参考資料

COSEL

TEST DATA OF PLA300F-5

Regulated DC Power Supply
August 28, 2017

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COSEL CO.,LTD.

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CONTENTS

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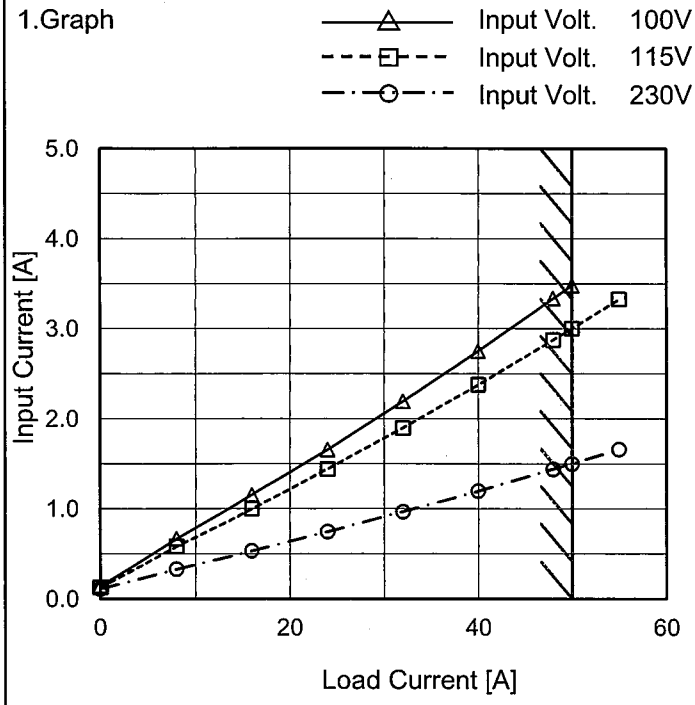
Model	PLA300F-5
Item	Input Current (by Load Current)
Object	————————

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. 115[V]	Input Volt. 230[V]
0	0.143	0.128	0.113
8	0.668	0.583	0.331
16	1.156	0.998	0.533
24	1.656	1.441	0.747
32	2.192	1.896	0.969
40	2.751	2.377	1.198
48	3.336	2.877	1.440
50	3.478	3.002	1.501
55	-	3.326	1.659
--	-	-	-
--	-	-	-

BC-11206

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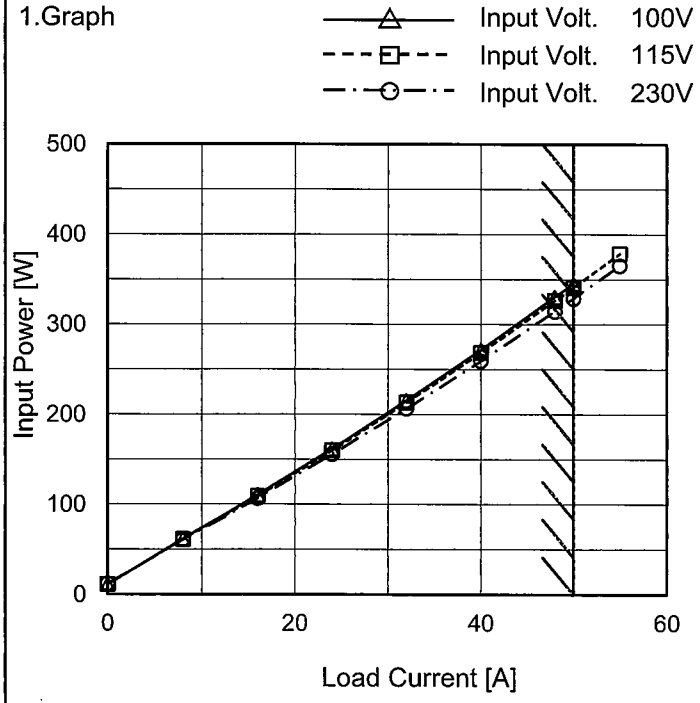
Model	PLA300F-5
Item	Input Power (by Load Current)
Object	————————

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	11.0	11.0	11.7
8	61.7	61.3	60.8
16	110.6	109.1	106.8
24	161.6	159.9	155.7
32	215.6	213.3	206.5
40	271.6	268.7	259.3
48	330.6	326.5	314.6
50	345.0	341.0	328.8
55	-	378.8	365.4
--	-	-	-
--	-	-	-

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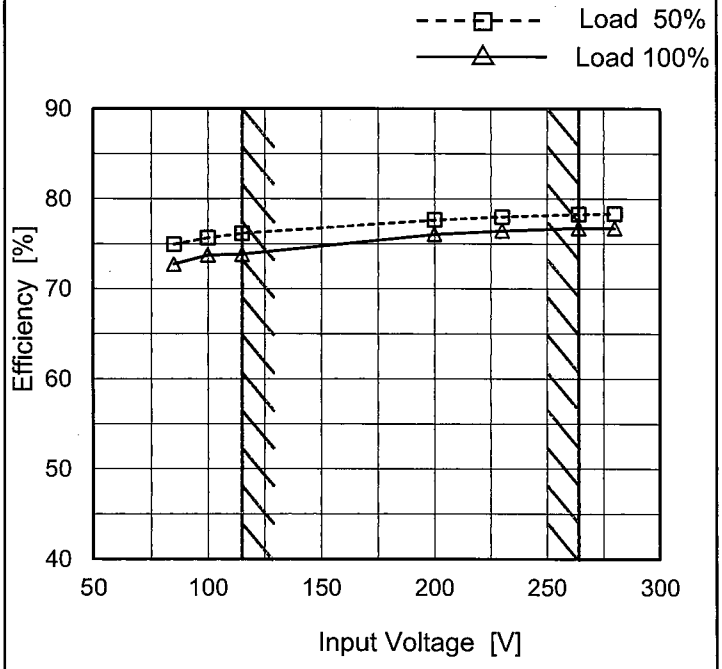
Model	PLA300F-5
Item	Efficiency (by Input Voltage)
Object	――――――――

