参考資料

COSEL

TEST DATA OF PBA300F-3R3

Regulated DC Power Supply
May 28,2004

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COSEL CO.,LTD.

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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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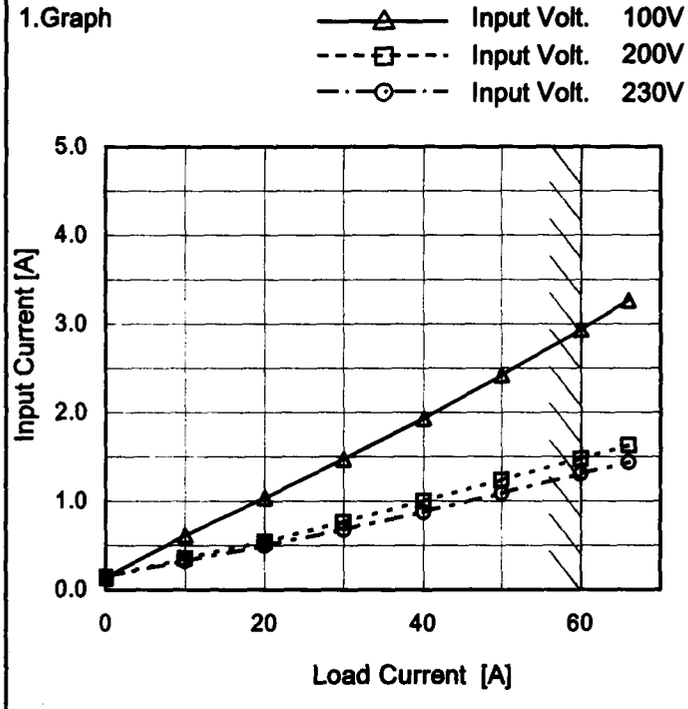
Model	PBA300F-3R3
Item	Input Current (by Load Current)
Object	————————

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	0.134	0.142	0.150
10	0.614	0.356	0.328
20	1.036	0.544	0.500
30	1.472	0.766	0.680
40	1.932	1.002	0.878
50	2.422	1.238	1.090
60	2.936	1.480	1.306
66	3.264	1.630	1.438
--	-	-	-
--	-	-	-
--	-	-	-

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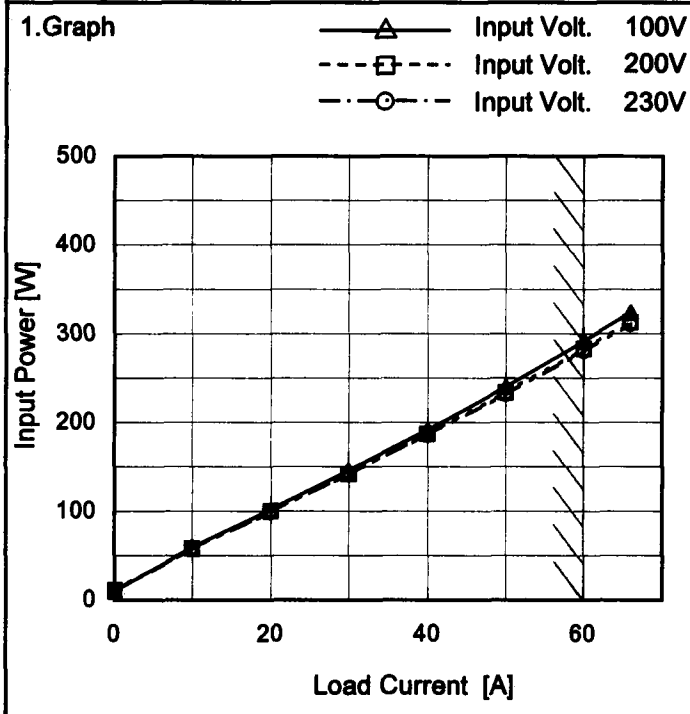
Model	PBA300F-3R3
Item	Input Power (by Load Current)
Object	———————

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	10.2	11.0	10.0
10	59.1	58.0	58.0
20	101.7	100.0	99.0
30	145.5	142.0	142.0
40	191.6	187.0	186.0
50	240.3	234.0	232.0
60	291.6	283.0	281.0
66	324.0	313.0	311.0
--	-	-	-
--	-	-	-
--	-	-	-

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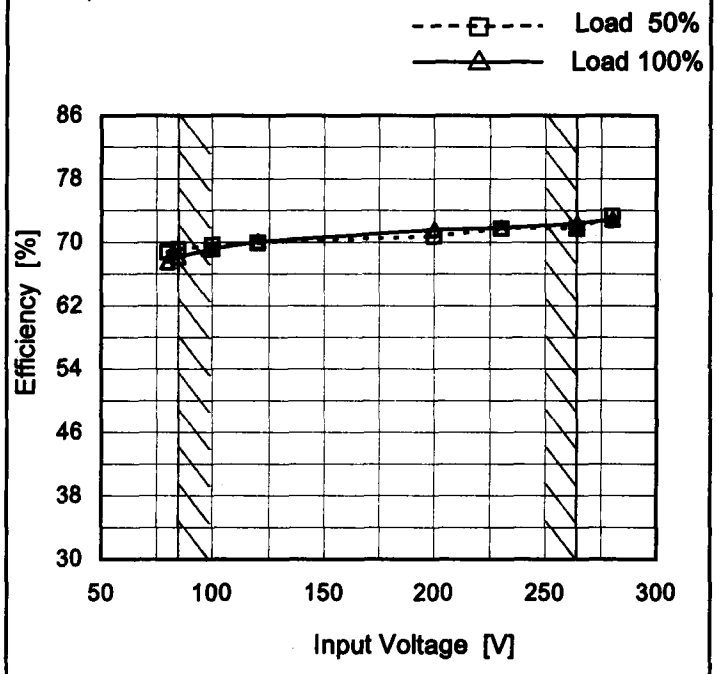
Model	PBA300F-3R3
Item	Efficiency (by Input Voltage)
Object	———————

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	68.8	67.5
85	69.1	68.2
100	69.7	69.2
120	70.0	70.1
200	70.8	71.6
230	71.8	71.8
264	71.8	72.4
280	73.3	72.9
--	-	-

