参考資料

COSEL

TEST DATA OF PBA150F-15

Regulated DC Power Supply
Apr.8. 2004

Approved by : Kuniaki Nagahara
Kuniaki Nagahara Design Manager

Prepared by : Tetsuo Koide
Tetsuo Koide Design Engineer

COSEL CO.,LTD.

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Item	Input Current (by Load Current)
Object	———————

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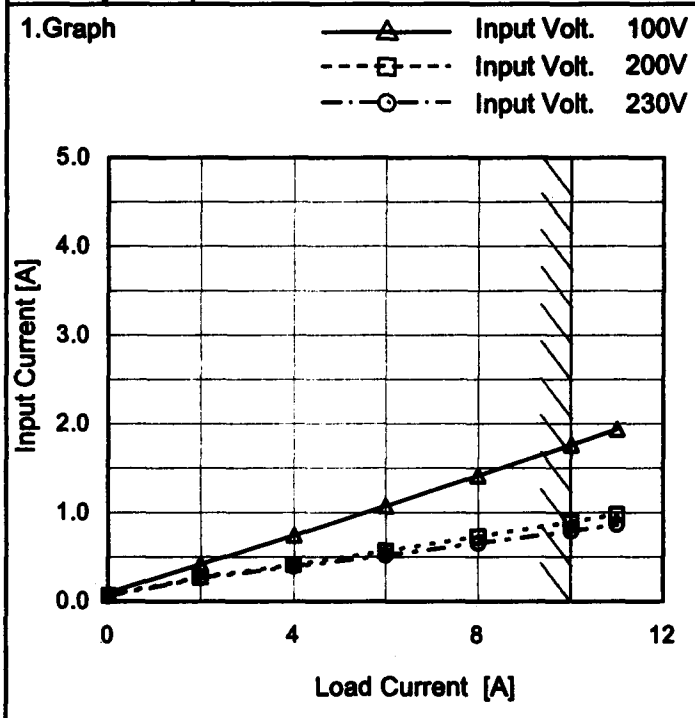

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	0.096	0.067	0.062
2	0.418	0.272	0.262
4	0.744	0.414	0.390
6	1.074	0.568	0.516
8	1.414	0.728	0.652
10	1.764	0.894	0.792
11	1.940	0.976	0.863
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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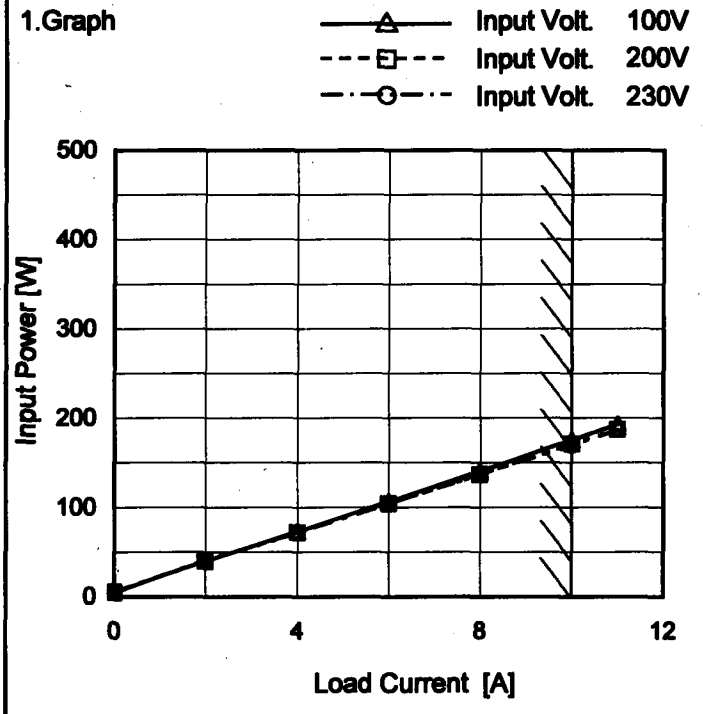
Model	PBA150F-15
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

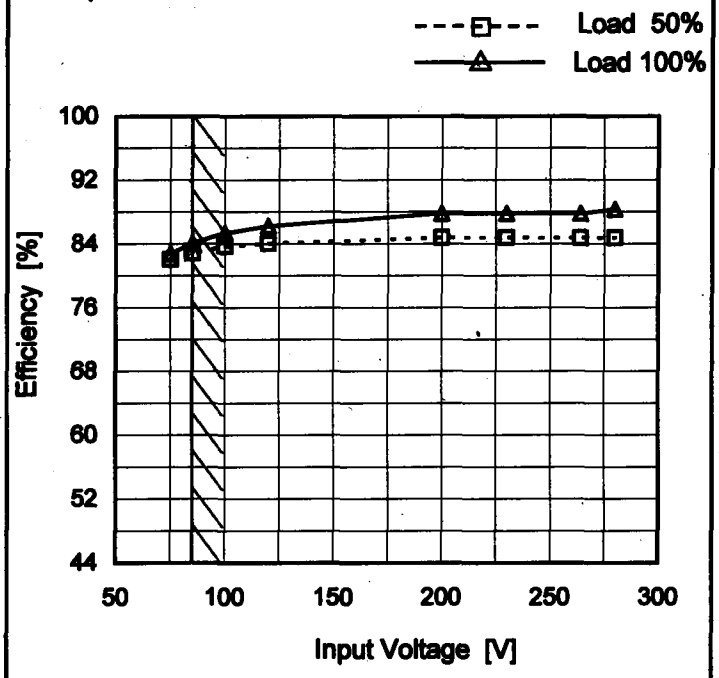
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	5.1	5.3	5.4
2	39.9	40.0	41.0
4	72.9	72.0	72.0
6	106.4	104.0	104.0
8	140.4	137.0	137.0
10	175.5	171.0	170.0
11	193.2	187.0	187.0
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

COSEL

Model	PBA150F-15
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	82.1	82.8
85	82.9	84.1
100	83.7	85.4
120	84.1	86.2
200	84.8	87.8
230	84.8	87.8
264	84.8	87.8
280	84.8	88.3
–	-	-