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	75.0	72.7 ※1
100	75.7	73.8 ※2
115	76.2	73.8
200	77.7	76.1
230	78.0	76.5
264	78.3	76.8
280	78.3	76.7
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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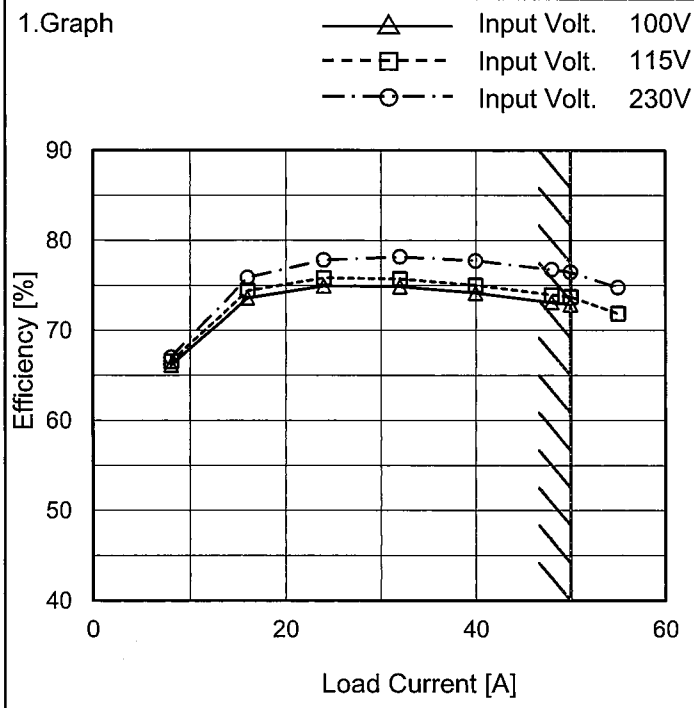
Model	PLA300F-5
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
8	66.2	66.6	67.1
16	73.6	74.4	75.9
24	74.9	75.8	77.8
32	74.9	75.7	78.2
40	74.2	75.0	77.7
48	73.1	73.9	76.8
50	72.9	73.7	76.5
55	-	71.9	74.8
--	-	-	-
--	-	-	-

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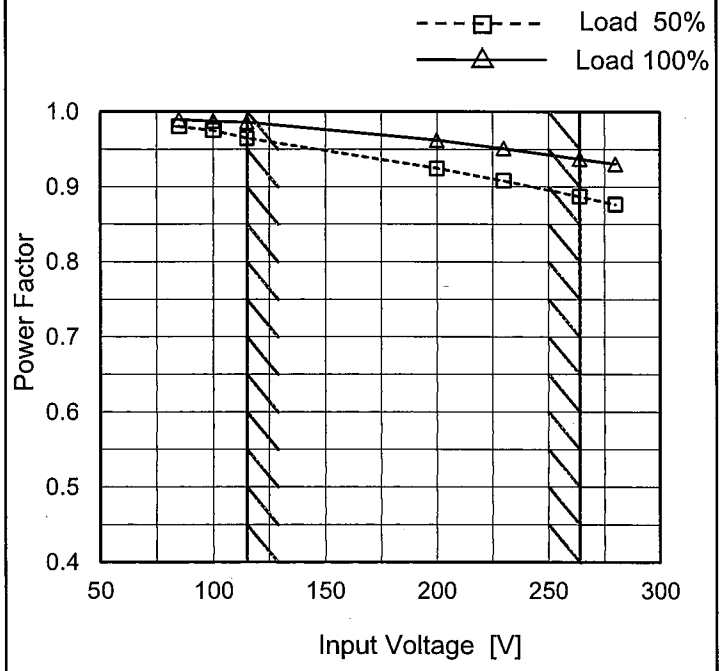
Model	PLA300F-5
Item	Power Factor (by Input Voltage)
Object	————————

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	0.981	0.990 ※1
100	0.975	0.987 ※2
115	0.965	0.986
200	0.925	0.962
230	0.908	0.951
264	0.887	0.937
280	0.877	0.931
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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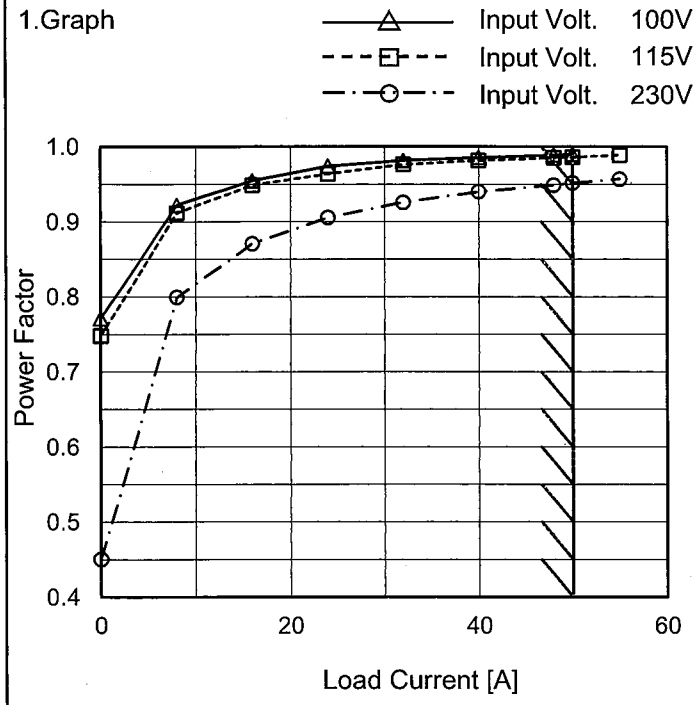
Model	PLA300F-5
Item	Power Factor (by Load Current)
Object	————————

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	0.771	0.748	0.450
8	0.922	0.912	0.799
16	0.955	0.949	0.871
24	0.974	0.964	0.906
32	0.982	0.976	0.926
40	0.986	0.982	0.940
48	0.989	0.985	0.949
50	0.990	0.986	0.952
55	-	0.989	0.957
--	-	-	-
--	-	-	-

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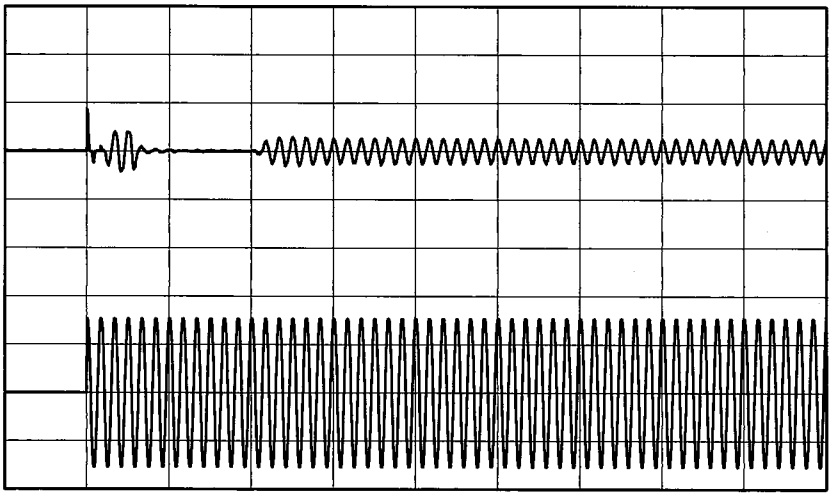
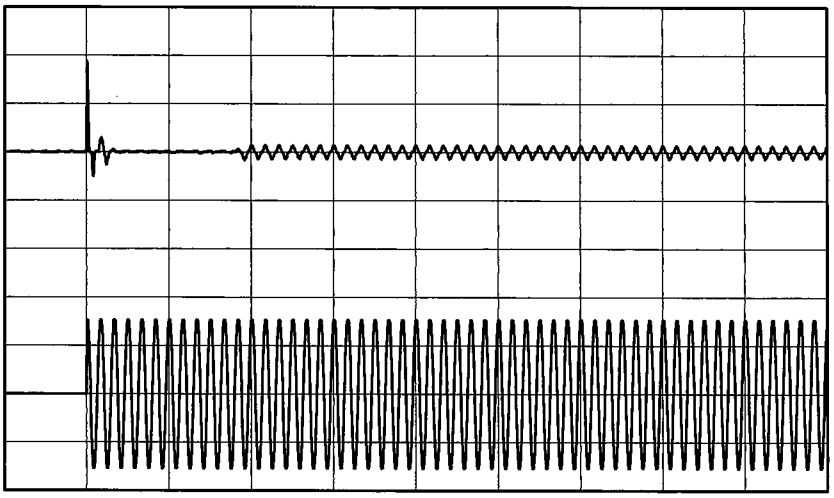
Model	PLA300F-5
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



