参考資料

COSEL

TEST DATA OF PBA100F-9

Regulated DC Power Supply
Mar.30. 2004

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COSEL CO.,LTD.

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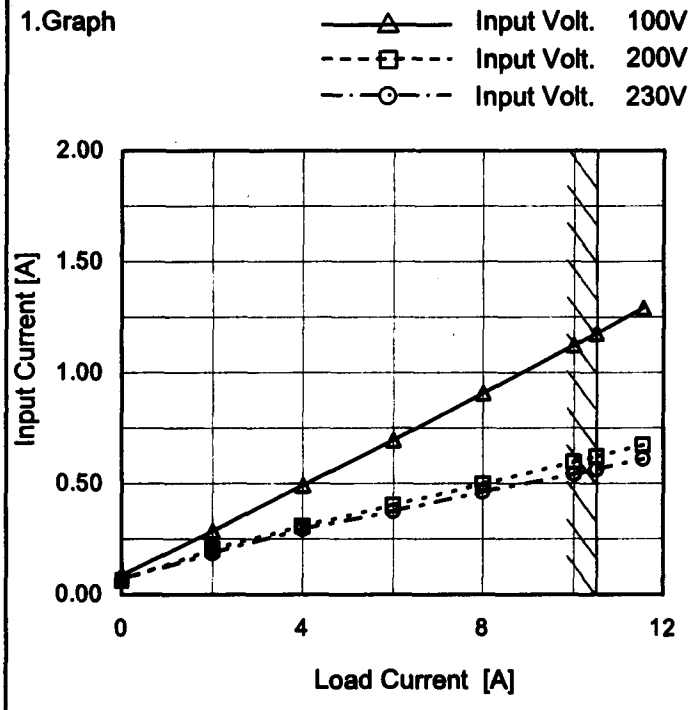
Model	PBA100F-9
Item	Input Current (by Load Current)
Object	———————

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]
0.00	0.088	0.064	0.070
2.00	0.284	0.204	0.187
4.00	0.491	0.308	0.295
6.00	0.696	0.402	0.375
8.00	0.907	0.498	0.462
10.00	1.123	0.597	0.543
10.50	1.177	0.622	0.565
11.55	1.292	0.674	0.611
--	-	-	-
--	-	-	-
--	-	-	-

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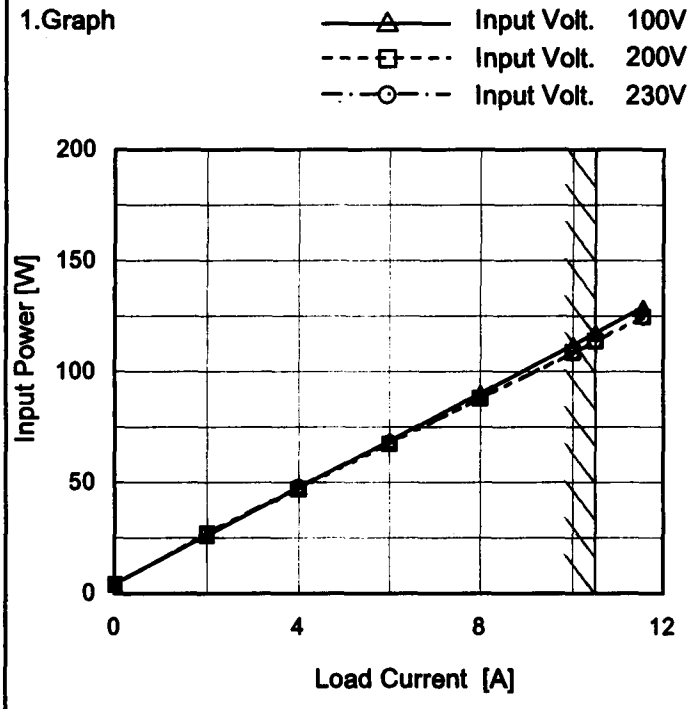
Model	PBA100F-9
Item	Input Power (by Load Current)
Object	———————

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]
0.00	4.4	4.0	4.0
2.00	26.2	27.0	27.0
4.00	47.7	47.0	48.0
6.00	68.6	67.4	68.0
8.00	90.0	87.9	88.0
10.00	111.9	108.6	108.4
10.50	117.3	113.8	113.5
11.55	128.9	124.7	124.4
--	-	-	-
--	-	-	-
--	-	-	-

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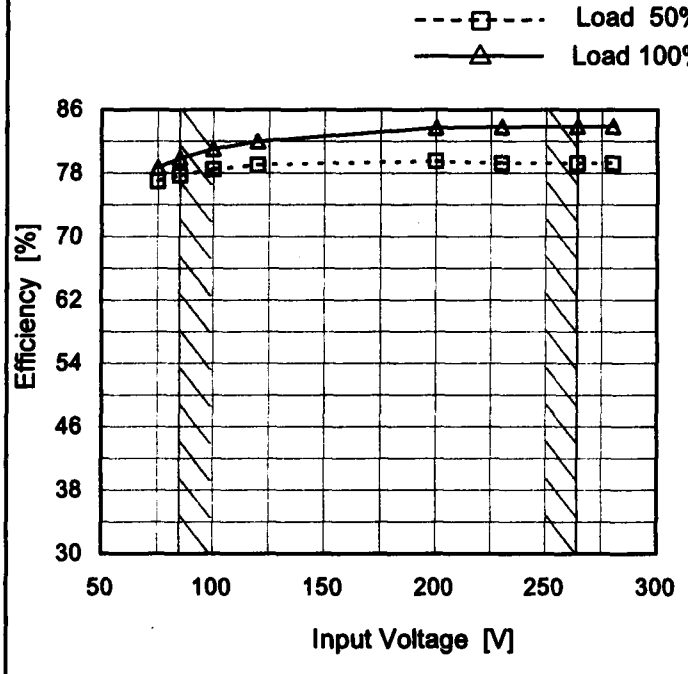
Model	PBA100F-9
Item	Efficiency (by Input Voltage)
Object	————————

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	77.0	78.7
85	77.7	79.9
100	78.5	81.0
120	79.0	82.0
200	79.5	83.7
230	79.2	83.8
264	79.2	83.9
280	79.2	83.9
--	-	-

