参考資料

COSEL

TEST DATA OF PBA600F-36

Regulated DC Power Supply
Sep.26. 2003

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COSEL CO.,LTD.

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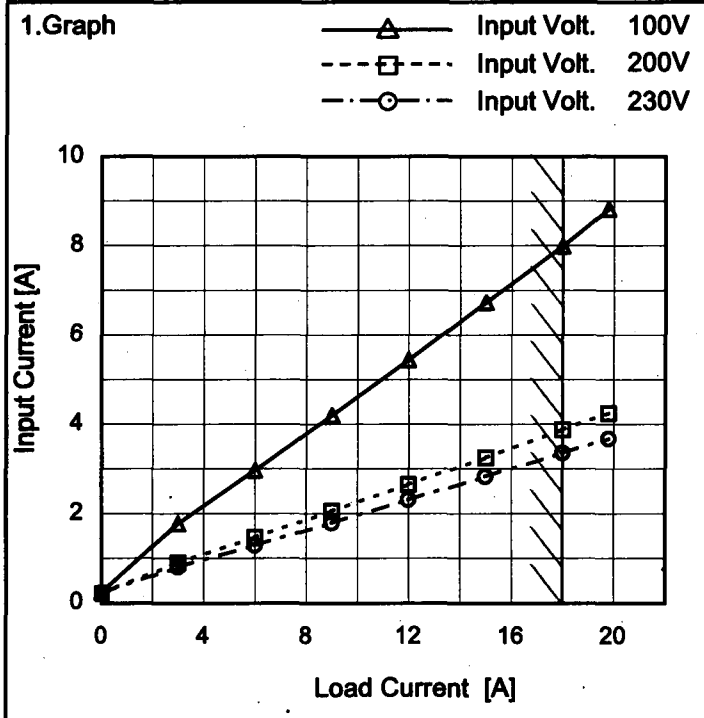
Model	PBA600F-36
Item	Input Current (by Load Current)
Object	————————

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	0.234	0.218	0.214
3.0	1.776	0.900	0.802
6.0	2.967	1.468	1.288
9.0	4.200	2.054	1.790
12.0	5.440	2.650	2.304
15.0	6.730	3.256	2.828
18.0	7.990	3.880	3.357
19.8	8.820	4.250	3.680
--	-	-	-
--	-	-	-
--	-	-	-

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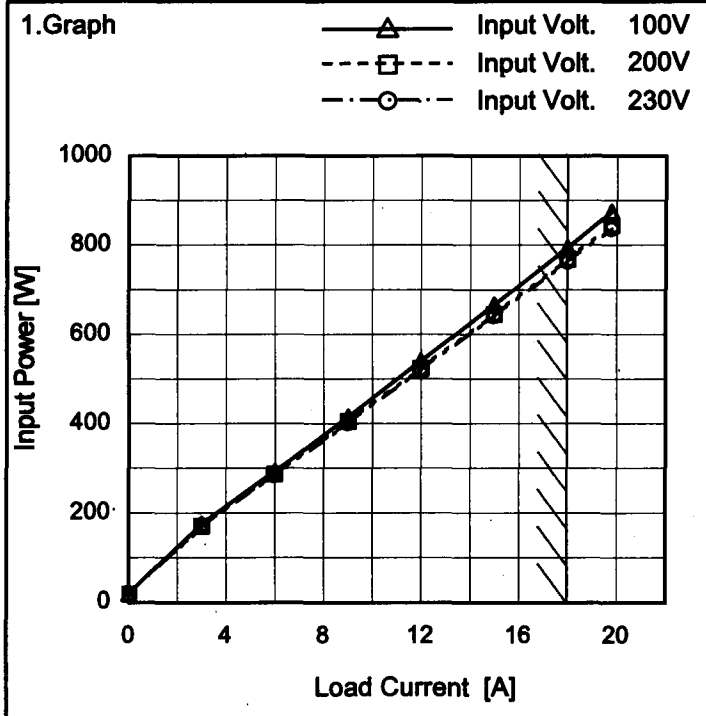
Model	PBA600F-36
Item	Input Power (by Load Current)
Object	———————

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	19.2	19.0	17.0
3.0	175.1	171.0	170.0
6.0	293.0	287.0	285.0
9.0	415.0	405.0	402.0
12.0	540.0	524.0	521.0
15.0	667.0	645.0	642.0
18.0	794.0	769.0	764.0
19.8	875.0	845.0	838.0
--	-	-	-
--	-	-	-
--	-	-	-

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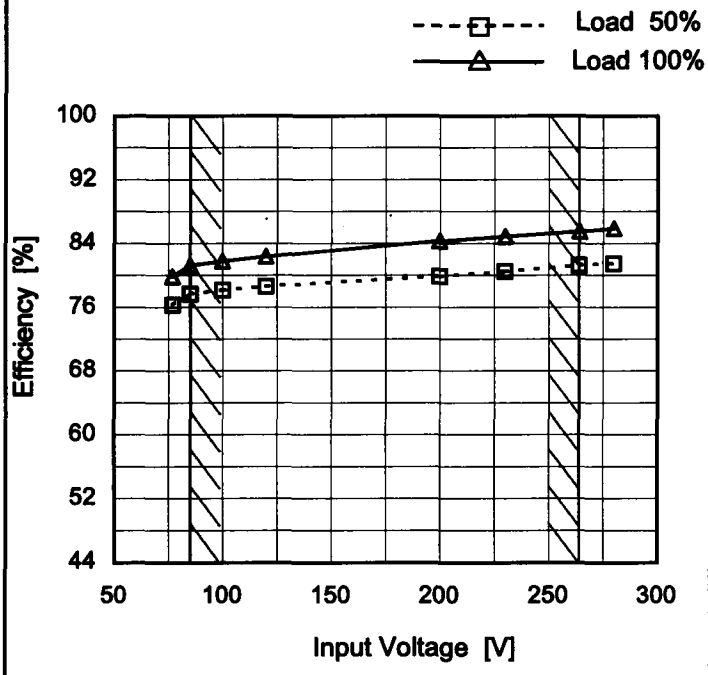
Model	PBA600F-36
Item	Efficiency (by Input Voltage)
Object	———————

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	76.3	79.9
85	77.7	81.3
100	78.2	81.8
120	78.6	82.4
200	79.9	84.3
230	80.5	84.9
264	81.3	85.5
280	81.5	85.9
-	-	-