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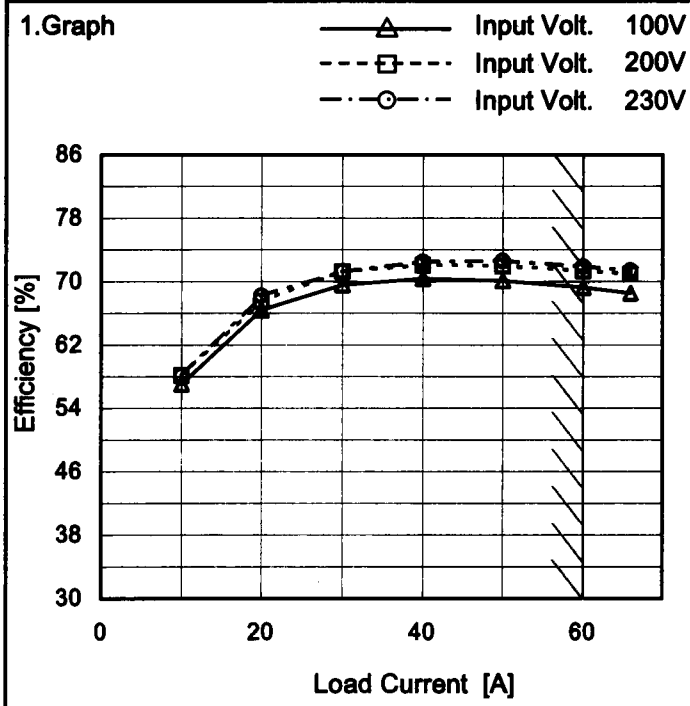
Model	PBA300F-3R3
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
10	57.1	58.2	58.2
20	66.4	67.5	68.2
30	69.6	71.3	71.3
40	70.4	72.1	72.5
50	70.1	72.0	72.6
60	69.3	71.4	71.9
66	68.5	70.9	71.4
--	-	-	-
--	-	-	-
--	-	-	-

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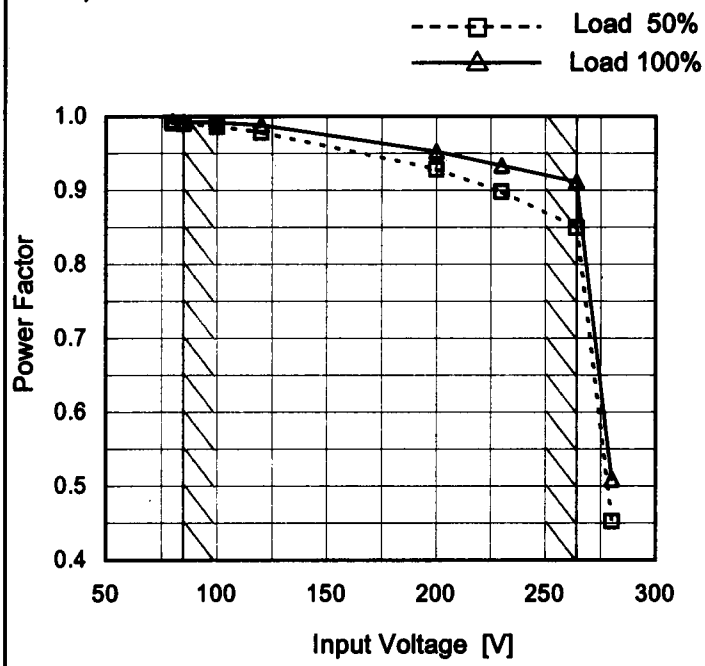
Model	PBA300F-3R3
Item	Power Factor (by Input Voltage)
Object	———————————

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	0.991	0.993
85	0.991	0.993
100	0.986	0.992
120	0.978	0.988
200	0.929	0.953
230	0.898	0.934
264	0.849	0.912
280	0.452	0.509
--	-	-

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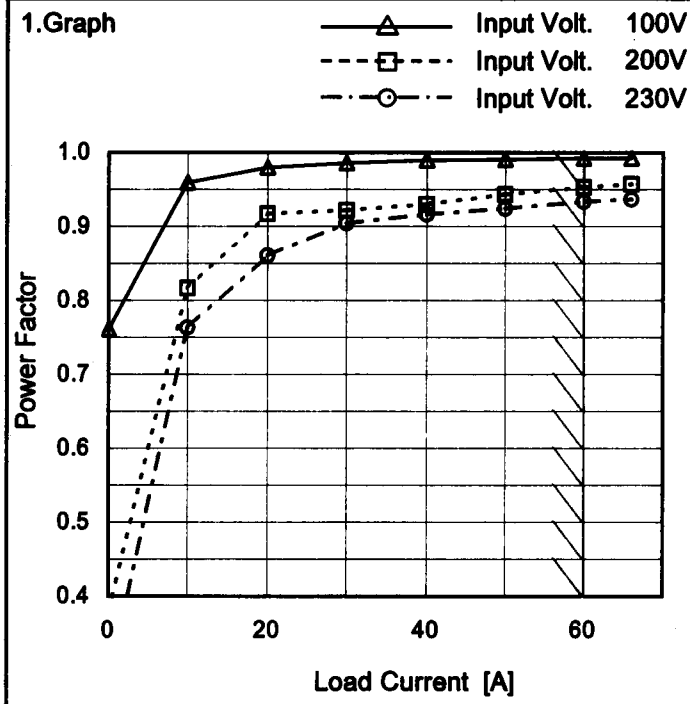
Model	PBA300F-3R3	Temperature	25°C
Item	Power Factor (by Load Current)	Testing Circuitry	Figure A
Object	———————		

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	0.761	0.379	0.286
10	0.959	0.817	0.763
20	0.980	0.917	0.861
30	0.986	0.922	0.904
40	0.990	0.930	0.916
50	0.991	0.944	0.924
60	0.992	0.953	0.934
66	0.992	0.957	0.937
--	-	-	-
--	-	-	-
--	-	-	-

