参考資料

COSEL

TEST DATA OF PBA150F-48

Regulated DC Power Supply
Apr.7. 2004

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COSEL CO.,LTD.

参考資料

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CONTENTS

1.Input Current (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 1
2.Input Power (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 2
3.Efficiency (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 3
4.Efficiency (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 4
5.Power Factor (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 5
6.Power Factor (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 6
7.Inrush Current ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 7
8.Leakage Current ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 8
9.Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 9
10.Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 10
11.Dynamic Load Response ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 11
12.Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 12
13.Ripple-Noise ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 13
14.Ripple Voltage (by Ambient Temperature) ・・・・・・・・・・・・・・・・・・・・ 14
15.Ambient Temperature Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・ 15
16.Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 16
17.Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 17
18.Rise and Fall Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 18
19.Hold-Up Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 19
20.Instantaneous Interruption Compensation ・・・・・・・・・・・・・・・・・・・・ 20
21.Minimum Input Voltage for Regulated Output Voltage ・・・・・・・・・・・・・・ 21
22.Overcurrent Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 22
23.Overvoltage Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 23
24.Figure of Testing Circuitry ・・・・・・・・・・・・・・・・・・・・・・・・・・ 24

(Final Page 24)

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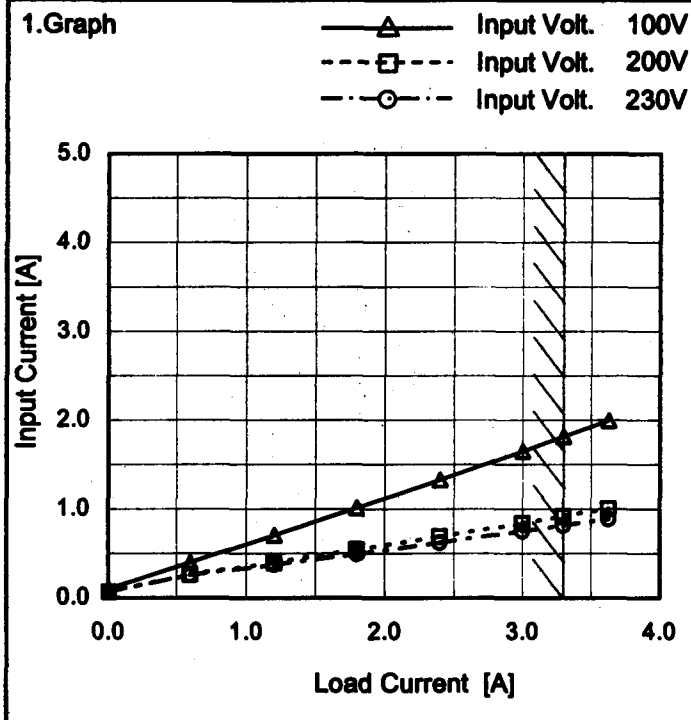
Model	PBA150F-48
Item	Input Current (by Load Current)
Object	――――――

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	0.102	0.070	0.068
0.60	0.400	0.262	0.256
1.20	0.705	0.396	0.374
1.80	1.014	0.542	0.492
2.40	1.330	0.690	0.620
3.00	1.654	0.842	0.750
3.30	1.818	0.920	0.814
3.63	1.998	1.006	0.888
--	-	-	-
--	-	-	-
--	-	-	-

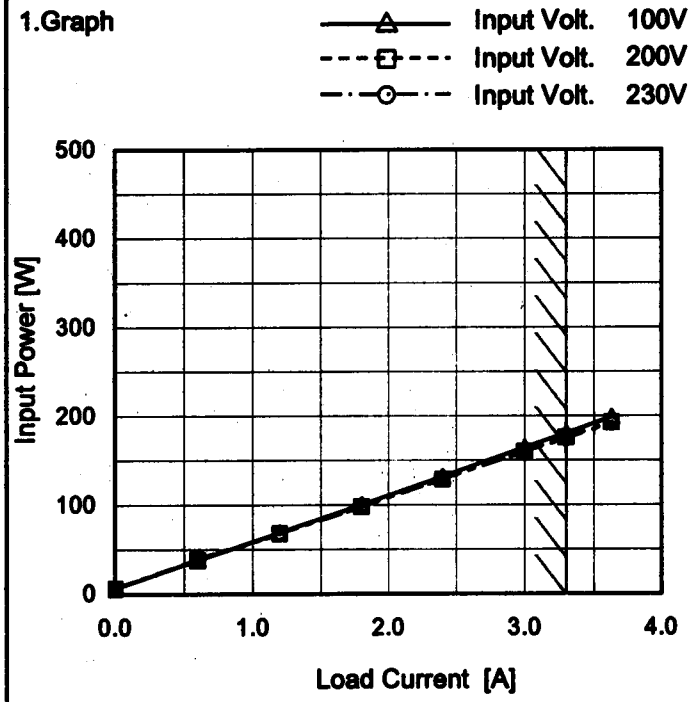
BC-3580

COSEL

Model	PBA150F-48
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

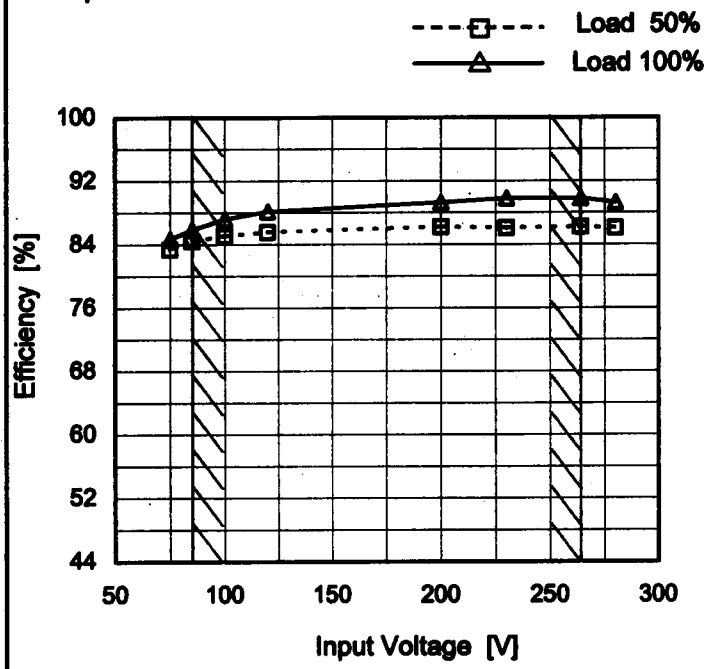
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	6.0	6.0	6.0
0.60	38.1	38.0	39.0
1.20	69.0	68.0	68.0
1.80	100.2	98.0	98.0
2.40	132.0	129.0	129.0
3.00	164.4	160.0	160.0
3.30	180.8	176.0	175.0
3.63	198.9	193.0	192.0
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA150F-48
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

