参考資料

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TEST DATA OF PBA1500F-15

Regulated DC Power Supply
Jun.14. 2003

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COSEL CO.,LTD.

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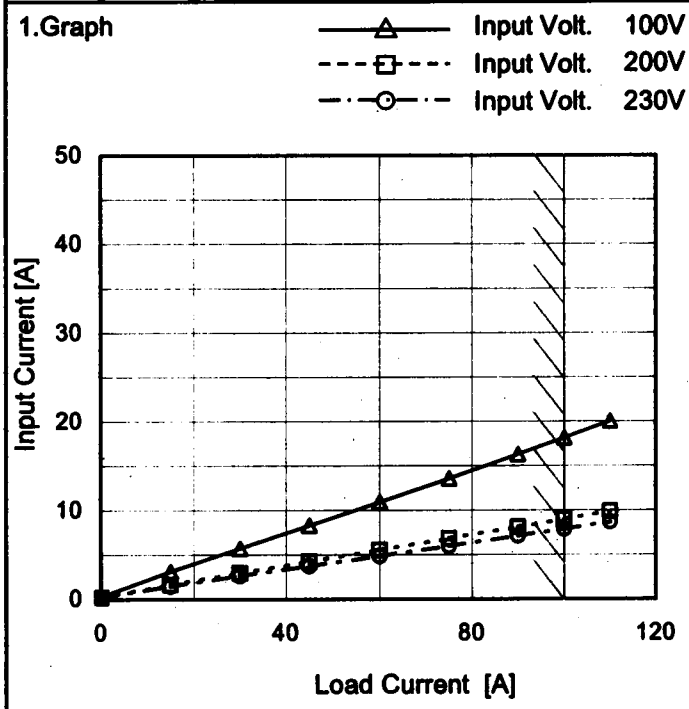
Model	PBA1500F-15
Item	Input Current (by Load Current)
Object	————————

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	0.286	0.217	0.226
15	3.131	1.670	1.482
30	5.720	2.956	2.613
45	8.280	4.230	3.724
60	10.910	5.520	4.840
75	13.570	6.810	5.970
90	16.300	8.130	7.100
100	18.160	8.990	7.860
110	20.040	9.880	8.640
--	-	-	-
--	-	-	-

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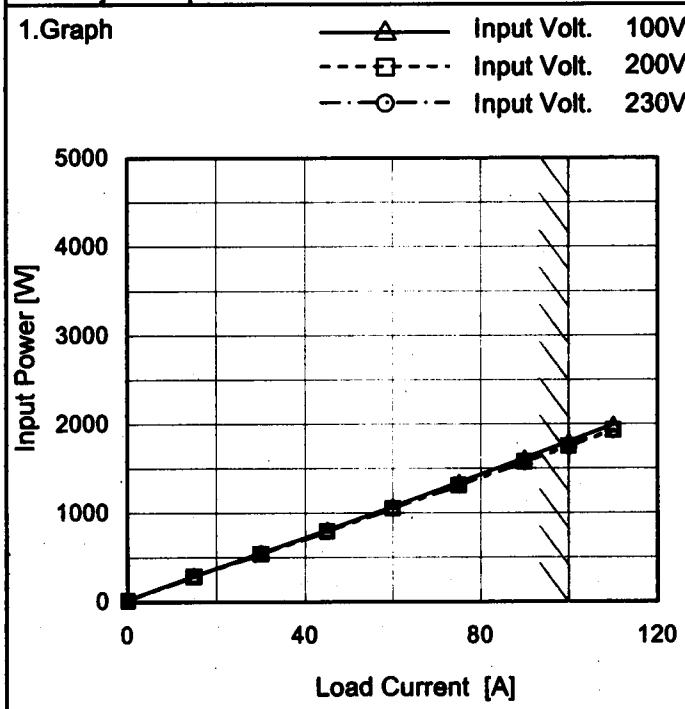
Model	PBA1500F-15
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

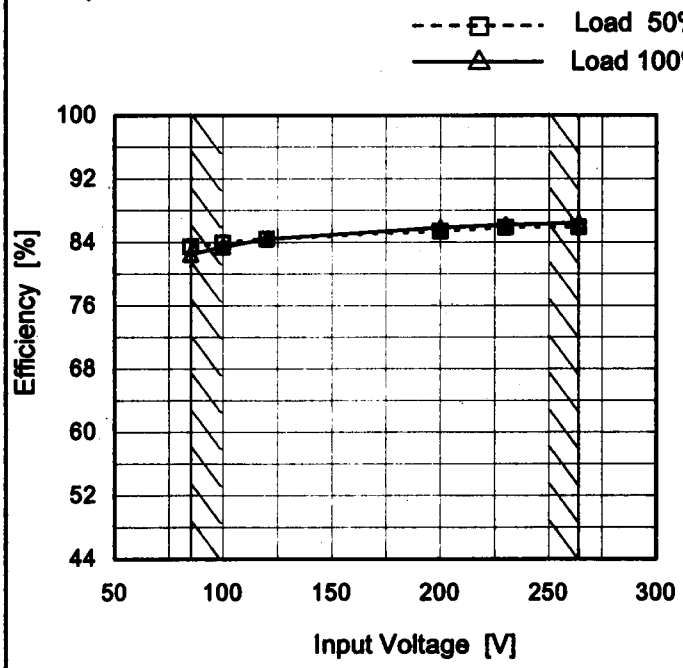
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	20	16	14
15	292	288	287
30	550	540	539
45	809	795	791
60	1072	1054	1048
75	1342	1312	1306
90	1617	1577	1570
100	1803	1752	1745
110	1995	1932	1924
--	-	-	-
--	-	-	-

COSEL

Model	PBA1500F-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%
85	83.5	82.5
100	84.0	83.4
120	84.4	84.4
200	85.4	85.9
230	85.9	86.2
264	85.9	86.4
--	-	-
--	-	-
--	-	-