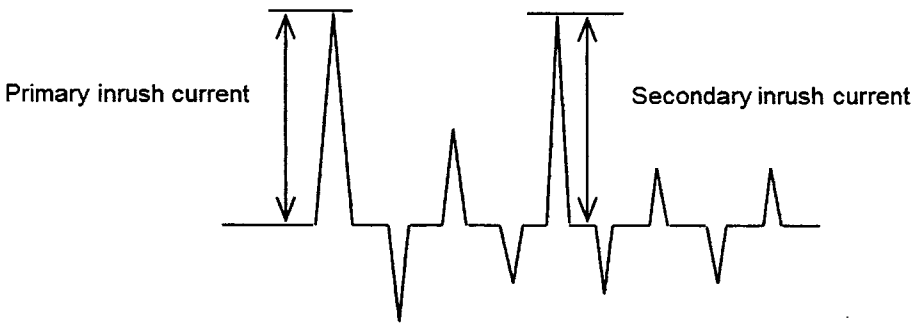
Input Voltage 115 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
17.2 A
Secondary inrush current :
8.0 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
37.6 A
Secondary inrush current :
3.2 A



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Model	PLA300F-5	
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	0.24	0.28	0.44	Operation
	One of phases	0.30	0.30	0.60	Stand by
IEC60950-1	Both phases	0.17	0.18	0.40	Operation
	One of phases	0.24	0.28	0.60	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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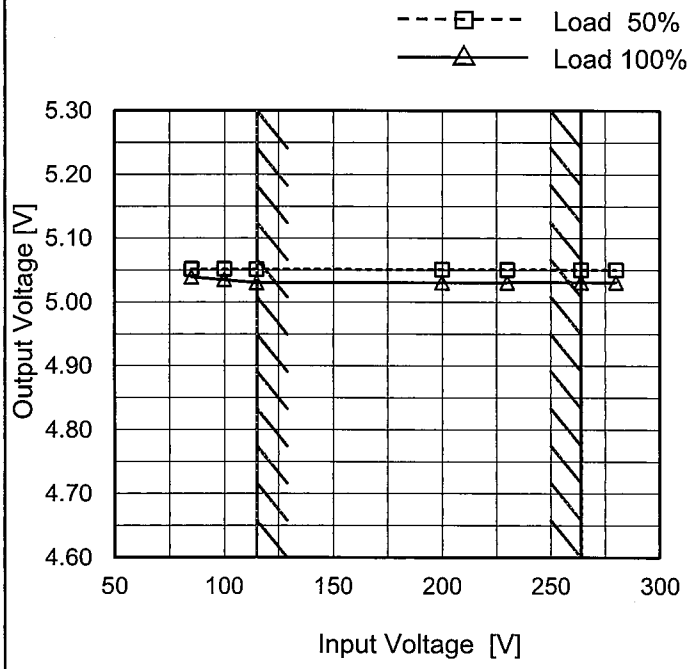
Model	PLA300F-5
Item	Line Regulation
Object	+5V50A

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	5.052	5.039 ※1
100	5.052	5.035 ※2
115	5.052	5.030
200	5.051	5.031
230	5.051	5.031
264	5.051	5.031
280	5.051	5.031
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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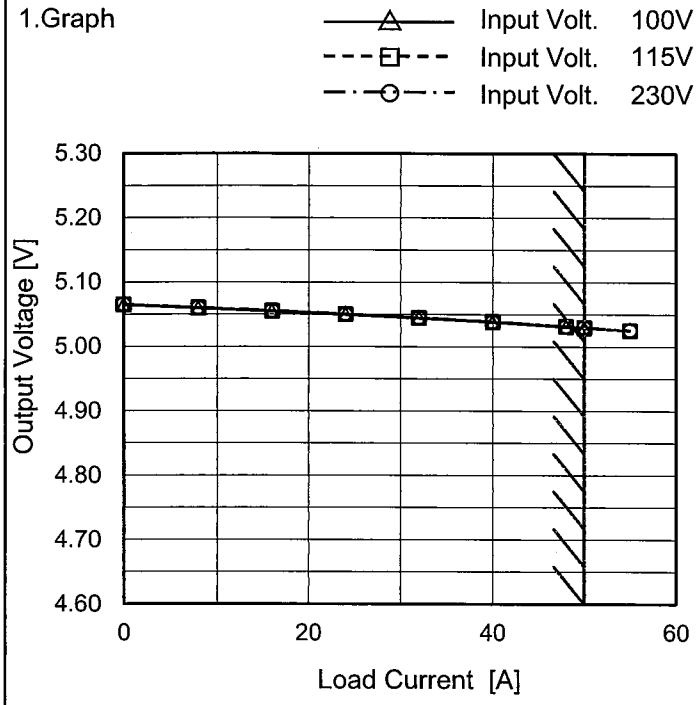
Model	PLA300F-5
Item	Load Regulation
Object	+5V50A

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	5.065	5.065	5.066
8	5.060	5.060	5.061
16	5.055	5.056	5.056
24	5.050	5.051	5.051
32	5.045	5.045	5.045
40	5.038	5.039	5.039
48	5.031	5.032	5.032
50	5.029	5.030	5.030
55	-	5.025	5.026
--	-	-	-
--	-	-	-