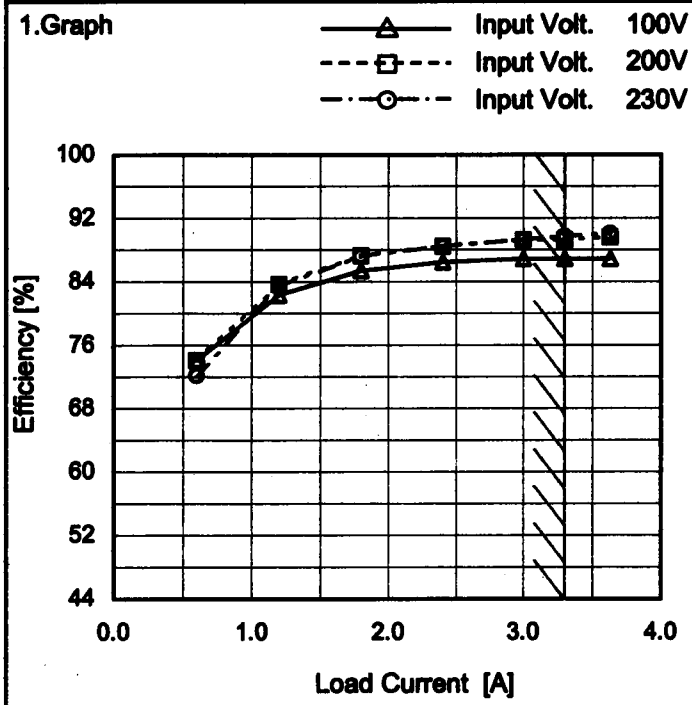
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	83.4	84.7
85	84.4	85.9
100	85.1	87.2
120	85.6	88.2
200	86.2	89.3
230	86.1	89.8
264	86.2	89.8
280	86.1	89.3
--	-	-

COSEL

Model	PBA150F-48
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	-	-	-
0.60	74.1	74.1	72.1
1.20	82.3	83.7	83.4
1.80	85.4	87.3	87.2
2.40	86.5	88.4	88.5
3.00	86.9	89.3	89.2
3.30	86.9	89.3	89.7
3.63	86.9	89.6	90.1
—	-	-	-
—	-	-	-
—	-	-	-

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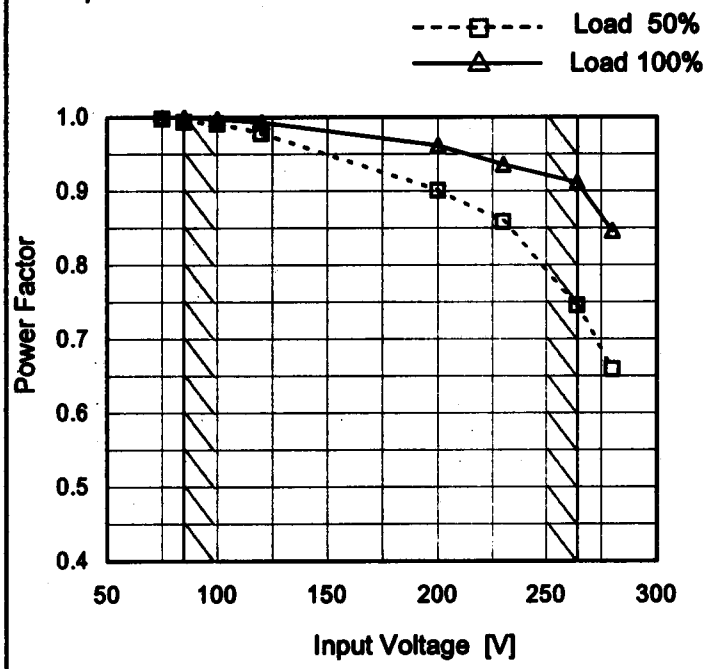
Model	PBA150F-48
Item	Power Factor (by Input Voltage)
Object	――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

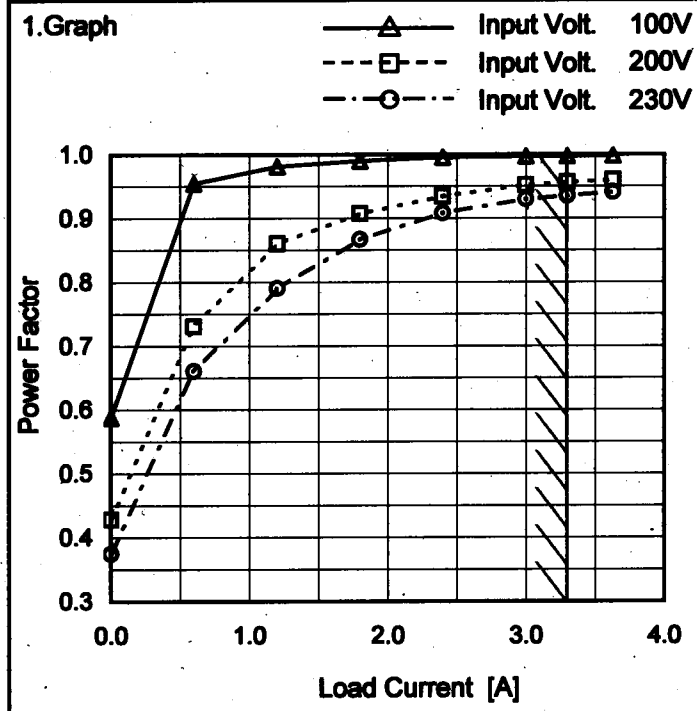
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.998	0.999
85	0.994	0.999
100	0.991	0.997
120	0.979	0.993
200	0.901	0.962
230	0.858	0.936
264	0.746	0.911
280	0.659	0.846
–	-	-

COSEL

Model	PBA150F-48
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	0.588	0.429	0.375
0.60	0.955	0.731	0.661
1.20	0.982	0.861	0.791
1.80	0.990	0.907	0.867
2.40	0.995	0.935	0.908
3.00	0.997	0.952	0.930
3.30	0.997	0.957	0.936
3.63	0.998	0.960	0.941
–	-	-	-
–	-	-	-
–	-	-	-

