COSEL

参考資料

TEST DATA OF PJA100F-36

Regulated DC Power Supply
August 30, 2016

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COSEL CO.,LTD.

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Object	————————

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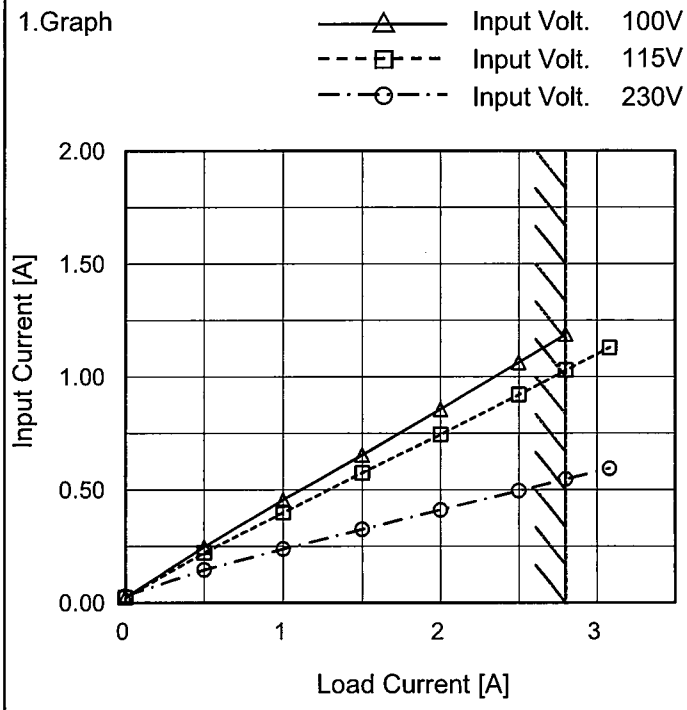

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	0.024	0.024	0.031
0.50	0.246	0.222	0.147
1.00	0.456	0.399	0.239
1.50	0.654	0.575	0.326
2.00	0.856	0.745	0.412
2.50	1.064	0.921	0.496
2.80	1.188	1.029	0.547
3.08	-	1.129	0.595
--	-	-	-
--	-	-	-
--	-	-	-

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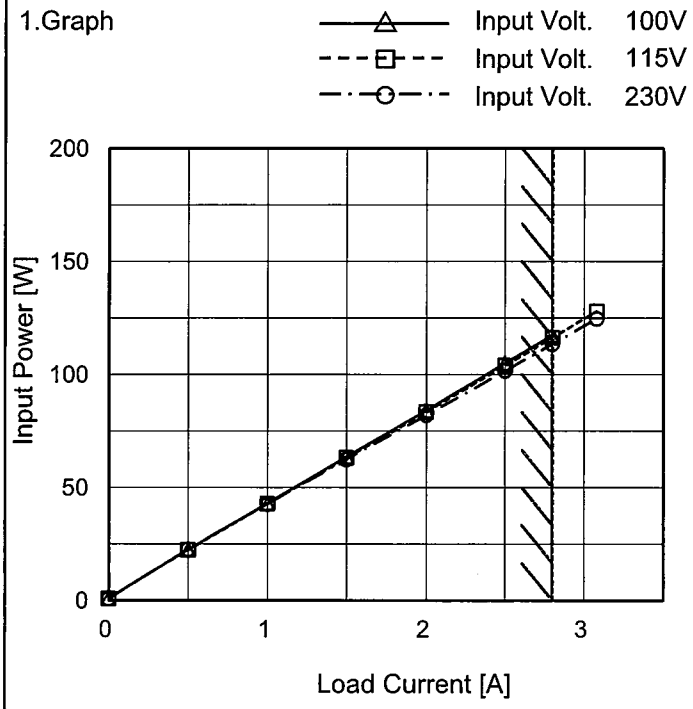
Model	PJA100F-36
Item	Input Power (by Load Current)
Object	———————

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. 115[V]	Input Volt. 230[V]
0.00	0.9	0.9	0.8
0.50	22.4	22.3	22.6
1.00	43.1	42.8	42.7
1.50	63.7	63.1	62.5
2.00	84.1	83.4	82.0
2.50	105.0	103.9	101.6
2.80	117.5	116.3	113.5
3.08	-	128.0	124.7
--	-	-	-
--	-	-	-
--	-	-	-

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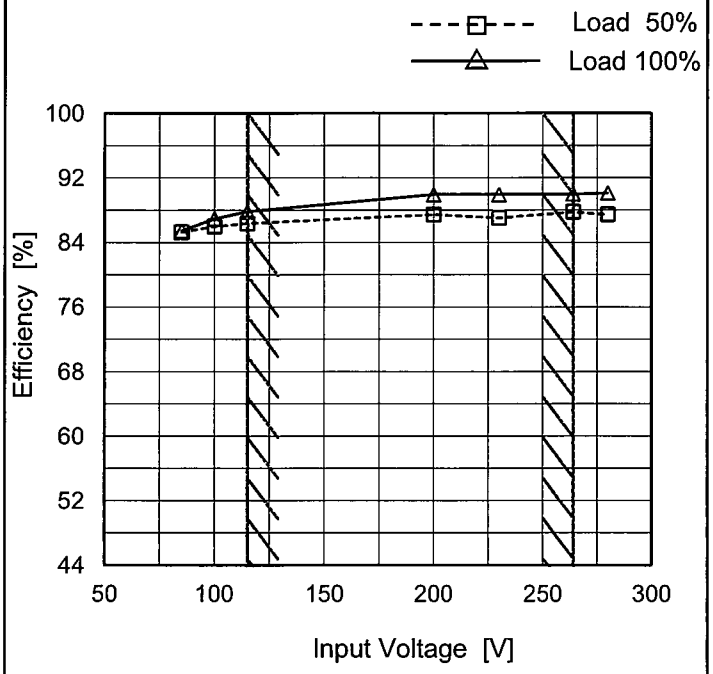
Model	PJA100F-36
Item	Efficiency (by Input Voltage)
Object	———————

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%
85	85.3	85.5 ※1
100	86.0	86.9 ※2
115	86.4	87.8
200	87.5	89.9
230	87.0	89.9
264	87.8	90.0
280	87.5	90.1
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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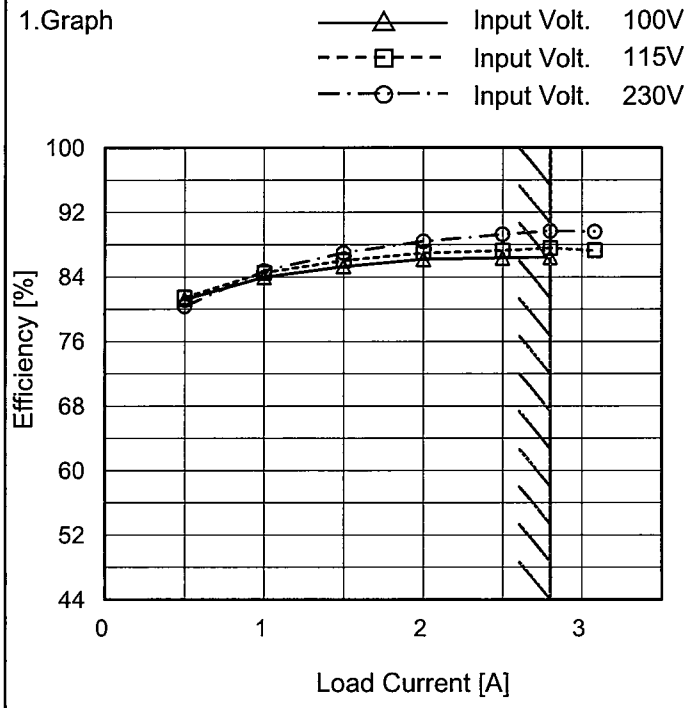
Model	PJA100F-36
Item	Efficiency (by Load Current)
Object	———————

