参考資料

COSEL

TEST DATA OF PLA100F-36

Regulated DC Power Supply
June 26, 2013

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COSEL CO.,LTD.

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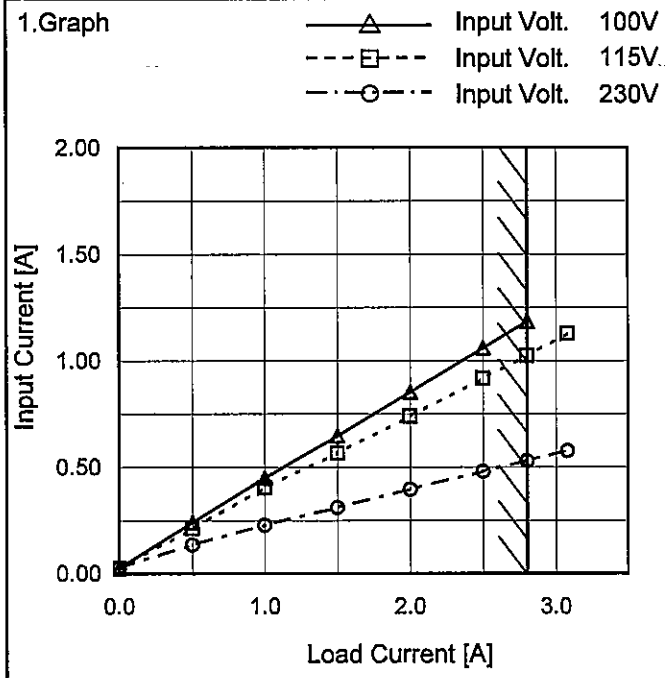
1.Graph



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. 115[V]	Input Volt. 230[V]
0.00	0.027	0.025	0.030
0.50	0.241	0.213	0.137
1.00	0.450	0.403	0.229
1.50	0.648	0.566	0.311
2.00	0.853	0.739	0.397
2.50	1.061	0.916	0.480
2.80	1.186	1.023	0.530
3.08	-	1.126	0.578
--	-	-	-
--	-	-	-
--	-	-	-

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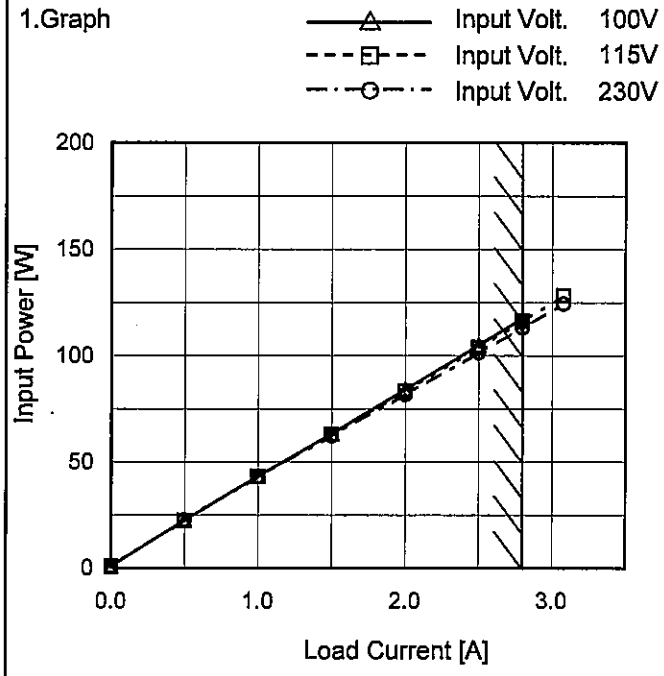
Model	PLA100F-36
Item	Input Power (by Load Current)
Object	———————

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	1.0	1.0	0.7
0.50	22.5	22.3	22.7
1.00	43.4	43.1	43.1
1.50	63.4	63.0	62.3
2.00	84.2	83.4	81.8
2.50	105.1	103.9	101.5
2.80	117.7	116.3	113.2
3.08	-	128.1	124.4
---	-	-	-
---	-	-	-
---	-	-	-

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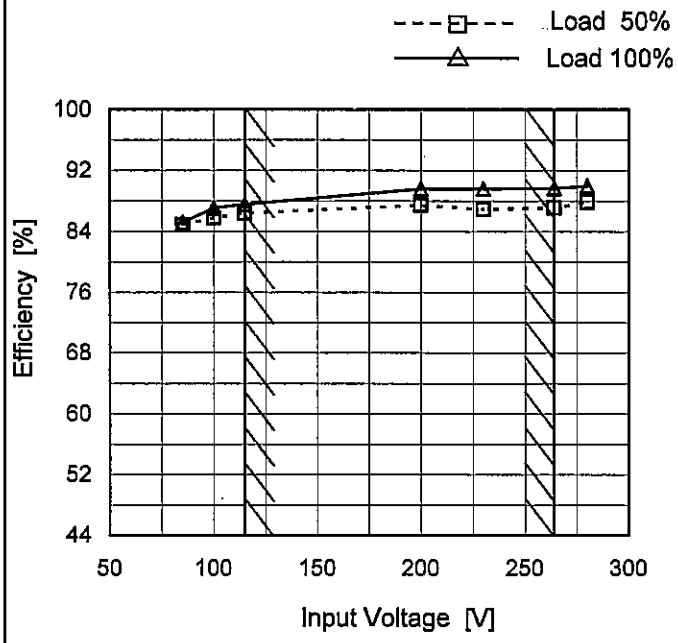
Model	PLA100F-36
Item	Efficiency (by Input Voltage)
Object	———————————

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	84.9	85.2 ※1
100	85.8	87.1 ※2
115	86.4	87.6
200	87.4	89.6
230	86.9	89.6
264	87.1	89.7
280	87.8	90.0
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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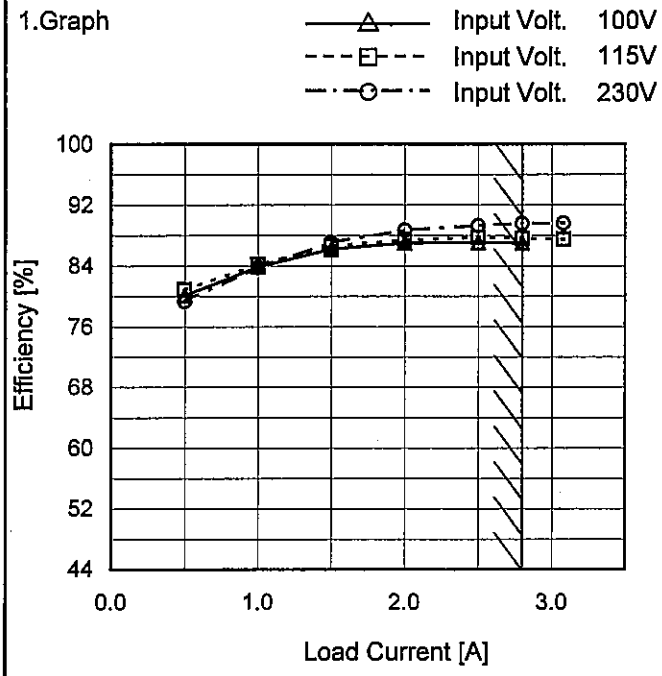
Model	PLA100F-36
Item	Efficiency (by Load Current)
Object	————————

