参考資料

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TEST DATA OF PBA150F-36

Regulated DC Power Supply
Apr.7. 2004

Approved by : Kuniaki Nagahara
Kuniaki Nagahara Design Manager

Prepared by : Tetsuo Koide
Tetsuo Koide Design Engineer

COSEL CO.,LTD.

参考資料

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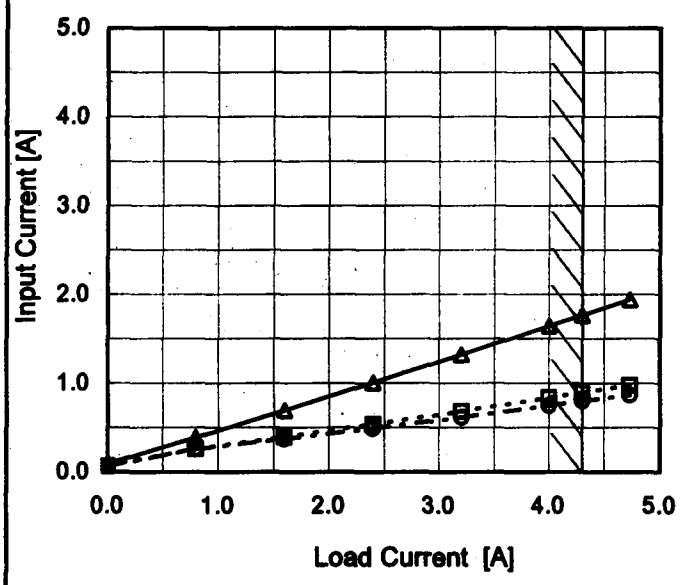
Model	PBA150F-36
Item	Input Current (by Load Current)
Object	————————

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]
0.00	0.095	0.068	0.066
0.80	0.388	0.262	0.257
1.60	0.694	0.392	0.371
2.40	1.005	0.536	0.488
3.20	1.322	0.684	0.616
4.00	1.646	0.838	0.746
4.30	1.768	0.896	0.796
4.73	1.945	0.978	0.866
--	-	-	-
--	-	-	-
--	-	-	-

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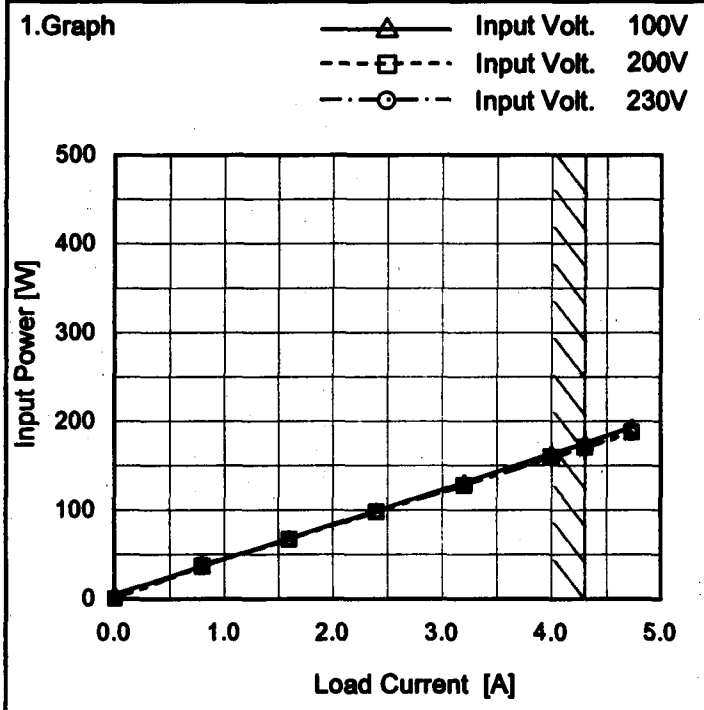
Model	PBA150F-36
Item	Input Power (by Load Current)
Object	————————

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	5.1	-	-
0.80	36.9	37.0	38.0
1.60	68.1	67.0	67.0
2.40	99.3	98.0	98.0
3.20	131.1	128.0	128.0
4.00	163.5	160.0	159.0
4.30	175.8	171.0	170.0
4.73	193.5	188.0	187.0
--	-	-	-
--	-	-	-
--	-	-	-

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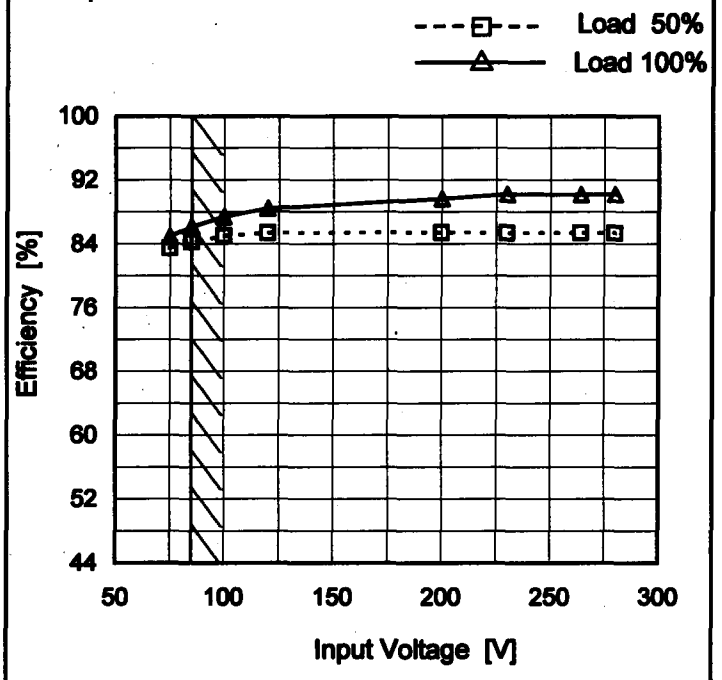
Model	PBA150F-36
Item	Efficiency (by Input Voltage)
Object	――――――――

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	83.5	84.9
85	84.3	86.2
100	85.0	87.4
120	85.4	88.4
200	85.5	89.7
230	85.4	90.2
264	85.4	90.2
280	85.3	90.2
–	-	-