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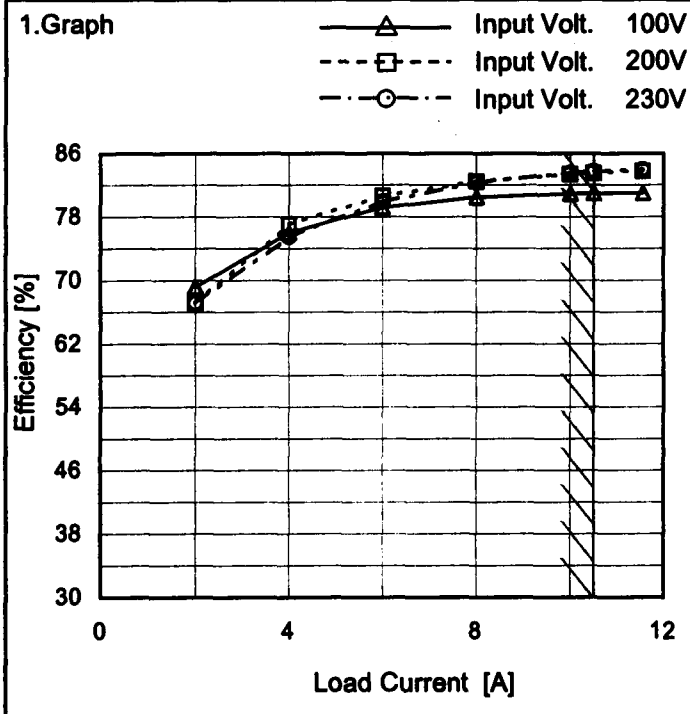
Model	PBA100F-9
Item	Efficiency (by Load Current)
Object	———————

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]
0.00	-	-	-
2.00	69.2	67.2	67.2
4.00	76.0	77.1	75.5
6.00	79.2	80.6	79.9
8.00	80.5	82.4	82.4
10.00	80.9	83.4	83.5
10.50	81.0	83.5	83.8
11.55	81.0	83.8	84.0
--	-	-	-
--	-	-	-
--	-	-	-

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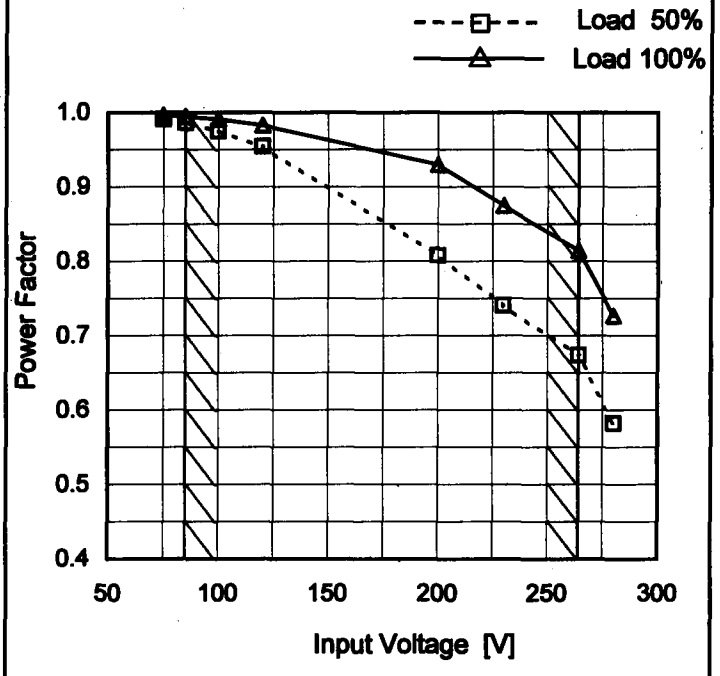
Model	PBA100F-9
Item	Power Factor (by Input Voltage)
Object	———————————

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	0.991	0.997
85	0.986	0.994
100	0.975	0.991
120	0.954	0.983
200	0.808	0.930
230	0.741	0.875
264	0.674	0.815
280	0.583	0.727
–	-	-

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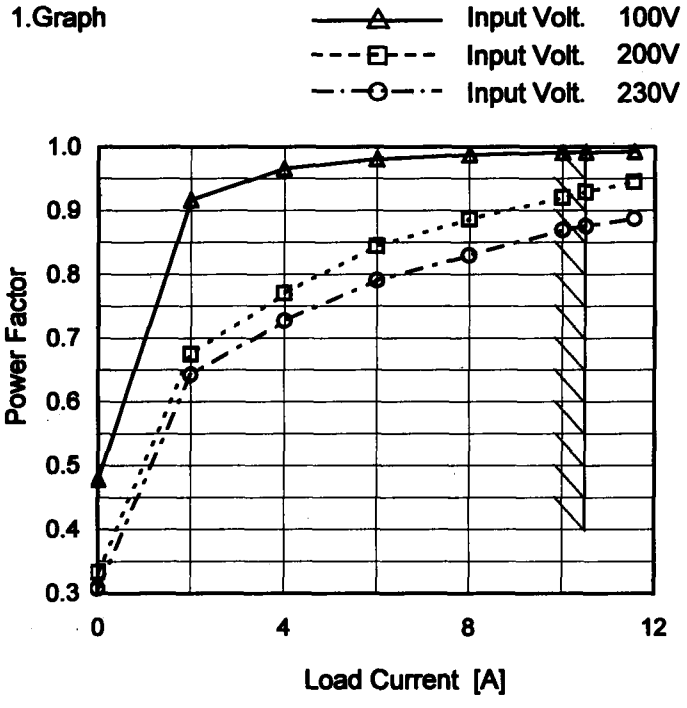
Model	PBA100F-9
Item	Power Factor (by Load Current)
Object	

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]
0.00	0.478	0.333	0.308
2.00	0.917	0.675	0.643
4.00	0.966	0.770	0.727
6.00	0.981	0.845	0.791
8.00	0.987	0.887	0.830
10.00	0.991	0.920	0.870
10.50	0.991	0.929	0.876
11.55	0.992	0.945	0.887
—	-	-	-
—	-	-	-
—	-	-	-