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	80.1	80.8	79.4
1.00	83.9	84.2	83.8
1.50	86.2	86.6	87.1
2.00	87.0	87.4	88.7
2.50	87.1	87.7	89.3
2.80	87.0	87.6	89.6
3.08	-	87.5	89.6
---	-	-	-
---	-	-	-
---	-	-	-

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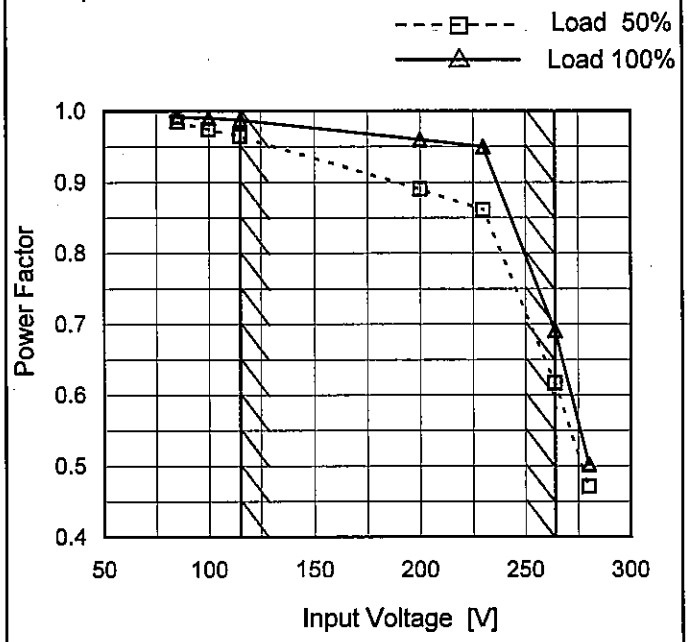
Model	PLA100F-36
Item	Power Factor (by Input Voltage)
Object	――――――――

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	0.985	0.992 ※1
100	0.974	0.991 ※2
115	0.964	0.988
200	0.890	0.960
230	0.861	0.950
264	0.617	0.691
280	0.471	0.502
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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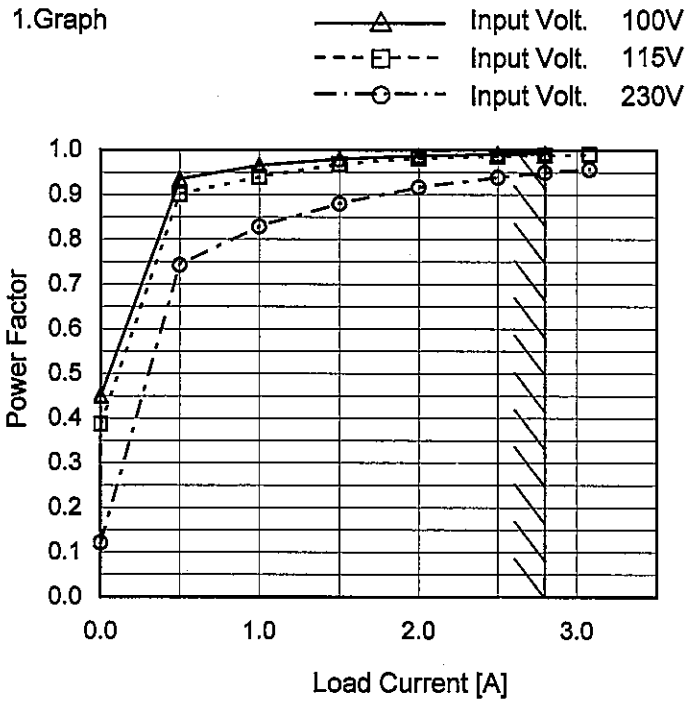
Model	PLA100F-36
Item	Power Factor (by Load Current)
Object	————————

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	0.450	0.387	0.121
0.50	0.935	0.901	0.743
1.00	0.965	0.940	0.829
1.50	0.980	0.968	0.880
2.00	0.987	0.981	0.917
2.50	0.992	0.987	0.939
2.80	0.992	0.988	0.950
3.08	-	0.990	0.957
--	-	-	-
--	-	-	-
--	-	-	-

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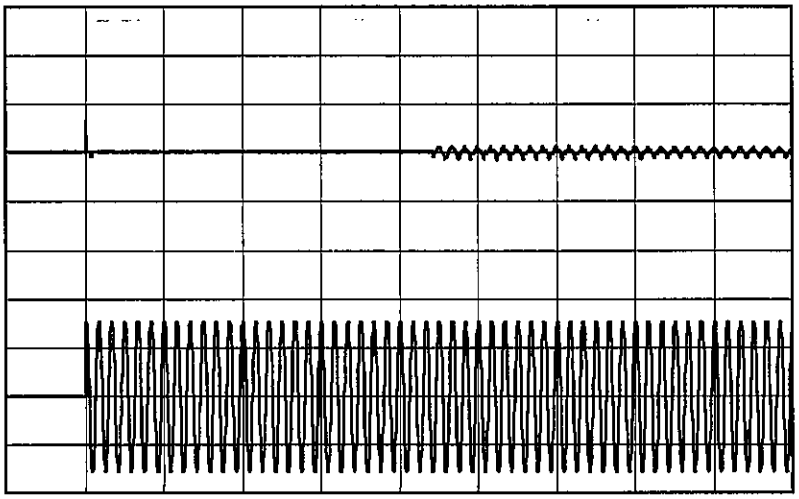
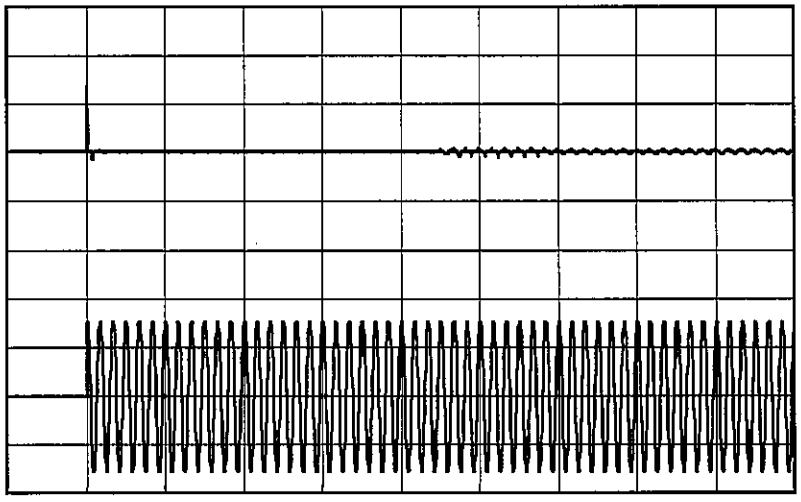
Model	PLA100F-36		
Item	Inrush Current	Temperature	25°C
Object	———————	Testing Circuitry	Figure A