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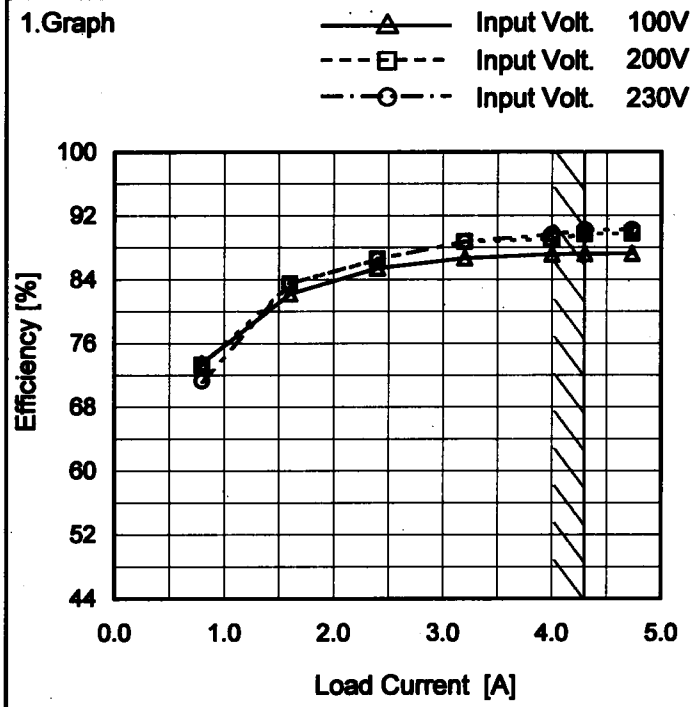
COSEL

Model	PBA150F-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	-	-	-
0.80	73.5	73.3	71.3
1.60	82.2	83.5	83.5
2.40	85.4	86.6	86.6
3.20	86.7	88.8	88.8
4.00	87.2	89.1	89.6
4.30	87.2	89.7	90.2
4.73	87.2	89.8	90.3
—	-	-	-
—	-	-	-
—	-	-	-

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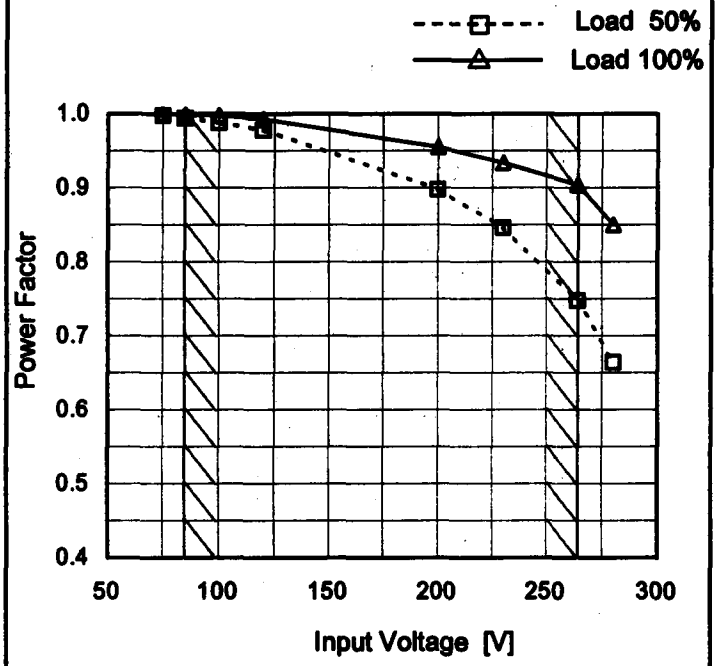
Model	PBA150F-36
Item	Power Factor (by Input Voltage)
Object	――――――――

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	0.998	0.999
85	0.994	0.999
100	0.988	0.998
120	0.978	0.993
200	0.898	0.955
230	0.846	0.934
264	0.748	0.904
280	0.664	0.850
--	-	-

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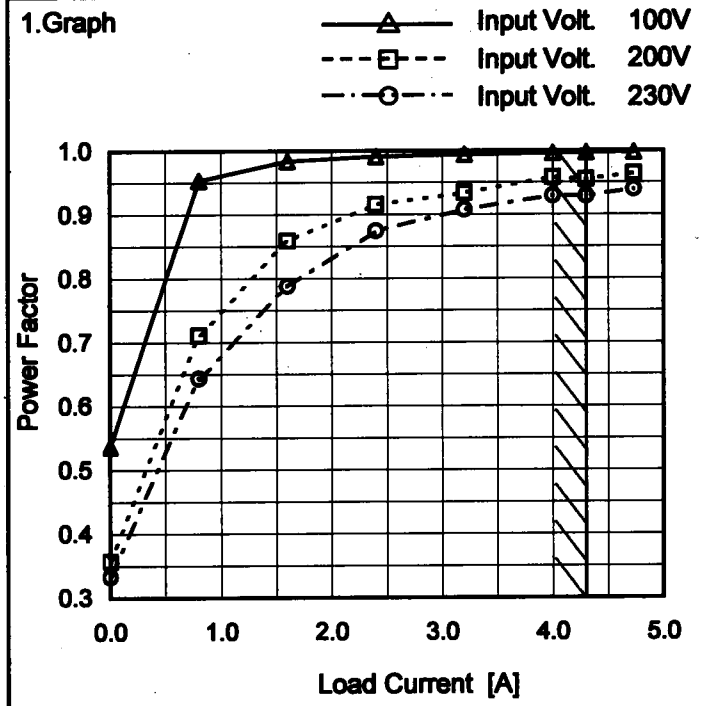
Model	PBA150F-36
Item	Power Factor (by Load Current)
Object	————————

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	0.537	0.357	0.333
0.80	0.953	0.712	0.644
1.60	0.984	0.859	0.788
2.40	0.991	0.916	0.875
3.20	0.994	0.934	0.908
4.00	0.996	0.958	0.930
4.30	0.997	0.955	0.929
4.73	0.997	0.964	0.940
—	-	-	-
—	-	-	-
—	-	-	-