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. 115[V]	Input Volt. 230[V]
0.00	-	-	-
0.50	81.2	81.5	80.4
1.00	84.0	84.5	84.8
1.50	85.3	86.0	87.0
2.00	86.2	87.0	88.4
2.50	86.4	87.3	89.3
2.80	86.4	87.6	89.7
3.08	-	87.3	89.6
--	-	-	-
--	-	-	-
--	-	-	-

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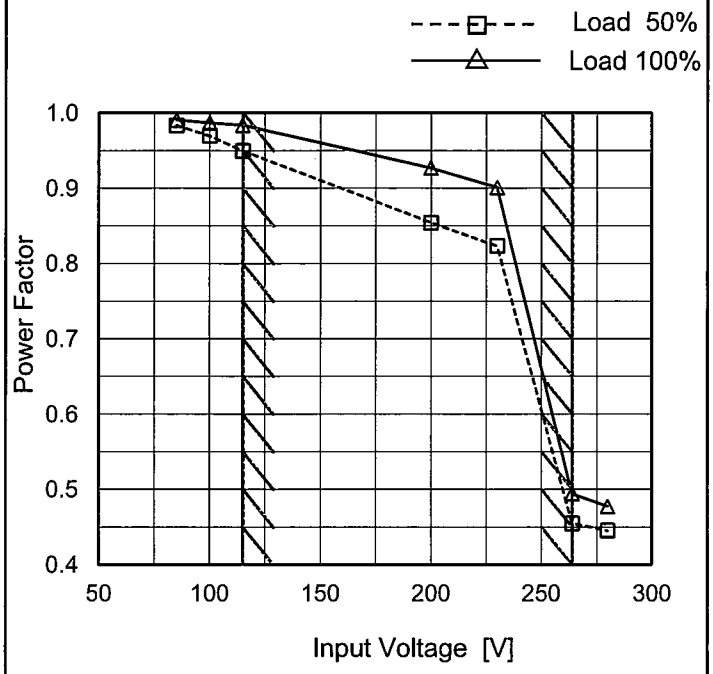
Model	PJA100F-36
Item	Power Factor (by Input Voltage)
Object	————————

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%
85	0.983	0.991 ※1
100	0.970	0.987 ※2
115	0.950	0.984
200	0.854	0.927
230	0.823	0.901
264	0.455	0.494
280	0.445	0.477
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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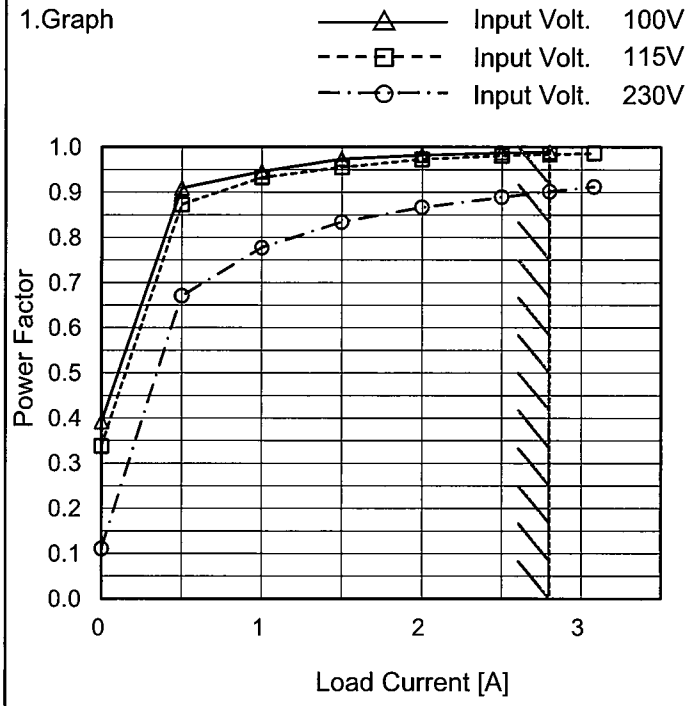
Model	PJA100F-36
Item	Power Factor (by Load Current)
Object	————————

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. 115[V]	Input Volt. 230[V]
0.00	0.392	0.337	0.111
0.50	0.909	0.873	0.671
1.00	0.946	0.933	0.778
1.50	0.974	0.955	0.834
2.00	0.982	0.973	0.867
2.50	0.988	0.981	0.890
2.80	0.989	0.984	0.902
3.08	-	0.986	0.912
--	-	-	-
--	-	-	-
--	-	-	-

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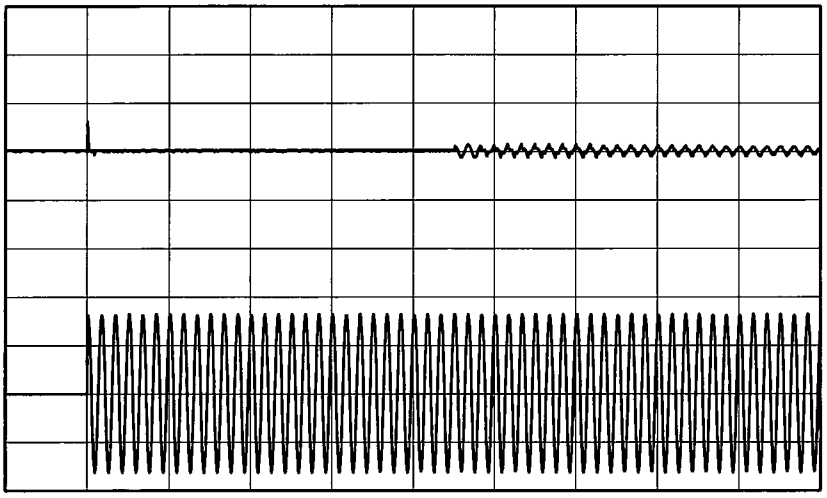
Model	PJA100F-36
Item	Inrush Current
Object	————————

