参考資料

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TEST DATA OF PBA10F-24

Regulated DC Power Supply
Sep 29, 2005

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COSEL CO.,LTD.

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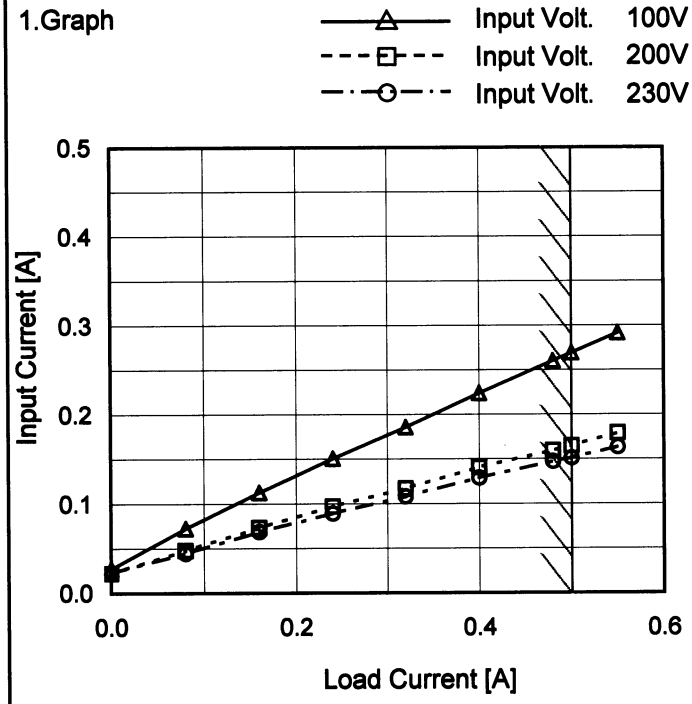
COSEL

Model	PBA10F-24
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	0.027	0.022	0.023
0.08	0.073	0.048	0.045
0.16	0.113	0.073	0.069
0.24	0.151	0.097	0.089
0.32	0.186	0.117	0.108
0.40	0.224	0.141	0.129
0.48	0.260	0.160	0.147
0.50	0.269	0.165	0.151
0.55	0.292	0.179	0.163
--	-	-	-
--	-	-	-

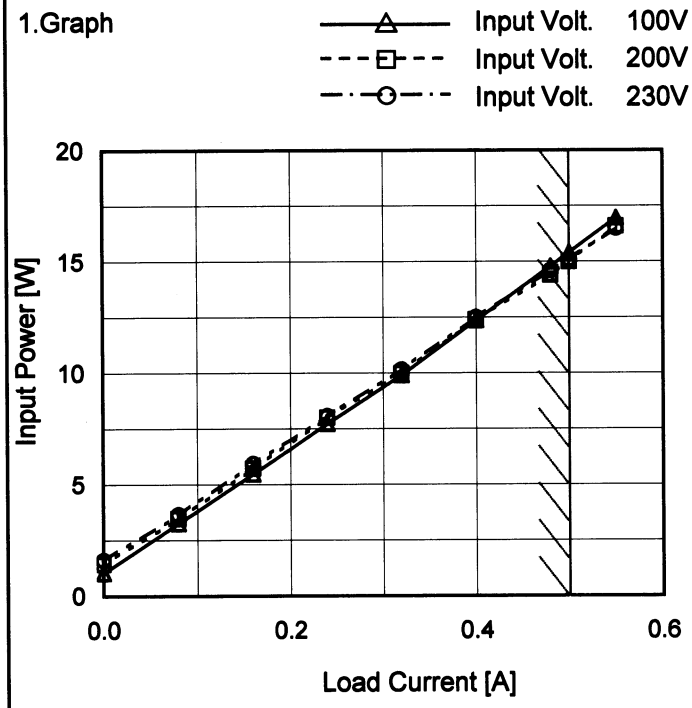
BC-10030

COSEL

Model	PBA10F-24
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	1.04	1.43	1.61
0.08	3.26	3.47	3.65
0.16	5.47	5.73	5.94
0.24	7.73	8.00	8.08
0.32	9.92	10.00	10.16
0.40	12.37	12.40	12.50
0.48	14.80	14.40	14.60
0.50	15.41	15.00	15.10
0.55	16.97	16.60	16.50
--	-	-	-
--	-	-	-

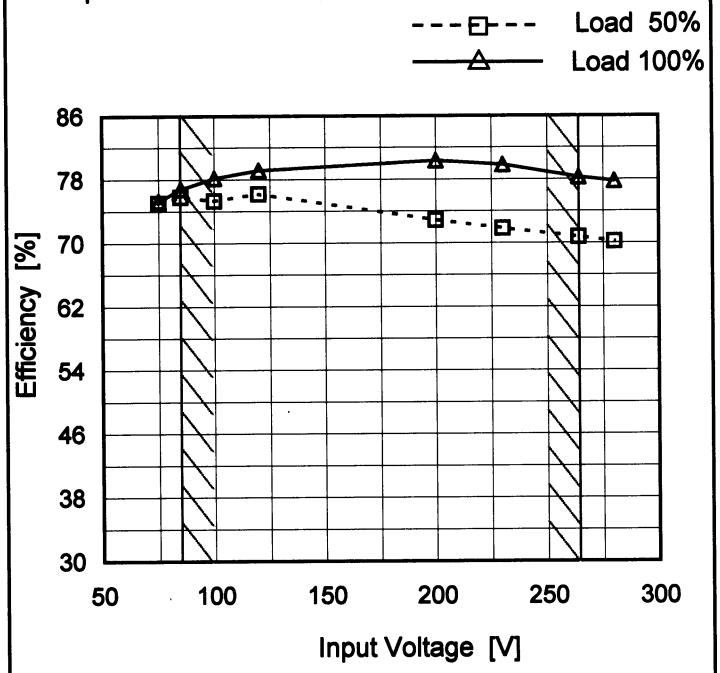
BC-10030

COSEL

Model	PBA10F-24
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	75.8	76.8
100	75.3	78.2
120	76.2	79.2
200	72.9	80.4
230	71.9	79.8
264	70.8	78.3
280	70.2	77.8
--	-	-

