参考資料

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TEST DATA OF PBA1500F-7R5

Regulated DC Power Supply
May.28. 2003

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COSEL CO.,LTD.

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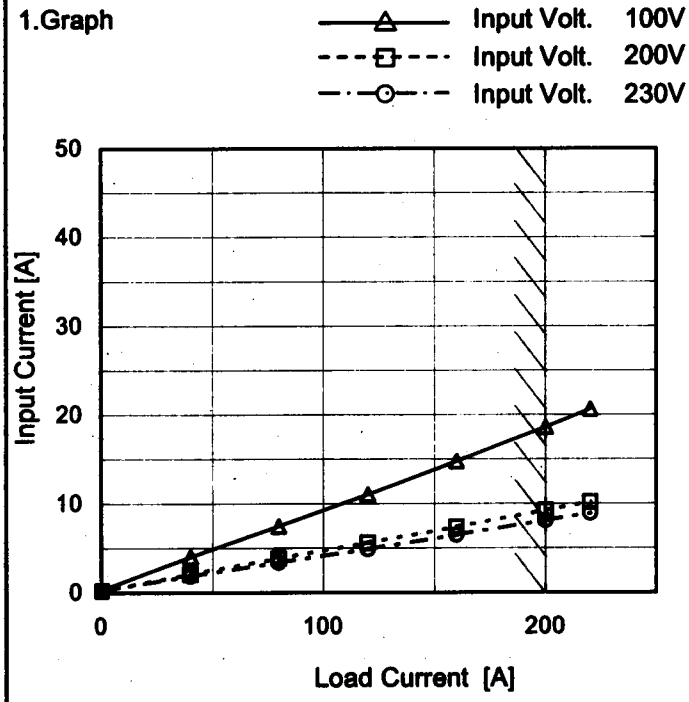
Model	PBA1500F-7R5
Item	Input Current (by Load Current)
Object	————————

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	0.283	0.216	0.223
40	4.010	2.100	1.864
80	7.470	3.830	3.376
120	11.020	5.590	4.900
160	14.780	7.380	6.470
200	18.620	9.240	8.080
220	20.640	10.180	8.900
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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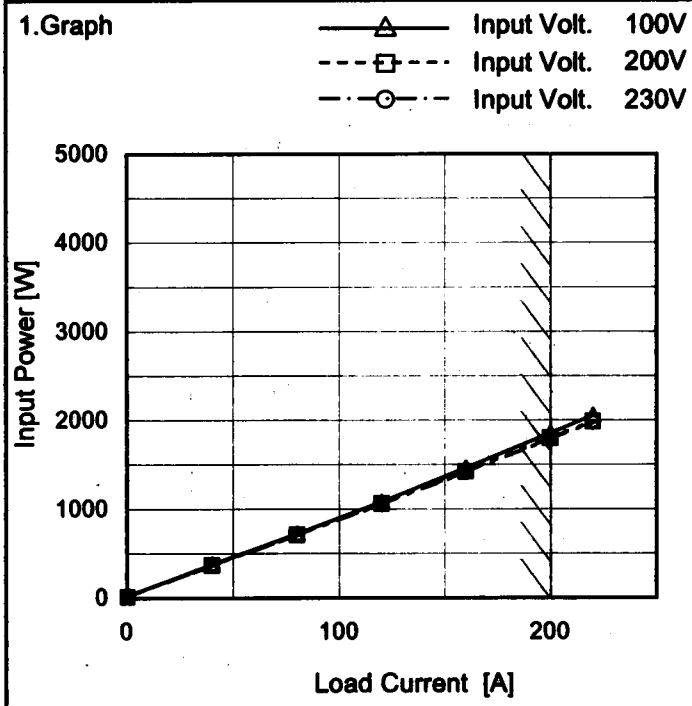
Model	PBA1500F-7R5
Item	Input Power (by Load Current)
Object	———————

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	20	16	14
40	376	370	369
80	722	712	707
120	1081	1062	1056
160	1461	1423	1416
200	1854	1798	1789
220	2055	1987	1980
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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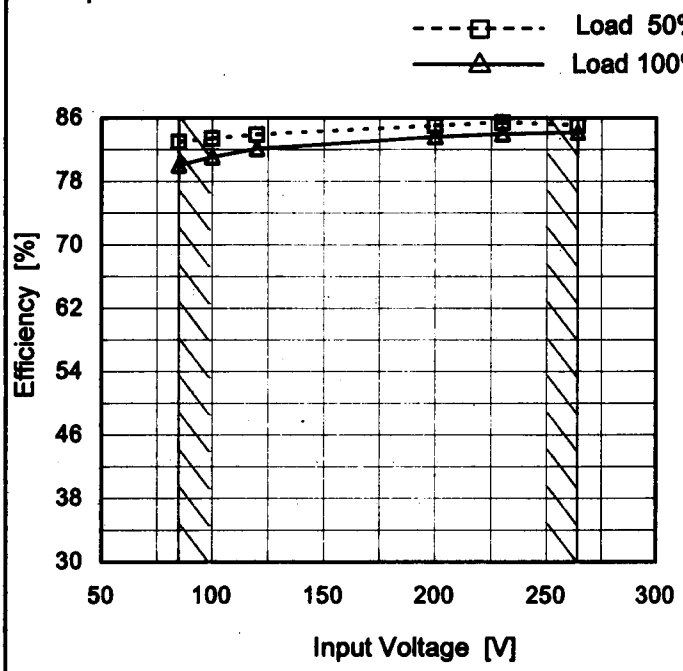
Model	PBA1500F-7R5
Item	Efficiency (by Input Voltage)
Object	———————

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%
85	83.0	80.0
100	83.4	81.1
120	83.9	82.1
200	85.1	83.6
230	85.4	84.0
264	85.1	84.2
--	-	-
--	-	-
--	-	-