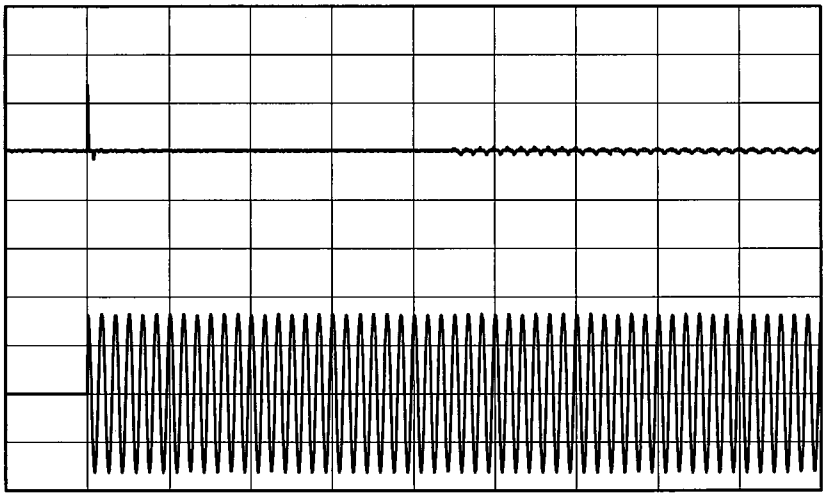
Temperature 25°C
Testing Circuitry Figure A



Input Voltage 115 V
Frequency 60 Hz
Load 100 %

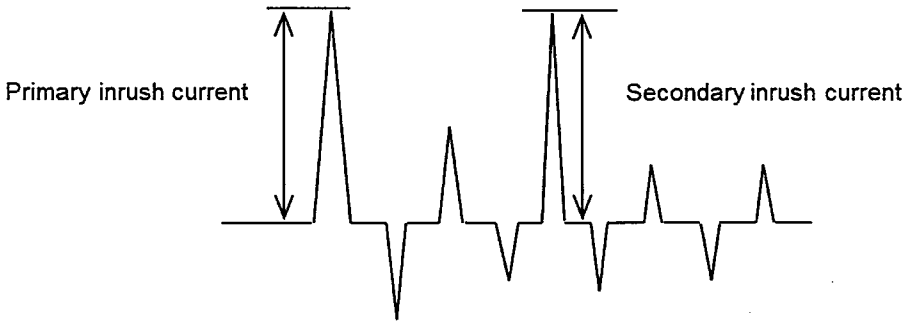
Primary inrush current :
12.4 A
Secondary inrush current :
2.8 A

Atsushi Nishikawa



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
27.4 A
Secondary inrush current :
1.6 A



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Model	PJA100F-36		
Item	Leakage Current	Temperature	25°C
Object	———————————	Testing Circuitry	Figure B

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	115 [V]	240 [V]	
DEN-AN	Both phases	0.19	0.21	0.42	Operation
	One of phases	0.28	0.32	0.71	Stand by
IEC60950-1	Both phases	0.14	0.16	0.43	Operation
	One of phases	0.26	0.31	0.72	Stand by

The value for "One of phases" 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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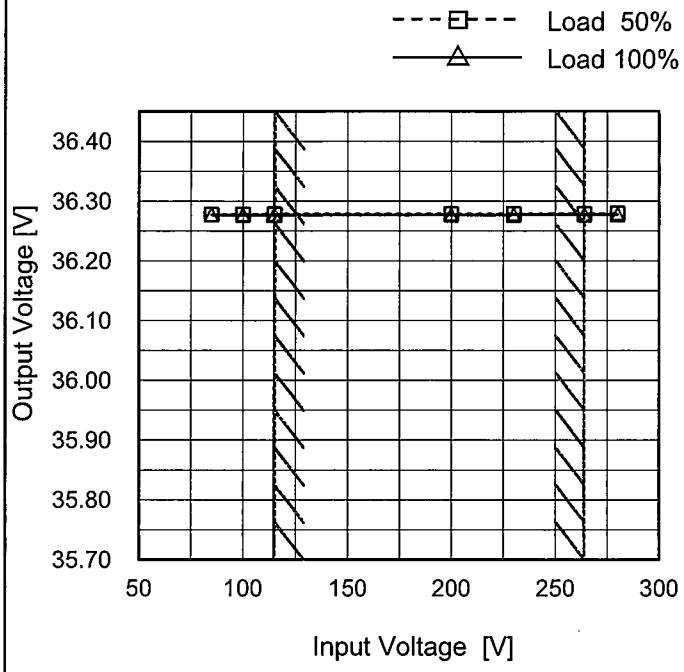
Model	PJA100F-36
Item	Line Regulation
Object	+36V2.8A

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%
85	36.278	36.277 ※1
100	36.278	36.277 ※2
115	36.278	36.277
200	36.278	36.277
230	36.278	36.277
264	36.279	36.277
280	36.279	36.277
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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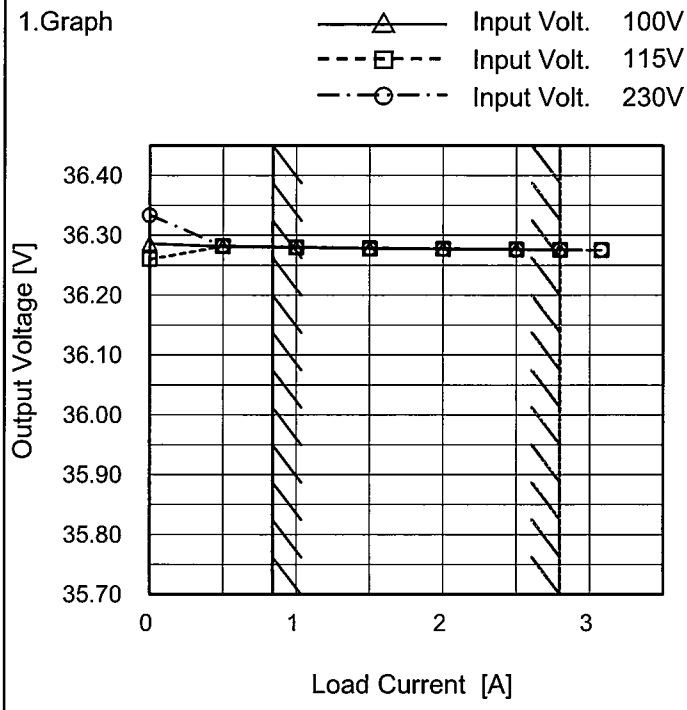
Model	PJA100F-36
Item	Load Regulation
Object	+36V2.8A

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. 115[V]	Input Volt. 230[V]
0.00	36.286	36.260	36.334
0.50	36.282	36.282	36.282
1.00	36.280	36.280	36.280
1.50	36.278	36.279	36.279
2.00	36.277	36.278	36.278
2.50	36.276	36.276	36.277
2.80	36.276	36.276	36.276
3.08	-	36.275	36.276
--	-	-	-
--	-	-	-
--	-	-	-

