参考資料

COSEL

TEST DATA OF PBA30F-15

Regulated DC Power Supply
Sep 29, 2005

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COSEL CO.,LTD.

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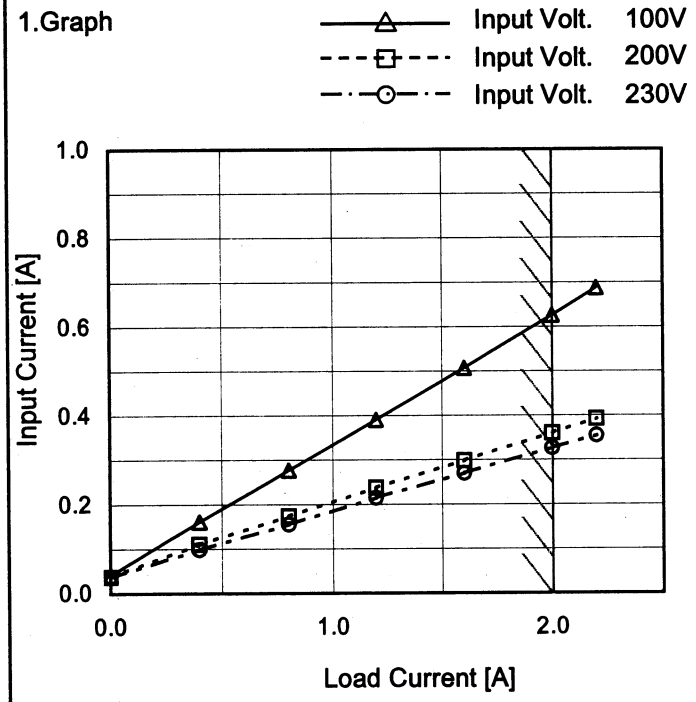
COSEL

Model	PBA30F-15
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]
0.0	0.041	0.038	0.037
0.4	0.161	0.111	0.098
0.8	0.277	0.174	0.155
1.2	0.391	0.238	0.215
1.6	0.507	0.299	0.270
2.0	0.626	0.361	0.327
2.2	0.687	0.393	0.355
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

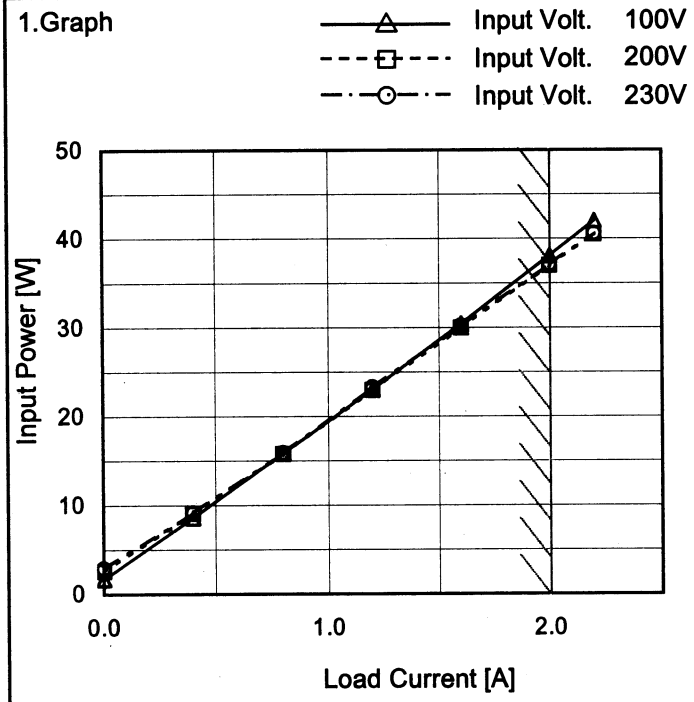
BC-10013

COSEL

Model	PBA30F-15
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

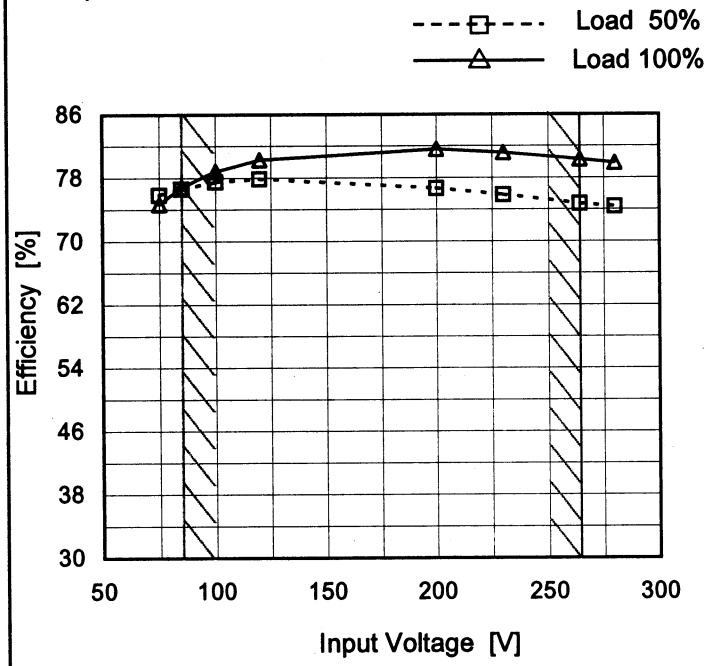
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	1.70	2.60	2.92
0.4	8.58	9.10	9.16
0.8	15.86	15.80	15.90
1.2	23.06	23.00	23.30
1.6	30.47	30.00	30.20
2.0	38.11	37.00	37.10
2.2	42.04	40.50	40.60
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA30F-15
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	75.9	74.7
85	76.6	76.8
100	77.5	78.8
120	77.9	80.3
200	76.7	81.6
230	75.9	81.2
264	74.7	80.3
280	74.4	79.9
--	-	-