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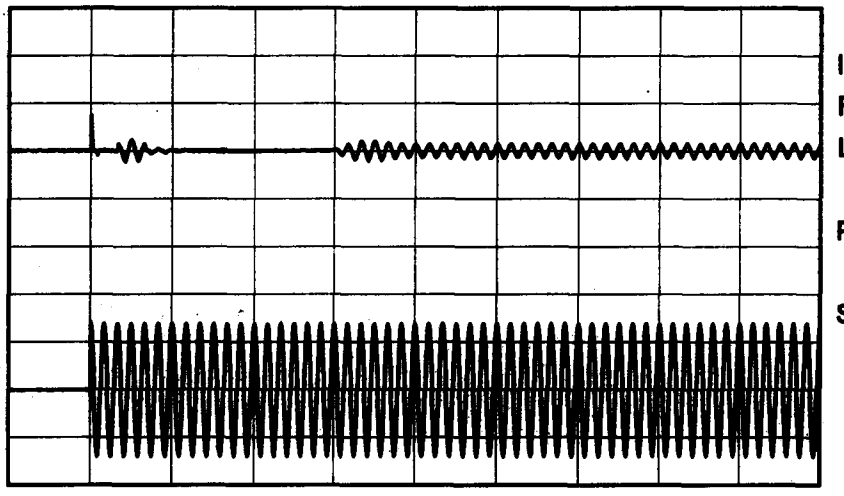
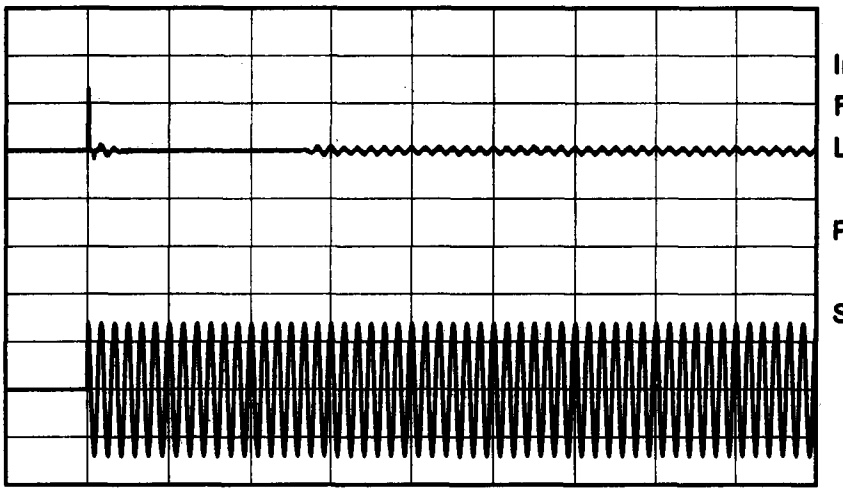
Model	PBA150F-36	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	————————		



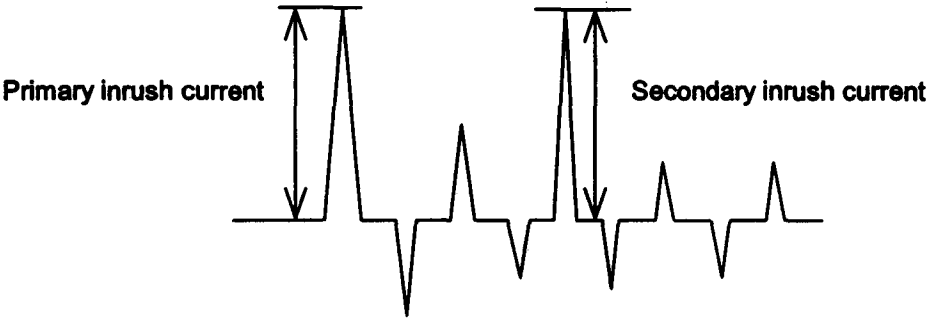
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current : 14.9 A
Secondary inrush current : 4.7 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current : 26.1 A
Secondary inrush current : 2.1 A



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Model	PBA150F-36	Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure B
Object	――――――――		

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	230 [V]	
DEN-AN	Both phases	0.19	0.37	0.43	Operation
	One of phase	0.27	0.54	0.62	stand by
IEC60950	Both phases	0.19	0.38	0.48	Operation
	One of phase	0.27	0.58	0.71	stand by

The value for "One phase" is the reference value only.

2.Condition

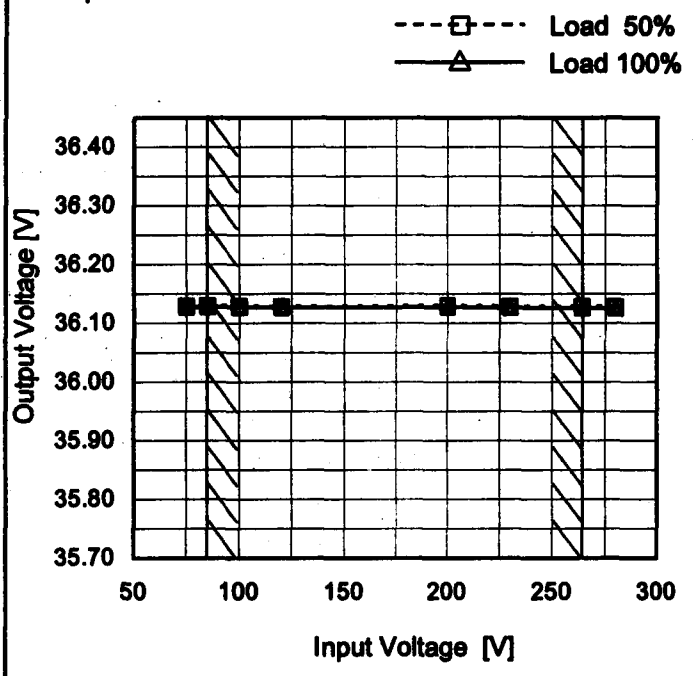
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

COSEL

Model	PBA150F-36
Item	Line Regulation
Object	+36V4.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

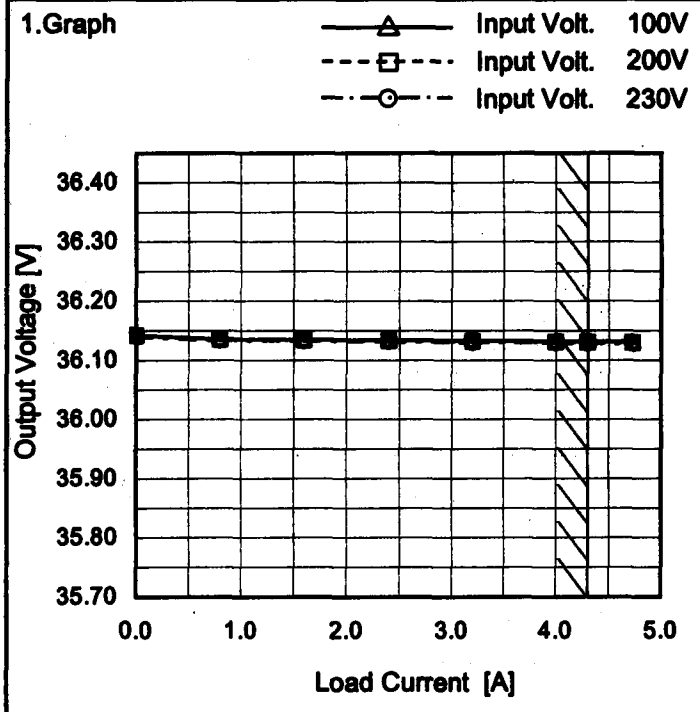
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	36.130	36.128
85	36.130	36.128
100	36.129	36.128
120	36.129	36.127
200	36.130	36.128
230	36.129	36.127
264	36.129	36.126
280	36.128	36.126
--	-	-