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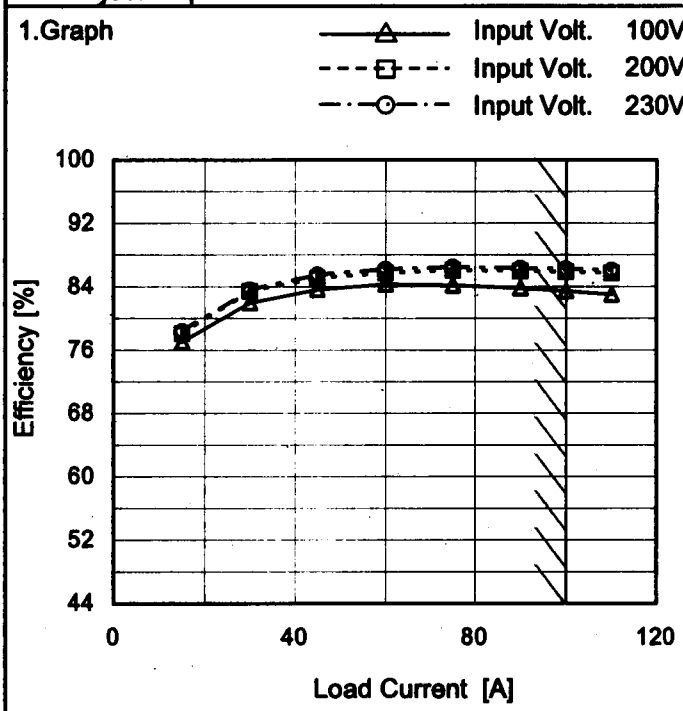
Model	PBA1500F-15
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
15	77.0	78.1	78.4
30	82.0	83.5	83.6
45	83.6	85.1	85.5
60	84.3	85.7	86.2
75	84.2	86.1	86.5
90	83.8	85.9	86.3
100	83.5	85.9	86.2
110	83.0	85.7	86.1
--	-	-	-
--	-	-	-

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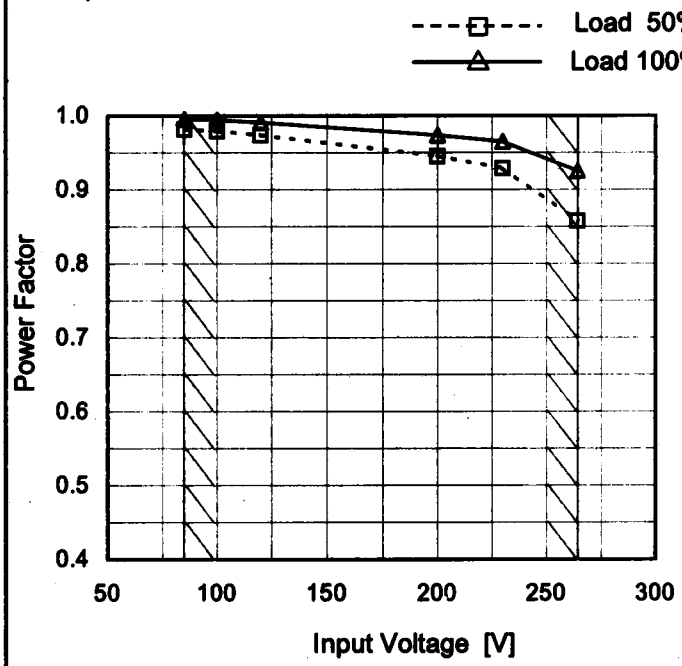
Model	PBA1500F-15
Item	Power Factor (by Input Voltage)
Object	———————

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%
85	0.981	0.996
100	0.979	0.994
120	0.974	0.991
200	0.945	0.974
230	0.929	0.965
264	0.858	0.926
--	-	-
--	-	-
--	-	-

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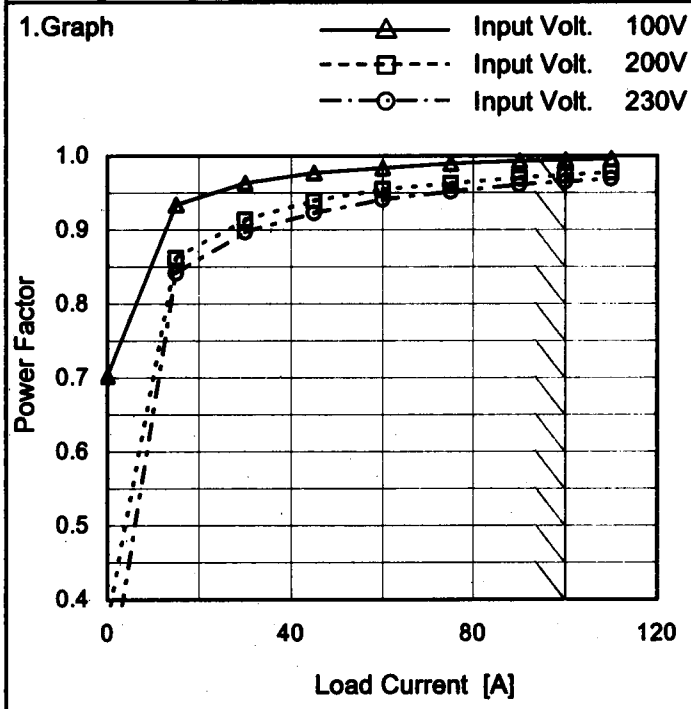
Model	PBA1500F-15
Item	Power Factor (by Load Current)
Object	————————

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	0.703	0.372	0.269
15	0.934	0.862	0.842
30	0.963	0.914	0.897
45	0.977	0.940	0.923
60	0.983	0.955	0.941
75	0.990	0.963	0.952
90	0.993	0.970	0.961
100	0.994	0.974	0.965
110	0.996	0.978	0.969
—	-	-	-
—	-	-	-