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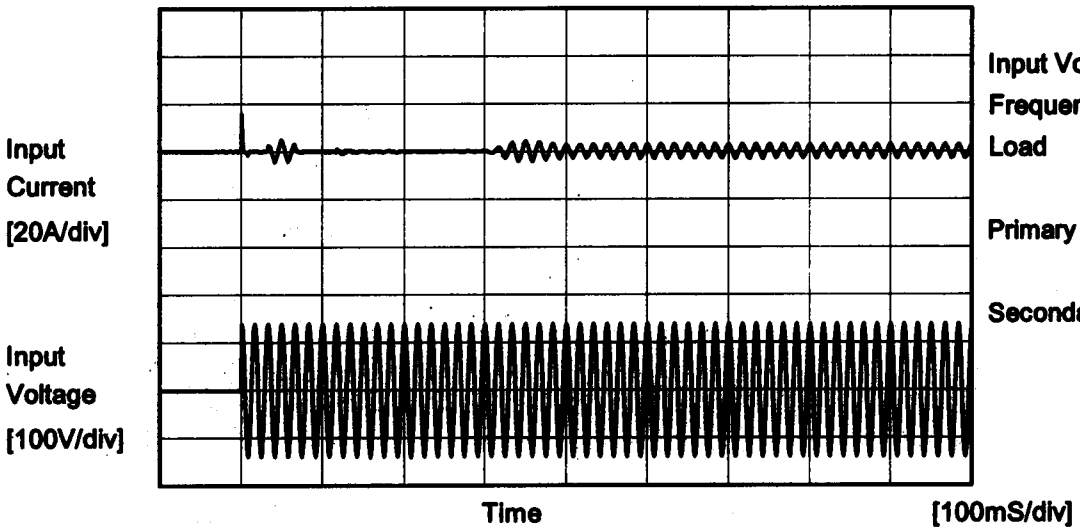
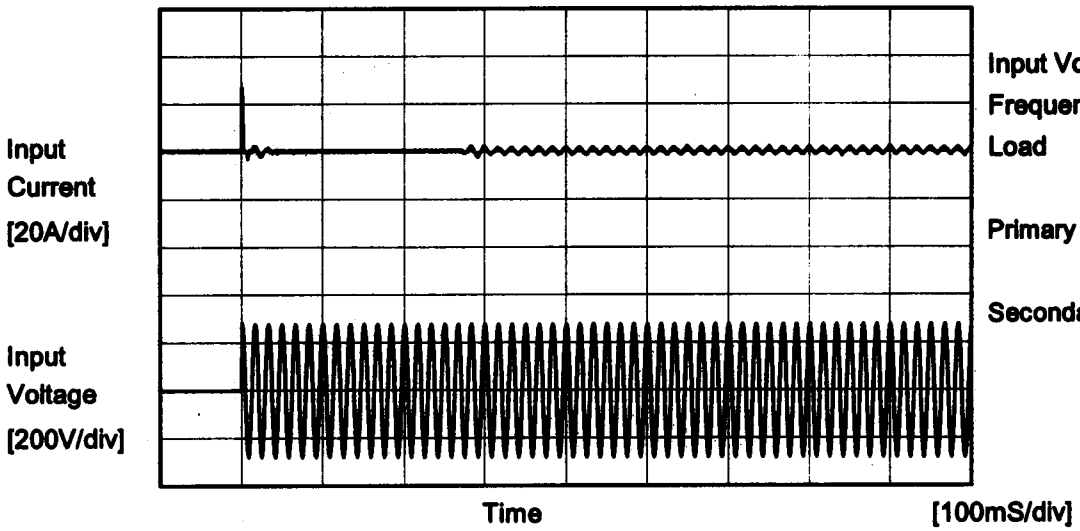
Model	PBA150F-48	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	————————		



Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current : 15.8 A

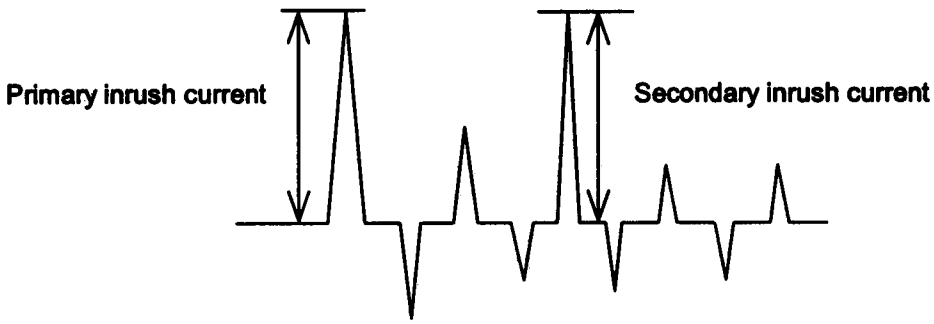
Secondary inrush current : 4.7 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current : 26.9 A

Secondary inrush current : 2.5 A



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Model	PBA150F-48	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.

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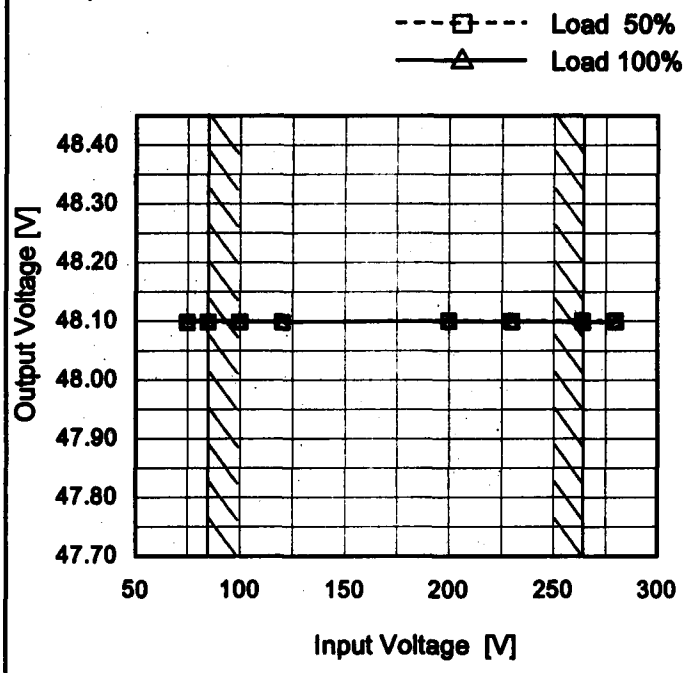
Model	PBA150F-48
Item	Line Regulation
Object	+48V3.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

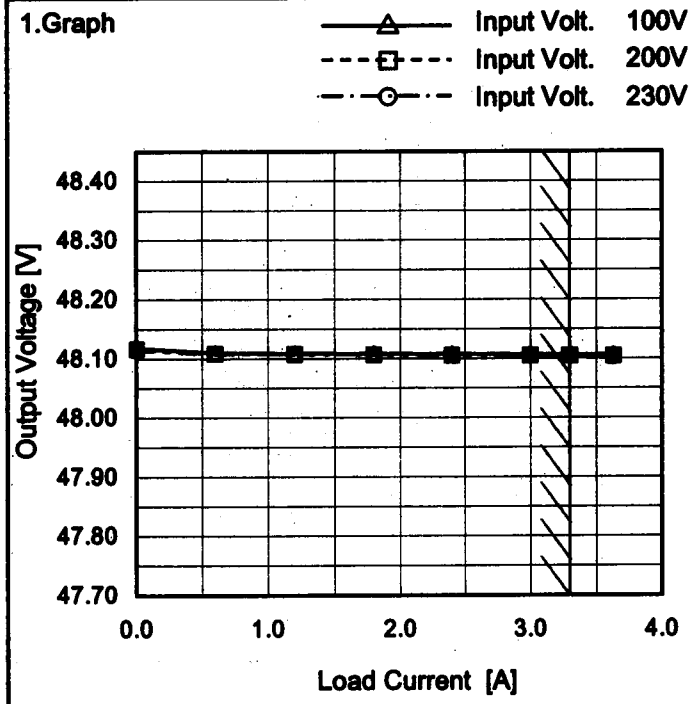
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	48.098	48.100
85	48.099	48.101
100	48.099	48.100
120	48.099	48.100
200	48.101	48.100
230	48.100	48.100
264	48.101	48.099
280	48.101	48.099
--	-	-