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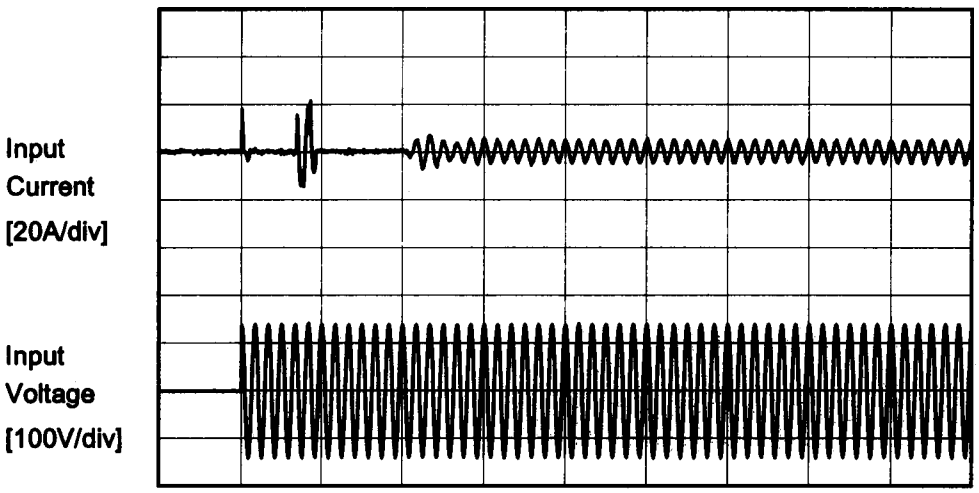
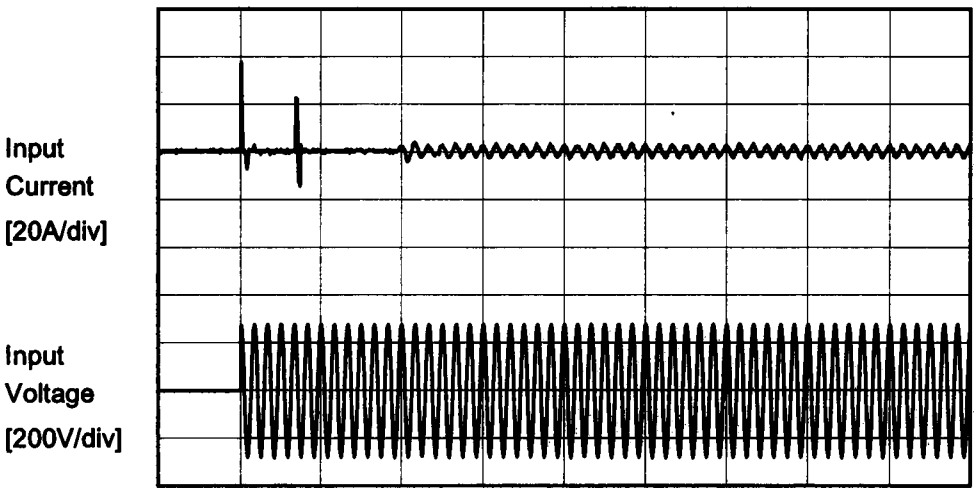
Model	PBA300F-3R3		
Item	Inrush Current	Temperature	25°C
Object	———————	Testing Circuitry	Figure A



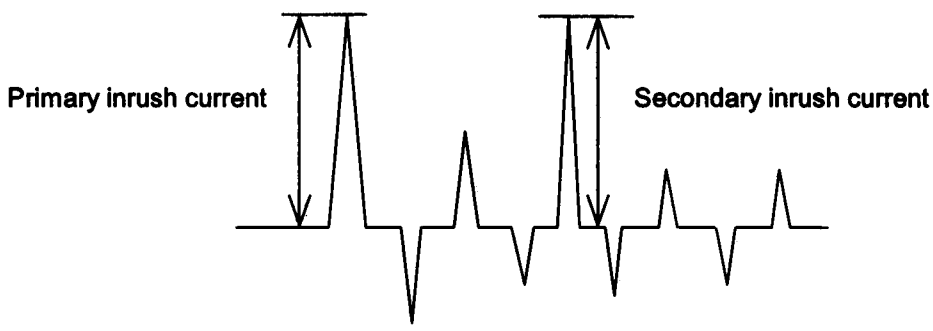
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
18.0 A
Secondary inrush current :
21.6 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
37.7 A
Secondary inrush current :
22.7 A



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Model	PBA300F-3R3		
Item	Leakage Current	Temperature	25°C
Object	———————	Testing Circuitry	Figure B

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	230 [V]	
DEN-AN	Both phases	0.14	0.25	0.28	Operation
	One of phase	0.23	0.45	0.52	stand by
IEC60950	Both phases	0.14	0.25	0.28	Operation
	One of phase	0.23	0.45	0.52	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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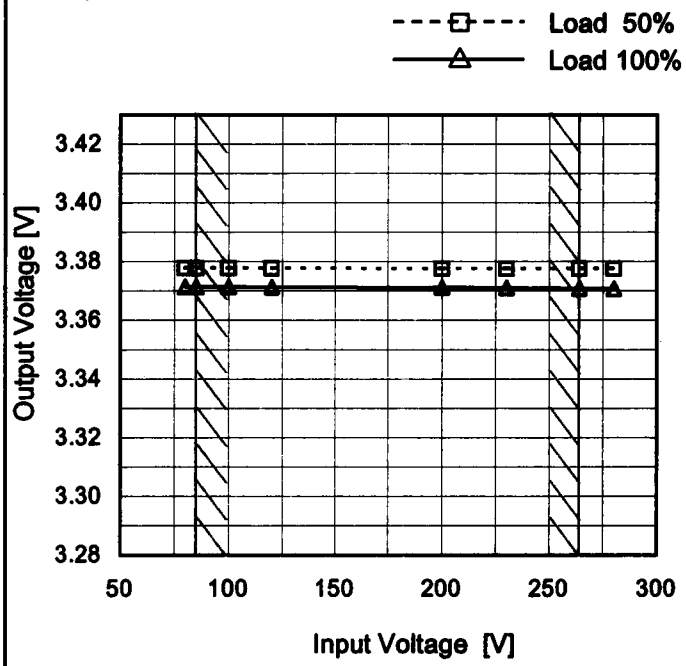
Model	PBA300F-3R3
Item	Line Regulation
Object	+3.3V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

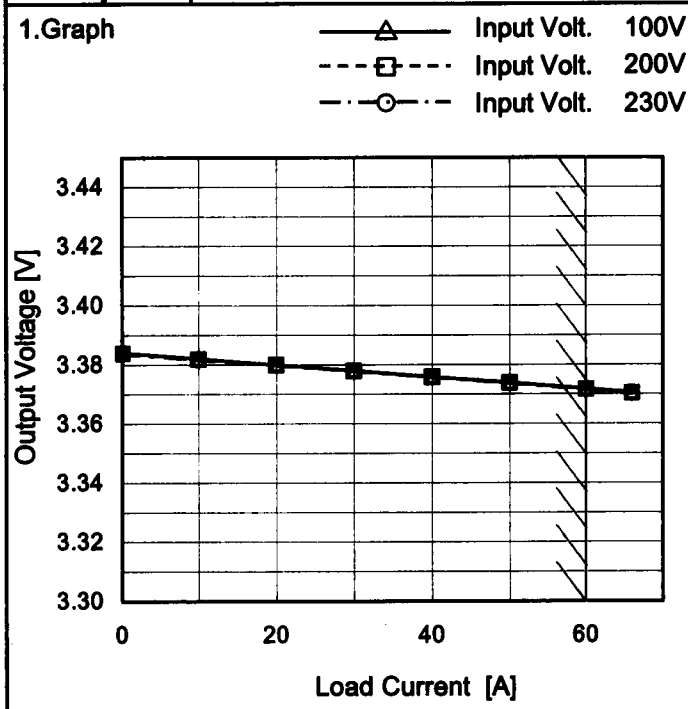
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
80	3.378	3.372
85	3.378	3.372
100	3.378	3.372
120	3.378	3.371
200	3.378	3.371
230	3.378	3.371
264	3.378	3.371
280	3.378	3.371
--	-	-