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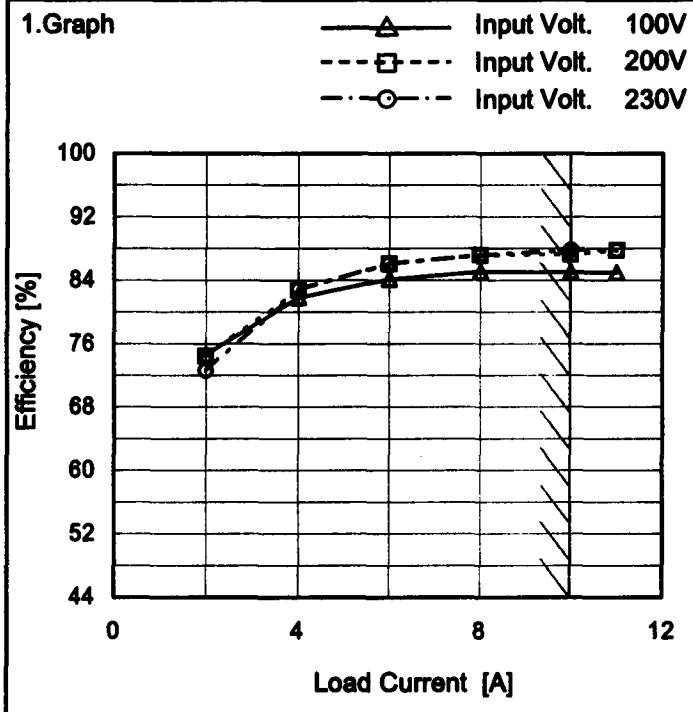
Model	PBA150F-15
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
2	74.6	74.4	72.6
4	81.9	82.8	82.9
6	84.1	86.1	86.1
8	85.1	87.2	87.2
10	85.1	87.3	87.8
11	85.0	87.8	87.8
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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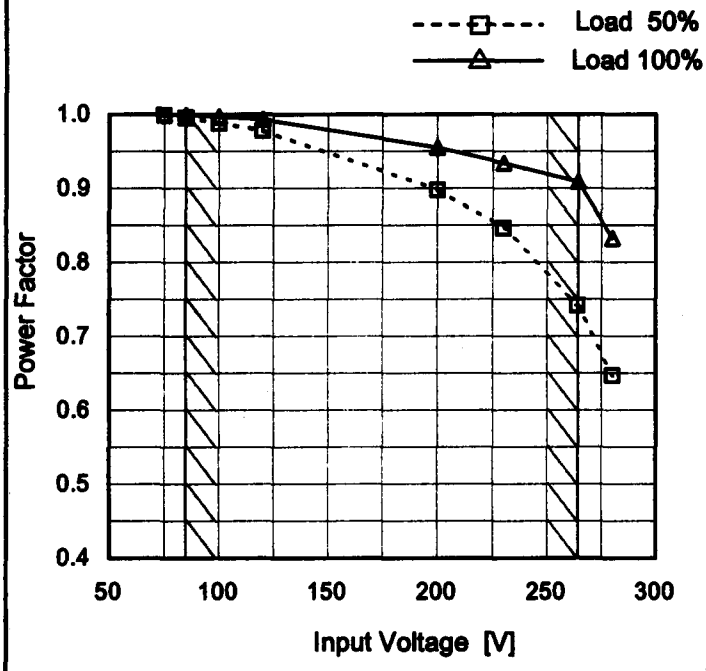
Model	PBA150F-15
Item	Power Factor (by Input Voltage)
Object	———————————

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	0.999	0.999
85	0.996	0.999
100	0.988	0.997
120	0.978	0.994
200	0.898	0.955
230	0.846	0.934
264	0.742	0.909
280	0.647	0.833
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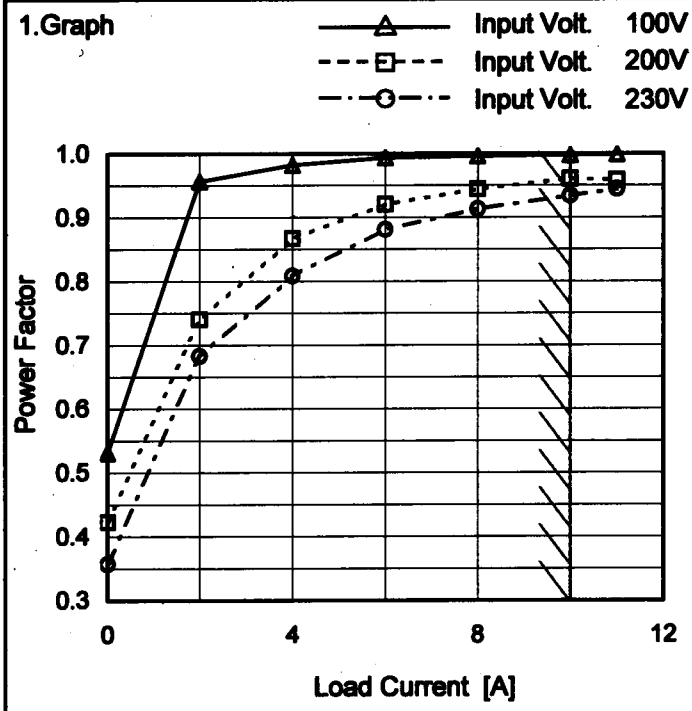
Model	PBA150F-15
Item	Power Factor (by Load Current)
Object	————————

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	0.531	0.423	0.357
2	0.957	0.741	0.683
4	0.982	0.867	0.809
6	0.993	0.920	0.881
8	0.996	0.945	0.913
10	0.998	0.961	0.934
11	0.999	0.959	0.944
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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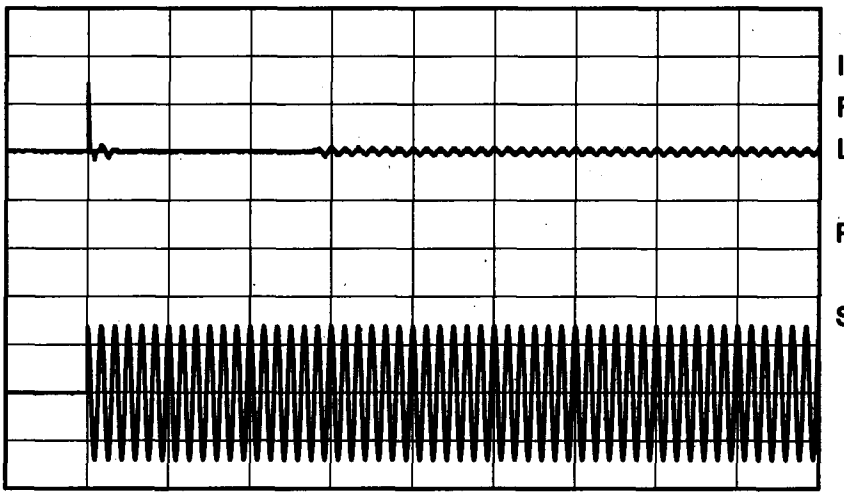
Model	PBA150F-15		
Item	Inrush Current	Temperature	25°C
Object	———————	Testing Circuitry	Figure A

