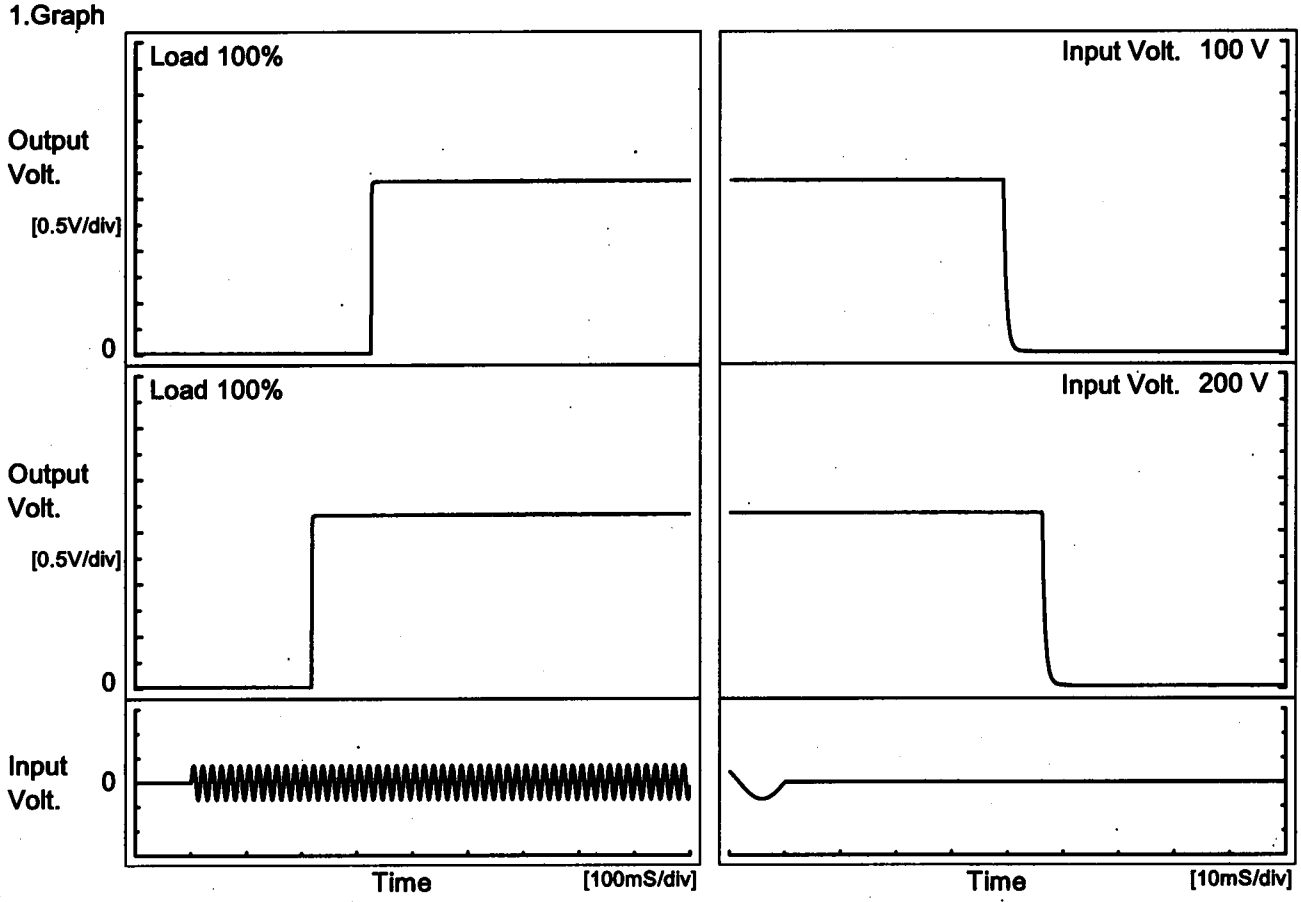
Model	PBA600F-3R3
Item	Rise and Fall Time
Object	+3.3V120A