COSEL

Model	PBA150F-48
Item	Load Regulation
Object	+48V3.3A

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	48.118	48.116	48.115
0.60	48.110	48.109	48.108
1.20	48.109	48.107	48.108
1.80	48.108	48.106	48.107
2.40	48.108	48.105	48.106
3.00	48.107	48.105	48.106
3.30	48.107	48.105	48.104
3.63	48.106	48.104	48.103
--	-	-	-
--	-	-	-
--	-	-	-

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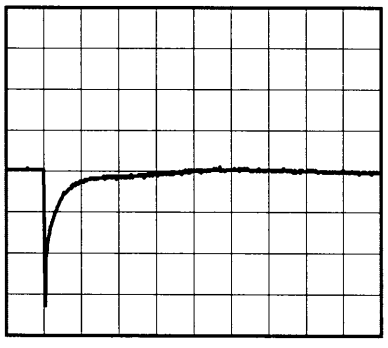
Model	PBA150F-48		
Item	Dynamic Load Response	Temperature Testing Circuitry	25° C Figure A
Object	+48V3.3A		

Input Volt. 100 V
Cycle 1000 ms

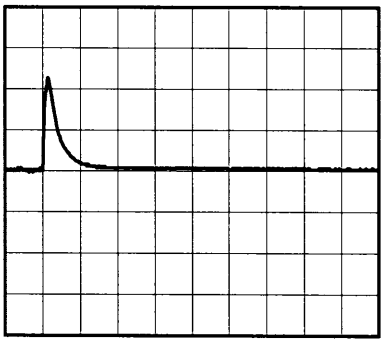
Load Current

Min. Load (0A) ←→
Load 100% (3.3A)



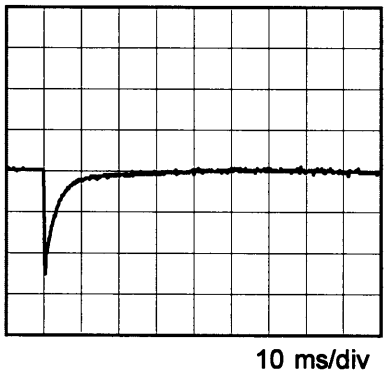
100 mV/div

10 ms/div



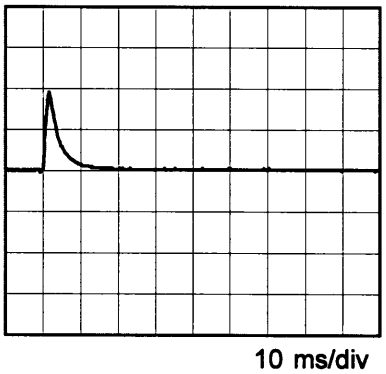
10 ms/div

Min. Load (0A) ←→
Load 50% (1.65A)



100 mV/div

10 ms/div



10 ms/div

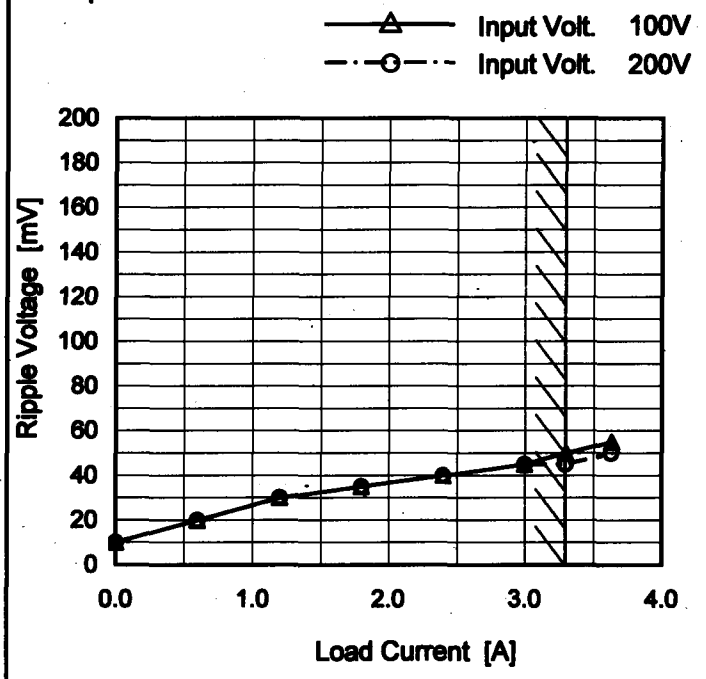
* The characteristic of AC200V is equal.