COSEL

Model	PBA150F-36
Item	Load Regulation
Object	+36V4.3A

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	36.142	36.143	36.140
0.80	36.136	36.136	36.134
1.60	36.135	36.135	36.132
2.40	36.134	36.133	36.131
3.20	36.133	36.132	36.130
4.00	36.132	36.131	36.129
4.30	36.132	36.131	36.128
4.73	36.131	36.130	36.128
–	-	-	-
–	-	-	-
–	-	-	-

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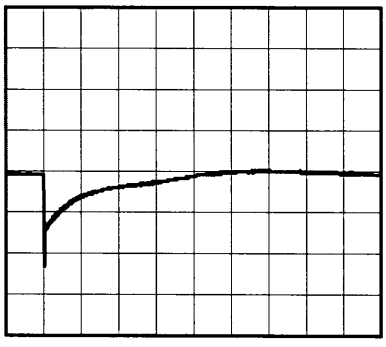
Model	PBA150F-36		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+36V4.3A		

Input Volt. 100 V
Cycle 1000 ms

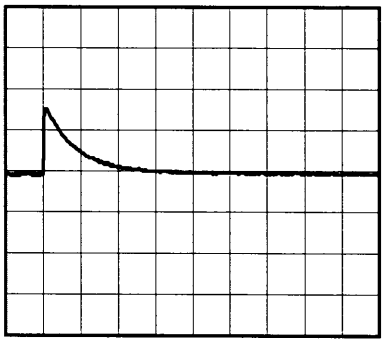
Load Current

Min. Load (0A) ←→
Load 100% (4.3A)



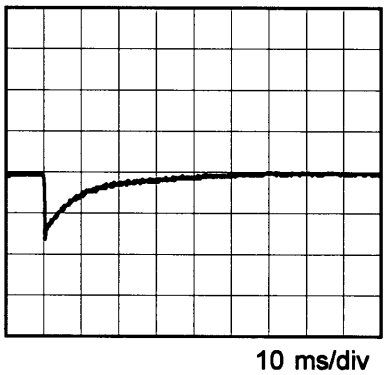
100 mV/div

10 ms/div



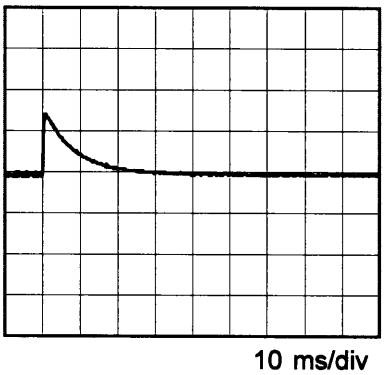
10 ms/div

Min. Load (0A) ←→
Load 50% (2.15A)



100 mV/div

10 ms/div



10 ms/div

* The characteristic of AC200V is equal.

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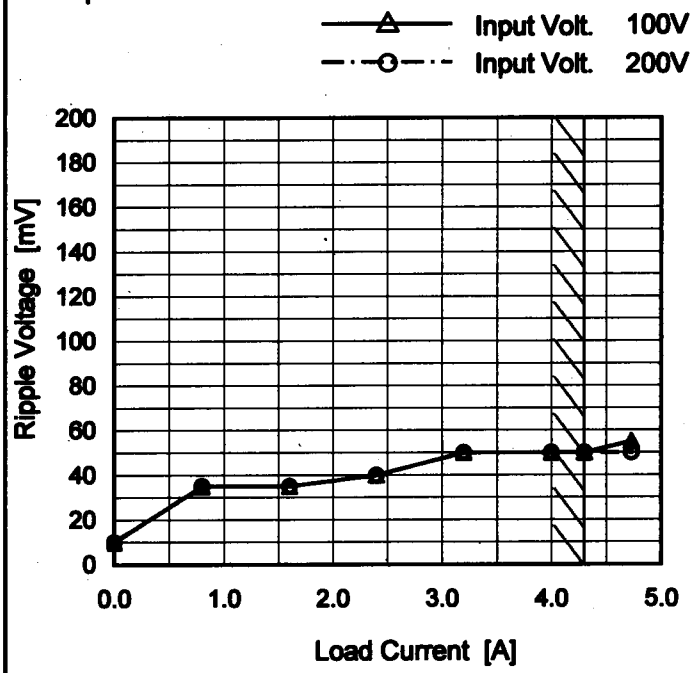
Model	PBA150F-36
Item	Ripple Voltage (by Load Current)
Object	+36V4.3A

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

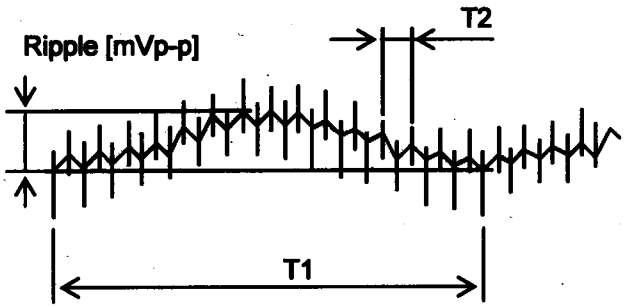


Fig. Complex Ripple Wave Form

2.Values

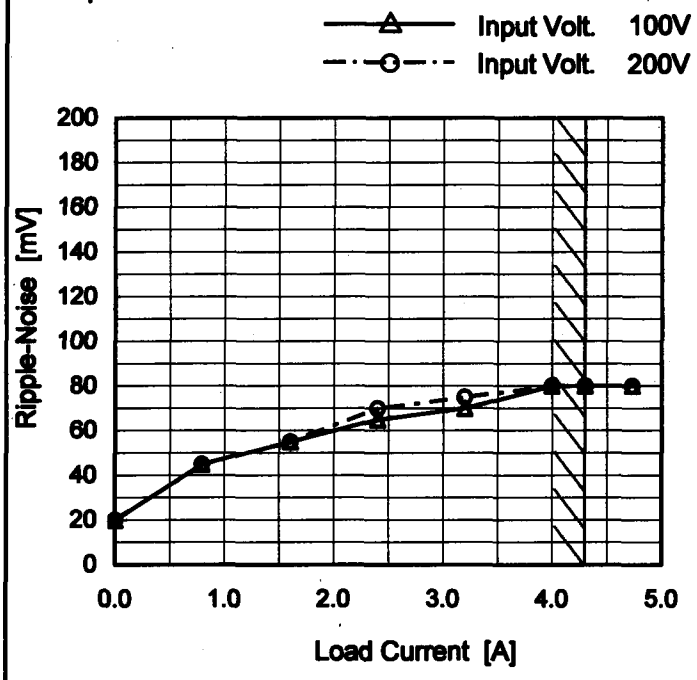
Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 200 [V]
0.00	10	10
0.80	35	35
1.60	35	35
2.40	40	40
3.20	50	50
4.00	50	50
4.30	50	50
4.73	55	50
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA150F-36
Item	Ripple-Noise
Object	+36V4.3A