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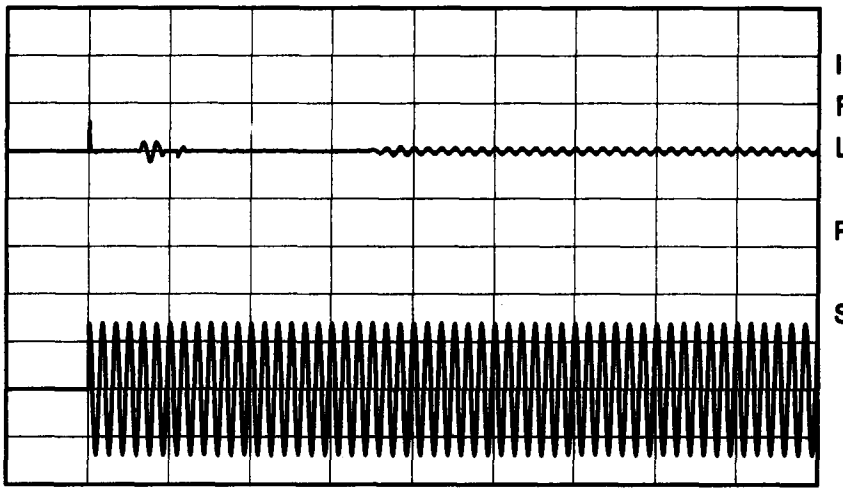
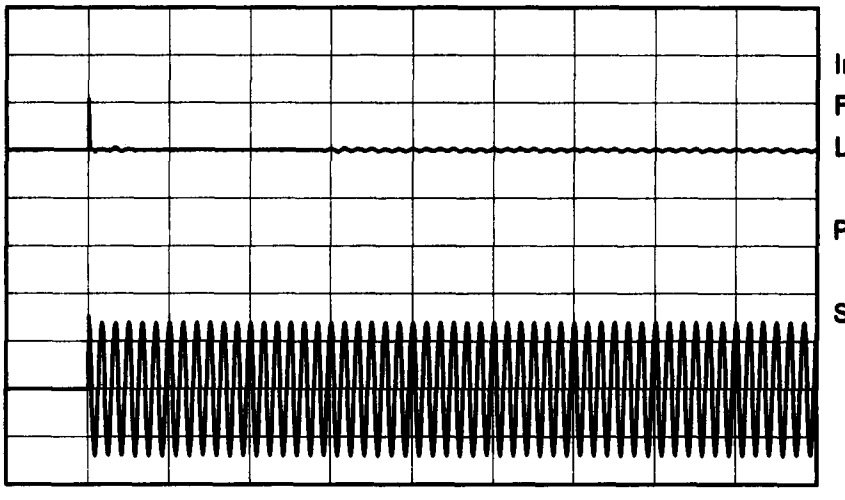
Model	PBA100F-9
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



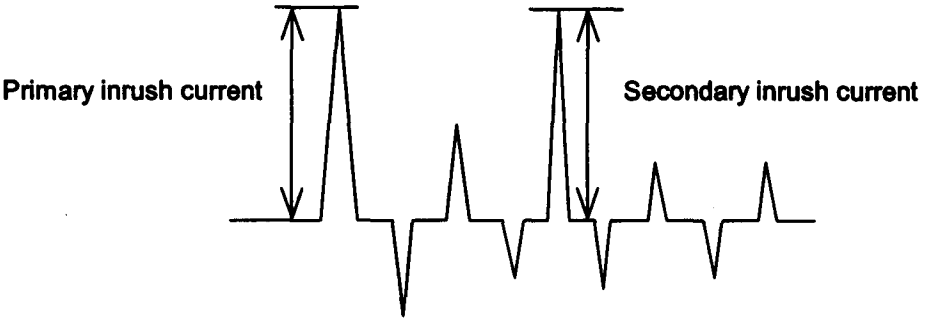
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
12.3 A
Secondary inrush current :
4.5 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
21.3 A
Secondary inrush current :
1.1 A



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Model	PBA100F-9		
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	0.15	0.28	0.34	Operation
	One of phase	0.25	0.53	0.62	stand by
IEC60950	Both phases	0.15	0.34	0.38	Operation
	One of phase	0.25	0.58	0.67	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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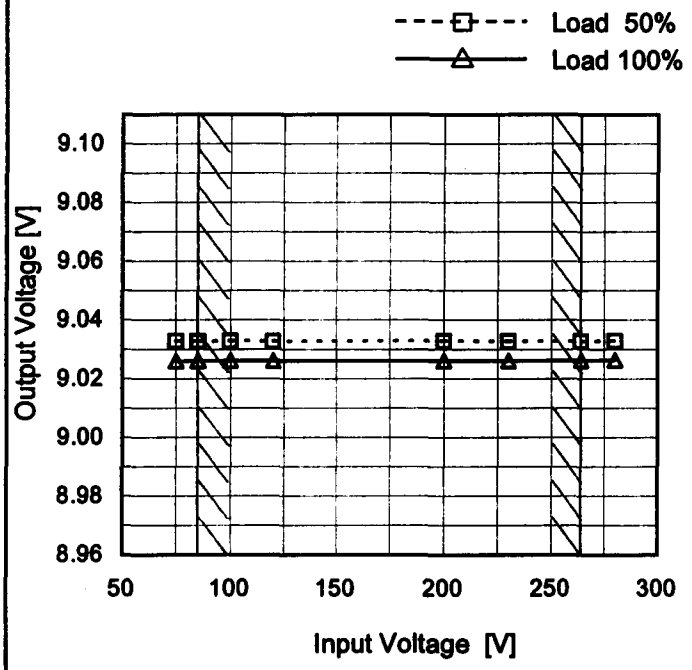
Model	PBA100F-9
Item	Line Regulation
Object	+9V10.5A

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	9.033	9.026
85	9.033	9.026
100	9.033	9.026
120	9.033	9.026
200	9.033	9.026
230	9.033	9.026
264	9.033	9.026
280	9.033	9.026
–	-	-

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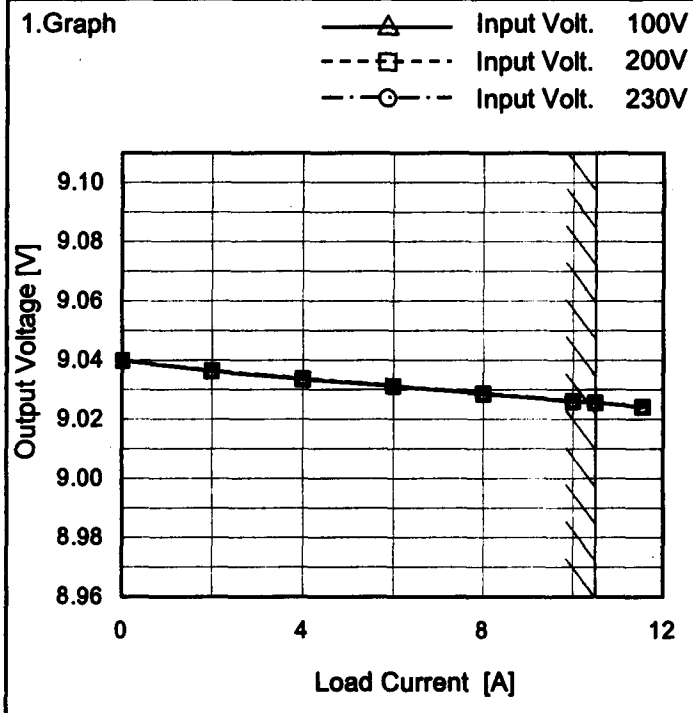
Model	PBA100F-9
Item	Load Regulation
Object	+9V10.5A