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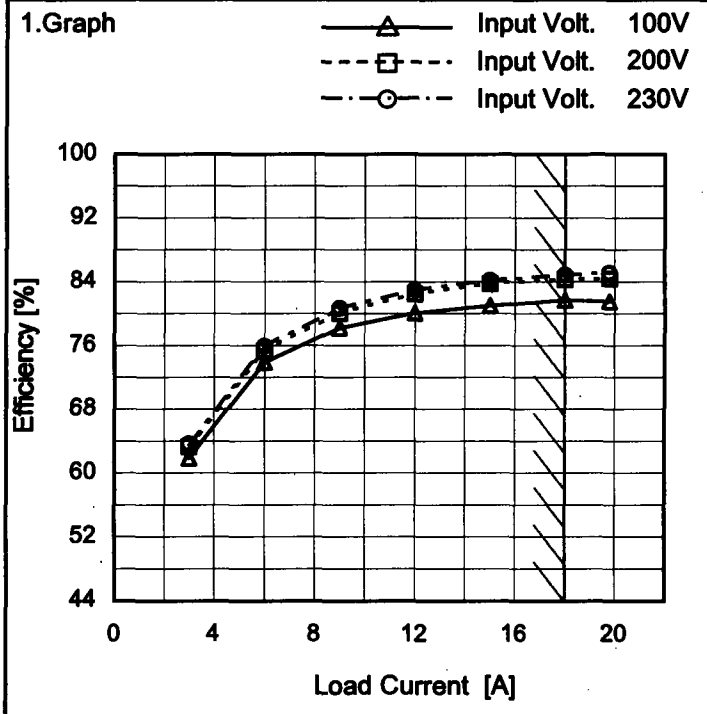
Model	PBA600F-36
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
3.0	61.9	63.3	63.7
6.0	73.9	75.4	75.9
9.0	78.2	80.1	80.7
12.0	80.1	82.5	83.0
15.0	81.0	83.8	84.2
18.0	81.7	84.3	84.9
19.8	81.5	84.4	85.1
--	-	-	-
--	-	-	-
--	-	-	-

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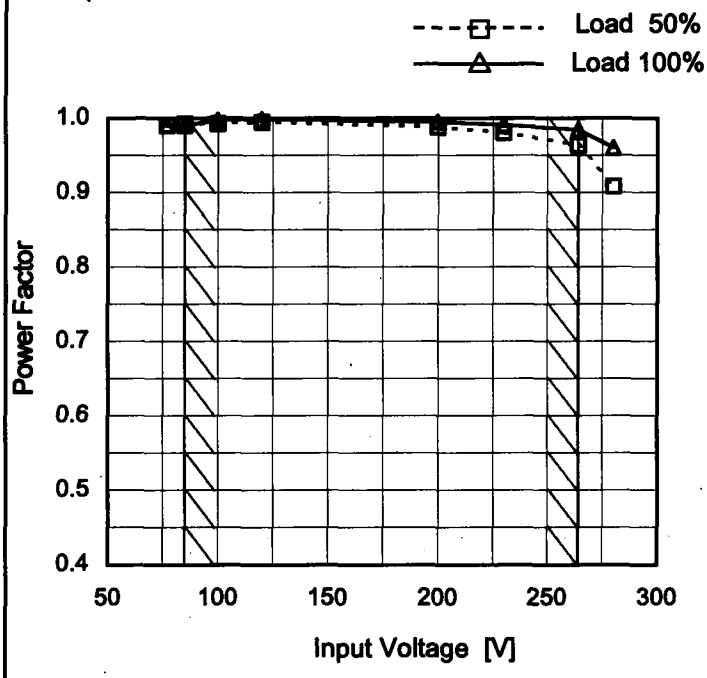
Model	PBA600F-36
Item	Power Factor (by Input Voltage)
Object	———————————

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	0.991	0.990
85	0.992	0.990
100	0.993	0.997
120	0.995	0.999
200	0.988	0.995
230	0.981	0.991
264	0.964	0.984
280	0.909	0.961
--	-	-

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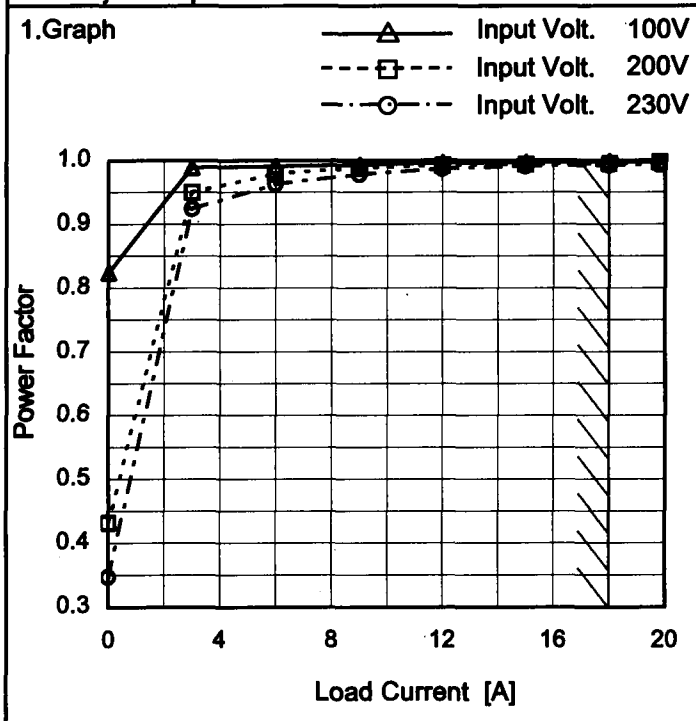
Model	PBA600F-36
Item	Power Factor (by Load Current)
Object	———————

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	0.824	0.432	0.347
3.0	0.989	0.950	0.924
6.0	0.991	0.980	0.963
9.0	0.993	0.988	0.978
12.0	0.996	0.992	0.987
15.0	0.997	0.994	0.991
18.0	0.999	0.995	0.992
19.8	0.998	0.998	0.993
--	-	-	-
--	-	-	-
--	-	-	-