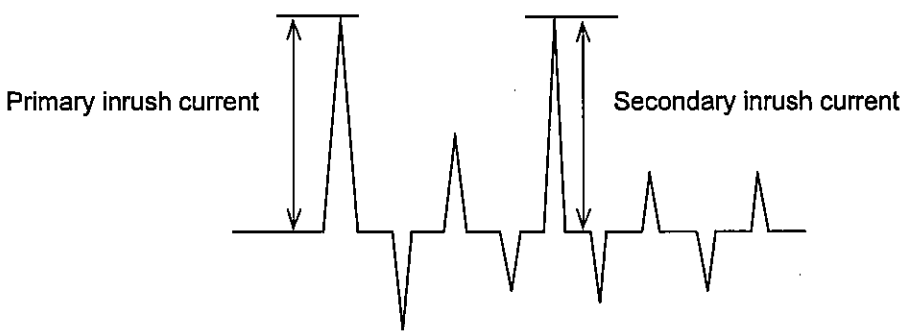
Input Voltage 115 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
12.8 A
Secondary inrush current :
3.4 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
27.3 A
Secondary inrush current :
2.1 A



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Model	PLA100F-36	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	――――――――	

1.Results

[mA]

Standards		Input Volt.			Note
		100[V]	115[V]	240[V]	
DEN-AN	Both phases	0.34	0.34	0.62	Operation
	One of phases	0.30	0.34	0.77	Stand by
IEC60950-1	Both phases	0.25	0.28	0.55	Operation
	One of phases	0.27	0.32	0.71	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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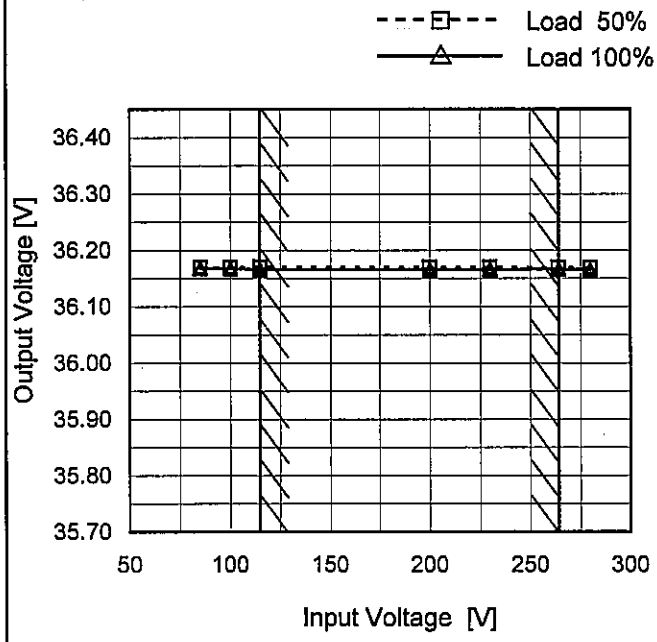
Model	PLA100F-36
Item	Line Regulation
Object	+36V2.8A

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	36.170	36.169 ※1
100	36.170	36.168 ※2
115	36.170	36.167
200	36.170	36.167
230	36.170	36.167
264	36.169	36.167
280	36.169	36.166
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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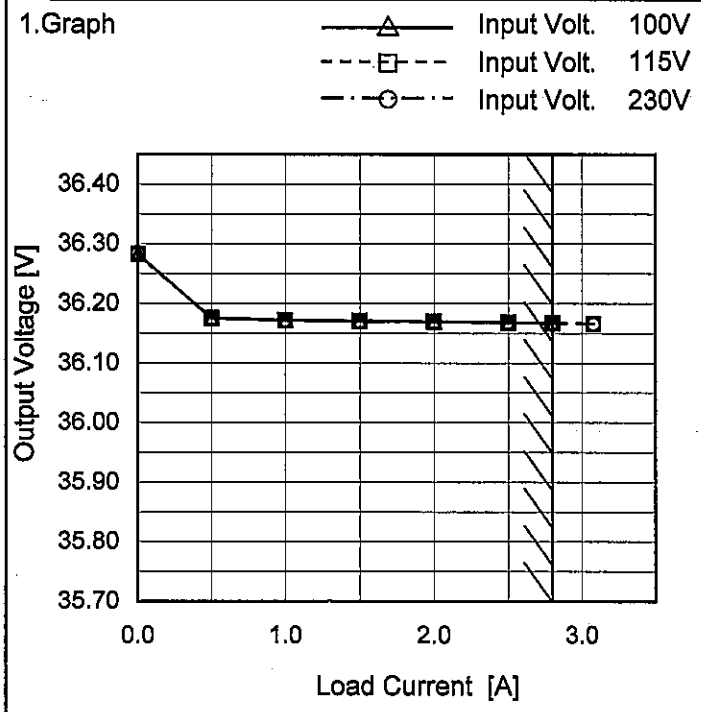
Model	PLA100F-36
Item	Load Regulation
Object	+36V2.8A

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	36.283	36.283	36.285
0.50	36.196	36.196	36.193
1.00	36.172	36.172	36.172
1.50	36.171	36.171	36.170
2.00	36.170	36.170	36.169
2.50	36.168	36.168	36.168
2.80	36.167	36.167	36.167
3.08	-	36.166	36.166
--	-	-	-
--	-	-	-
--	-	-	-