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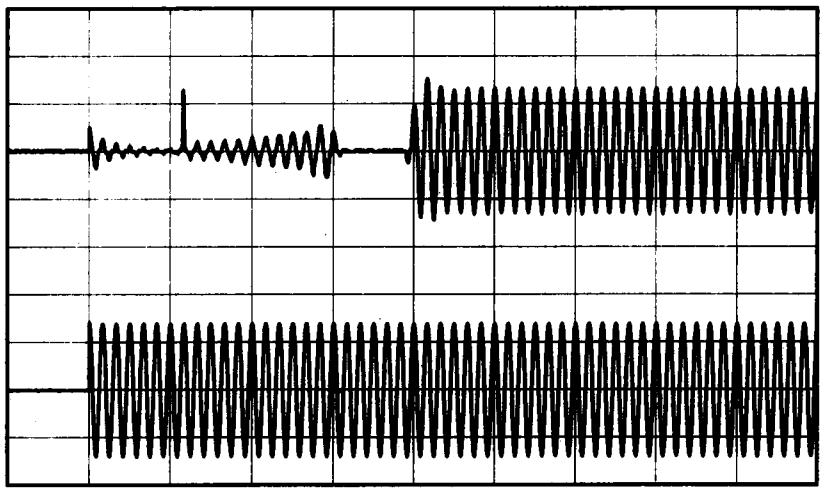
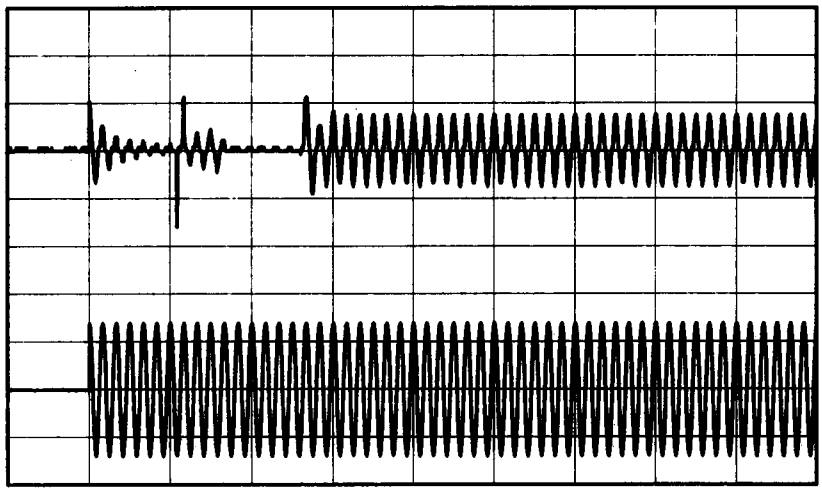
Model	PBA1500F-15
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



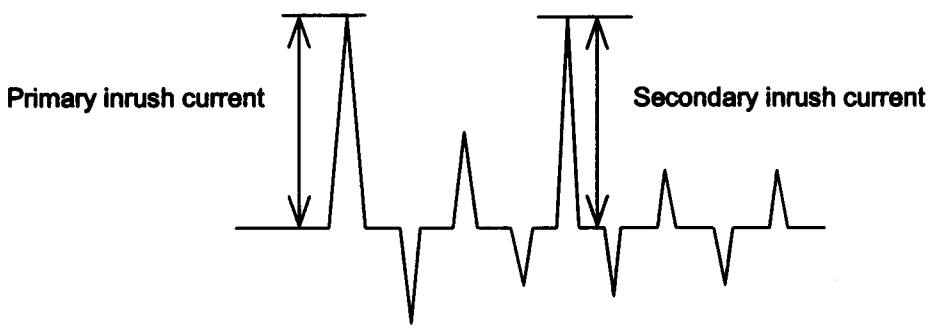
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
10.2 A
Secondary inrush current :
30.6 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
21.0 A
Secondary inrush current :
32.0 A



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Model	PBA1500F-15	
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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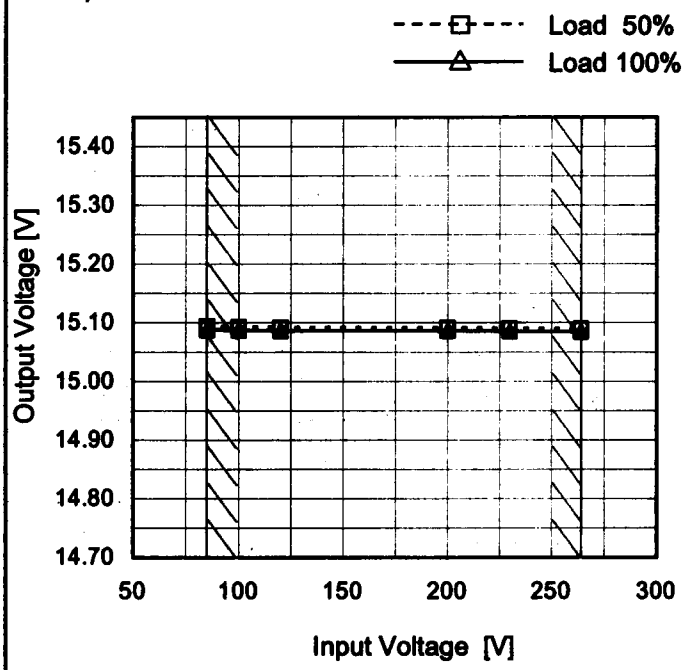
Model	PBA1500F-15
Item	Line Regulation
Object	+15V100A

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	15.094	15.088
100	15.093	15.088
120	15.092	15.087
200	15.092	15.087
230	15.091	15.086
264	15.090	15.085
--	-	-
--	-	-
--	-	-

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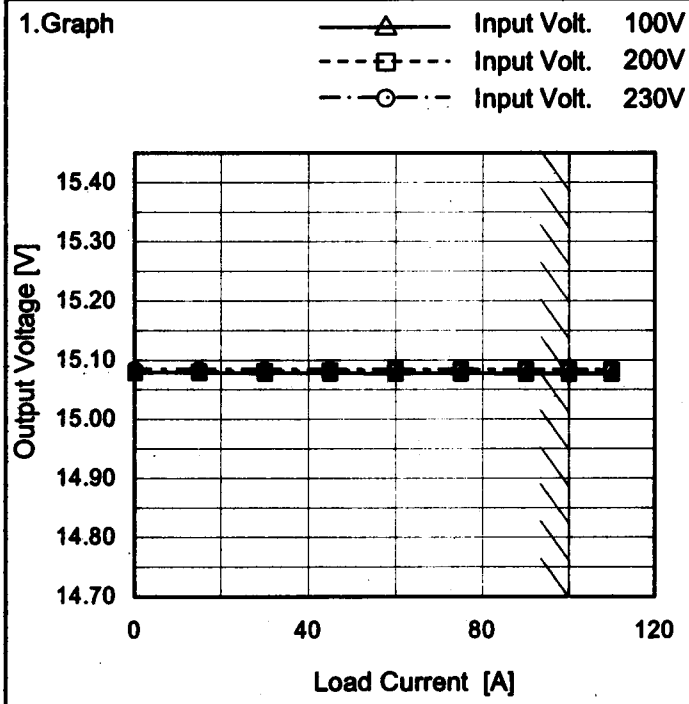
Model	PBA1500F-15
Item	Load Regulation
Object	+15V100A

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	15.079	15.079	15.085
15	15.079	15.080	15.085
30	15.079	15.081	15.084
45	15.078	15.082	15.084
60	15.078	15.083	15.084
75	15.078	15.083	15.084
90	15.077	15.083	15.084
100	15.077	15.083	15.083
110	15.077	15.083	15.083
--	-	-	-
--	-	-	-