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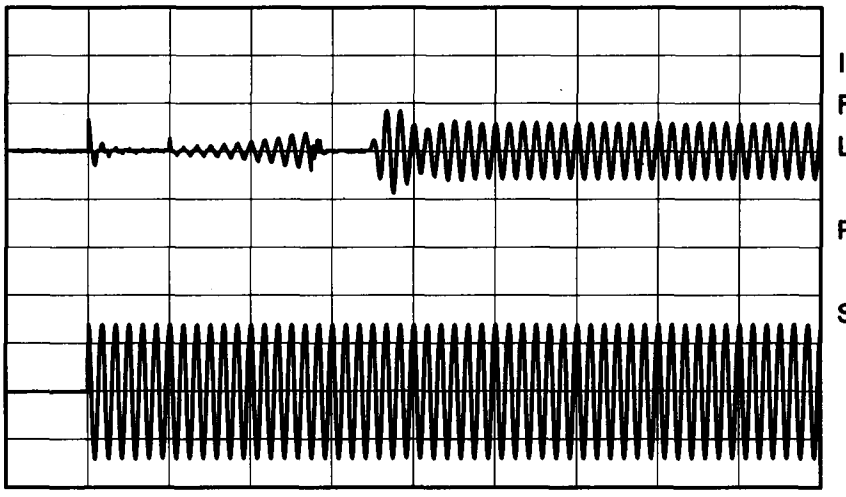
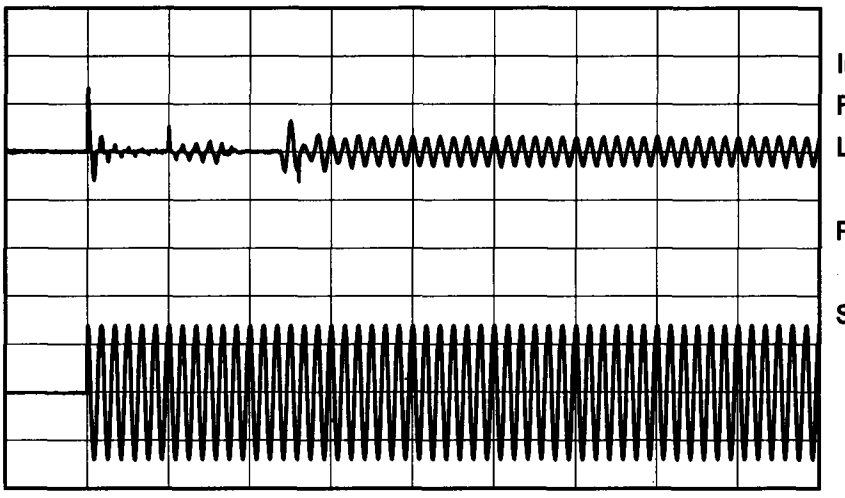
Model	PBA600F-36
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



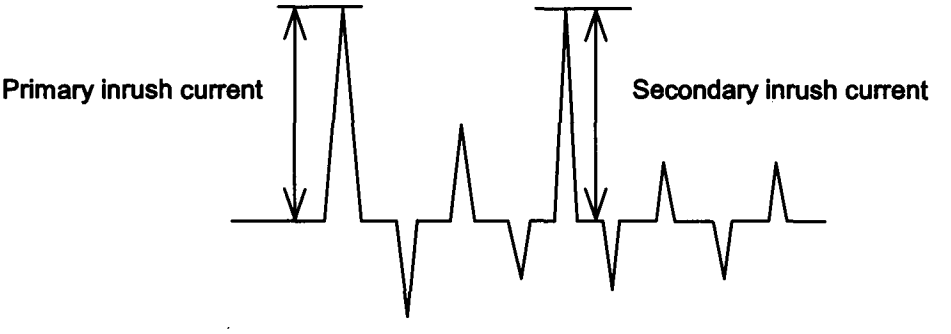
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
13.1 A
Secondary inrush current :
17.5 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
26.6 A
Secondary inrush current :
12.8 A



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Model	PBA600F-36	
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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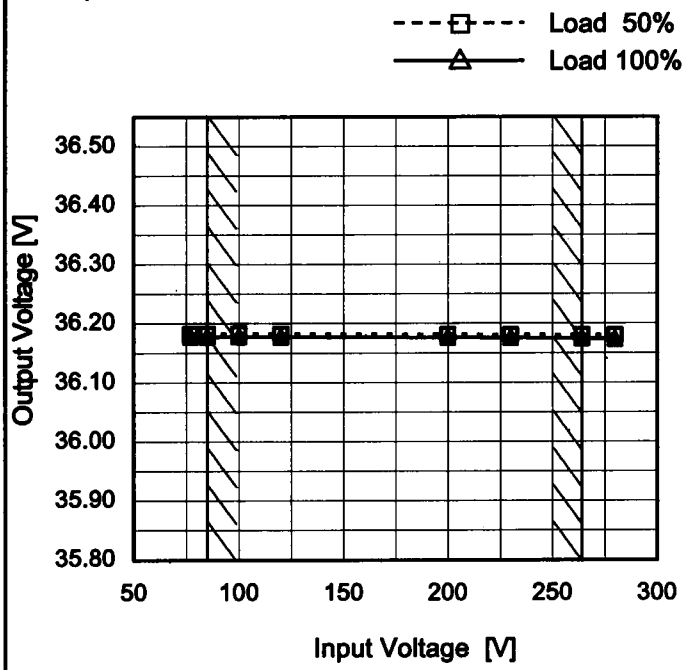
Model	PBA600F-36
Item	Line Regulation
Object	+36V18A

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	36.182	36.177
85	36.182	36.177
100	36.183	36.178
120	36.183	36.178
200	36.181	36.177
230	36.181	36.176
264	36.180	36.175
280	36.180	36.174
--	-	-

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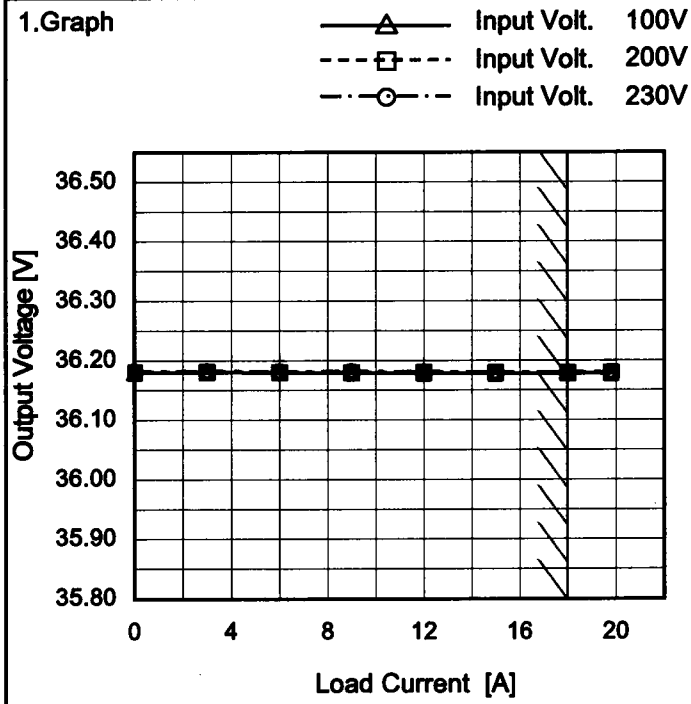
Model	PBA600F-36
Item	Load Regulation
Object	+36V18A