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]
0.00	9.040	9.040	9.040
2.00	9.036	9.036	9.036
4.00	9.034	9.034	9.034
6.00	9.031	9.031	9.031
8.00	9.029	9.029	9.029
10.00	9.026	9.026	9.026
10.50	9.026	9.026	9.026
11.55	9.024	9.024	9.024
--	-	-	-
--	-	-	-
--	-	-	-

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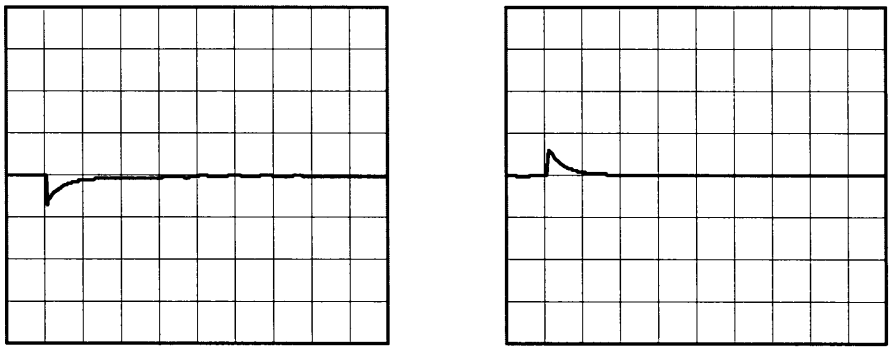
Model	PBA100F-9		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure A
Object	+9V10.5A		

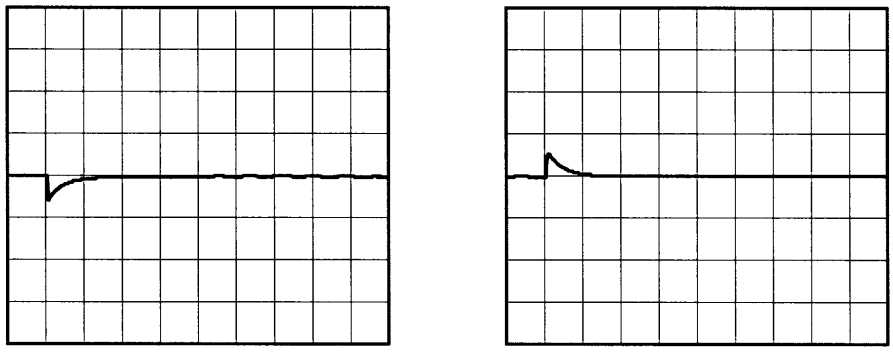
Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (10.5A)



Min. Load (0A) ⟷
Load 50% (5.25A)



* The characteristic of AC200V is equal.

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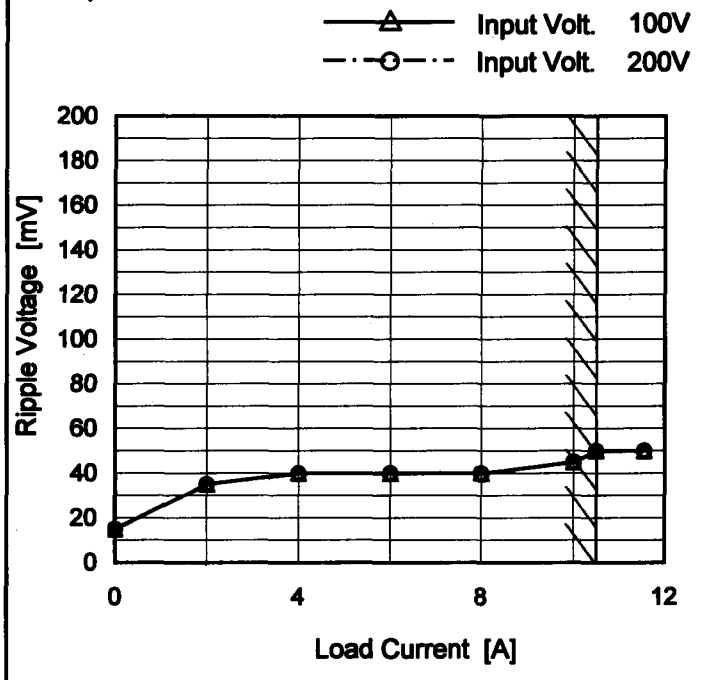
Model	PBA100F-9
Item	Ripple Voltage (by Load Current)
Object	+9V10.5A

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

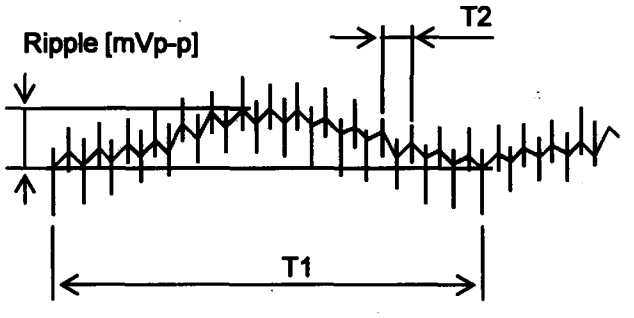


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	15	15
2.00	35	35
4.00	40	40
6.00	40	40
8.00	40	40
10.00	45	45
10.50	50	50
11.55	50	50
–	-	-
–	-	-
–	-	-

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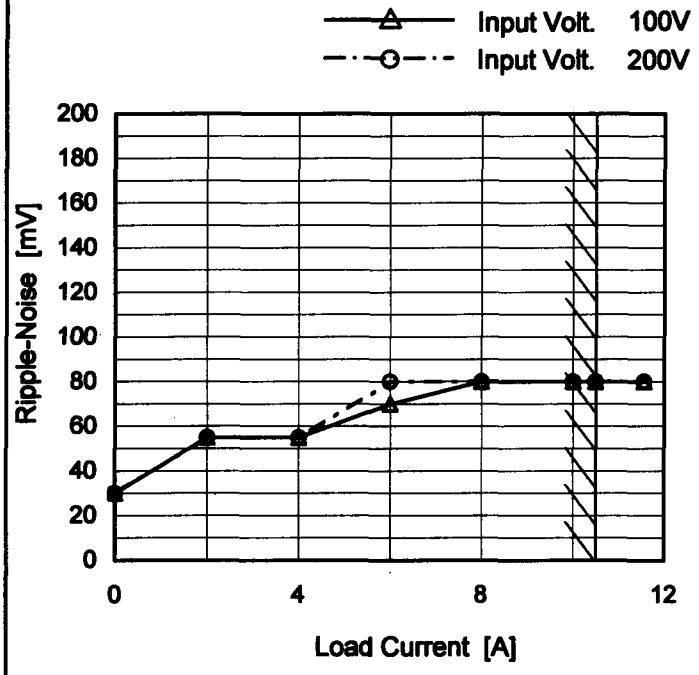
Model	PBA100F-9
Item	Ripple-Noise
Object	+9V10.5A

