参考資料

COSEL

TEST DATA OF PBA10F-12

Regulated DC Power Supply
Sep 29, 2005

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COSEL CO.,LTD.

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Object	———————

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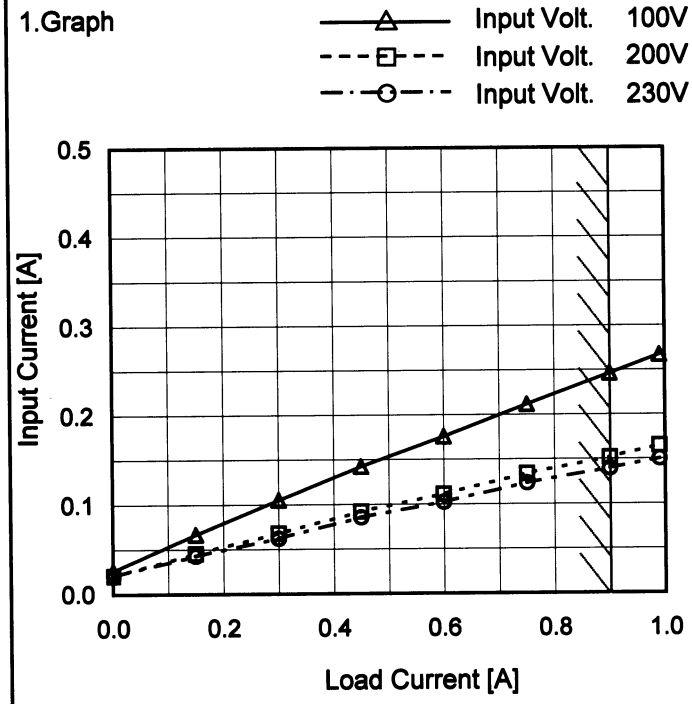

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.026	0.020	0.020
0.15	0.067	0.045	0.043
0.30	0.105	0.068	0.062
0.45	0.143	0.092	0.086
0.60	0.176	0.112	0.102
0.75	0.212	0.134	0.124
0.90	0.246	0.152	0.140
0.99	0.267	0.165	0.150
--	-	-	-
--	-	-	-
--	-	-	-

BC-10029

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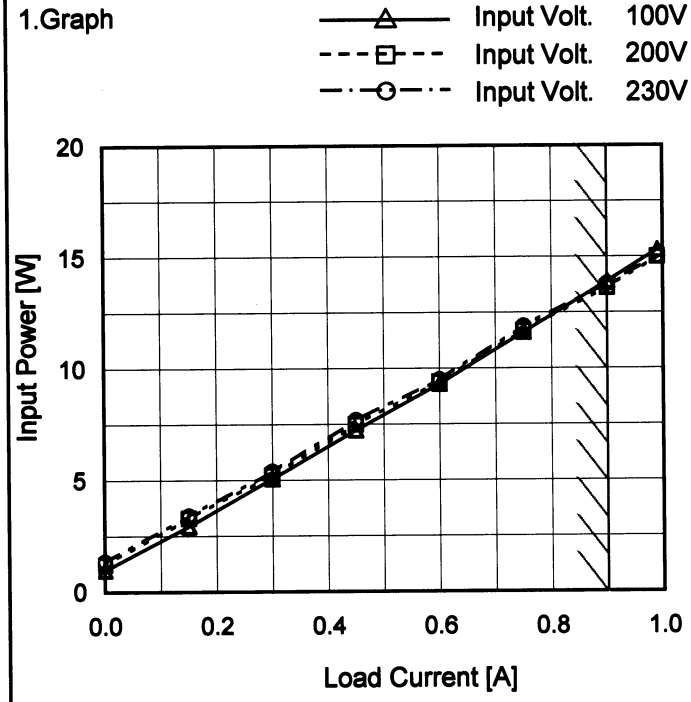
Model	PBA10F-12
Item	Input Power (by Load Current)
Object	———————

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	0.98	1.22	1.35
0.15	2.95	3.31	3.41
0.30	5.07	5.23	5.39
0.45	7.24	7.50	7.69
0.60	9.31	9.40	9.49
0.75	11.63	11.70	11.88
0.90	13.91	13.60	13.80
0.99	15.31	15.00	15.00
--	-	-	-
--	-	-	-
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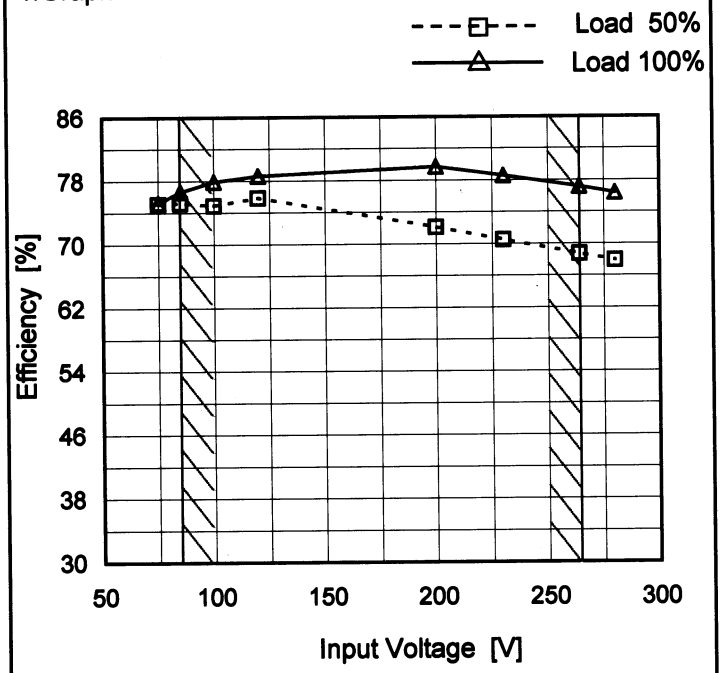
COSEL