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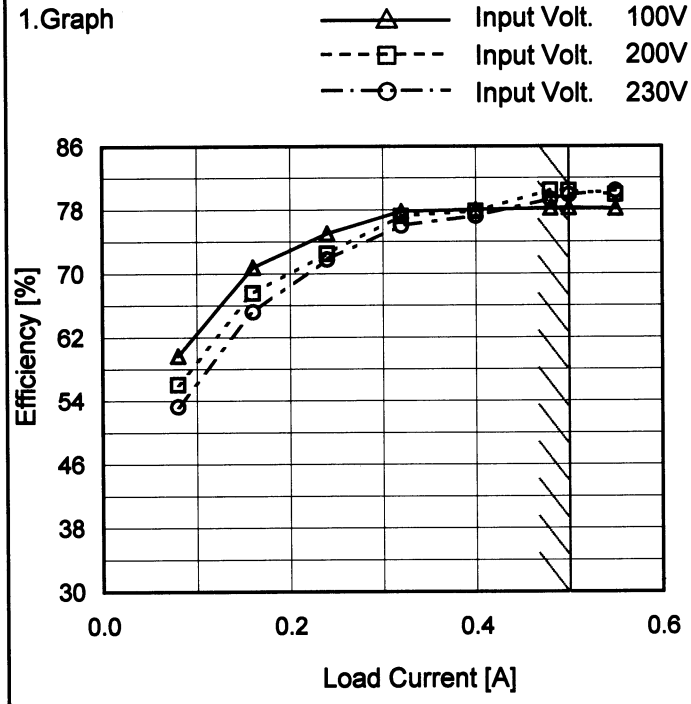
Model	PBA10F-24
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

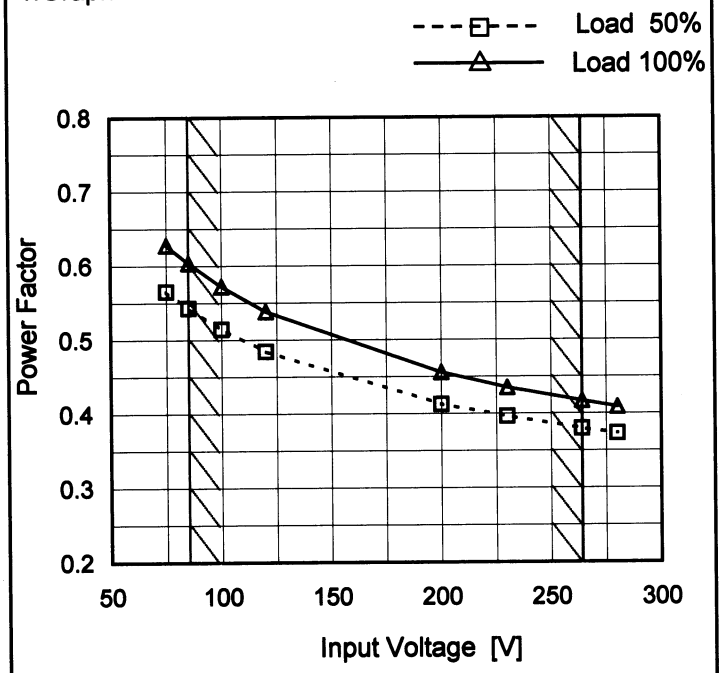
Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.08	59.7	56.1	53.3
0.16	70.8	67.6	65.2
0.24	75.1	72.5	71.8
0.32	77.9	77.2	76.0
0.40	78.0	77.8	77.2
0.48	78.3	80.4	79.3
0.50	78.3	80.4	79.9
0.55	78.2	79.9	80.4
--	-	-	-
--	-	-	-

COSEL

Model	PBA10F-24
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

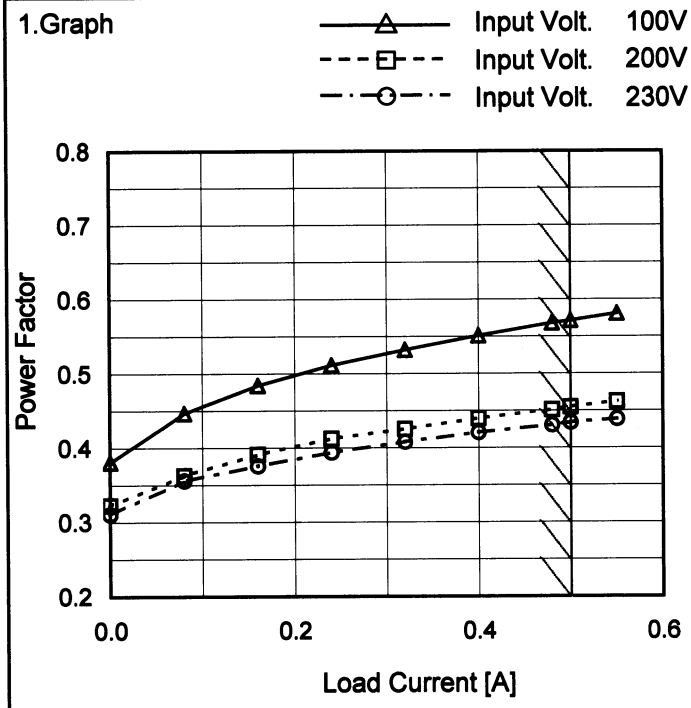
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.565	0.628
85	0.543	0.604
100	0.514	0.572
120	0.484	0.538
200	0.413	0.456
230	0.396	0.435
264	0.380	0.417
280	0.373	0.409
--	-	-

COSEL

Model	PBA10F-24
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

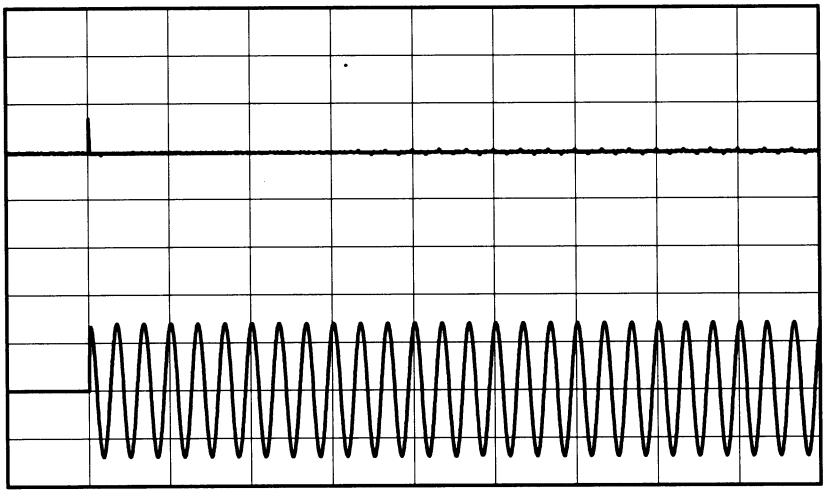
Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.381	0.323	0.311
0.08	0.447	0.363	0.356
0.16	0.484	0.391	0.376
0.24	0.512	0.412	0.394
0.32	0.532	0.426	0.408
0.40	0.551	0.440	0.421
0.48	0.568	0.451	0.431
0.50	0.572	0.455	0.434
0.55	0.581	0.462	0.439
--	-	-	-
--	-	-	-