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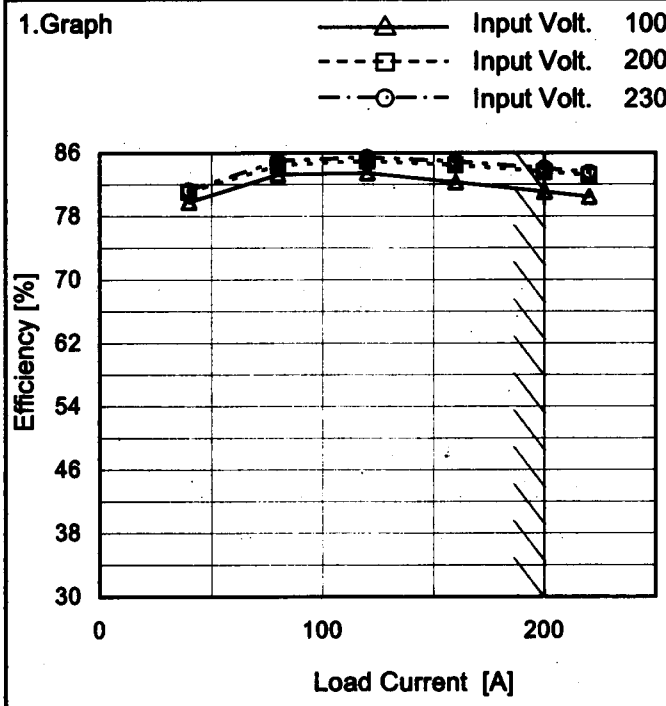
Model	PBA1500F-7R5
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
40	79.8	81.1	81.3
80	83.2	84.4	85.0
120	83.5	84.9	85.4
160	82.3	84.5	84.9
200	81.1	83.6	84.0
220	80.4	83.2	83.5
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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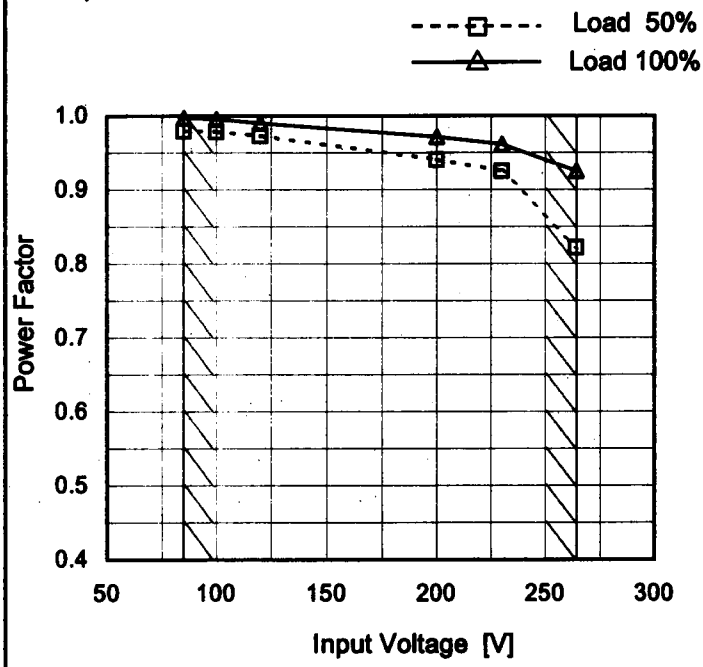
Model	PBA1500F-7R5
Item	Power Factor (by Input Voltage)
Object	———————

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%
85	0.979	0.997
100	0.978	0.996
120	0.973	0.990
200	0.940	0.971
230	0.925	0.962
264	0.822	0.925
--	-	-
--	-	-
--	-	-

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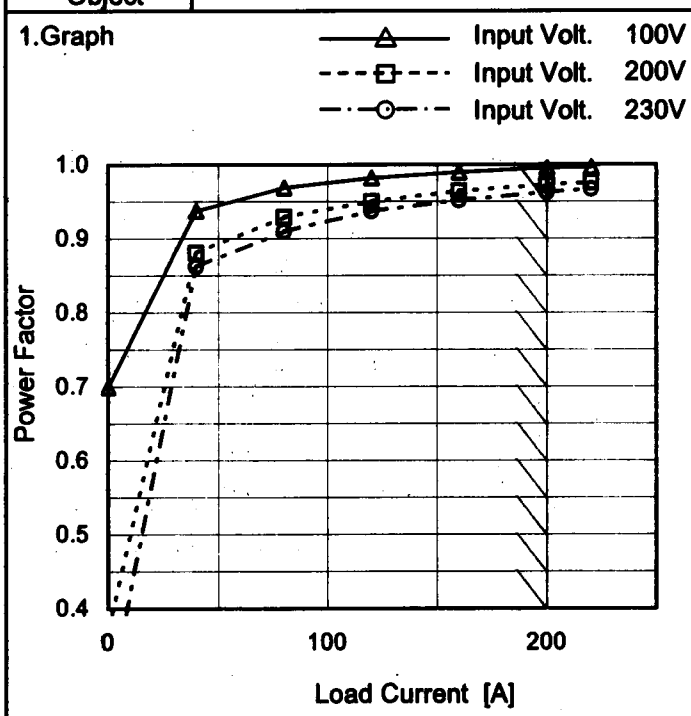
Model	PBA1500F-7R5
Item	Power Factor (by Load Current)
Object	———————

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	0.700	0.372	0.275
40	0.938	0.881	0.862
80	0.969	0.930	0.910
120	0.982	0.950	0.937
160	0.990	0.964	0.952
200	0.996	0.972	0.962
220	0.997	0.976	0.967
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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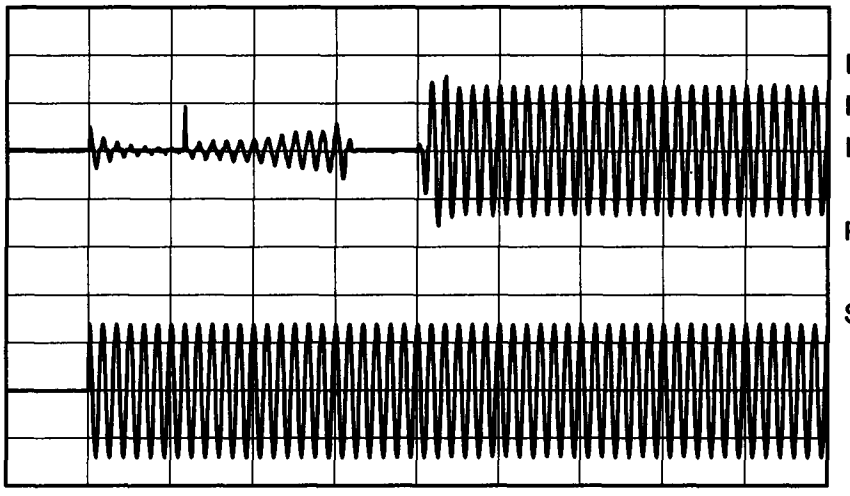
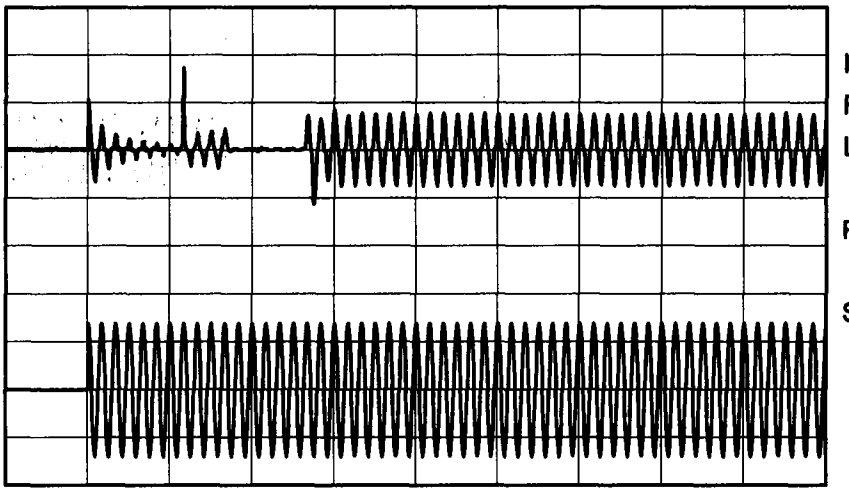
Model	PBA1500F-7R5
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