Model	PBA10F-12
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

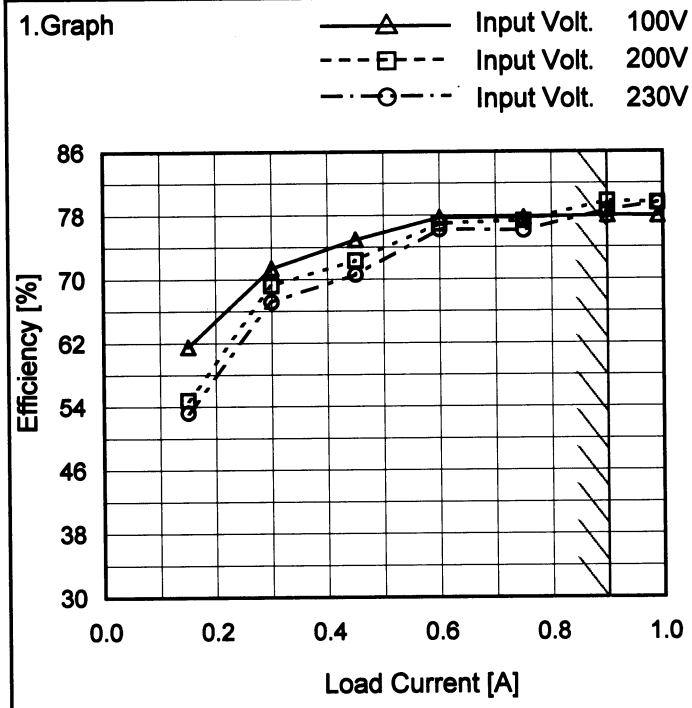
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	75.1	75.3
85	75.2	76.7
100	74.9	77.9
120	75.8	78.6
200	72.1	79.7
230	70.5	78.6
264	68.7	77.2
280	67.9	76.4
--	-	-

COSEL

Model	PBA10F-12
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	-	-	-
0.15	61.5	54.8	53.3
0.30	71.4	69.2	67.2
0.45	75.0	72.4	70.6
0.60	77.7	77.0	76.2
0.75	77.8	77.3	76.1
0.90	78.0	79.8	78.6
0.99	77.9	79.6	79.6
--	-	-	-
--	-	-	-
--	-	-	-

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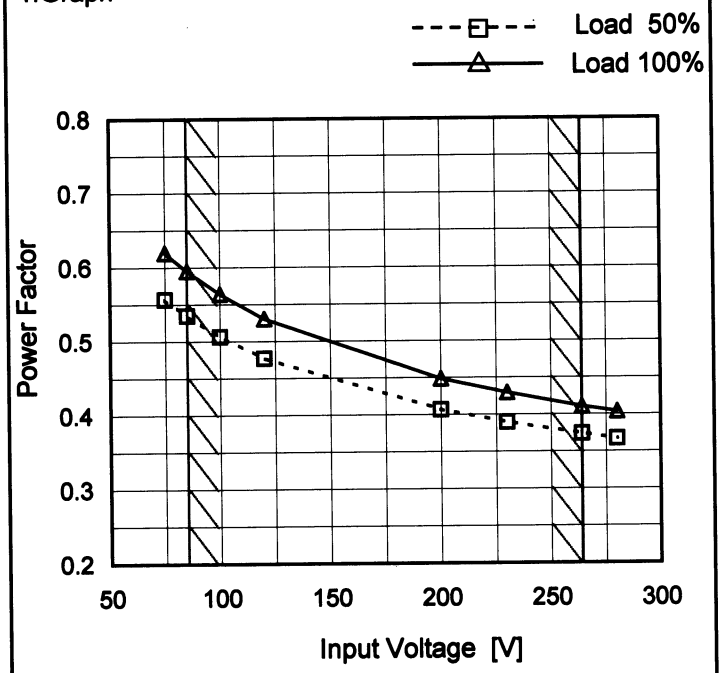
Model	PBA10F-12
Item	Power Factor (by Input Voltage)
Object	———————

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	0.557	0.620
85	0.535	0.595
100	0.507	0.564
120	0.477	0.531
200	0.407	0.449
230	0.390	0.430
264	0.374	0.411
280	0.367	0.404
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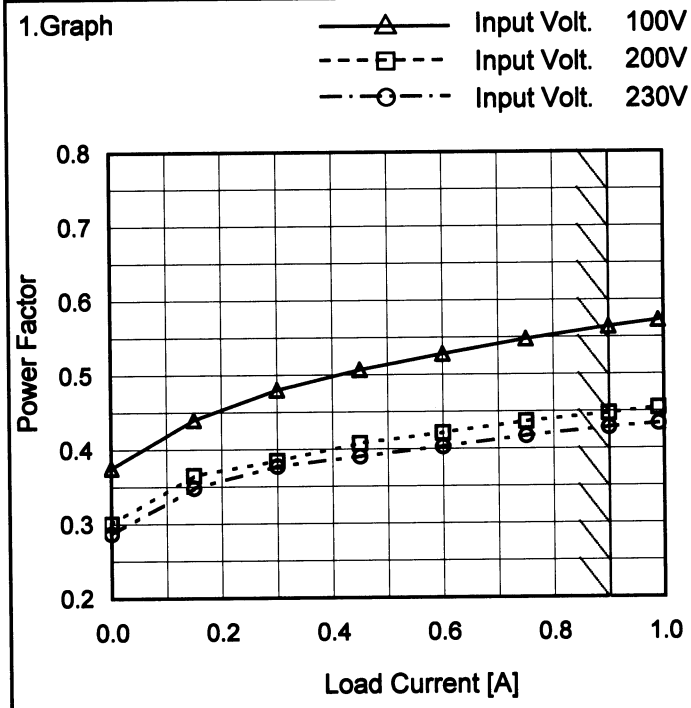
Model	PBA10F-12
Item	Power Factor (by Load Current)
Object	———————

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	0.375	0.300	0.287
0.15	0.440	0.365	0.348
0.30	0.480	0.385	0.377
0.45	0.507	0.408	0.390
0.60	0.528	0.422	0.403
0.75	0.548	0.437	0.417
0.90	0.564	0.447	0.429
0.99	0.573	0.455	0.434
--	-	-	-
--	-	-	-
--	-	-	-