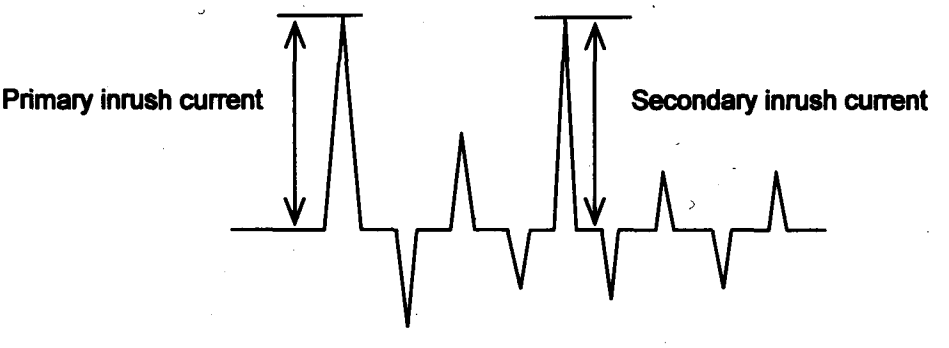
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
18.3 A
Secondary inrush current :
5.0 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
29.0 A
Secondary inrush current :
2.2 A



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Model	PBA150F-15	
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	0.19	0.37	0.43	Operation
	One of phase	0.27	0.54	0.62	stand by
IEC60950	Both phases	0.19	0.38	0.48	Operation
	One of phase	0.27	0.58	0.71	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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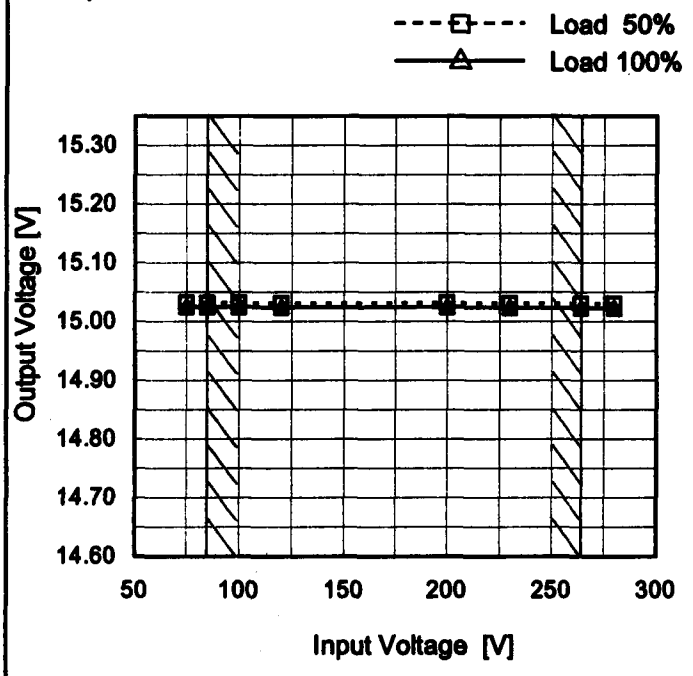
Model	PBA150F-15
Item	Line Regulation
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

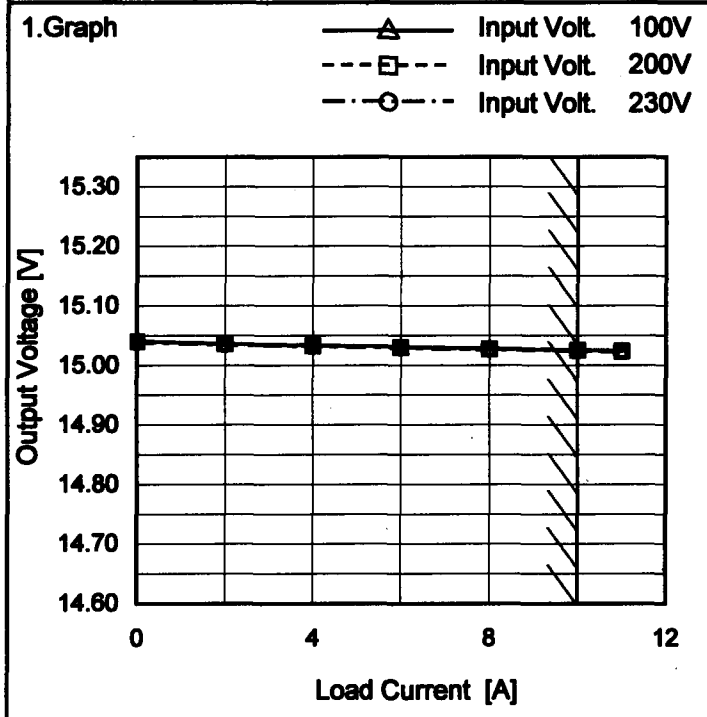
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	15.032	15.026
85	15.032	15.025
100	15.032	15.026
120	15.031	15.025
200	15.032	15.025
230	15.031	15.024
264	15.030	15.024
280	15.031	15.023
--	-	-

COSEL

Model	PBA150F-15
Item	Load Regulation
Object	+15V10A

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	15.041	15.040	15.039
2	15.036	15.036	15.035
4	15.034	15.033	15.032
6	15.031	15.030	15.030
8	15.029	15.027	15.027
10	15.026	15.025	15.024
11	15.025	15.024	15.023
–	-	-	-
–	-	-	-
–	-	-	-
–	-	-	-