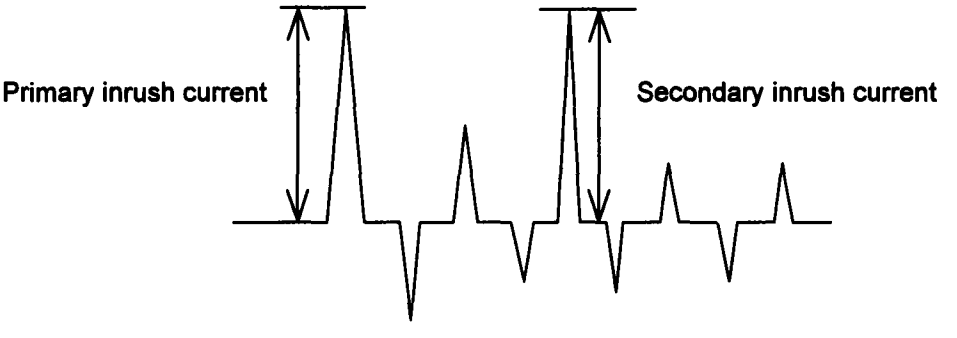
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
10.1 A
Secondary inrush current :
18.7 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
21.2 A
Secondary inrush current :
34.6 A



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Model	PBA1500F-7R5	
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	0.31	0.58	0.71	Operation
	One of phase	0.57	1.20	1.36	stand by
IEC60950	Both phases	0.34	0.67	0.81	Operation
	One of phase	0.57	1.15	1.41	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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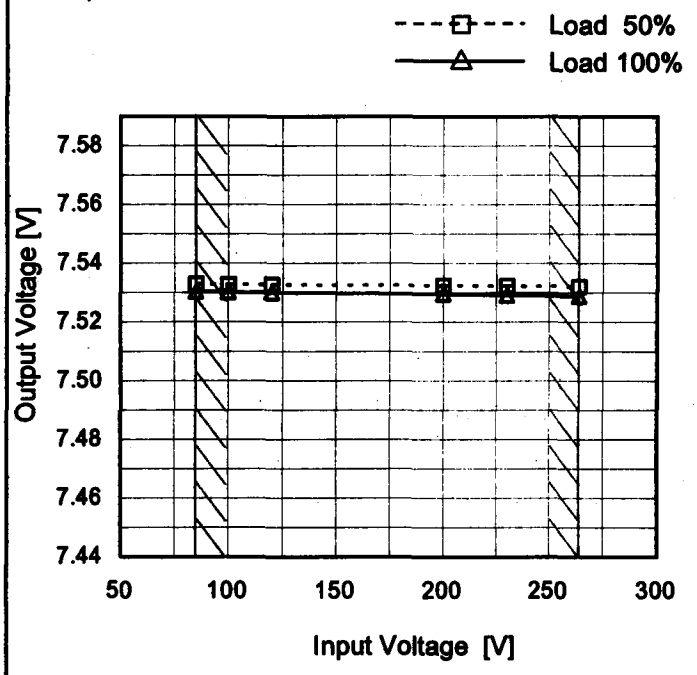
Model	PBA1500F-7R5
Item	Line Regulation
Object	+7.5V200A

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%
85	7.533	7.531
100	7.533	7.530
120	7.533	7.530
200	7.532	7.530
230	7.532	7.529
264	7.532	7.529
--	-	-
--	-	-
--	-	-

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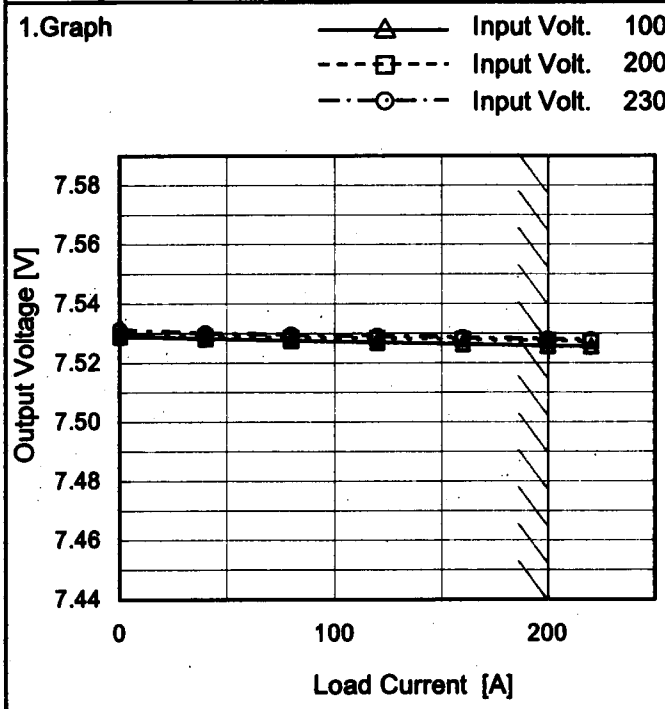
Model	PBA1500F-7R5
Item	Load Regulation
Object	+7.5V200A

