参考資料

COSEL

TEST DATA OF PBA50F-36

Regulated DC Power Supply
Apr.7. 2004

Approved by : Kuniaki Nagahara
Kuniaki Nagahara Design Manager

Prepared by : Koji Todo
Koji Todo Design Engineer

COSEL CO.,LTD.

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Object	———————

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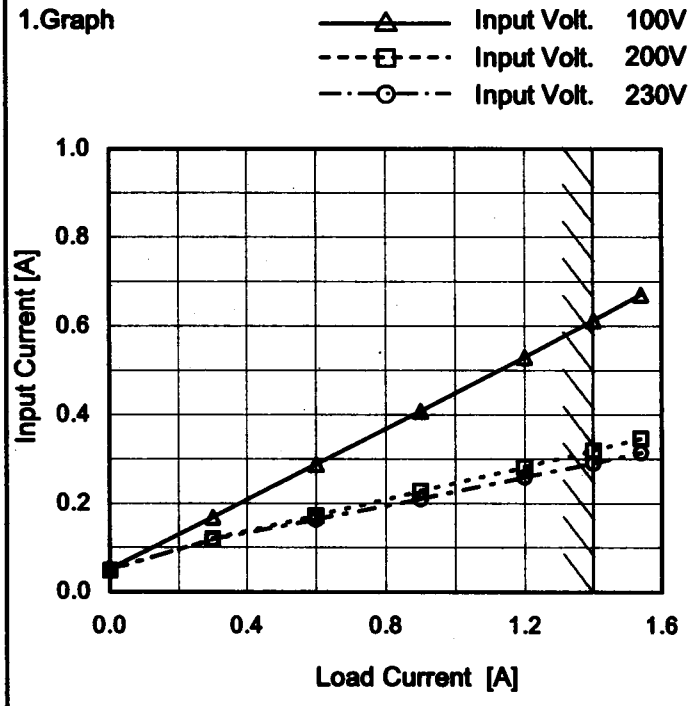


Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.051	0.048	0.050
0.30	0.168	0.119	0.118
0.60	0.288	0.172	0.163
0.90	0.408	0.228	0.210
1.20	0.530	0.282	0.259
1.40	0.612	0.320	0.291
1.54	0.670	0.347	0.315
–	-	-	-
–	-	-	-
–	-	-	-
–	-	-	-

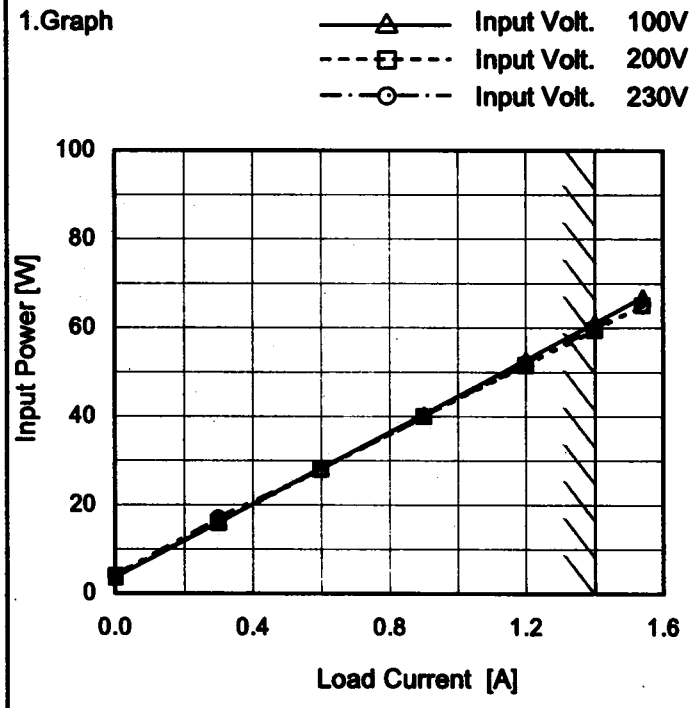
BC-3555

COSEL

Model	PBA50F-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

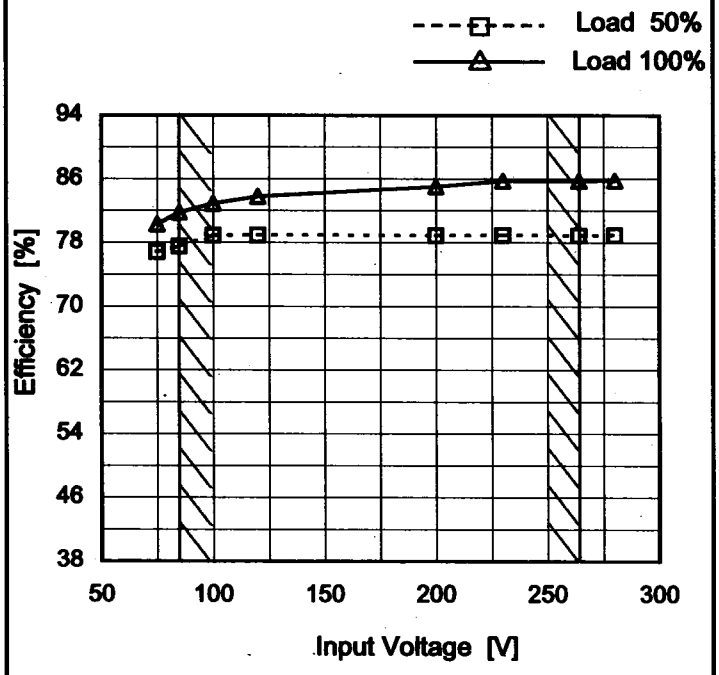
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	3.59	4.00	4.00
0.30	16.02	16.00	17.00
0.60	28.33	28.00	28.00
0.90	40.45	40.00	40.00
1.20	52.76	51.60	52.00
1.40	61.09	59.50	60.00
1.54	66.96	65.10	65.00
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

COSEL

Model	PBA50F-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%
75	76.8	80.3
85	77.5	81.8
100	78.9	82.9
120	78.9	83.8
200	78.9	85.0
230	78.9	85.8
264	78.9	85.8
280	78.9	85.8
--	-	-