BC-10030

COSEL

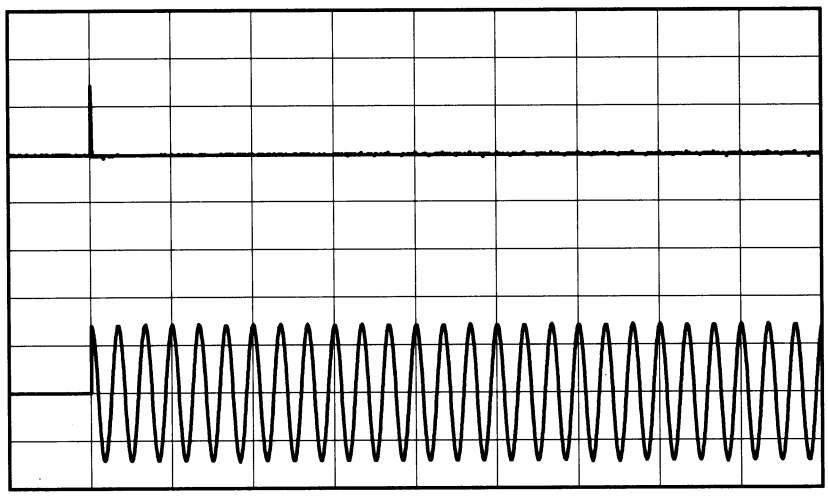
Model	PBA10F-24
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



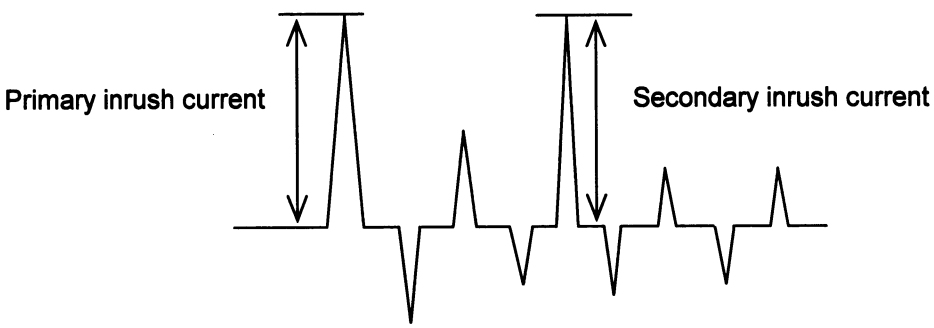
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
14.4 A
Secondary inrush current :
1.2 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
29.1 A
Secondary inrush current :
1.0 A



BC-10030

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Model	PBA10F-24	
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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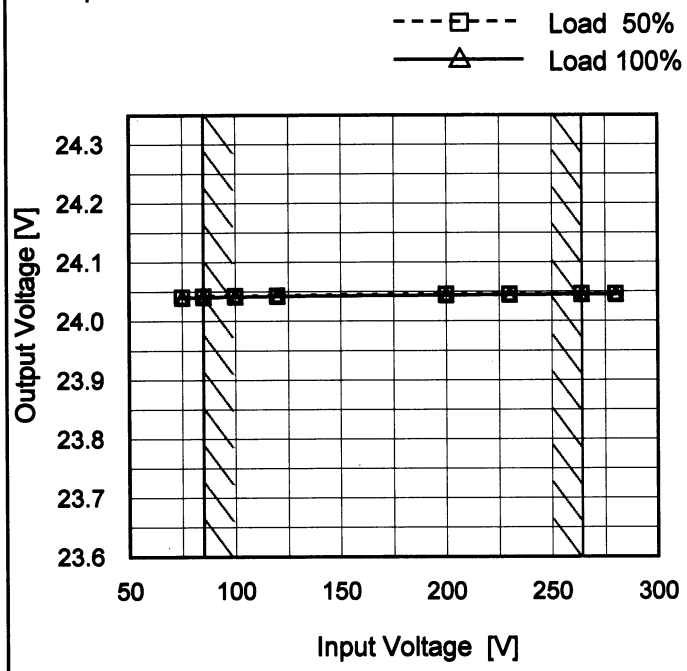
Model	PBA10F-24
Item	Line Regulation
Object	+24V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

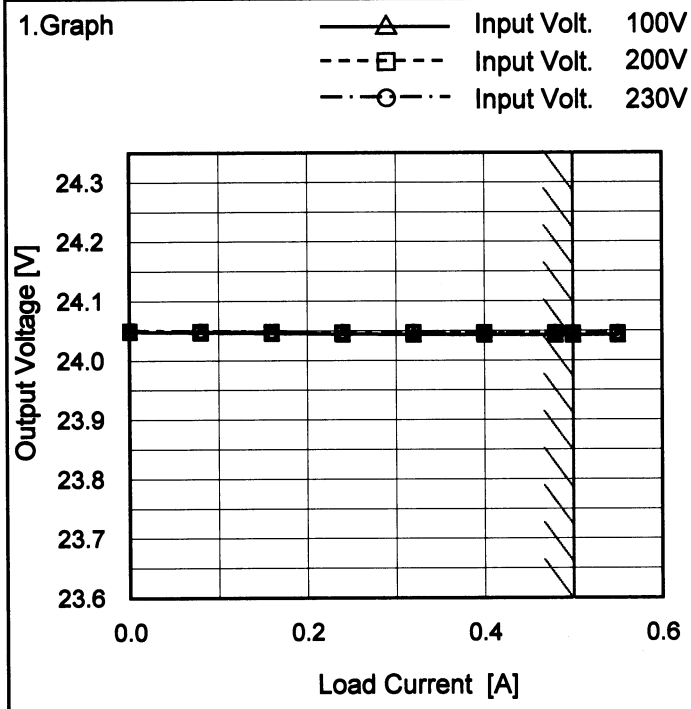
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	24.041	24.040
85	24.043	24.041
100	24.043	24.042
120	24.044	24.043
200	24.046	24.044
230	24.046	24.045
264	24.046	24.045
280	24.046	24.046
--	-	-