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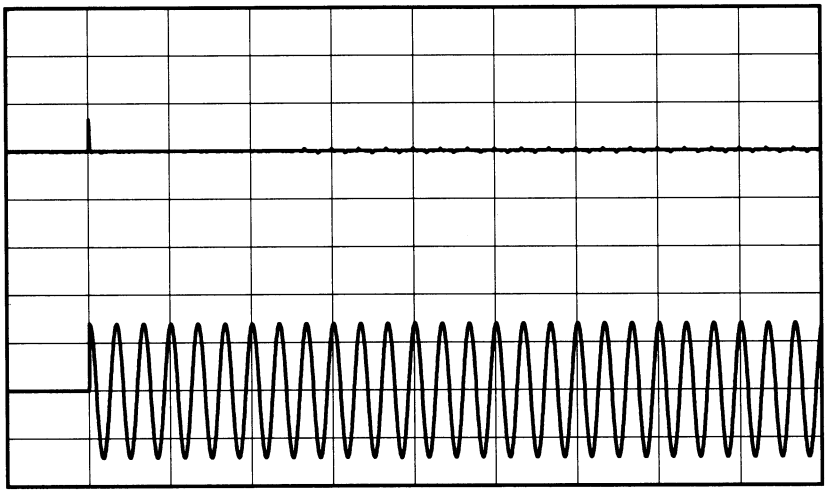
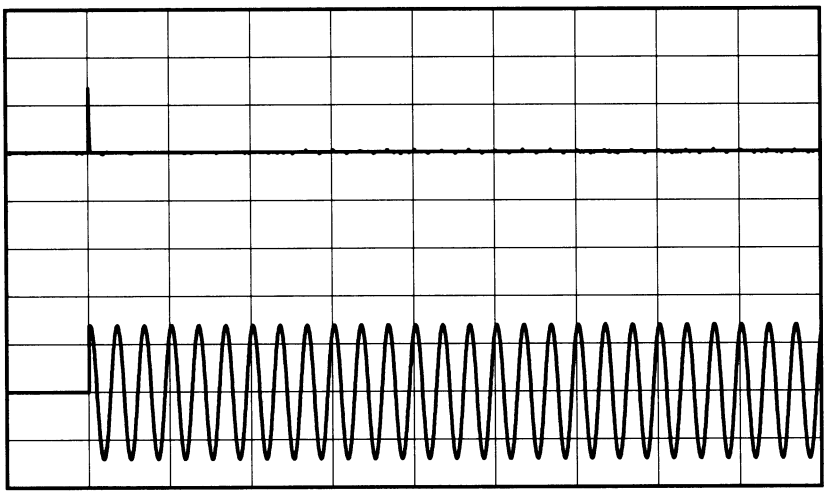
Model	PBA10F-12
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



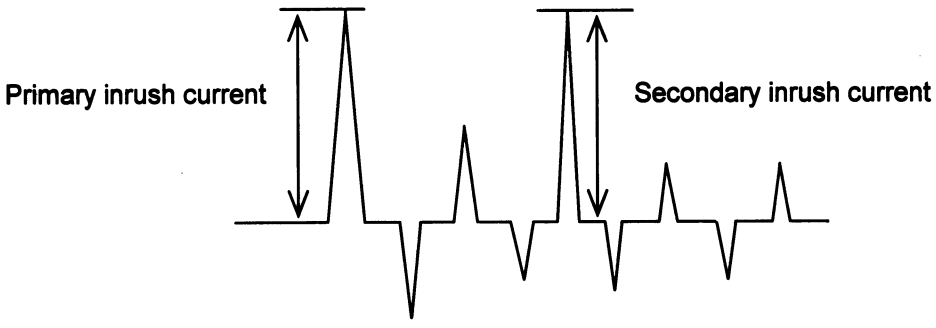
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
13.3 A
Secondary inrush current :
0.9 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
26.9 A
Secondary inrush current :
0.9 A



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Model	PBA10F-12	
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	0.05	0.11	0.13	Operation
	One of phase	0.09	0.21	0.25	stand by
IEC60950	Both phases	0.06	0.14	0.17	Operation
	One of phase	0.09	0.20	0.24	stand by

The value for "One of 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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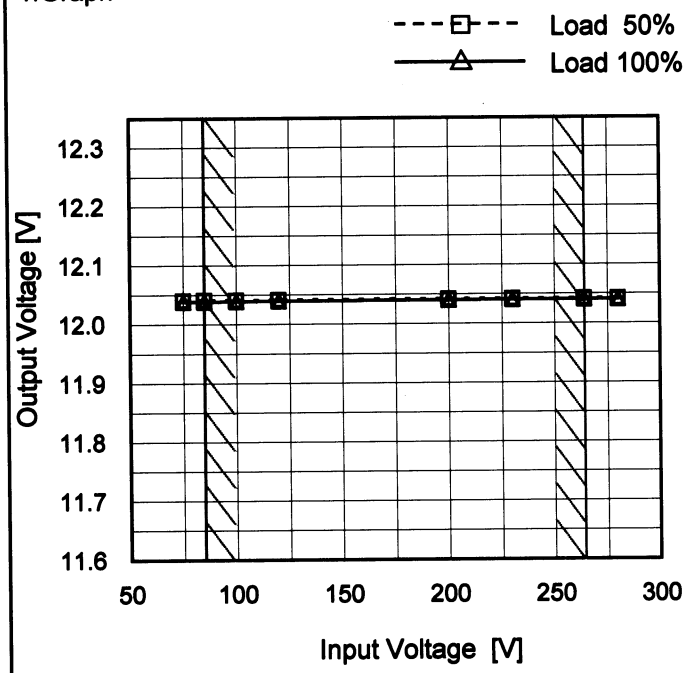
Model	PBA10F-12
Item	Line Regulation
Object	+12V0.9A

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	12.040	12.039
85	12.041	12.039
100	12.041	12.039
120	12.042	12.040
200	12.042	12.041
230	12.042	12.041
264	12.042	12.041
280	12.042	12.041
--	-	-

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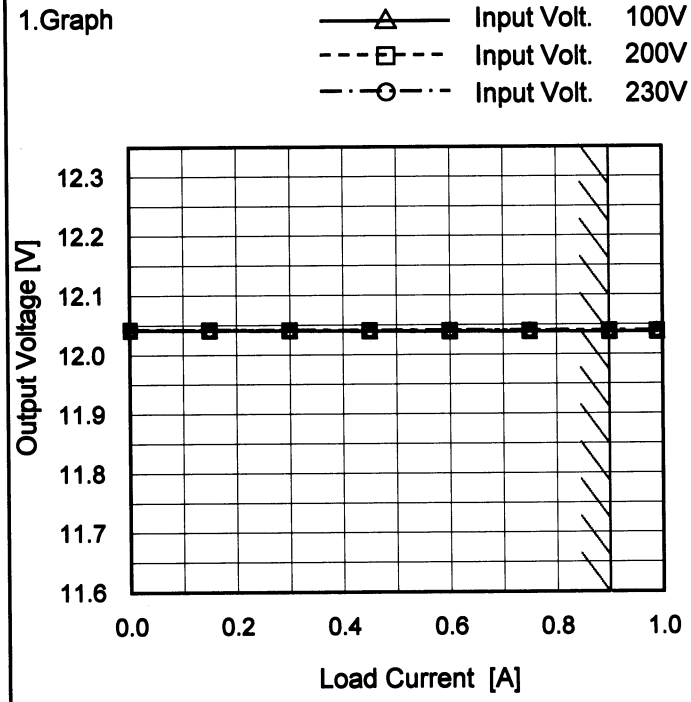
Model	PBA10F-12
Item	Load Regulation
Object	+12V0.9A

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	12.042	12.042	12.043
0.15	12.041	12.042	12.042
0.30	12.041	12.041	12.042
0.45	12.040	12.041	12.041
0.60	12.039	12.040	12.041
0.75	12.039	12.040	12.040
0.90	12.038	12.040	12.040
0.99	12.038	12.039	12.040
--	-	-	-
--	-	-	-
--	-	-	-