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]
0.00	30	30
2.00	55	55
4.00	55	55
6.00	70	80
8.00	80	80
10.00	80	80
10.50	80	80
11.55	80	80
–	-	-
–	-	-
–	-	-

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

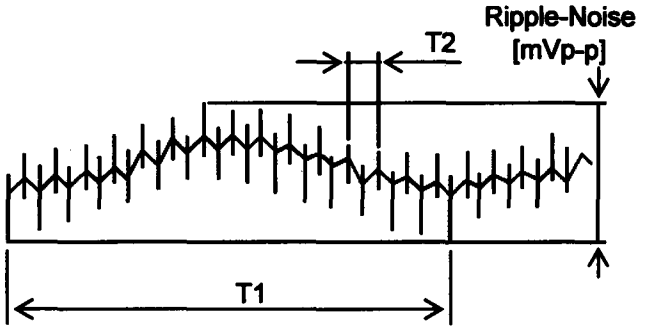


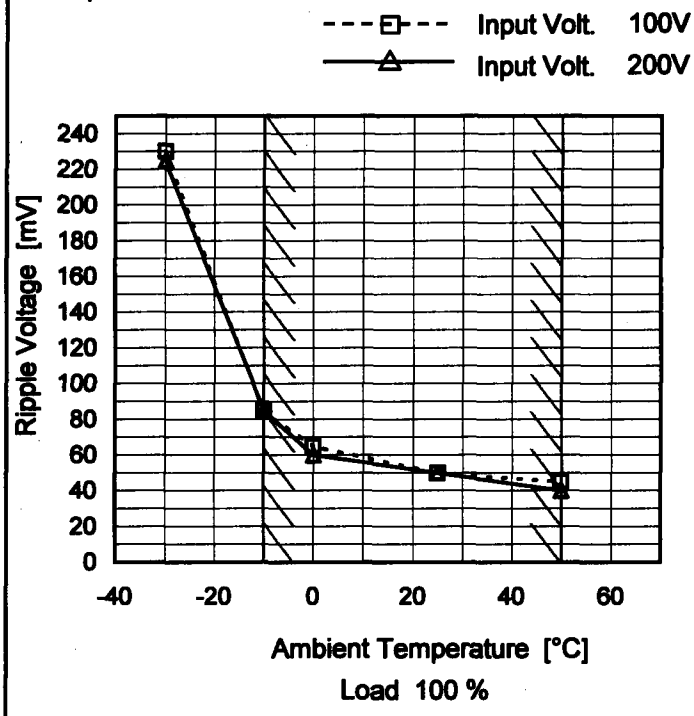
Fig. Complex Ripple Wave Form

COSEL

Model	PBA100F-9
Item	Ripple Voltage (by Ambient Temp.)
Object	+9V10.5A

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	230	225
-10	85	85
0	65	60
25	50	50
50	45	40
—	-	-
—	-	-
—	-	-
—	-	-
—	-	-
—	-	-

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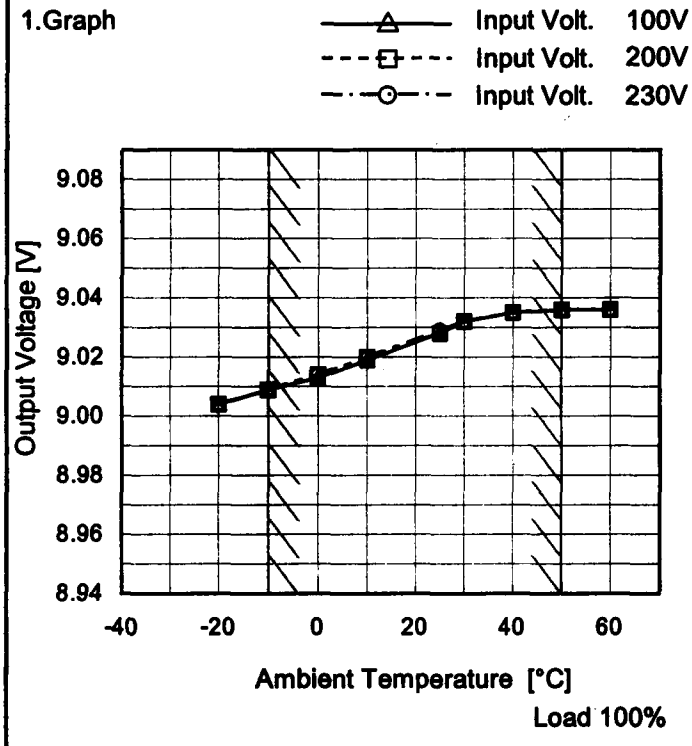
Model	PBA100F-9
Item	Ambient Temperature Drift
Object	+9V10.5A

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	9.004	9.004	9.004
-10	9.009	9.009	9.009
0	9.013	9.014	9.014
10	9.019	9.020	9.020
25	9.028	9.028	9.029
30	9.032	9.032	9.032
40	9.035	9.035	9.035
50	9.036	9.036	9.036
60	9.036	9.036	9.036
--	-	-	-
--	-	-	-

COSEL

Model	PBA100F-9	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+9V10.5A	

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 - 10.5A

* 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	9.051	±21	±0.2
Minimum Voltage	-10	85	10.5	9.009		

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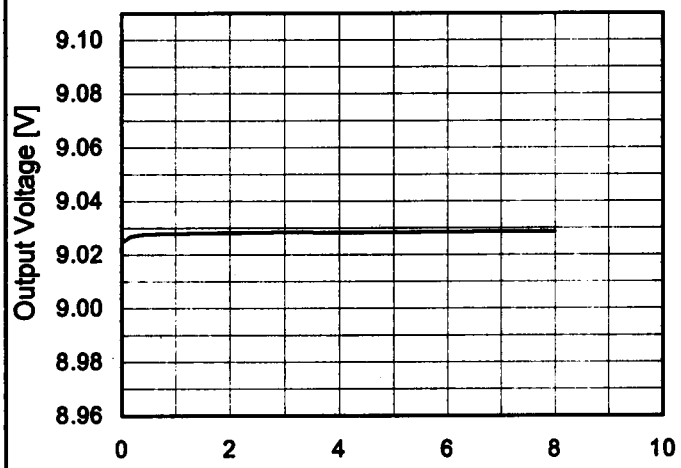
Model	PBA100F-9
Item	Time Lapse Drift
Object	+9V10.5A