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	36.180	36.181	36.182
3.0	36.181	36.181	36.182
6.0	36.180	36.180	36.181
9.0	36.180	36.180	36.181
12.0	36.179	36.180	36.181
15.0	36.179	36.179	36.180
18.0	36.178	36.179	36.180
19.8	36.178	36.179	36.180
--	-	-	-
--	-	-	-
--	-	-	-

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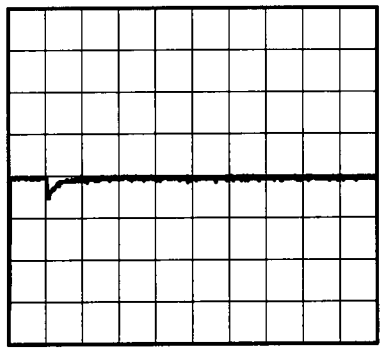
Model	PBA600F-36
Item	Dynamic Load Response
Object	+36V18A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

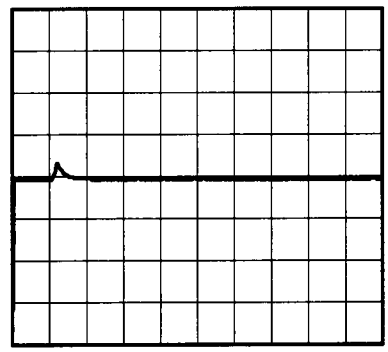
Load Current

Min.Load (0A) ⟷
Load 100% (18A)



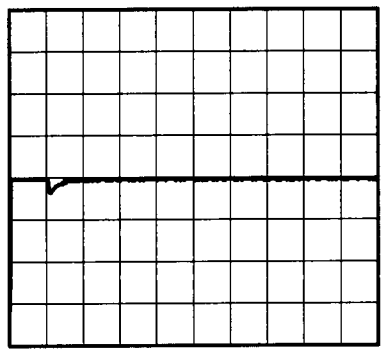
100mV/div

10ms/div



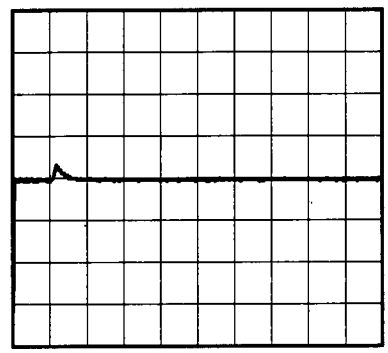
10ms/div

Min.Load (0A) ⟷
Load 50% (9A)



100mV/div

10ms/div



10ms/div

* The characteristic of AC200V is equal.

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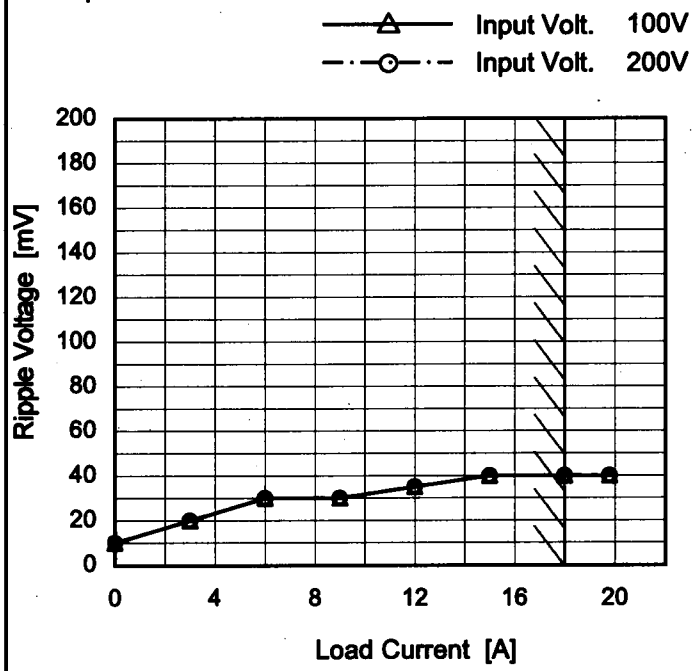
Model	PBA600F-36
Item	Ripple Voltage (by Load Current)
Object	+36V18A

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

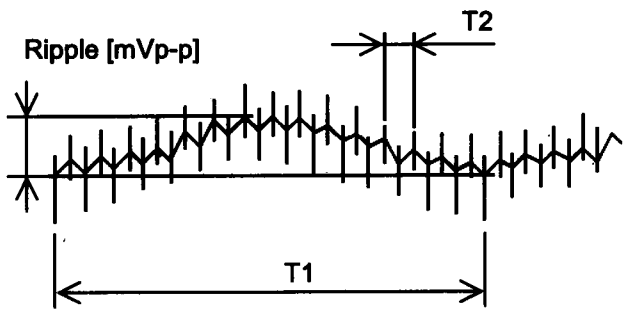


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	10	10
3.0	20	20
6.0	30	30
9.0	30	30
12.0	35	35
15.0	40	40
18.0	40	40
19.8	40	40
--	-	-
--	-	-
--	-	-

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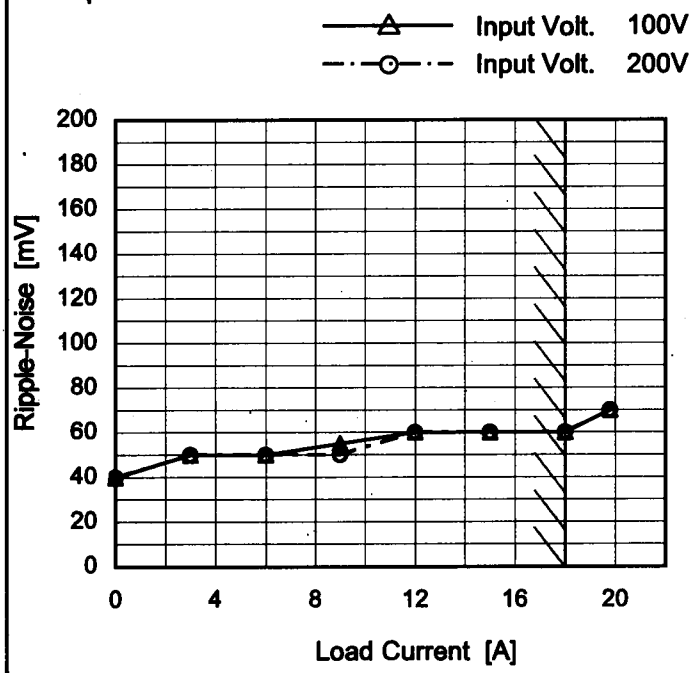
Model	PBA600F-36
Item	Ripple-Noise
Object	+36V18A