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	7.529	7.529	7.531
40	7.528	7.529	7.530
80	7.528	7.529	7.530
120	7.527	7.528	7.529
160	7.526	7.528	7.529
200	7.526	7.528	7.528
220	7.526	7.527	7.528
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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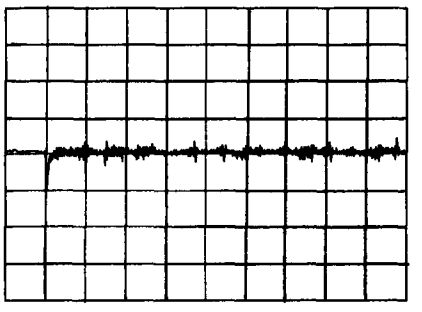
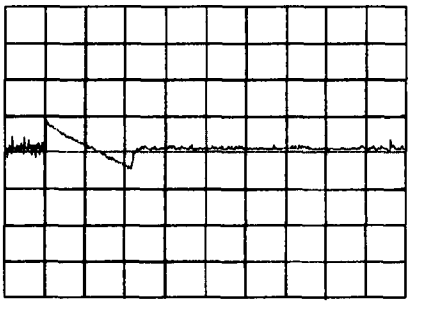
Model	PBA1500F-7R5	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+7.5V200A	

Input Volt. 100 V
Cycle 1000 mS

Load Current

Min.Load (0A) ⟷
Load 100% (200A)



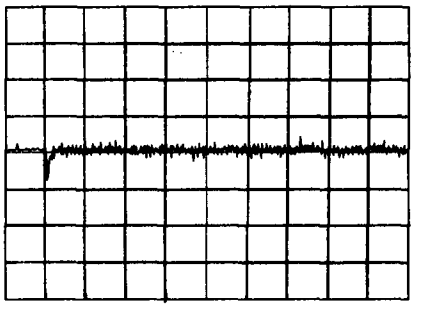


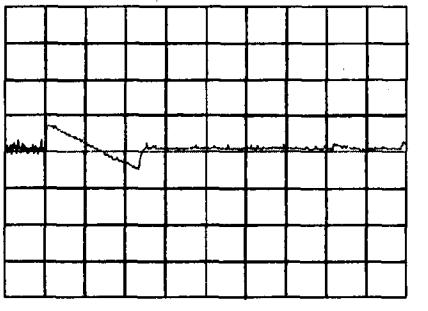
100mV/div

10mS/dev

10mS/dev

Min.Load (0A) ⟷
Load 50% (100A)





100mV/div

10mS/dev

10mS/dev

* The characteristic of AC200V is equal.

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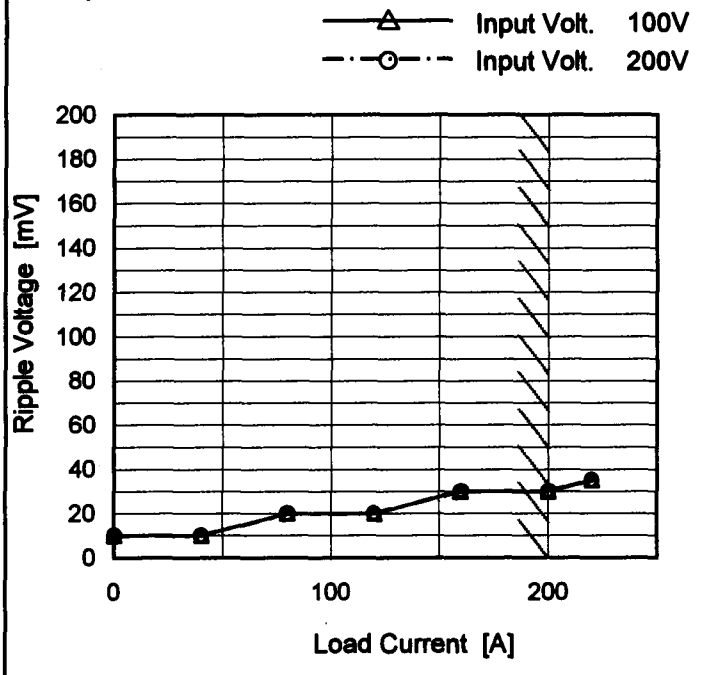
Model	PBA1500F-7R5
Item	Ripple Voltage (by Load Current)
Object	+7.5V200A

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

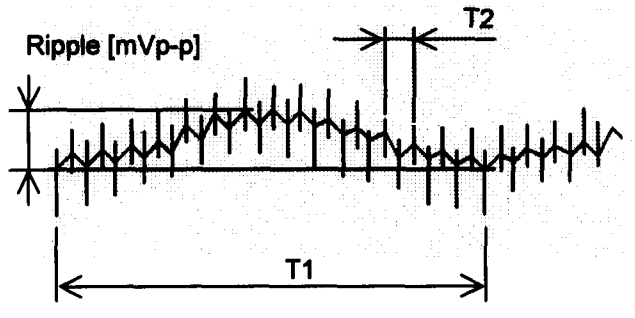


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Input Volt. 200 [V]
0	10	10
40	10	10
80	20	20
120	20	20
160	30	30
200	30	30
220	35	35
–	-	-
–	-	-
–	-	-
–	-	-

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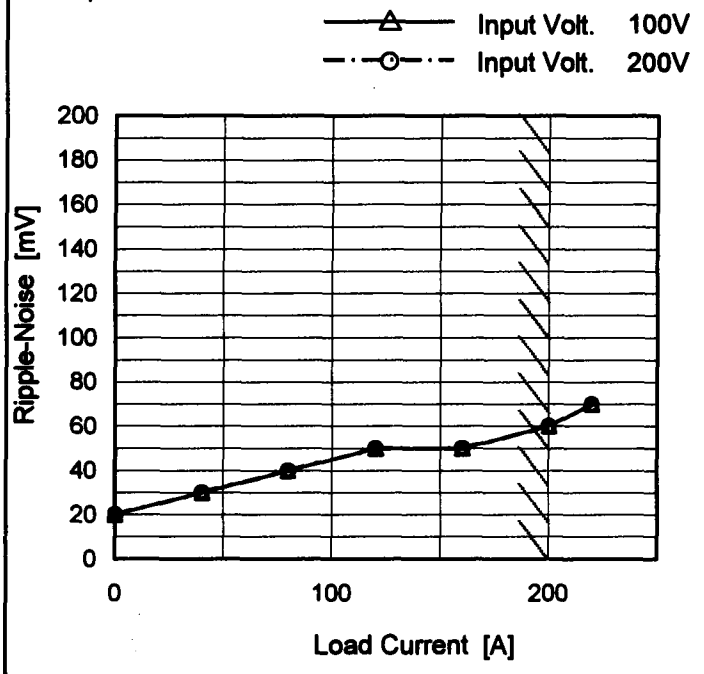
Model	PBA1500F-7R5
Item	Ripple-Noise
Object	+7.5V200A

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	20	20
40	30	30
80	40	40
120	50	50
160	50	50
200	60	60
220	70	70
–	-	-
–	-	-
–	-	-
–	-	-

