参考資料

COSEL

TEST DATA OF PBA300F-15

Regulated DC Power Supply
May 27,2004

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COSEL CO.,LTD.

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Object	———————

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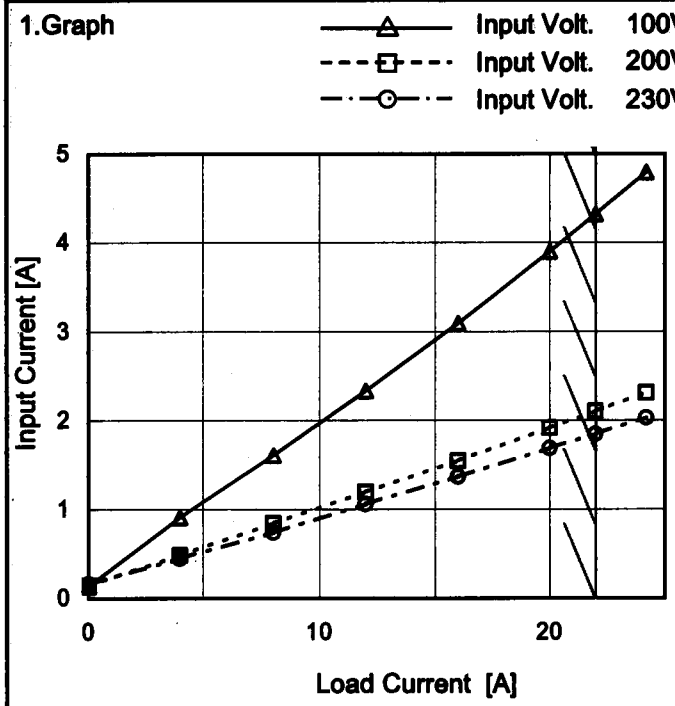
1.Graph



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

2.Values

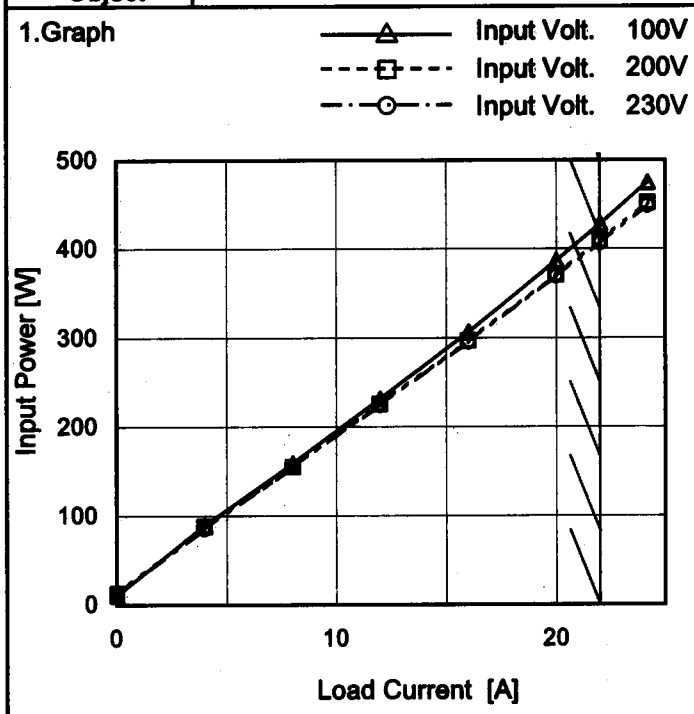
Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.138	0.147	0.160
4.0	0.908	0.484	0.450
8.0	1.608	0.844	0.740
12.0	2.336	1.196	1.060
16.0	3.098	1.549	1.370
20.0	3.900	1.917	1.688
22.0	4.320	2.104	1.848
24.2	4.790	2.314	2.028
--	-	-	-
--	-	-	-
--	-	-	-

BC-3592

Model	PBA300F-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

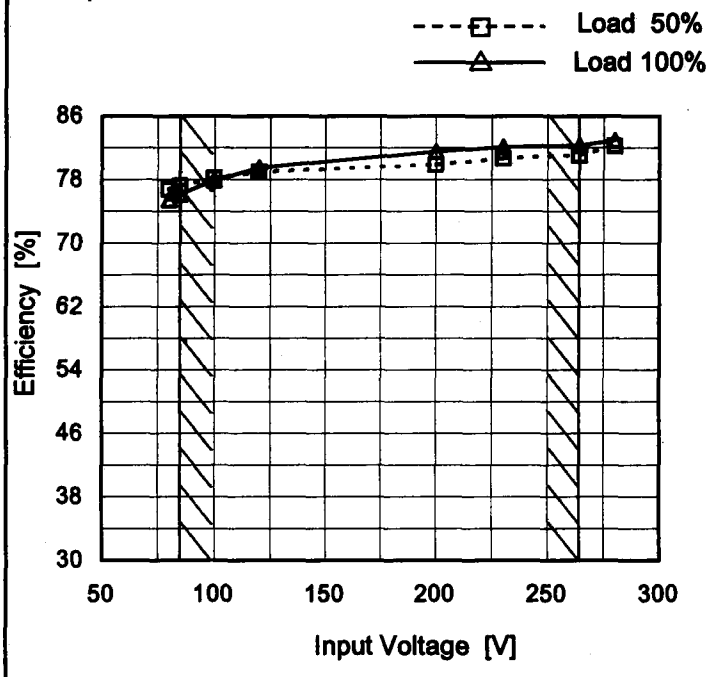
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	10.8	13.0	12.0
4.0	89.1	88.0	86.0
8.0	159.0	155.0	155.0
12.0	231.8	226.0	225.0
16.0	306.9	297.0	296.0
20.0	387.0	371.0	370.0
22.0	428.0	409.0	407.0
24.2	475.0	452.0	449.0
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA300F-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%
80	76.8	75.5
85	77.2	76.2
100	78.2	77.9
120	79.0	79.5
200	79.9	81.5
230	80.7	82.1
264	81.1	82.3
280	82.3	82.9
--	-	-