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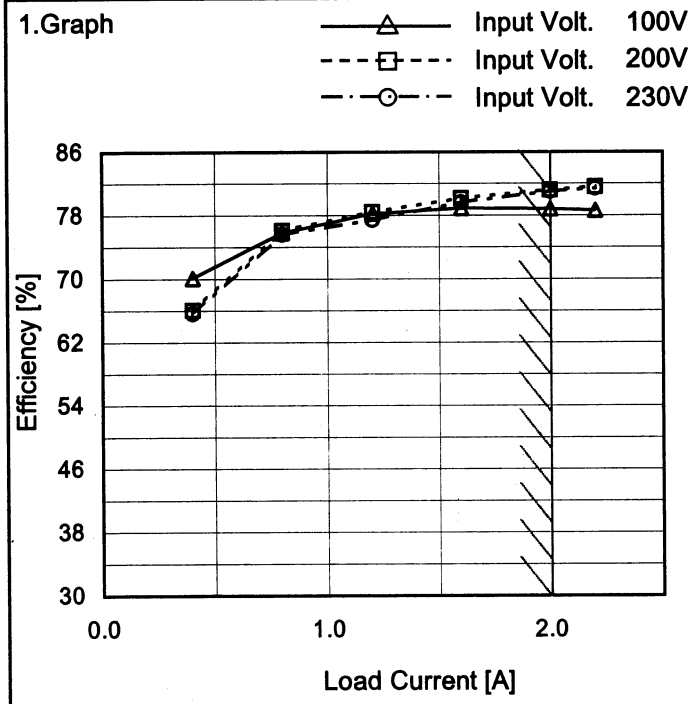
Model	PBA30F-15
Item	Efficiency (by Load Current)
Object	———————

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]
0.0	-	-	-
0.4	70.1	66.1	65.7
0.8	75.8	76.1	75.6
1.2	78.2	78.4	77.4
1.6	78.9	80.2	79.6
2.0	78.9	81.2	81.0
2.2	78.6	81.6	81.4
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

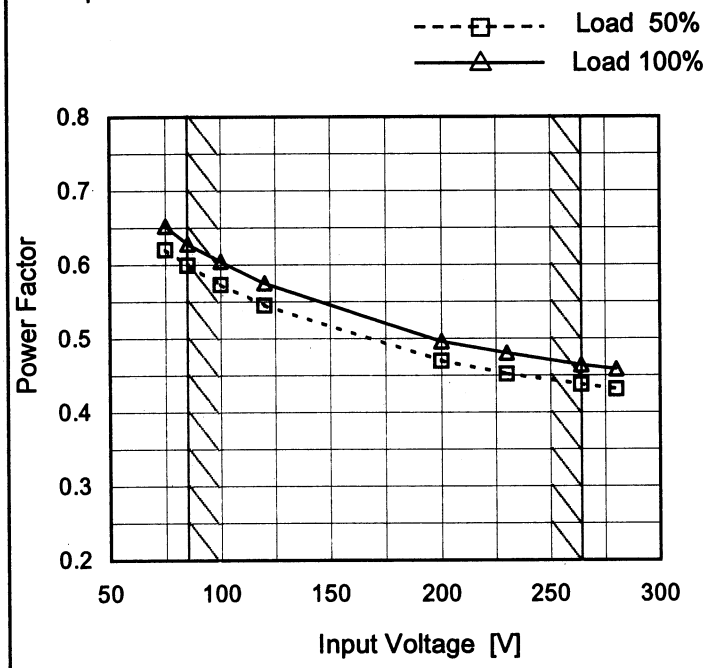
BC-10013

COSEL

Model	PBA30F-15
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	0.621	0.653
85	0.599	0.629
100	0.573	0.605
120	0.545	0.575
200	0.470	0.496
230	0.452	0.481
264	0.438	0.464
280	0.432	0.459
--	-	-

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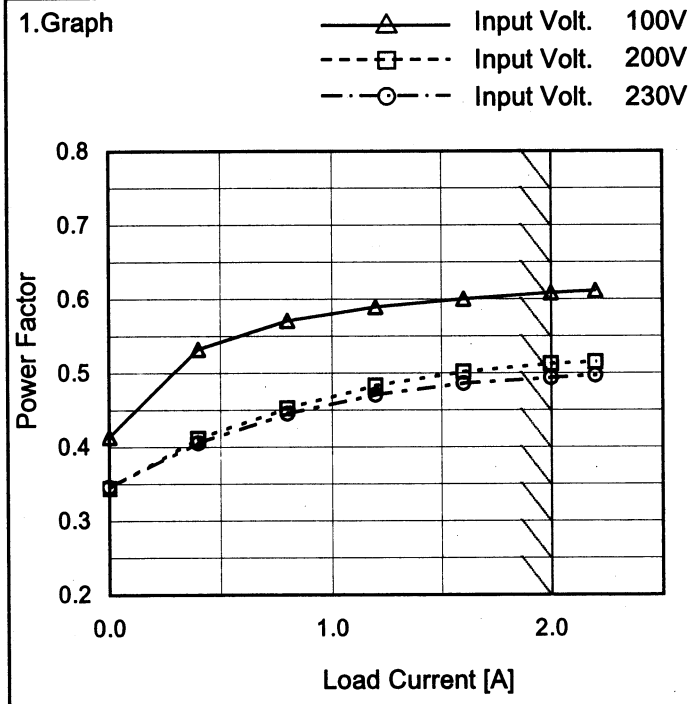
Model	PBA30F-15
Item	Power Factor (by Load Current)
Object	————————

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]
0.0	0.414	0.344	0.346
0.4	0.532	0.412	0.405
0.8	0.571	0.453	0.445
1.2	0.590	0.483	0.471
1.6	0.601	0.502	0.486
2.0	0.609	0.512	0.493
2.2	0.612	0.515	0.497
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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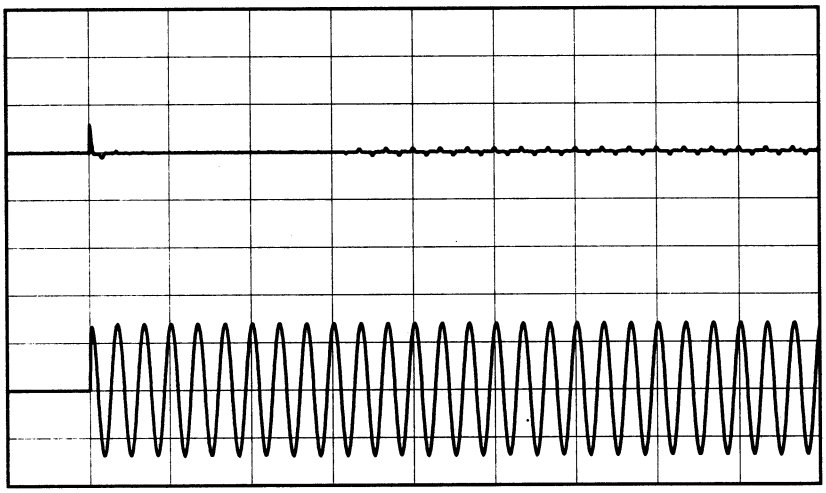
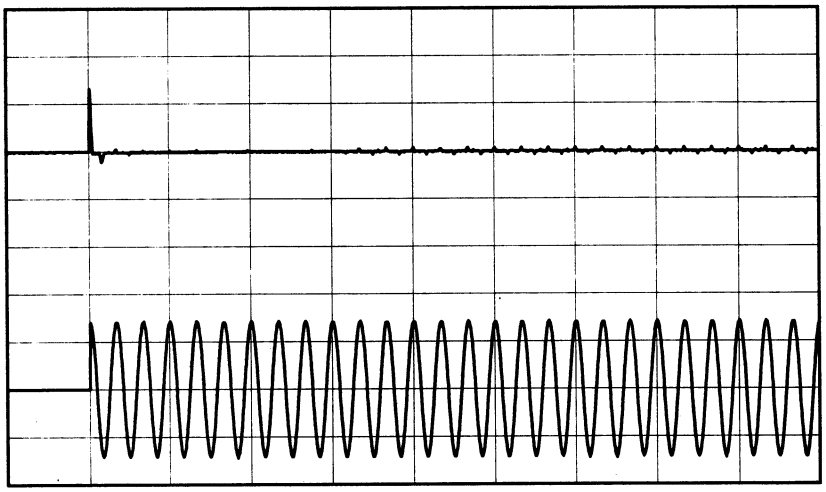
Model	PBA30F-15
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