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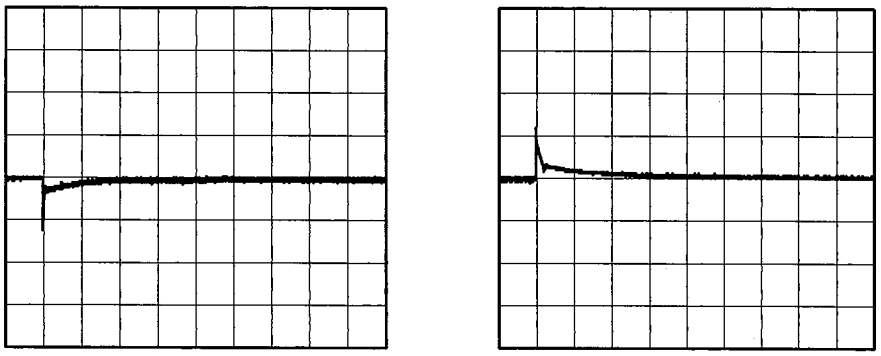
Model	PLA300F-5		
Item	Dynamic Load Response	Temperature	25˚C
		Testing Circuitry	Figure A
Object	+5V50A		

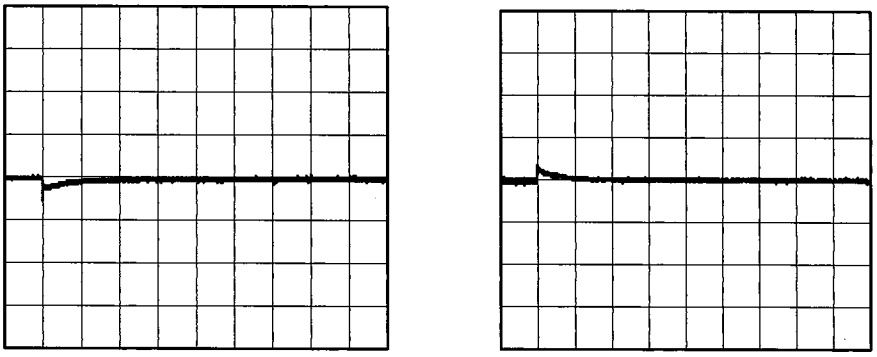
Input Volt. 115 V
Cycle 1000 ms

Response. t1=t2=50us. Typ

Min. Load (0A) ⟷
Load 100% (50A)



Min. Load (0A) ⟷
Load 50% (25A)



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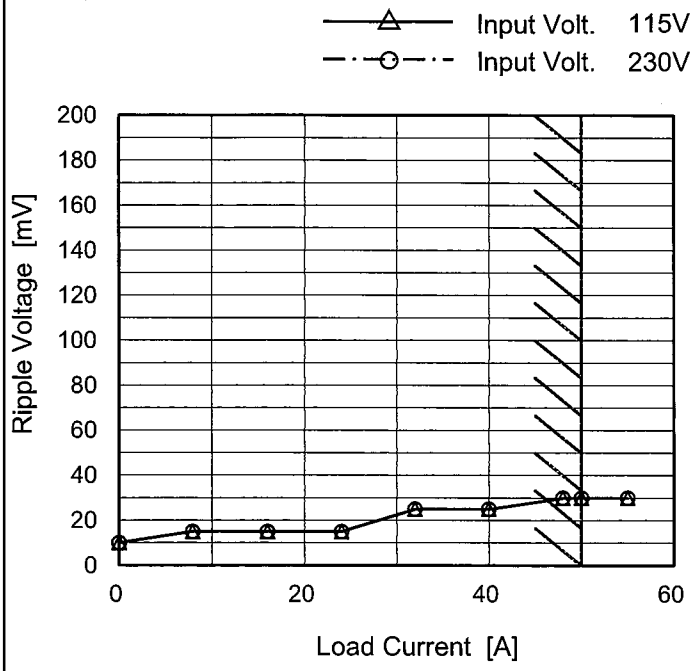
Model	PLA300F-5
Item	Ripple Voltage (by Load Current)
Object	+5V50A

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.

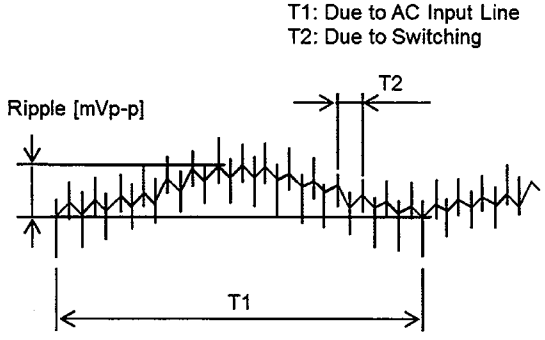


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0	10	10
8	15	15
16	15	15
24	15	15
32	25	25
40	25	25
48	30	30
50	30	30
55	30	30
--	-	-
--	-	-

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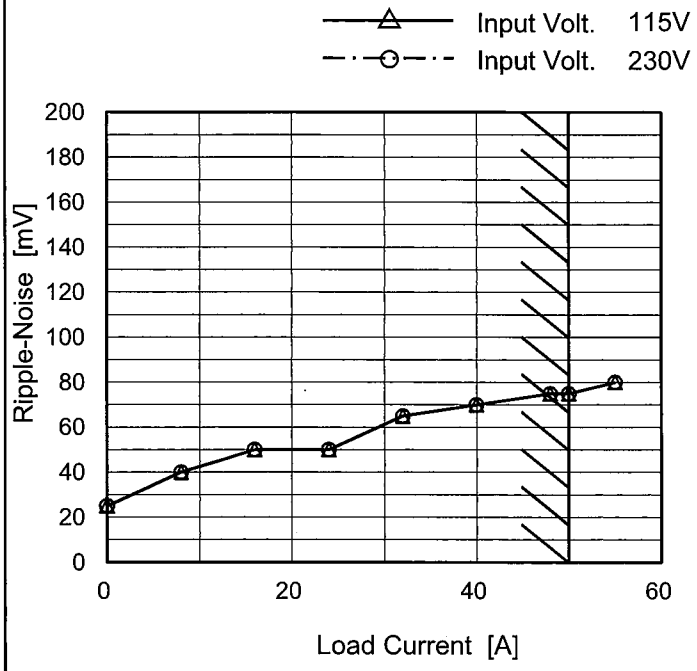
Model	PLA300F-5
Item	Ripple-Noise
Object	+5V50A

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

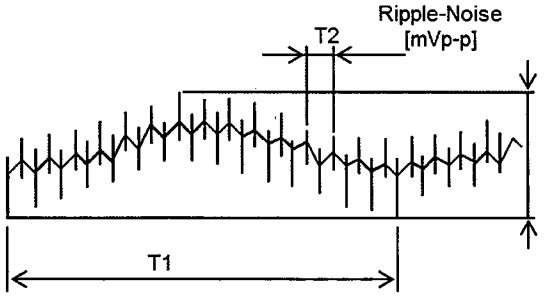


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0	25	25
8	40	40
16	50	50
24	50	50
32	65	65
40	70	70
48	75	75
50	75	75
55	80	80
--	-	-
--	-	-