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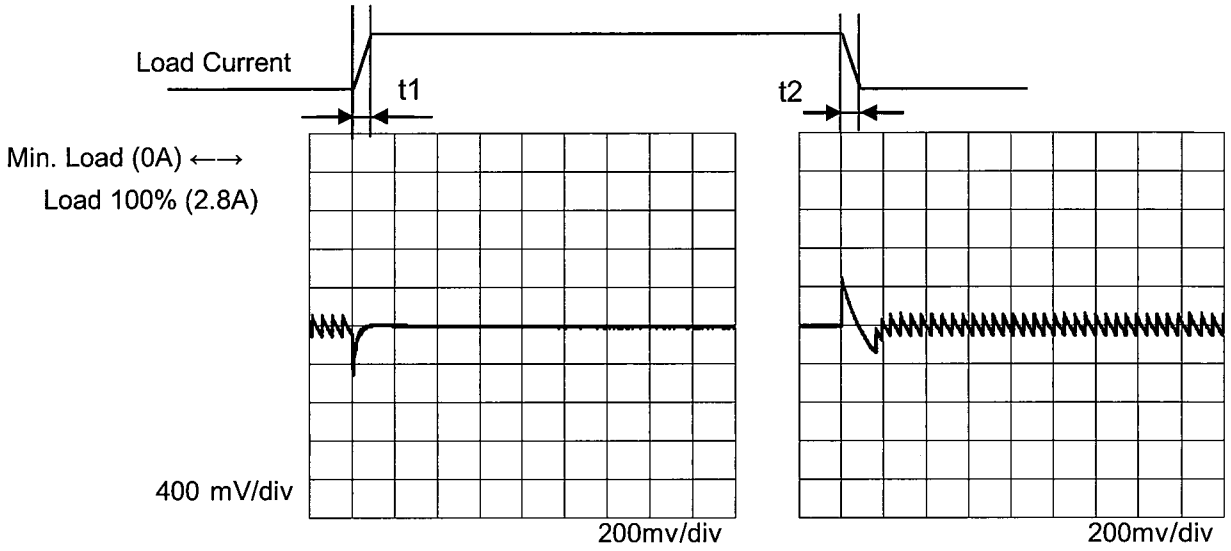
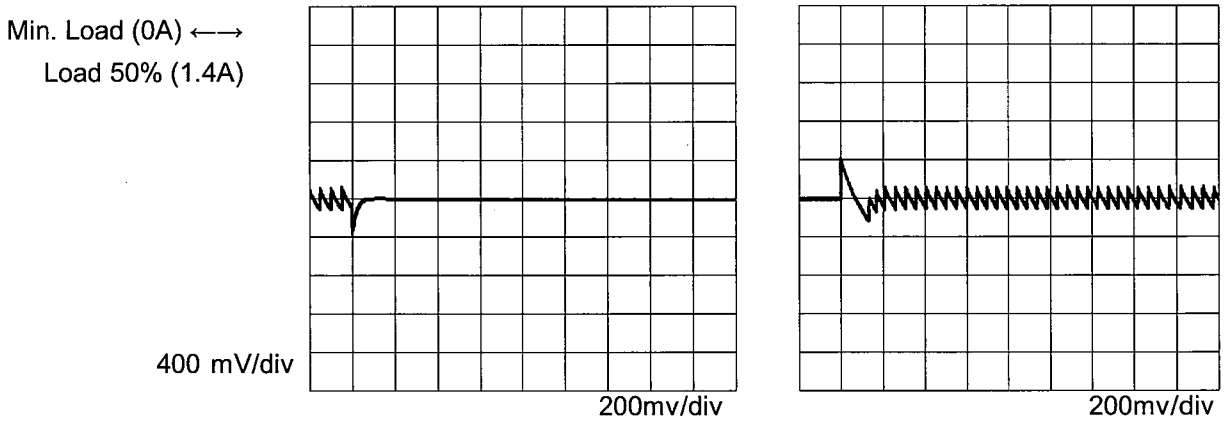
Model	PJA100F-36		
Item	Dynamic Load Response	Temperature Testing Circuitry	25˚C Figure A
Object	+36V2.8A		

Input Volt. 115 V
Cycle 1000 ms

Response. t1=t2=50us. Typ





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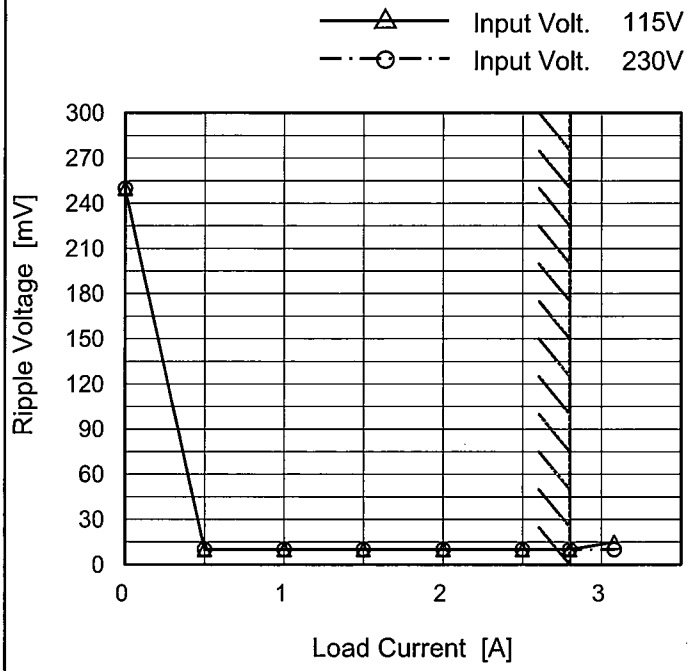
Model	PJA100F-36
Item	Ripple Voltage (by Load Current)
Object	+36V2.8A

Temperature 25°C
Testing Circuitry Figure C

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.

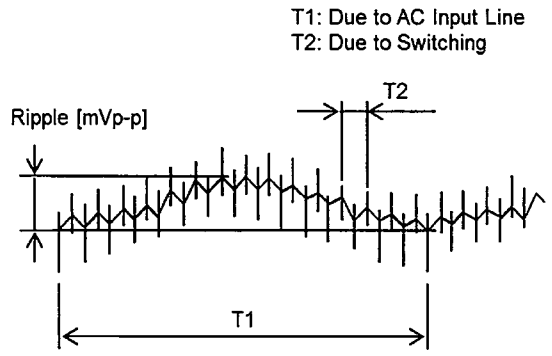


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 115 [V]	Ripple Voltage [mV] Input Volt. 230 [V]
0.00	250	250
0.50	10	10
1.00	10	10
1.50	10	10
2.00	10	10
2.50	10	10
2.80	10	10
3.08	15	10
--	-	-
--	-	-
--	-	-

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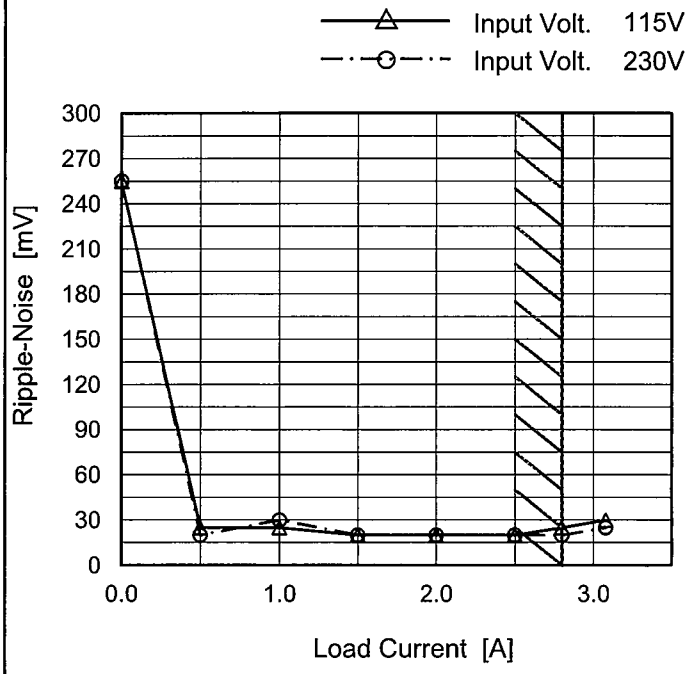
Model	PJA100F-36
Item	Ripple-Noise
Object	+36V2.8A

