COSEL

参考資料

TEST DATA OF PBA1000F-48

Regulated DC Power Supply
Mar.30, 2004

Approved by : Kuniaki Nagahara
Kuniaki Nagahara Design Manager

Prepared by : Kazunari Uotani
Kazunari Uotani Design Engineer

COSEL CO.,LTD.

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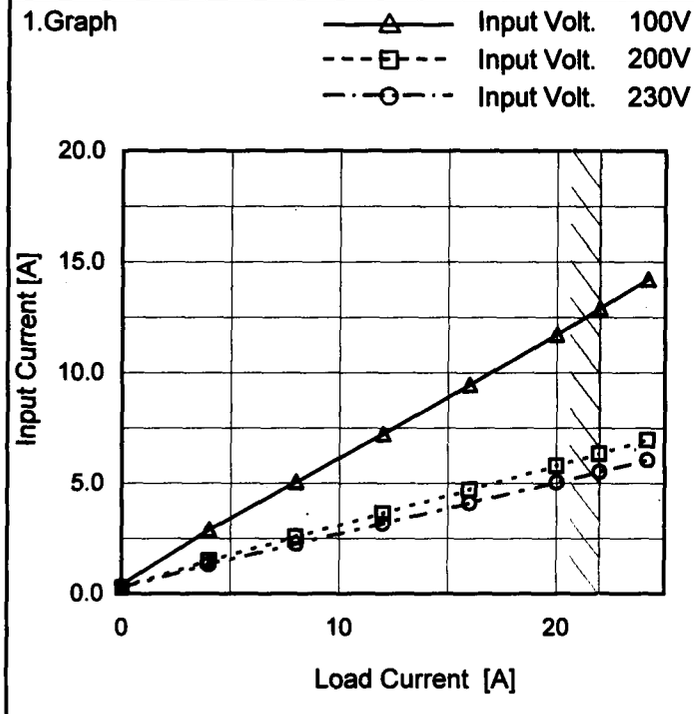
Model	PBA1000F-48
Item	Input Current (by Load Current)
Object	————————

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	0.398	0.266	0.271
4.0	2.886	1.498	1.326
8.0	5.060	2.574	2.262
12.0	7.220	3.640	3.181
16.0	9.450	4.710	4.106
20.0	11.730	5.790	5.050
22.0	12.900	6.330	5.520
24.2	14.210	6.950	6.050
--	-	-	-
--	-	-	-
--	-	-	-

BC-3543

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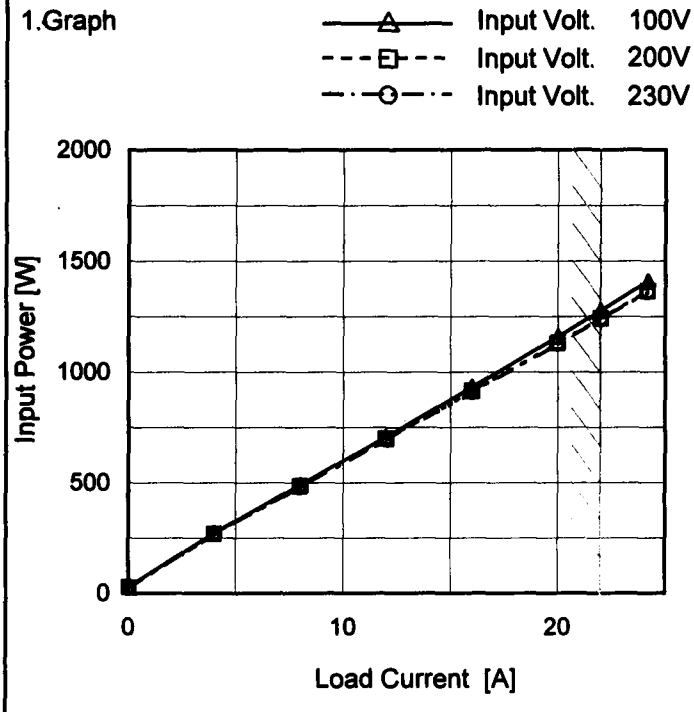
Model	PBA1000F-48
Item	Input Power (by Load Current)
Object	————

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]
0.0	32	28	25
4.0	273	269	268
8.0	491	484	482
12.0	707	698	695
16.0	932	914	909
20.0	1160	1131	1128
22.0	1277	1241	1238
24.2	1408	1364	1361
--	-	-	-
--	-	-	-
--	-	-	-

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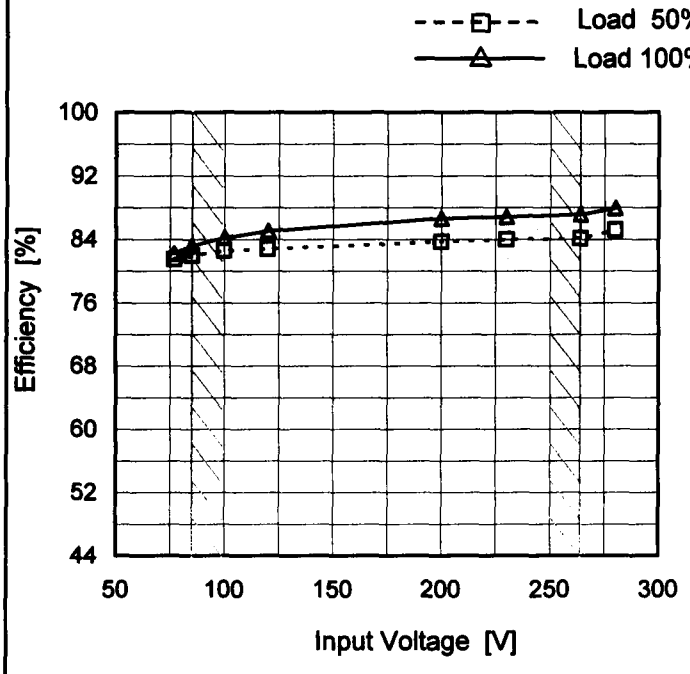
Model	PBA1000F-48
Item	Efficiency (by Input Voltage)
Object	———————————

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	81.5	82.2
85	82.0	83.2
100	82.6	84.2
120	82.8	85.1
200	83.7	86.7
230	84.0	86.9
264	84.1	87.1
280	85.2	87.9
--	-	-