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	9.028
0.5	9.028
1.0	9.028
2.0	9.028
3.0	9.029
4.0	9.028
5.0	9.029
6.0	9.029
7.0	9.029
8.0	9.029

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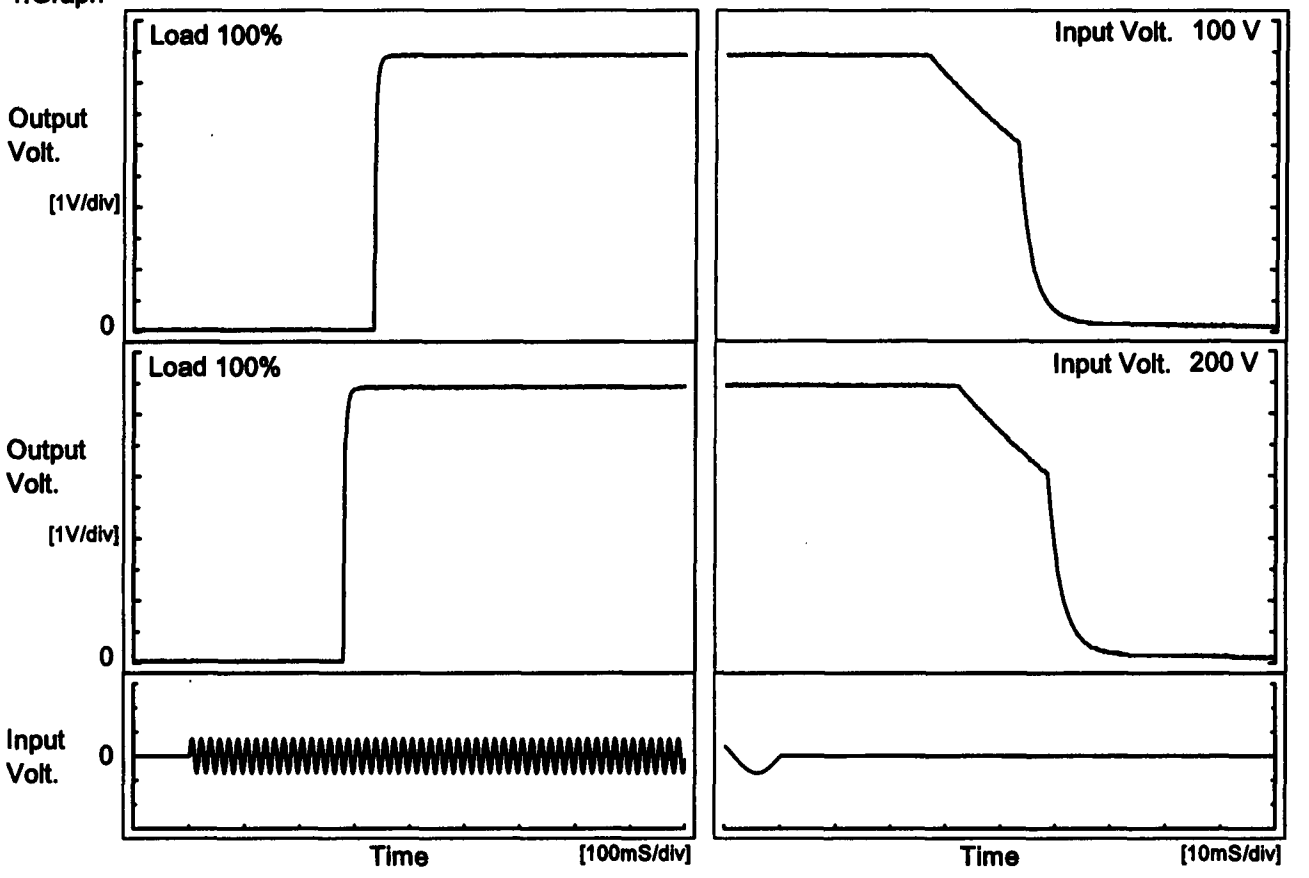
Model	PBA100F-9
Item	Rise and Fall Time
Object	+9V10.5A

Temperature 25°C
Testing Circuitry Figure A

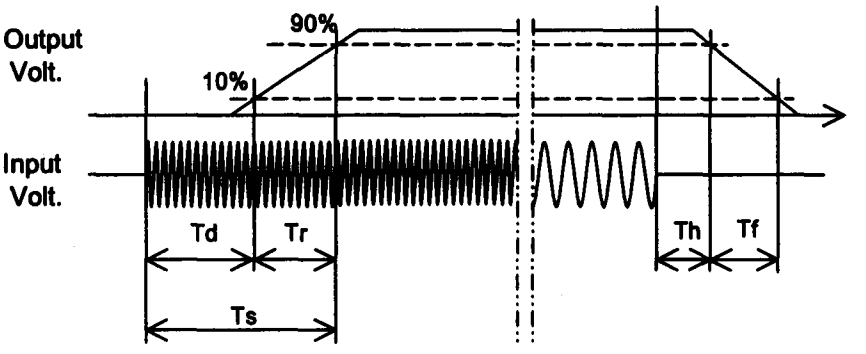
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	333.5	7.0	340.5	30.5	17.9
200 V	279.0	7.5	286.5	36.0	18.0



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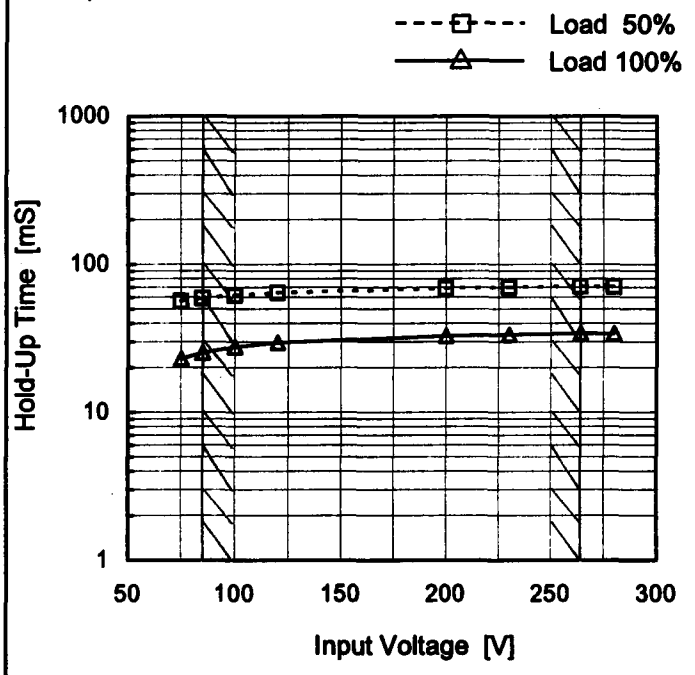
Model	PBA100F-9
Item	Hold-Up Time
Object	+9V10.5A