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]	Ripple-Noise [mV] Input Volt. 200 [V]
0.00	20	20
0.80	45	45
1.60	55	55
2.40	65	70
3.20	70	75
4.00	80	80
4.30	80	80
4.73	80	80
–	-	-
–	-	-
–	-	-

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

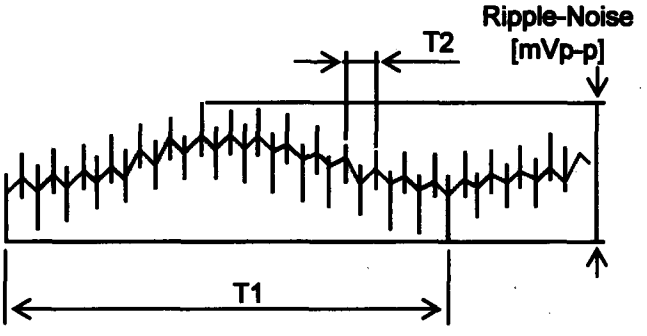


Fig. Complex Ripple Wave Form

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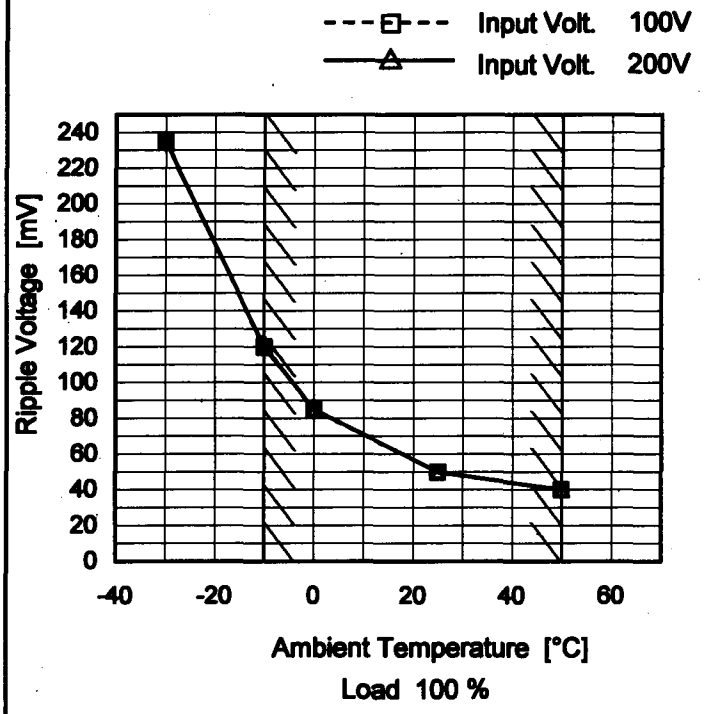
Model	PBA150F-36
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V4.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

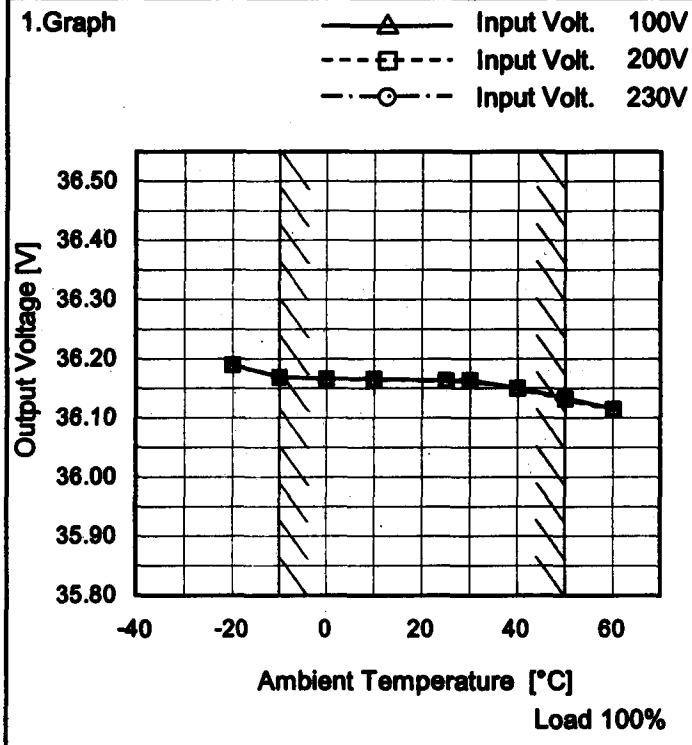
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	235	235
-10	120	120
0	85	85
25	50	50
50	40	40
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA150F-36
Item	Ambient Temperature Drift
Object	+36V4.3A

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	36.190	36.190	36.190
-10	36.170	36.169	36.169
0	36.166	36.166	36.166
10	36.166	36.166	36.165
25	36.164	36.163	36.163
30	36.164	36.164	36.163
40	36.151	36.150	36.149
50	36.134	36.133	36.132
60	36.116	36.115	36.113
--	-	-	-
--	-	-	-

COSEL

Model	PBA150F-36
Item	Output Voltage Accuracy
Object	+36V4.3A

Testing Circuitry Figure A

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 - 4.3A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

* 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	-10	264	0	36.182	±28	±0.1
Minimum Voltage	50	264	4.3	36.126		

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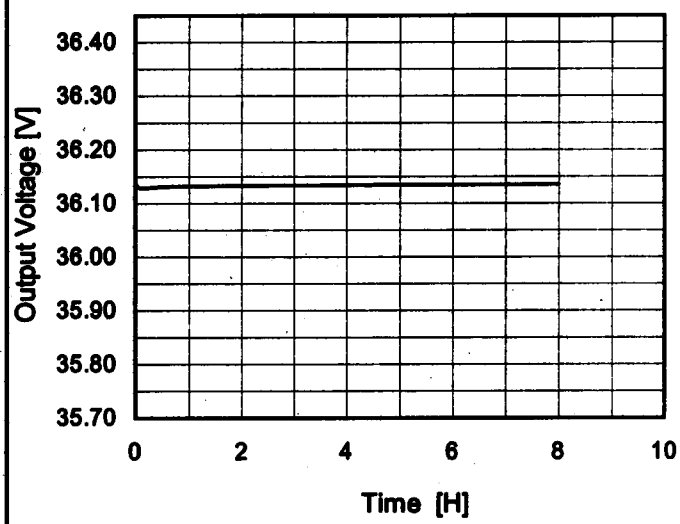
Model	PBA150F-36
Item	Time Lapse Drift
Object	+36V4.3A