COSEL

Model	PBA300F-3R3
Item	Load Regulation
Object	+3.3V60A

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	3.384	3.384	3.384
10	3.382	3.382	3.382
20	3.380	3.380	3.380
30	3.378	3.378	3.378
40	3.376	3.376	3.376
50	3.374	3.374	3.374
60	3.372	3.372	3.372
66	3.371	3.370	3.370
--	-	-	-
--	-	-	-
--	-	-	-

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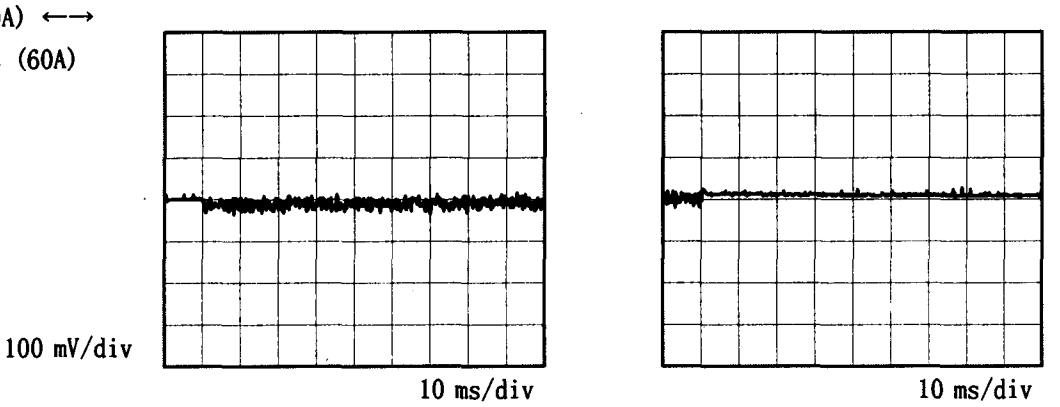
Model	PBA300F-3R3		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+3.3V60A		

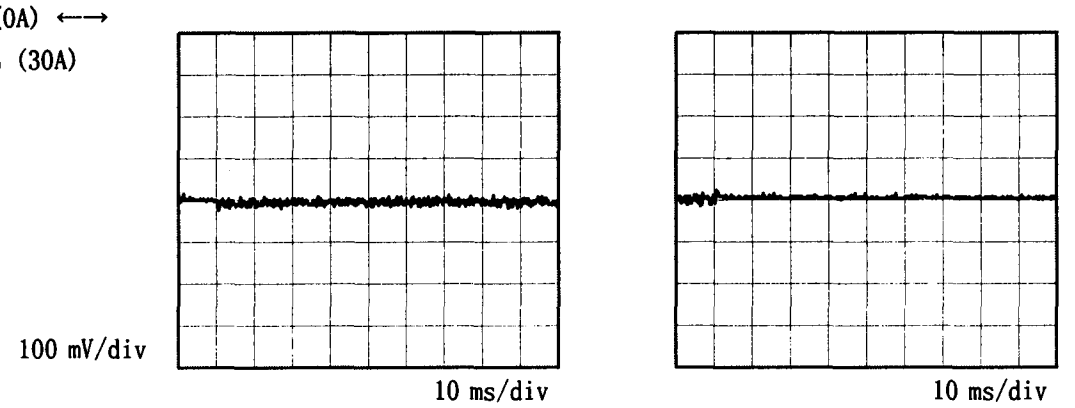
Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (60A)



Min. Load (0A) ⟷
Load 50% (30A)



* The characteristic of AC200V is equal.

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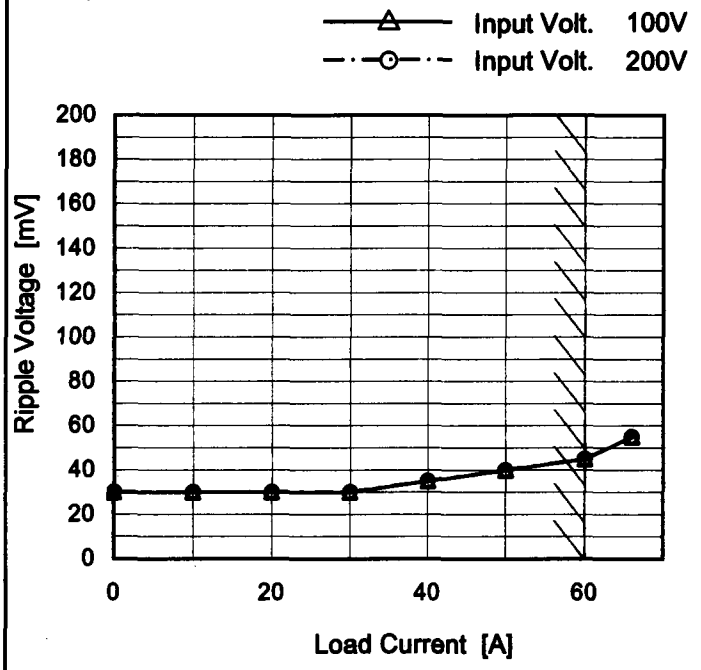
Model	PBA300F-3R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 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

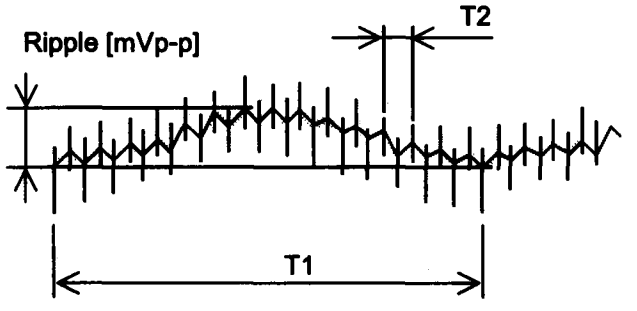


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0	30	30
10	30	30
20	30	30
30	30	30
40	35	35
50	40	40
60	45	45
66	55	55
--	-	-
--	-	-
--	-	-