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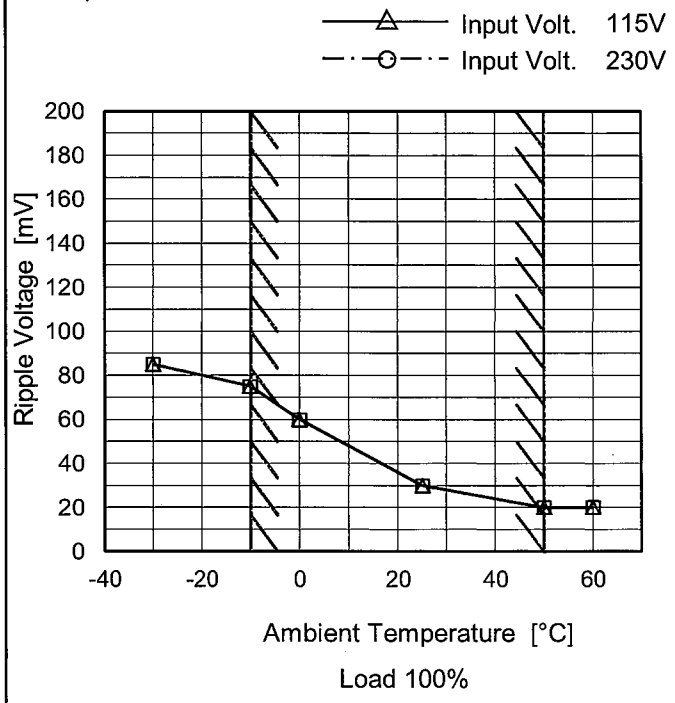
Model	PLA300F-5
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V50A

Testing Circuitry Figure C

1.Graph



Load 100%

Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

2.Values

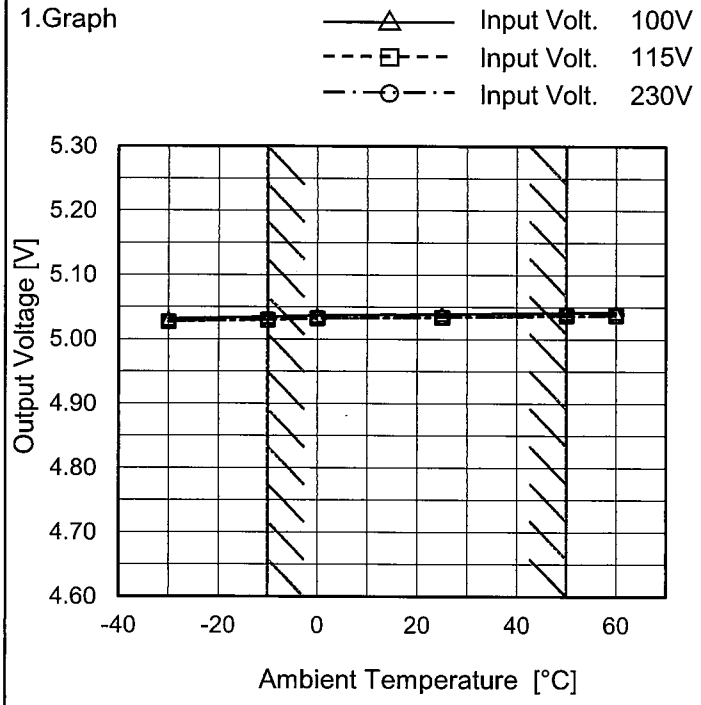
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
-30	85	85
-10	75	75
0	60	60
25	30	30
50	20	20
60	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-5
Item	Ambient Temperature Drift
Object	+5V50A

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]
-30	5.032	5.027	5.028
-10	5.035	5.030	5.031
0	5.037	5.032	5.033
25	5.039	5.034	5.035
50	5.042	5.037	5.037
60	5.042	5.037	5.037
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

COSEL

Model	PLA300F-5	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V50A	

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 : 115 - 264V
Load Current : 0 - 50A

* 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	25	230	0	5.075	±23	±0.5
Minimum Voltage	-10	115	50	5.030		

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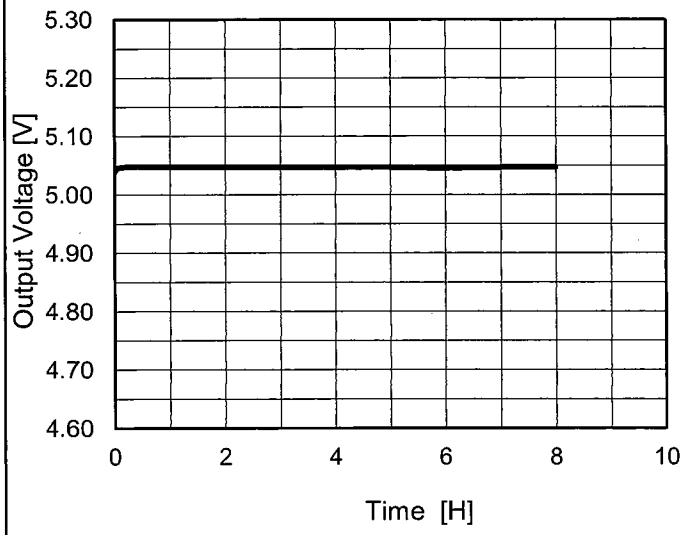
Model	PLA300F-5
Item	Time Lapse Drift
Object	+5V50A

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	5.038
0.5	5.048
1.0	5.048
2.0	5.048
3.0	5.047
4.0	5.047
5.0	5.047
6.0	5.046
7.0	5.047
8.0	5.047