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

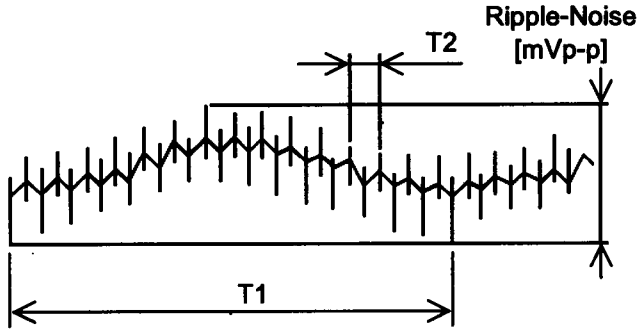


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	40	40
3.0	50	50
6.0	50	50
9.0	55	50
12.0	60	60
15.0	60	60
18.0	60	60
19.8	70	70
--	-	-
--	-	-
--	-	-

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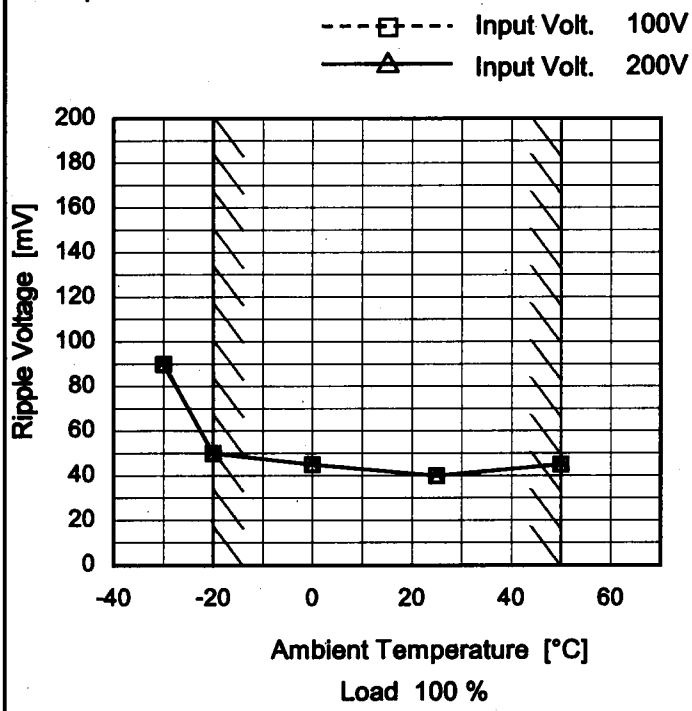
Model	PBA600F-36
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V18A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

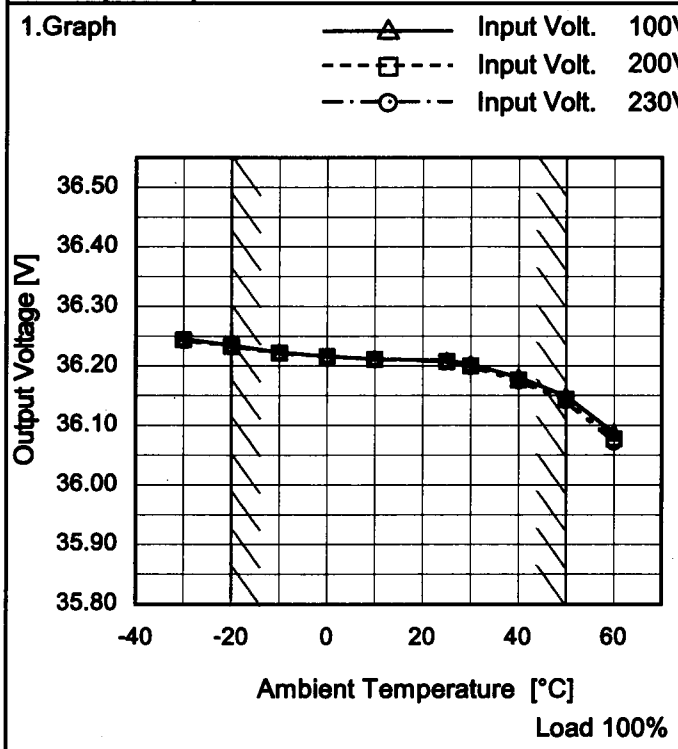
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	90	90
-20	50	50
0	45	45
25	40	40
50	45	45
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA600F-36
Item	Ambient Temperature Drift
Object	+36V18A

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	36.245	36.244	36.243
-20	36.235	36.233	36.232
-10	36.223	36.222	36.221
0	36.217	36.216	36.216
10	36.212	36.211	36.212
25	36.209	36.207	36.207
30	36.203	36.200	36.199
40	36.181	36.177	36.175
50	36.150	36.144	36.141
60	36.088	36.078	36.072
--	-	-	-

COSEL

Model	PBA600F-36	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+36V18A	

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 - 18A

* 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	36.231	±54	±0.2
Minimum Voltage	50	264	18	36.124		

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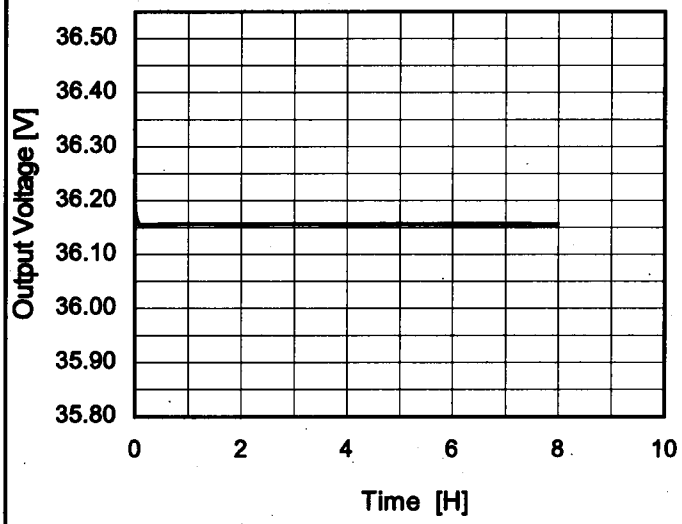
Model	PBA600F-36
Item	Time Lapse Drift
Object	+36V18A

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	36.184
0.5	36.157
1.0	36.157
2.0	36.157
3.0	36.157
4.0	36.157
5.0	36.157
6.0	36.157
7.0	36.157
8.0	36.157