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

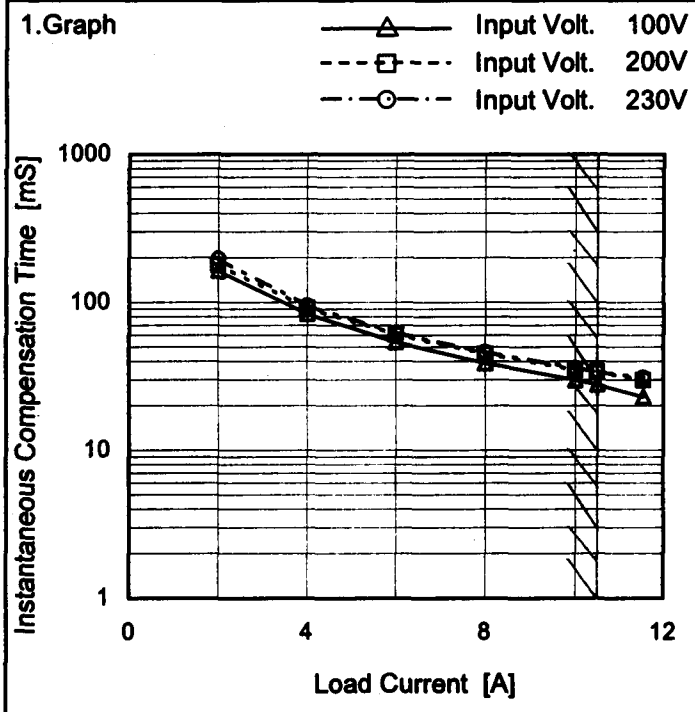
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	57	23
85	59	25
100	62	28
120	64	30
200	69	33
230	70	34
264	71	34
280	71	34
--	-	-

COSEL

Model	PBA100F-9
Item	Instantaneous Interruption Compensation
Object	+9V10.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

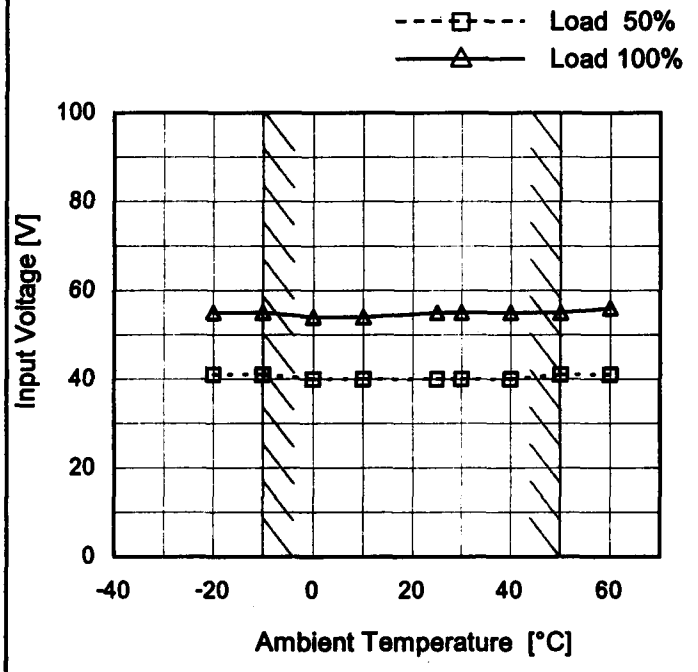
Load Current [A]	Time [mS] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
2.00	164	180	197
4.00	84	92	95
6.00	54	61	62
8.00	39	45	46
10.00	30	35	36
10.50	28	34	34
11.55	23	30	31
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA100F-9
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+9V10.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

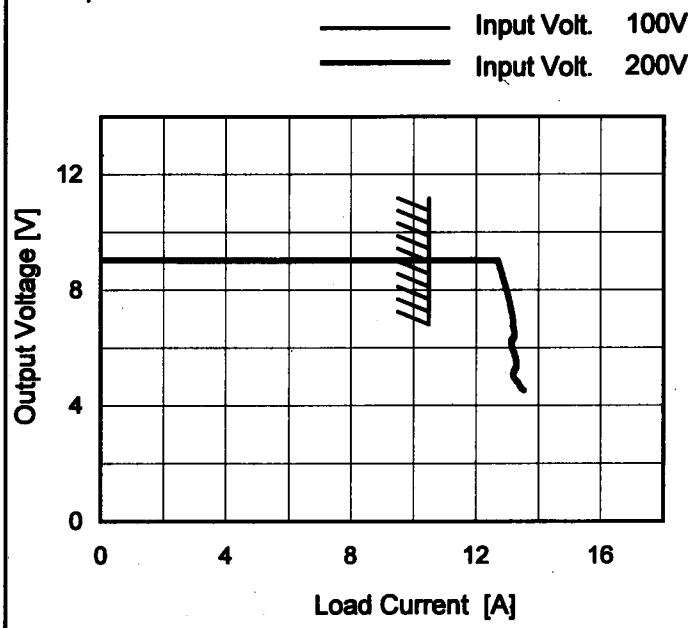
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	41	55
-10	41	55
0	40	54
10	40	54
25	40	55
30	40	55
40	40	55
50	41	55
60	41	56
--	-	-
--	-	-

COSEL

Model	PBA100F-9
Item	Overcurrent Protection
Object	+9V10.5A

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 4.5V to 0V.

2.Values

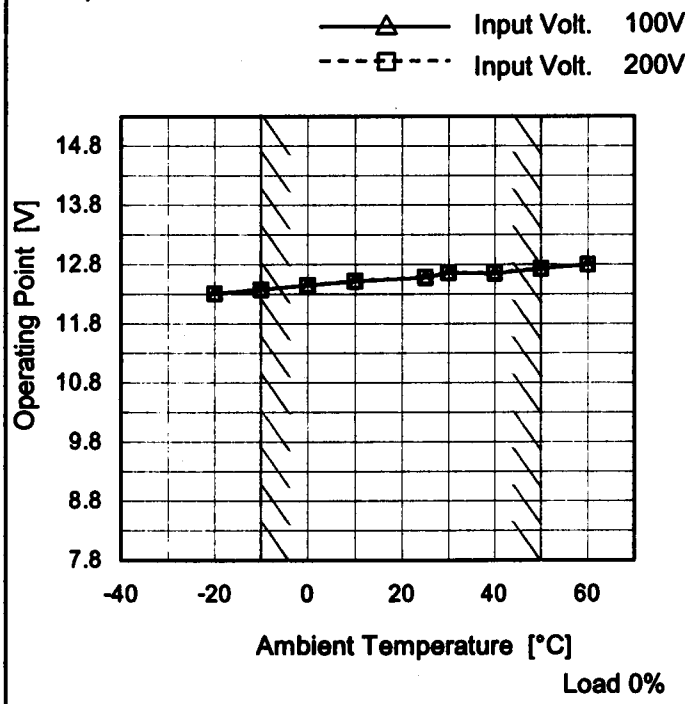
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
9.00	12.74	12.70
8.55	12.85	12.82
8.10	12.97	12.95
7.20	13.17	13.15
6.30	13.23	13.13
5.40	13.33	13.29
4.50	13.55	13.53
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA100F-9
Item	Overvoltage Protection
Object	+9V10.5A