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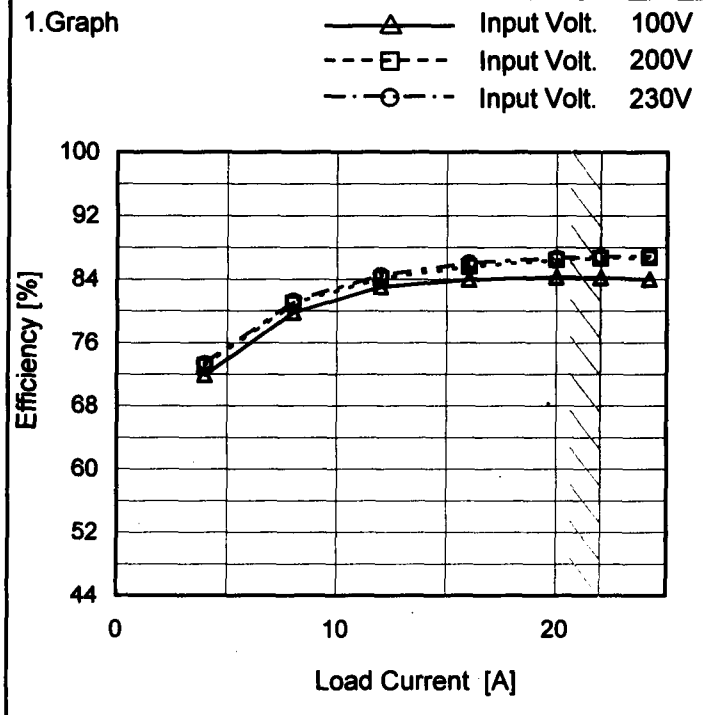
Model	PBA1000F-48
Item	Efficiency (by Load Current)
Object	————————

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]
0.0	-	-	-
4.0	71.9	73.1	73.4
8.0	79.8	81.0	81.3
12.0	83.0	84.1	84.5
16.0	83.9	85.6	86.1
20.0	84.3	86.4	86.7
22.0	84.2	86.6	86.9
24.2	84.0	86.7	86.9
--	-	-	-
--	-	-	-
--	-	-	-

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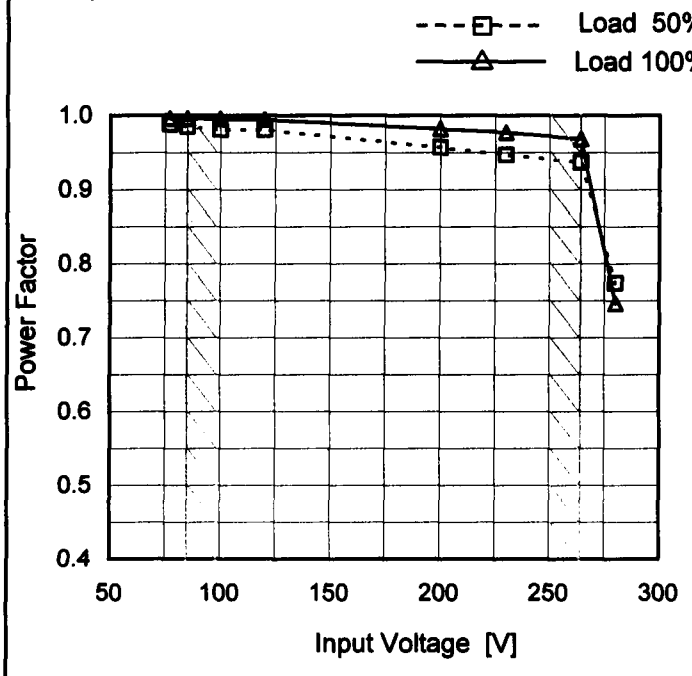
Model	PBA1000F-48
Item	Power Factor (by Input Voltage)
Object	———————————

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	0.988	0.996
85	0.985	0.996
100	0.980	0.995
120	0.980	0.994
200	0.957	0.982
230	0.947	0.977
264	0.937	0.969
280	0.774	0.746
--	-	-

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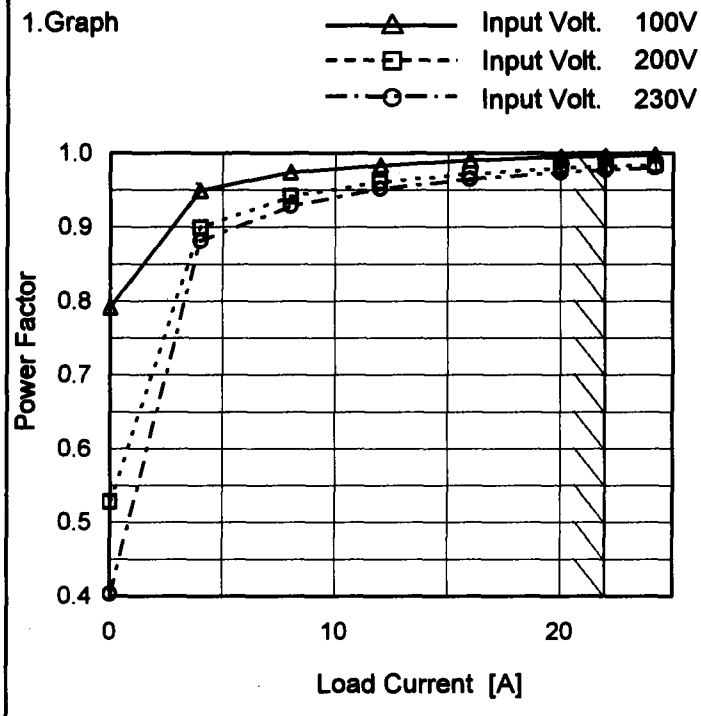
Model	PBA1000F-48
Item	Power Factor (by Load Current)
Object	————————

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	0.791	0.528	0.403
4.0	0.950	0.900	0.882
8.0	0.974	0.942	0.929
12.0	0.983	0.961	0.952
16.0	0.990	0.972	0.965
20.0	0.995	0.980	0.974
22.0	0.996	0.983	0.977
24.2	0.997	0.984	0.981
--	-	-	-
--	-	-	-
--	-	-	-