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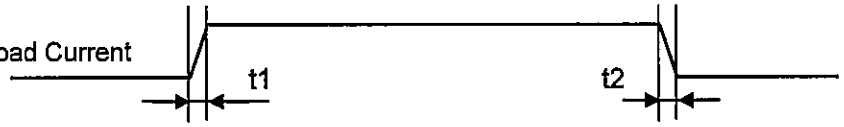
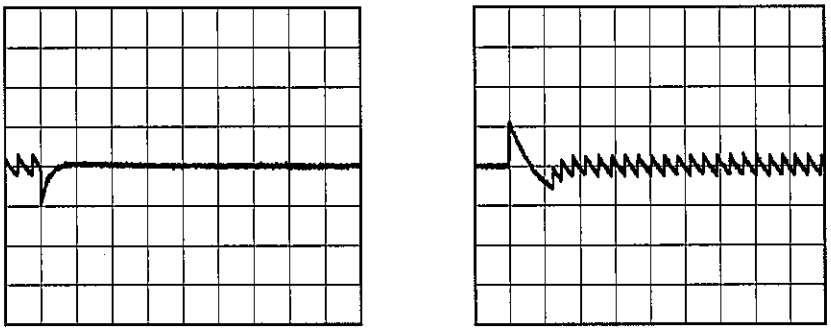
Model	PLA100F-36		
Item	Dynamic Load Response	Temperature	25˚C
		Testing Circuitry	Figure A
Object	+36V2.8A		

Input Volt. 115 V
Cycle 1000 ms

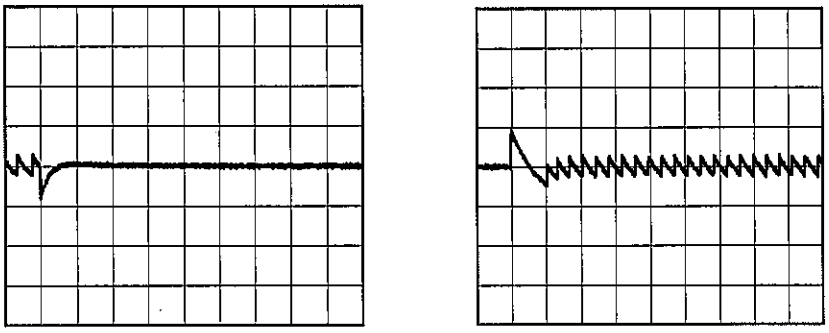
Response. t1=t2=50us. Typ



Min. Load (0A) ⟷
Load 100% (2.8A)



Min. Load (0A) ⟷
Load 50% (1.4A)



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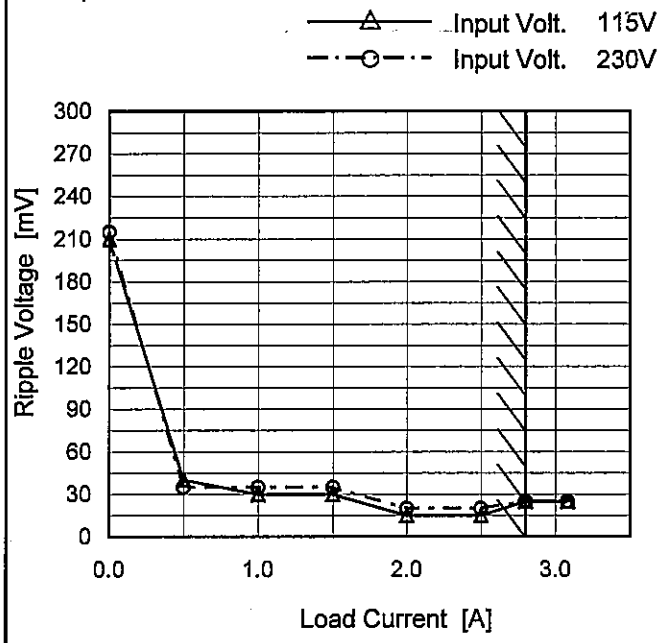
Model	PLA100F-36
Item	Ripple Voltage (by Load Current)
Object	+36V2.8A

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.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0.00	210	215
0.50	40	35
1.00	30	35
1.50	30	35
2.00	15	20
2.50	15	20
2.80	25	25
3.08	25	25
--	-	-
--	-	-
--	-	-

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

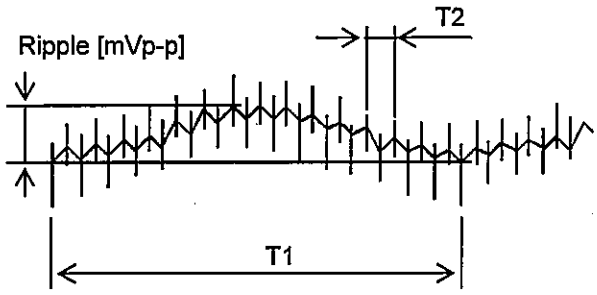


Fig. Complex Ripple Wave Form

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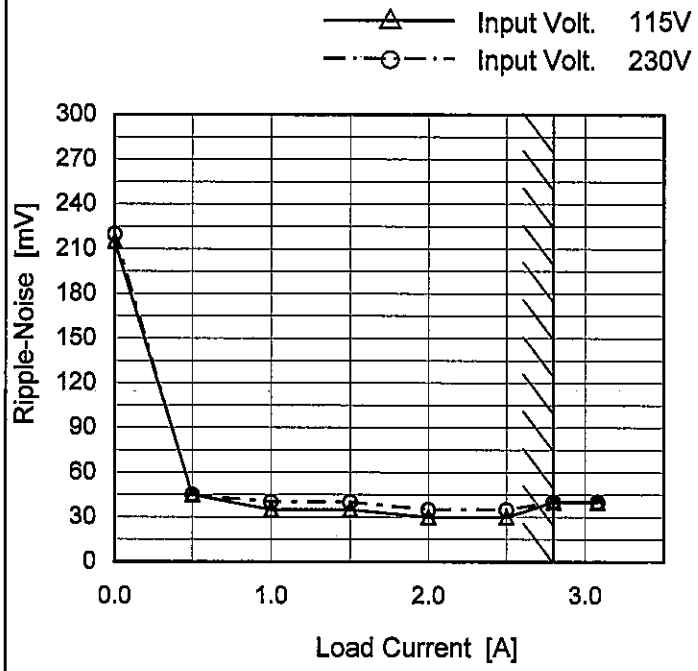
Model	PLA100F-36
Item	Ripple-Noise
Object	+36V2.8A

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.