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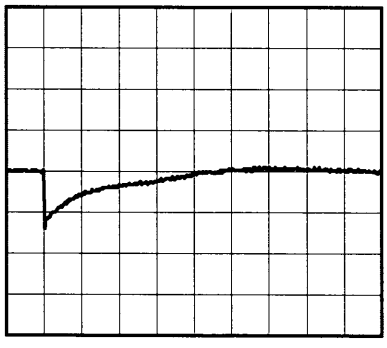
Model	PBA150F-15		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+15V10A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ←→
Load 100% (10A)

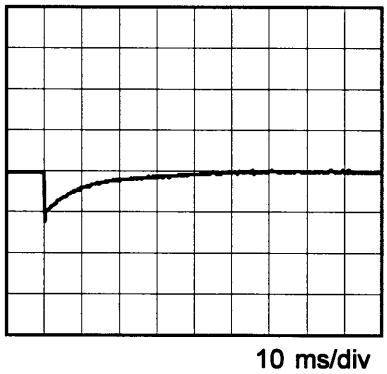


100 mV/div

10 ms/div

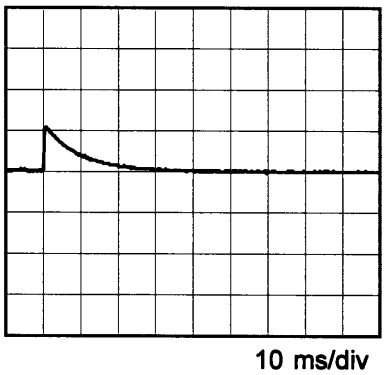
10 ms/div

Min. Load (0A) ←→
Load 50% (5A)



100 mV/div

10 ms/div



10 ms/div

* The characteristic of AC200V is equal.

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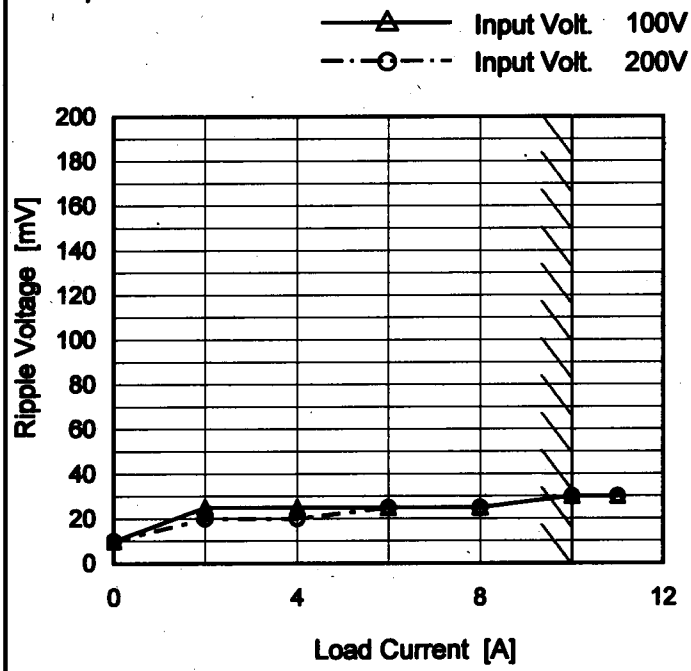
Model	PBA150F-15
Item	Ripple Voltage (by Load Current)
Object	+15V10A

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

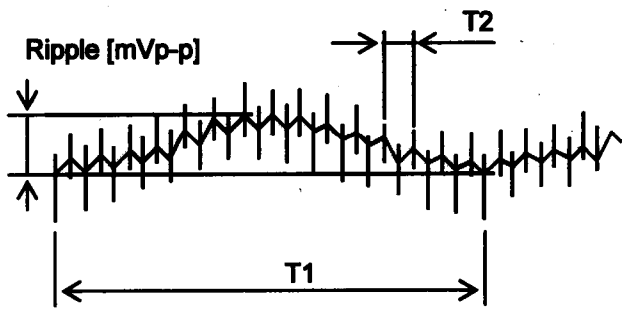


Fig. Complex Ripple Wave Form

2.Values

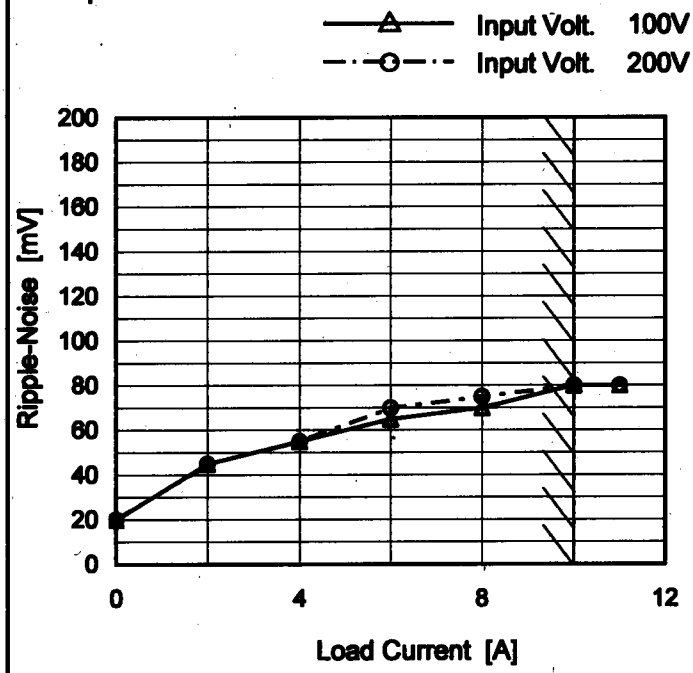
Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Input Volt. 200 [V]
0	10	10
2	25	20
4	25	20
6	25	25
8	25	25
10	30	30
11	30	30
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA150F-15
Item	Ripple-Noise
Object	+15V10A

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
2	45	45
4	55	55
6	65	70
8	70	75
10	80	80
11	80	80
–	-	-
–	-	-
–	-	-
–	-	-