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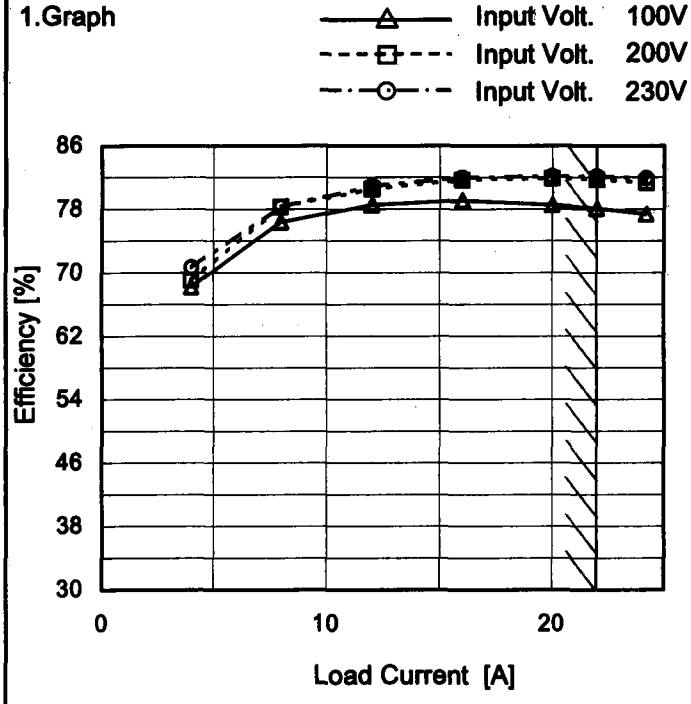
Model	PBA300F-15
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

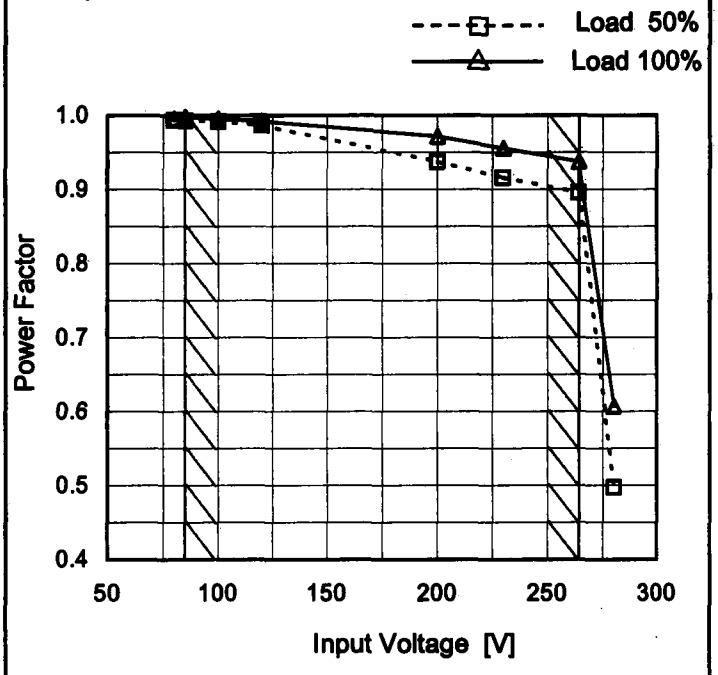
2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
4.0	68.2	69.1	70.7
8.0	76.4	78.3	78.3
12.0	78.6	80.6	80.9
16.0	79.1	81.7	82.0
20.0	78.5	81.9	82.1
22.0	78.1	81.7	82.1
24.2	77.4	81.3	81.9
--	-	-	-
--	-	-	-
--	-	-	-

Model	PBA300F-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%
80	0.994	0.996
85	0.993	0.998
100	0.991	0.995
120	0.986	0.992
200	0.937	0.972
230	0.916	0.955
264	0.896	0.938
280	0.498	0.607
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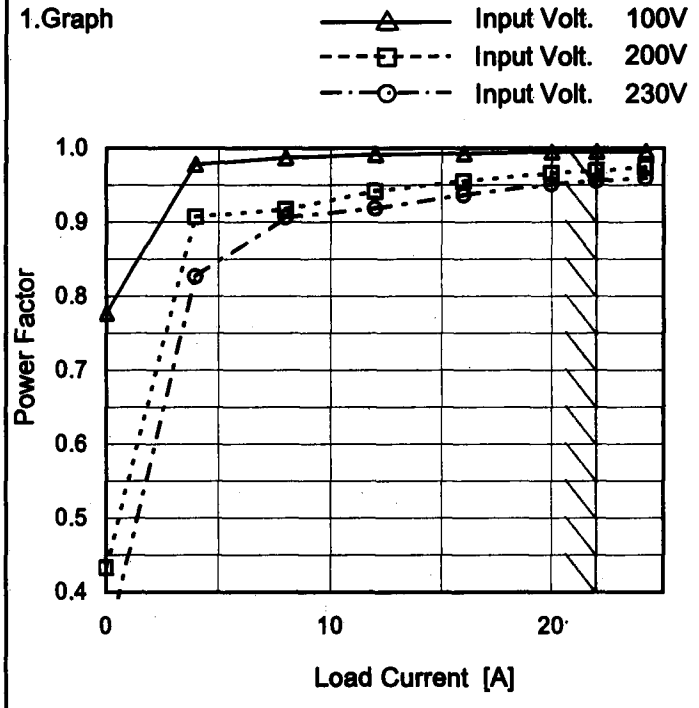
Model	PBA300F-15
Item	Power Factor (by Load Current)
Object	————————

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	0.777	0.433	0.324
4.0	0.978	0.907	0.827
8.0	0.987	0.917	0.906
12.0	0.991	0.942	0.918
16.0	0.993	0.955	0.937
20.0	0.995	0.966	0.951
22.0	0.995	0.969	0.955
24.2	0.996	0.974	0.959
--	-	-	-
--	-	-	-
--	-	-	-