Temperature 25°C
Testing Circuitry Figure C

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

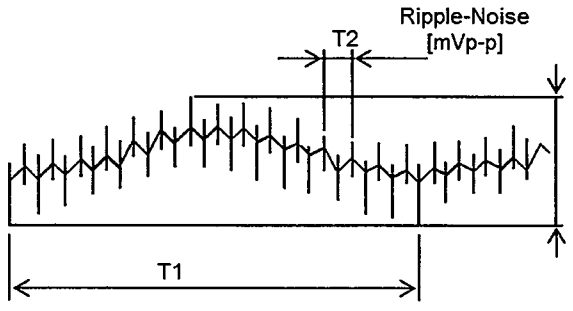


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0.00	255	255
0.50	25	20
1.00	25	30
1.50	20	20
2.00	20	20
2.50	20	20
2.80	25	20
3.08	30	25
--	-	-
--	-	-
--	-	-

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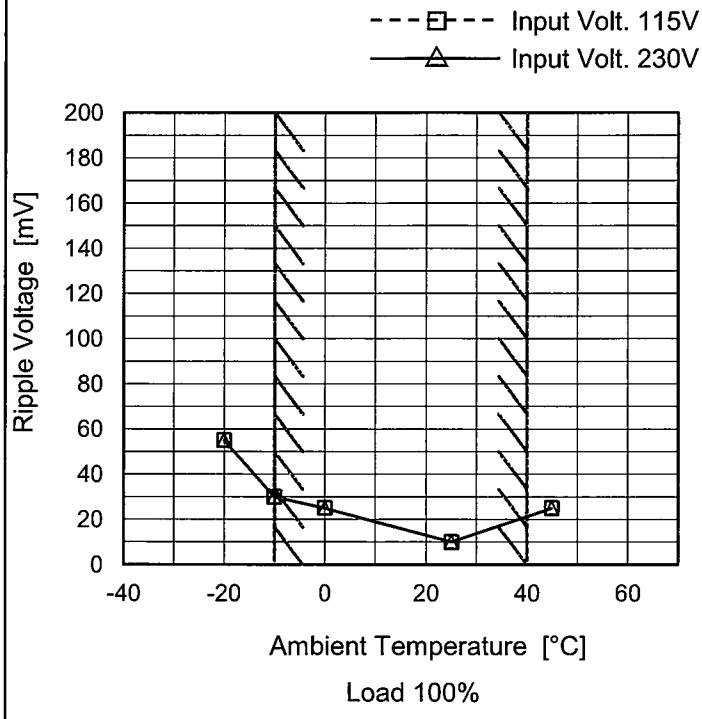
Model	PJA100F-36
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V2.8A

Testing Circuitry Figure C

1.Graph



Load 100%

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

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
-20	55	55
-10	30	30
0	25	25
25	10	10
45	25	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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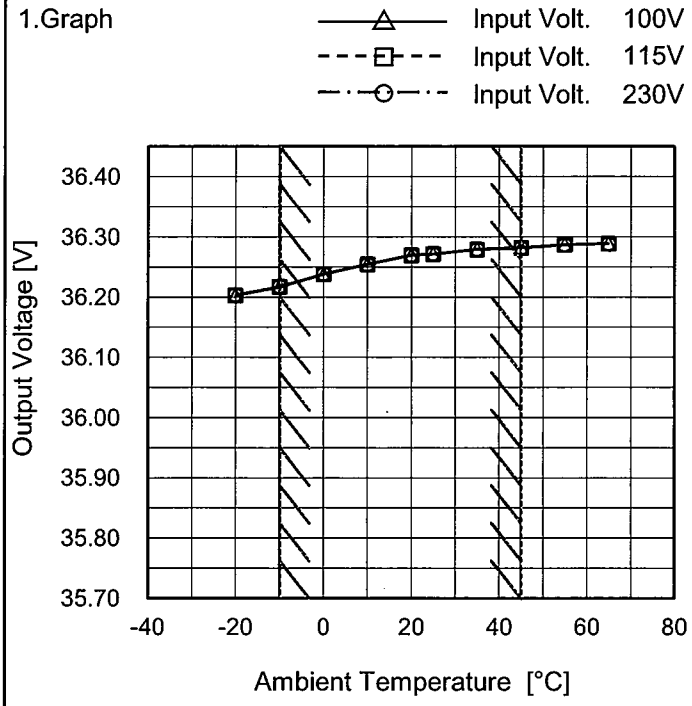
Model	PJA100F-36
Item	Ambient Temperature Drift
Object	+36V2.8A

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. 115[V]	Input Volt. 230[V]
-20	36.203	36.203	36.204
-10	36.218	36.217	36.218
0	36.238	36.238	36.238
10	36.255	36.255	36.255
20	36.270	36.269	36.270
25	36.272	36.272	36.272
35	36.280	36.279	36.280
45	36.282	36.282	36.282
55	36.287	36.287	36.287
65	36.289	36.289	36.288
--	-	-	-

Note: In case of Input Volt. 100V, Load 90%.
Other case Load 100%.

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Model	PJA100F-36	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+36V2.8A	

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 - 45°C
Input Voltage : 115 - 264V
Load Current : 0.84 - 2.8A

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

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	45	230	2.8	36.282	±33	±0.1
Minimum Voltage	-10	115	2.8	36.217		

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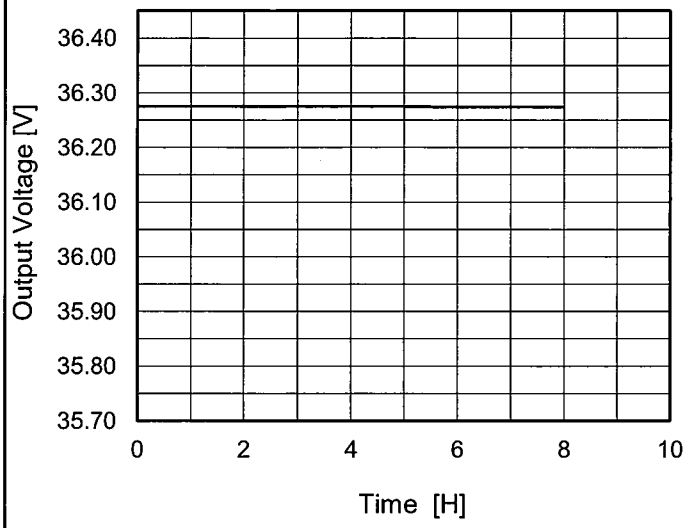
Model	PJA100F-36
Item	Time Lapse Drift
Object	+36V2.8A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 230V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	36.276
0.5	36.275
1.0	36.275
2.0	36.275
3.0	36.275
4.0	36.275
5.0	36.275
6.0	36.274
7.0	36.274
8.0	36.274