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

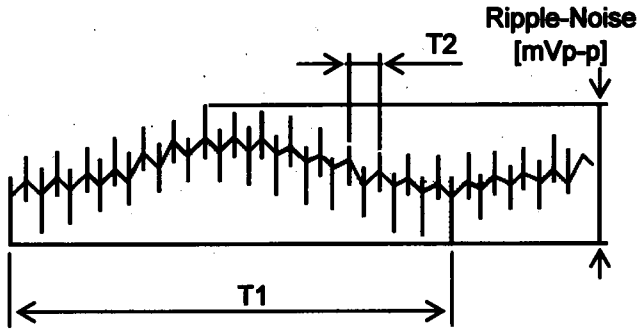


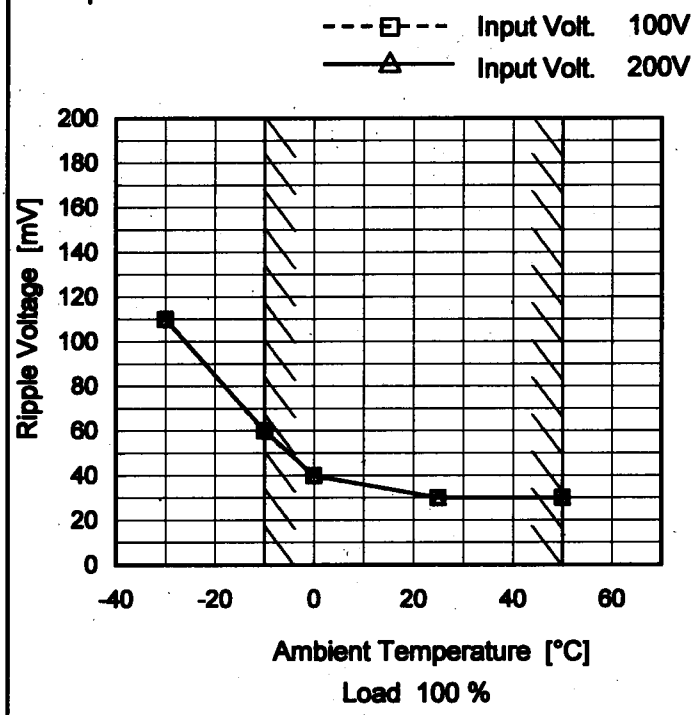
Fig. Complex Ripple Wave Form

COSEL

Model	PBA150F-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V10A

Testing Circuitry Figure A

1.Graph



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

2.Values

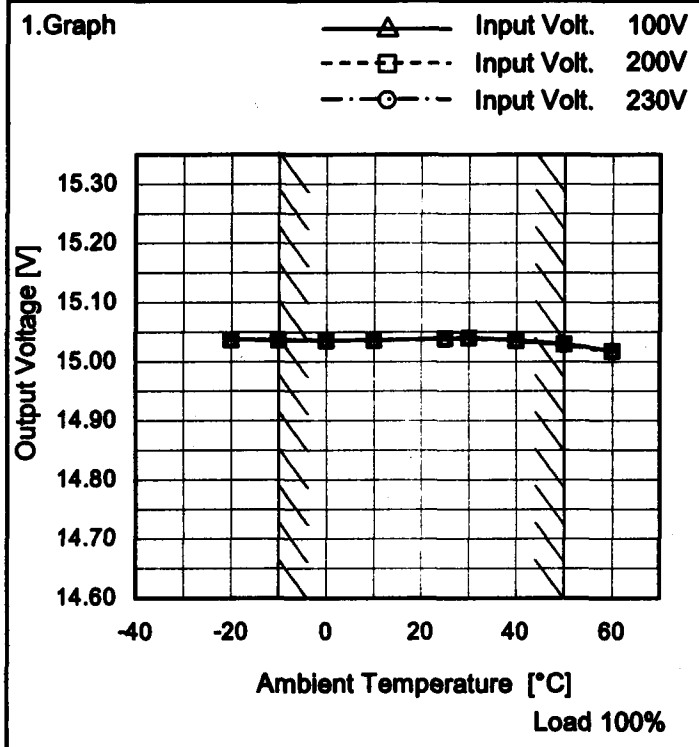
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	110	110
-10	60	60
0	40	40
25	30	30
50	30	30
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA150F-15
Item	Ambient Temperature Drift
Object	+15V10A

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	15.038	15.037	15.037
-10	15.037	15.037	15.037
0	15.036	15.036	15.036
10	15.037	15.036	15.036
25	15.039	15.039	15.039
30	15.041	15.040	15.040
40	15.036	15.035	15.035
50	15.030	15.029	15.029
60	15.019	15.017	15.017
--	-	-	-
--	-	-	-

COSEL

Model	PBA150F-15	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V10A	

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 - 10A

* 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

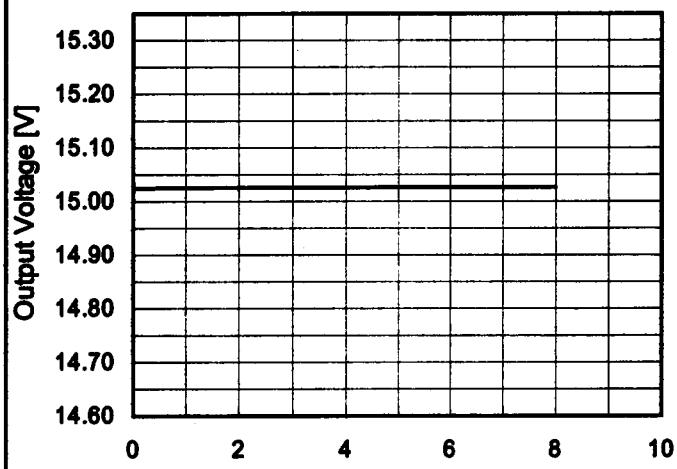
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	264	0	15.055	±16	±0.1
Minimum Voltage	50	264	10	15.024		

COSEL

Model	PBA150F-15
Item	Time Lapse Drift
Object	+15V10A

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	15.031
0.5	15.025
1.0	15.026
2.0	15.026
3.0	15.026
4.0	15.026
5.0	15.027
6.0	15.027
7.0	15.027
8.0	15.027