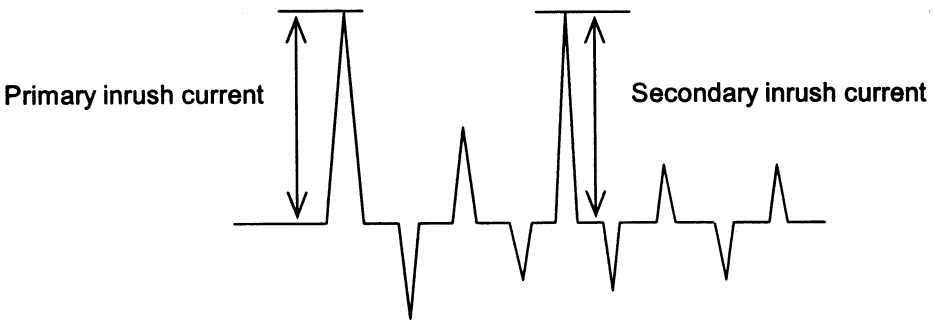
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
11.7 A
Secondary inrush current :
1.6 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
26.5 A
Secondary inrush current :
1.4 A



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Model	PBA30F-15	
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	0.15	0.32	0.39	Operation
	One of phase	0.30	0.64	0.79	stand by
IEC60950	Both phases	0.19	0.44	0.52	Operation
	One of phase	0.29	0.64	0.79	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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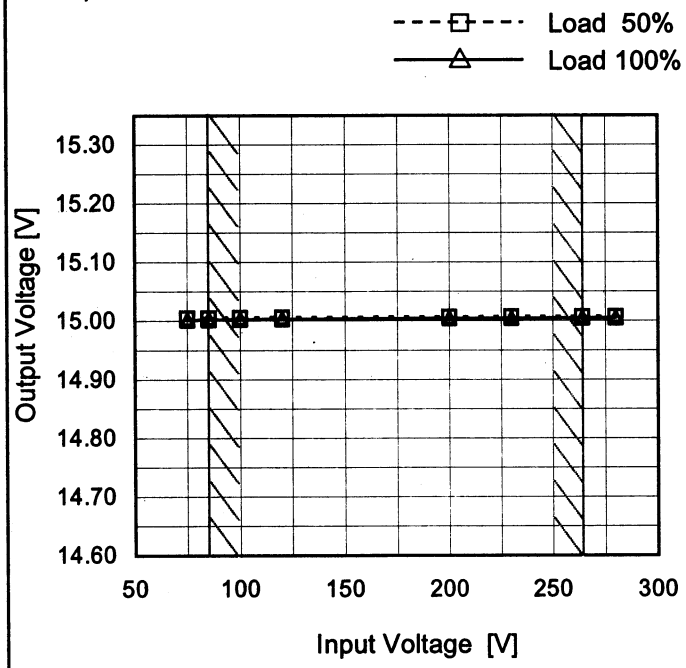
Model	PBA30F-15
Item	Line Regulation
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

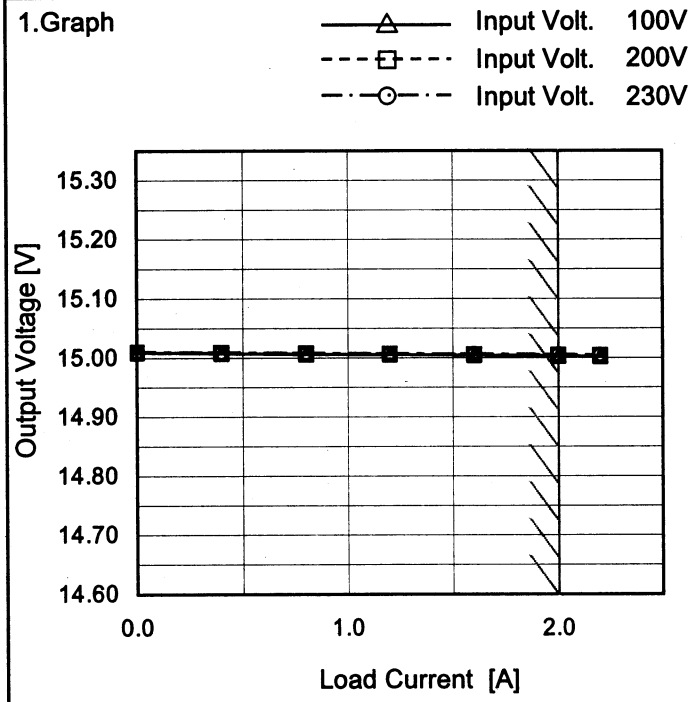
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	15.005	15.002
85	15.005	15.003
100	15.006	15.003
120	15.006	15.003
200	15.007	15.005
230	15.007	15.005
264	15.007	15.005
280	15.007	15.005
--	-	-