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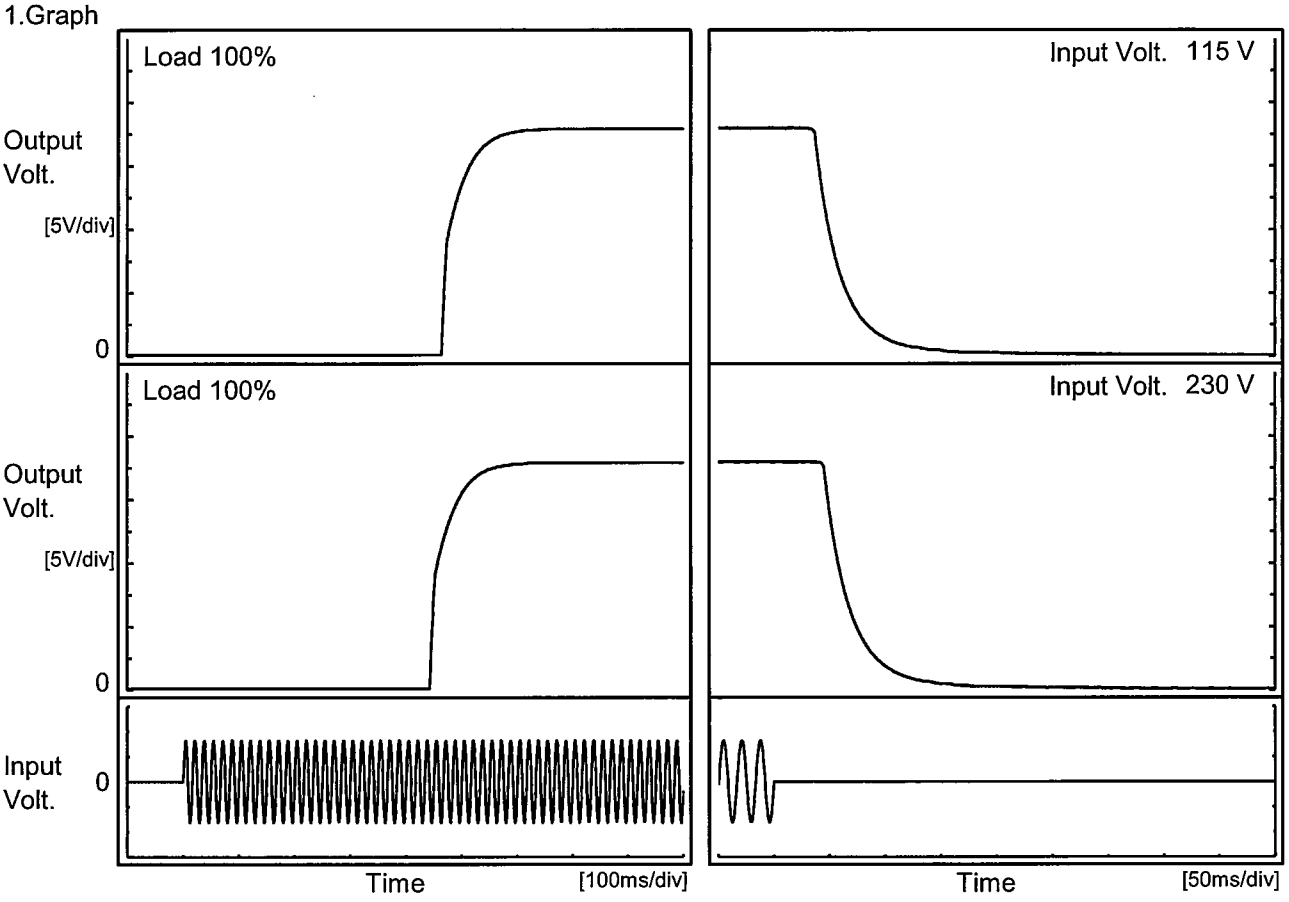
Model	PJA100F-36	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+36V2.8A	

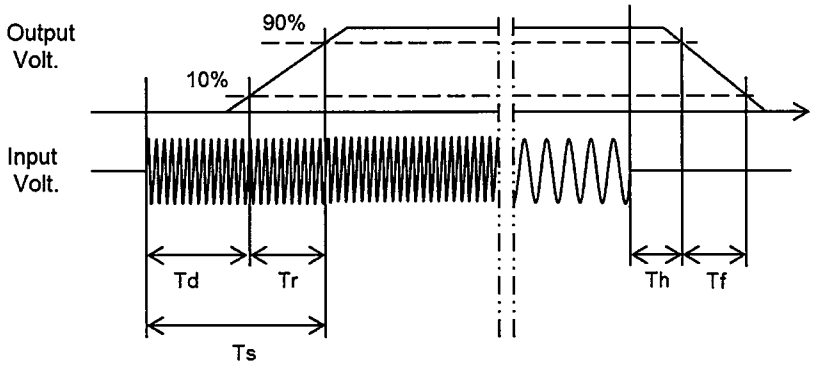
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	466.0	68.5	534.5	38.5	53.8
230 V	445.0	69.0	514.0	46.8	54.0



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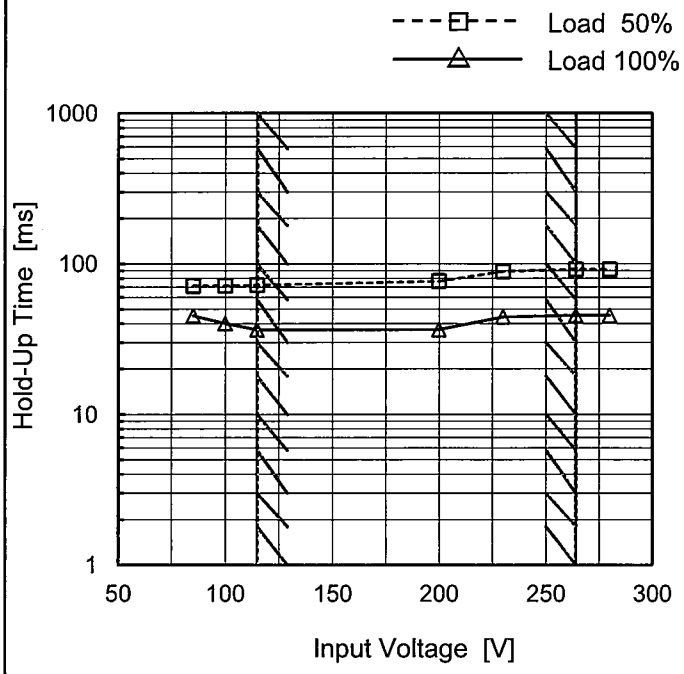
Model	PJA100F-36
Item	Hold-Up Time
Object	+36V2.8A