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

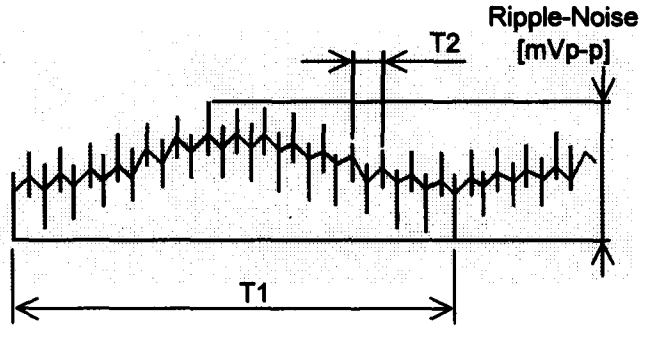


Fig. Complex Ripple Wave Form

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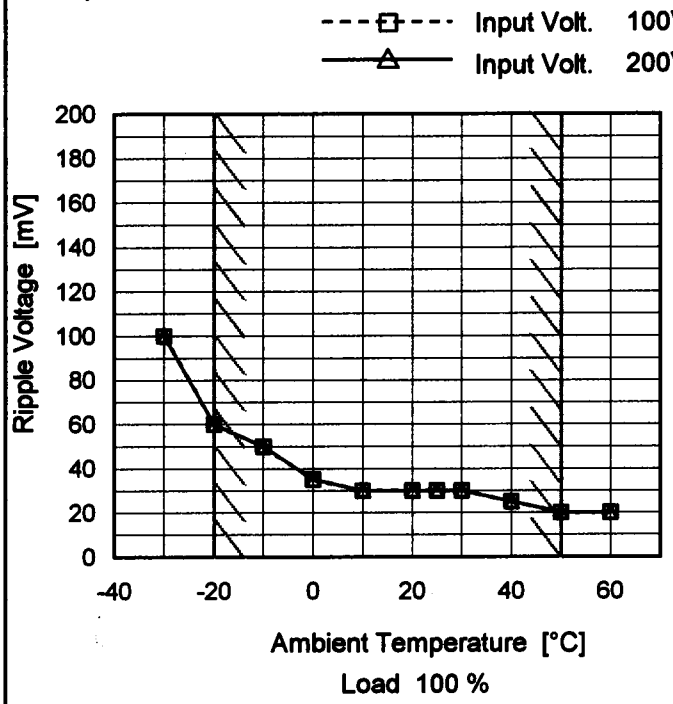
Model	PBA1500F-7R5
Item	Ripple Voltage (by Ambient Temp.)
Object	+7.5V200A

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	100	100
-20	60	60
-10	50	50
0	35	35
10	30	30
20	30	30
25	30	30
30	30	30
40	25	25
50	20	20
60	20	20

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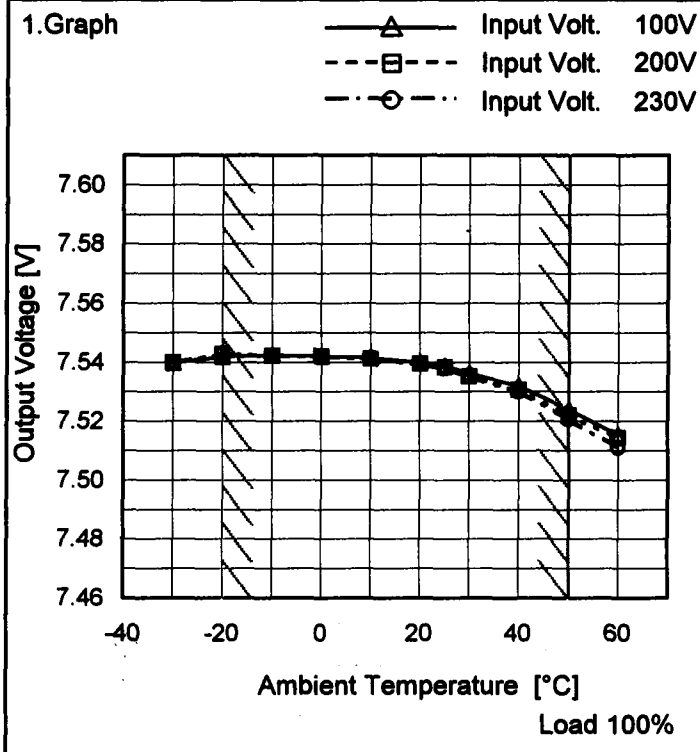
Model	PBA1500F-7R5
Item	Ambient Temperature Drift
Object	+7.5V200A

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	7.540	7.540	7.540
-20	7.542	7.543	7.543
-10	7.542	7.542	7.542
0	7.542	7.542	7.542
10	7.542	7.541	7.541
20	7.540	7.540	7.539
25	7.539	7.538	7.538
30	7.536	7.535	7.535
40	7.532	7.531	7.530
50	7.524	7.522	7.521
60	7.515	7.514	7.511

COSEL

Model	PBA1500F-7R5	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+7.5V200A	

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 - 200A

* 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	-20	264	0	7.546	±18	±0.2
Minimum Voltage	50	264	200	7.511		

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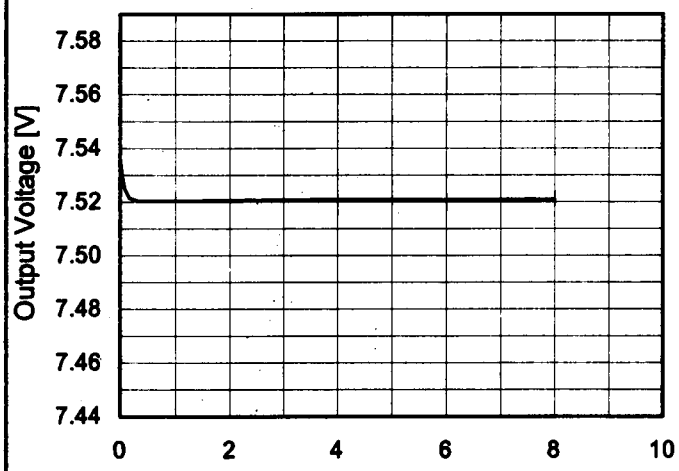
Model	PBA1500F-7R5
Item	Time Lapse Drift
Object	+7.5V200A

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	7.536
0.5	7.520
1.0	7.521
2.0	7.521
3.0	7.521
4.0	7.521
5.0	7.521
6.0	7.521
7.0	7.521
8.0	7.521