COSEL

Model	PBA30F-15
Item	Load Regulation
Object	+15V2A

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]
0.0	15.010	15.010	15.010
0.4	15.008	15.009	15.009
0.8	15.006	15.008	15.008
1.2	15.006	15.007	15.007
1.6	15.004	15.006	15.006
2.0	15.003	15.005	15.005
2.2	15.003	15.004	15.004
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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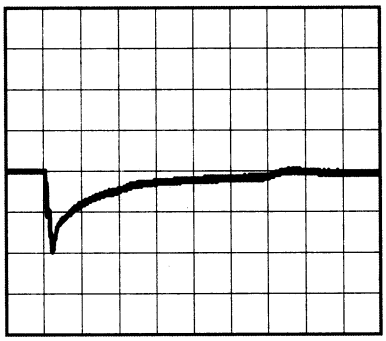
Model	PBA30F-15		
Item	Dynamic Load Response	Temperature	25℃
Object	+15V2A	Testing Circuitry	Figure A

Input Volt. 100 V
Cycle 1000 ms

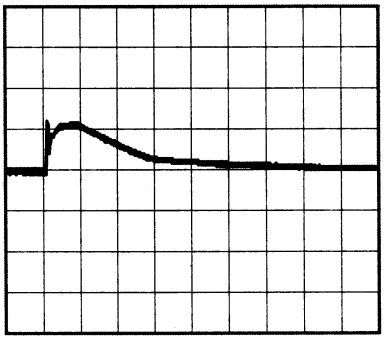
Load Current

Min. Load (0A) ⟷
Load 100% (2A)



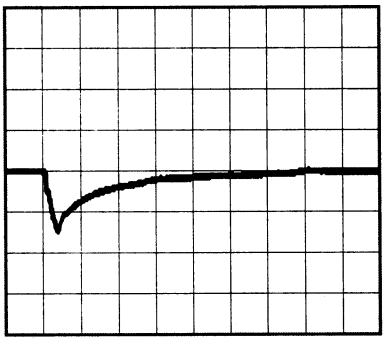
200 mV/div

2 ms/div



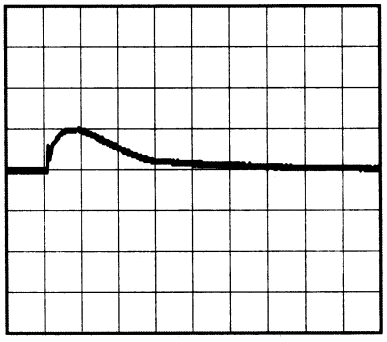
2 ms/div

Min. Load (0A) ⟷
Load 50% (1A)



200 mV/div

2 ms/div



2 ms/div

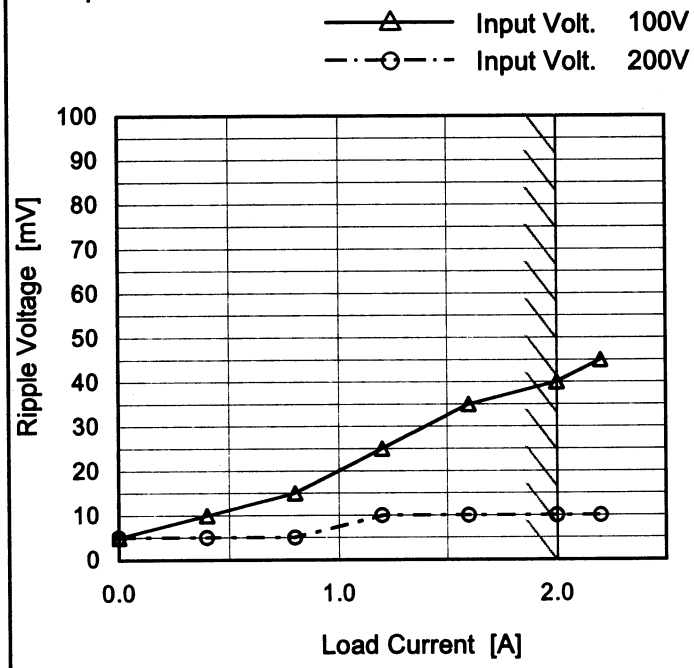
* The characteristic of AC200V is equal.

COSEL

Model	PBA30F-15
Item	Ripple Voltage (by Load Current)
Object	+15V2A

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

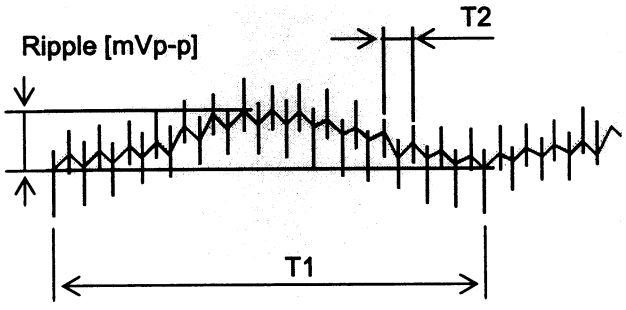


Fig. Complex Ripple Wave Form

2.Values

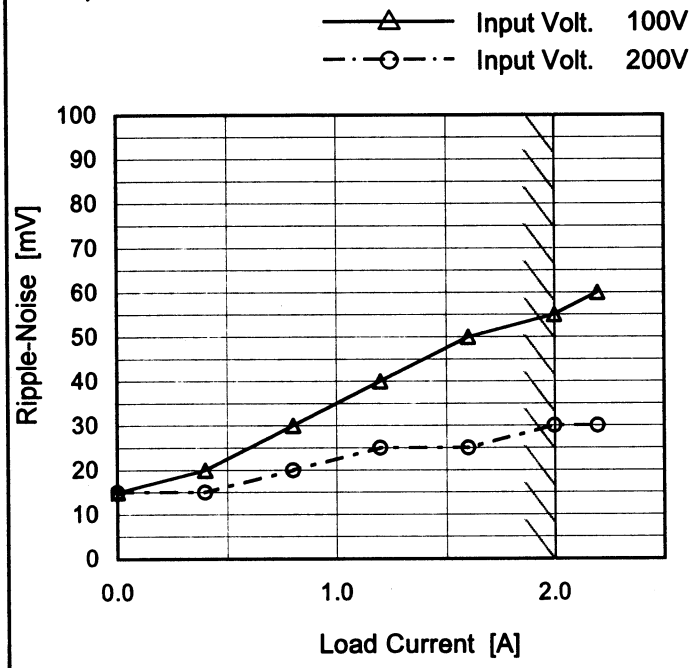
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	5	5
0.4	10	5
0.8	15	5
1.2	25	10
1.6	35	10
2.0	40	10
2.2	45	10
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA30F-15
Item	Ripple-Noise
Object	+15V2A