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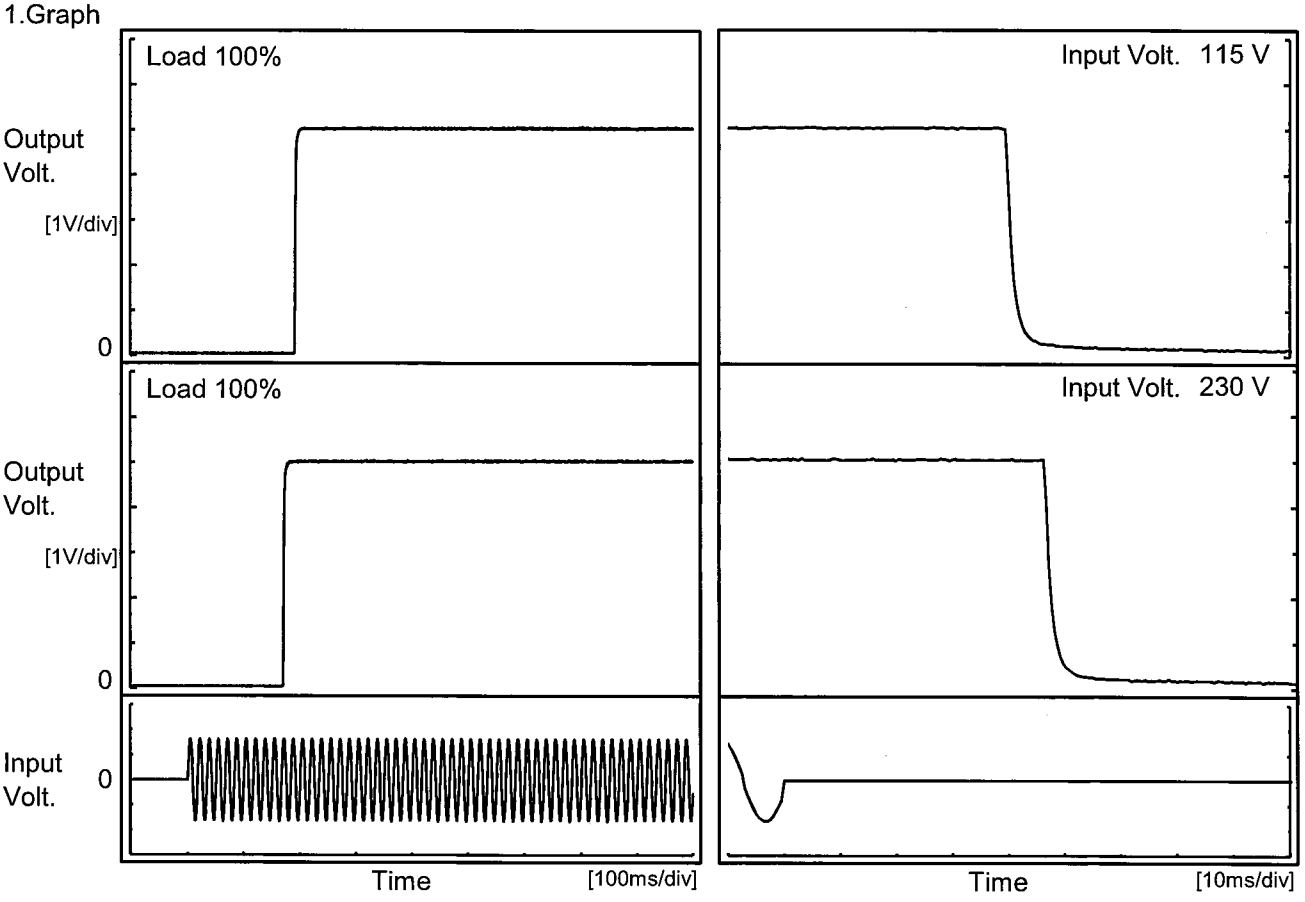
Model	PLA300F-5	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V50A	

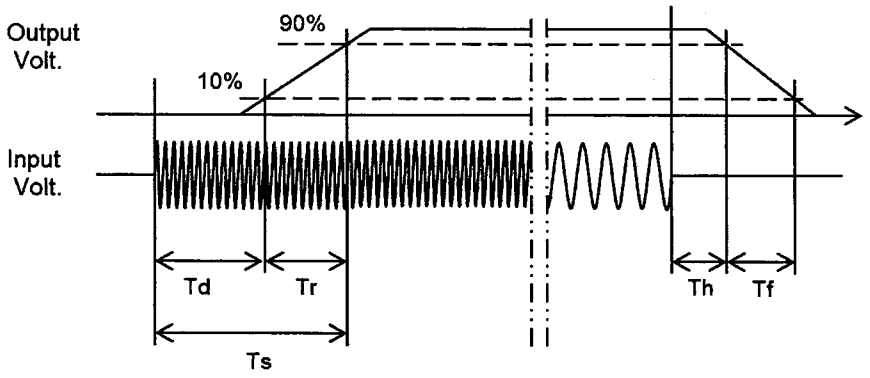
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	191.5	2.0	193.5	39.5	3.5
230 V	171.0	2.0	173.0	45.5	3.5



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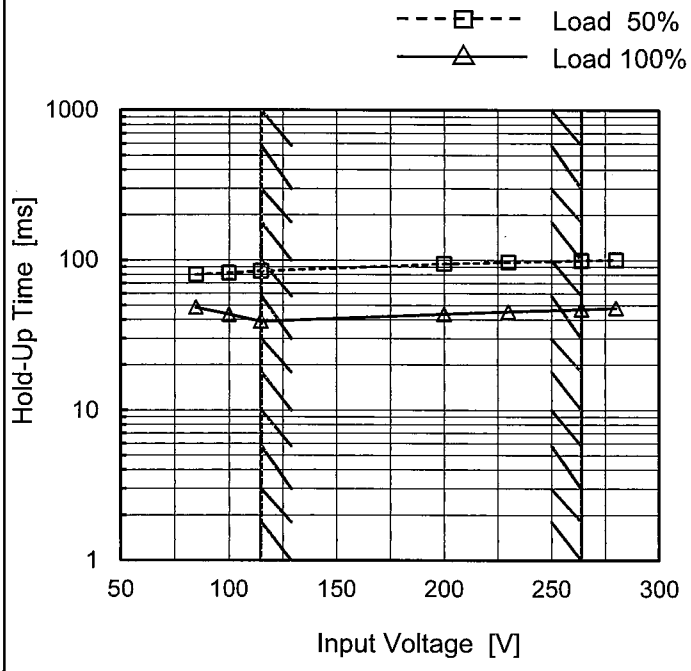
Model	PLA300F-5
Item	Hold-Up Time
Object	+5V50A

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	80	49 ※1
100	82	44 ※2
115	85	39
200	95	44
230	97	46
264	99	47
280	101	48
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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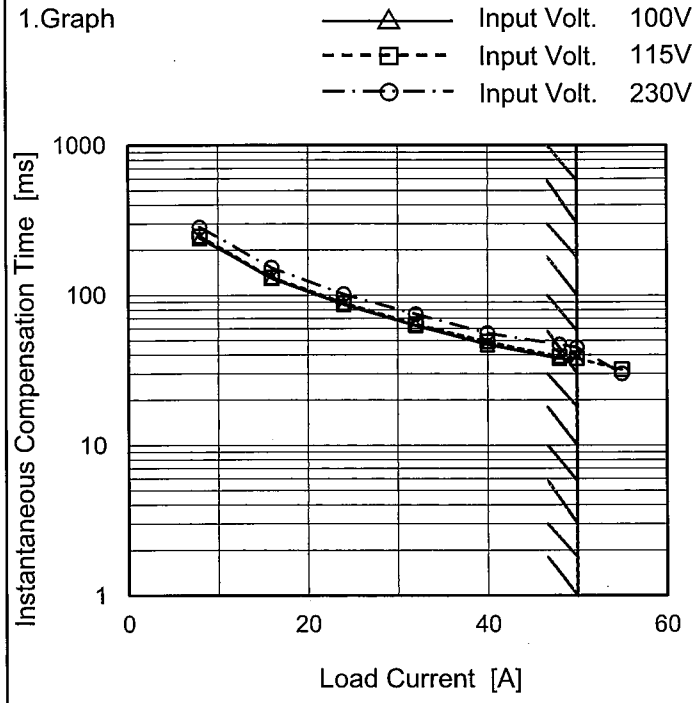
Model	PLA300F-5
Item	Instantaneous Interruption Compensation
Object	+5V50A