Temperature 25°C
Testing Circuitry Figure A

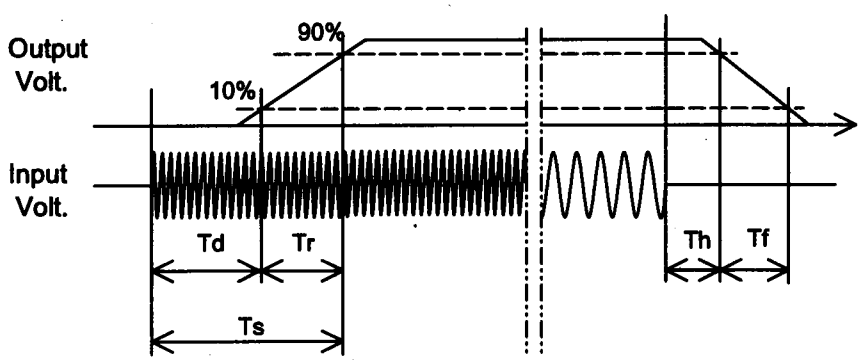
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	325.5	1.5	327.0	39.1	1.3
200 V	218.0	1.0	219.0	46.3	1.3

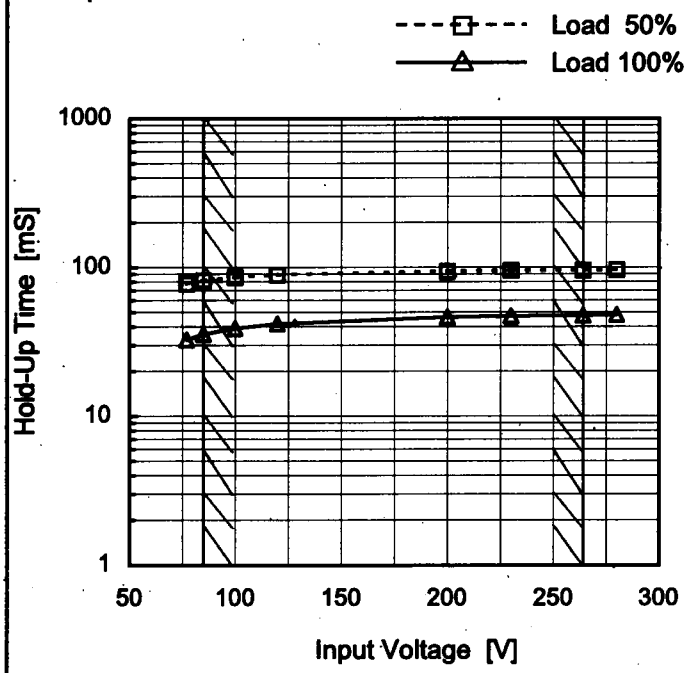


COSEL

Model	PBA600F-3R3
Item	Hold-Up Time
Object	+3.3V120A

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

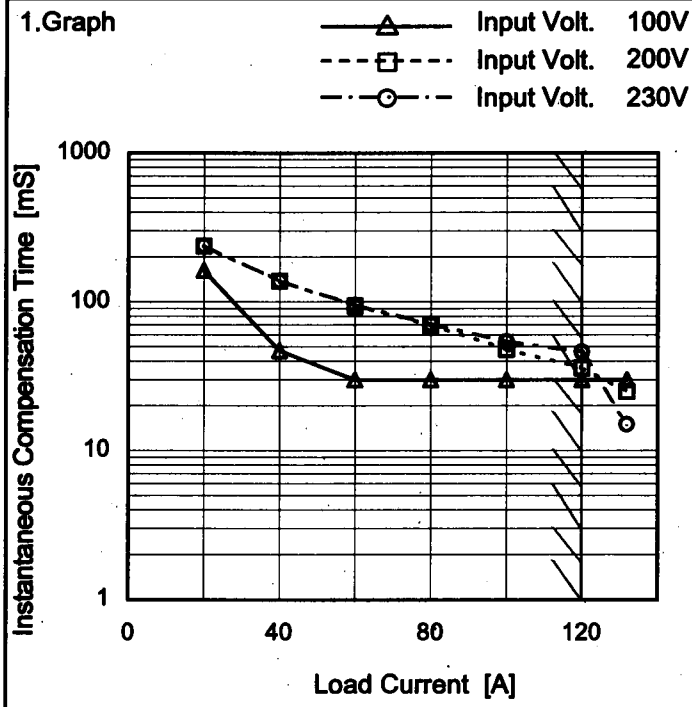
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
77	78	33
85	82	36
100	86	39
120	89	42
200	94	46
230	95	47
264	96	48
280	96	48
--	-	-