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 115 [V]	Ripple-Noise [mV] Input Volt. 230 [V]
0.00	215	220
0.50	45	45
1.00	35	40
1.50	35	40
2.00	30	35
2.50	30	35
2.80	40	40
3.08	40	40
--	-	-
--	-	-
--	-	-

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

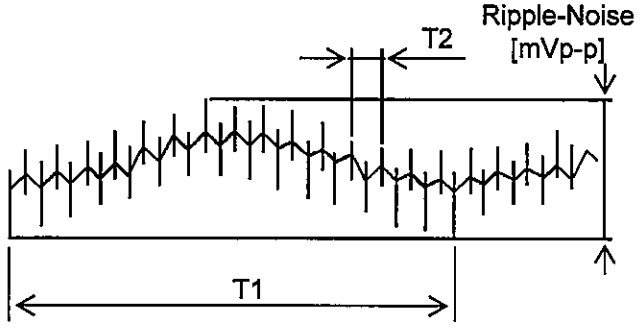


Fig. Complex Ripple Wave Form

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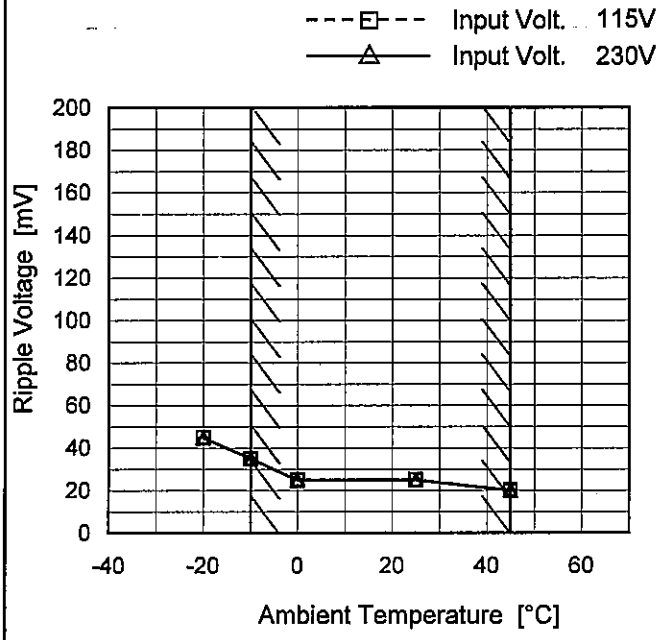
COSEL

Model	PLA100F-36
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V2.8A

Testing Circuitry Figure C

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. 115 [V]	Input Volt. 230 [V]
-20	45	45
-10	35	35
0	25	25
25	25	25
45	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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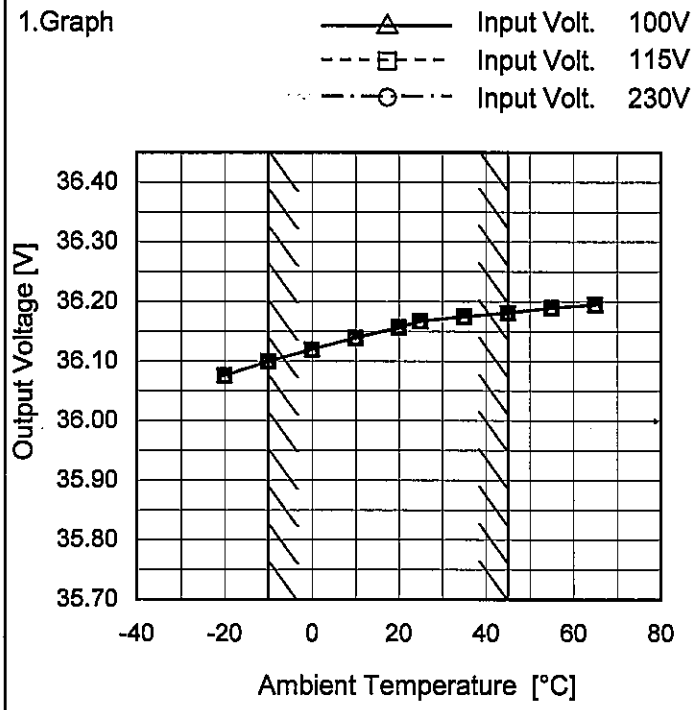
Model	PLA100F-36
Item	Ambient Temperature Drift
Object	+36V2.8A

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	36.076	36.076	36.075
-10	36.100	36.100	36.100
0	36.120	36.119	36.119
10	36.139	36.139	36.139
20	36.157	36.157	36.156
25	36.167	36.167	36.167
35	36.175	36.175	36.174
45	36.181	36.181	36.181
55	36.190	36.190	36.189
65	36.195	36.195	36.194
--	-	-	-

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

COSEL

Model	PLA100F-36
Item	Output Voltage Accuracy
Object	+36V2.8A

Testing Circuitry Figure A

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

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	45	230	0.84	36.181	±41	±0.1
Minimum Voltage	-10	115	2.8	36.100		

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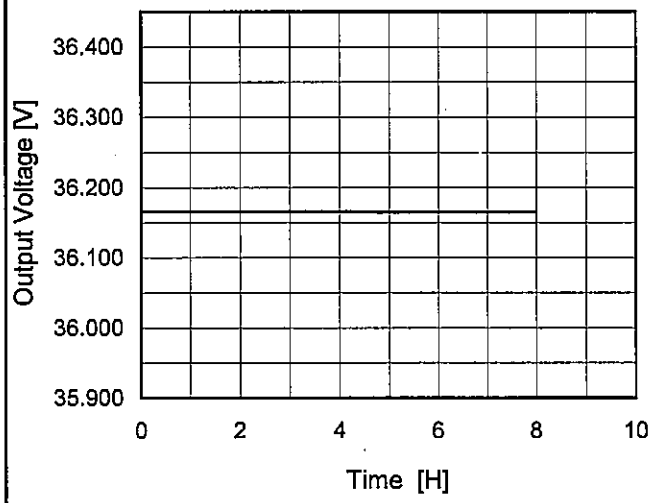
Model	PLA100F-36
Item	Time Lapse Drift
Object	+36V2.8A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 230V
Load 100%

* The characteristic of AC115V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	36.167
0.5	36.166
1.0	36.166
2.0	36.166
3.0	36.166
4.0	36.166
5.0	36.165
6.0	36.165
7.0	36.165
8.0	36.165