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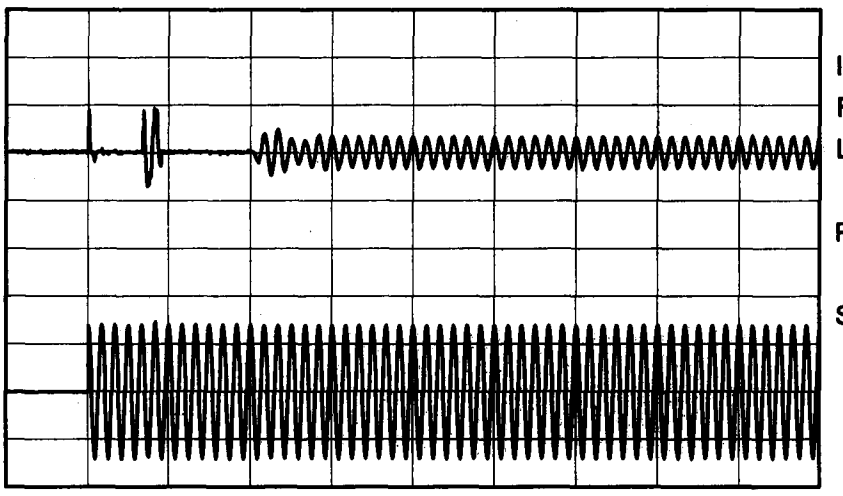
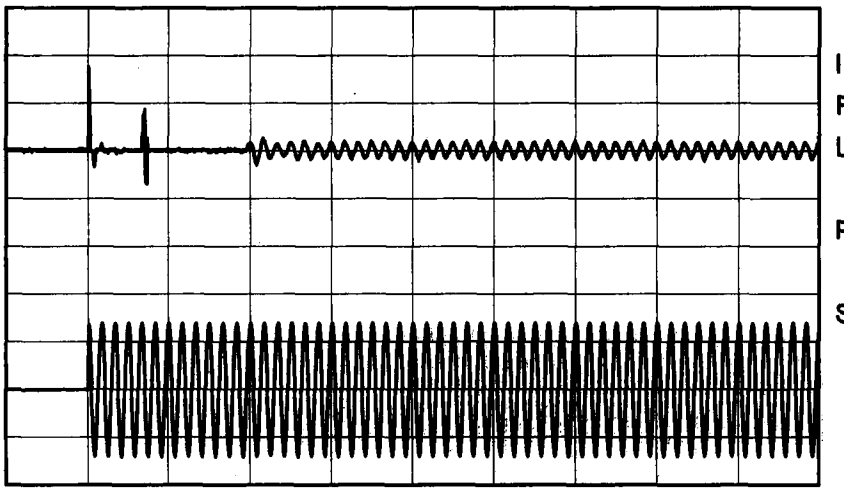
Model	PBA300F-15
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



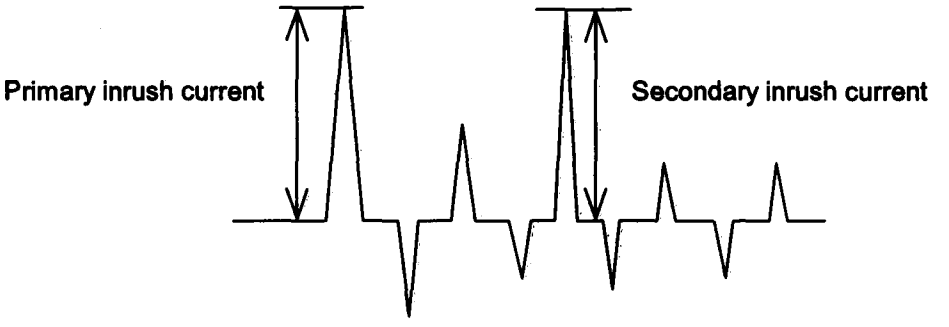
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current : 17.9 A
Secondary inrush current : 18.5 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current : 35.3 A
Secondary inrush current : 17.3 A



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Model	PBA300F-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	0.14	0.25	0.29	Operation
	One of phase	0.23	0.45	0.54	stand by
IEC60950	Both phases	0.14	0.25	0.29	Operation
	One of phase	0.23	0.45	0.54	stand by

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

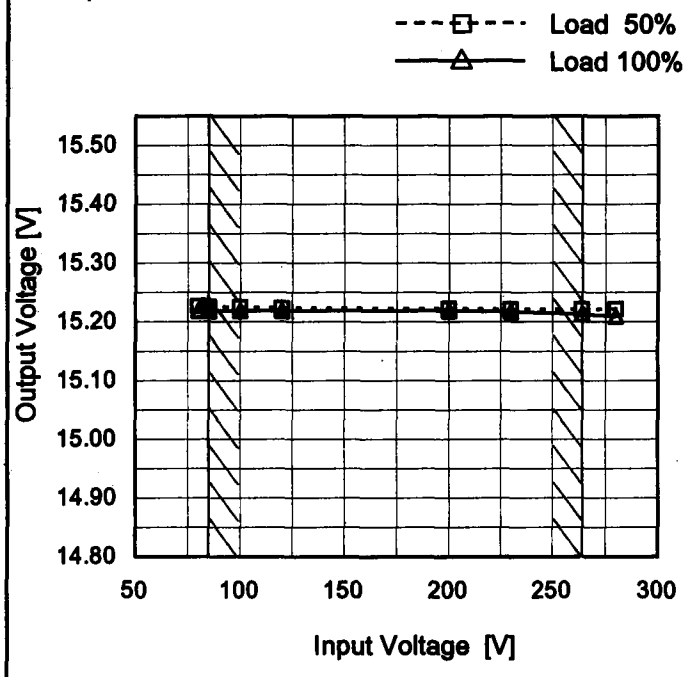
2.Condition

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

Model	PBA300F-15
Item	Line Regulation
Object	+15V22A

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%
80	15.227	15.219
85	15.226	15.219
100	15.225	15.219
120	15.224	15.219
200	15.223	15.220
230	15.221	15.218
264	15.221	15.213
280	15.222	15.210
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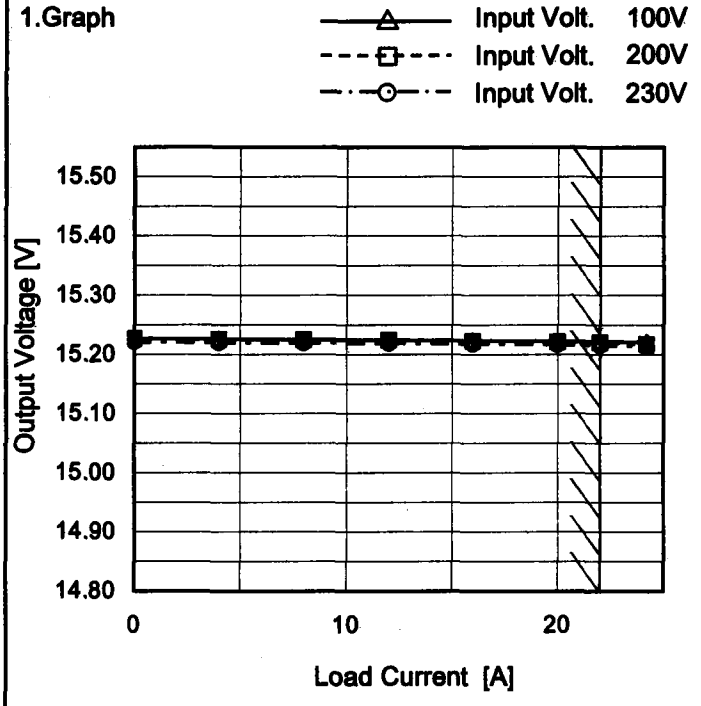
Model	PBA300F-15
Item	Load Regulation
Object	+15V22A

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	15.227	15.227	15.221
4.0	15.226	15.226	15.220
8.0	15.225	15.225	15.219
12.0	15.225	15.224	15.219
16.0	15.224	15.223	15.218
20.0	15.222	15.222	15.217
22.0	15.222	15.220	15.215
24.2	15.222	15.218	15.214
--	-	-	-
--	-	-	-
--	-	-	-