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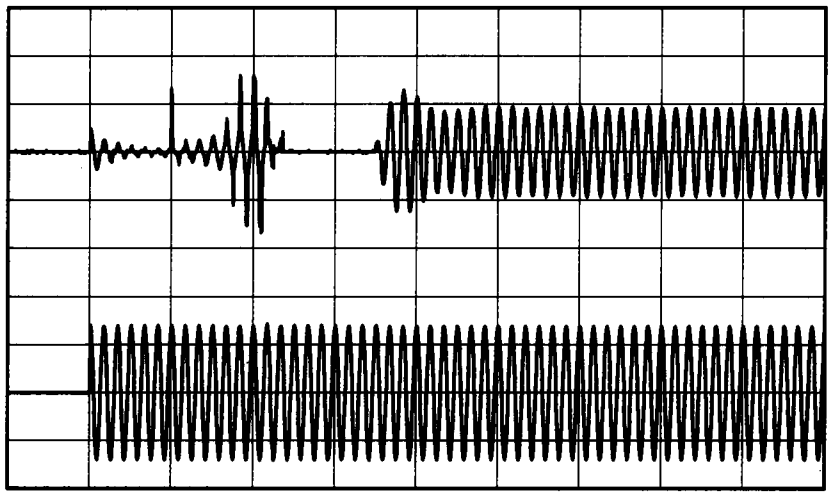
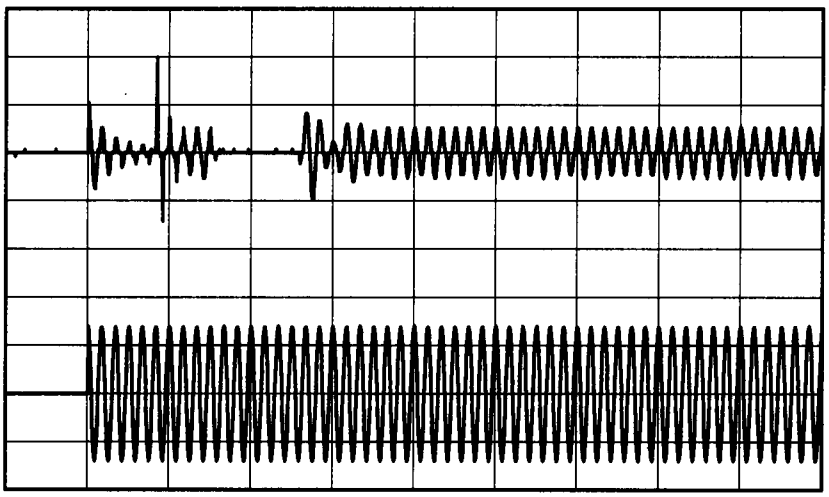
Model	PBA1000F-48
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



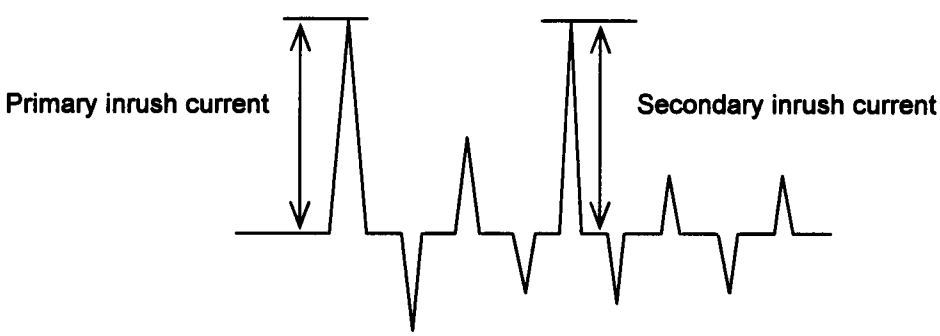
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
9.6 A
Secondary inrush current :
31.8 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
21.0 A
Secondary inrush current :
39.8 A



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Model	PBA1000F-48	
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	0.20	0.40	0.42	Operation
	One of phase	0.35	0.73	0.78	stand by
IEC60950	Both phases	0.21	0.40	0.52	Operation
	One of phase	0.36	0.72	0.87	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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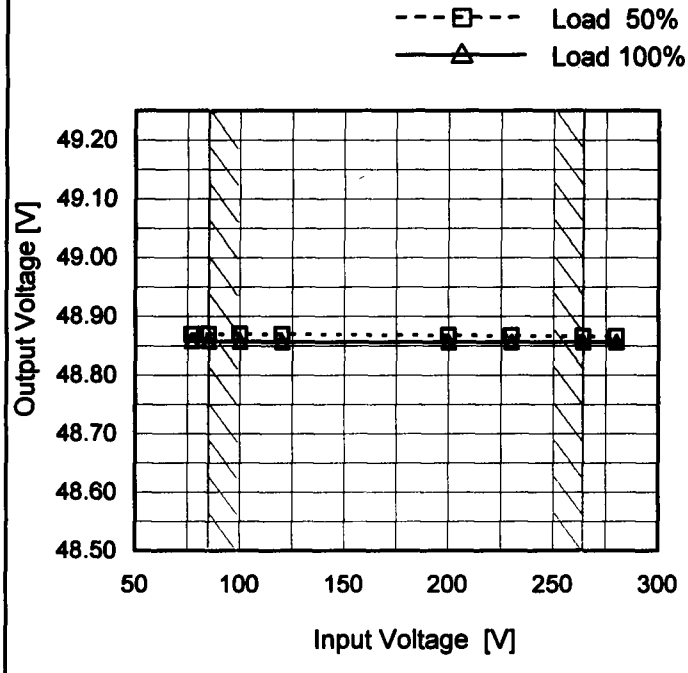
Model	PBA1000F-48
Item	Line Regulation
Object	+48V22A

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	48.869	48.859
85	48.870	48.858
100	48.870	48.858
120	48.870	48.857
200	48.868	48.856
230	48.867	48.856
264	48.866	48.857
280	48.866	48.856
–	-	-

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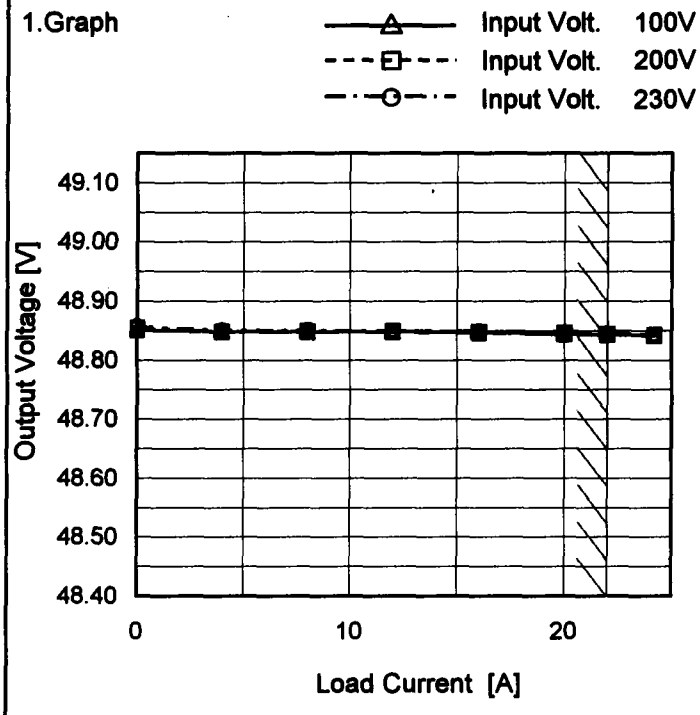
Model	PBA1000F-48
Item	Load Regulation
Object	+48V22A

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]
0.0	48.852	48.855	48.858
4.0	48.848	48.848	48.851
8.0	48.849	48.849	48.851
12.0	48.848	48.849	48.850
16.0	48.847	48.848	48.849
20.0	48.844	48.846	48.847
22.0	48.843	48.844	48.845
24.2	48.842	48.842	48.843
—	-	-	-
—	-	-	-
—	-	-	-