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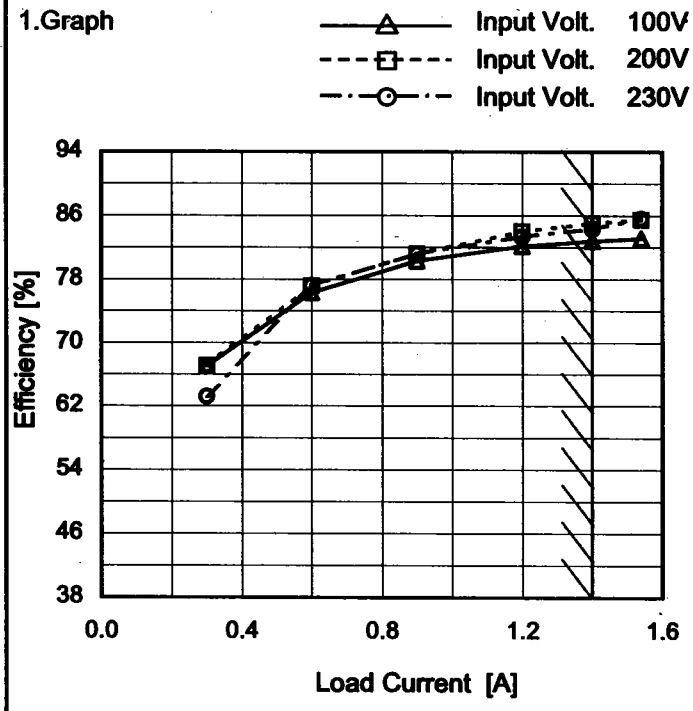
Model	PBA50F-36
Item	Efficiency (by Load Current)
Object	————————

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]
0.00	-	-	-
0.30	67.1	67.2	63.2
0.60	76.3	77.2	77.2
0.90	80.3	81.2	81.2
1.20	82.2	84.0	83.4
1.40	82.8	85.0	84.3
1.54	83.1	85.5	85.7
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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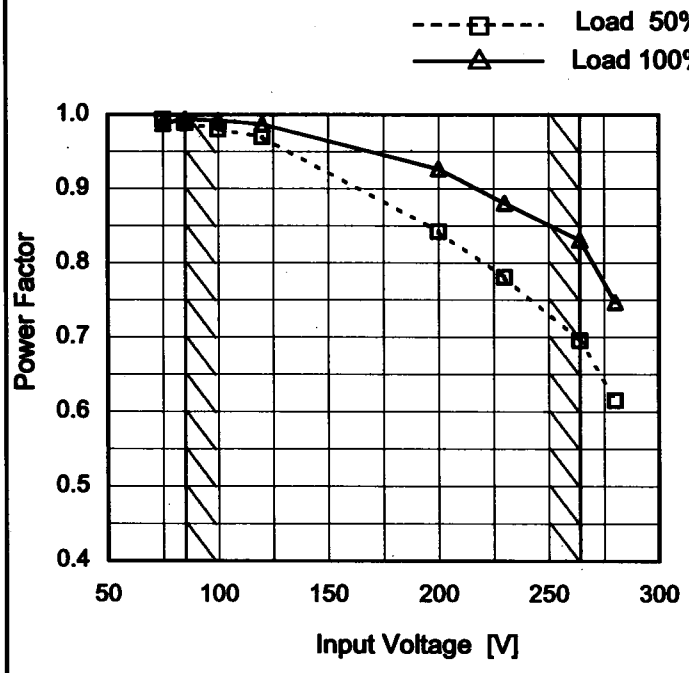
Model	PBA50F-36
Item	Power Factor (by Input Voltage)
Object	————————

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%
75	0.993	0.988
85	0.989	0.994
100	0.980	0.992
120	0.970	0.987
200	0.842	0.927
230	0.780	0.881
264	0.696	0.831
280	0.615	0.747
--	-	-

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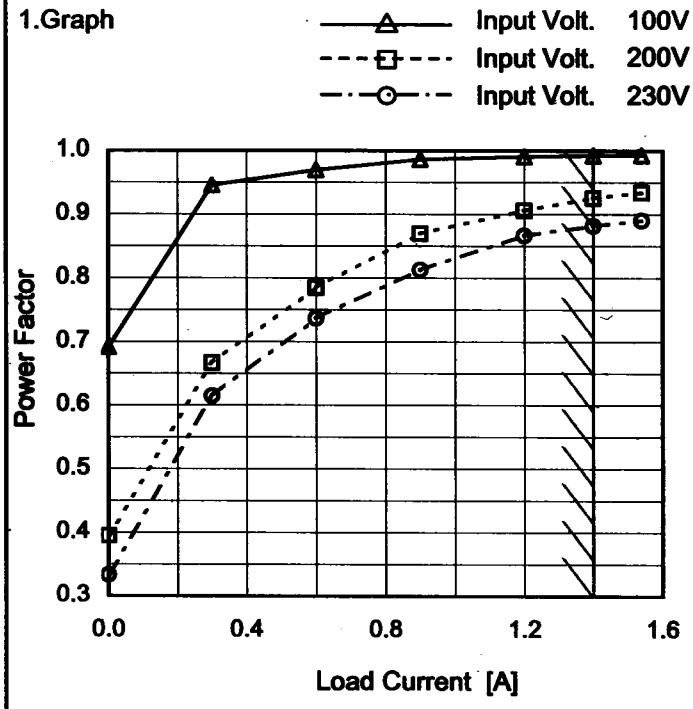
Model	PBA50F-36
Item	Power Factor (by Load Current)
Object	————————

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]
0.00	0.691	0.395	0.333
0.30	0.946	0.667	0.615
0.60	0.970	0.785	0.737
0.90	0.986	0.870	0.813
1.20	0.991	0.906	0.867
1.40	0.993	0.925	0.882
1.54	0.993	0.934	0.890
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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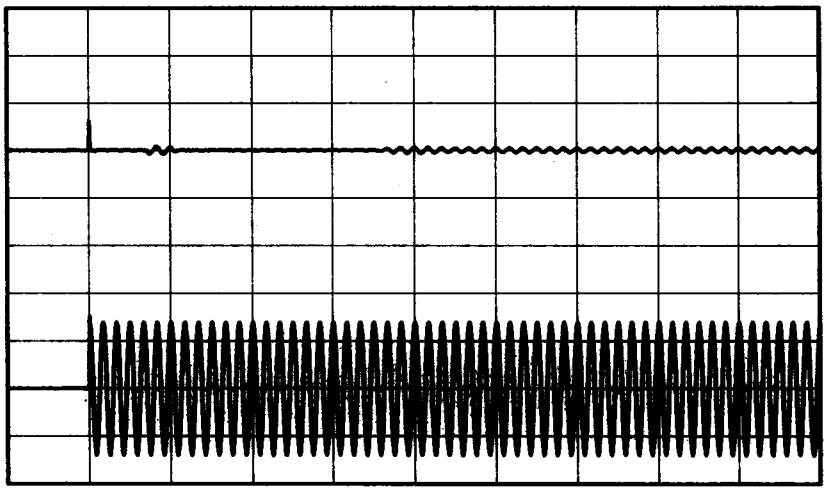
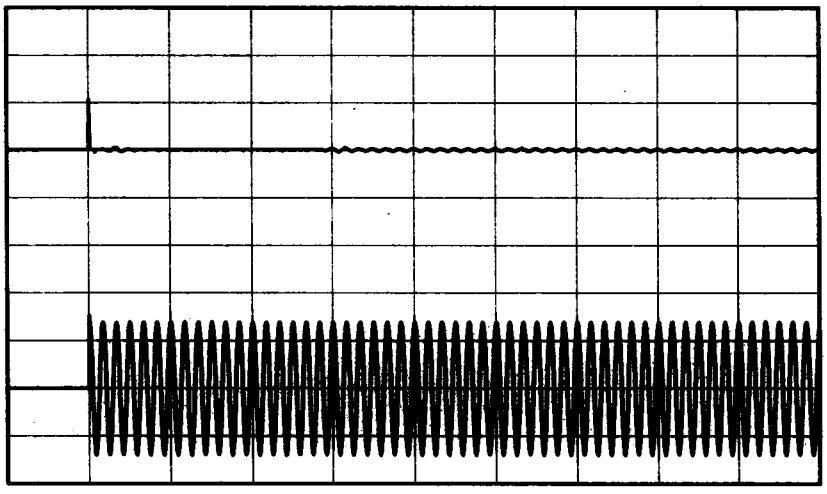
Model	PBA50F-36
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