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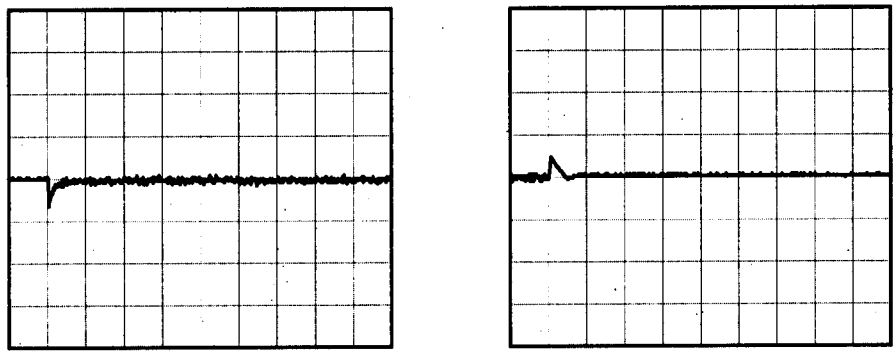
Model	PBA300F-15		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+15V22A		

Input Volt. 100 V

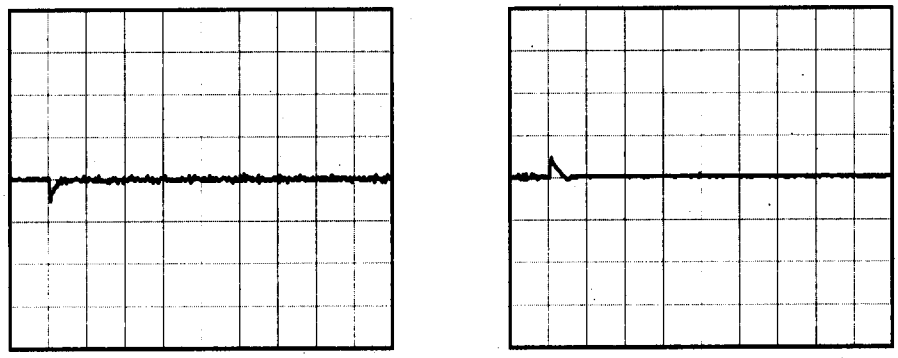
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (22A)



Min. Load (0A) ⟷
Load 50% (11A)



* The characteristic of AC200V is equal.

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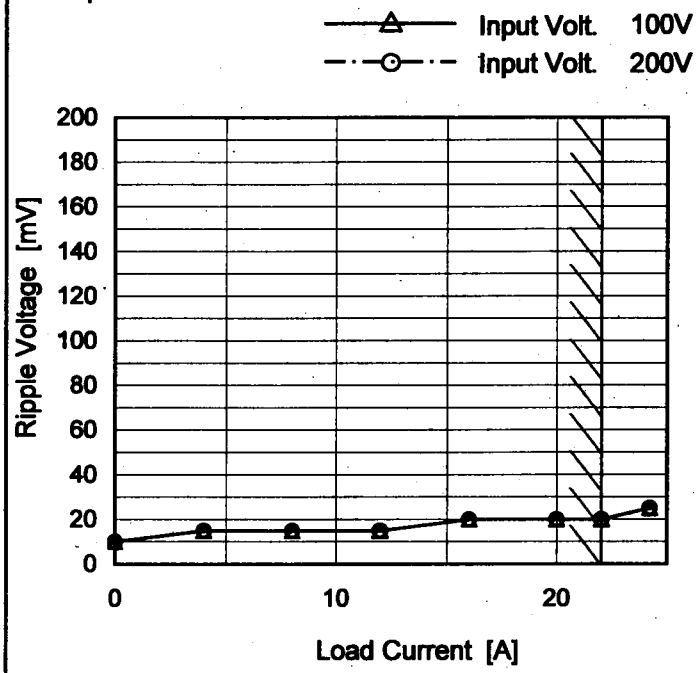
Model	PBA300F-15
Item	Ripple Voltage (by Load Current)
Object	+15V22A

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

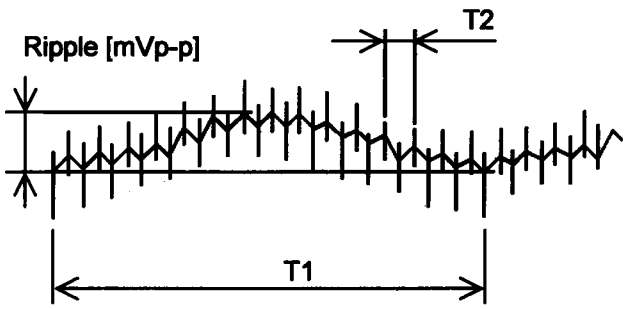


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	10	10
4.0	15	15
8.0	15	15
12.0	15	15
16.0	20	20
20.0	20	20
22.0	20	20
24.2	25	25
–	-	-
–	-	-
–	-	-

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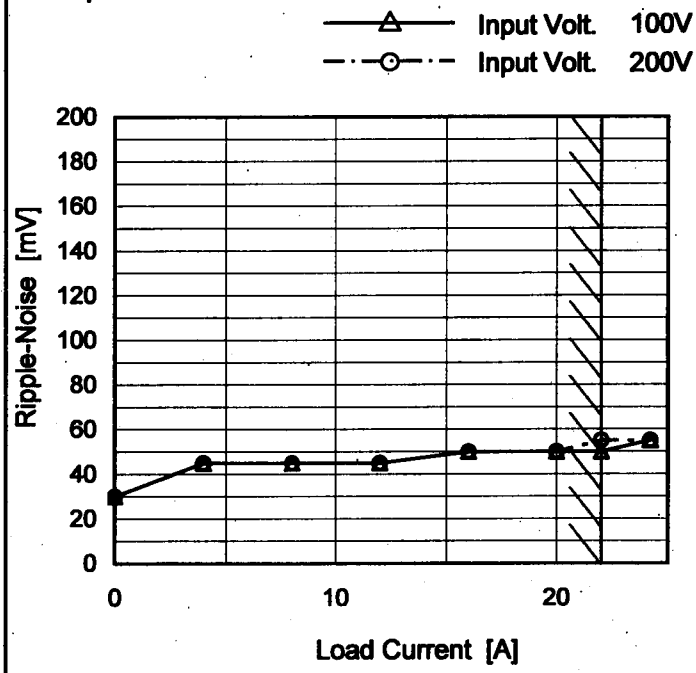
Model	PBA300F-15
Item	Ripple-Noise
Object	+15V22A