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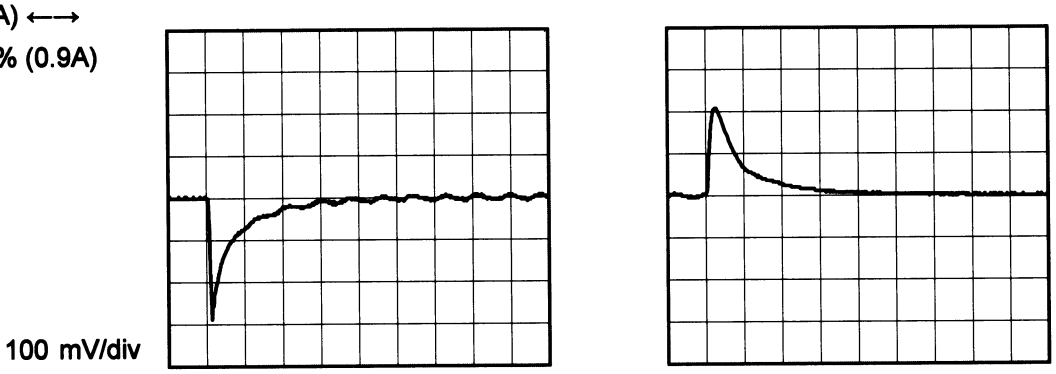
Model	PBA10F-12
Item	Dynamic Load Response
Object	+12V0.9A

Temperature 25℃
Testing Circuitry Figure A

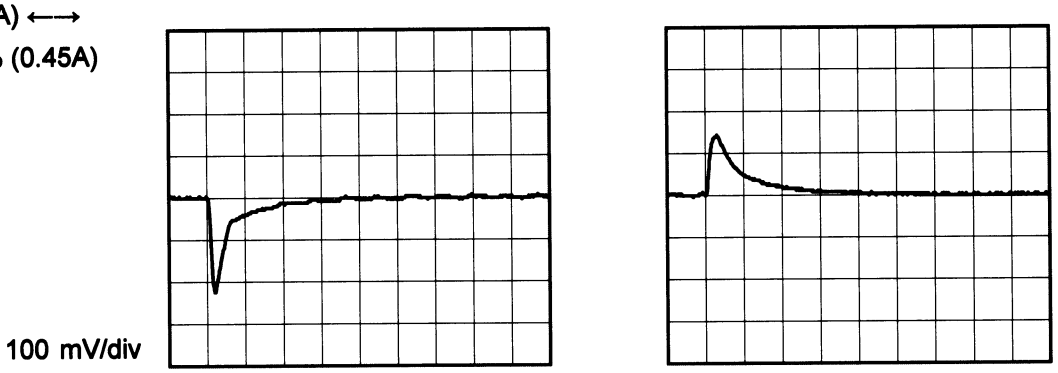
Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (0.9A)



Min. Load (0A) ⟷
Load 50% (0.45A)



* The characteristic of AC200V is equal.

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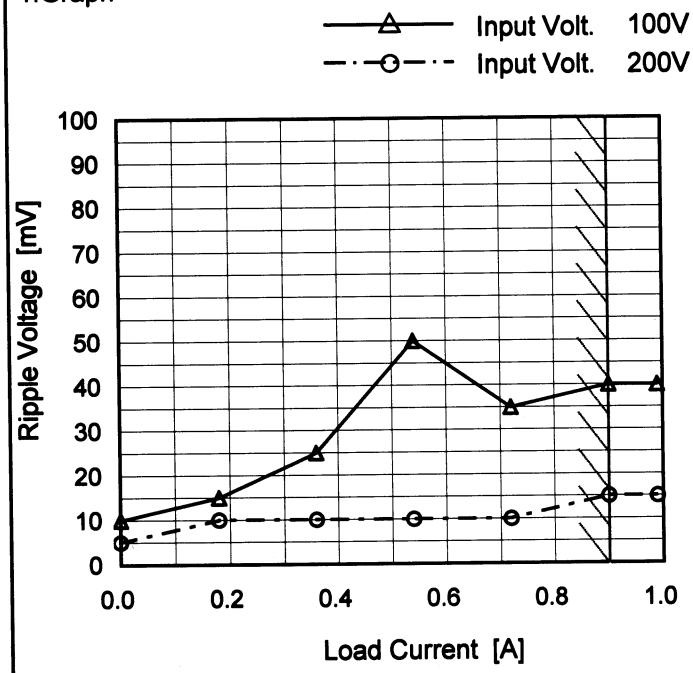
Model	PBA10F-12
Item	Ripple Voltage (by Load Current)
Object	+12V0.9A

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.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	10	5
0.18	15	10
0.36	25	10
0.54	50	10
0.72	35	10
0.90	40	15
0.99	40	15
--	-	-
--	-	-
--	-	-
--	-	-