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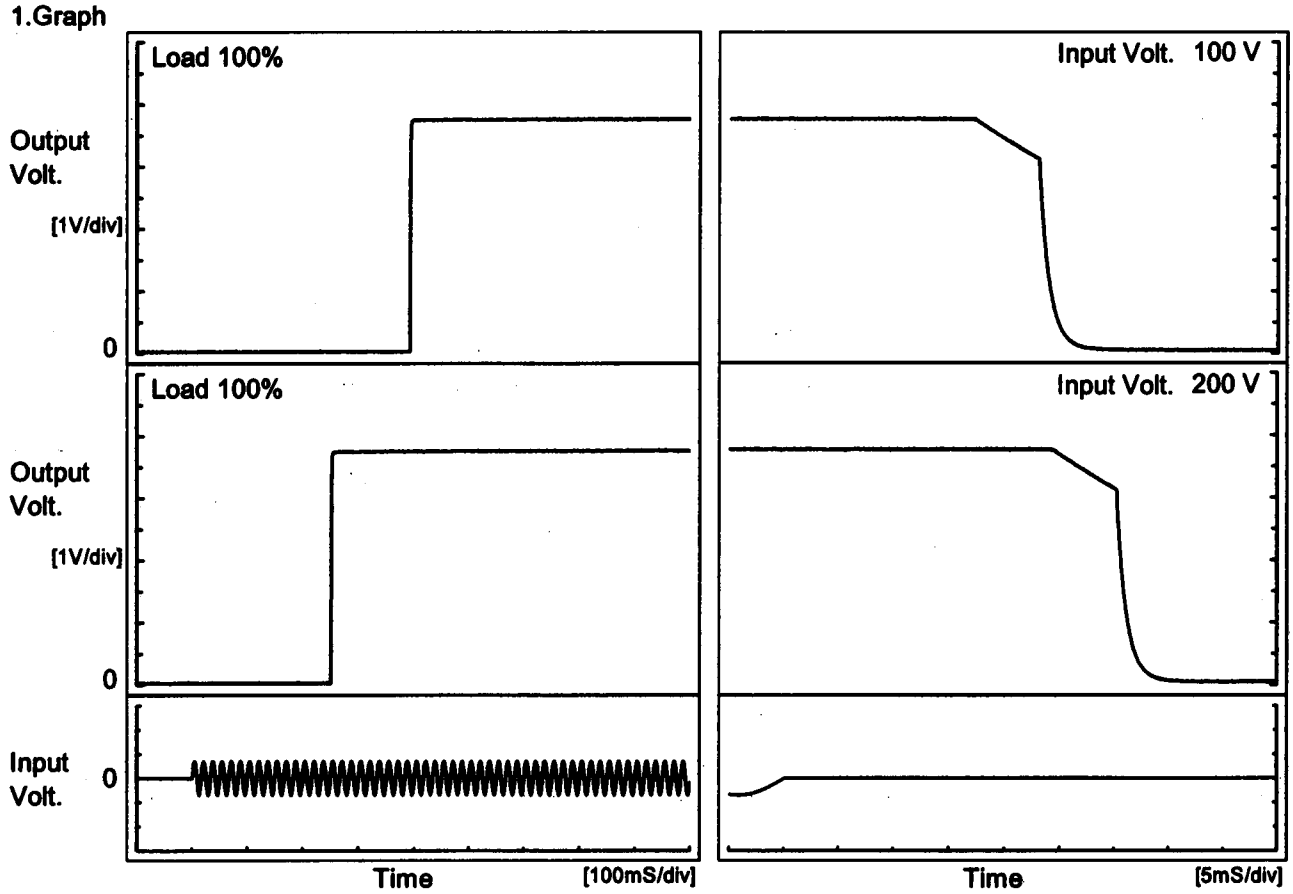
Model	PBA1500F-7R5	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+7.5V200A	

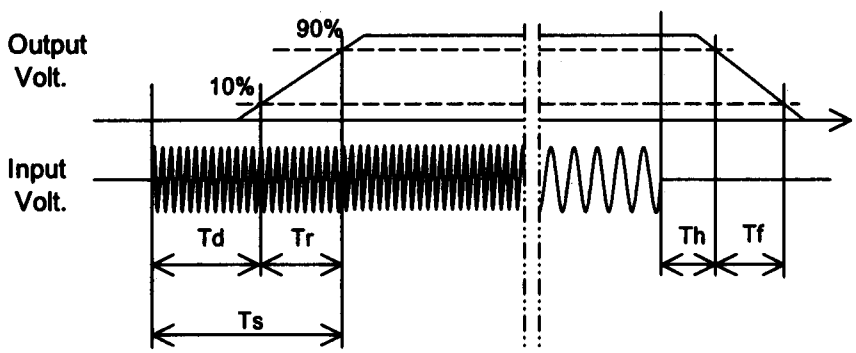
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	392.5	2.0	394.5	20.5	4.6
200 V	251.5	2.0	253.5	27.6	4.6



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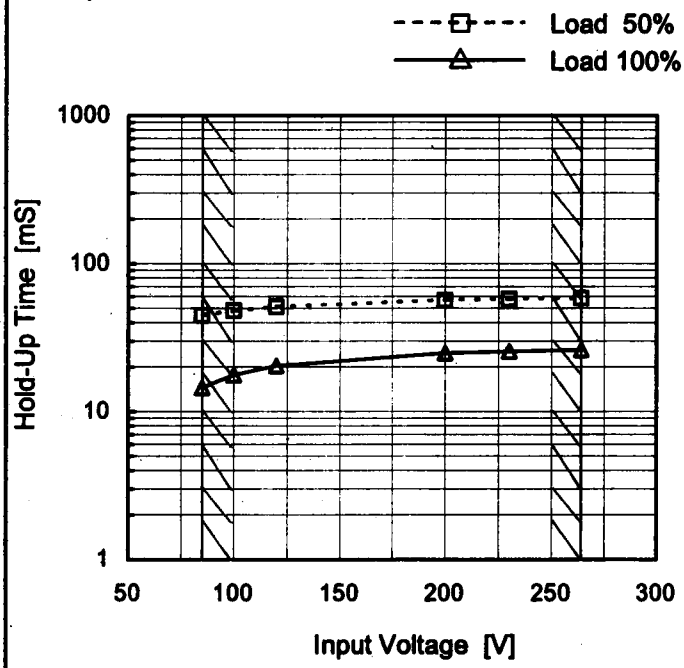
Model	PBA1500F-7R5
Item	Hold-Up Time
Object	+7.5V200A