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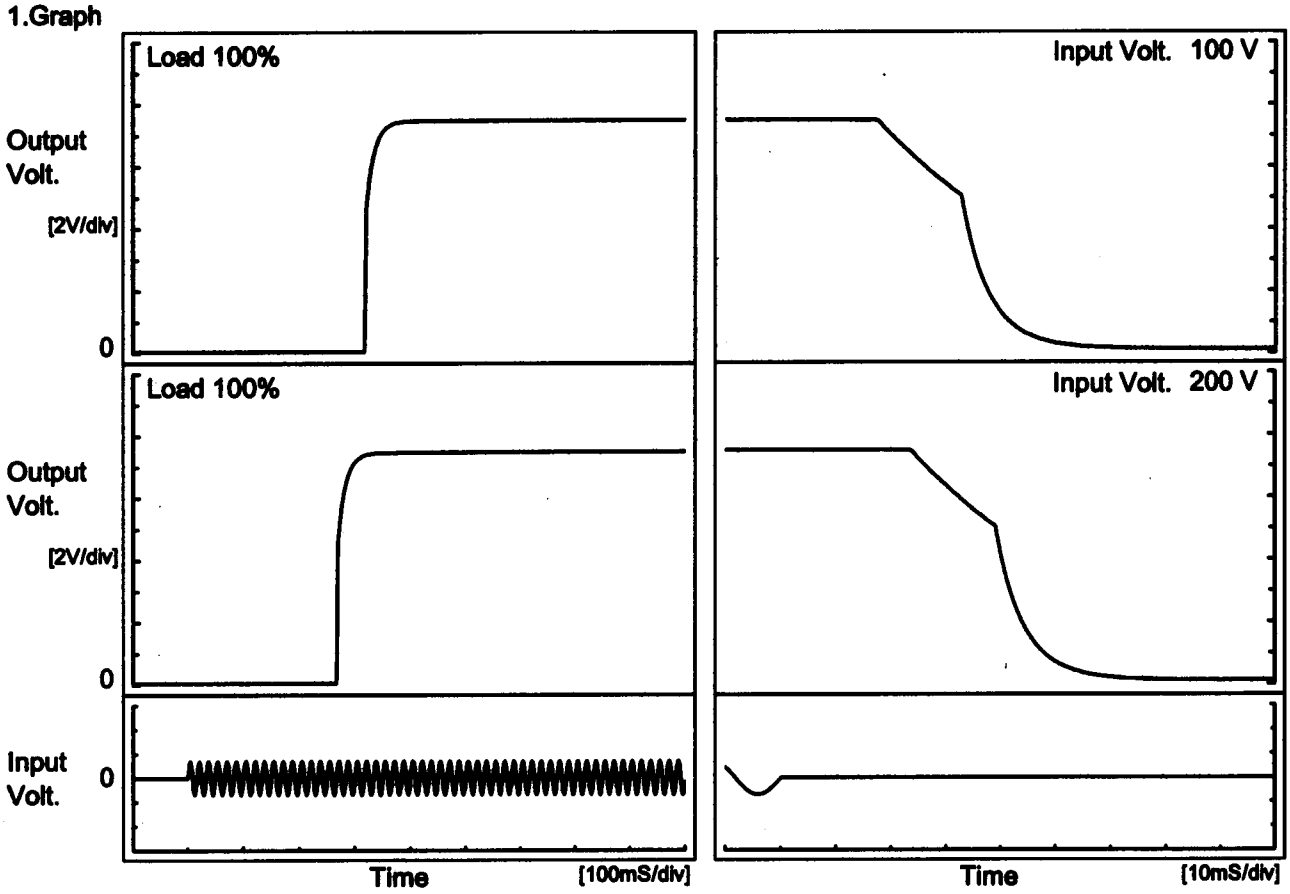
Model	PBA150F-15
Item	Rise and Fall Time
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

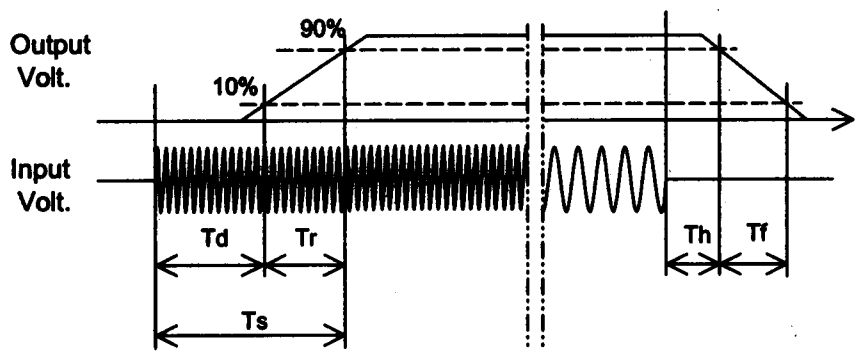
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	318.5	23.0	341.5	21.1	22.0
200 V	267.5	22.5	290.0	27.4	22.1



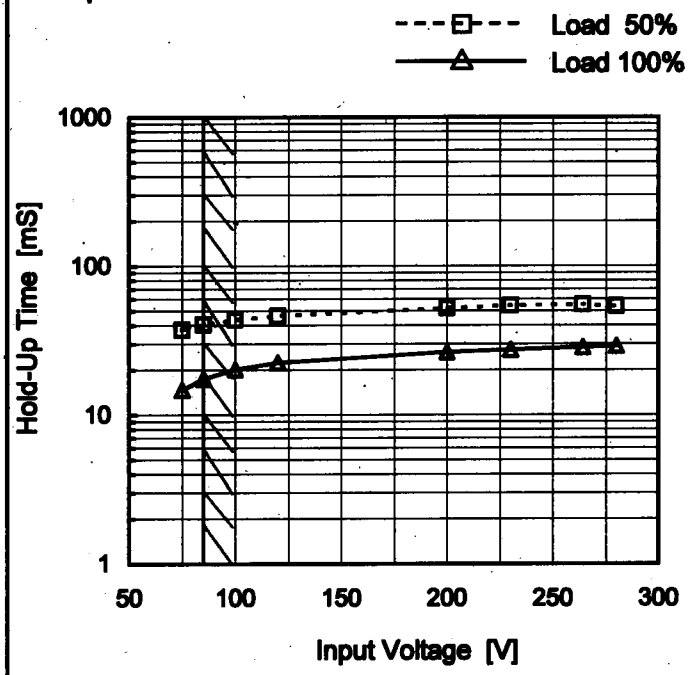
BC-3577

COSEL

Model	PBA150F-15
Item	Hold-Up Time
Object	+15V10A

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	38	15
85	41	18
100	44	20
120	46	23
200	52	27
230	54	27
264	55	29
280	54	29
--	-	-