COSEL

Model	PBA600F-3R3
Item	Instantaneous Interruption Compensation
Object	+3.3V120A

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	-	-	-
20	163	237	238
40	47	138	138
60	30	94	95
80	30	70	71
100	30	48	54
120	30	36	46
132	30	25	15
--	-	-	-
--	-	-	-
--	-	-	-

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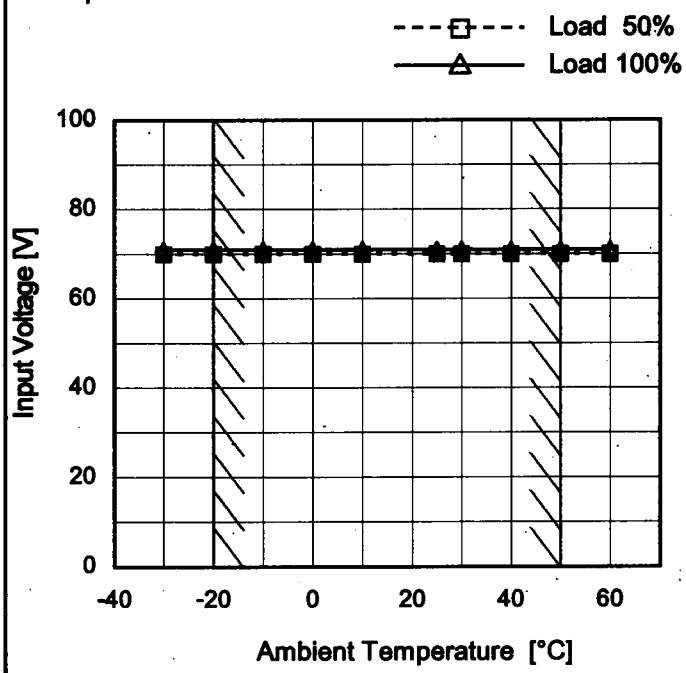
Model	PBA600F-3R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V120A

Testing Circuitry Figure A

1.Graph



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

2.Values

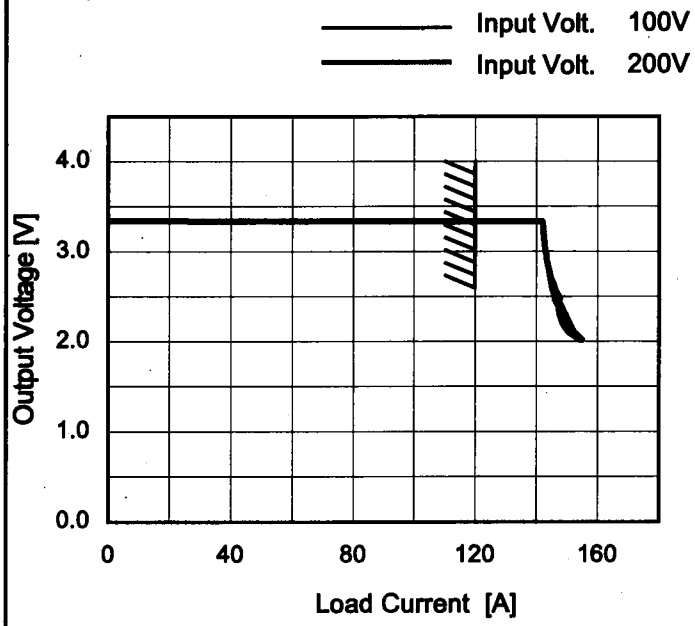
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	70	71
-20	70	71
-10	70	71
0	70	71
10	70	71
25	70	71
30	70	71
40	70	71
50	70	71
60	70	71
--	-	-