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

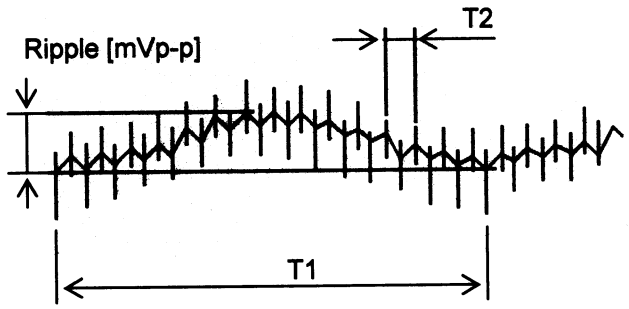


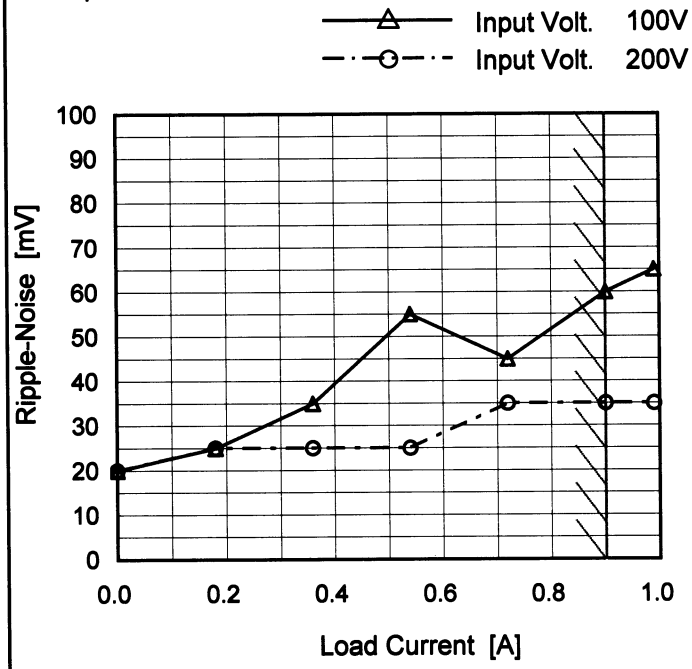
Fig. Complex Ripple Wave Form

COSEL

Model	PBA10F-12
Item	Ripple-Noise
Object	+12V0.9A

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

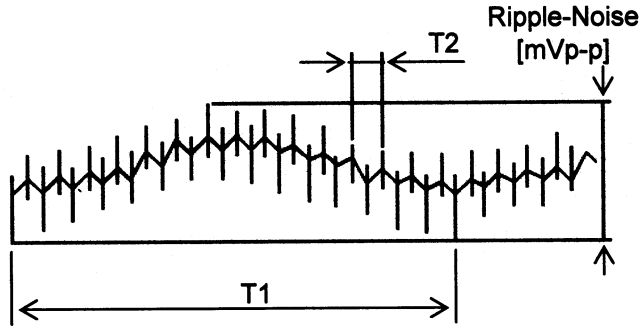


Fig. Complex Ripple Wave Form

2.Values

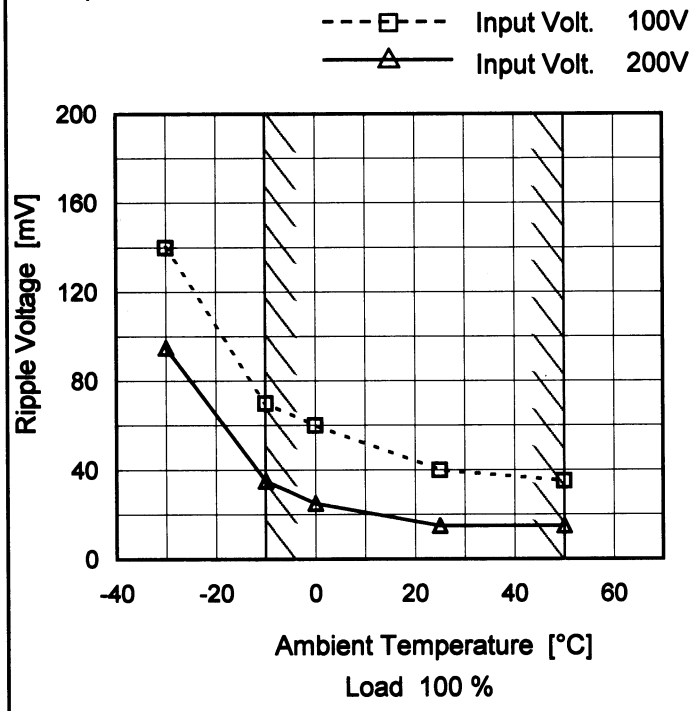
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	20	20
0.18	25	25
0.36	35	25
0.54	55	25
0.72	45	35
0.90	60	35
0.99	65	35
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA10F-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.9A

Testing Circuitry Figure A

1.Graph



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

2.Values

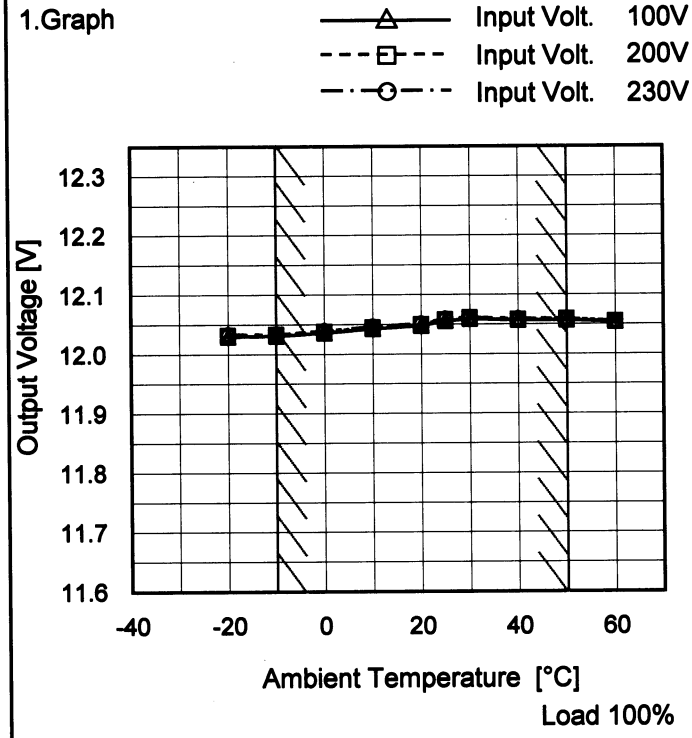
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	140	95
-10	70	35
0	60	25
25	40	15
50	35	15
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA10F-12
Item	Ambient Temperature Drift
Object	+12V0.9A

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	12.030	12.032	12.033
-10	12.031	12.033	12.033
0	12.036	12.038	12.039
10	12.043	12.045	12.046
20	12.048	12.050	12.051
25	12.056	12.058	12.059
30	12.059	12.061	12.061
40	12.057	12.058	12.059
50	12.057	12.059	12.059
60	12.054	12.055	12.055
--	-	-	-

COSEL

Model	PBA10F-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V0.9A	

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 - 0.9A

* 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

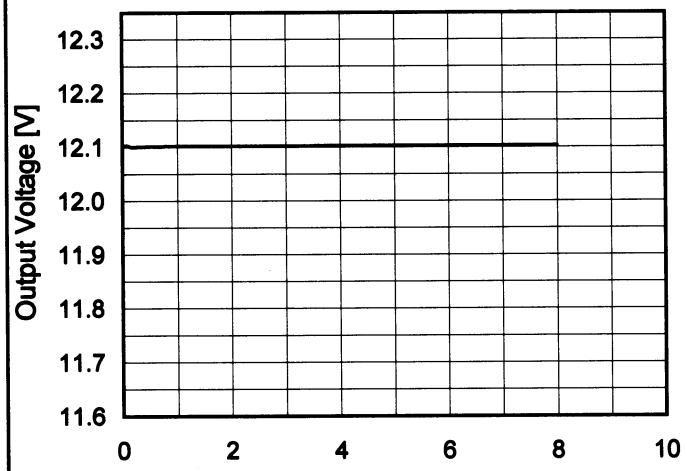
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	30	264	0	12.064	±17	±0.1
Minimum Voltage	-10	85	0.9	12.031		

COSEL

Model	PBA10F-12
Item	Time Lapse Drift
Object	+12V0.9A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