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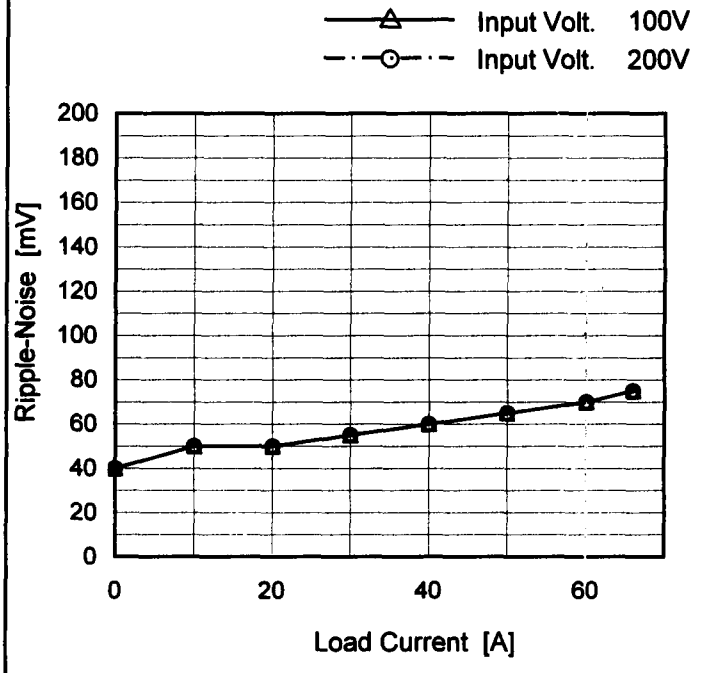
Model	PBA300F-3R3
Item	Ripple-Noise
Object	+3.3V60A

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	40	40
10	50	50
20	50	50
30	55	55
40	60	60
50	65	65
60	70	70
66	75	75
--	-	-
--	-	-
--	-	-

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

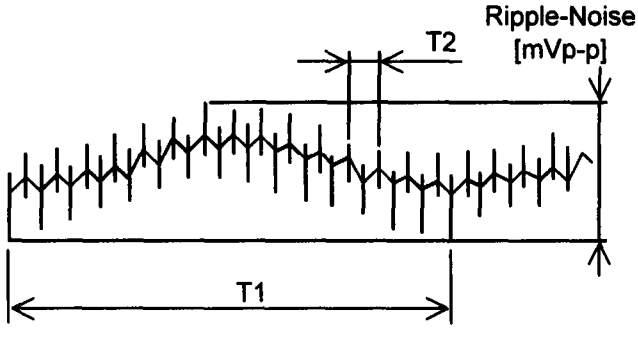


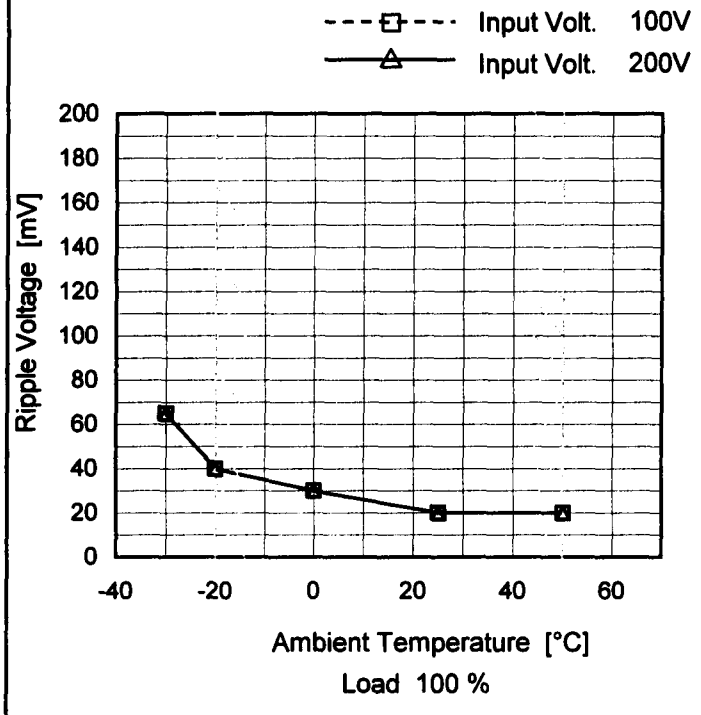
Fig. Complex Ripple Wave Form

COSEL

Model	PBA300F-3R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V60A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

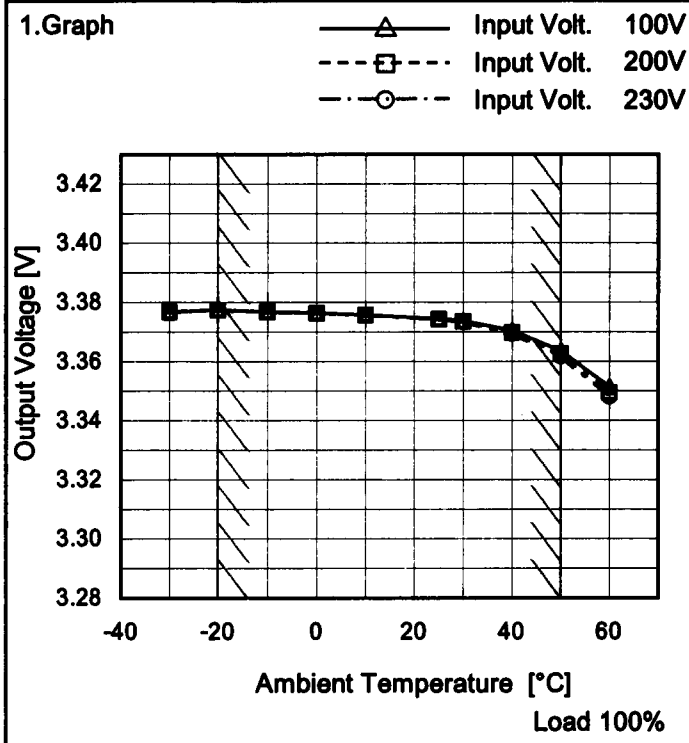
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	65	65
-20	40	40
0	30	30
25	20	20
50	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA300F-3R3
Item	Ambient Temperature Drift
Object	+3.3V60A

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	3.377	3.377	3.377
-20	3.378	3.377	3.377
-10	3.377	3.377	3.377
0	3.376	3.376	3.376
10	3.376	3.376	3.376
25	3.375	3.374	3.374
30	3.374	3.374	3.373
40	3.371	3.370	3.369
50	3.364	3.363	3.362
60	3.351	3.349	3.348
--	-	-	-

COSEL

Model	PBA300F-3R3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V60A	

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 - 60A

* 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	264	0	3.389	±16	±0.5
Minimum Voltage	50	264	60	3.358		

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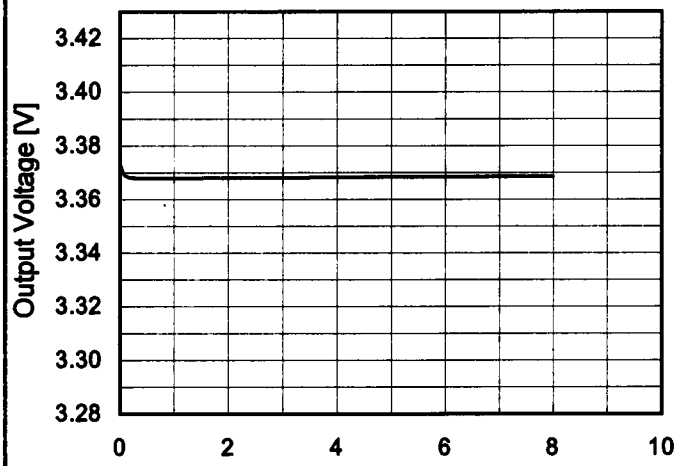
Model	PBA300F-3R3
Item	Time Lapse Drift
Object	+3.3V60A