COSEL

Model	PBA150F-48
Item	Ripple Voltage (by Load Current)
Object	+48V3.3A

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

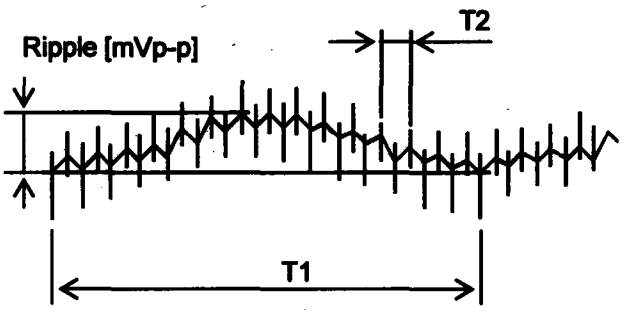


Fig. Complex Ripple Wave Form

2.Values

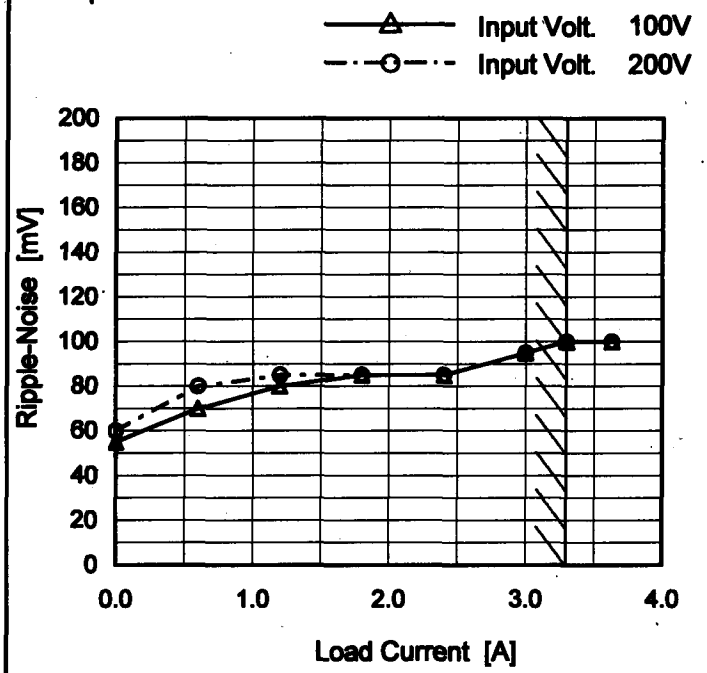
Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 200 [V]
0.00	10	10
0.60	20	20
1.20	30	30
1.80	35	35
2.40	40	40
3.00	45	45
3.30	50	45
3.63	55	50
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA150F-48
Item	Ripple-Noise
Object	+48V3.3A

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.

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

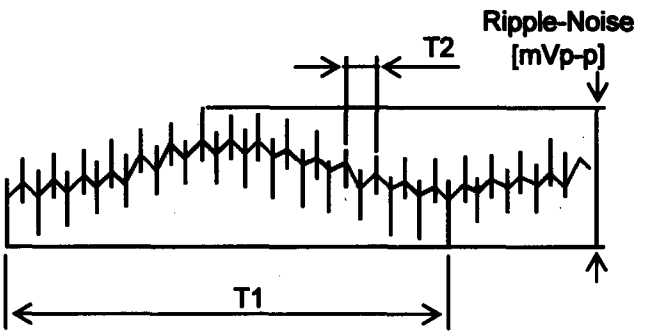


Fig. Complex Ripple Wave Form

2.Values

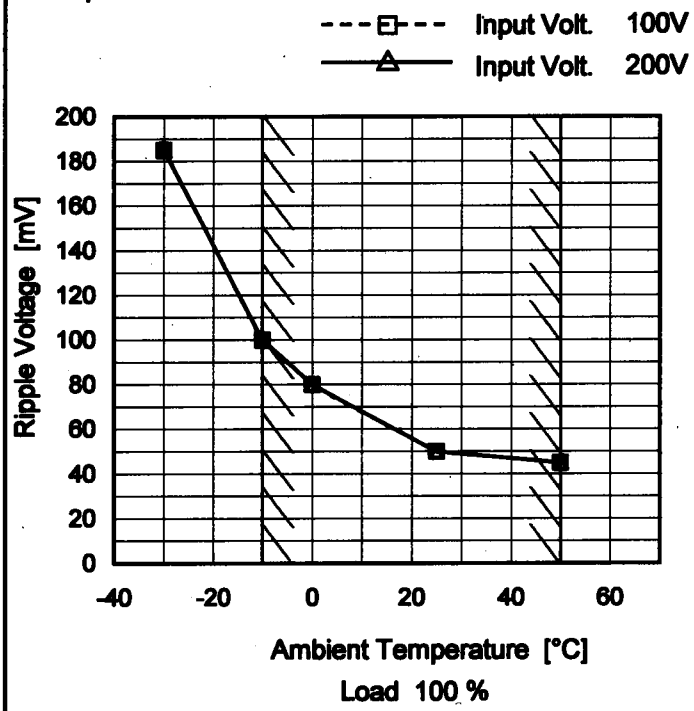
Load Current [A]	Ripple-Noise [mV] Input Volt. 100 [V]	Ripple-Noise [mV] Input Volt. 200 [V]
0.00	55	60
0.60	70	80
1.20	80	85
1.80	85	85
2.40	85	85
3.00	95	95
3.30	100	100
3.63	100	100
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA150F-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V3.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

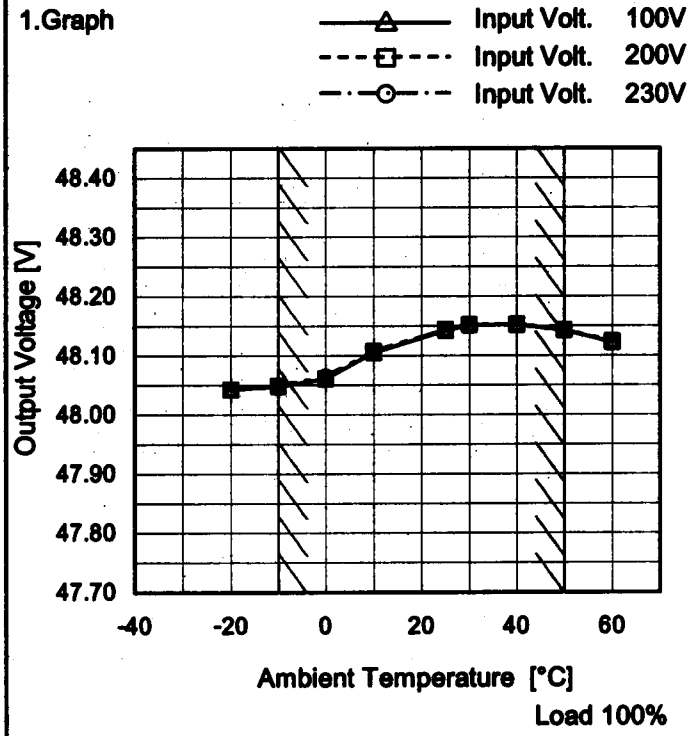
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	185	185
-10	100	100
0	80	80
25	50	50
50	45	45
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	PBA150F-48
Item	Ambient Temperature Drift
Object	+48V3.3A

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	48.043	48.043	48.043
-10	48.048	48.049	48.050
0	48.061	48.061	48.065
10	48.105	48.107	48.107
25	48.143	48.144	48.144
30	48.151	48.152	48.152
40	48.152	48.153	48.152
50	48.143	48.143	48.143
60	48.122	48.124	48.123
--	-	-	-
--	-	-	-

COSEL

Model	PBA150F-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V3.3A	

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 - 3.3A

* 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	25	264	0	48.161	±53	±0.1
Minimum Voltage	-10	85	3.3	48.056		

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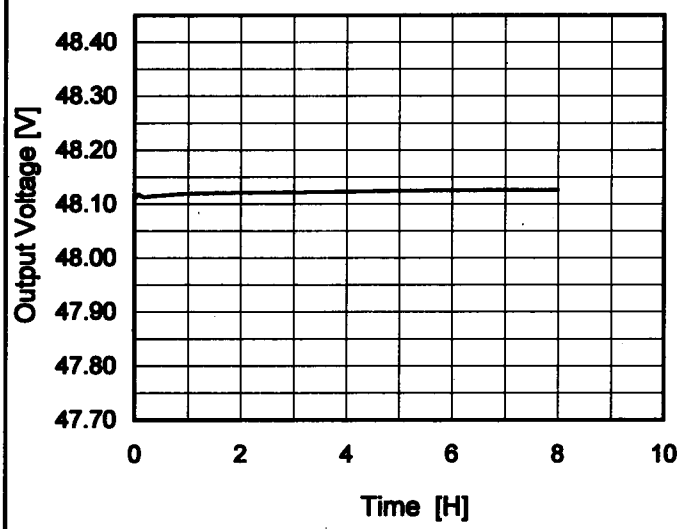
Model	PBA150F-48
Item	Time Lapse Drift
Object	+48V3.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