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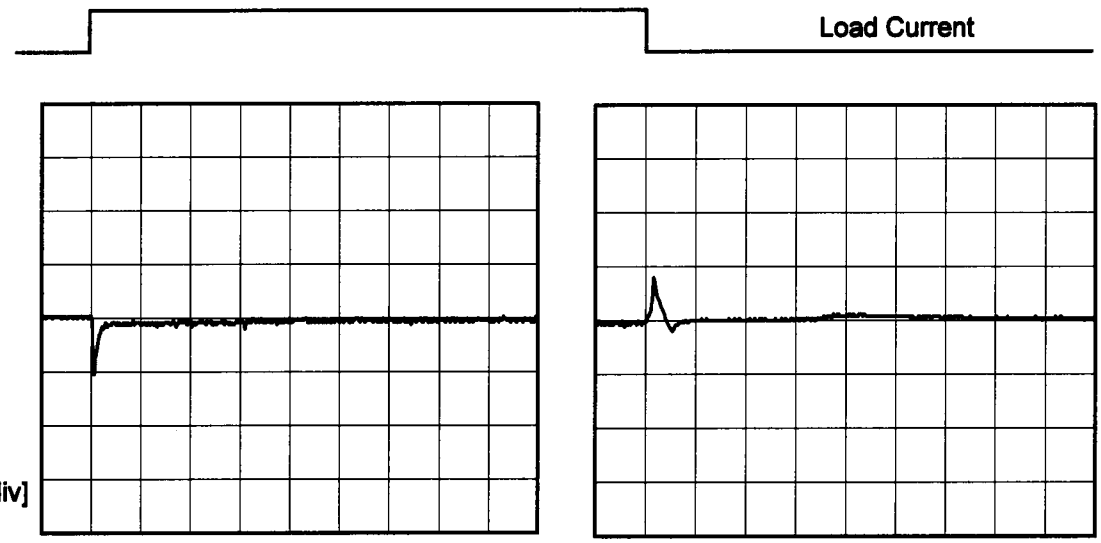
Model	PBA1000F-48
Item	Dynamic Load Response
Object	+48V22A

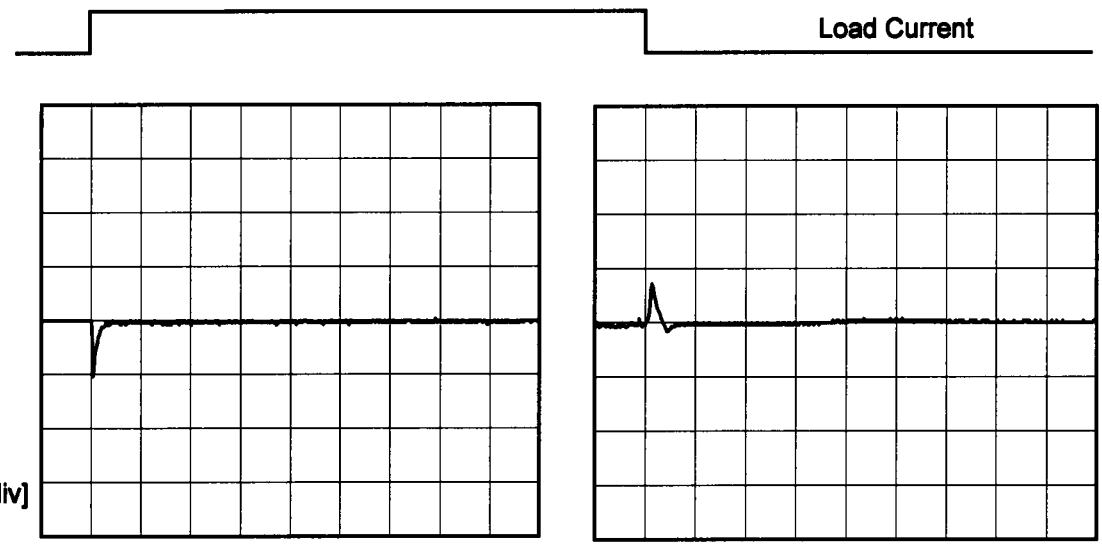
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

Min. Load (0 A) -- Load 100% (22 A)



Min. Load (0 A) -- Load 50% (11 A)



* The characteristic of AC200V is equal.

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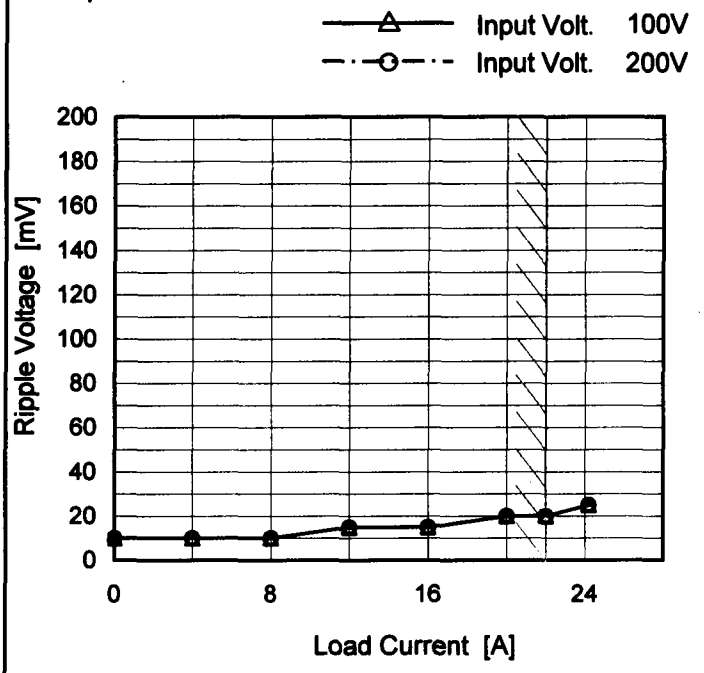
Model	PBA1000F-48
Item	Ripple Voltage (by Load Current)
Object	+48V22A