COSEL

Model	PBA10F-24
Item	Load Regulation
Object	+24V0.5A

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	24.049	24.050	24.050
0.08	24.047	24.049	24.049
0.16	24.046	24.048	24.048
0.24	24.045	24.047	24.048
0.32	24.044	24.047	24.048
0.40	24.043	24.046	24.047
0.48	24.043	24.046	24.047
0.50	24.043	24.046	24.046
0.55	24.043	24.045	24.046
--	-	-	-
--	-	-	-

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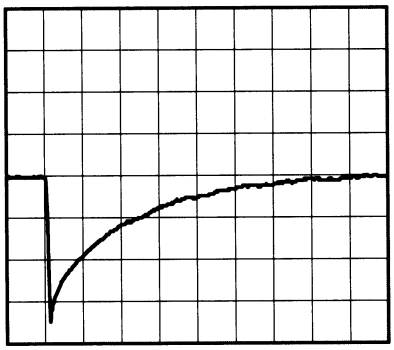
Model	PBA10F-24		
Item	Dynamic Load Response	Temperature	25℃
		Testing Circuitry	Figure A
Object	+24V0.5A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (0.5A)

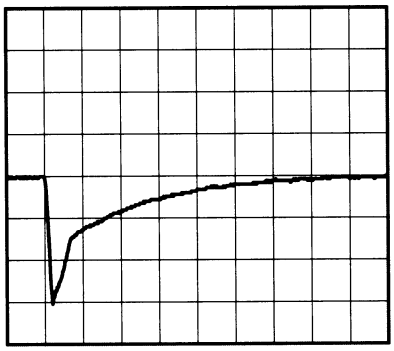


100 mV/div

5 ms/div

5 ms/div

Min. Load (0A) ⟷
Load 50% (0.25A)



100 mV/div

5 ms/div

5 ms/div

* The characteristic of AC200V is equal.

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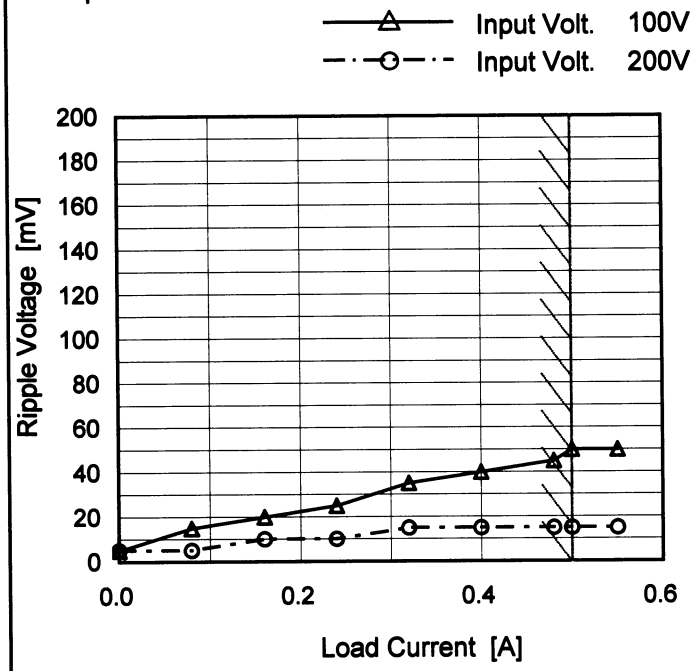
Model	PBA10F-24
Item	Ripple Voltage (by Load Current)
Object	+24V0.5A

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.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	5	5
0.08	15	5
0.16	20	10
0.24	25	10
0.32	35	15
0.40	40	15
0.48	45	15
0.50	50	15
0.55	50	15
--	-	-
--	-	-

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

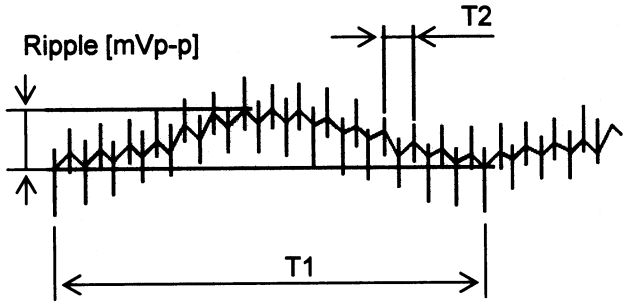


Fig. Complex Ripple Wave Form

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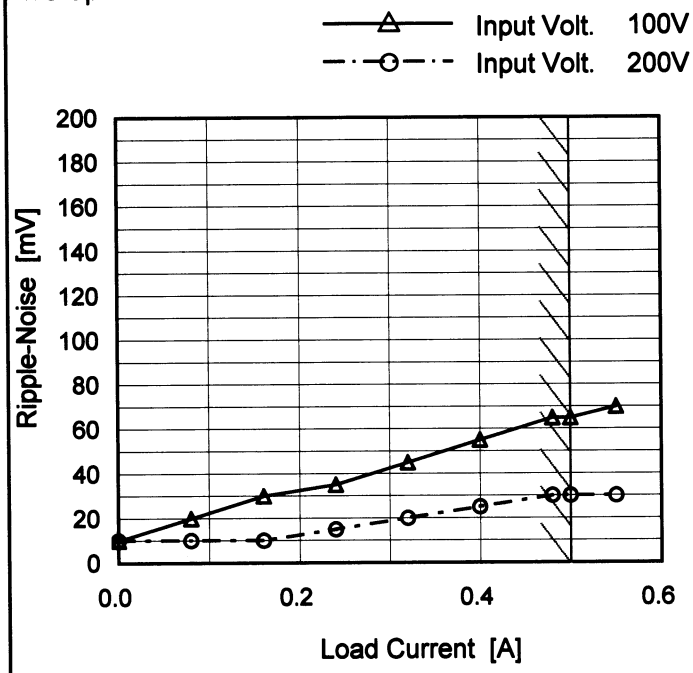
Model	PBA10F-24
Item	Ripple-Noise
Object	+24V0.5A

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	10	10
0.08	20	10
0.16	30	10
0.24	35	15
0.32	45	20
0.40	55	25
0.48	65	30
0.50	65	30
0.55	70	30
--	-	-
--	-	-