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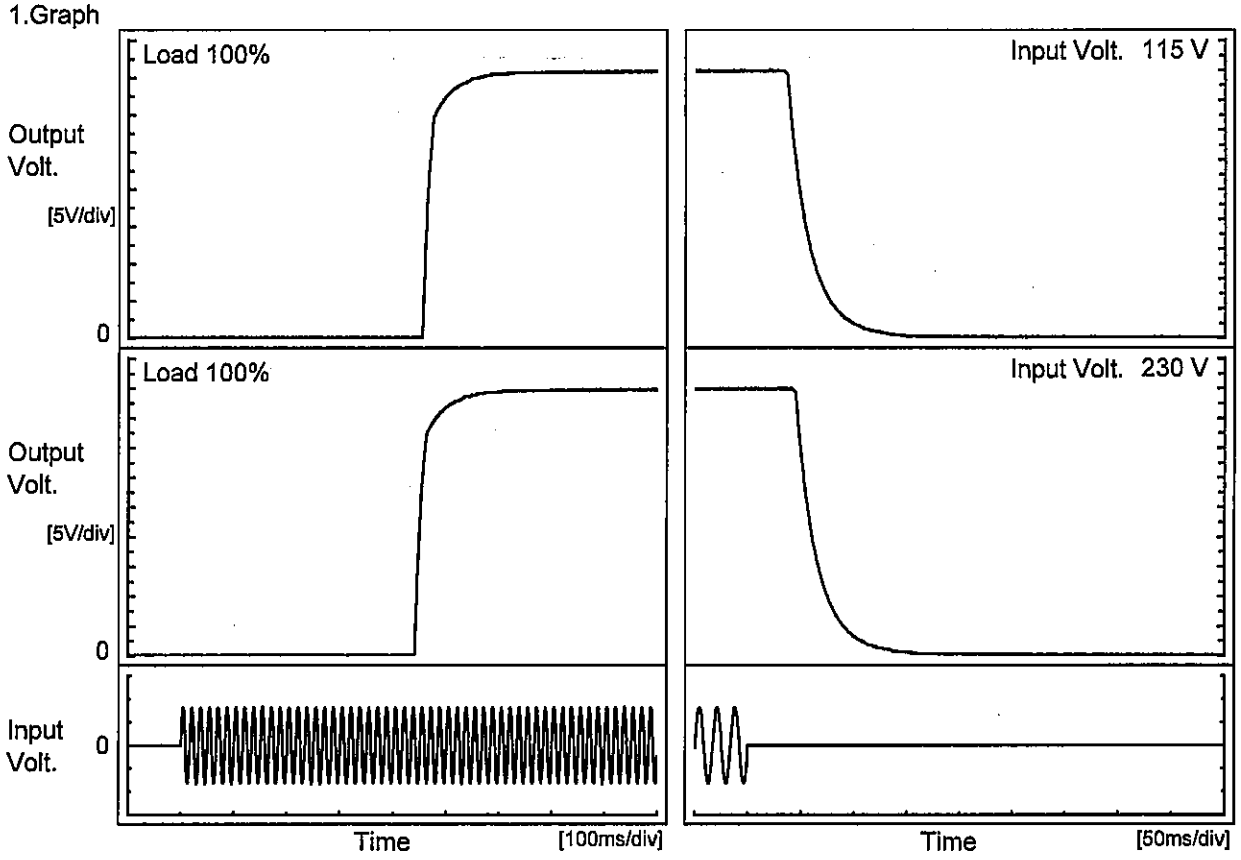
Model	PLA100F-36		
Item	Rise and Fall Time	Temperature	25°C
		Testing Circuitry	Figure A
Object	+36V2.8A		

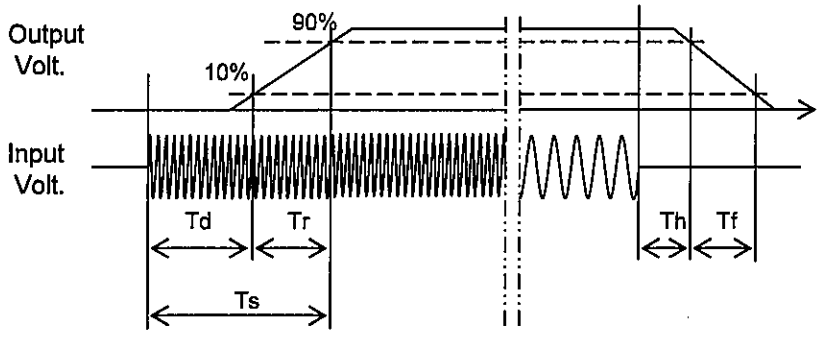
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	455.5	45.0	500.5	38.5	46.0
230 V	441.5	44.5	486.0	46.8	46.3



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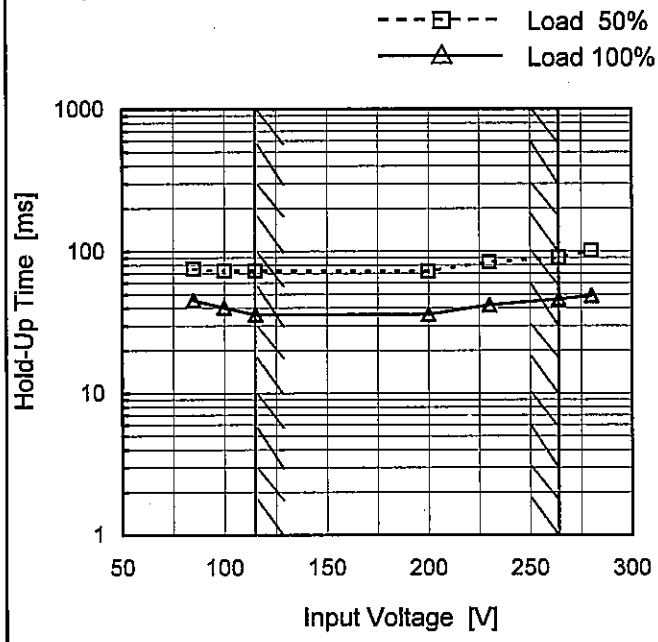
Model	PLA100F-36
Item	Hold-Up Time
Object	+36V2.8A