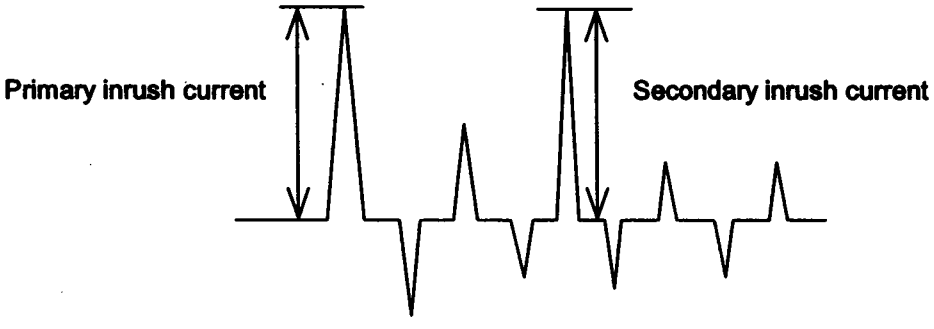
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
12.2 A
Secondary inrush current :
1.6 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	PBA50F-36	
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	0.18	0.30	0.34	Operation
	One of phase	0.22	0.48	0.55	stand by
IEC60950	Both phases	0.18	0.32	0.36	Operation
	One of phase	0.22	0.48	0.55	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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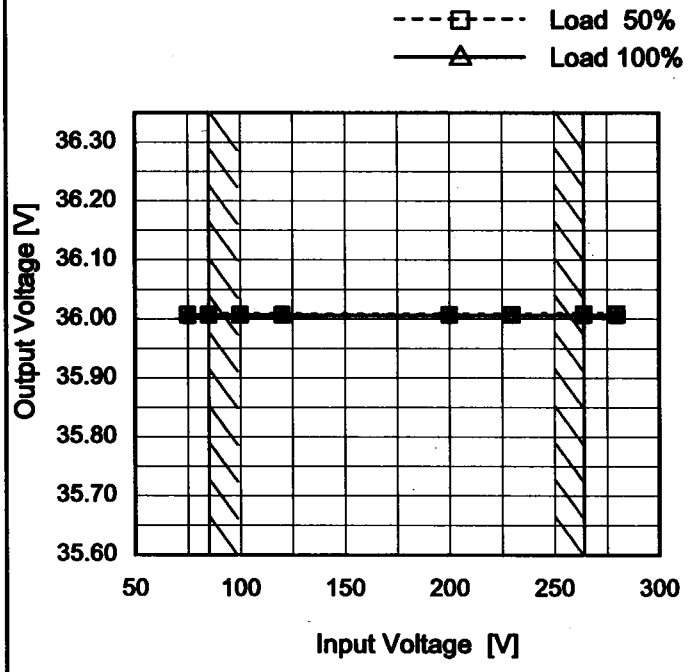
Model	PBA50F-36
Item	Line Regulation
Object	+36V1.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

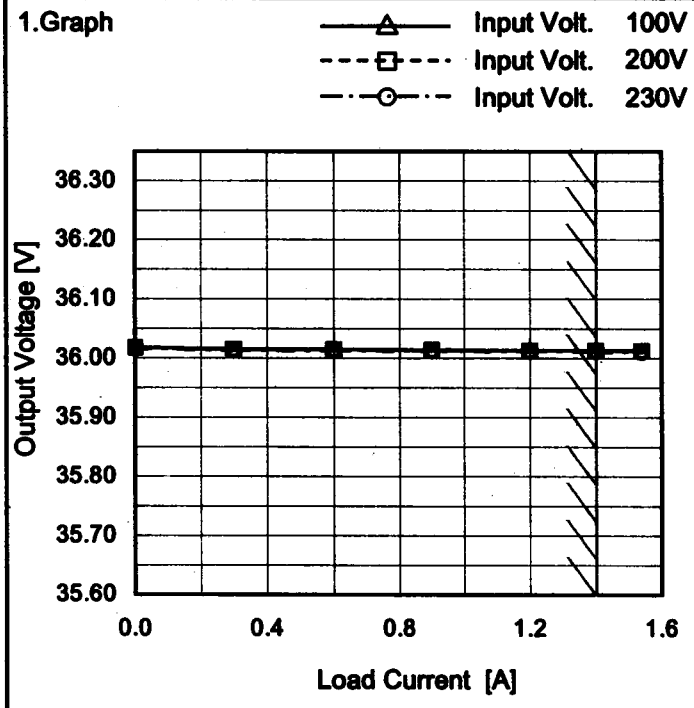
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	36.008	36.006
85	36.009	36.007
100	36.009	36.007
120	36.009	36.007
200	36.009	36.007
230	36.009	36.007
264	36.009	36.007
280	36.009	36.007
–	-	-