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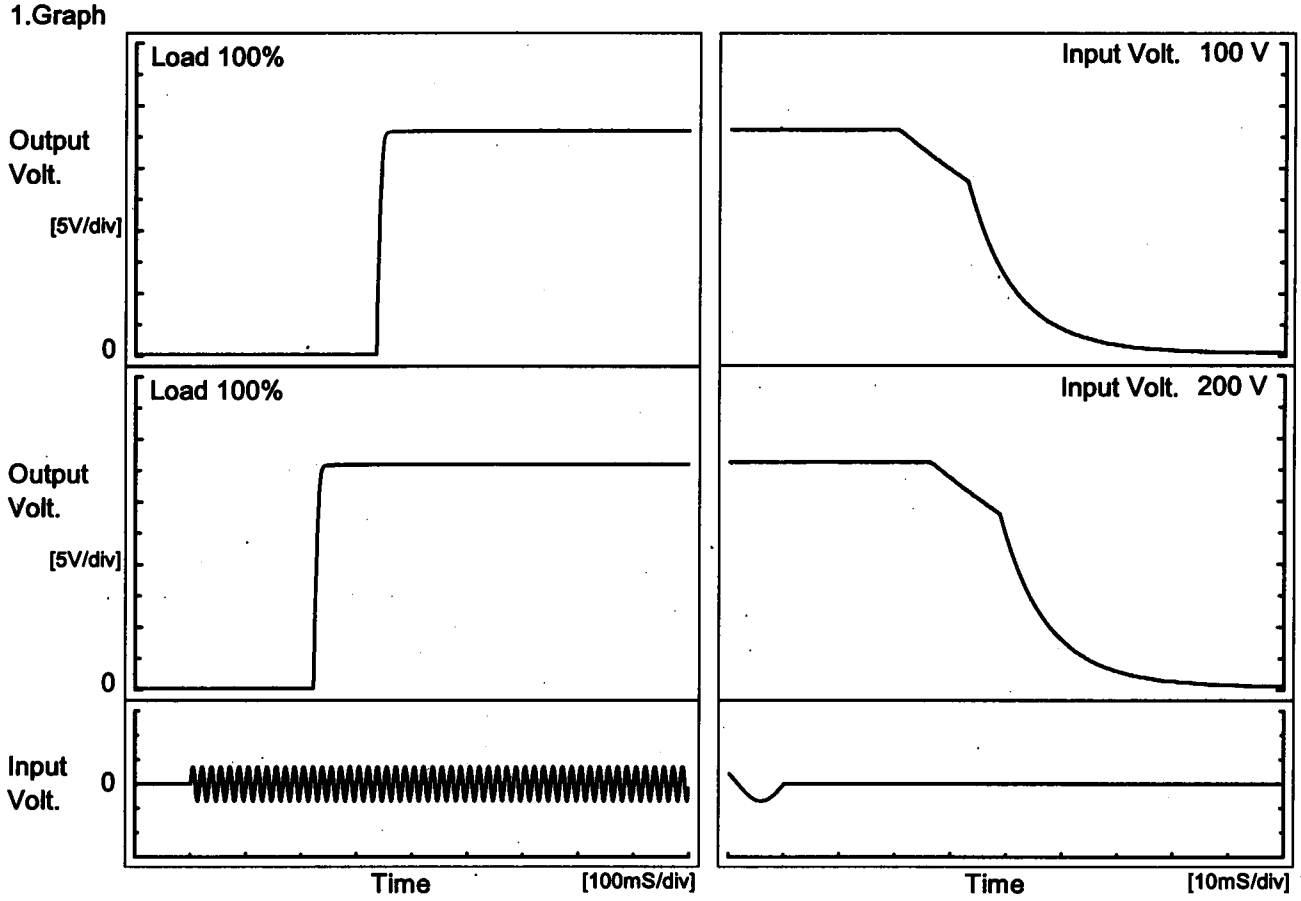
Model	PBA600F-36
Item	Rise and Fall Time
Object	+36V18A

Temperature 25°C
Testing Circuitry Figure A

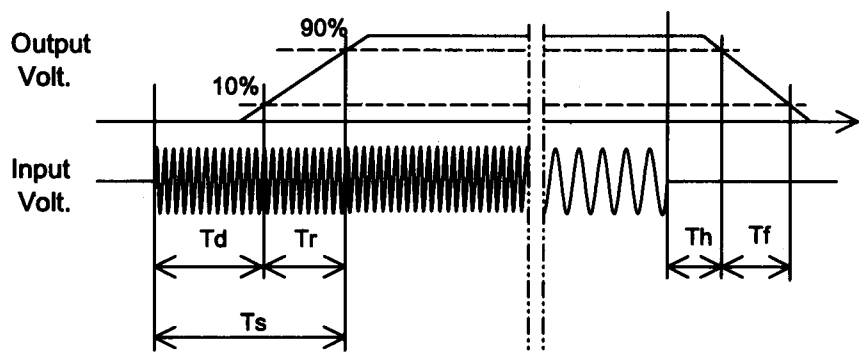
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	335.5	10.5	346.0	25.6	25.8
200 V	222.5	10.5	233.0	31.6	25.9



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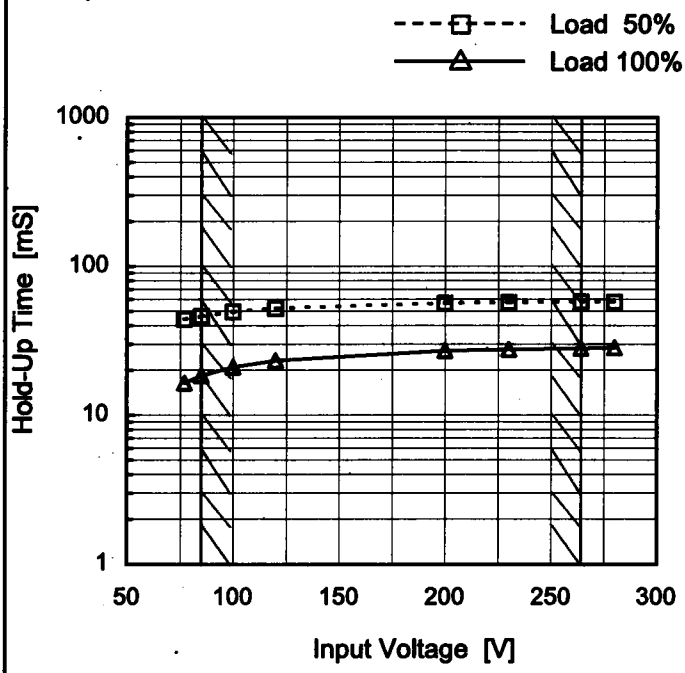
Model	PBA600F-36
Item	Hold-Up Time
Object	+36V18A