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%
85	71	45 ※1
100	72	40 ※2
115	72	37
200	77	37
230	89	44
264	92	45
280	92	46
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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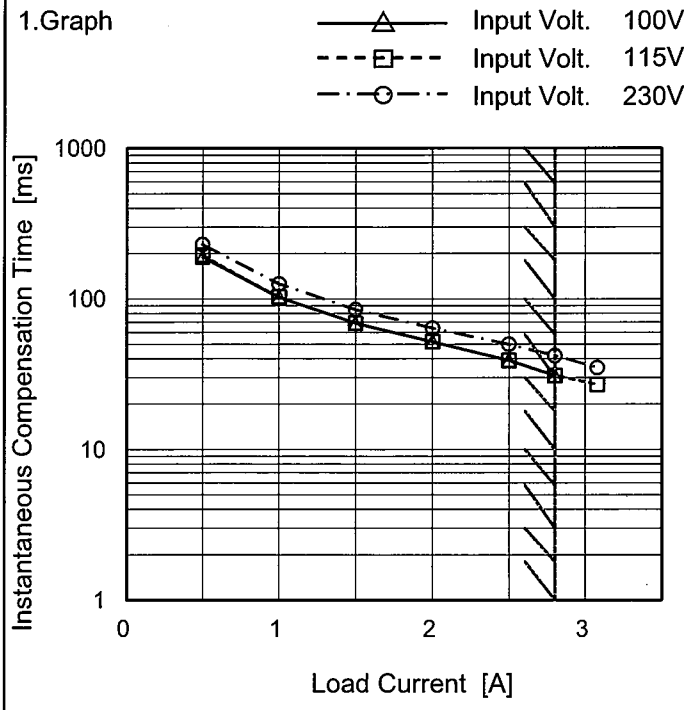
Model	PJA100F-36
Item	Instantaneous Interruption Compensation
Object	+36V2.8A

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. 115[V]	Input Volt. 230[V]
0.00	-	-	-
0.50	190	195	230
1.00	103	103	126
1.50	69	69	85
2.00	52	52	64
2.50	39	39	50
2.80	31	31	42
3.08	-	27	35
--	-	-	-
--	-	-	-
--	-	-	-

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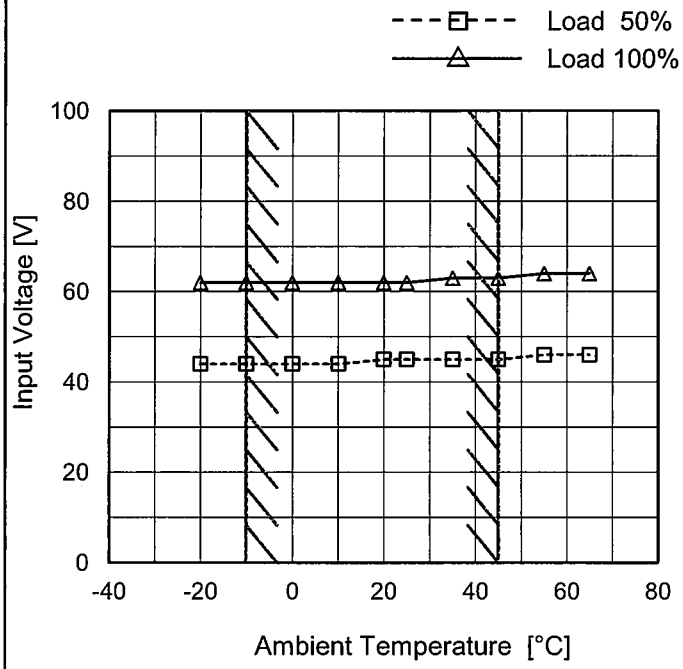
Model	PJA100F-36
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+36V2.8A

Testing Circuitry Figure A

1.Graph



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

2.Values

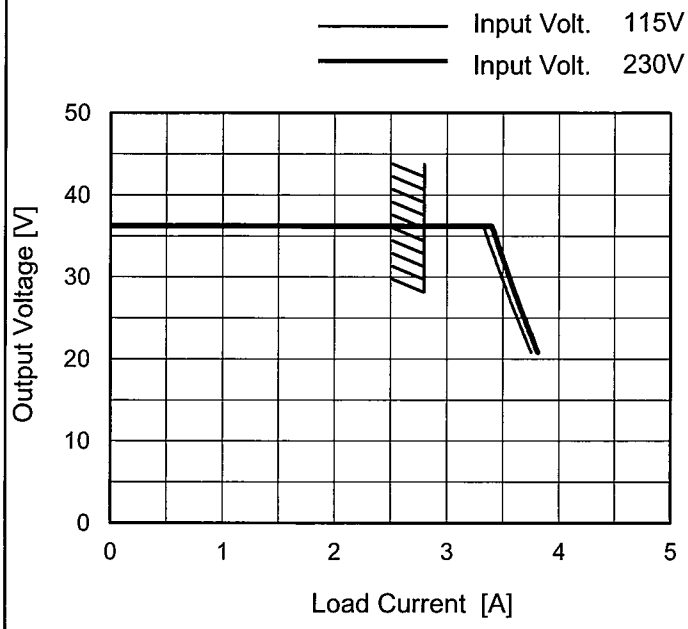
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	44	62
-10	44	62
0	44	62
10	44	62
20	45	62
25	45	62
35	45	63
45	45	63
55	46	64
65	46	64
--	-	-

COSEL

Model	PJA100F-36
Item	Overcurrent Protection
Object	+36V2.8A

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 20.8V to 0V.

2.Values

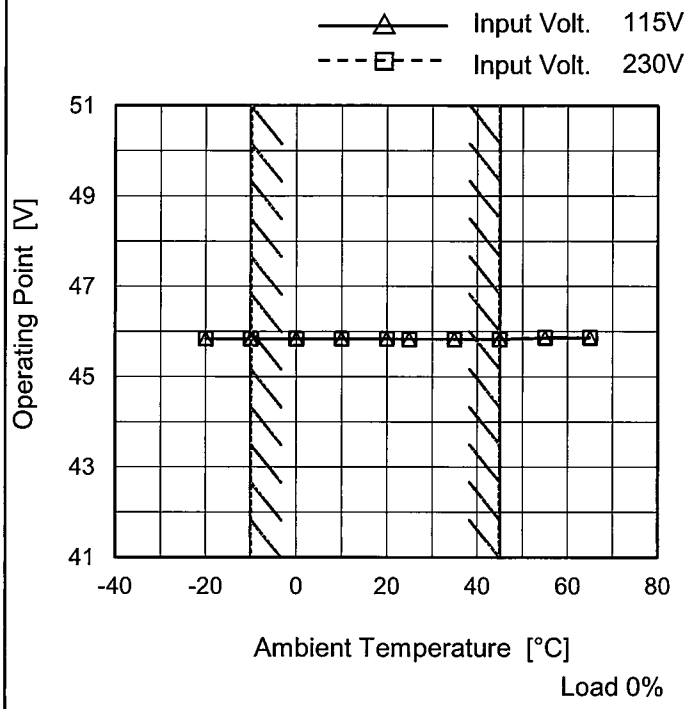
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
34.2	3.38	3.45
32.4	3.33	3.40
28.8	3.52	3.58
25.2	3.62	3.68
21.6	3.73	3.79
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PJA100F-36
Item	Overvoltage Protection
Object	+36V2.8A