COSEL

Model	PBA50F-36
Item	Load Regulation
Object	+36V1.4A

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	36.018	36.018	36.017
0.30	36.015	36.015	36.014
0.60	36.015	36.014	36.013
0.90	36.014	36.014	36.012
1.20	36.013	36.013	36.012
1.40	36.013	36.013	36.011
1.54	36.013	36.012	36.010
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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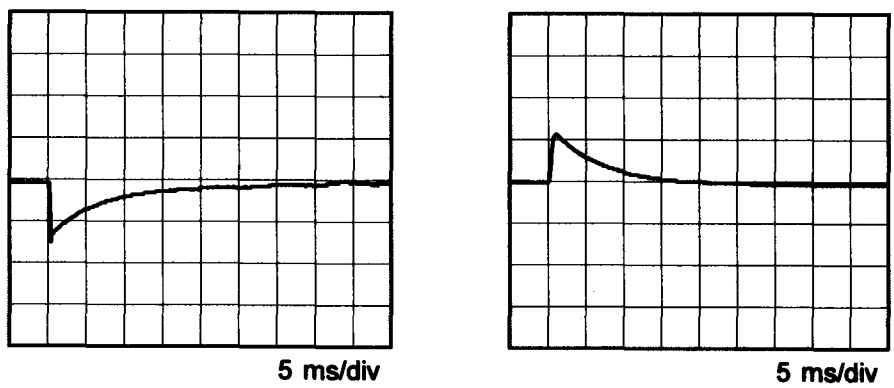
Model	PBA50F-36		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+36V1.4A		

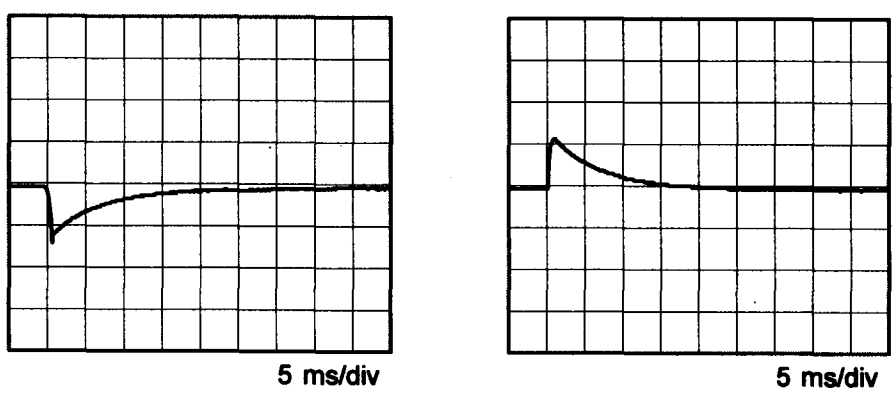
Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (1.4A)



Min. Load (0A) ⟷
Load 50% (0.7A)



* The characteristic of AC200V is equal.

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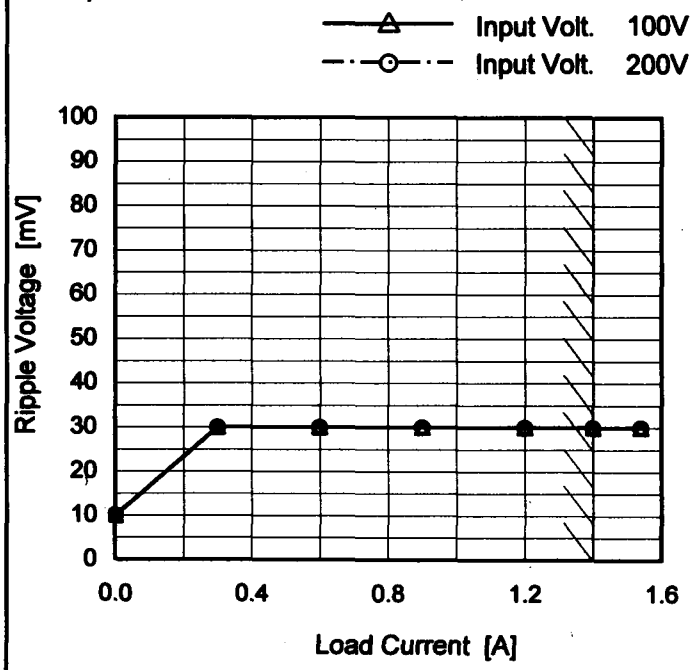
Model	PBA50F-36
Item	Ripple Voltage (by Load Current)
Object	+36V1.4A

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	10
0.30	30	30
0.60	30	30
0.90	30	30
1.20	30	30
1.40	30	30
1.54	30	30
–	-	-
–	-	-
–	-	-
–	-	-

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

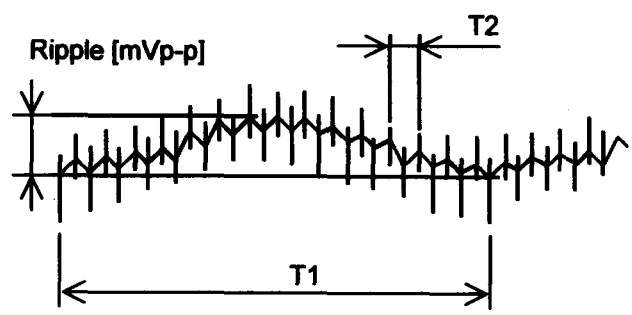


Fig. Complex Ripple Wave Form

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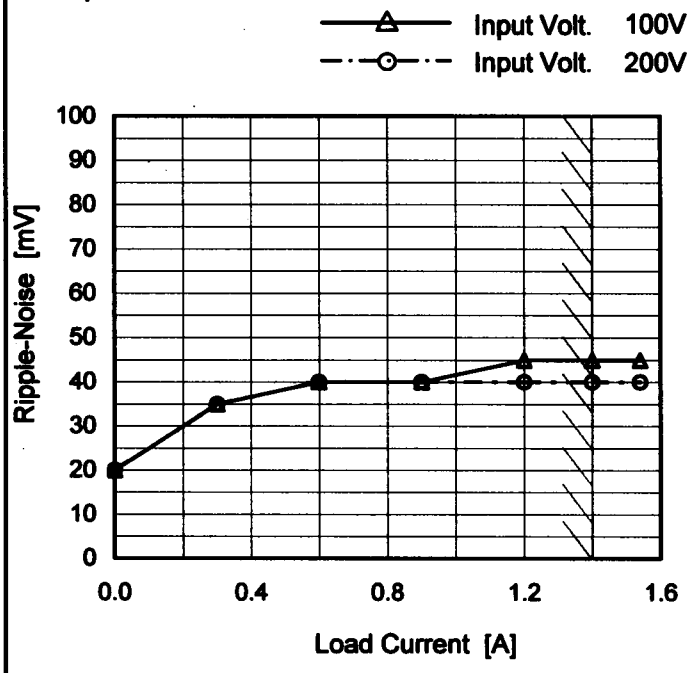
Model	PBA50F-36
Item	Ripple-Noise
Object	+36V1.4A