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	36.143
0.5	36.131
1.0	36.133
2.0	36.133
3.0	36.134
4.0	36.134
5.0	36.135
6.0	36.135
7.0	36.135
8.0	36.136

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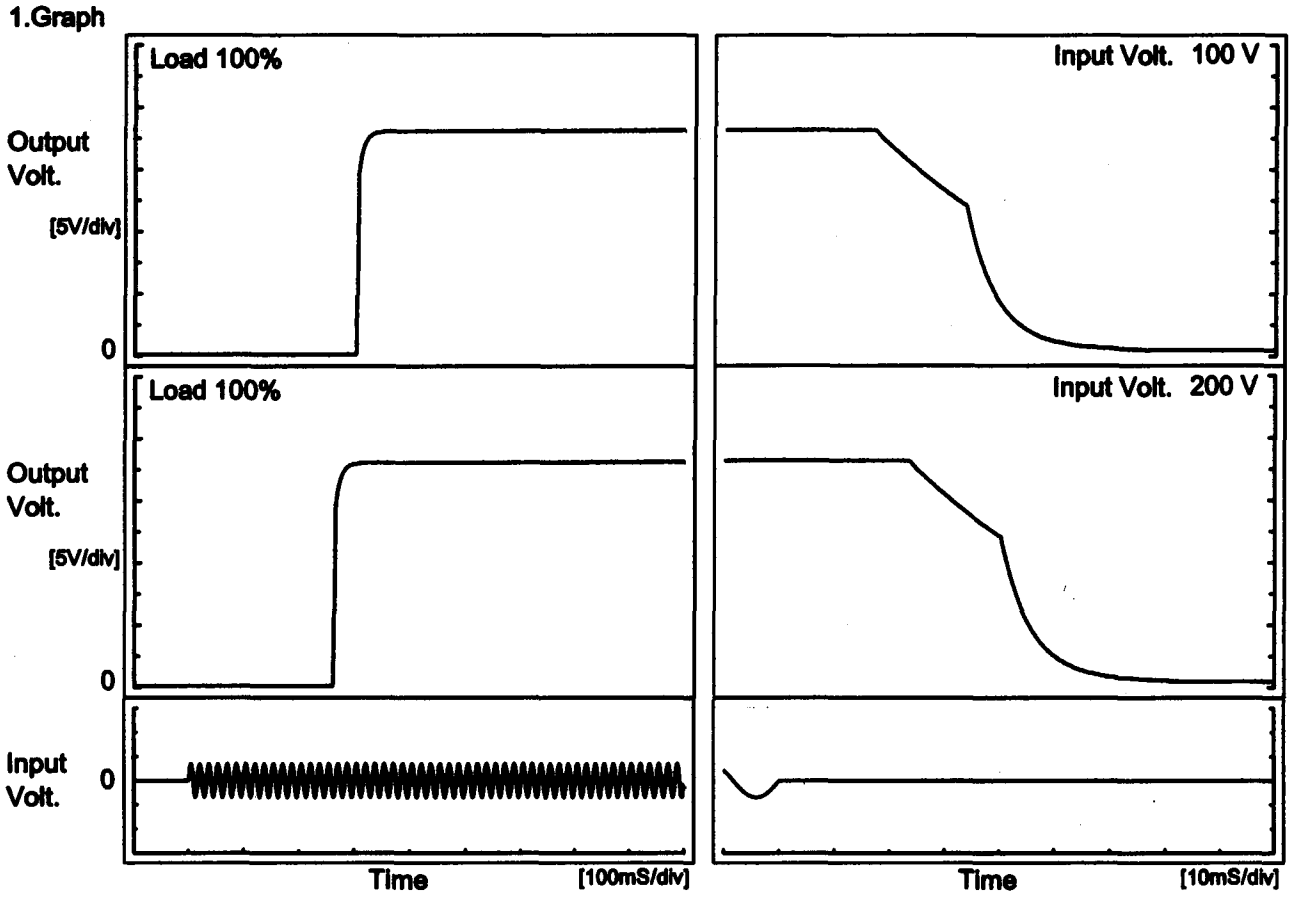
Model	PBA150F-36
Item	Rise and Fall Time
Object	+36V4.3A

Temperature 25°C
Testing Circuitry Figure A

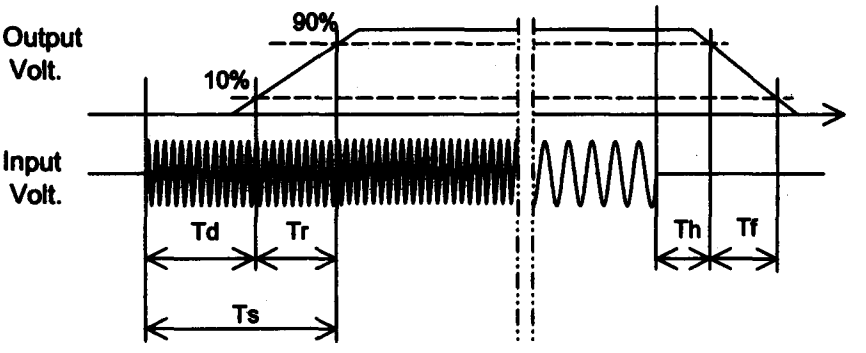
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	302.5	10.5	313.0	21.5	24.3
200 V	262.0	10.5	272.5	27.8	24.5



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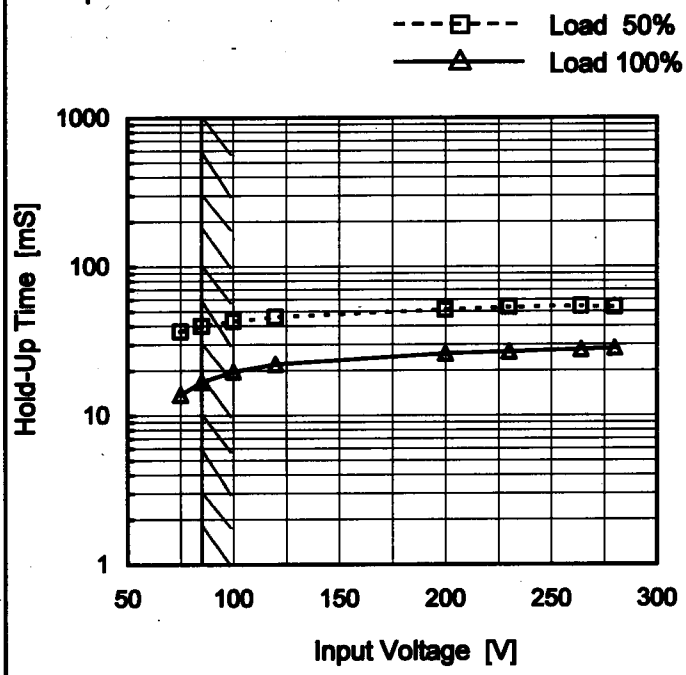
COSEL