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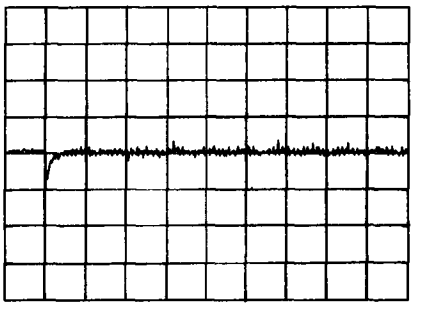
Model	PBA1500F-15
Item	Dynamic Load Response
Object	+15V100A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

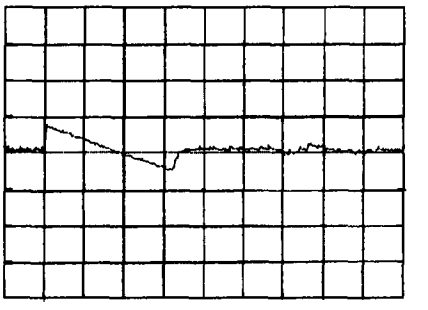
Load Current

Min.Load (0A) ⟷
Load 100% (100A)



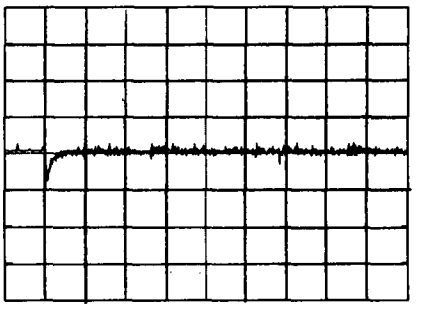
100mV/div

10mS/div



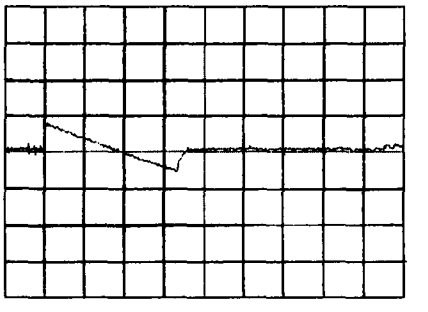
10mS/div

Min.Load (0A) ⟷
Load 50% (50A)



100mV/div

10mS/div



10mS/div

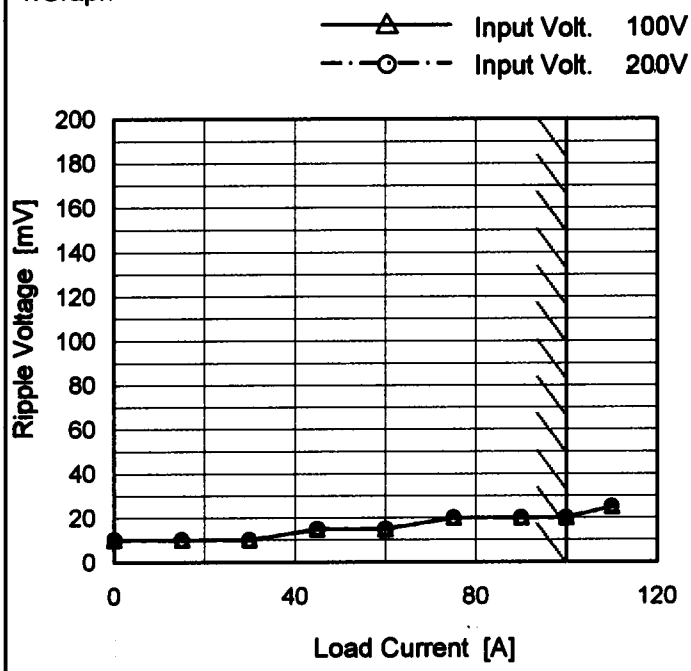
* The characteristic of AC200V is equal.

COSEL

Model	PBA1500F-15
Item	Ripple Voltage (by Load Current)
Object	+15V100A

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

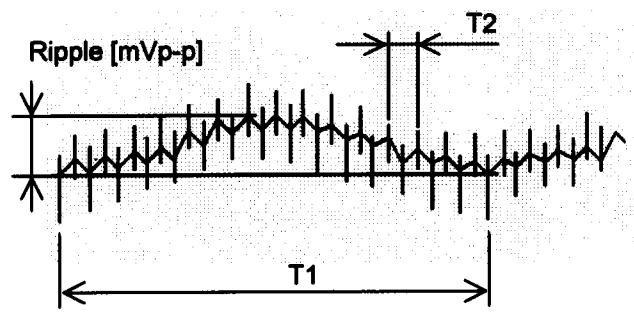


Fig. Complex Ripple Wave Form

2.Values

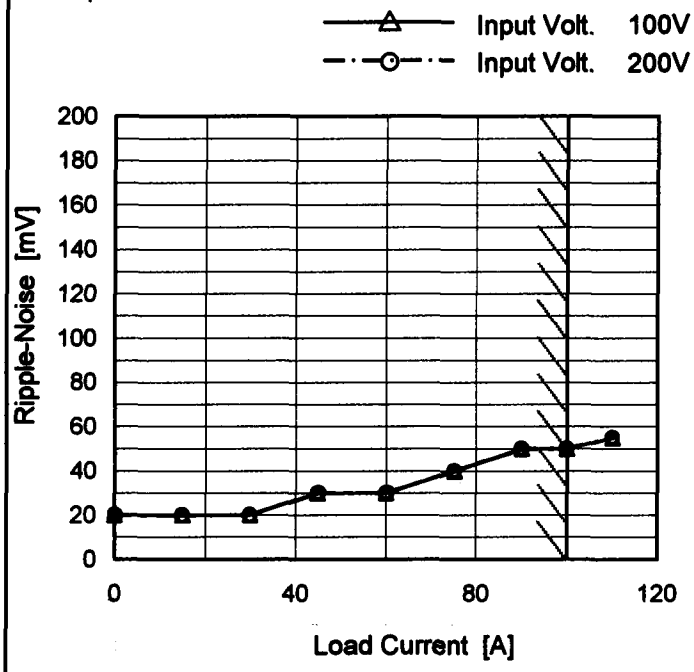
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0	10	10
15	10	10
30	10	10
45	15	15
60	15	15
75	20	20
90	20	20
100	20	20
110	25	25
–	-	-
–	-	-

COSEL

Model	PBA1500F-15
Item	Ripple-Noise
Object	+15V100A

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
15	20	20
30	20	20
45	30	30
60	30	30
75	40	40
90	50	50
100	50	50
110	55	55
--	-	-
--	-	-