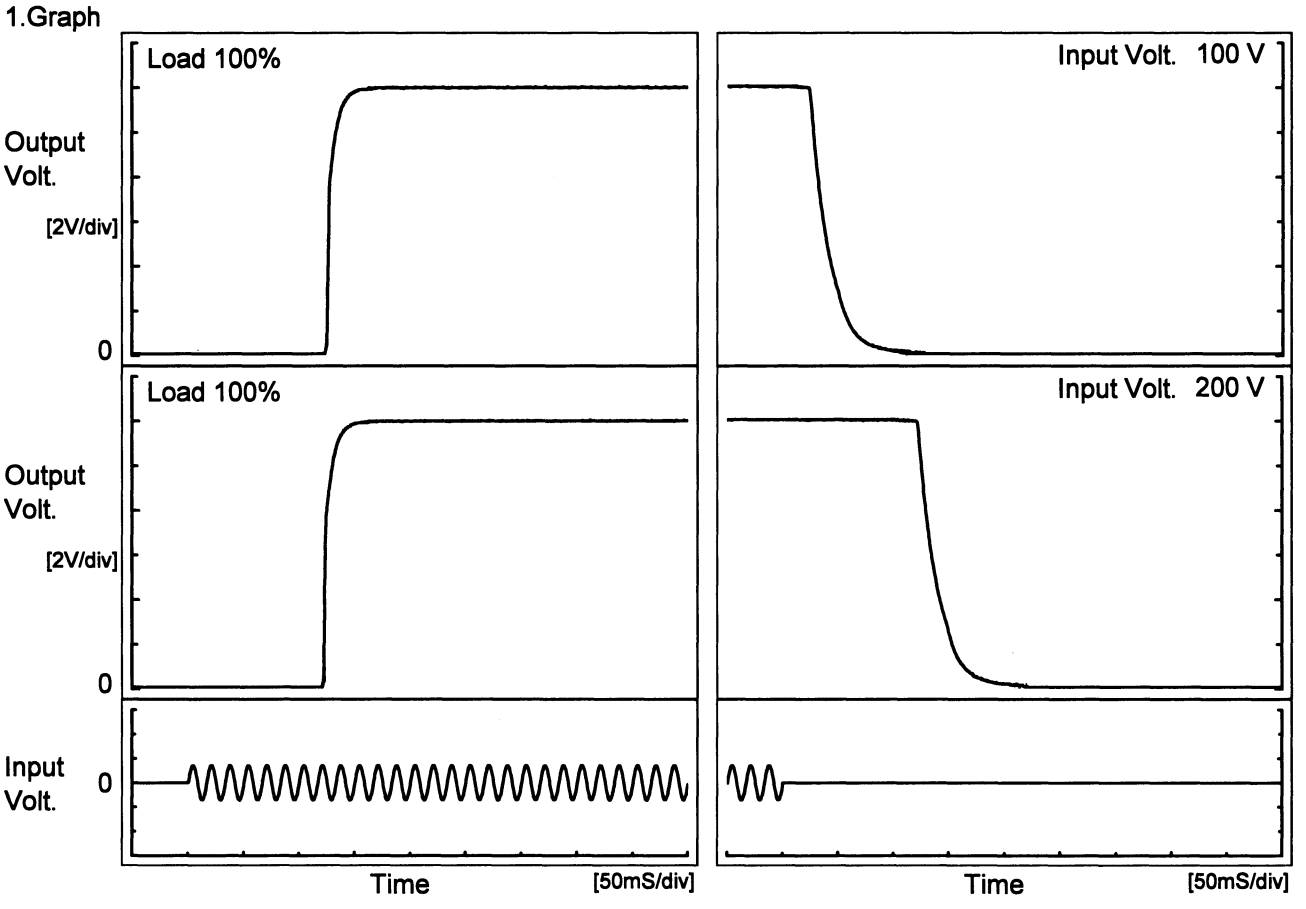
2.Values

Time since start [H]	Output Voltage [V]
0.0	12.102
0.5	12.102
1.0	12.102
2.0	12.102
3.0	12.102
4.0	12.103
5.0	12.103
6.0	12.103
7.0	12.103
8.0	12.103

COSEL

Model	PBA10F-12	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.9A	

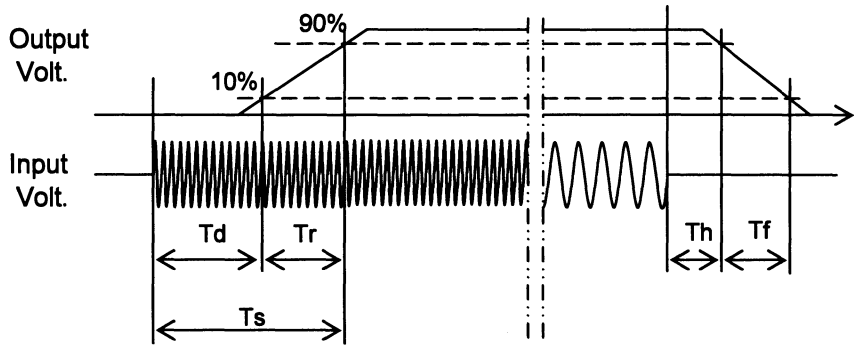
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	125.3	11.8	137.1	25.8	35.5
200 V	122.3	11.8	134.1	123.5	36.3