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]
0.0	30	30
4.0	45	45
8.0	45	45
12.0	45	45
16.0	50	50
20.0	50	50
22.0	50	55
24.2	55	55
–	-	-
–	-	-
–	-	-

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

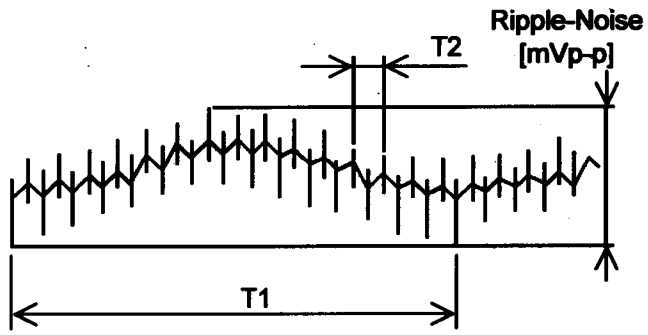


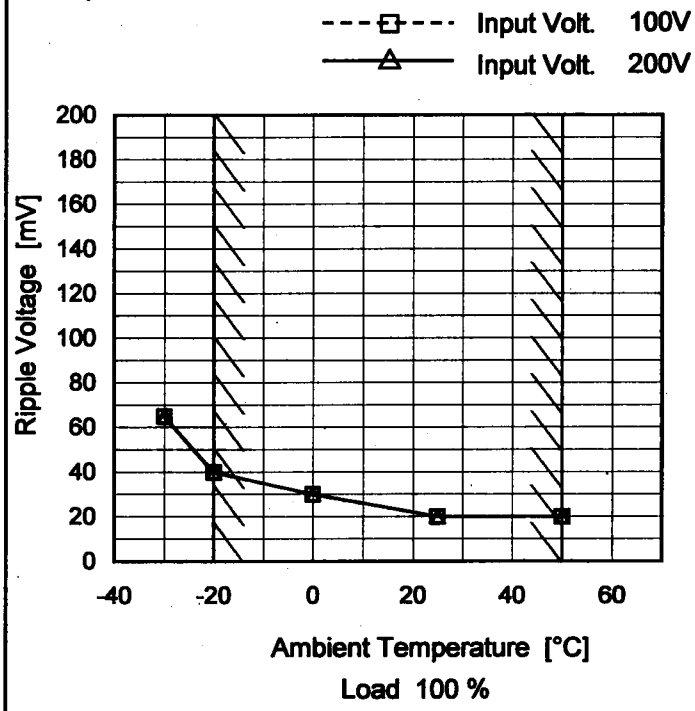
Fig. Complex Ripple Wave Form

COSEL

Model	PBA300F-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V22A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

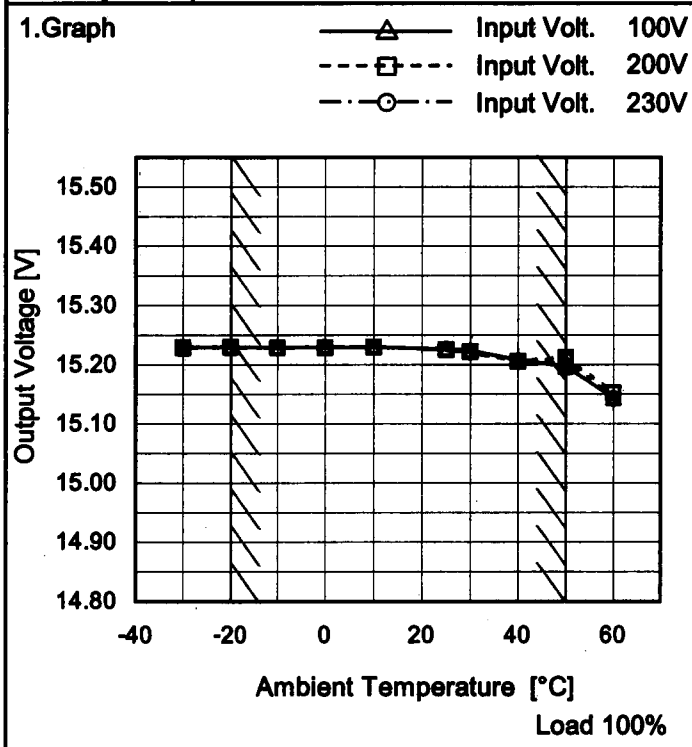
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	65	65
-20	40	40
0	30	30
25	20	20
50	20	20
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-
–	-	-

Model	PBA300F-15
Item	Ambient Temperature Drift
Object	+15V22A

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]
-30	15.229	15.229	15.229
-20	15.230	15.230	15.229
-10	15.229	15.229	15.229
0	15.229	15.229	15.230
10	15.230	15.230	15.230
25	15.227	15.226	15.225
30	15.224	15.222	15.221
40	15.208	15.206	15.206
50	15.197	15.212	15.210
60	15.145	15.152	15.143
--	-	-	-

Model	PBA300F-15	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V22A	

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 : -20 - 50°C
Input Voltage : 85 - 264V
Load Current : 0 - 22A

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

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

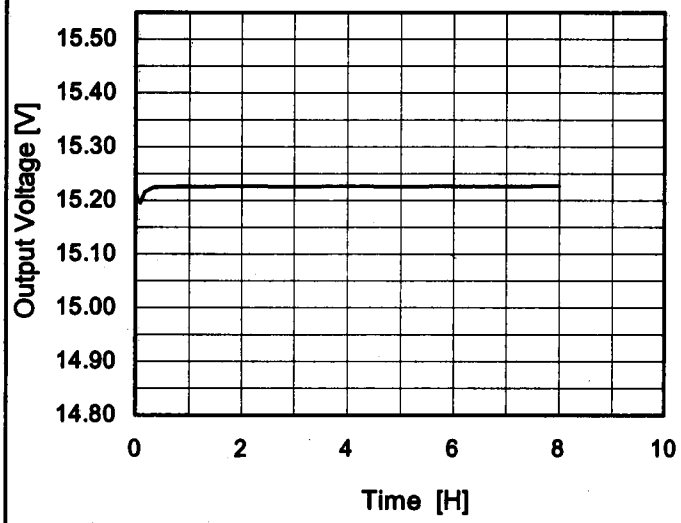
2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-20	200	0	15.235	±20	±0.1
Minimum Voltage	50	264	22	15.196		

Model	PBA300F-15
Item	Time Lapse Drift
Object	+15V22A

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	15.214
0.5	15.226
1.0	15.226
2.0	15.227
3.0	15.226
4.0	15.227
5.0	15.226
6.0	15.227
7.0	15.227
8.0	15.227