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

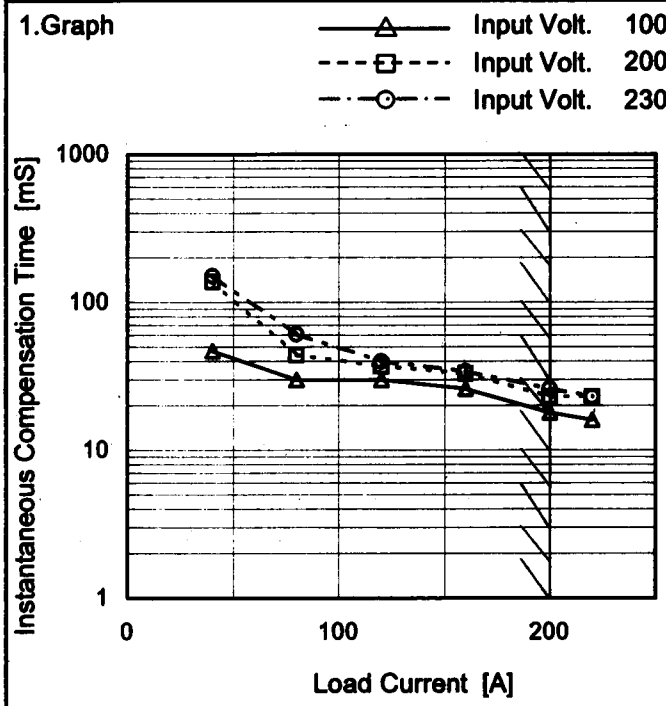
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
85	45	15
100	48	18
120	51	20
200	57	25
230	58	26
264	59	26
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA1500F-7R5
Item	Instantaneous Interruption Compensation
Object	+7.5V200A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

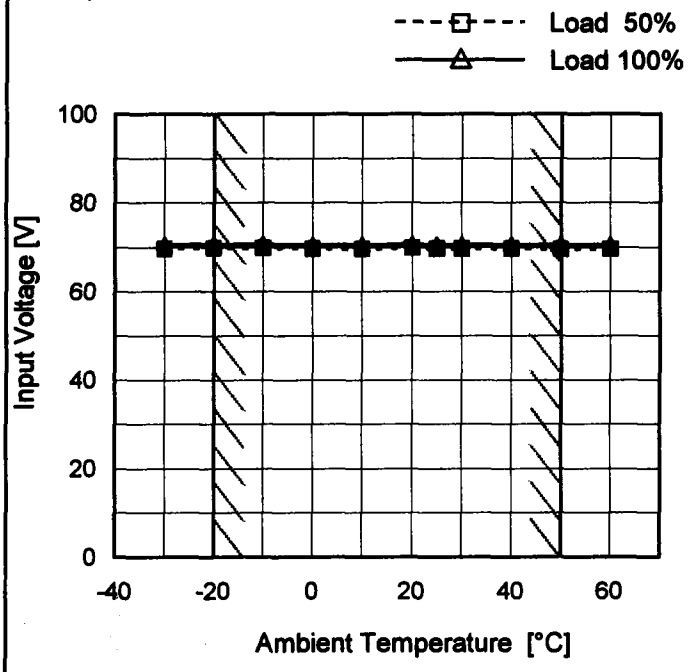
Load Current [A]	Time [mS]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	-	-	-
40	47	138	151
80	30	44	61
120	30	37	40
160	26	33	34
200	18	23	26
220	16	23	23
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA1500F-7R5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+7.5V200A

Testing Circuitry Figure A

1.Graph



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

2.Values

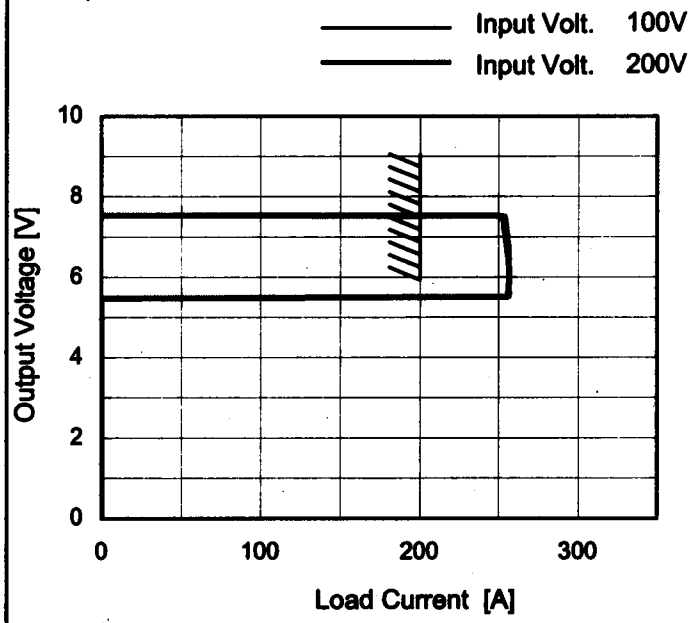
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	70	71
-20	70	71
-10	70	71
0	70	71
10	70	71
20	70	71
25	70	71
30	70	71
40	70	71
50	70	71
60	70	71

COSEL

Model	PBA1500F-7R5
Item	Overcurrent Protection
Object	+7.5V200A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

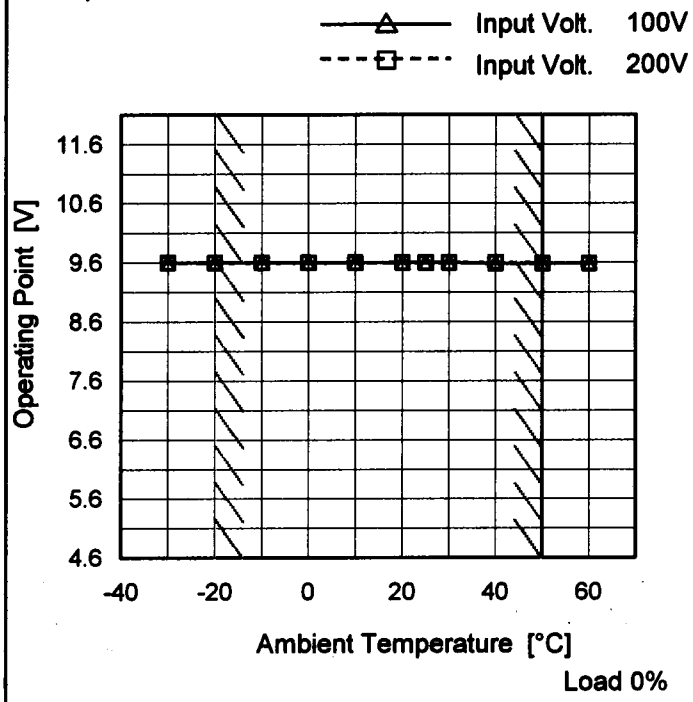
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
7.50	247.74	247.86
7.13	253.22	255.04
6.75	254.57	256.23
6.00	256.85	256.61
5.25	0.00	0.00
4.50	0.00	0.00
3.75	0.00	0.00
3.00	0.00	0.00
2.25	0.00	0.00
1.50	0.00	0.00
0.75	0.00	0.00
0.00	0.00	0.00