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

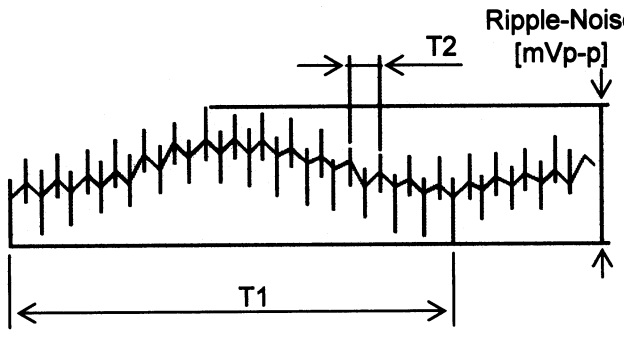


Fig. Complex Ripple Wave Form

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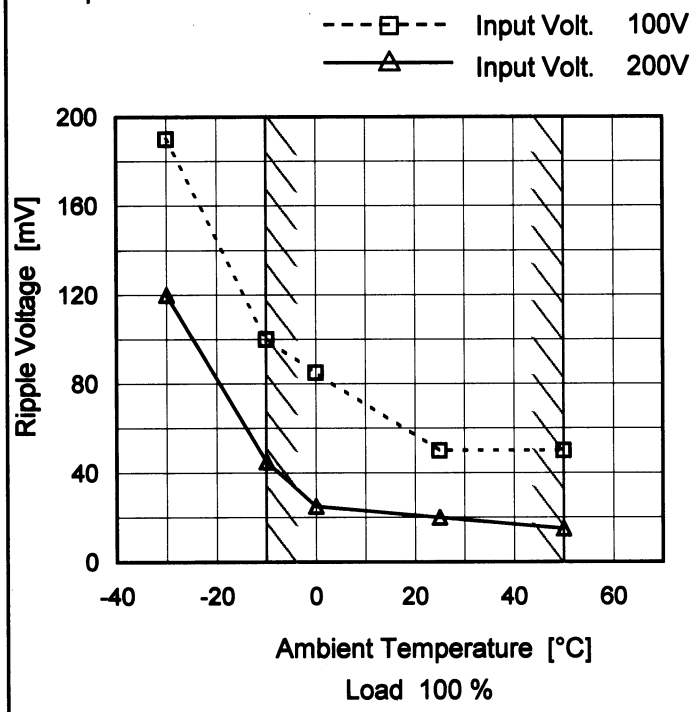
Model	PBA10F-24
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V0.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

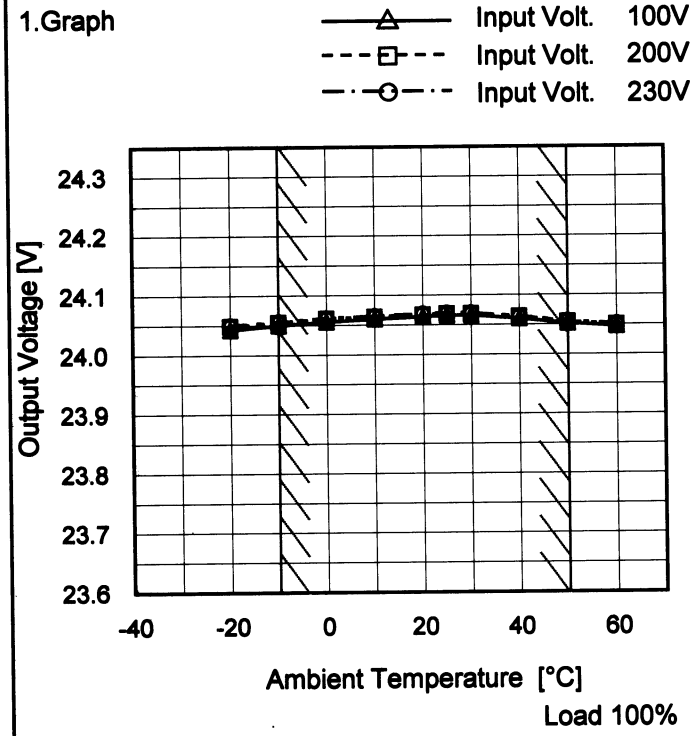
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	190	120
-10	100	45
0	85	25
25	50	20
50	50	15
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA10F-24
Item	Ambient Temperature Drift
Object	+24V0.5A

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	24.043	24.049	24.050
-10	24.050	24.055	24.056
0	24.056	24.061	24.062
10	24.060	24.064	24.065
20	24.064	24.067	24.069
25	24.066	24.069	24.070
30	24.066	24.069	24.070
40	24.060	24.064	24.064
50	24.052	24.055	24.056
60	24.047	24.050	24.051
--	-	-	-

COSEL

Model	PBA10F-24	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V0.5A	

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 - 0.5A

* 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	30	264	0	24.074	±12	±0.1
Minimum Voltage	-10	85	0.5	24.050		

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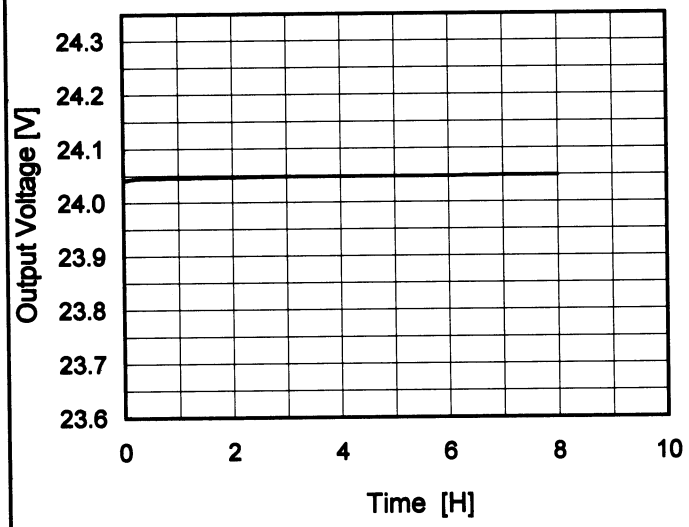
Model	PBA10F-24
Item	Time Lapse Drift
Object	+24V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