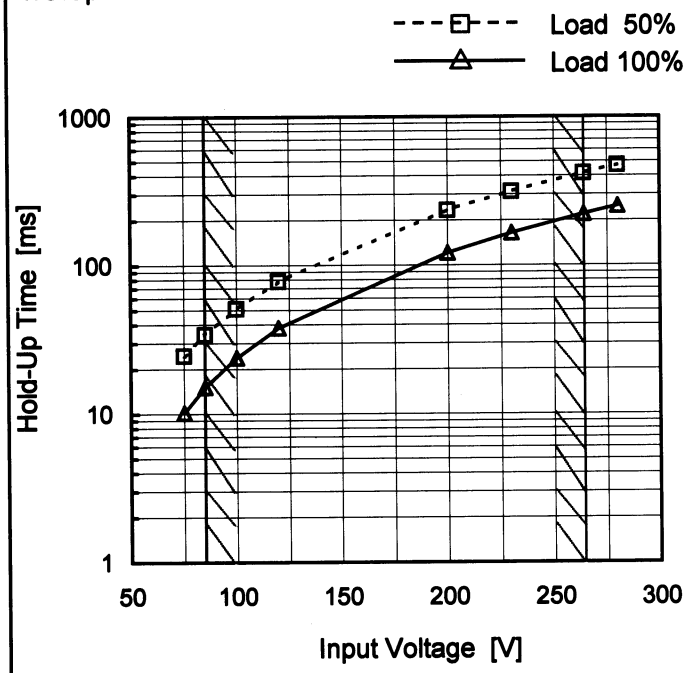


COSEL

Model	PBA10F-12
Item	Hold-Up Time
Object	+12V0.9A

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

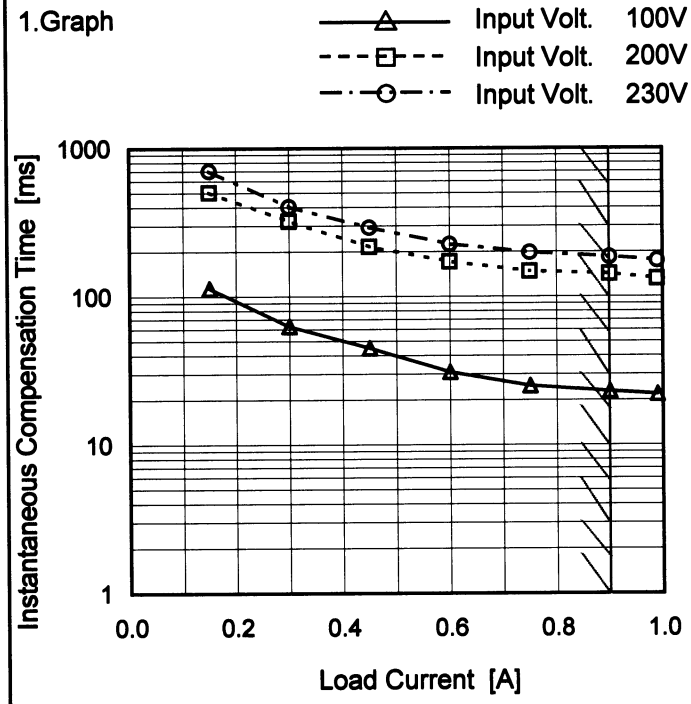
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	25	10
85	34	15
100	51	24
120	78	38
200	235	122
230	314	165
264	416	221
280	470	251
--	-	-

COSEL

Model	PBA10F-12
Item	Instantaneous Interruption Compensation
Object	+12V0.9A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

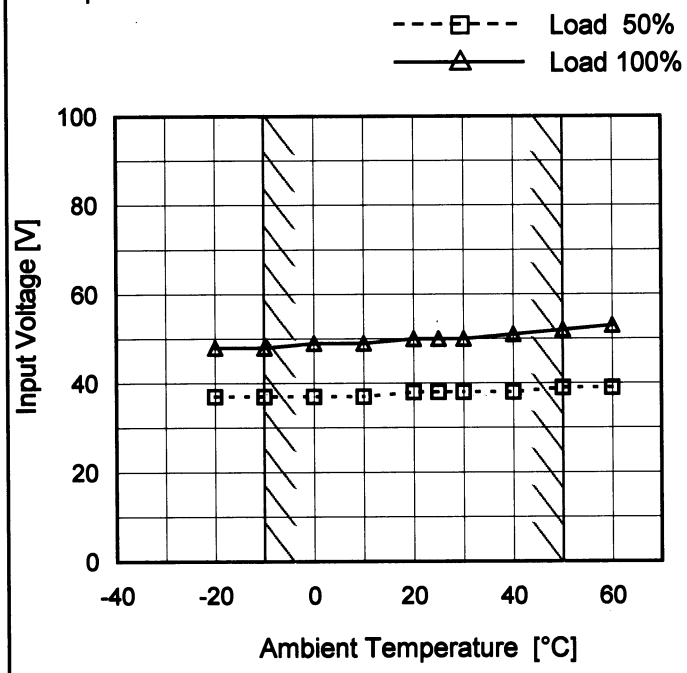
Load Current [A]	Time [ms] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.15	114	503	704
0.30	63	323	403
0.45	45	217	292
0.60	31	172	226
0.75	25	148	198
0.90	23	142	185
0.99	22	132	175
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA10F-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.9A

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	37	48
-10	37	48
0	37	49
10	37	49
20	38	50
25	38	50
30	38	50
40	38	51
50	39	52
60	39	53
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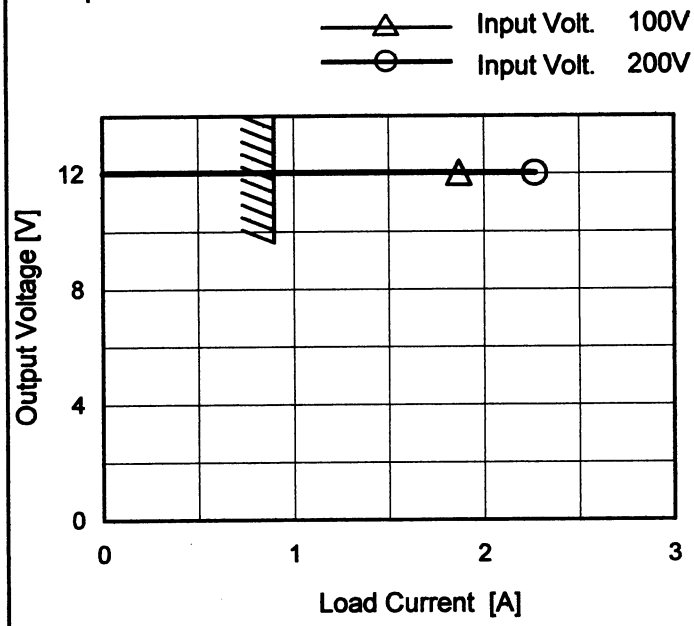
COSEL

Model	PBA10F-12
Item	Overcurrent Protection
Object	+12V0.9A

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 less than rated output voltage.