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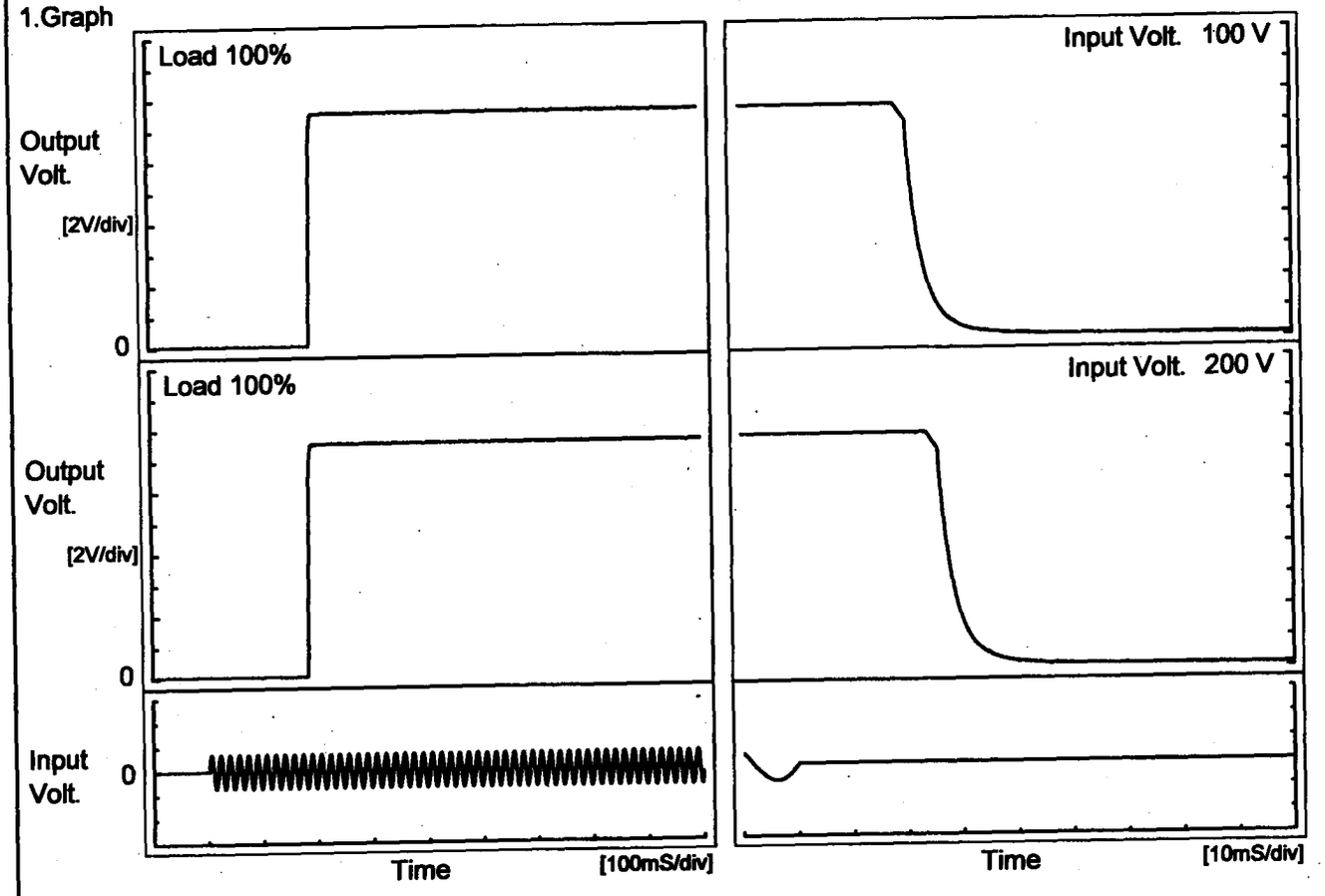
Model	PBA300F-15
Item	Rise and Fall Time
Object	+15V22A

Temperature 25°C
Testing Circuitry Figure A

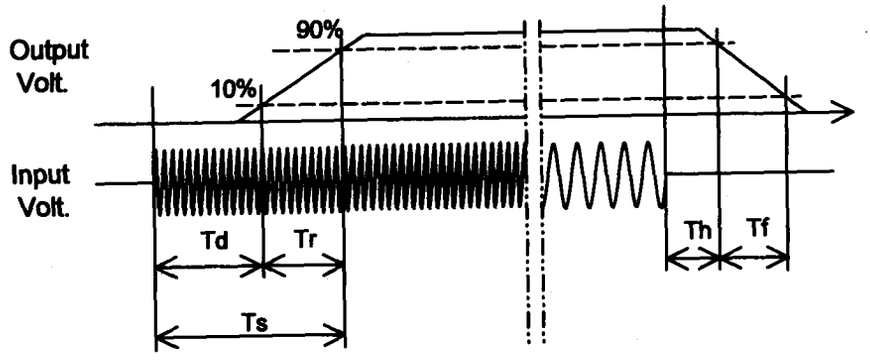
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	191.0	4.0	195.0	20.3	7.0
200 V	183.5	4.0	187.5	25.7	7.0