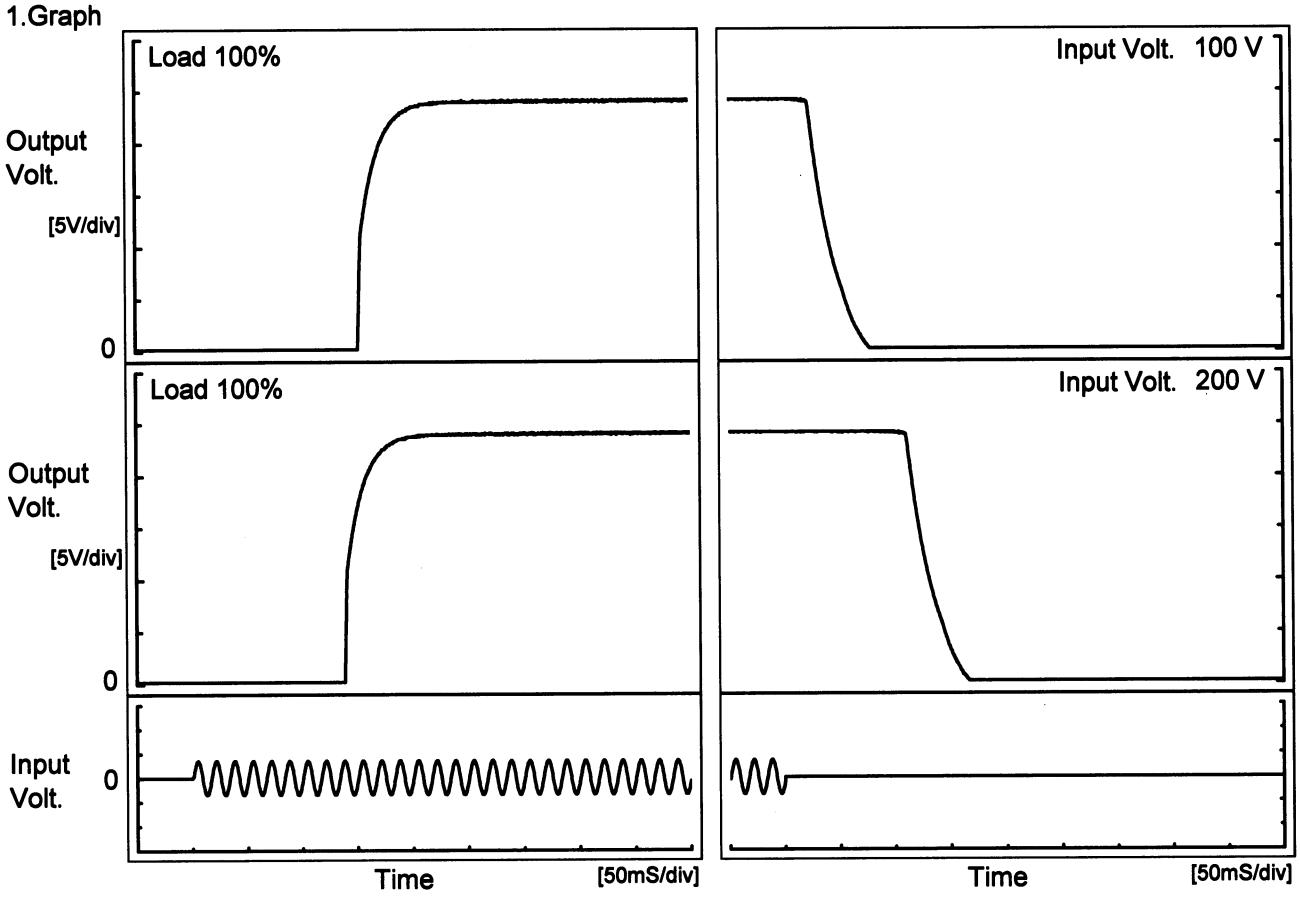
Time since start [H]	Output Voltage [V]
0.0	24.042
0.5	24.045
1.0	24.046
2.0	24.047
3.0	24.048
4.0	24.048
5.0	24.048
6.0	24.048
7.0	24.049
8.0	24.049

COSEL

Model	PBA10F-24
Item	Rise and Fall Time
Object	+24V0.5A

Temperature 25°C
Testing Circuitry Figure A

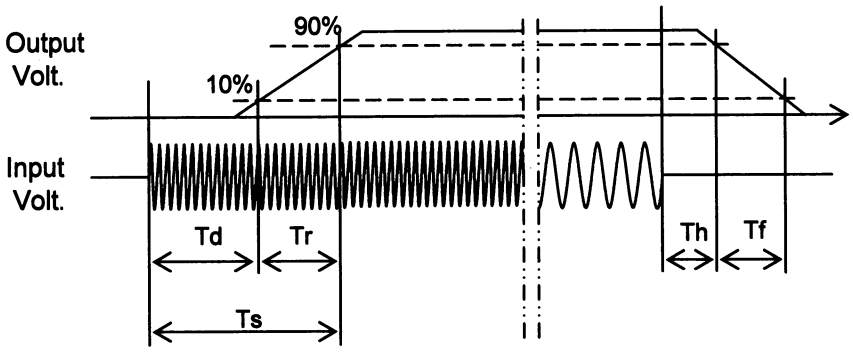
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	152.0	28.8	180.8	23.8	39.5
200 V	139.0	28.5	167.5	112.5	40.0