2.Values

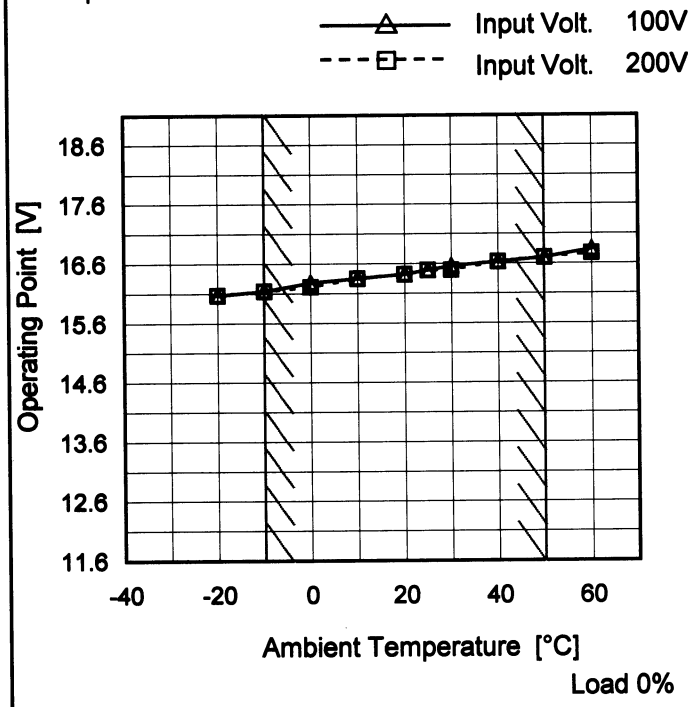
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
12.0	1.87	2.27
11.4	-	-
10.8	-	-
9.6	-	-
8.4	-	-
7.2	-	-
6.0	-	-
4.8	-	-
3.6	-	-
2.4	-	-
1.2	-	-
0.0	-	-

COSEL

Model	PBA10F-12
Item	Overvoltage Protection
Object	+12V0.9A

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	16.07	16.07
-10	16.14	16.14
0	16.28	16.21
10	16.35	16.35
20	16.42	16.42
25	16.49	16.49
30	16.56	16.49
40	16.63	16.63
50	16.70	16.70
60	16.84	16.77
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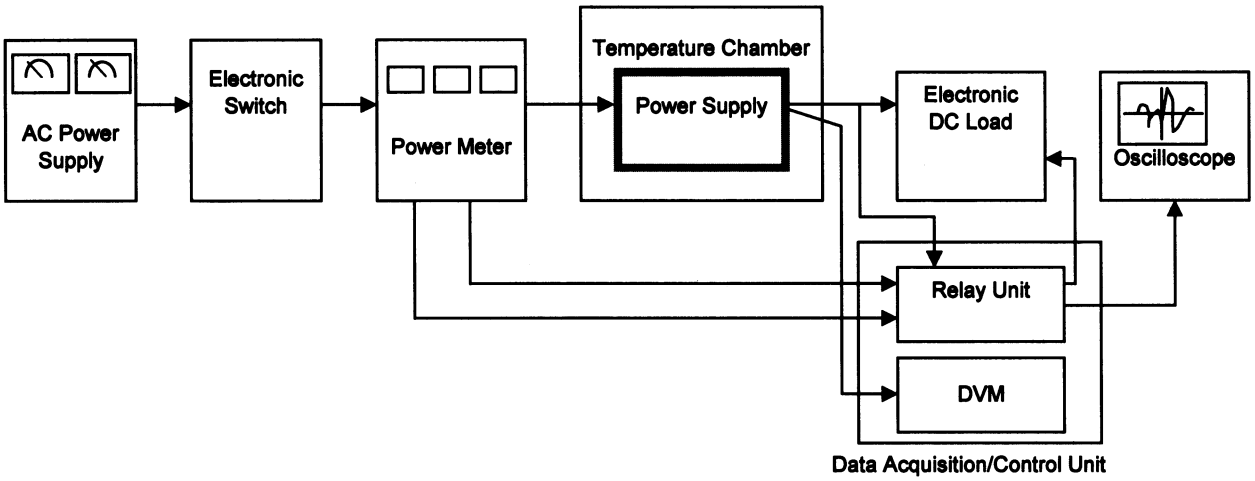

Figure A

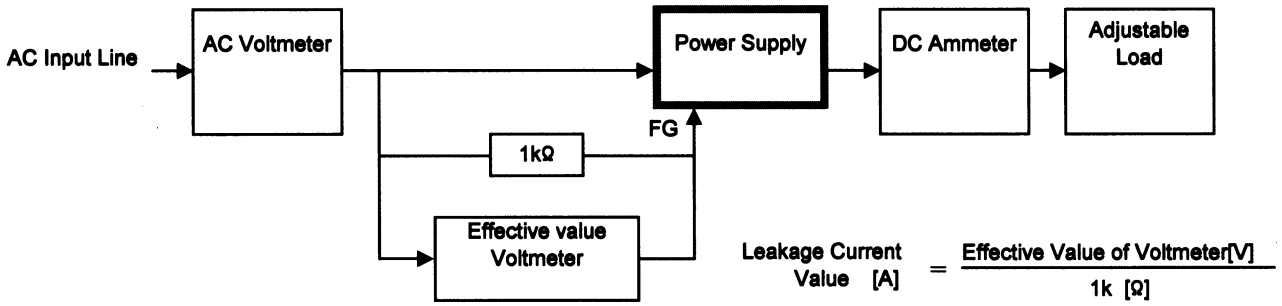

Figure B (DEN-AN)

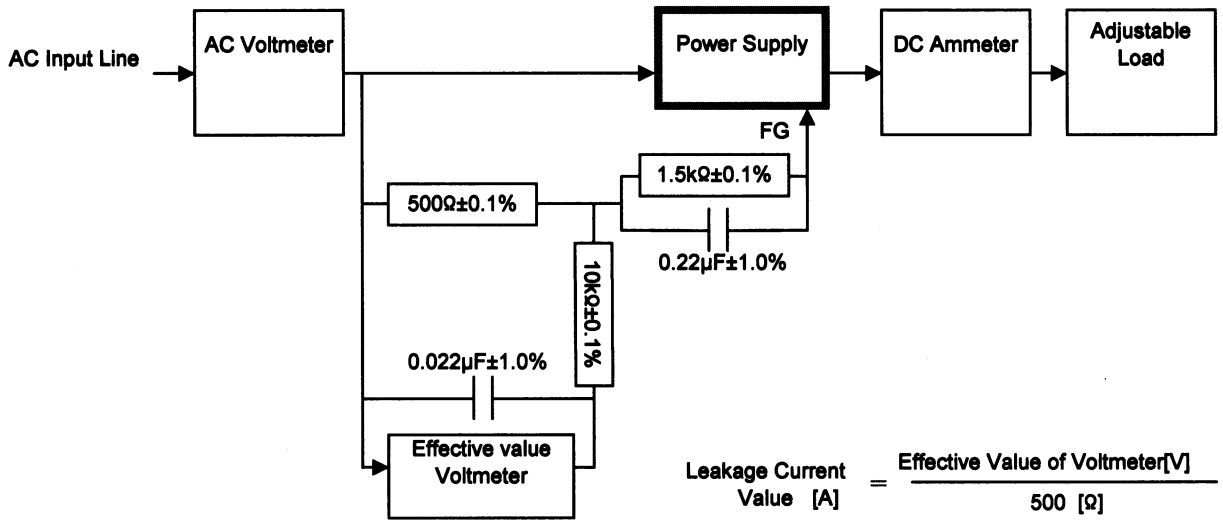

Figure B (IEC60950)