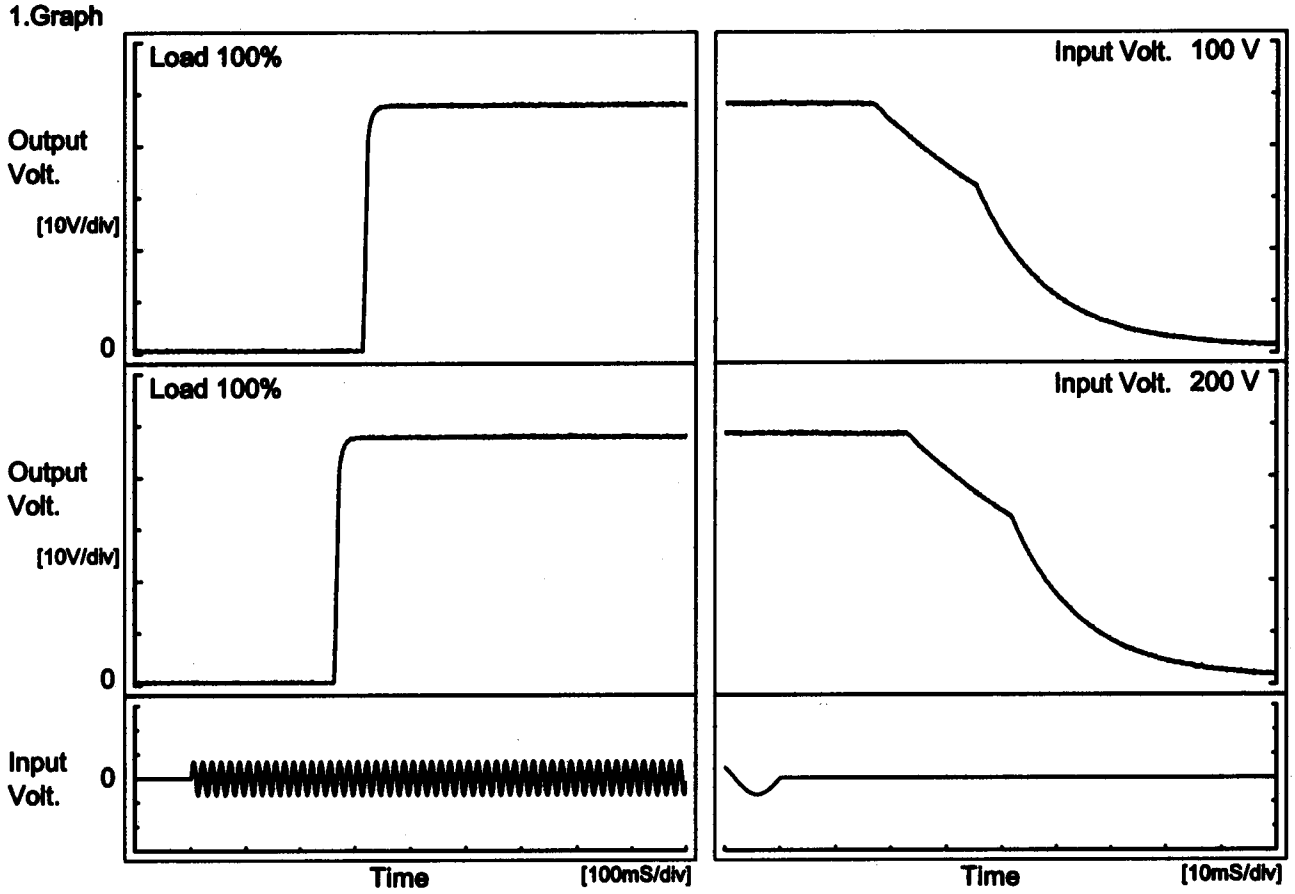
Time since start [H]	Output Voltage [V]
0.0	48.117
0.5	48.116
1.0	48.119
2.0	48.121
3.0	48.122
4.0	48.123
5.0	48.125
6.0	48.125
7.0	48.126
8.0	48.126

COSEL

Model	PBA150F-48
Item	Rise and Fall Time
Object	+48V3.3A

Temperature 25°C
Testing Circuitry Figure A

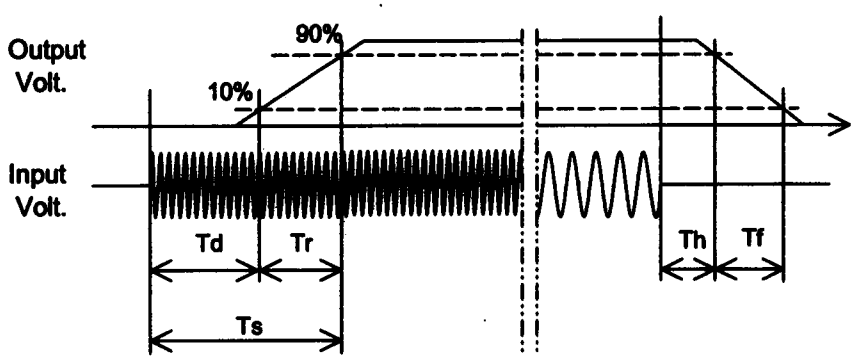
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	314.5	11.5	326.0	21.2	40.3
200 V	263.0	11.0	274.0	27.4	40.6