COSEL

Model	PBA600F-3R3
Item	Overcurrent Protection
Object	+3.3V120A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
3.30	128.21	134.48
3.14	142.41	142.53
2.97	143.02	143.21
2.64	144.71	145.59
2.31	147.29	147.98
2.05	153.43	156.12
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--	-	-
--	-	-
--	-	-
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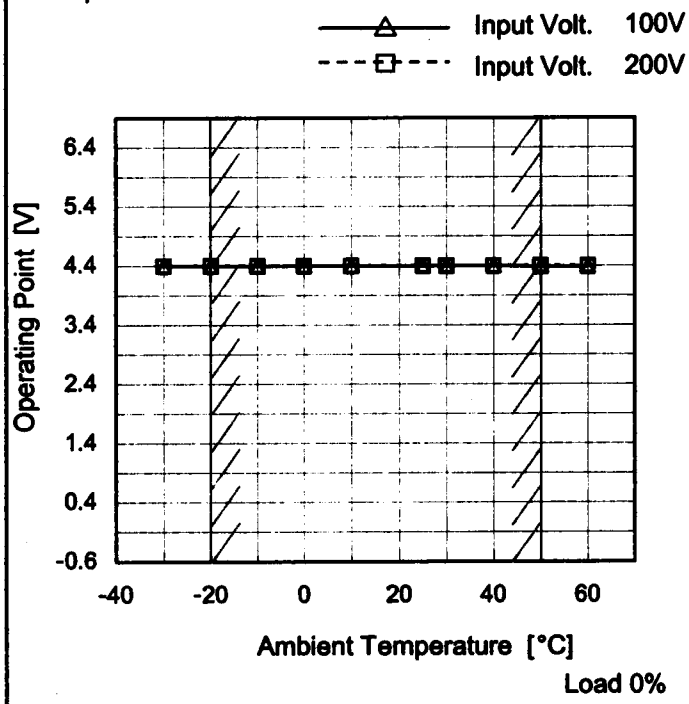
COSEL

Model	PBA600F-3R3
Item	Overvoltage Protection
Object	+3.3V120A

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	4.41	4.41
-20	4.41	4.41
-10	4.41	4.41
0	4.41	4.41
10	4.41	4.41
25	4.41	4.41
30	4.41	4.41
40	4.41	4.41
50	4.40	4.41
60	4.40	4.41
–	-	-