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

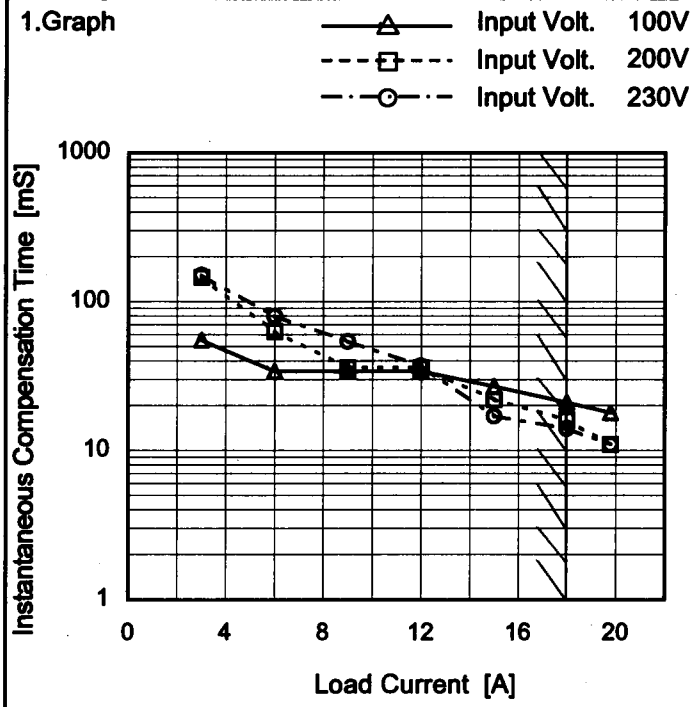
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
77	44	16
85	46	18
100	49	21
120	52	23
200	57	27
230	57	28
264	58	28
280	58	28
--	-	-

COSEL

Model	PBA600F-36
Item	Instantaneous Interruption Compensation
Object	+36V18A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

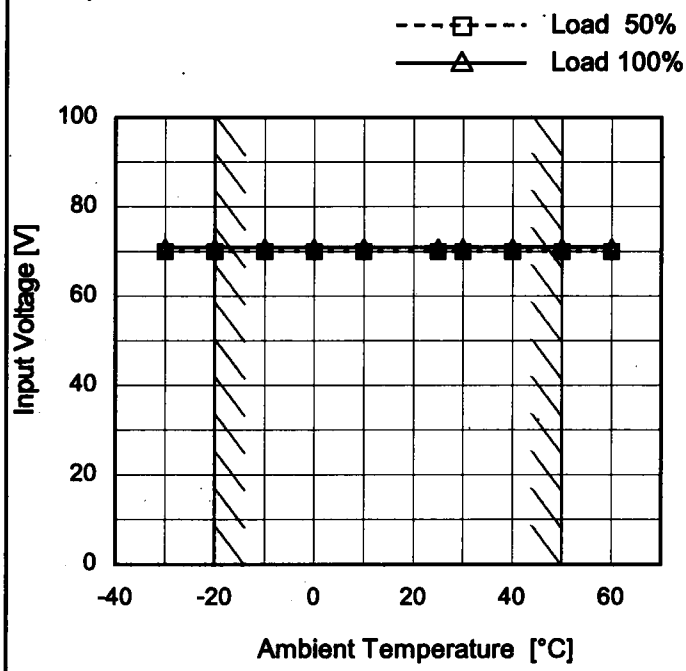
Load Current [A]	Time [mS] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
3.0	55	146	151
6.0	34	63	80
9.0	34	36	54
12.0	34	36	37
15.0	27	22	17
18.0	21	16	14
19.8	18	11	11
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA600F-36
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+36V18A

Testing Circuitry Figure A

1.Graph



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

2.Values

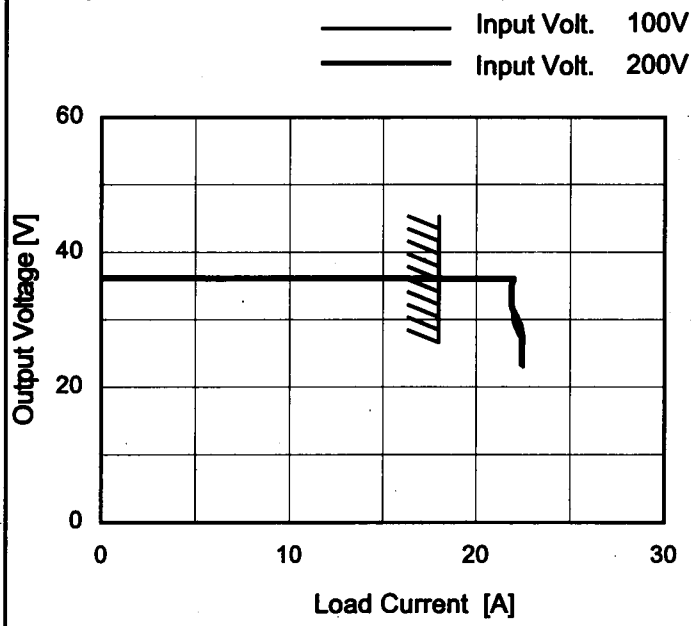
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	70	71
-20	70	71
-10	70	71
0	70	71
10	70	71
25	70	71
30	70	71
40	70	71
50	70	71
60	70	71
–	-	-

COSEL

Model	PBA600F-36
Item	Overcurrent Protection
Object	+36V18A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent opertion occurs when the output voltage is from 23V to 0V.

2.Values

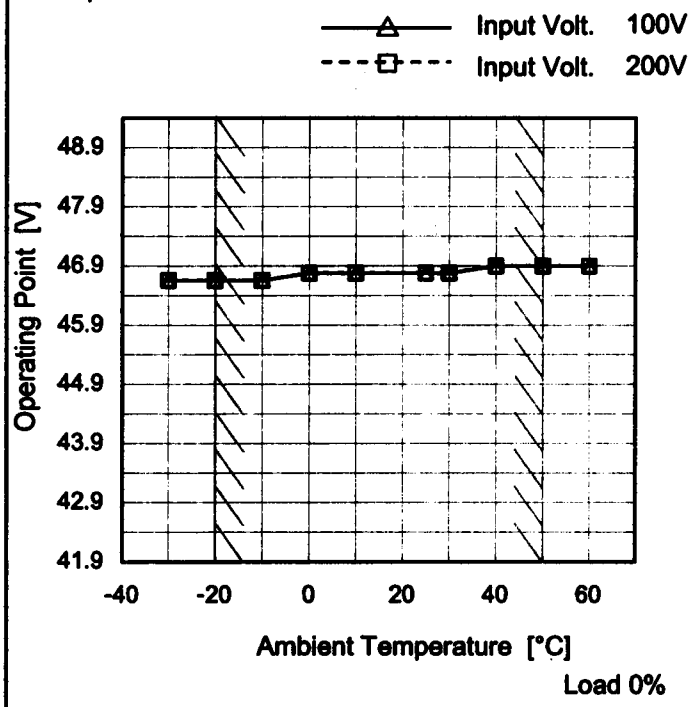
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
36.0	22.02	21.98
34.2	21.95	21.88
32.4	21.94	21.87
28.8	22.12	22.38
25.2	22.51	22.43
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA600F-36
Item	Overvoltage Protection
Object	+36V18A