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	3.374
0.5	3.368
1.0	3.368
2.0	3.368
3.0	3.368
4.0	3.368
5.0	3.368
6.0	3.368
7.0	3.369
8.0	3.369

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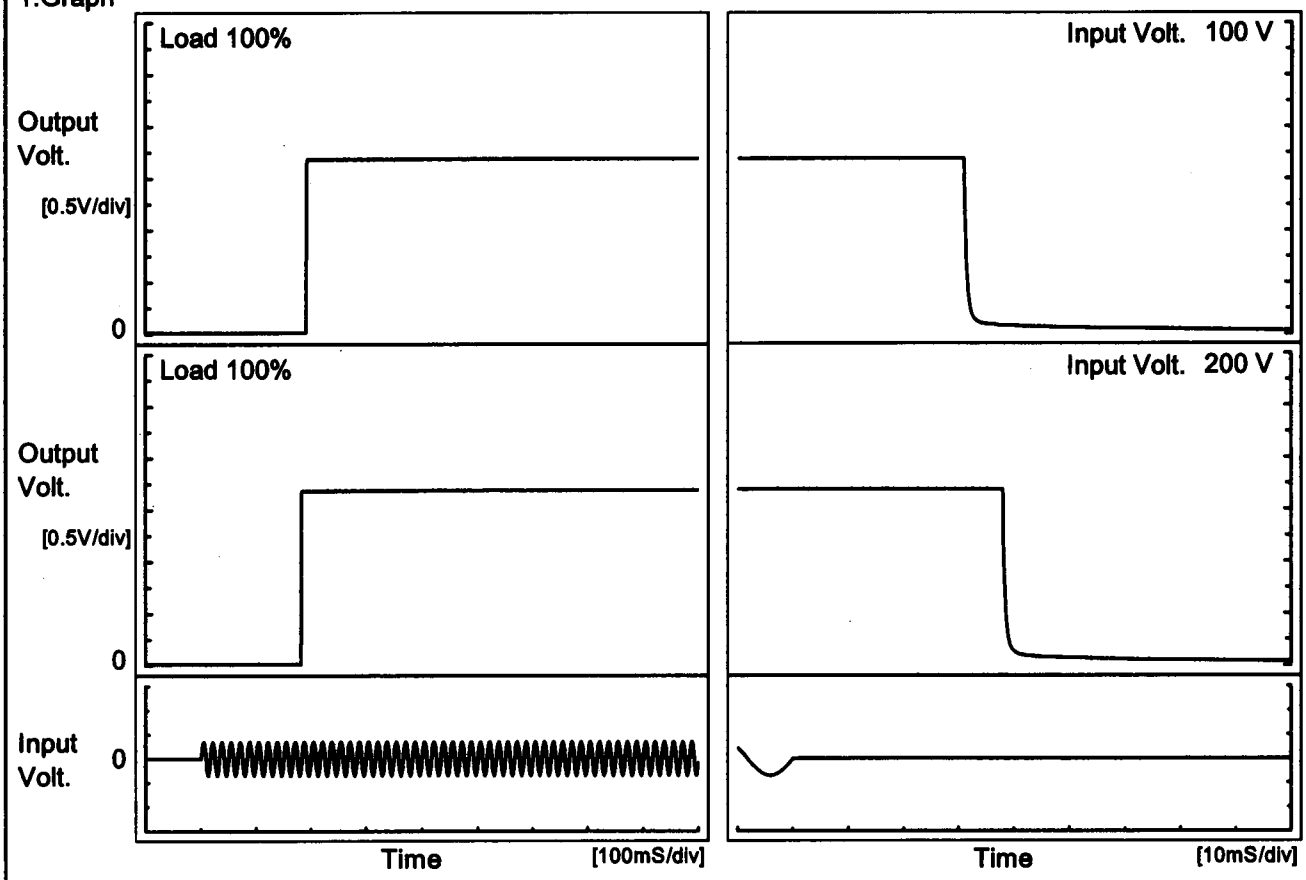
Model	PBA300F-3R3	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+3.3V60A	

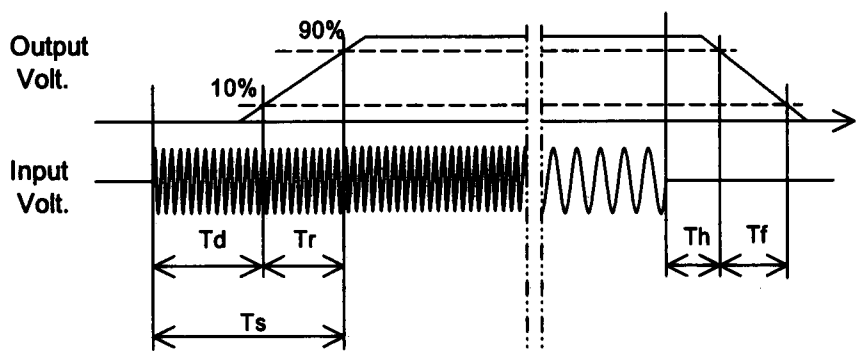
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	191.5	1.5	193.0	30.9	1.5
200 V	182.0	1.5	183.5	38.1	1.5



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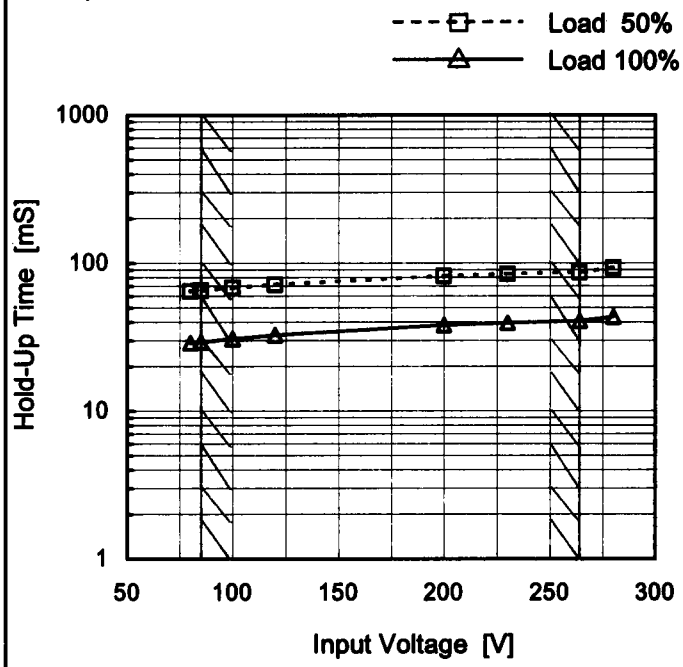
Model	PBA300F-3R3
Item	Hold-Up Time
Object	+3.3V60A