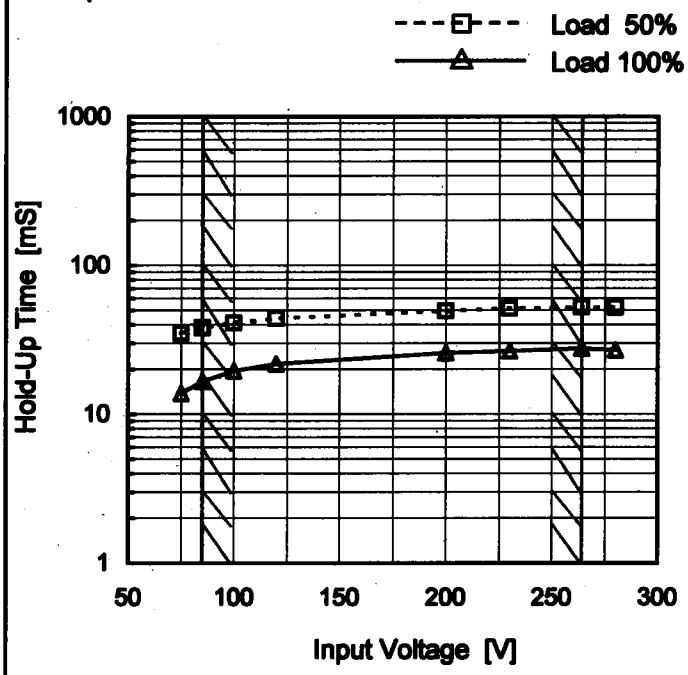
BC-3580

COSEL

Model	PBA150F-48
Item	Hold-Up Time
Object	+48V3.3A

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

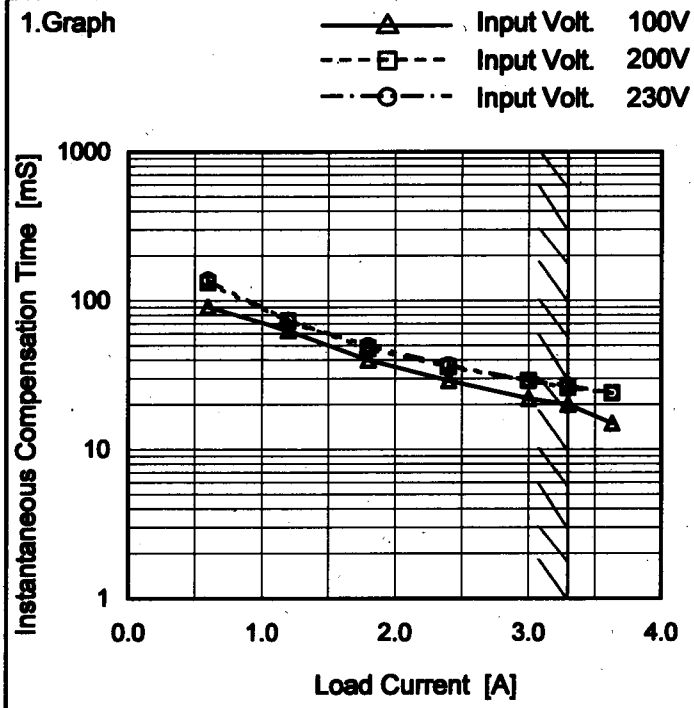
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	35	14
85	38	17
100	41	20
120	44	22
200	49	26
230	52	27
264	53	28
280	52	27
–	-	-

COSEL

Model	PBA150F-48
Item	Instantaneous Interruption Compensation
Object	+48V3.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

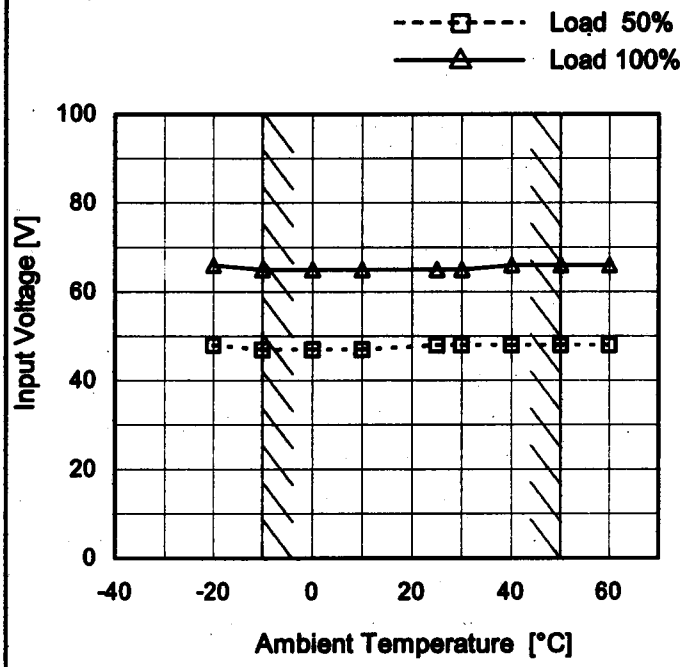
Load Current [A]	Time [mS]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.60	91	132	138
1.20	63	73	74
1.80	40	48	50
2.40	29	36	37
3.00	22	29	29
3.30	20	26	27
3.63	15	24	24
–	-	-	-
–	-	-	-
–	-	-	-

COSEL

Model	PBA150F-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V3.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

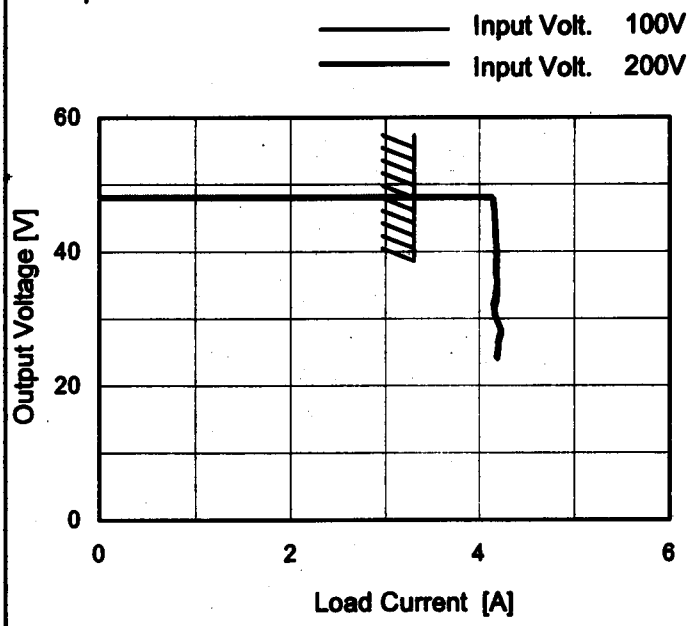
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	48	66
-10	47	65
0	47	65
10	47	65
25	48	65
30	48	65
40	48	66
50	48	66
60	48	66
--	-	-
--	-	-

COSEL

Model	PBA150F-48
Item	Overcurrent Protection
Object	+48V3.3A

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 24V to 0V.