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]
0.0	15	15
0.4	20	15
0.8	30	20
1.2	40	25
1.6	50	25
2.0	55	30
2.2	60	30
--	-	-
--	-	-
--	-	-
--	-	-

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

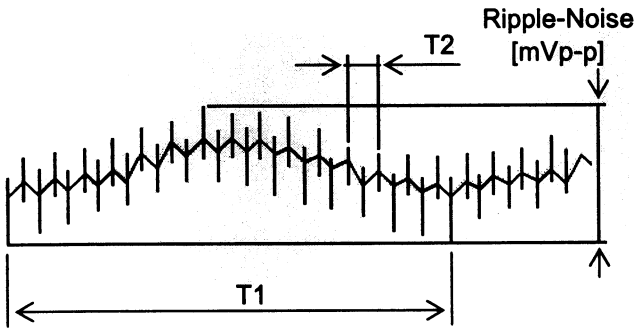


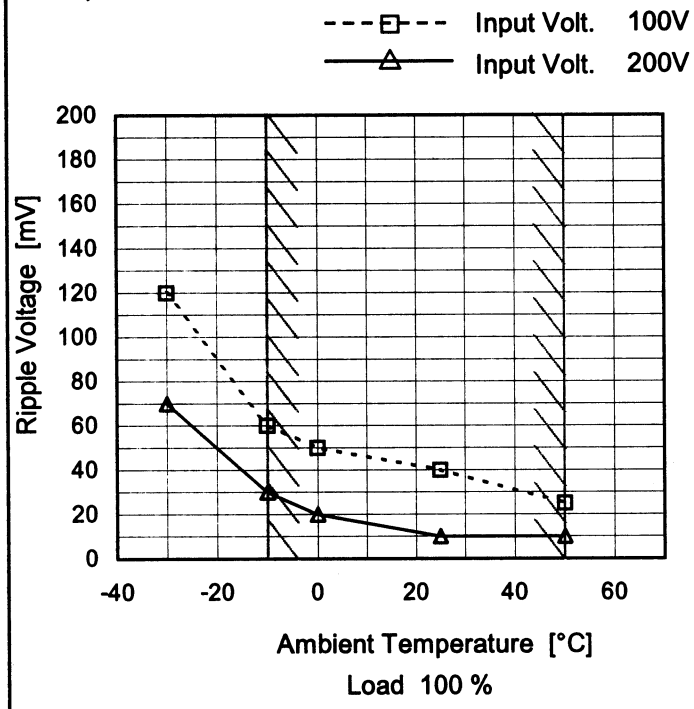
Fig. Complex Ripple Wave Form

COSEL

Model	PBA30F-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V2A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

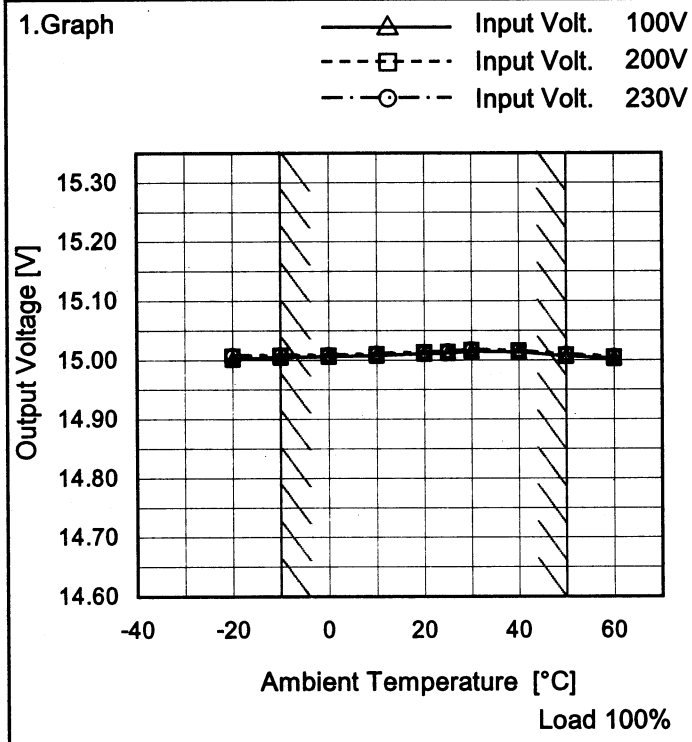
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	120	70
-10	60	30
0	50	20
25	40	10
50	25	10
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA30F-15
Item	Ambient Temperature Drift
Object	+15V2A

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	15.002	15.007	15.008
-10	15.005	15.008	15.009
0	15.006	15.008	15.009
10	15.008	15.010	15.011
20	15.011	15.013	15.014
25	15.012	15.014	15.015
30	15.015	15.017	15.018
40	15.014	15.016	15.016
50	15.007	15.009	15.010
60	15.003	15.005	15.006
--	-	-	-

COSEL

Model	PBA30F-15	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V2A	

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 - 2A

* 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	15.023	±9	±0.1
Minimum Voltage	-10	85	2	15.005		

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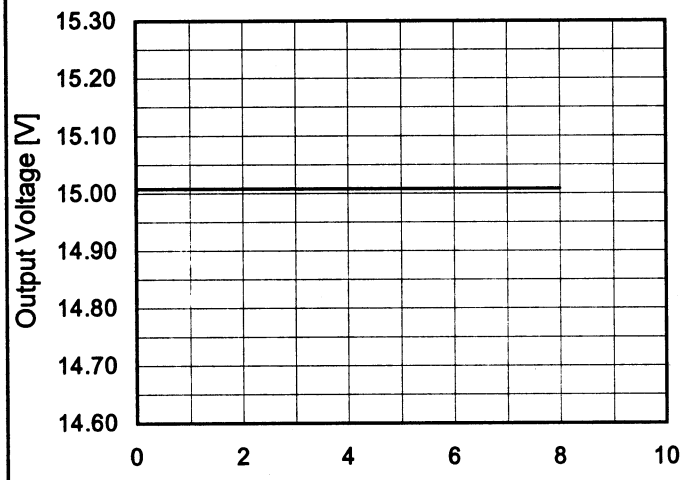
Model	PBA30F-15
Item	Time Lapse Drift
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