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

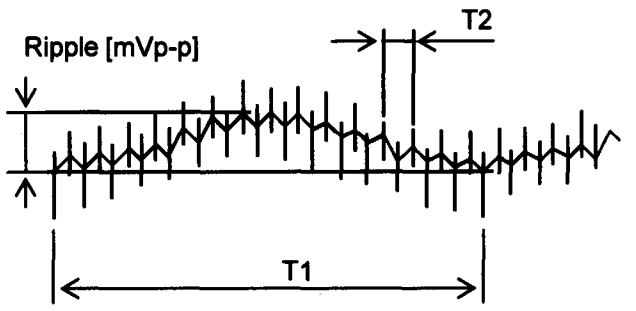


Fig. Complex Ripple Wave Form

2.Values

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

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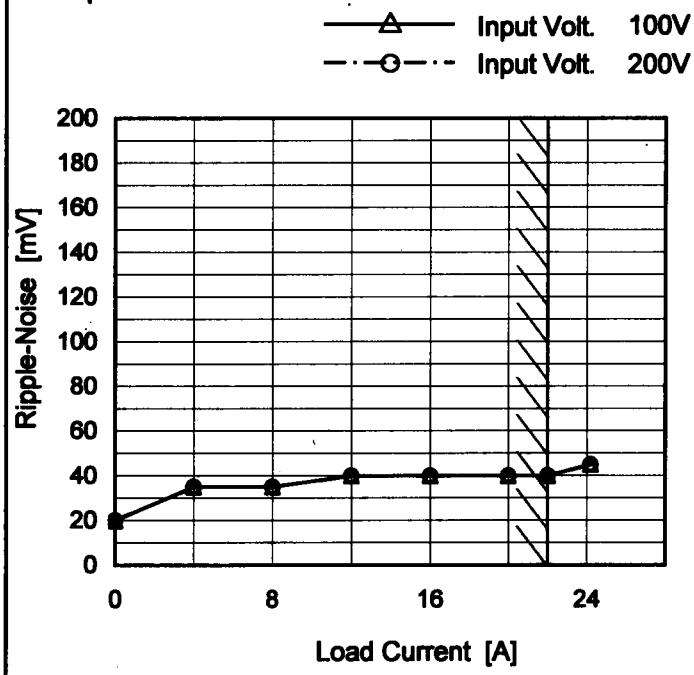
Model	PBA1000F-48
Item	Ripple-Noise
Object	+48V22A

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	20	20
4.0	35	35
8.0	35	35
12.0	40	40
16.0	40	40
20.0	40	40
22.0	40	40
24.2	45	45
–	-	-
–	-	-
–	-	-

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

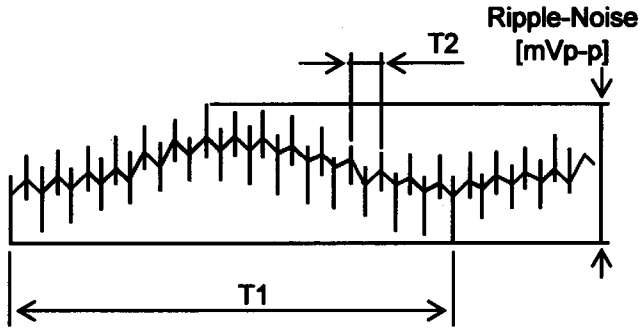


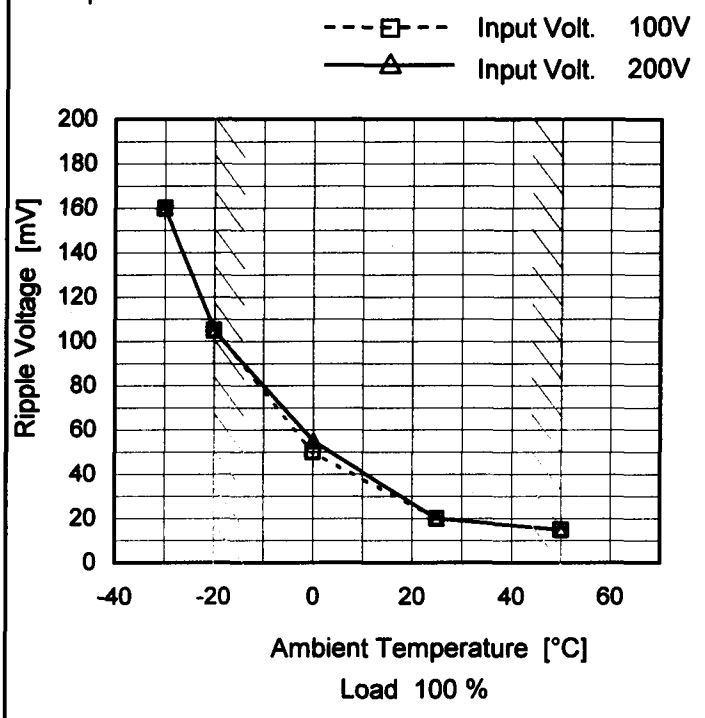
Fig. Complex Ripple Wave Form

COSEL

Model	PBA1000F-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V22A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

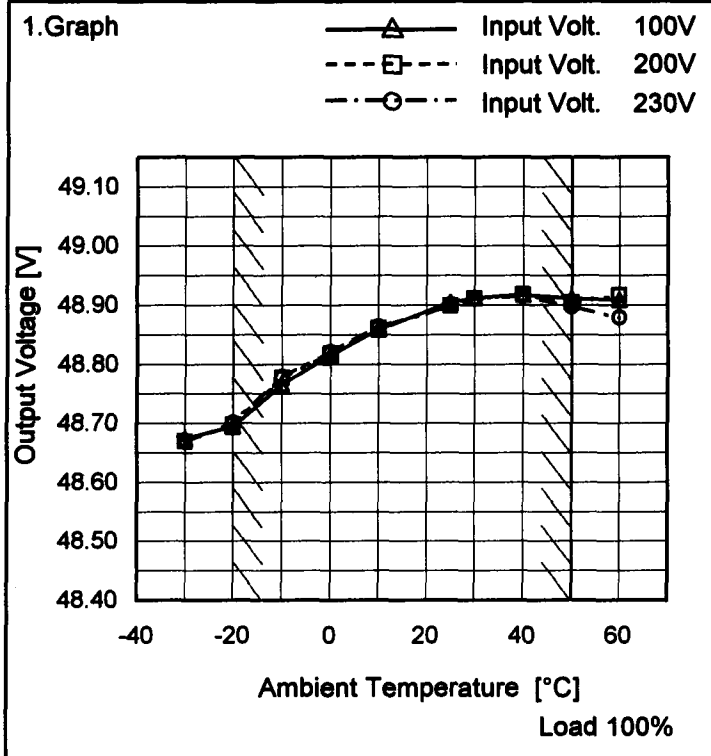
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	160	160
-20	105	105
0	50	55
25	20	20
50	15	15
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA1000F-48
Item	Ambient Temperature Drift
Object	+48V22A

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	48.674	48.670	48.669
-20	48.695	48.698	48.701
-10	48.765	48.777	48.779
0	48.815	48.818	48.821
10	48.859	48.862	48.863
25	48.905	48.899	48.900
30	48.912	48.912	48.912
40	48.918	48.918	48.916
50	48.911	48.904	48.898
60	48.909	48.917	48.879
--	-	-	-

COSEL

Model	PBA1000F-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V22A	

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 = ±(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	48.914	±101	±0.2
Minimum Voltage	-20	85	22	48.713		