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

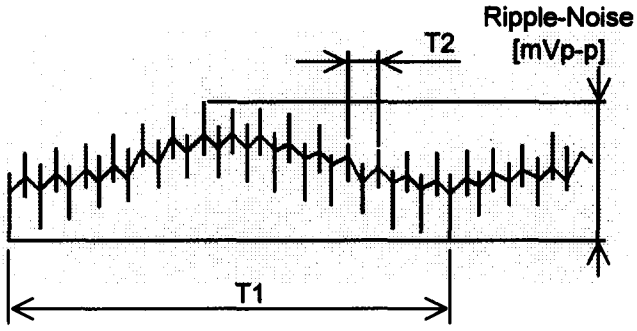


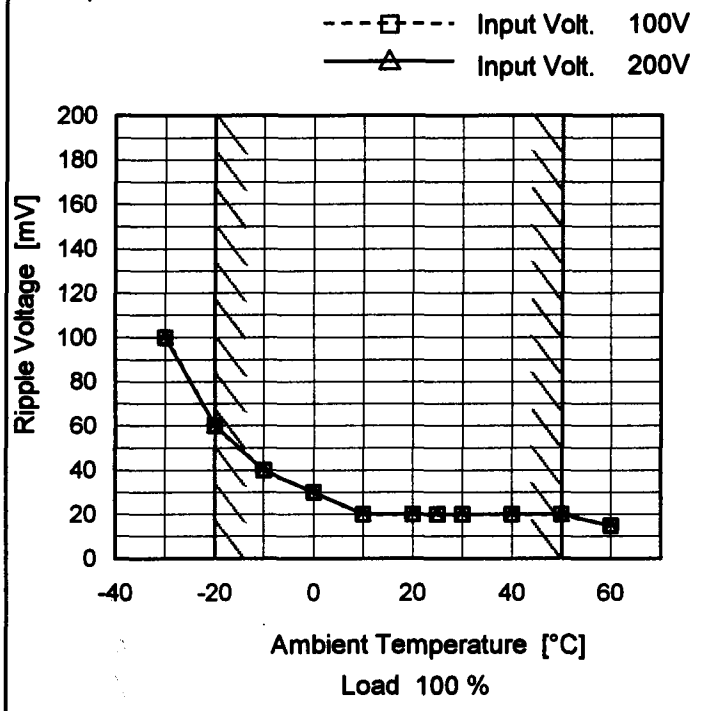
Fig. Complex Ripple Wave Form

COSEL

Model	PBA1500F-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V100A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

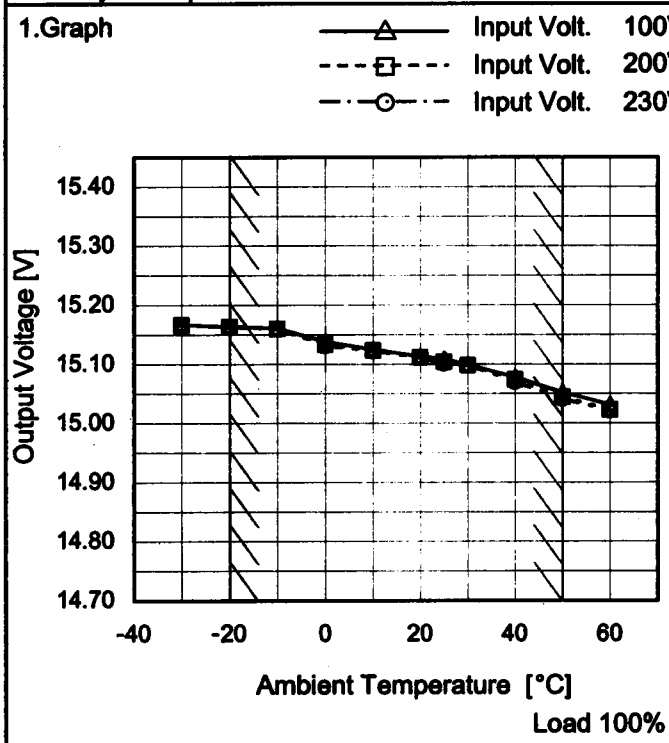
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	100	100
-20	60	60
-10	40	40
0	30	30
10	20	20
20	20	20
25	20	20
30	20	20
40	20	20
50	20	20
60	15	15

COSEL

Model	PBA1500F-15
Item	Ambient Temperature Drift
Object	+15V100A

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	15.167	15.167	15.167
-20	15.164	15.163	15.163
-10	15.161	15.160	15.159
0	15.139	15.133	15.131
10	15.125	15.123	15.122
20	15.113	15.112	15.110
25	15.109	15.104	15.101
30	15.099	15.098	15.098
40	15.078	15.074	15.070
50	15.052	15.044	15.041
60	15.032	15.023	15.021

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Model	PBA1500F-15	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V100A	

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 - 100A

* 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

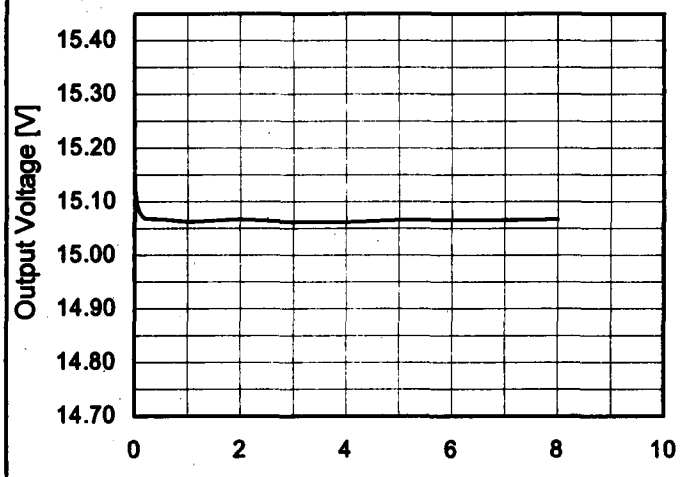
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-20	85	0	15.164	±74	±0.5
Minimum Voltage	50	264	100	15.016		

COSEL

Model	PBA1500F-15
Item	Time Lapse Drift
Object	+15V100A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