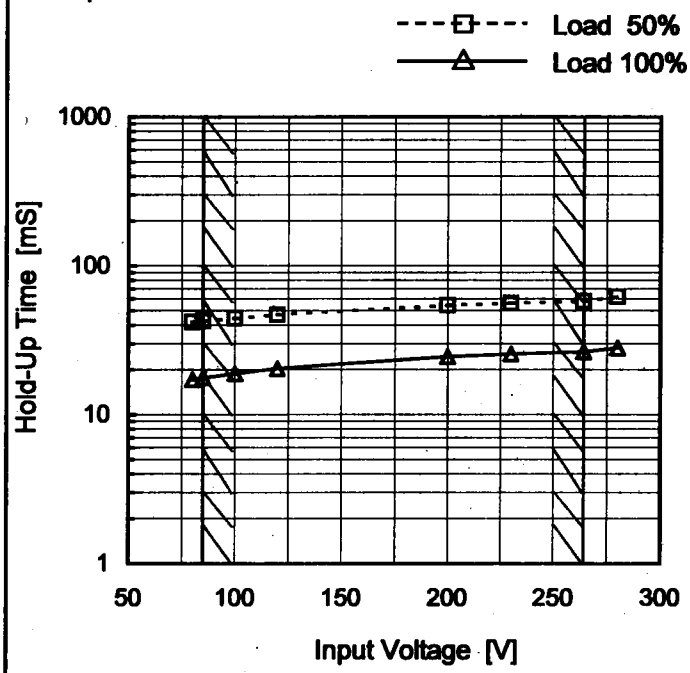


COSEL

Model	PBA300F-15
Item	Hold-Up Time
Object	+15V22A

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

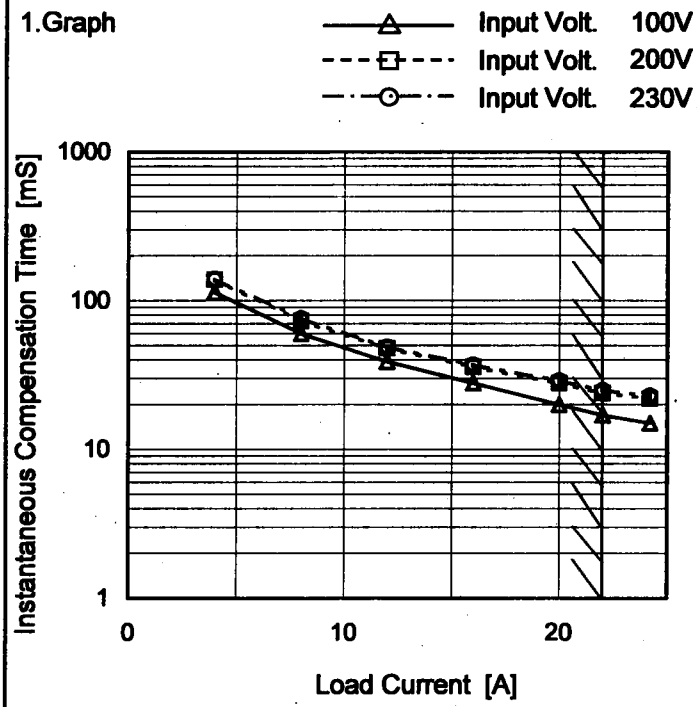
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
80	42	17
85	43	18
100	45	19
120	47	20
200	54	25
230	56	26
264	58	27
280	62	28
–	-	-

COSEL

Model	PBA300F-15
Item	Instantaneous Interruption Compensation
Object	+15V22A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

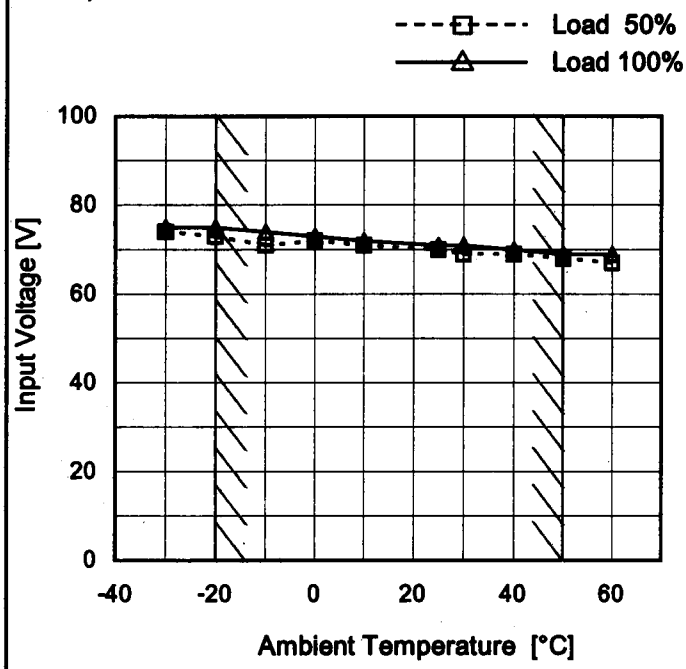
2.Values

Load Current [A]	Time [mS] Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
4.0	114	139	140
8.0	60	73	76
12.0	39	48	49
16.0	28	36	37
20.0	20	28	29
22.0	17	24	25
24.2	15	22	23
—	-	-	-
—	-	-	-
—	-	-	-

Model	PBA300F-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V22A

Testing Circuitry Figure A

1.Graph



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

2.Values

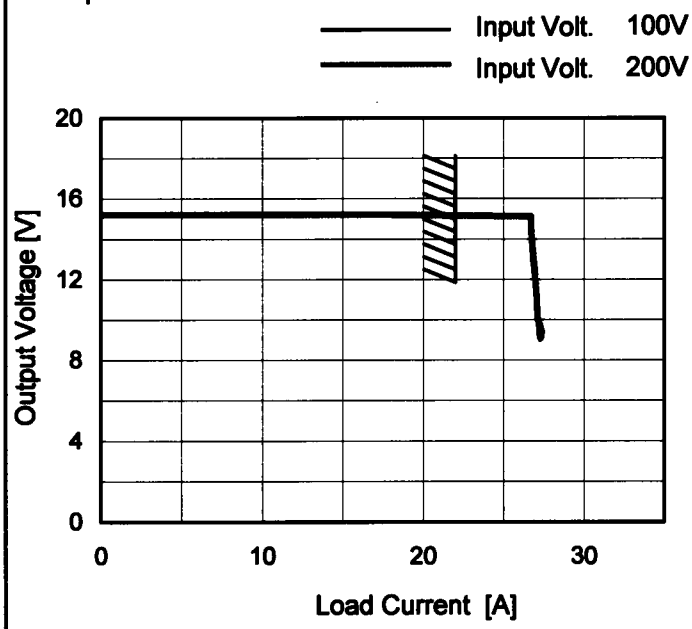
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	74	75
-20	73	75
-10	71	74
0	72	73
10	71	72
25	70	71
30	69	71
40	69	70
50	68	69
60	67	69
--	-	-

COSEL

Model	PBA300F-15
Item	Overcurrent Protection
Object	+15V22A

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 9V to 0V.

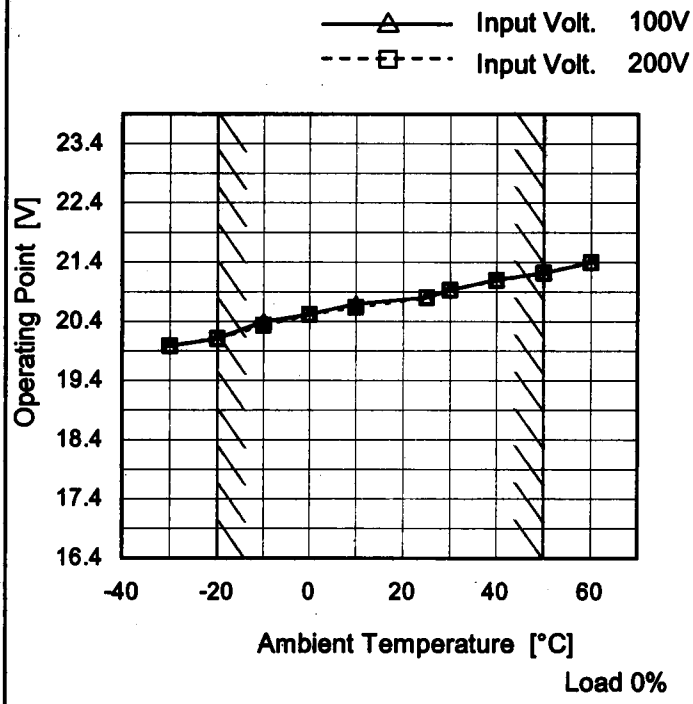
2.Values

Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
15.00	26.68	26.70
14.25	26.71	26.74
13.50	26.76	26.81
12.00	26.93	26.99
10.50	27.08	27.09
9.00	27.27	27.27
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model	PBA300F-15
Item	Overvoltage Protection
Object	+15V22A