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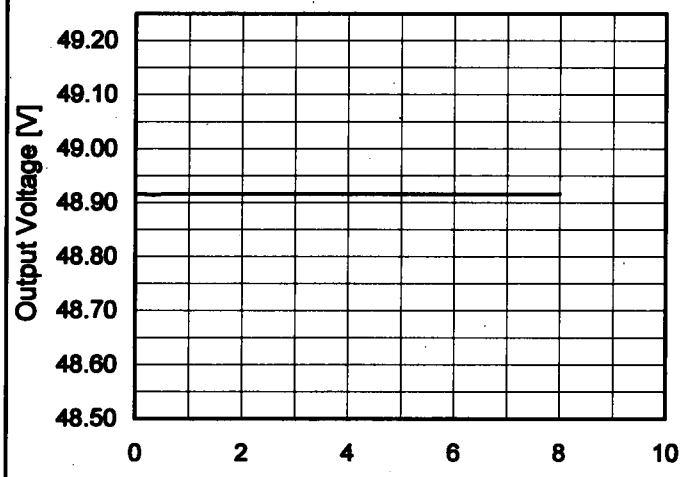
Model	PBA1000F-48
Item	Time Lapse Drift
Object	+48V22A

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	48.916
0.5	48.916
1.0	48.916
2.0	48.916
3.0	48.916
4.0	48.916
5.0	48.916
6.0	48.916
7.0	48.916
8.0	48.916

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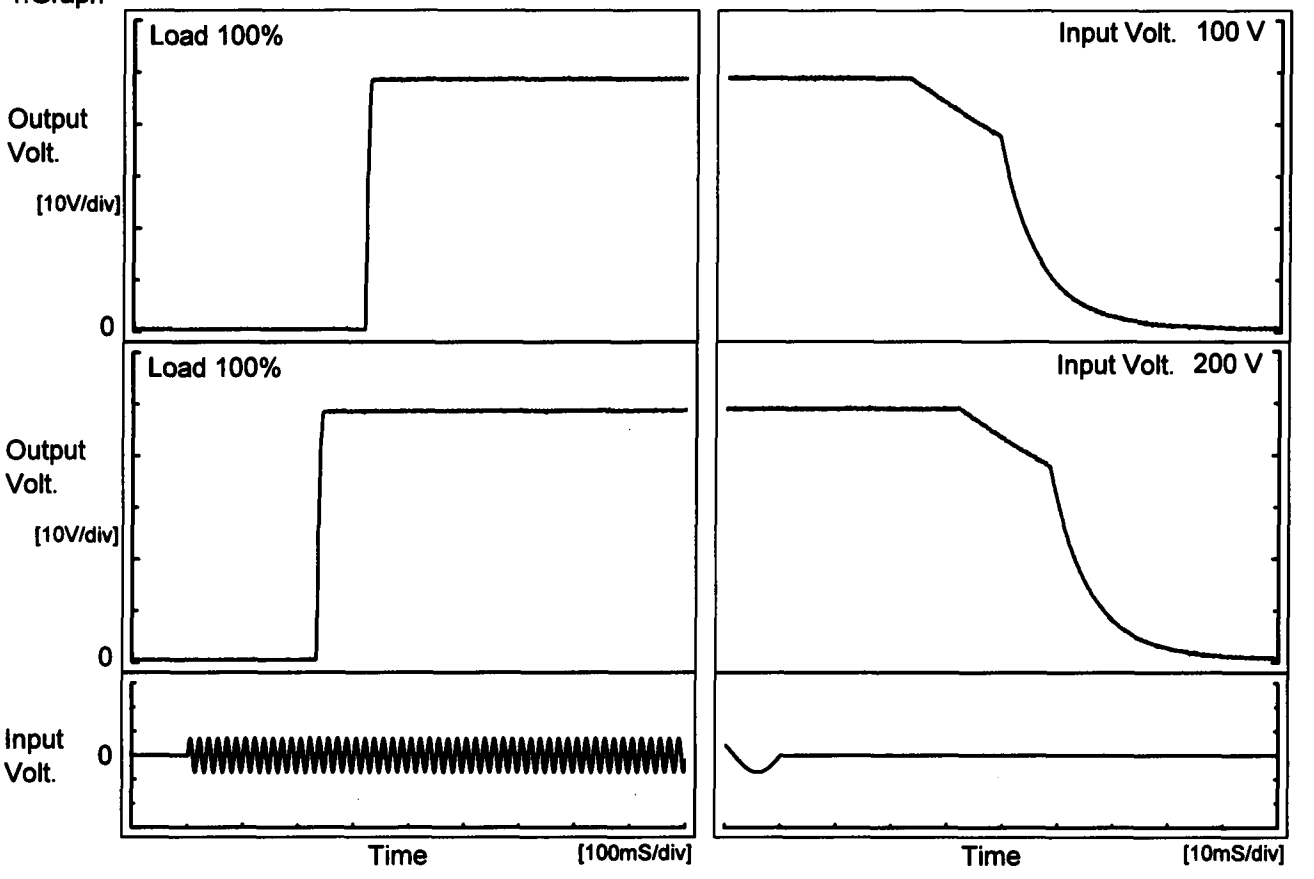
Model	PBA1000F-48
Item	Rise and Fall Time
Object	+48V22A

Temperature 25°C
Testing Circuitry Figure A

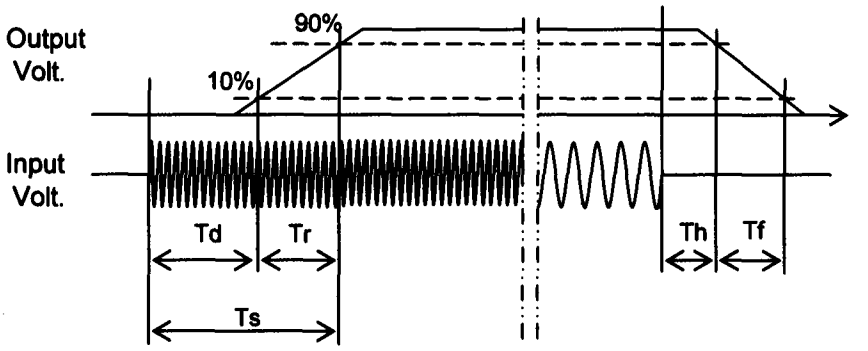
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	319.0	7.5	326.5	30.3	23.9
200 V	232.5	8.0	240.5	39.6	24.3

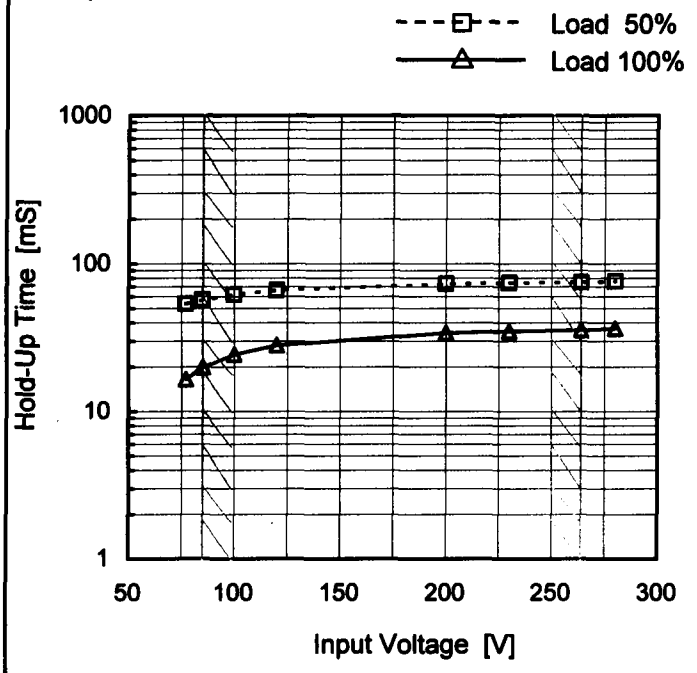


COSEL

Model	PBA1000F-48
Item	Hold-Up Time
Object	+48V22A

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	54	17
85	57	20
100	62	24
120	66	28
200	73	34
230	74	35
264	75	36
280	76	37
--	-	-