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	75	46 ※1
100	73	40 ※2
115	73	36
200	73	36
230	84	42
264	90	46
280	101	49
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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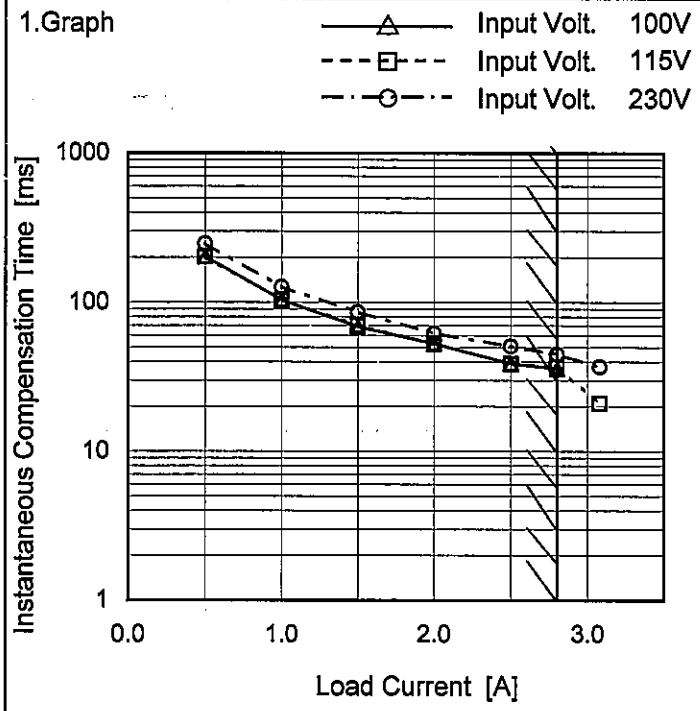
Model	PLA100F-36
Item	Instantaneous Interruption Compensation
Object	+36V2.8A

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	203	202	248
1.00	104	104	127
1.50	69	70	86
2.00	53	53	62
2.50	39	39	51
2.80	36	37	45
3.08	-	21	37
--	-	-	-
--	-	-	-
--	-	-	-

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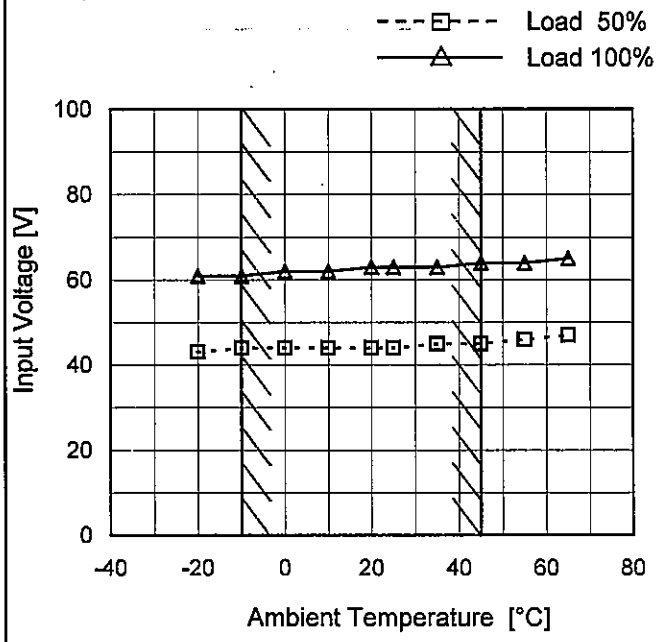
Model	PLA100F-36
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+36V2.8A

Testing Circuitry Figure A

1.Graph



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

2.Values

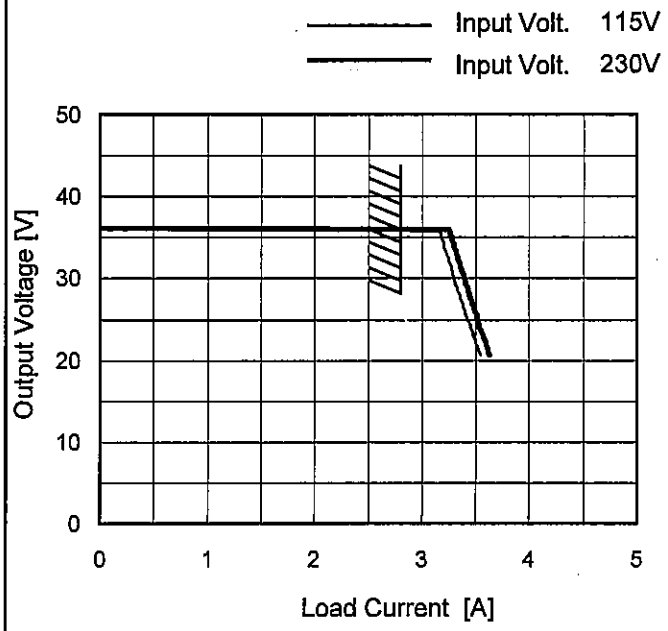
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	43	61
-10	44	61
0	44	62
10	44	62
20	44	63
25	44	63
35	45	63
45	45	64
55	46	64
65	47	65
--	-	-

COSEL

Model	PLA100F-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.

2.Values

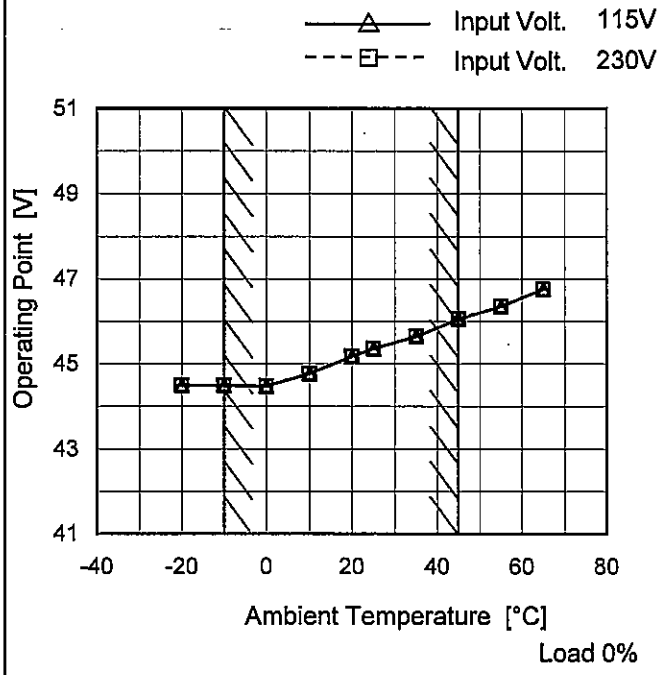
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
34.2	3.20	3.30
32.4	3.24	3.25
28.8	3.33	3.42
25.2	3.41	3.51
21.6	3.51	3.60
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA100F-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	44.49	44.49
-10	44.49	44.49
0	44.48	44.48
10	44.77	44.77
20	45.18	45.18
25	45.36	45.36
35	45.65	45.65
45	46.06	46.06
55	46.36	46.36
65	46.76	46.76
--	-	-