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

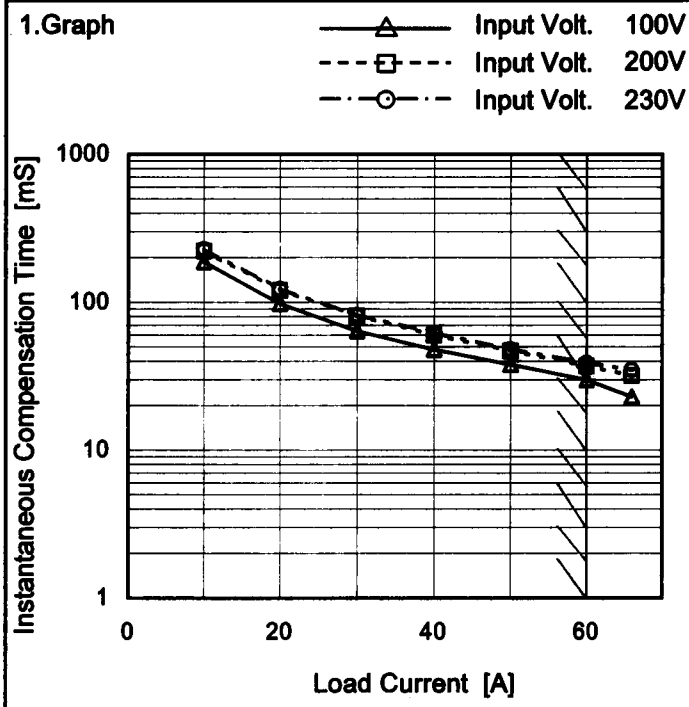
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
80	65	29
85	66	29
100	68	31
120	72	33
200	82	38
230	85	40
264	86	41
280	93	43
--	-	-

COSEL

Model	PBA300F-3R3
Item	Instantaneous Interruption Compensation
Object	+3.3V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

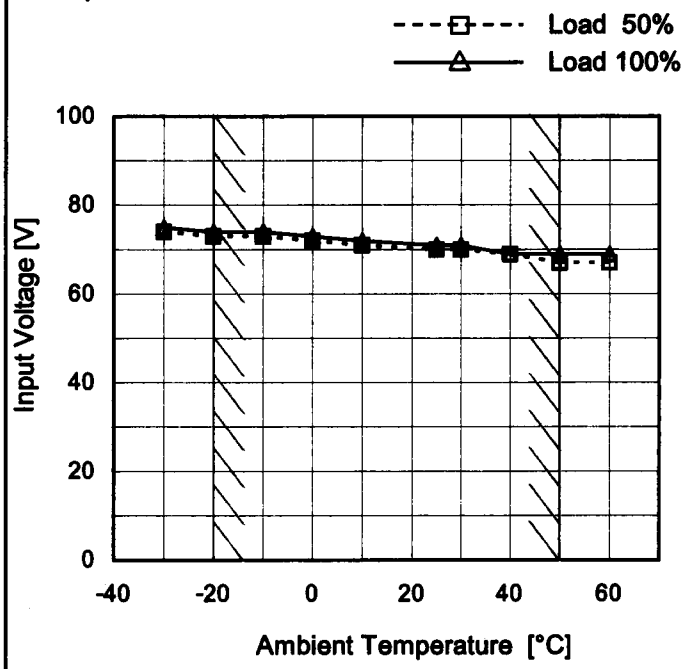
Load Current [A]	Time [mS]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	-	-	-
10	188	222	228
20	98	121	123
30	64	81	82
40	48	60	62
50	38	47	48
60	30	37	39
66	23	32	35
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PBA300F-3R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V60A

Testing Circuitry Figure A

1.Graph



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

2.Values

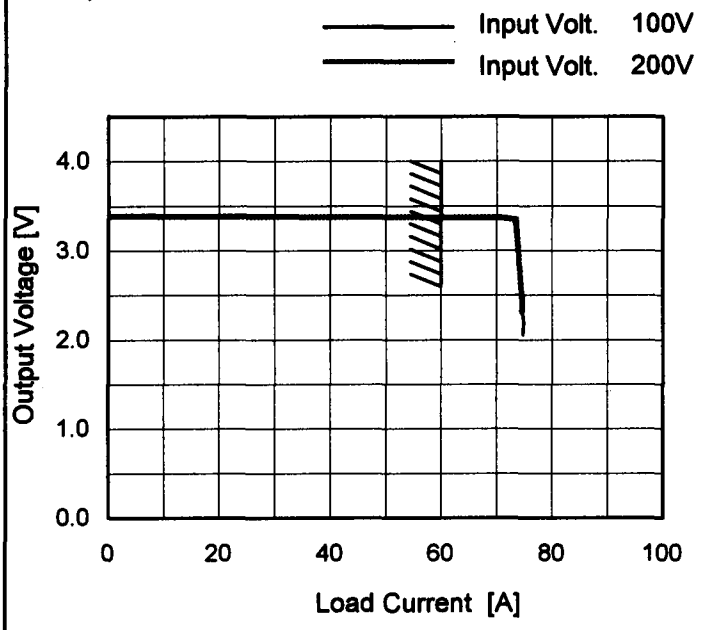
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	74	75
-20	73	74
-10	73	74
0	72	73
10	71	72
25	70	71
30	70	71
40	69	69
50	67	69
60	67	69
--	-	-

COSEL

Model	PBA300F-3R3
Item	Overcurrent Protection
Object	+3.3V60A

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 1.98V to 0V.