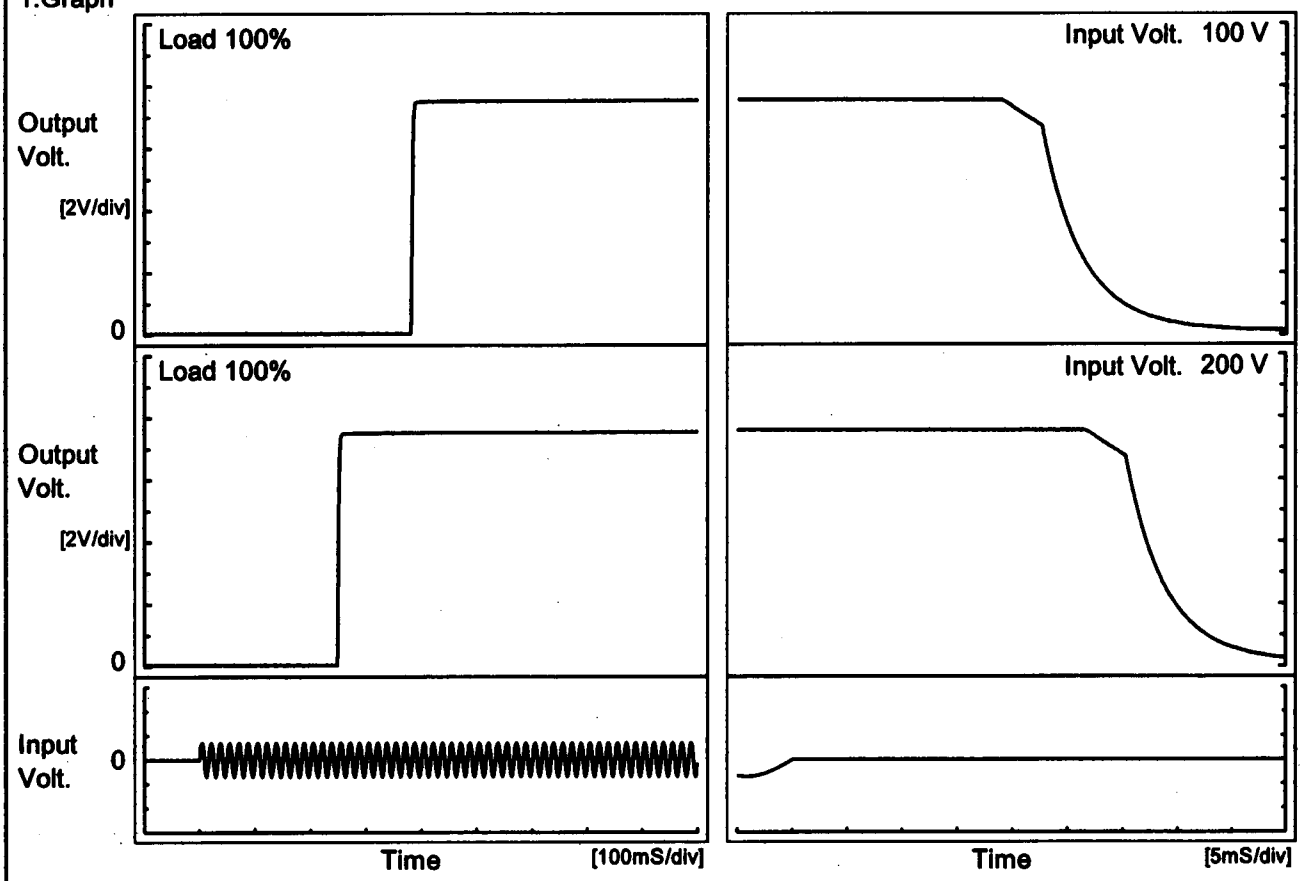
2.Values

Time since start [H]	Output Voltage [V]
0.0	15.124
0.5	15.067
1.0	15.062
2.0	15.067
3.0	15.062
4.0	15.062
5.0	15.066
6.0	15.066
7.0	15.066
8.0	15.067

COSEL

Model	PBA1500F-15	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+15V100A	

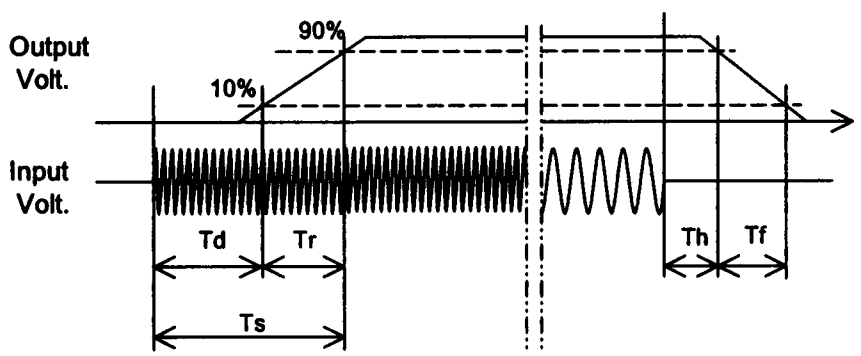
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	382.5	4.0	386.5	22.3	8.8
200 V	249.0	4.0	253.0	30.0	8.8