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. 115[V]	Input Volt. 230[V]
-20	45.84	45.84
-10	45.84	45.84
0	45.84	45.84
10	45.84	45.84
20	45.84	45.84
25	45.83	45.83
35	45.83	45.83
45	45.83	45.83
55	45.86	45.87
65	45.86	45.87
--	-	-

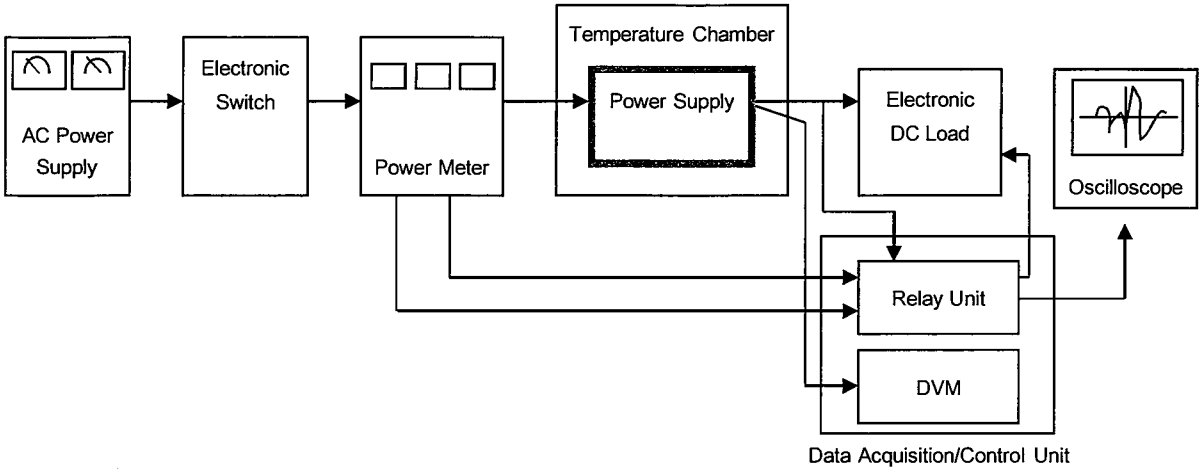


Figure A

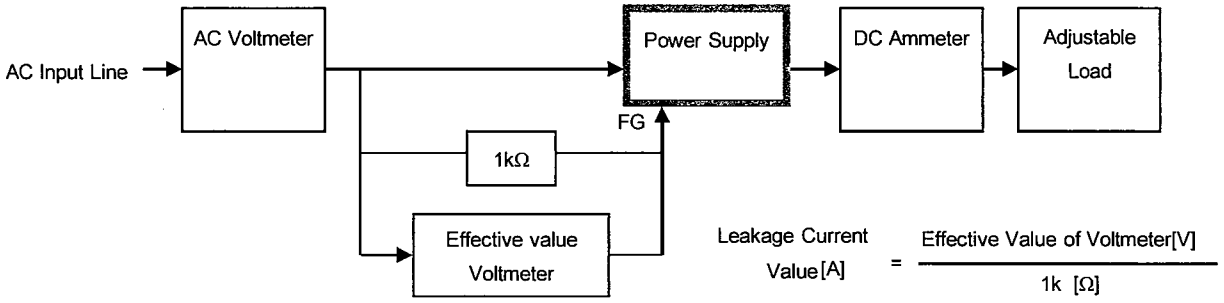


Figure B (DEN-AN)

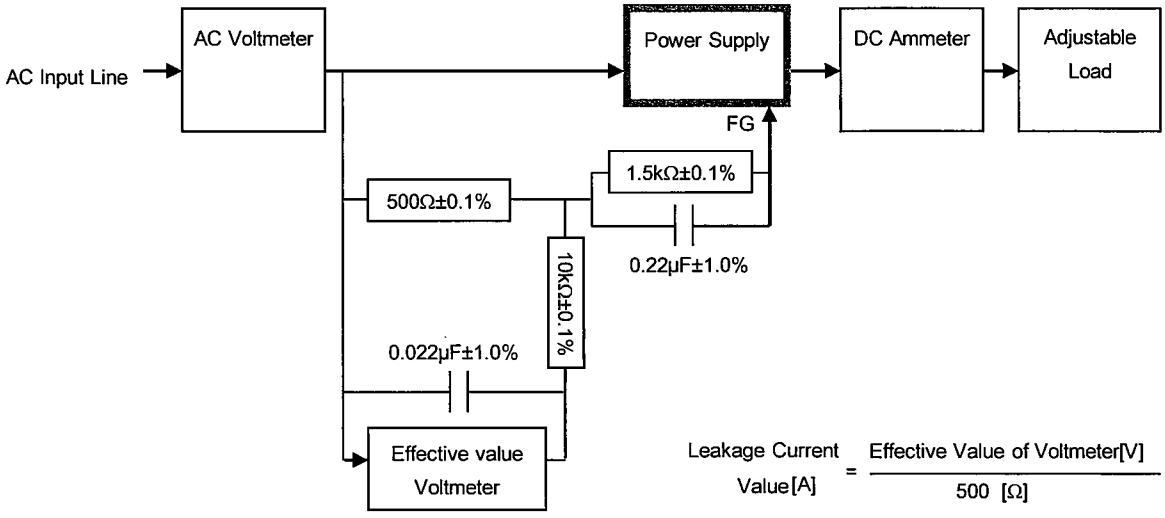
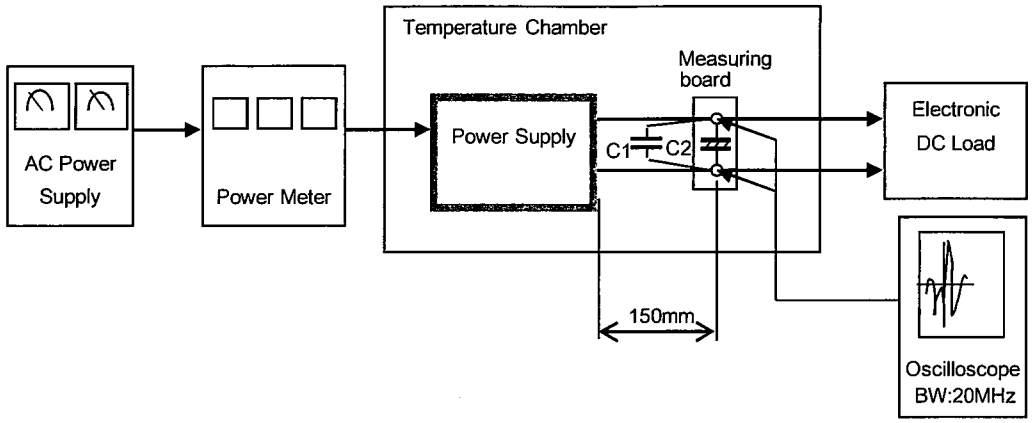


Figure B (IEC60950-1)



C1= 0.1 μF
(Ceramic capacitor)

C2= 22 μF
(Electrolytic capacitor)

Figure C