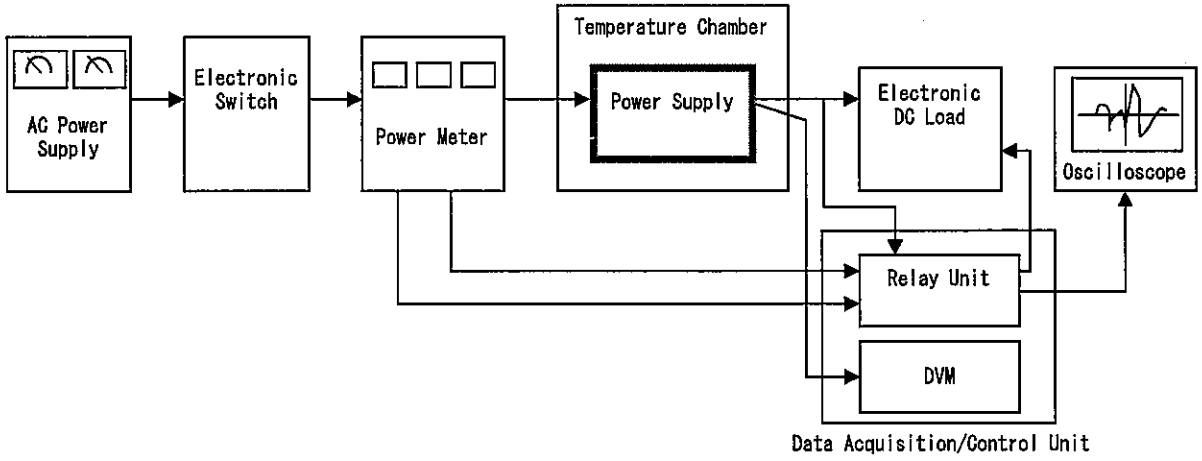


Figure A

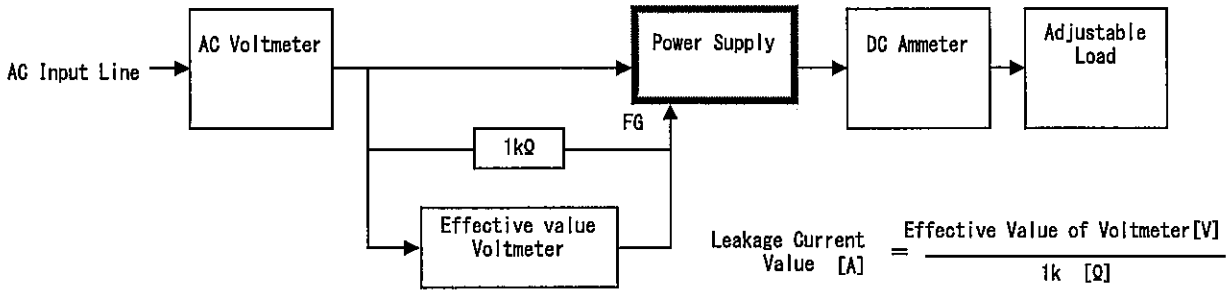


Figure B (DEN-AN)

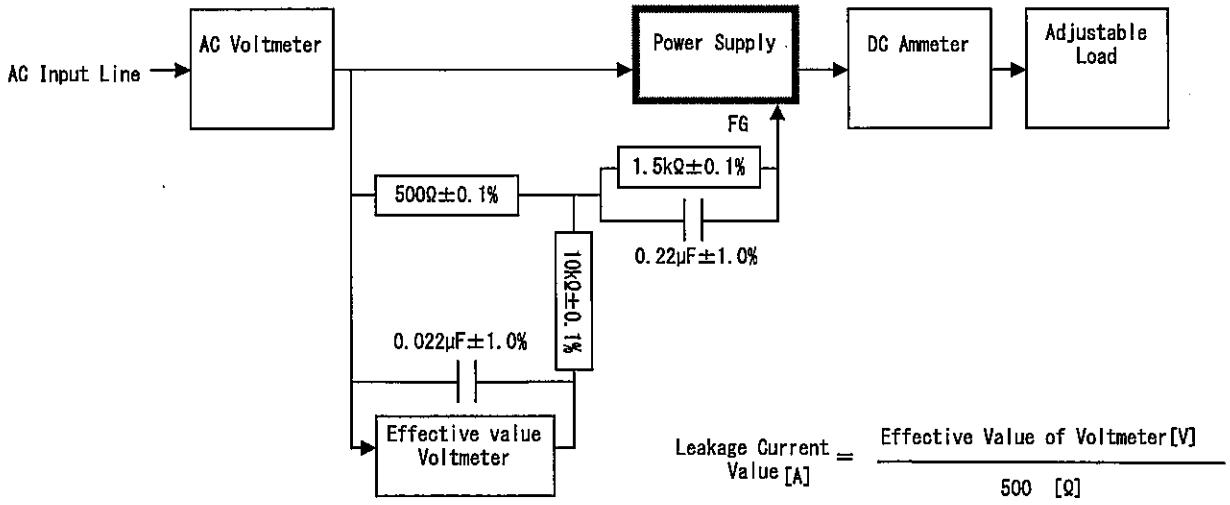


Figure B (IEC60950-1)

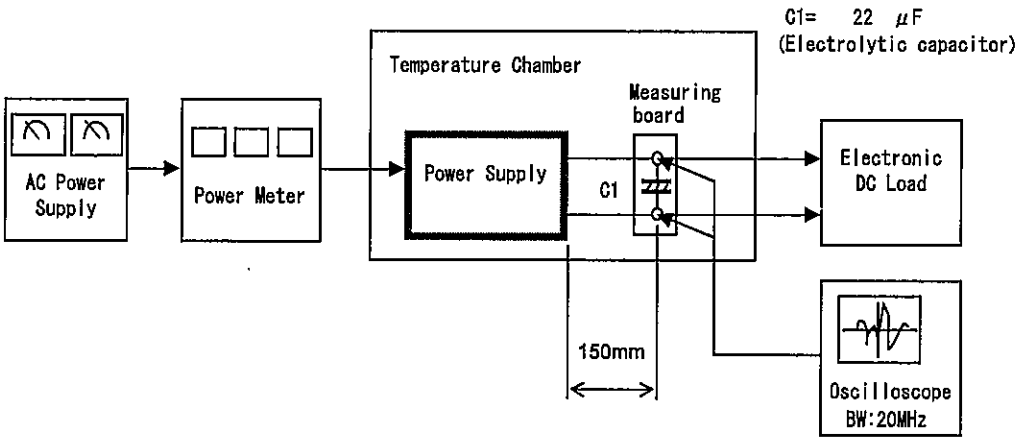

C1= 22 μF
(Electrolytic capacitor)
Temperature Chamber
Measuring board
AC Power Supply
Power Meter
Power Supply
C1
Electronic DC Load
150mm
Oscilloscope BW:20MHz

Figure C