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	-	-	-
8	240	248	285
16	130	132	153
24	87	89	102
32	63	64	75
40	47	49	56
48	38	39	47
50	38	38	45
55	-	32	30
--	-	-	-
--	-	-	-

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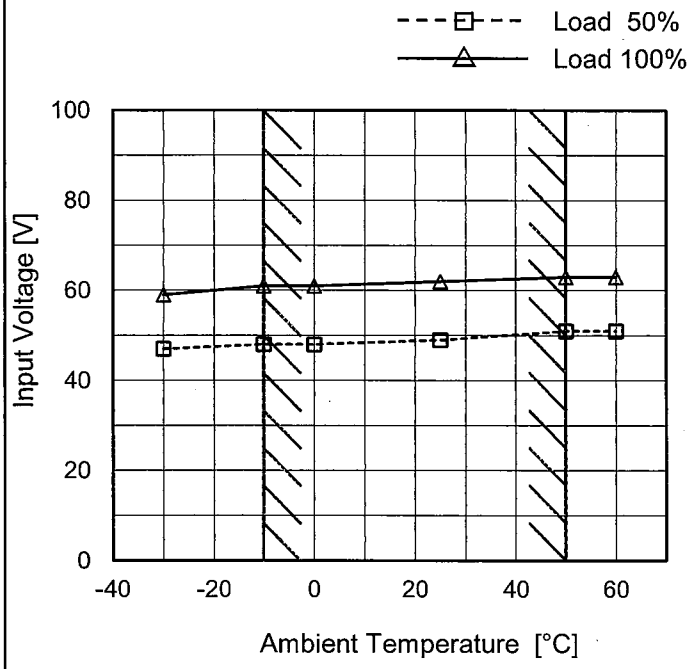
Model	PLA300F-5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V50A

Testing Circuitry Figure A

1.Graph



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

2.Values

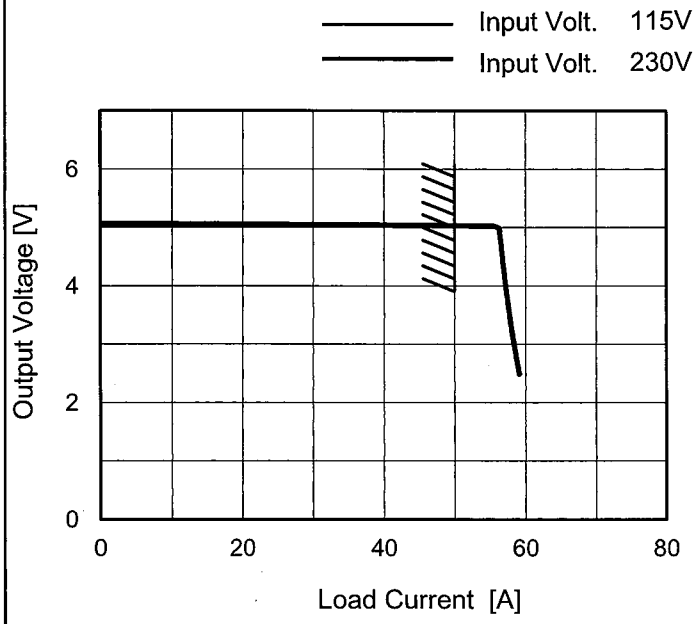
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	47	59
-10	48	61
0	48	61
25	49	62
50	51	63
60	51	63
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-5
Item	Overcurrent Protection
Object	+5V50A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

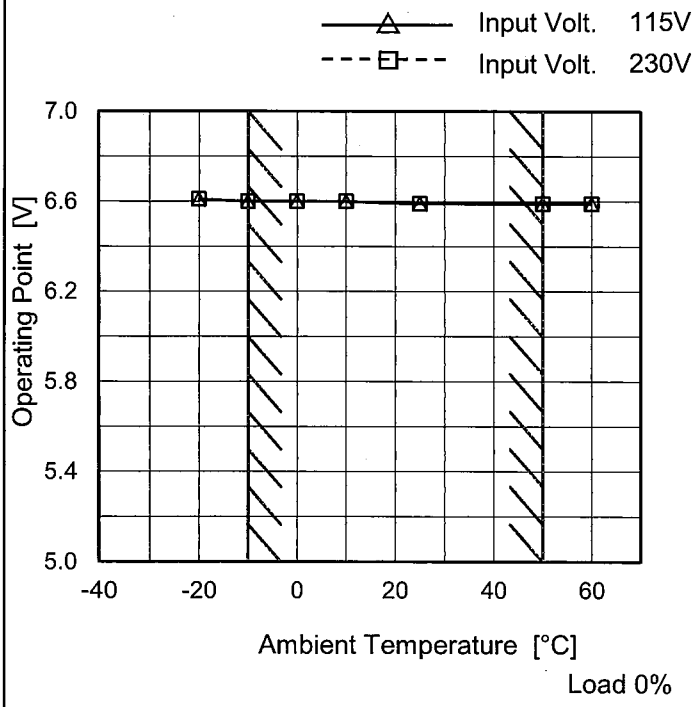
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
4.75	56.62	56.53
4.50	56.80	56.72
4.00	57.20	57.18
3.50	57.66	57.72
3.00	58.23	58.36
2.50	58.90	59.06
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-5
Item	Overvoltage Protection
Object	+5V50A

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	6.61	6.61
-10	6.60	6.60
0	6.60	6.60
10	6.60	6.60
25	6.59	6.59
50	6.59	6.59
60	6.59	6.59
--	-	-
--	-	-
--	-	-
--	-	-