COSEL

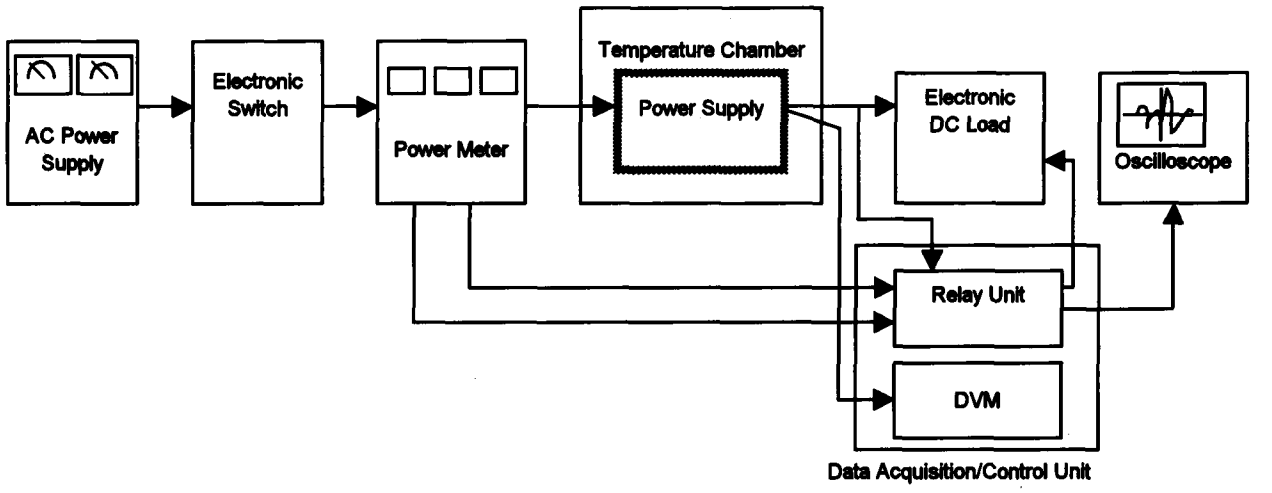


Figure A

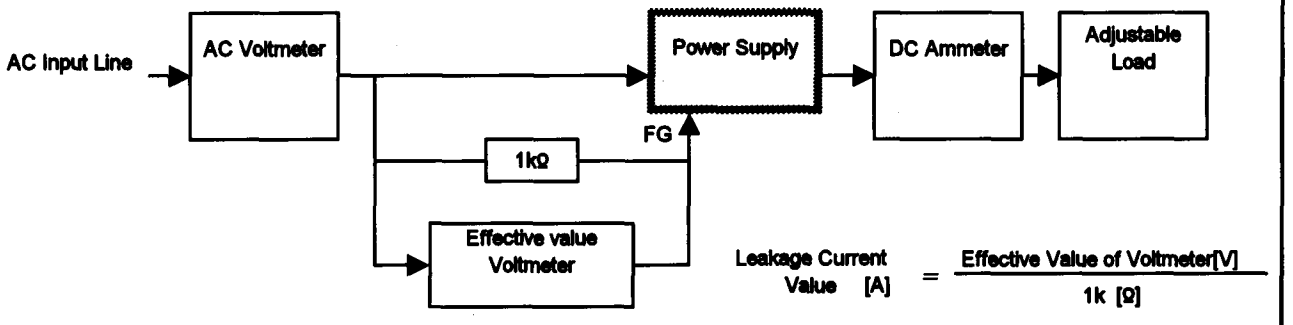


Figure B (DEN-AN)

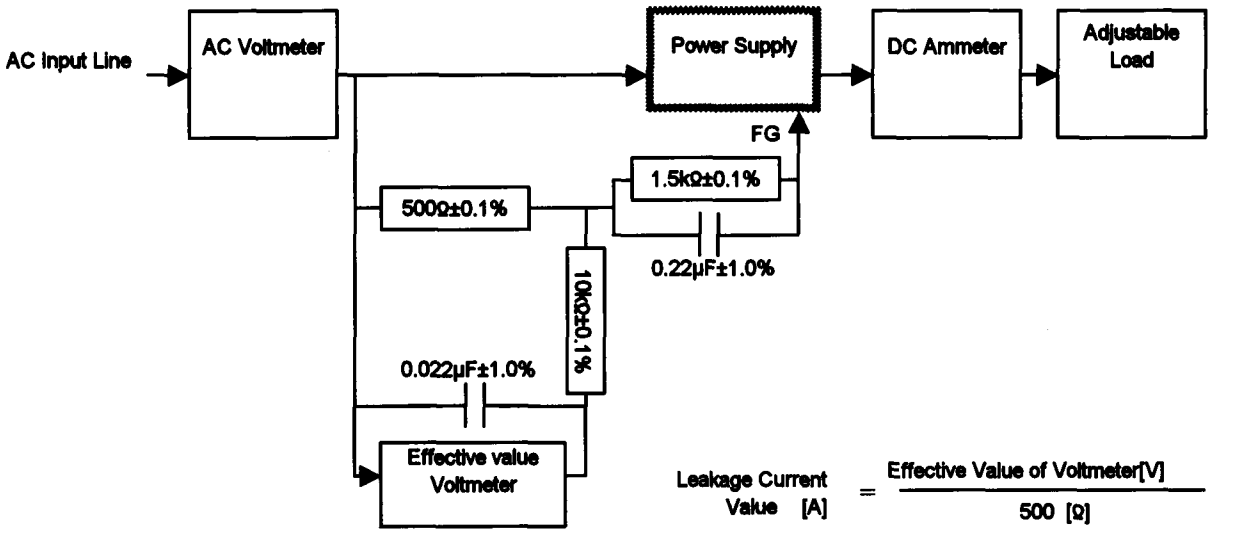


Figure B (IEC60950)