COSEL

Model	PBA1500F-7R5
Item	Overvoltage Protection
Object	+7.5V200A

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	9.64	9.64
-20	9.64	9.64
-10	9.64	9.64
0	9.64	9.64
10	9.64	9.64
20	9.64	9.64
25	9.64	9.64
30	9.64	9.64
40	9.63	9.64
50	9.63	9.63
60	9.63	9.63

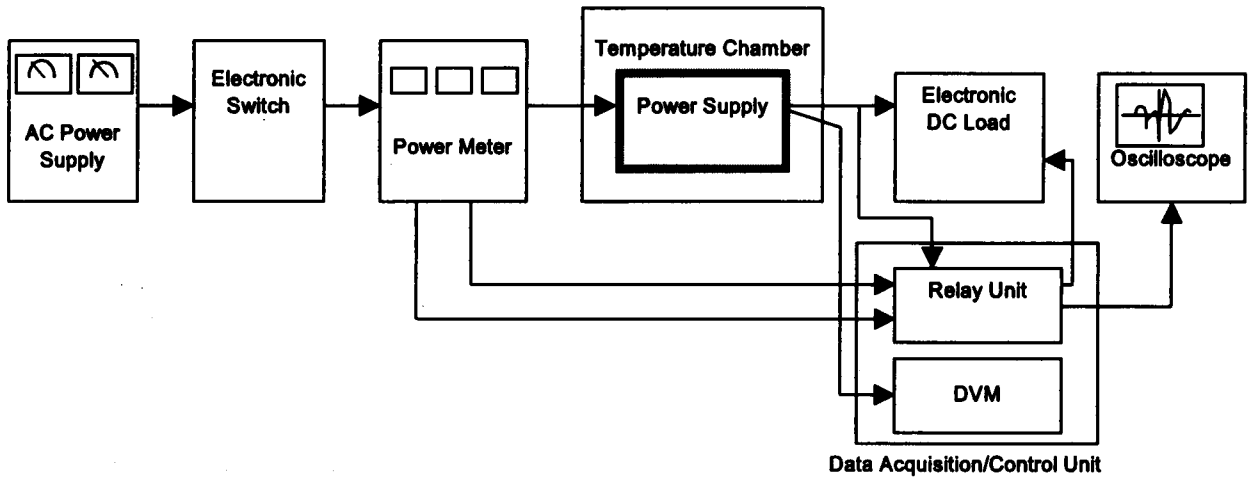


Figure A

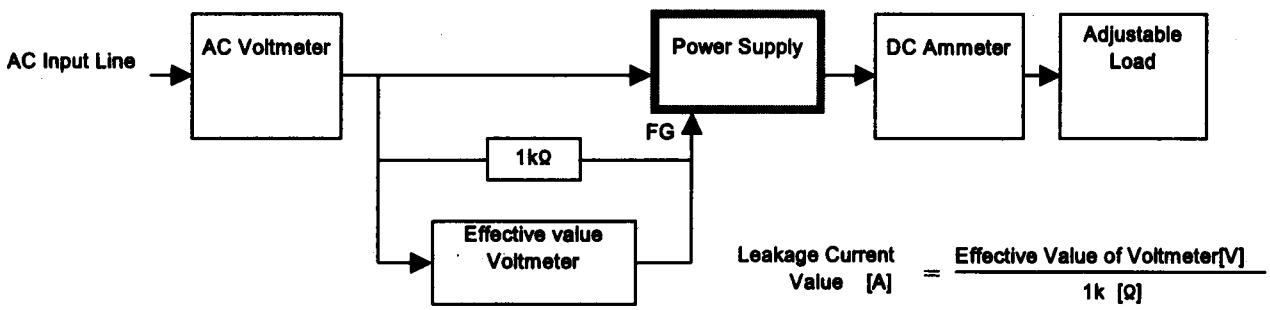


Figure B (DEN-AN)

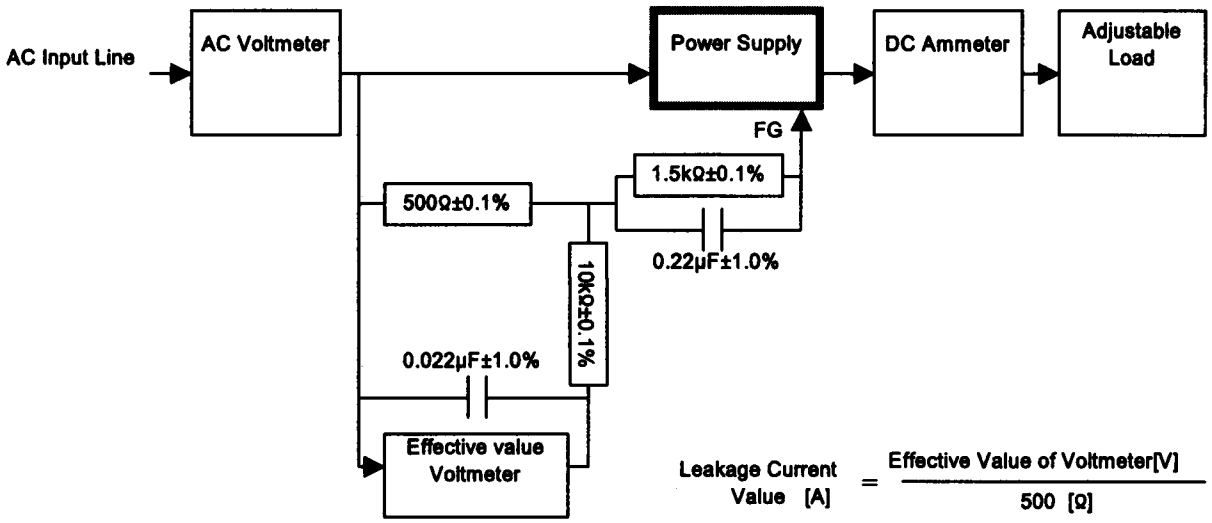


Figure B (IEC60950)