BC-3577

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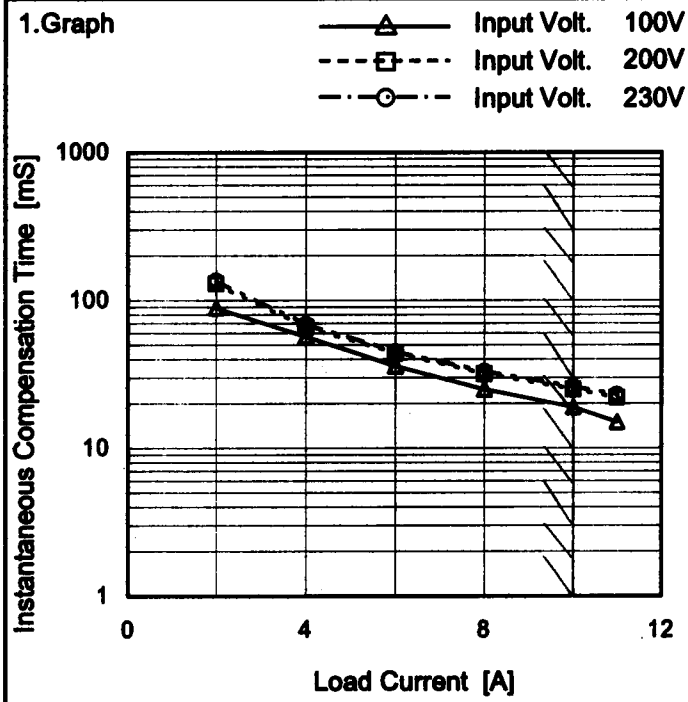
Model	PBA150F-15
Item	Instantaneous Interruption Compensation
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

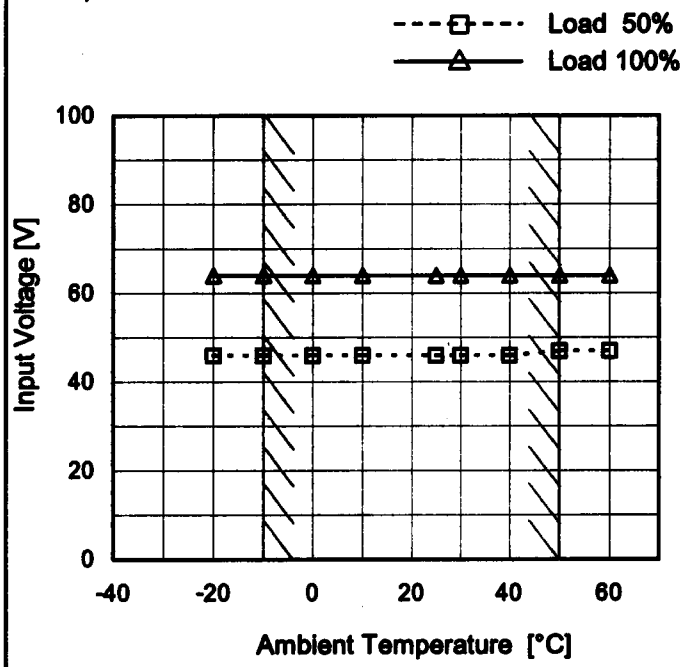
Load Current [A]	Time [mS] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	-	-	-
2	89	130	136
4	57	66	69
6	36	44	45
8	25	32	33
10	19	25	26
11	15	22	23
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA150F-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V10A

Testing Circuitry Figure A

1.Graph



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

2.Values

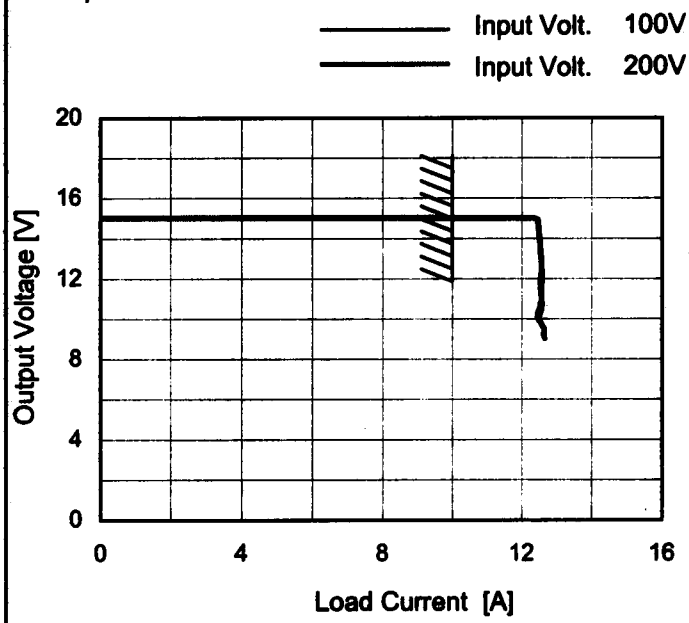
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	46	64
-10	46	64
0	46	64
10	46	64
25	46	64
30	46	64
40	46	64
50	47	64
60	47	64
--	-	-
--	-	-

COSEL

Model	PBA150F-15
Item	Overcurrent Protection
Object	+15V10A

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	10.23	10.28
14.25	12.53	12.50
13.50	12.57	12.53
12.00	12.62	12.55
10.50	12.60	12.52
9.00	12.66	12.68
--	-	-
--	-	-
--	-	-
--	-	-
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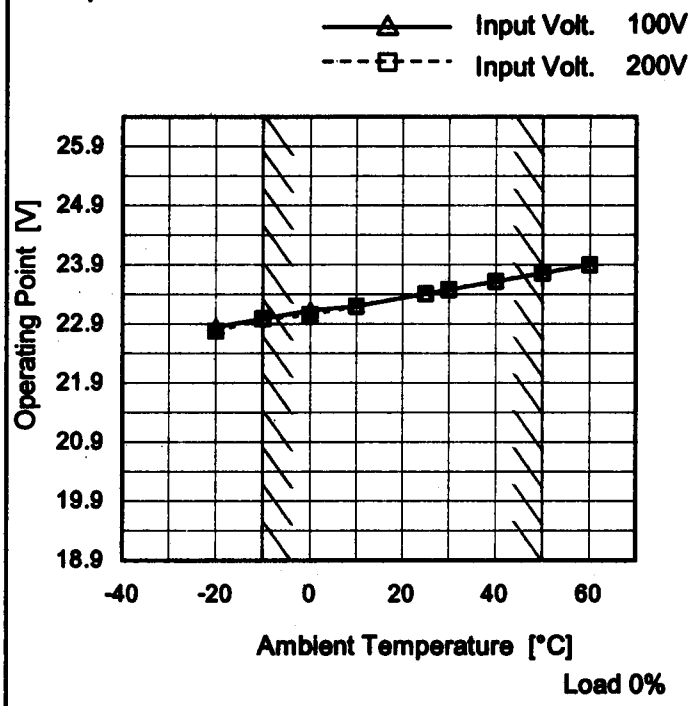
COSEL