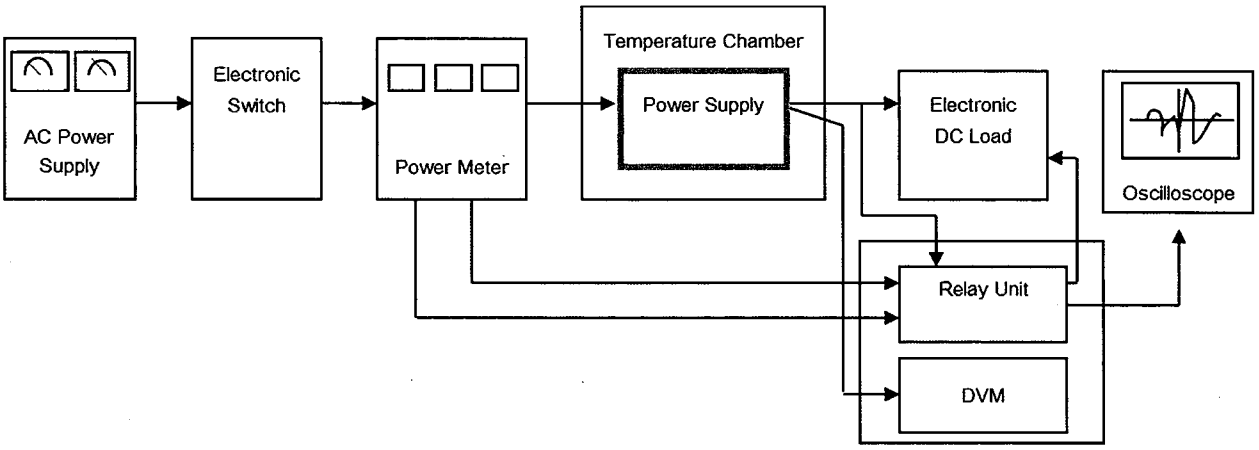


Figure A

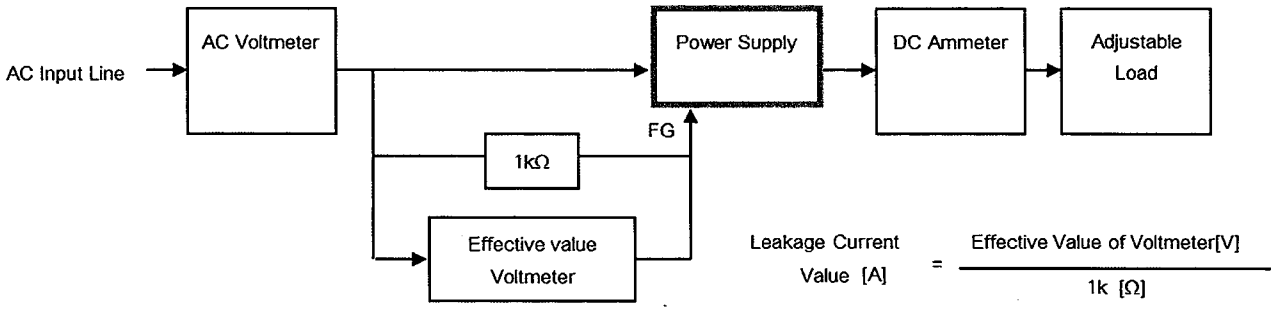


Figure B (DEN-AN)

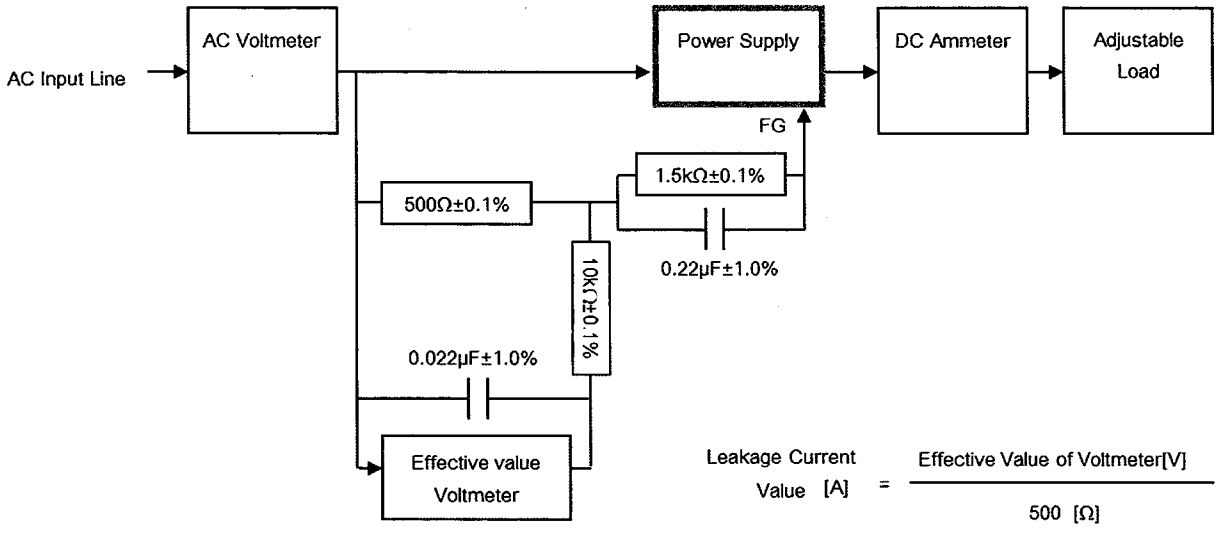
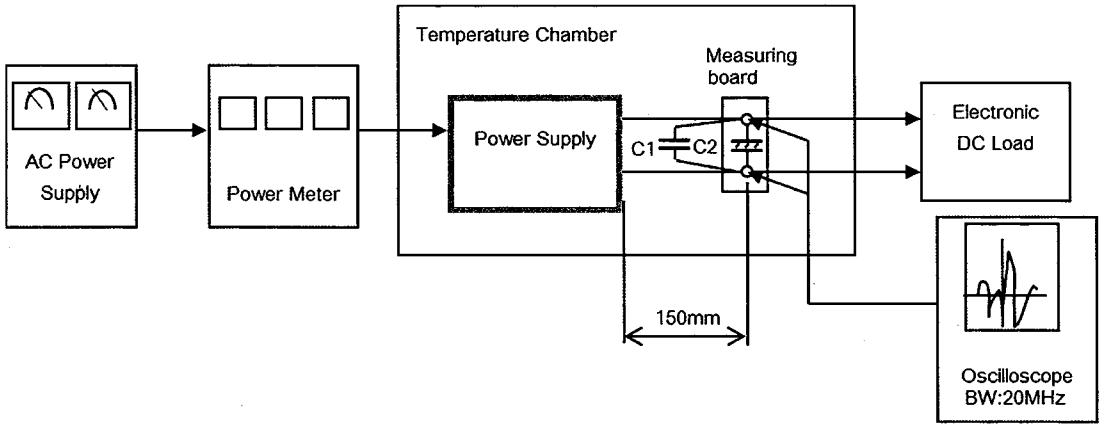


Figure B (IEC60950-1)



C1= 0.1 μF
(Ceramic capacitor)

C2= 22 μF
(Electrolytic capacitor)

Figure C