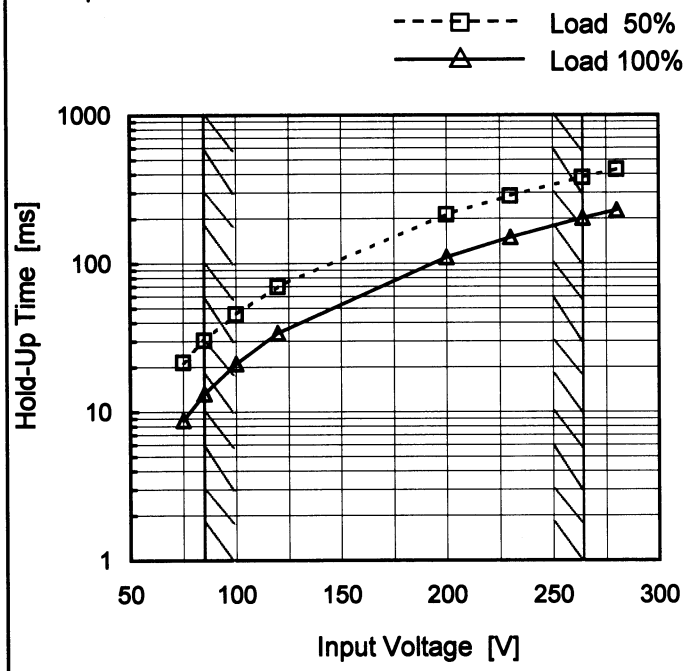


COSEL

Model	PBA10F-24
Item	Hold-Up Time
Object	+24V0.5A

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

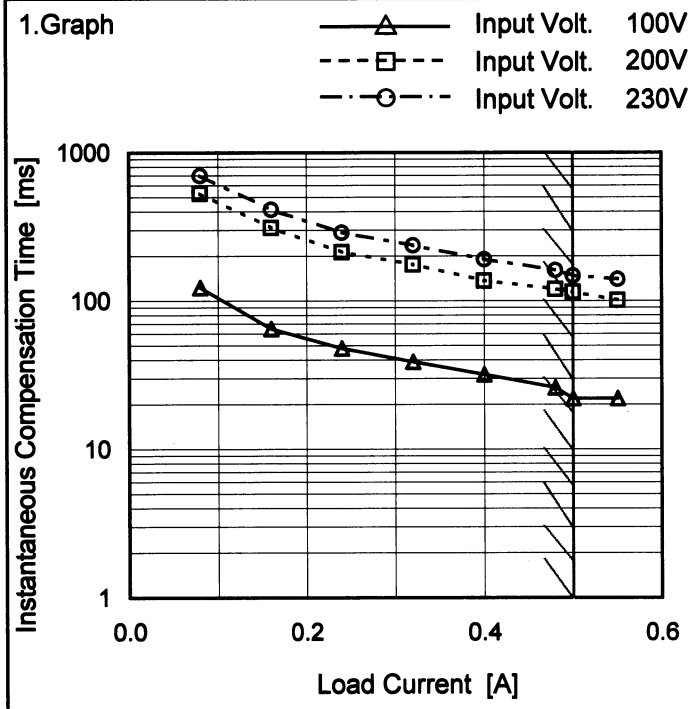
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	22	9
85	30	13
100	46	21
120	70	34
200	214	111
230	286	150
264	381	202
280	431	229
--	-	-

COSEL

Model	PBA10F-24
Item	Instantaneous Interruption Compensation
Object	+24V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

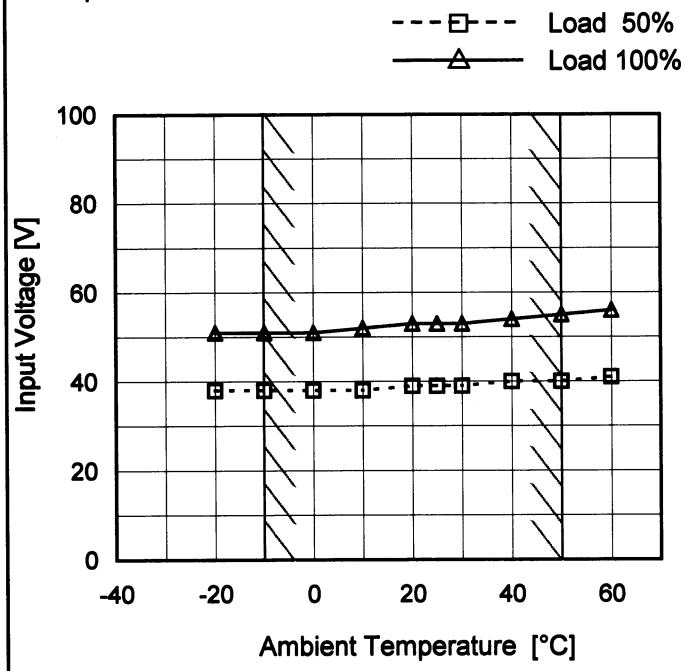
Load Current [A]	Time [ms] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.08	123	531	698
0.16	65	312	414
0.24	48	214	289
0.32	39	176	237
0.40	32	137	191
0.48	26	120	161
0.50	22	115	148
0.55	22	101	140
--	-	-	-
--	-	-	-

COSEL

Model	PBA10F-24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V0.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

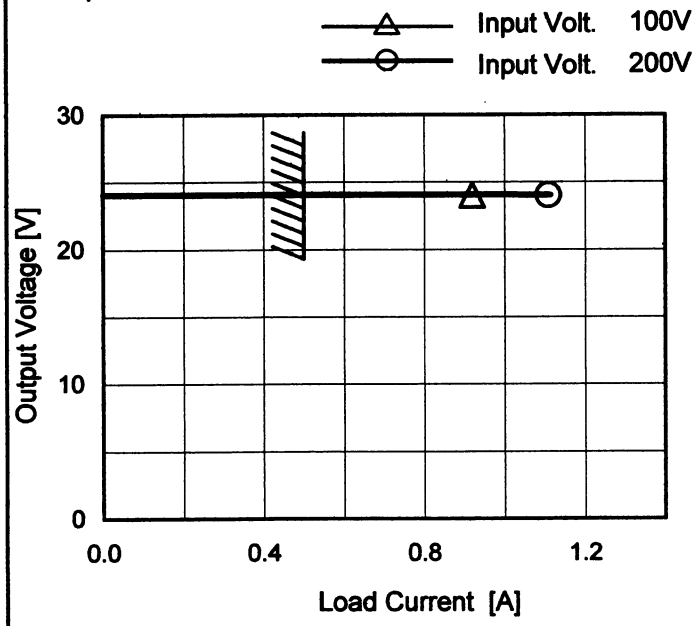
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	38	51
-10	38	51
0	38	51
10	38	52
20	39	53
25	39	53
30	39	53
40	40	54
50	40	55
60	41	56
--	-	-

COSEL

Model	PBA10F-24
Item	Overcurrent Protection
Object	+24V0.5A

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 less than rated output voltage.

2.Values

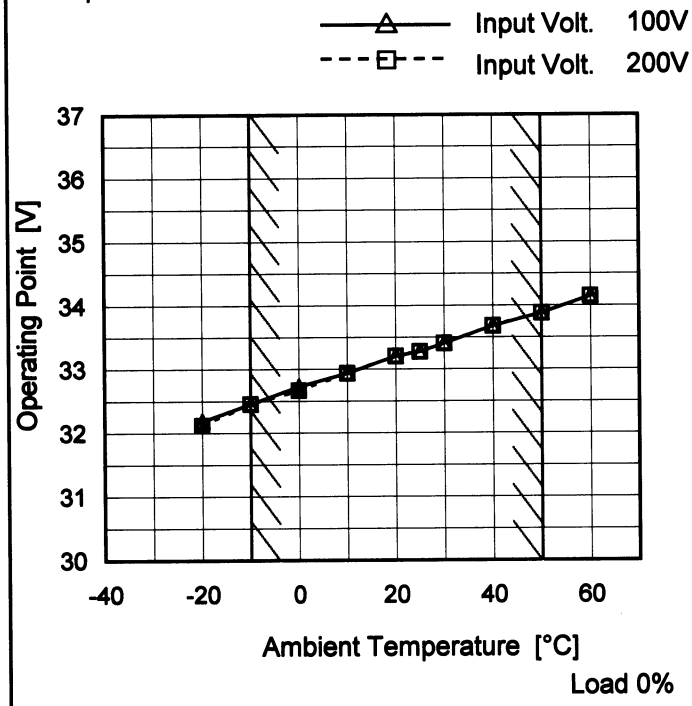
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
24.0	0.92	1.11
22.8	-	-
21.6	-	-
19.2	-	-
16.8	-	-
14.4	-	-
12.0	-	-
9.6	-	-
7.2	-	-
4.8	-	-
2.4	-	-
0.0	-	-