2.Values

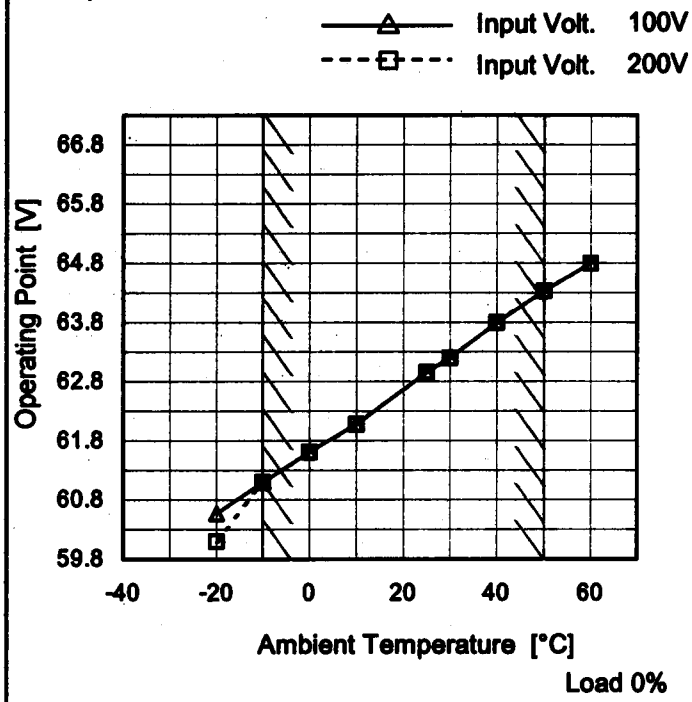
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
48.0	3.39	3.33
45.6	4.17	4.16
43.2	4.18	4.17
38.4	4.20	4.17
33.6	4.20	4.17
28.8	4.21	4.22
24.0	4.20	4.19
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA150F-48
Item	Overvoltage Protection
Object	+48V3.3A

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	60.55	60.08
-10	61.08	61.08
0	61.59	61.59
10	62.06	62.06
25	62.94	62.94
30	63.18	63.18
40	63.78	63.78
50	64.31	64.31
60	64.78	64.78
--	-	-
--	-	-

COSEL

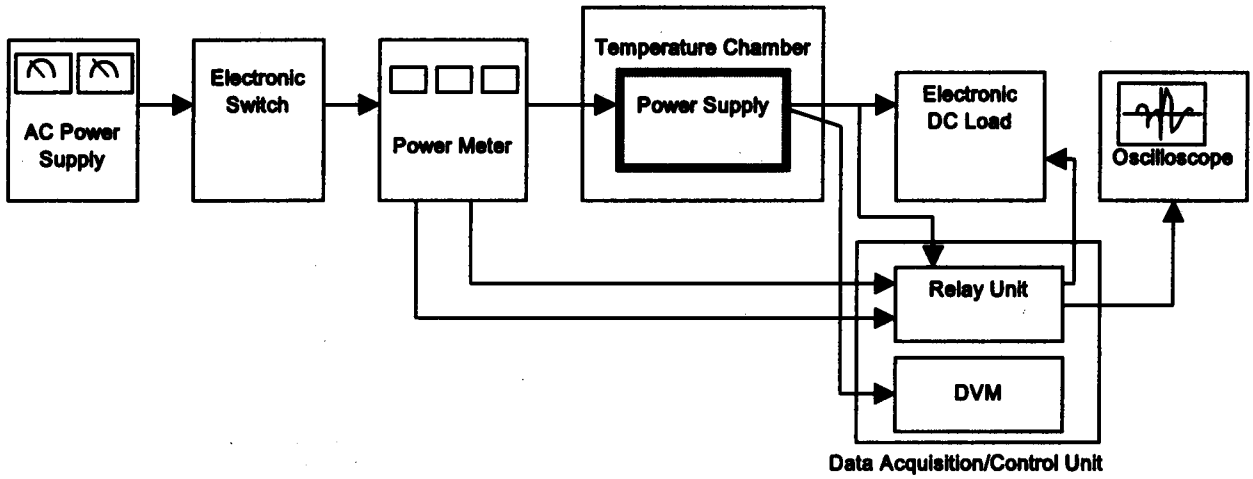


Figure A

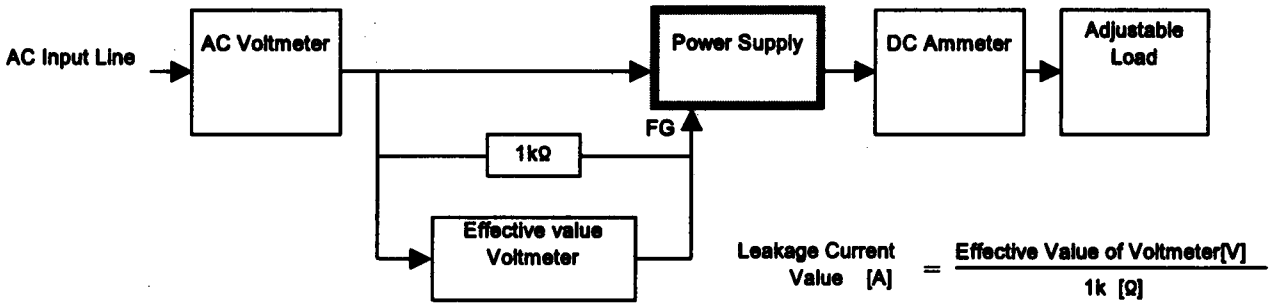


Figure B (DEN-AN)

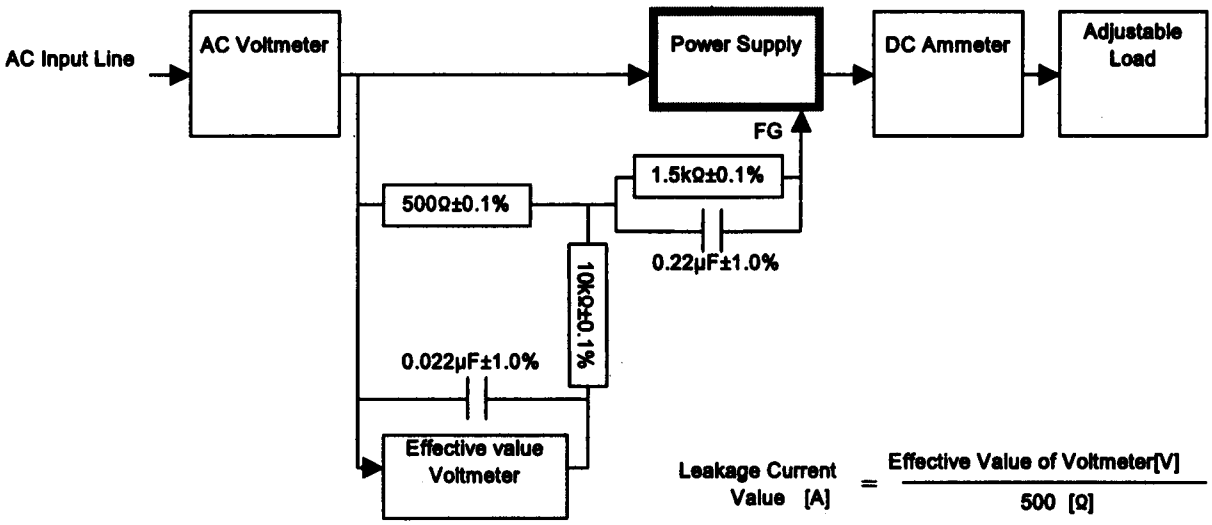


Figure B (IEC60950)