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	20	20
0.30	35	35
0.60	40	40
0.90	40	40
1.20	45	40
1.40	45	40
1.54	45	40
–	-	-
–	-	-
–	-	-
–	-	-

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

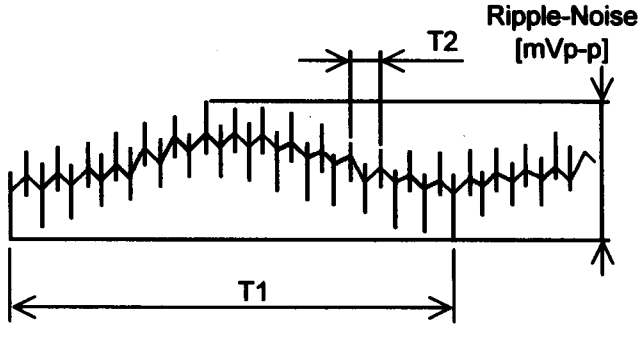


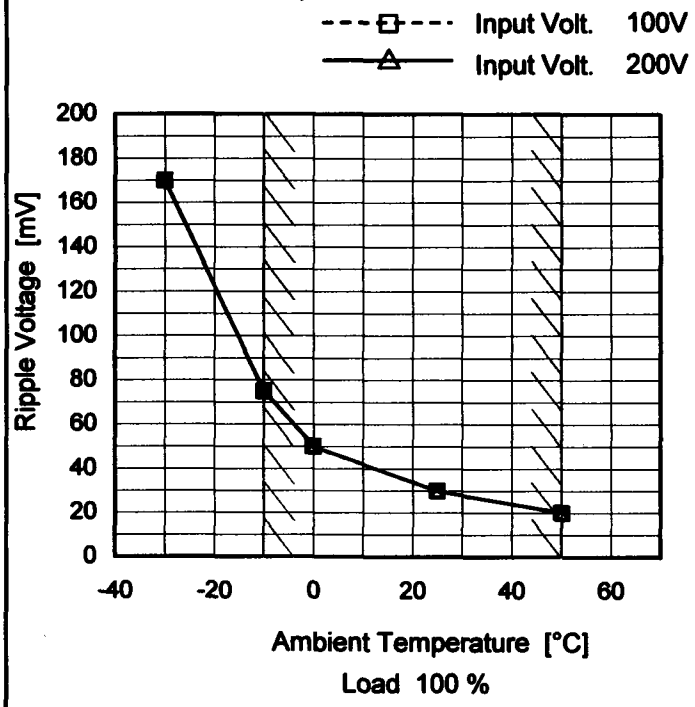
Fig. Complex Ripple Wave Form

COSEL

Model	PBA50F-36
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V1.4A

Testing Circuitry Figure A

1.Graph



Load 100 %

Measured by 20 MHz Oscilloscope.

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

2.Values

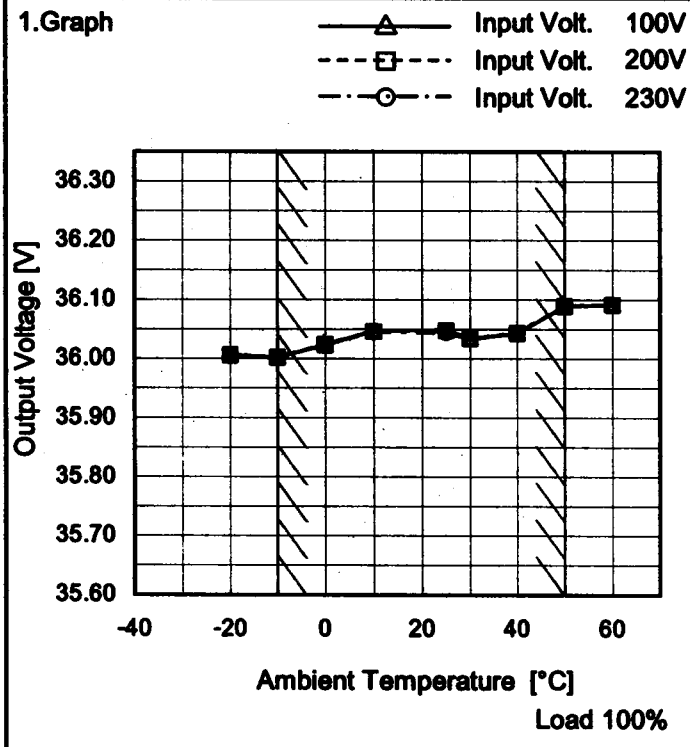
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	170	170
-10	75	75
0	50	50
25	30	30
50	20	20
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA50F-36
Item	Ambient Temperature Drift
Object	+36V1.4A

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	36.005	36.006	36.005
-10	36.002	36.002	36.002
0	36.023	36.024	36.024
10	36.047	36.046	36.045
25	36.049	36.048	36.044
30	36.034	36.034	36.033
40	36.043	36.044	36.043
50	36.089	36.090	36.090
60	36.092	36.092	36.092
—	-	-	-
—	-	-	-

COSEL

Model	PBA50F-36	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+36V1.4A	

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 - 1.4A

* 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

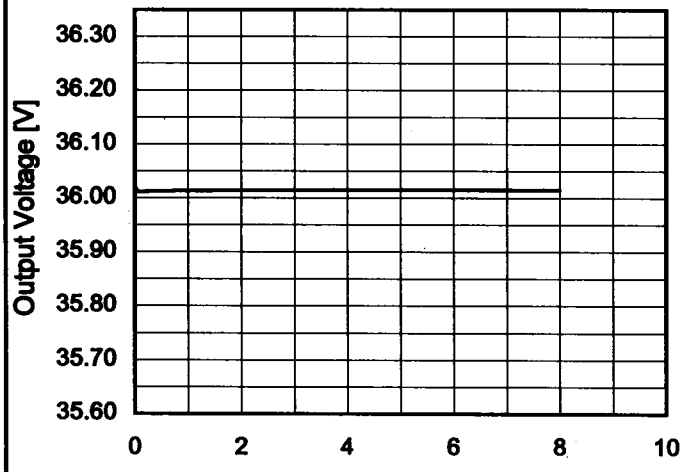
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	264	0	36.091	±45	±0.1
Minimum Voltage	-10	85	1.4	36.002		

COSEL

Model	PBA50F-36
Item	Time Lapse Drift
Object	+36V1.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