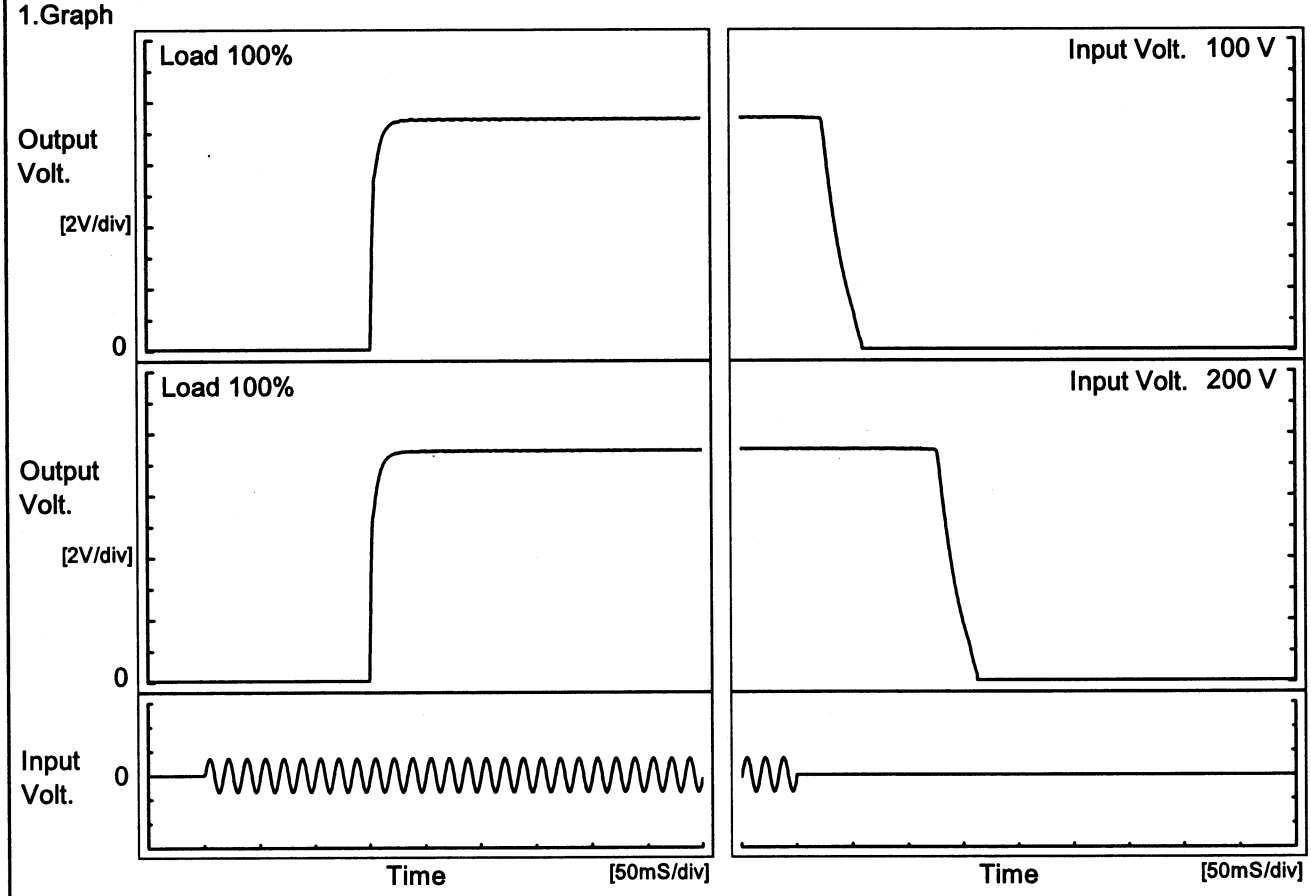
Time since start [H]	Output Voltage [V]
0.0	15.006
0.5	15.008
1.0	15.008
2.0	15.008
3.0	15.008
4.0	15.008
5.0	15.008
6.0	15.008
7.0	15.008
8.0	15.008

COSEL

Model	PBA30F-15
Item	Rise and Fall Time
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

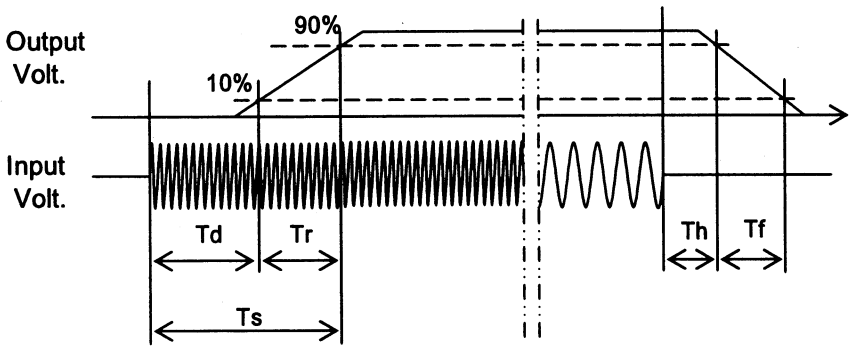
1.Graph



2.Values

[mS]

Time / Input Volt.	Td	Tr	Ts	Th	Tf
100 V	151.8	10.5	162.3	25.5	28.8
200 V	150.3	10.3	160.6	128.5	29.5