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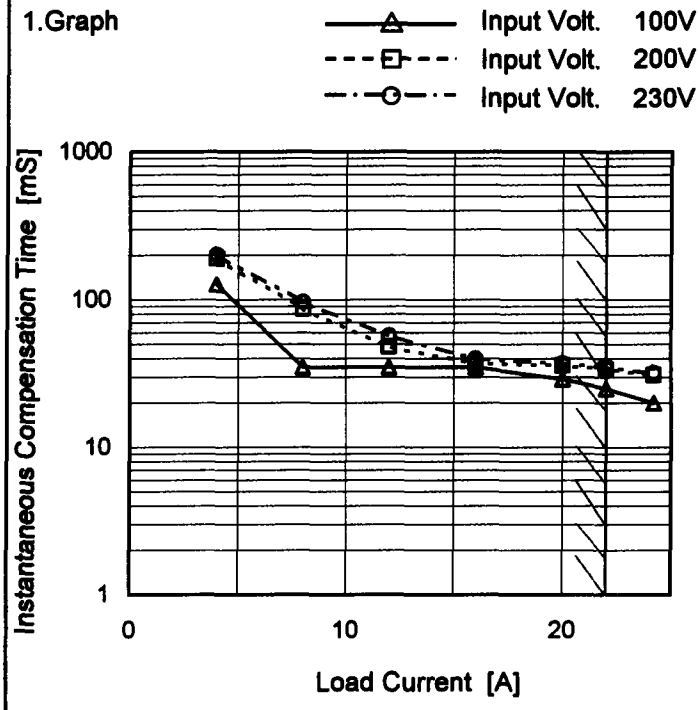
Model	PBA1000F-48
Item	Instantaneous Interruption Compensation
Object	+48V22A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

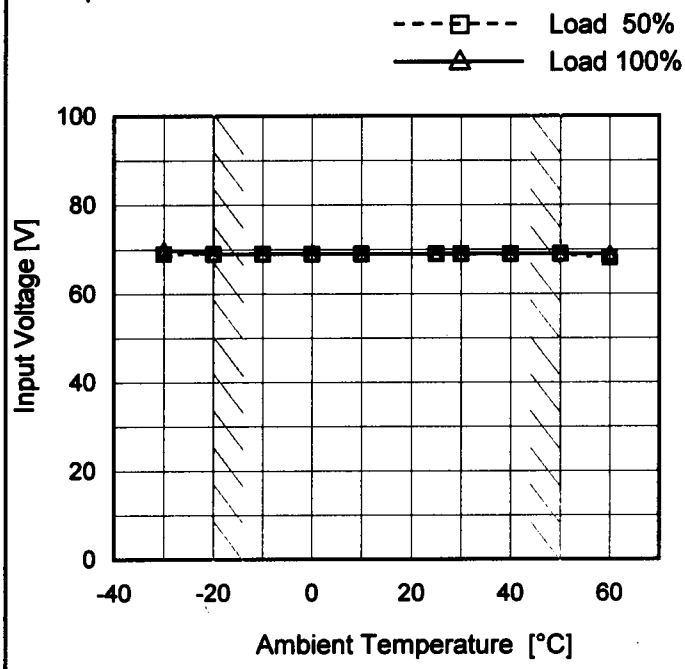
Load Current [A]	Time [mS] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
4.0	127	190	202
8.0	35	87	96
12.0	35	48	57
16.0	35	37	40
20.0	29	36	37
22.0	25	34	35
24.2	20	31	32
—	-	-	-
—	-	-	-
—	-	-	-

COSEL

Model	PBA1000F-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V22A

Testing Circuitry Figure A

1.Graph



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

2.Values

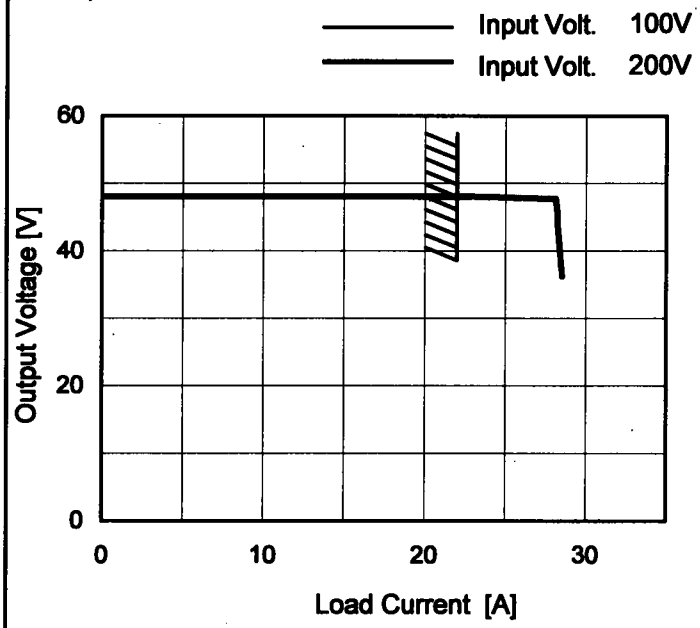
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	69	70
-20	69	69
-10	69	69
0	69	69
10	69	69
25	69	69
30	69	69
40	69	69
50	69	69
60	68	69
--	-	-

COSEL

Model	PBA1000F-48
Item	Overcurrent Protection
Object	+48V22A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