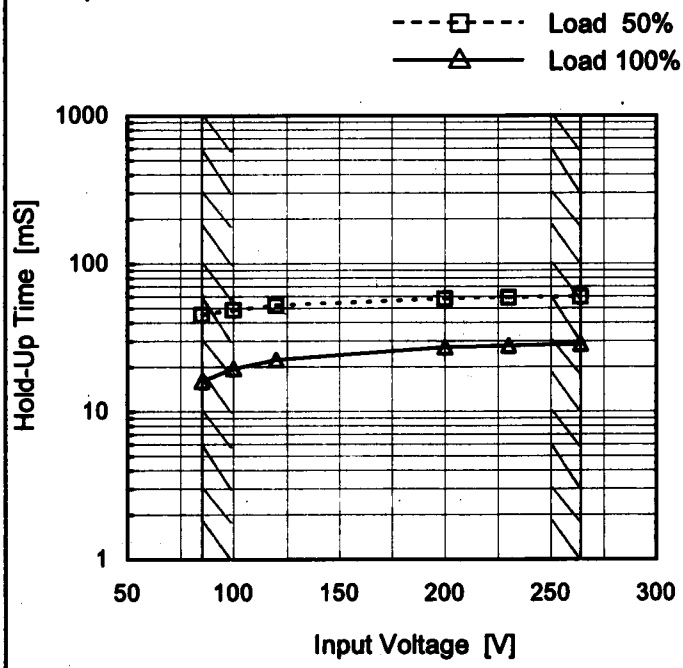


COSEL

Model	PBA1500F-15
Item	Hold-Up Time
Object	+15V100A

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

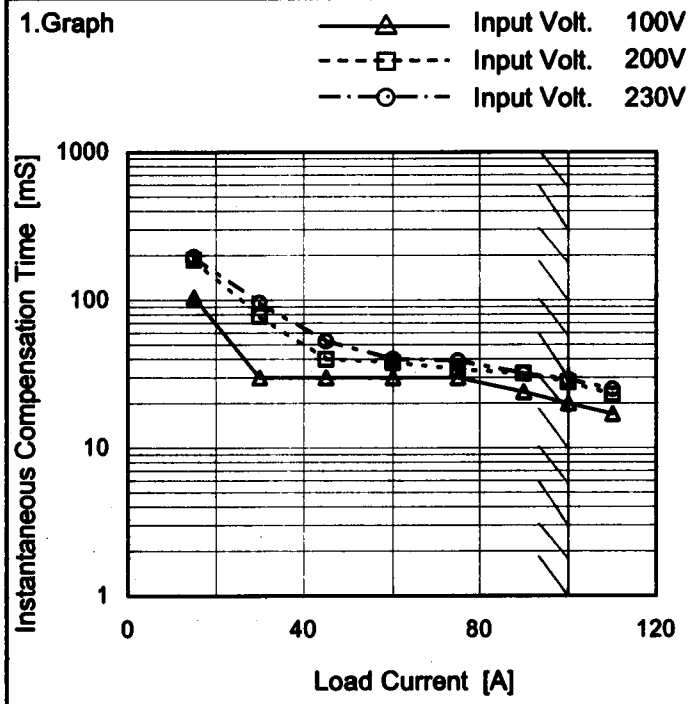
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
85	45	16
100	49	20
120	52	22
200	58	27
230	59	28
264	60	29
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA1500F-15
Item	Instantaneous Interruption Compensation
Object	+15V100A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

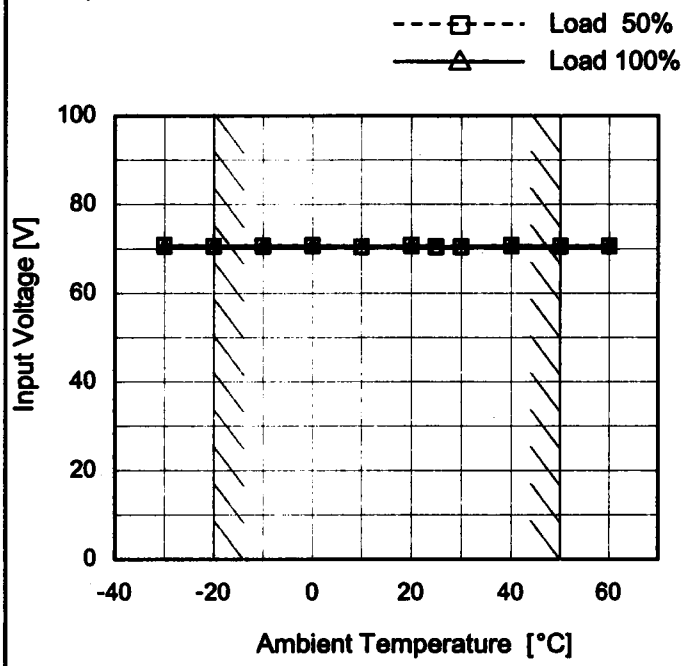
Load Current [A]	Time [mS] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	-	-	-
15	105	188	196
30	30	78	96
45	30	40	53
60	30	38	40
75	30	34	39
90	24	32	32
100	20	28	29
110	17	23	25
--	-	-	-
--	-	-	-

COSEL

Model	PBA1500F-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V100A

Testing Circuitry Figure A

1.Graph



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

2.Values

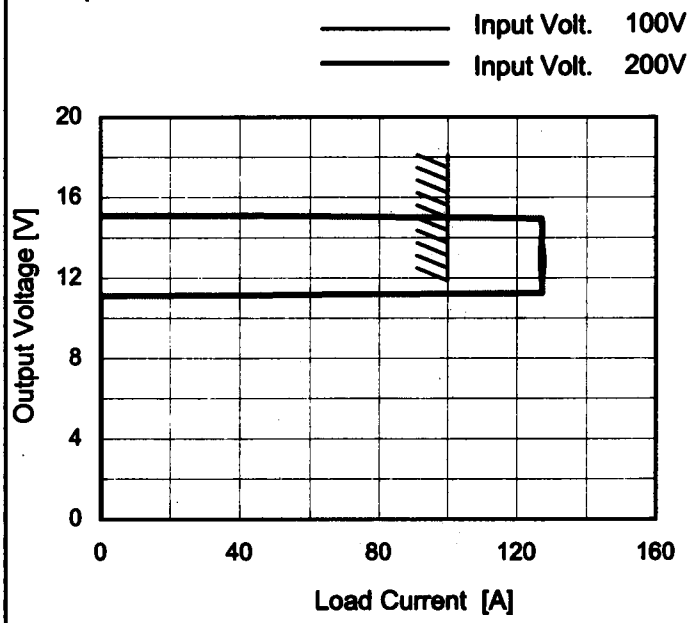
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	71	71
-20	71	71
-10	71	71
0	71	71
10	71	71
20	71	71
25	71	71
30	71	71
40	71	71
50	71	71
60	71	71

COSEL

Model	PBA1500F-15
Item	Overcurrent Protection
Object	+15V100A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

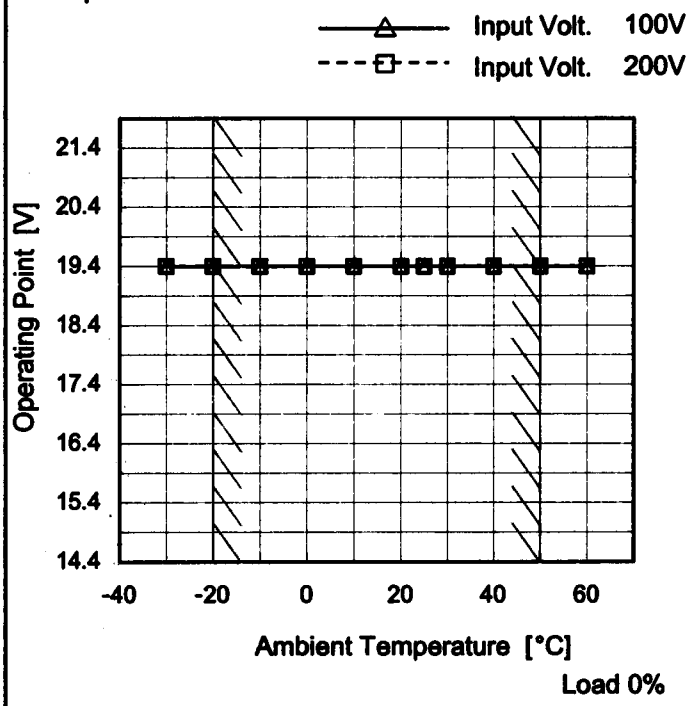
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
15.0	126.42	127.05
14.3	127.03	127.18
13.5	127.61	126.89
12.0	127.54	127.06
10.5	0.00	0.00
9.0	0.00	0.00
7.5	0.00	0.00
6.0	0.00	0.00
4.5	0.00	0.00
3.0	0.00	0.00
1.5	0.00	0.00
0.0	0.00	0.00