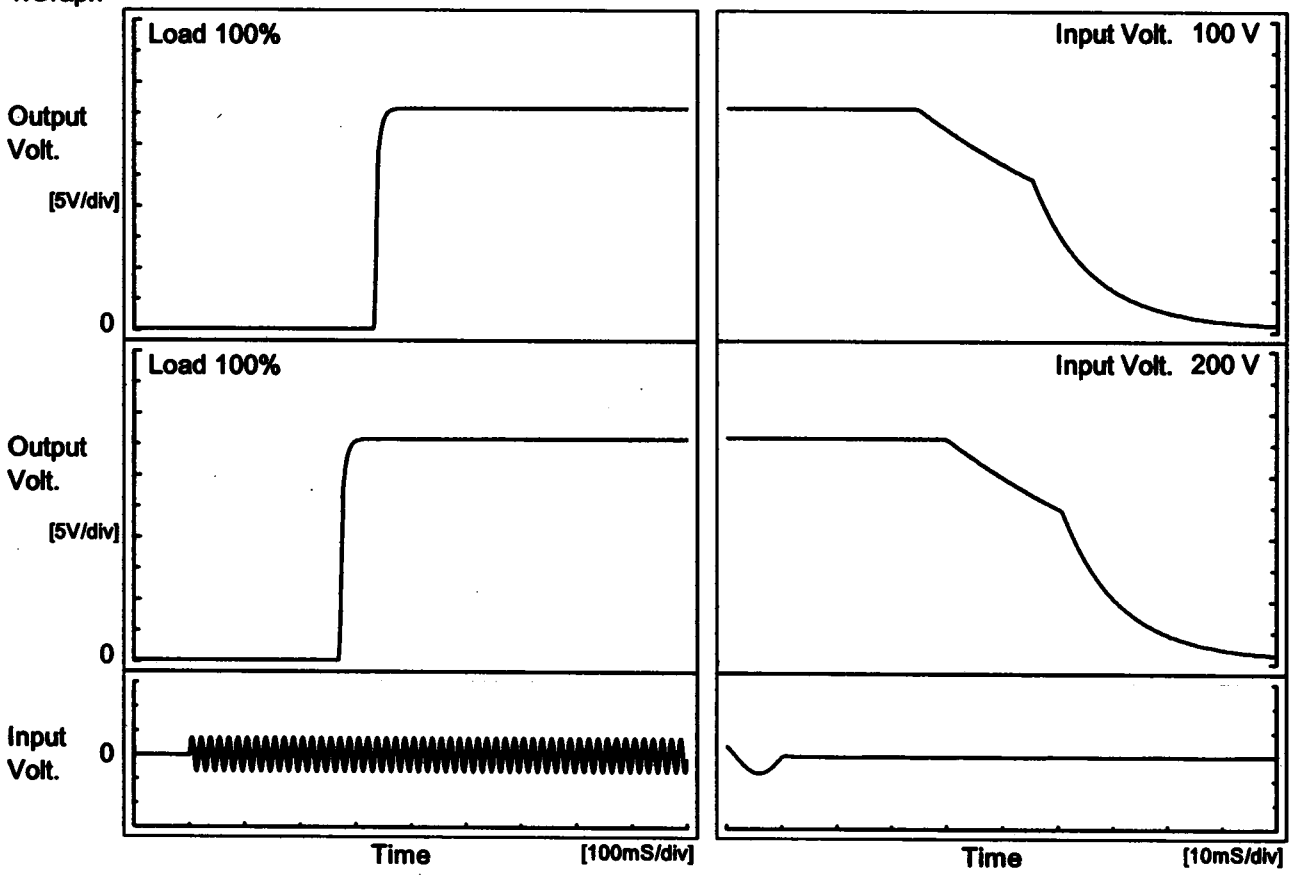
Time since start [H]	Output Voltage [V]
0.0	36.022
0.5	36.013
1.0	36.013
2.0	36.014
3.0	36.015
4.0	36.015
5.0	36.015
6.0	36.015
7.0	36.016
8.0	36.016

COSEL

Model	PBA50F-36
Item	Rise and Fall Time
Object	+36V1.4A

Temperature 25°C
Testing Circuitry Figure A

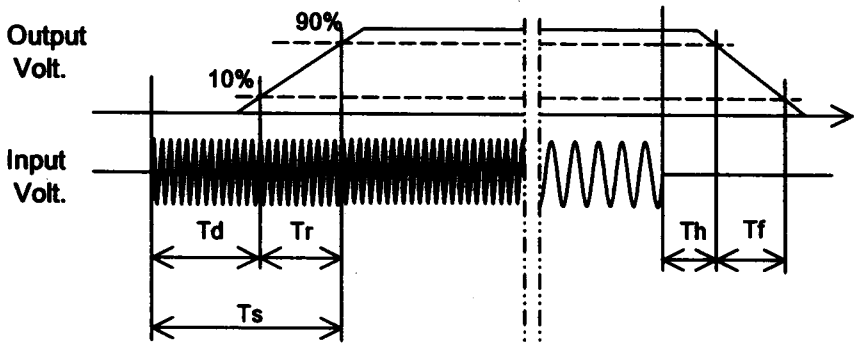
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	333.5	12.5	346.0	30.1	37.6
200 V	271.0	12.5	283.5	35.3	37.8

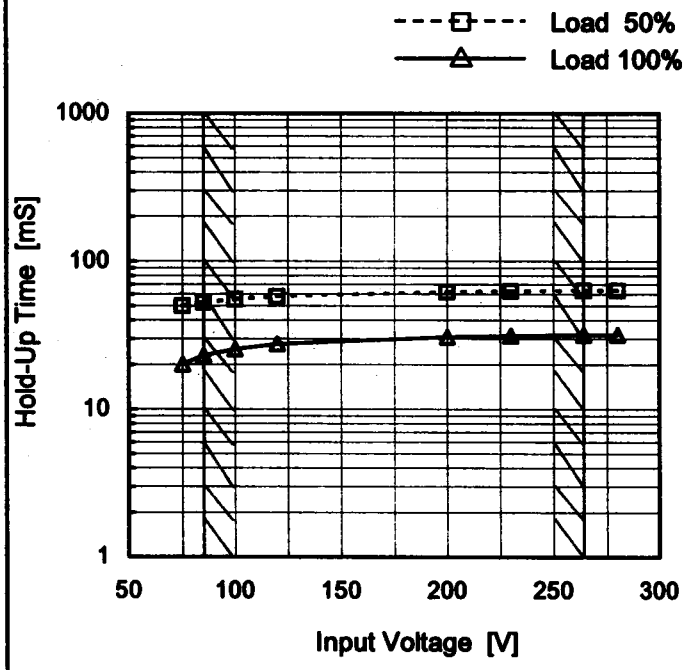


COSEL

Model	PBA50F-36
Item	Hold-Up Time
Object	+36V1.4A

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	50	20
85	53	23
100	56	26
120	58	28
200	62	31
230	63	31
264	64	32
280	64	32
–	-	-