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	12.27	12.27
-10	12.34	12.34
0	12.41	12.41
10	12.48	12.48
25	12.54	12.55
30	12.62	12.62
40	12.61	12.62
50	12.69	12.69
60	12.76	12.76
--	-	-
--	-	-

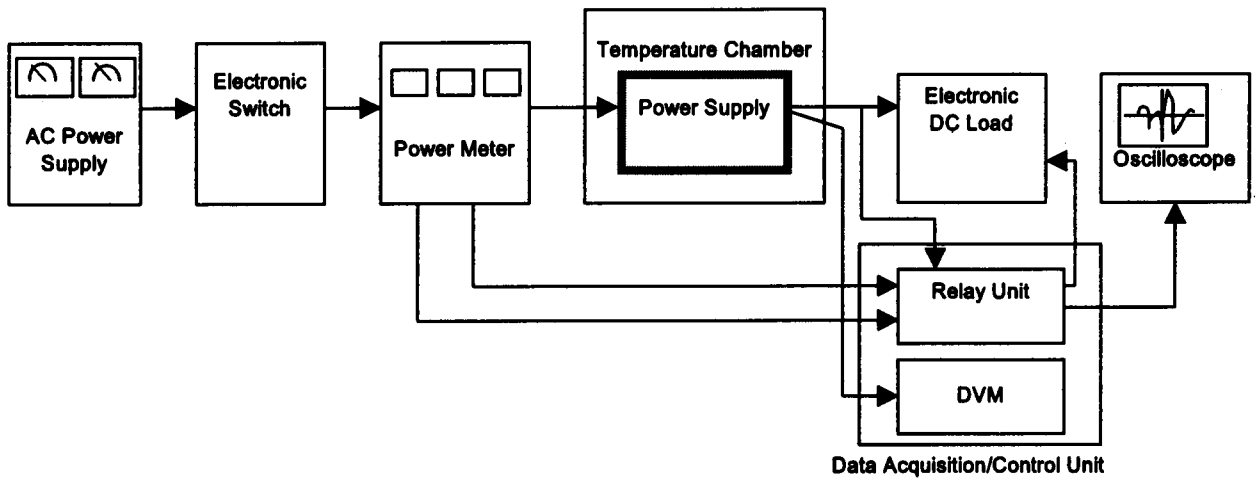


Figure A

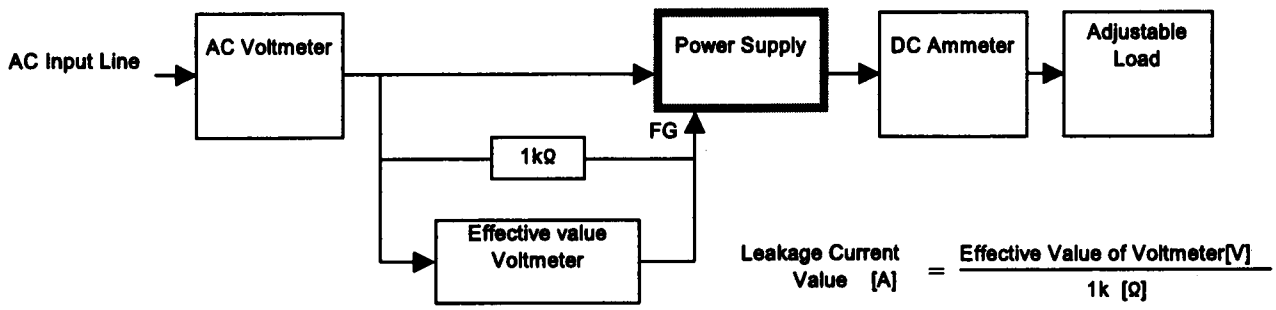


Figure B (DEN-AN)

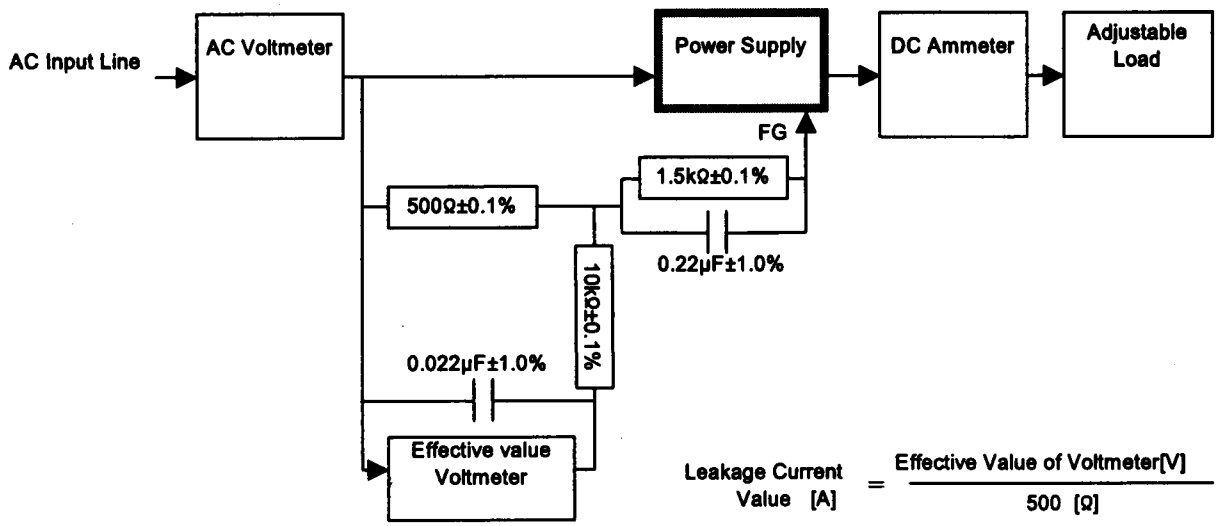


Figure B (IEC60950)