2.Values

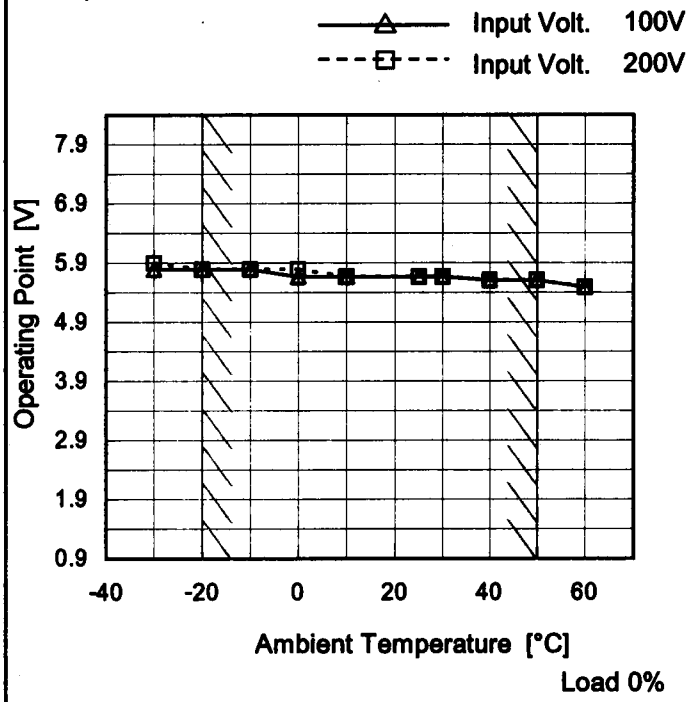
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
3.300	71.12	70.90
3.135	73.52	73.76
2.970	73.81	73.98
2.640	74.20	74.32
2.310	74.66	74.61
1.980	74.80	74.61
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PBA300F-3R3
Item	Overvoltage Protection
Object	+3.3V60A

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	5.84	5.95
-20	5.84	5.84
-10	5.84	5.84
0	5.72	5.84
10	5.72	5.72
25	5.72	5.72
30	5.72	5.72
40	5.66	5.66
50	5.66	5.66
60	5.54	5.54
--	-	-

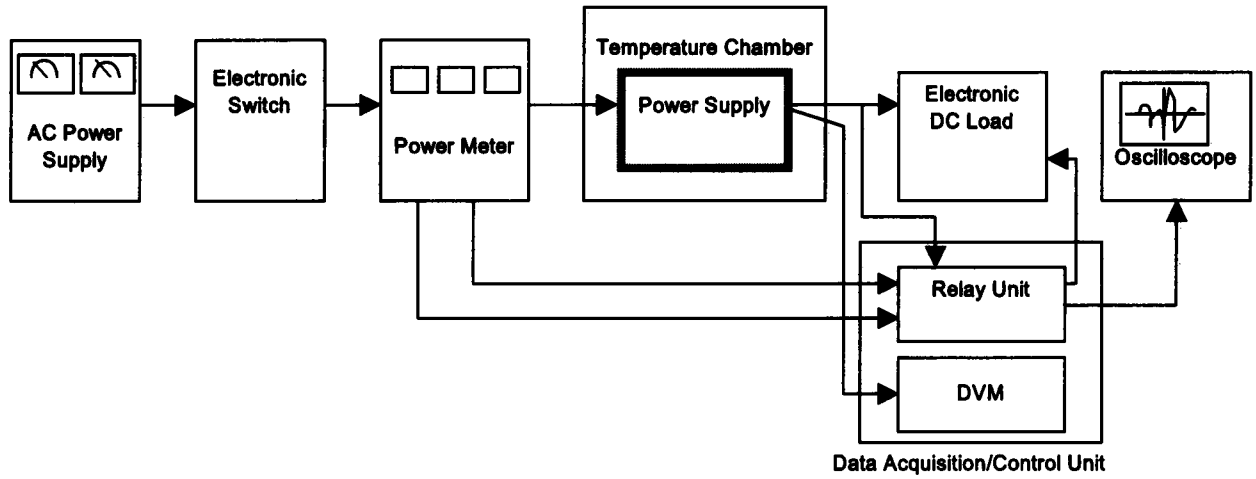


Figure A

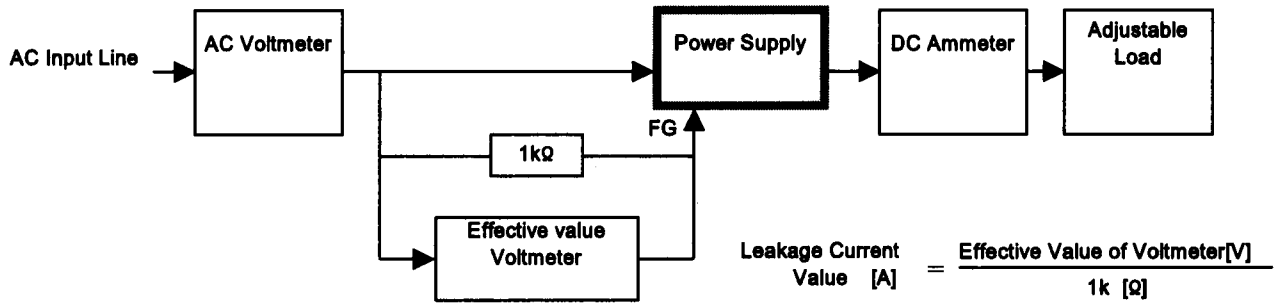


Figure B (DEN-AN)

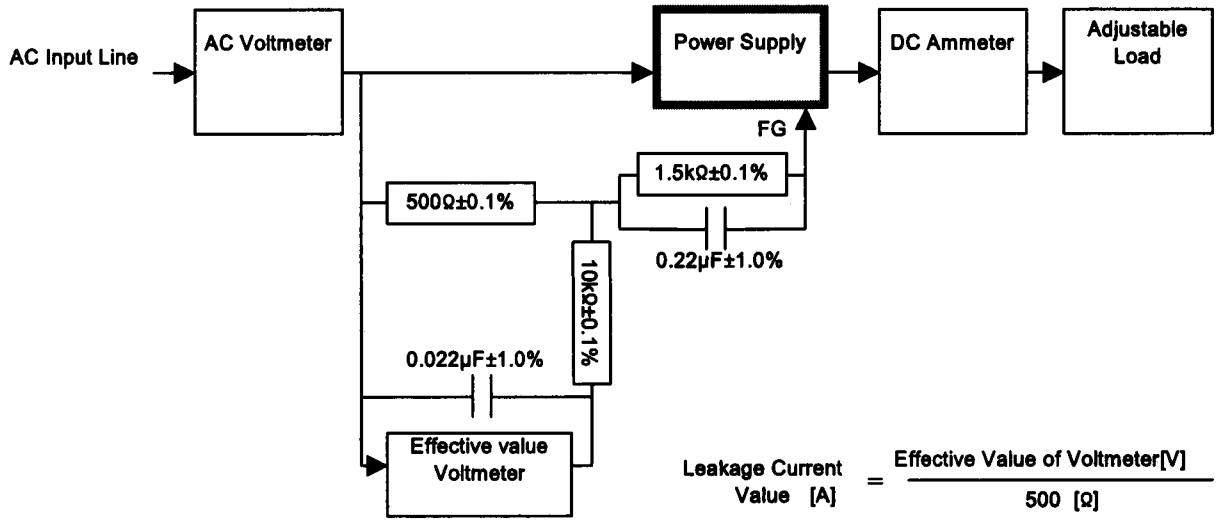


Figure B (IEC60950)