Model	PBA150F-36
Item	Hold-Up Time
Object	+36V4.3A

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

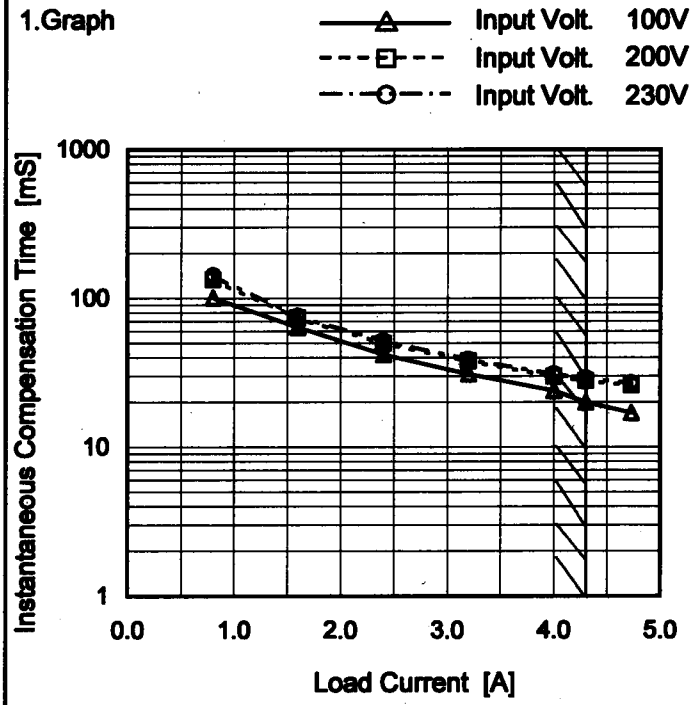
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	37	14
85	40	17
100	43	20
120	46	22
200	52	26
230	53	27
264	54	28
280	54	28
–	-	-

COSEL

Model	PBA150F-36
Item	Instantaneous Interruption Compensation
Object	+36V4.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

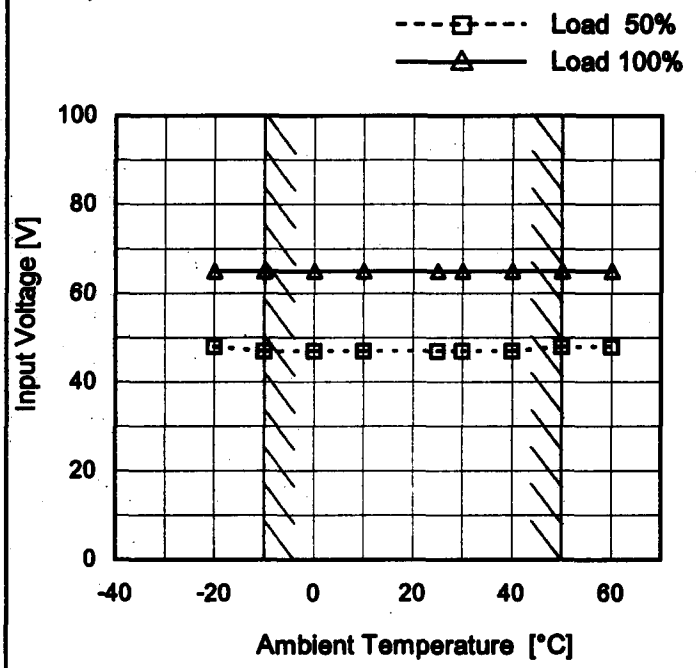
Load Current [A]	Time [mS]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.80	101	134	143
1.60	64	74	76
2.40	42	50	52
3.20	31	38	39
4.00	24	30	31
4.30	20	28	29
4.73	17	26	27
–	-	-	-
–	-	-	-
–	-	-	-

COSEL

Model	PBA150F-36
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+36V4.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

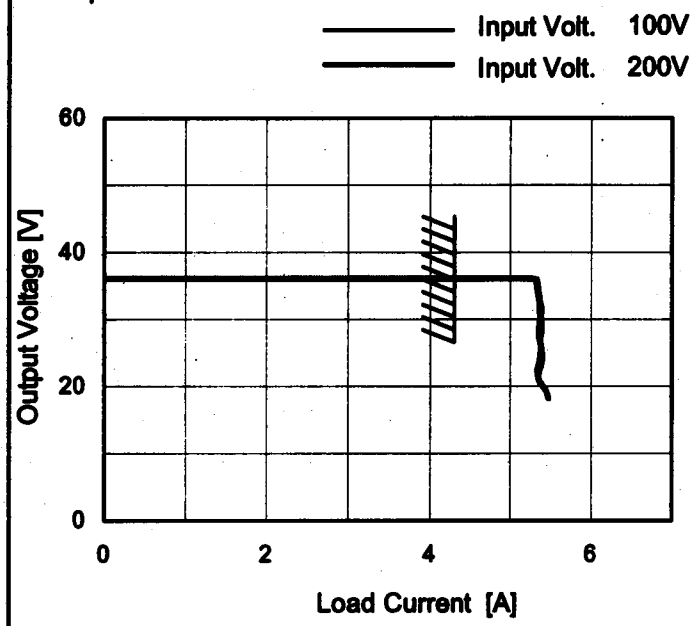
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	48	65
-10	47	65
0	47	65
10	47	65
25	47	65
30	47	65
40	47	65
50	48	65
60	48	65
--	-	-
--	-	-

COSEL

Model	PBA150F-36
Item	Overcurrent Protection
Object	+36V4.3A

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	4.31	4.31
34.2	5.37	5.34
32.4	5.39	5.37
28.8	5.40	5.36
25.2	5.41	5.38
21.6	5.37	5.34
18.0	5.49	5.46
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