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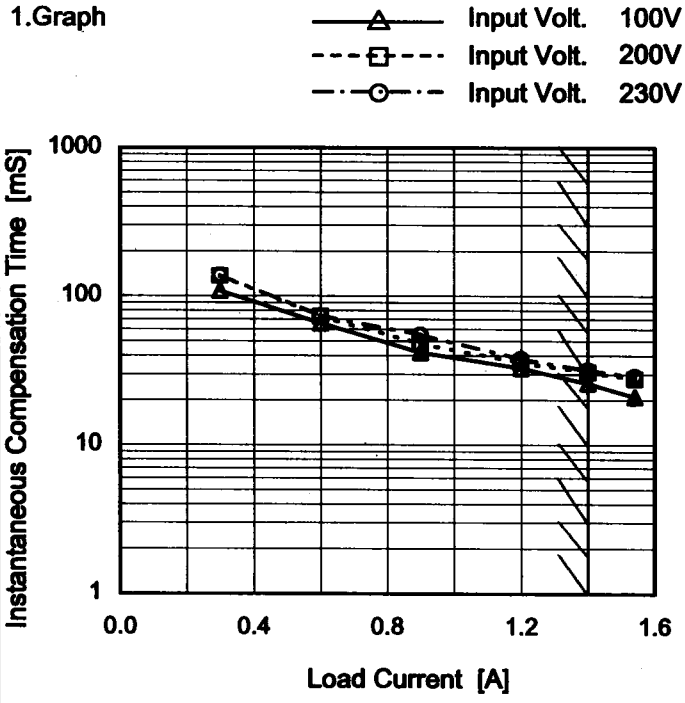
Model	PBA50F-36
Item	Instantaneous Interruption Compensation
Object	+36V1.4A

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	-	-	-
0.30	108	137	138
0.60	66	73	74
0.90	42	48	55
1.20	33	36	38
1.40	26	31	32
1.54	21	28	29
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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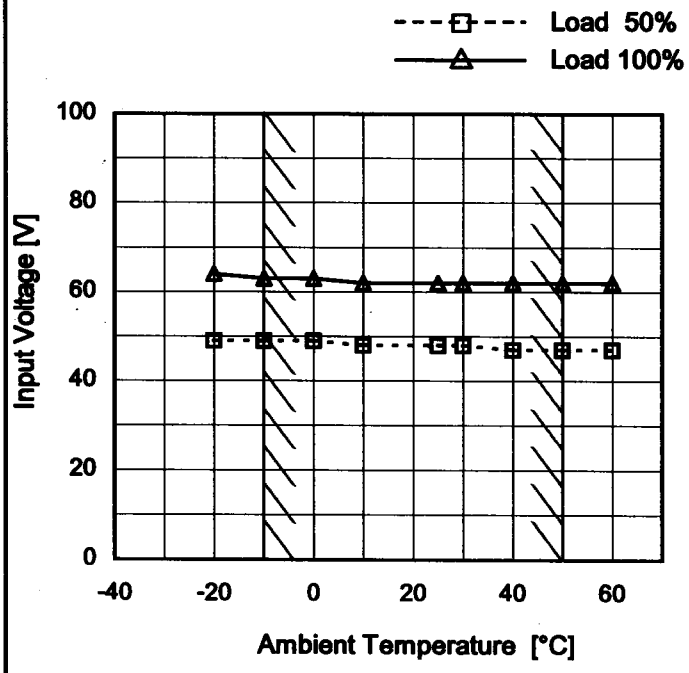
Model	PBA50F-36
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+36V1.4A

Testing Circuitry Figure A

1.Graph



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

2.Values

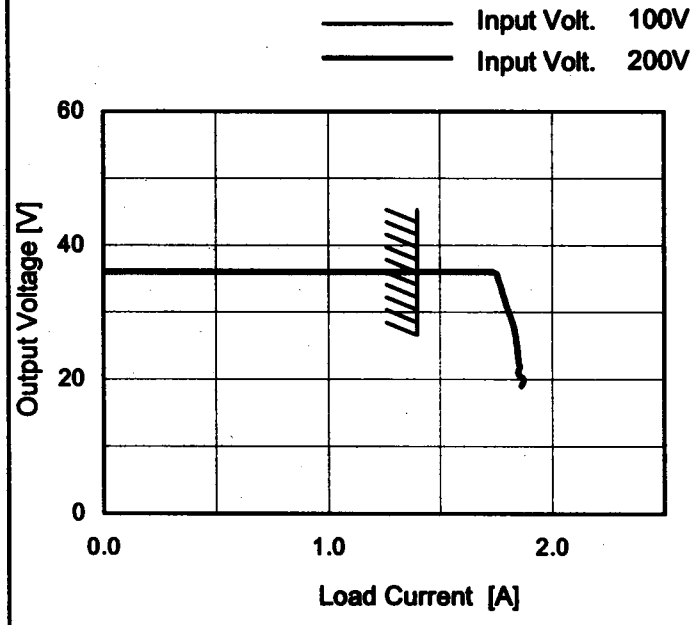
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	49	64
-10	49	63
0	49	63
10	48	62
25	48	62
30	48	62
40	47	62
50	47	62
60	47	62
—	-	-
—	-	-

COSEL

Model	PBA50F-36
Item	Overcurrent Protection
Object	+36V1.4A

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 18V to 0V.

2.Values

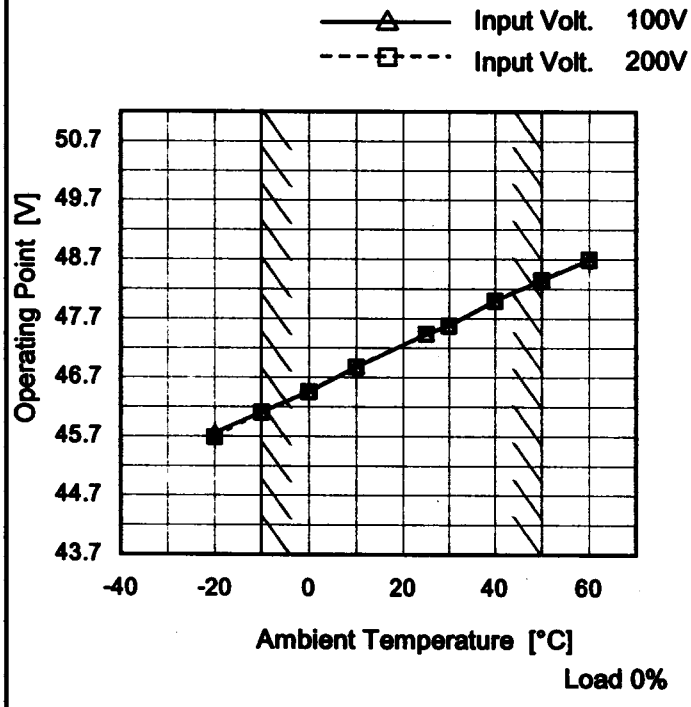
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
36.0	1.44	1.44
34.2	1.77	1.77
32.4	1.78	1.78
28.8	1.82	1.82
25.2	1.84	1.84
21.6	1.86	1.85
18.0	1.86	1.86
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA50F-36
Item	Overvoltage Protection
Object	+36V1.4A