COSEL

Model	PBA1500F-15
Item	Overvoltage Protection
Object	+15V100A

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	19.43	19.43
-20	19.43	19.43
-10	19.43	19.43
0	19.43	19.43
10	19.43	19.43
20	19.43	19.43
25	19.43	19.43
30	19.43	19.43
40	19.43	19.43
50	19.43	19.43
60	19.43	19.43

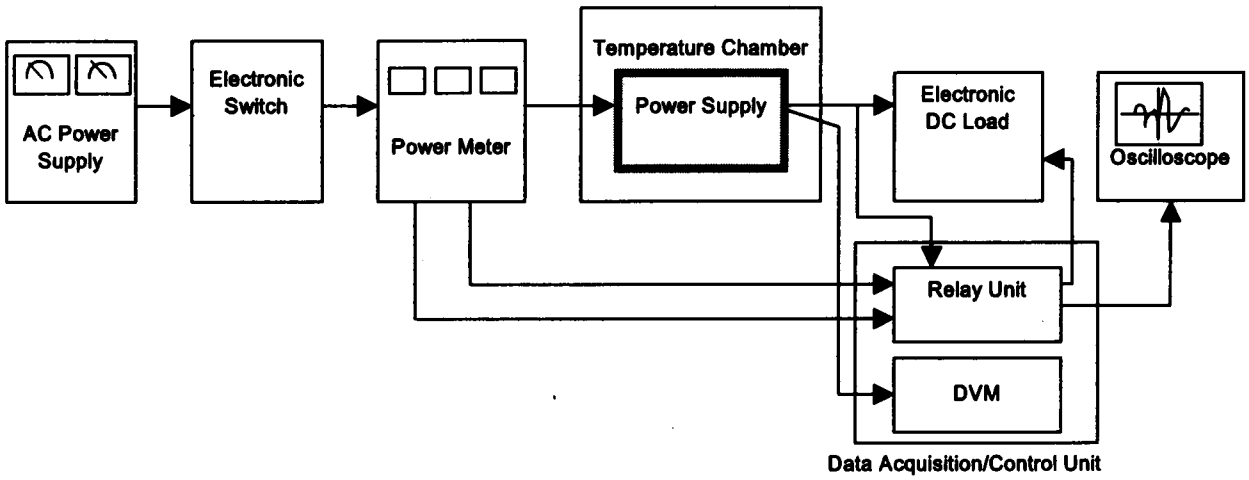


Figure A

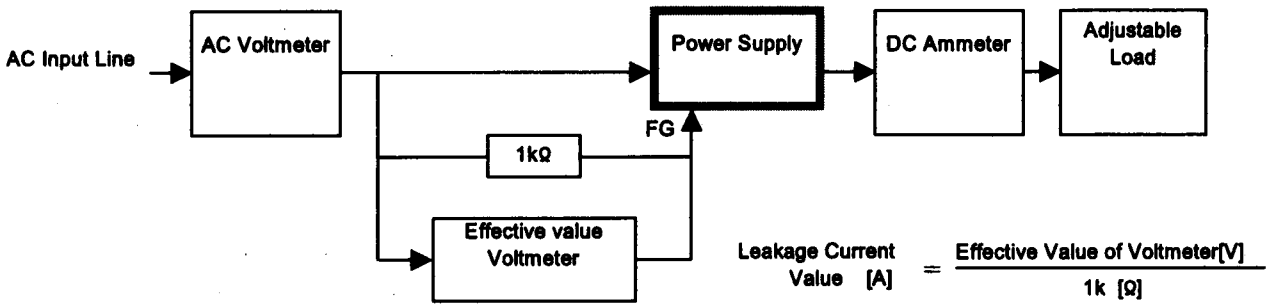


Figure B (DEN-AN)

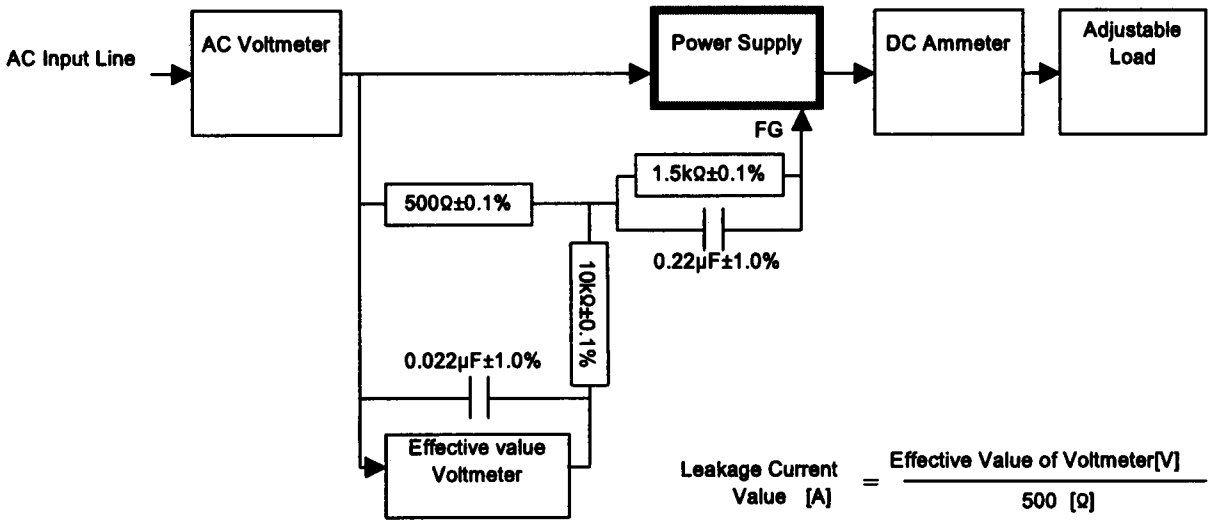


Figure B (IEC60950)