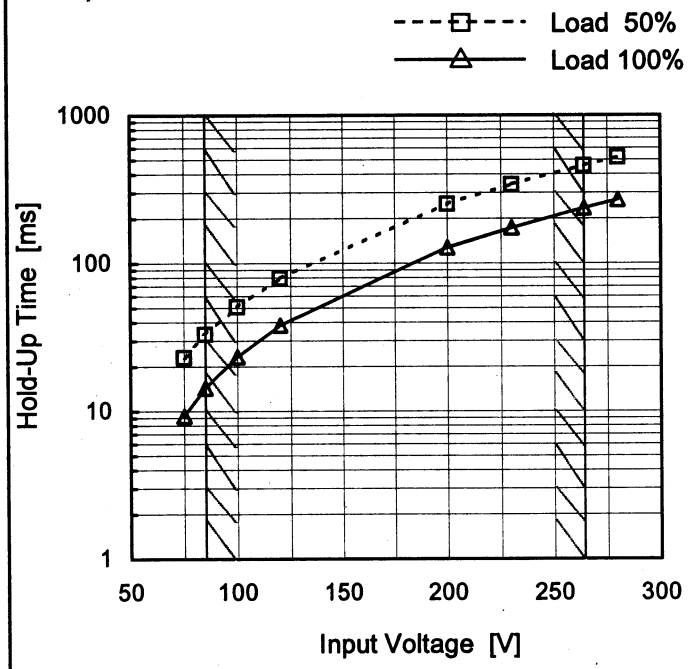


COSEL

Model	PBA30F-15
Item	Hold-Up Time
Object	+15V2A

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

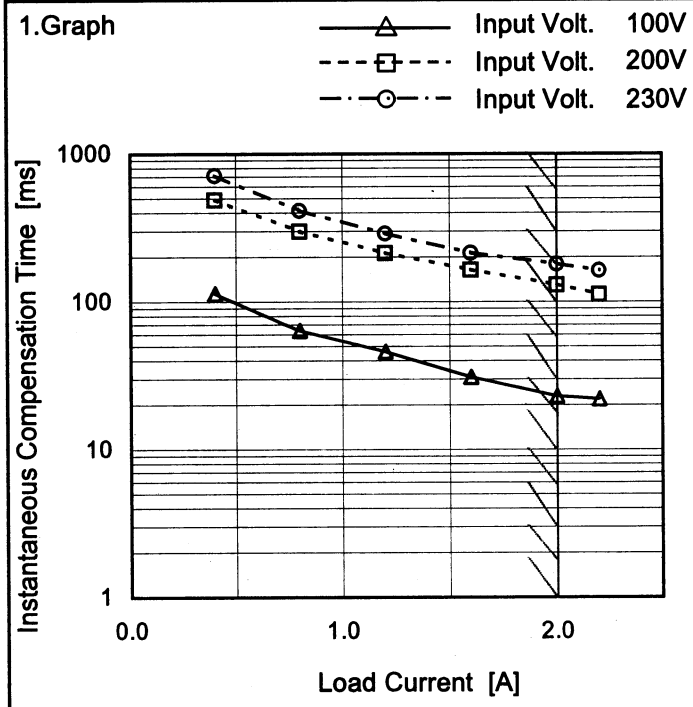
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	23	9
85	33	14
100	51	23
120	80	38
200	252	127
230	340	174
264	457	236
280	519	268
--	-	-

COSEL

Model	PBA30F-15
Item	Instantaneous Interruption Compensation
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

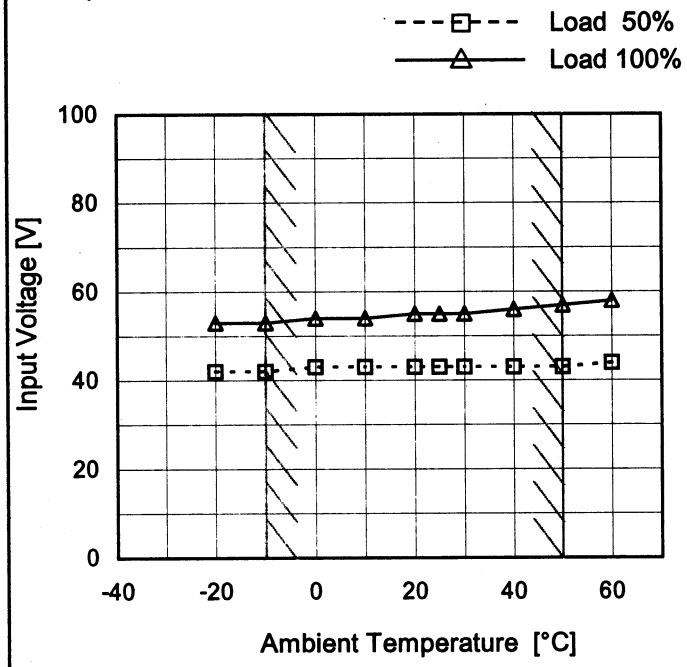
Load Current [A]	Time [ms]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
0.4	114	489	714
0.8	64	300	414
1.2	46	214	289
1.6	31	164	214
2.0	23	130	180
2.2	22	112	163
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA30F-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V2A

Testing Circuitry Figure A

1.Graph



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

2.Values

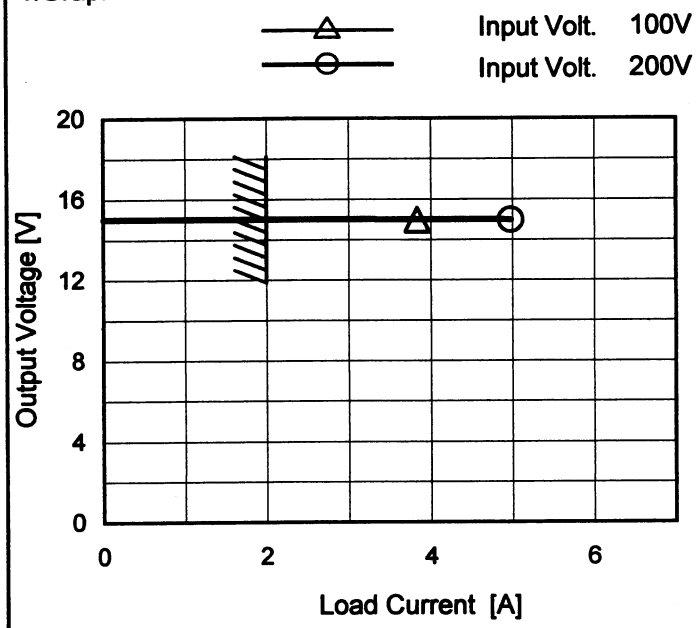
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	42	53
-10	42	53
0	43	54
10	43	54
20	43	55
25	43	55
30	43	55
40	43	56
50	43	57
60	44	58
--	-	-

COSEL

Model	PBA30F-15
Item	Overcurrent Protection
Object	+15V2A

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

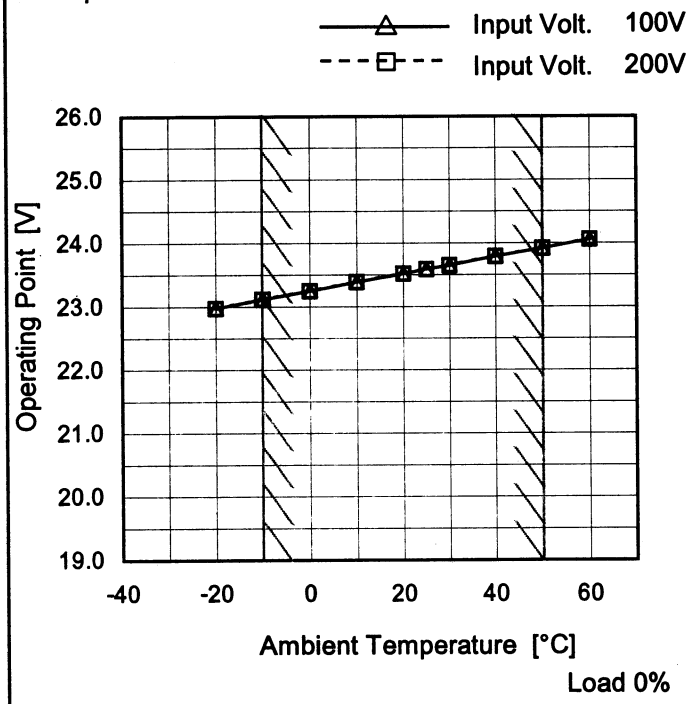
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
15.00	3.83	4.98
14.25	-	-
13.50	-	-
12.00	-	-
10.50	-	-
9.00	-	-
7.50	-	-
6.00	-	-
4.50	-	-
3.00	-	-
1.50	-	-
0.00	-	-