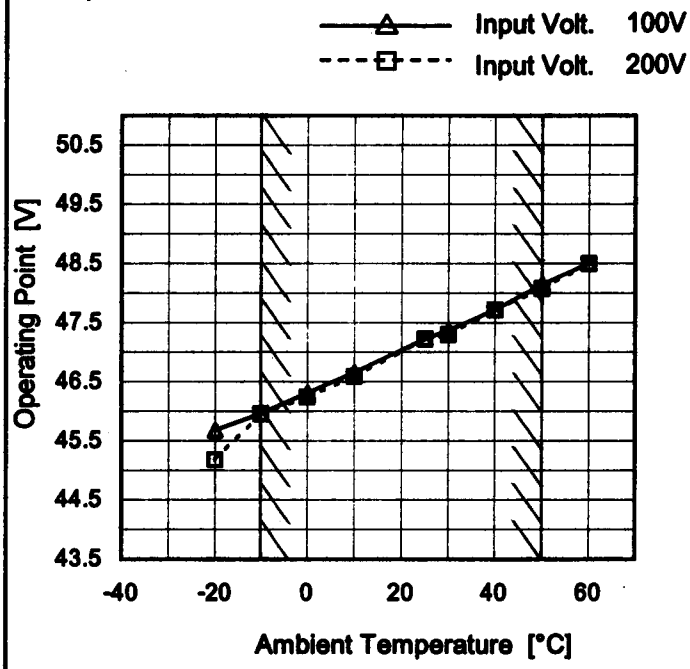
BC-3579

COSEL

Model	PBA150F-36
Item	Overvoltage Protection
Object	+36V4.3A

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]
-20	45.73	45.23
-10	46.01	46.01
0	46.36	46.29
10	46.71	46.64
25	47.28	47.28
30	47.42	47.35
40	47.77	47.77
50	48.20	48.13
60	48.55	48.55
--	-	-
--	-	-

COSEL

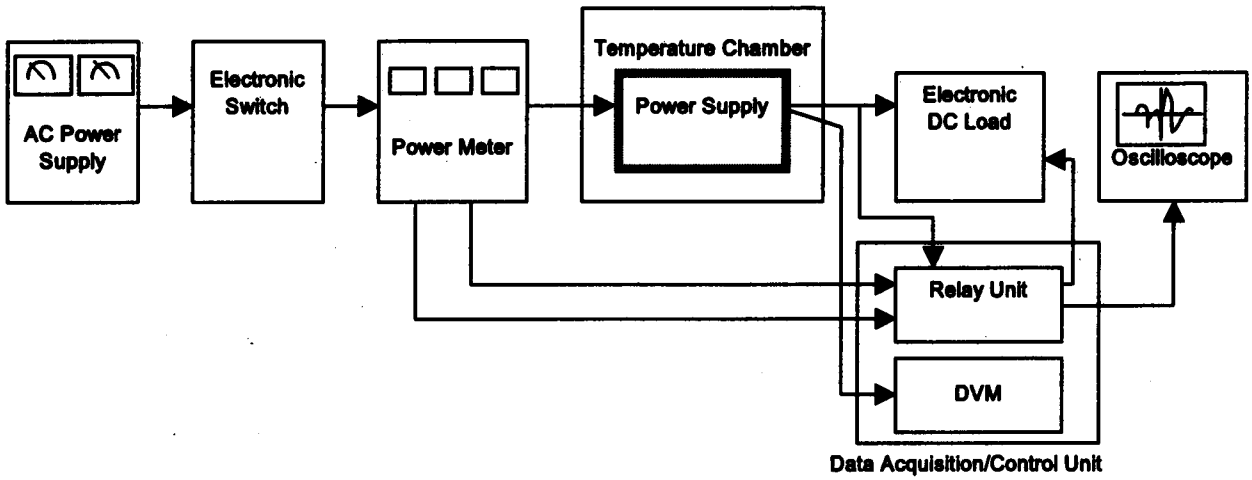


Figure A

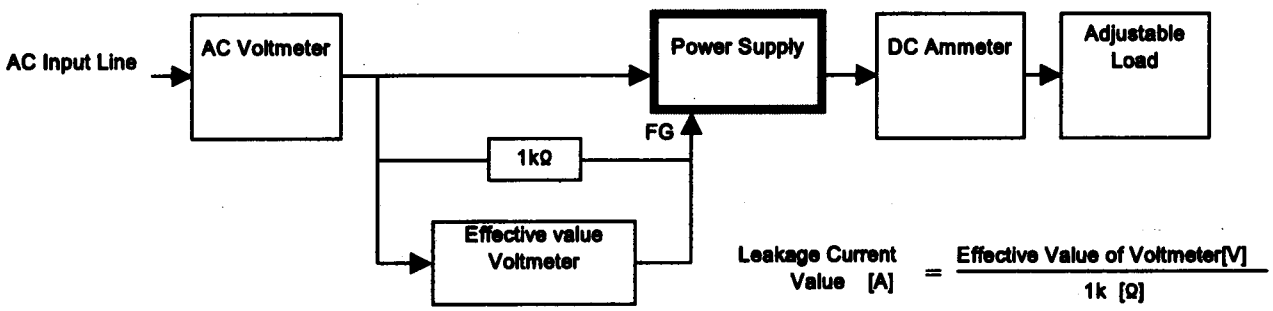


Figure B (DEN-AN)

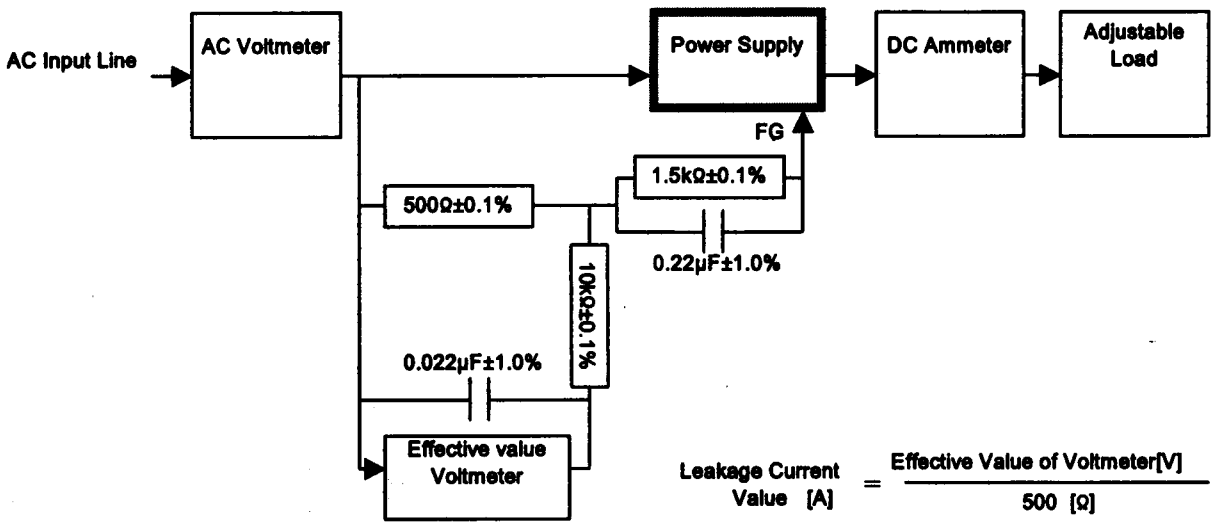


Figure B (IEC60950)