Testing Circuitry Figure A

1.Graph



Load 0%

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	46.63	46.63
-20	46.63	46.63
-10	46.63	46.63
0	46.75	46.75
10	46.75	46.75
25	46.75	46.75
30	46.75	46.75
40	46.87	46.87
50	46.87	46.87
60	46.87	46.87
–	-	-

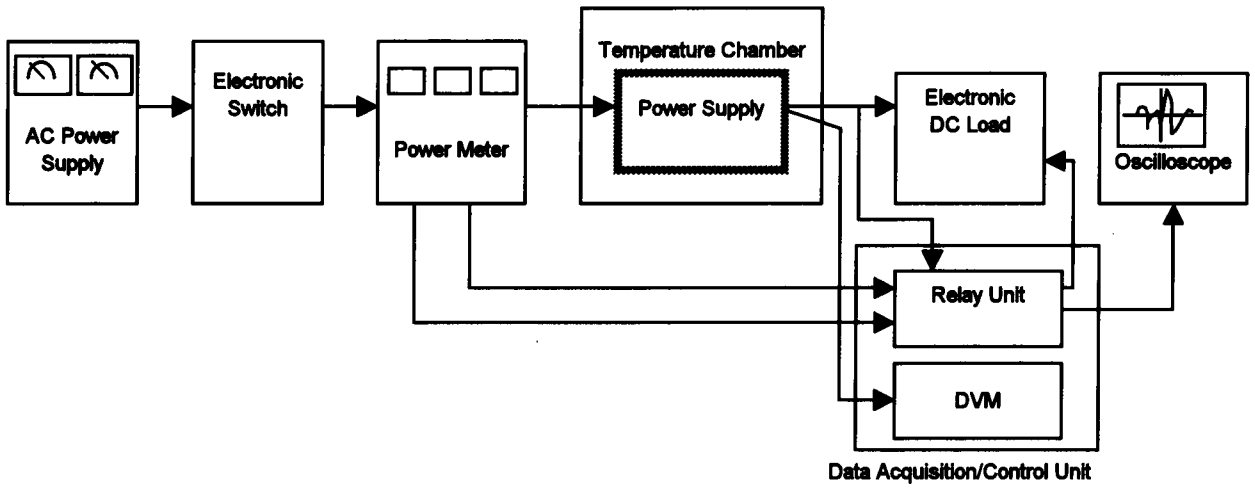


Figure A

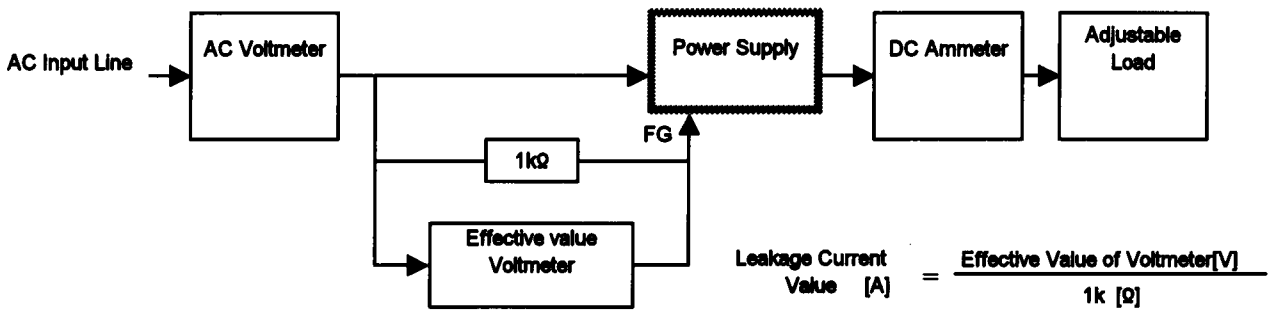


Figure B (DEN-AN)

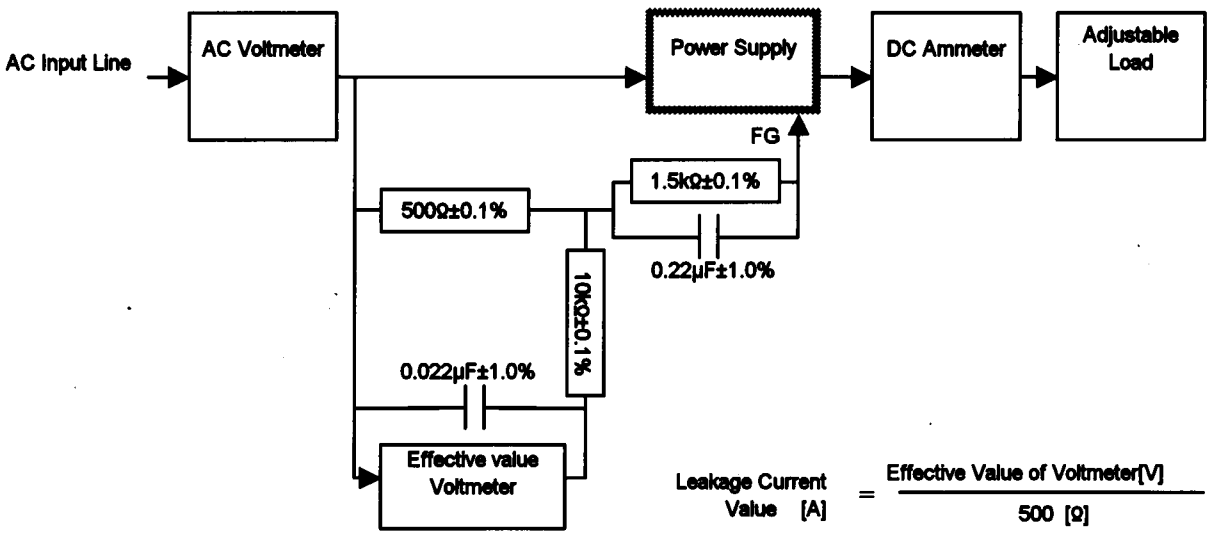


Figure B (IEC60950)