COSEL

Model	PBA30F-15
Item	Overvoltage Protection
Object	+15V2A

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	22.98	22.98
-10	23.12	23.12
0	23.25	23.25
10	23.39	23.39
20	23.52	23.52
25	23.59	23.59
30	23.65	23.65
40	23.79	23.79
50	23.92	23.92
60	24.06	24.06
--	-	-

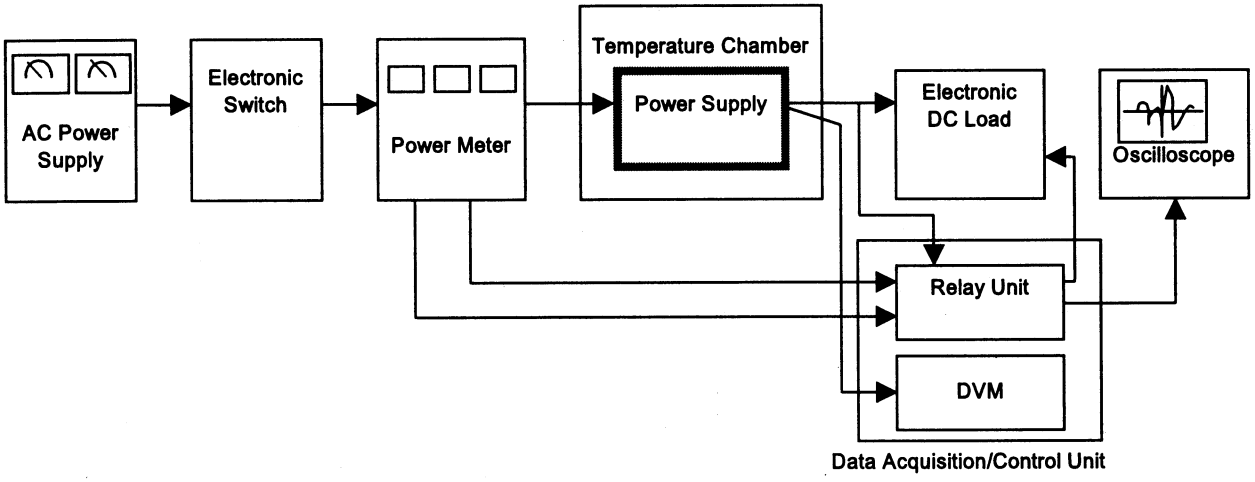


Figure A

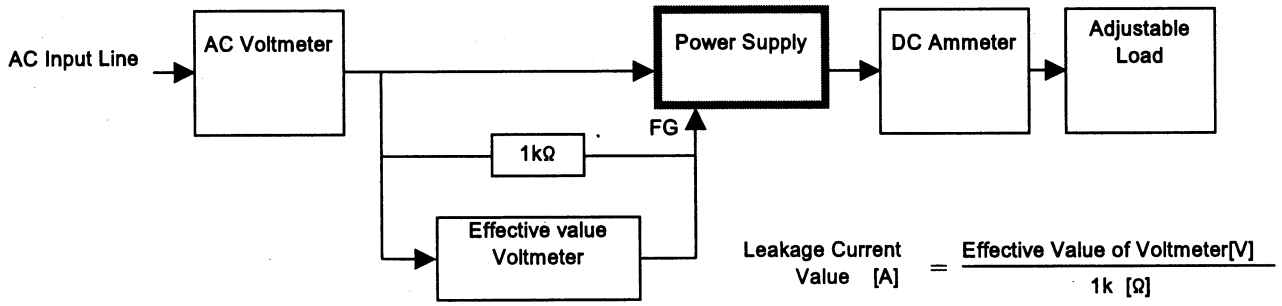


Figure B (DEN-AN)

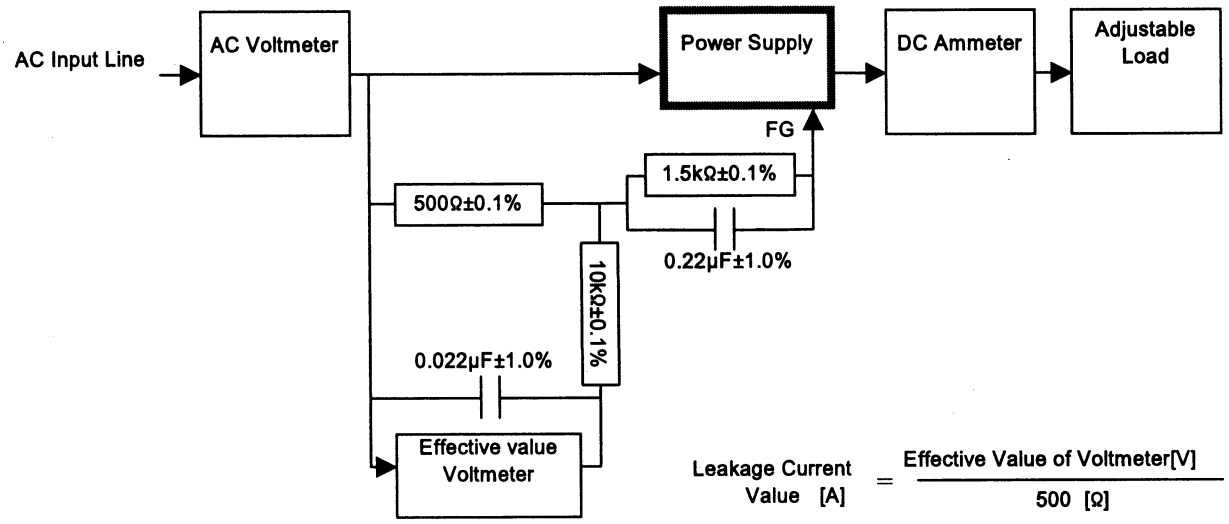


Figure B (IEC60950)