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]
-30	20.03	20.03
-20	20.15	20.15
-10	20.44	20.38
0	20.56	20.56
10	20.74	20.68
25	20.85	20.85
30	20.97	20.97
40	21.15	21.14
50	21.26	21.26
60	21.44	21.44
--	-	-

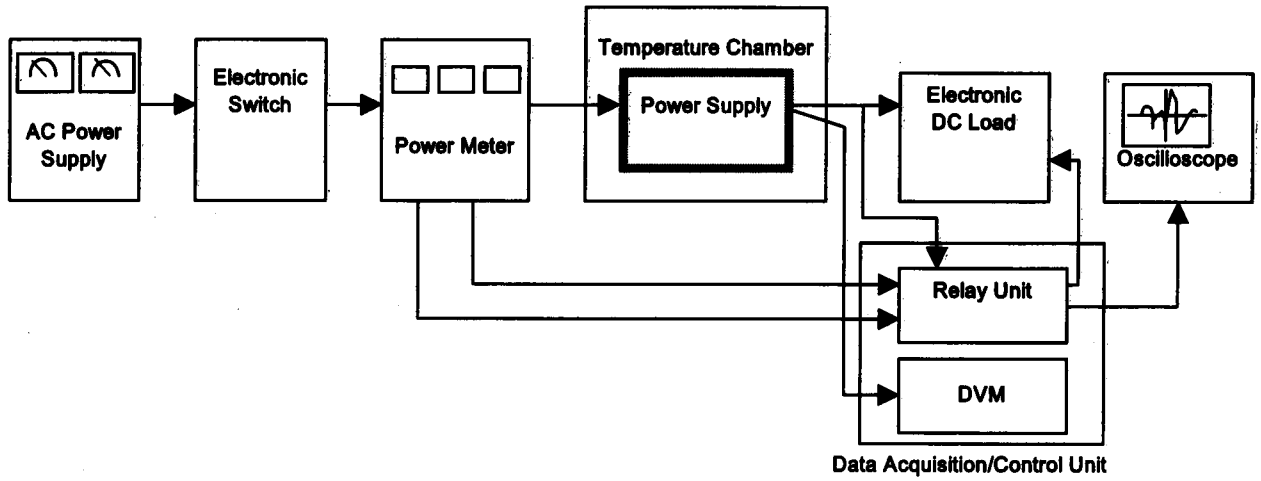


Figure A

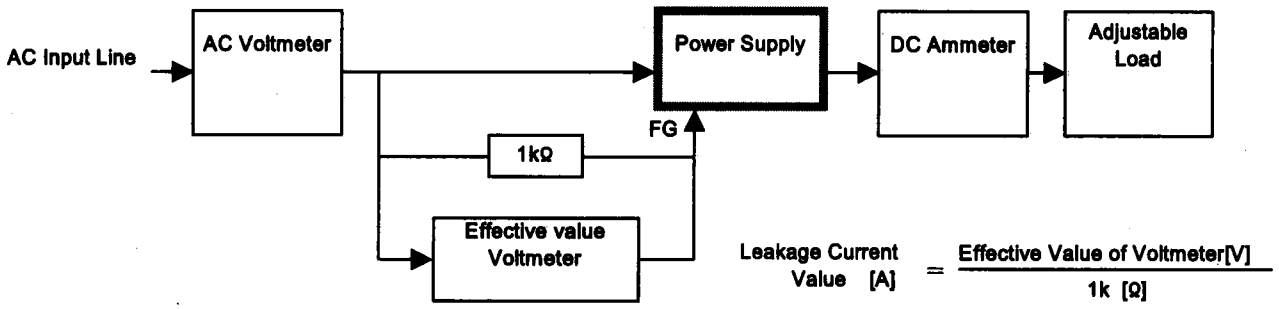


Figure B (DEN-AN)

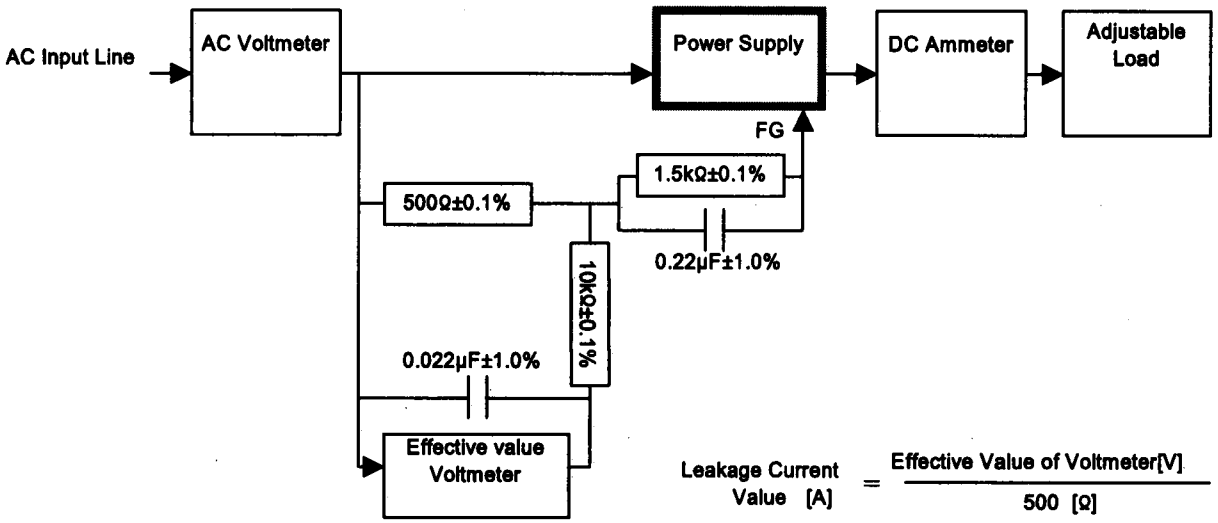


Figure B (IEC60950)