Model	PBA150F-15
Item	Overvoltage Protection
Object	+15V10A

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	22.87	22.80
-10	23.01	23.01
0	23.15	23.08
10	23.22	23.22
25	23.43	23.43
30	23.50	23.50
40	23.64	23.64
50	23.78	23.78
60	23.92	23.92
--	-	-
--	-	-

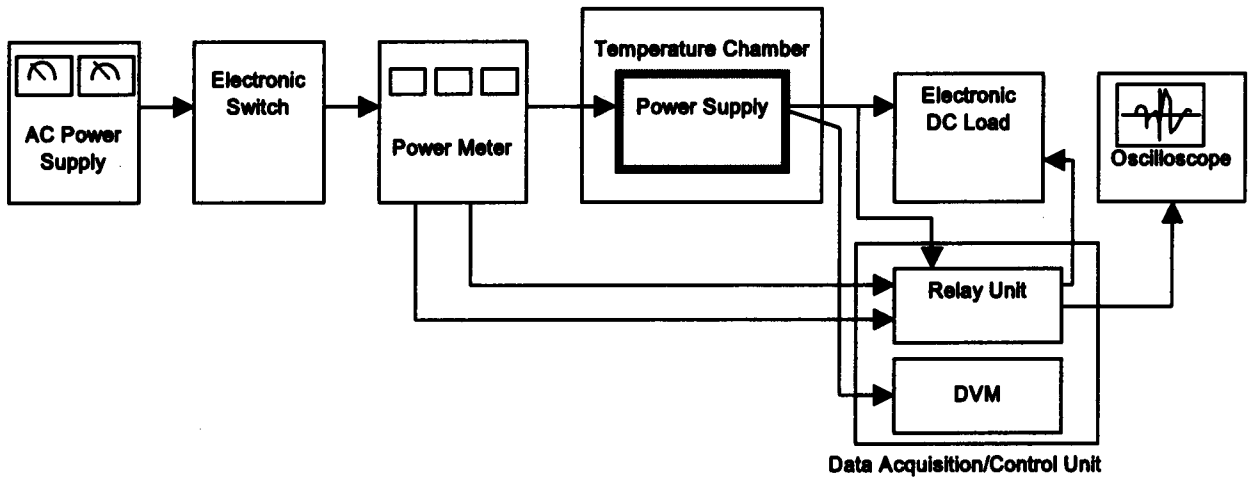


Figure A

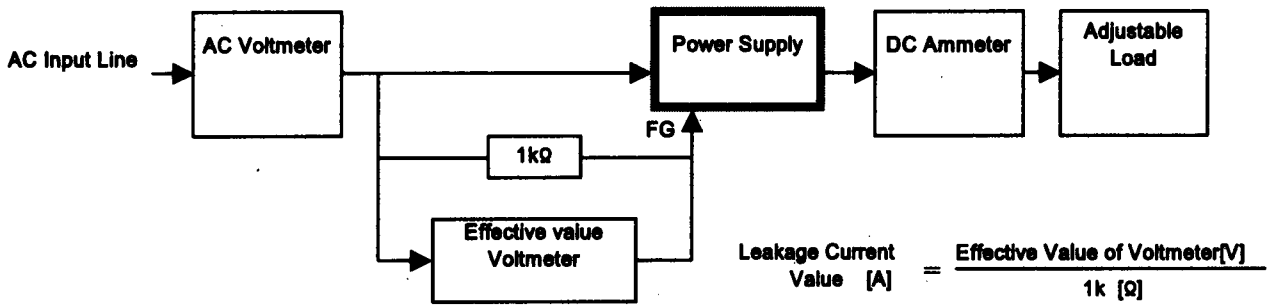


Figure B (DEN-AN)

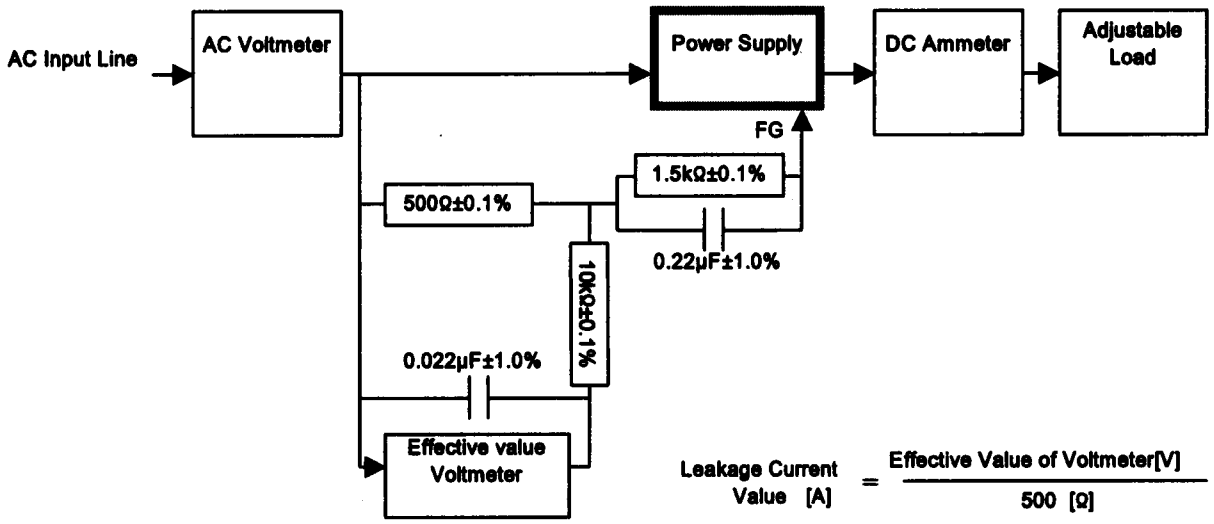


Figure B (IEC60950)