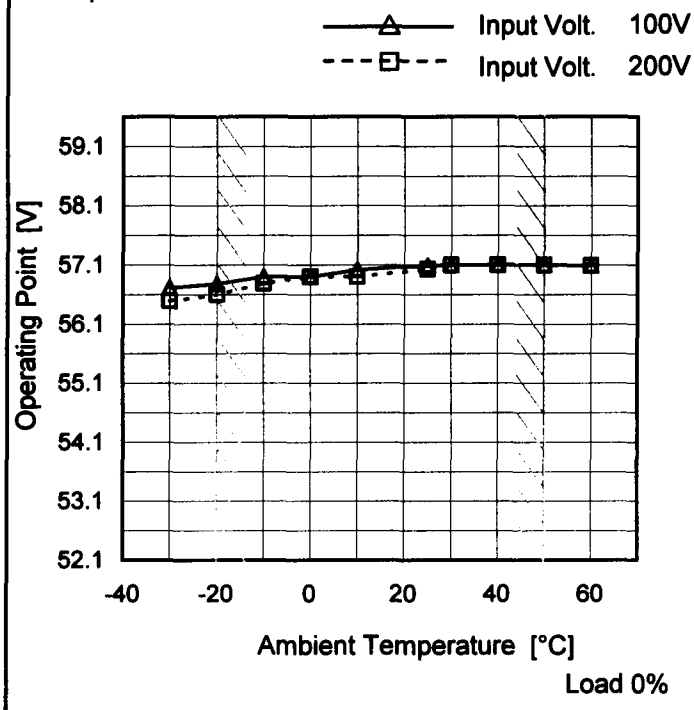
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
48.0	28.11	28.21
45.6	28.15	28.22
43.2	28.26	28.26
38.4	28.42	28.43
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA1000F-48
Item	Overvoltage Protection
Object	+48V22A

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]	Operating Point [V] Input Volt. 200[V]
-30	56.75	56.52
-20	56.81	56.63
-10	56.93	56.82
0	56.93	56.93
10	57.05	56.93
25	57.12	57.06
30	57.13	57.13
40	57.13	57.13
50	57.13	57.13
60	57.12	57.12
--	-	-

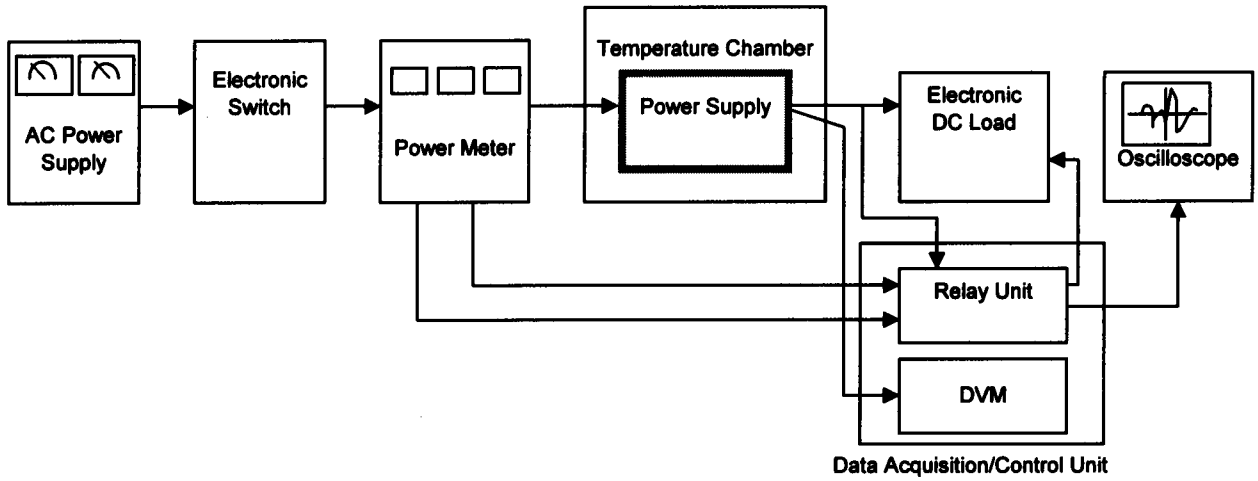


Figure A

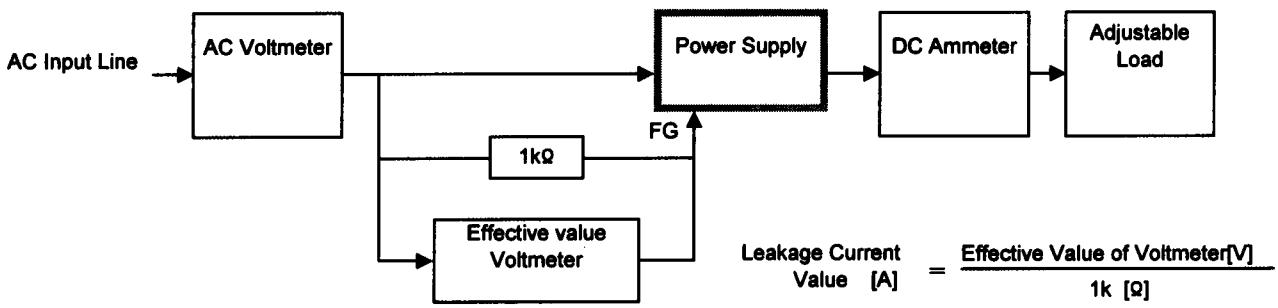


Figure B (DEN-AN)

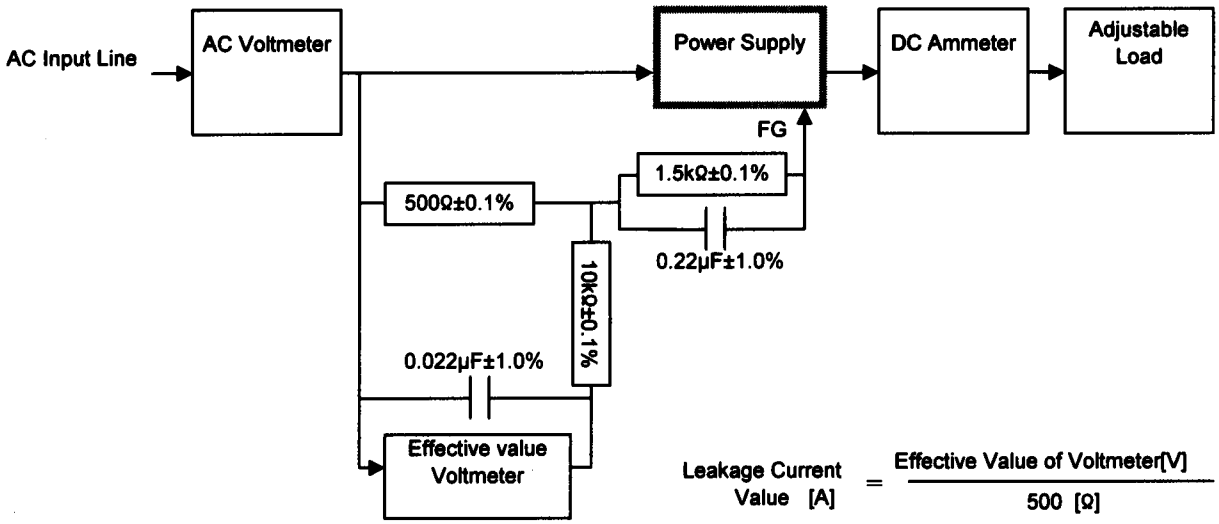


Figure B (IEC60950)