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]	Operating Point [V] Input Volt. 200[V]
-20	45.73	45.66
-10	46.08	46.08
0	46.43	46.43
10	46.85	46.85
25	47.41	47.41
30	47.55	47.55
40	47.97	47.97
50	48.32	48.32
60	48.66	48.67
—	-	-
—	-	-

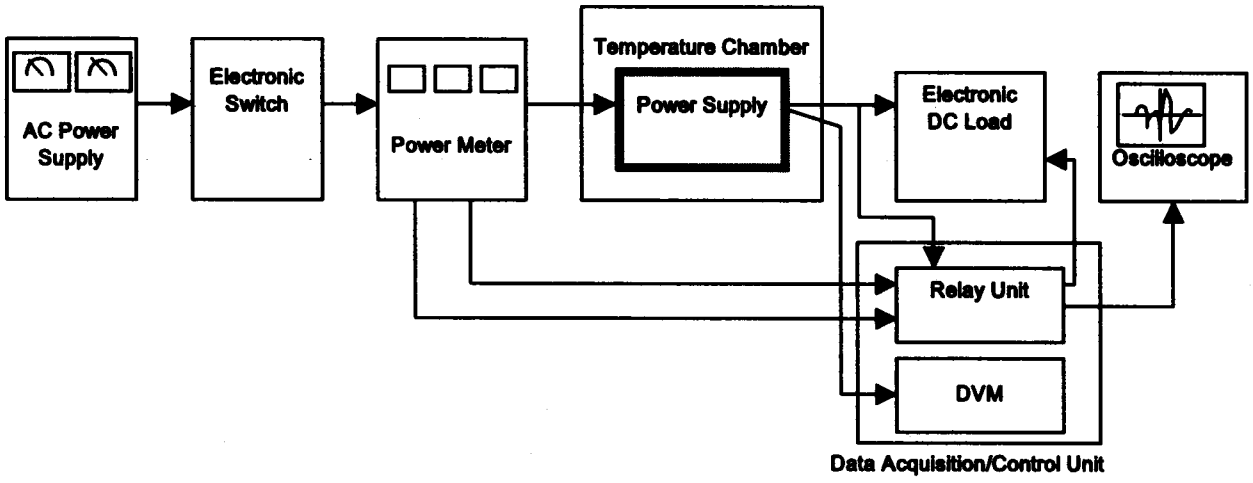


Figure A

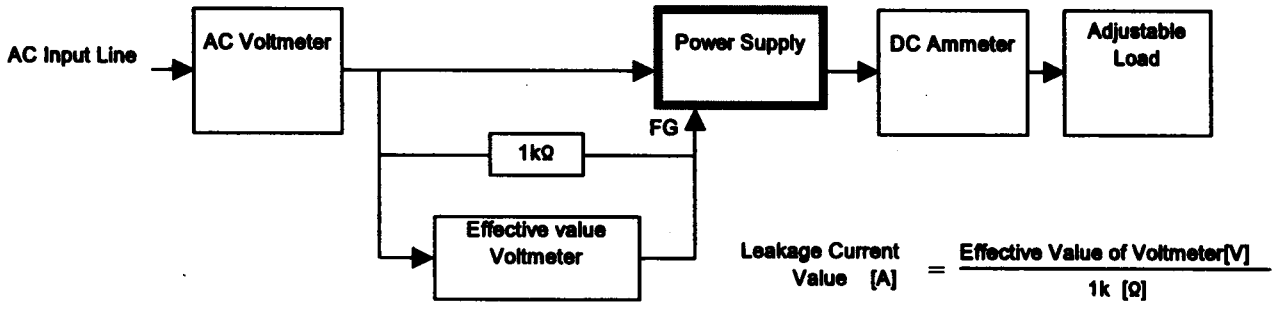


Figure B (DEN-AN)

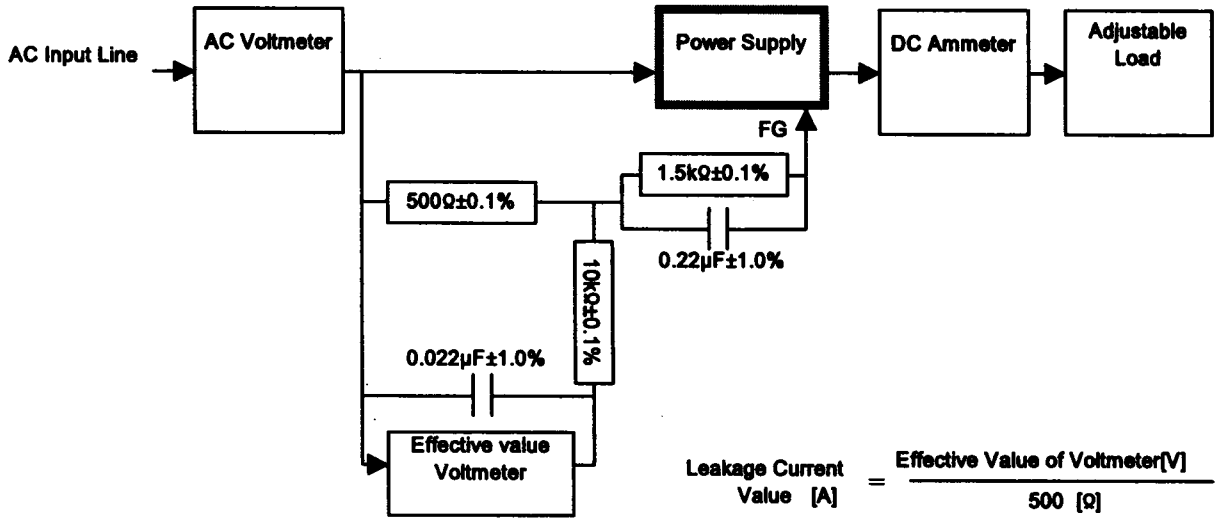


Figure B (IEC60950)