COSEL

Model	PBA10F-24
Item	Overvoltage Protection
Object	+24V0.5A

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	32.19	32.12
-10	32.46	32.46
0	32.73	32.67
10	32.94	32.94
20	33.21	33.21
25	33.28	33.28
30	33.41	33.41
40	33.68	33.68
50	33.88	33.88
60	34.15	34.15
--	-	-

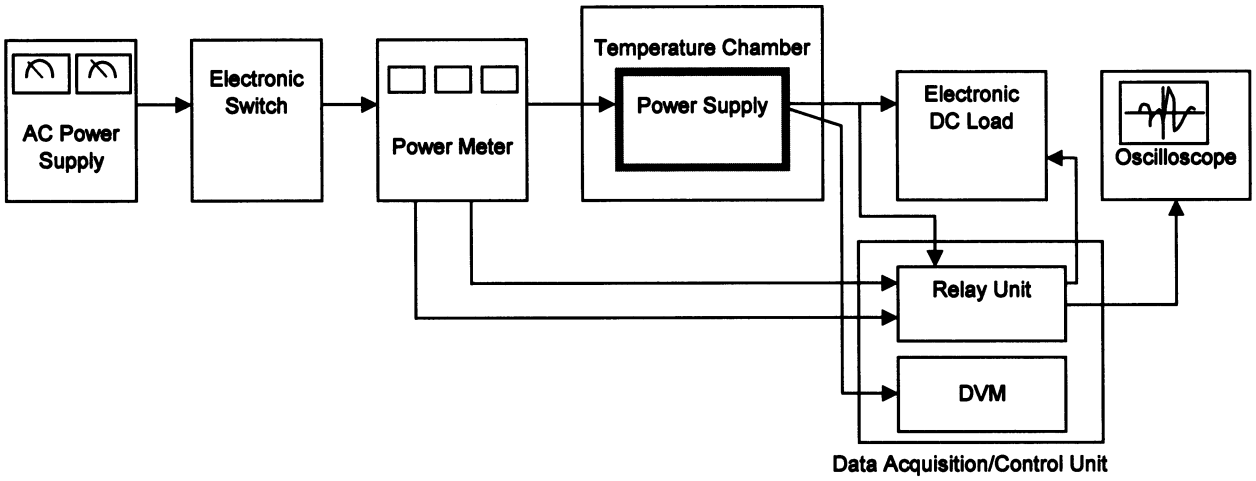


Figure A

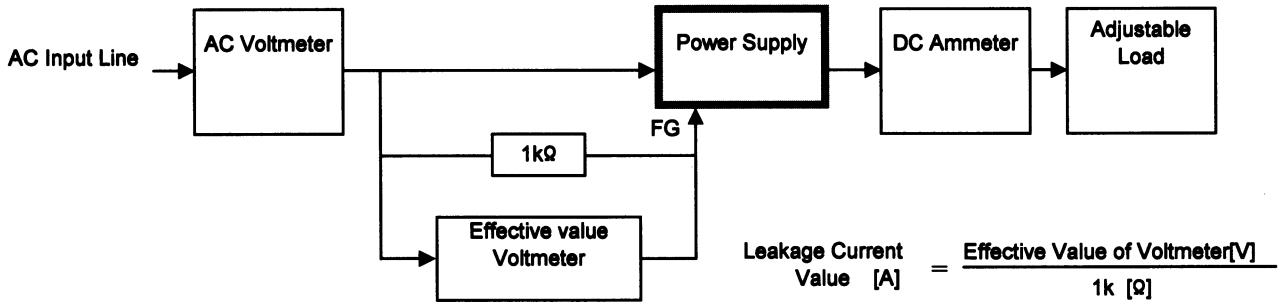


Figure B (DEN-AN)

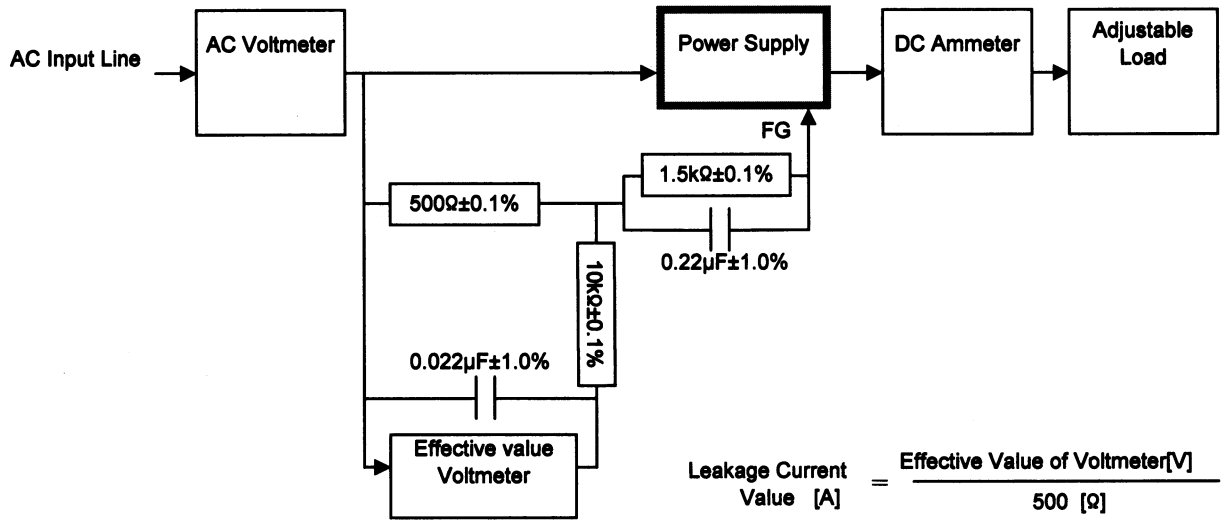


Figure B (IEC60950)