参考資料

COSEL

TEST DATA OF PLA300F-12

Regulated DC Power Supply
August 28, 2017

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COSEL CO.,LTD.

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Object	————————

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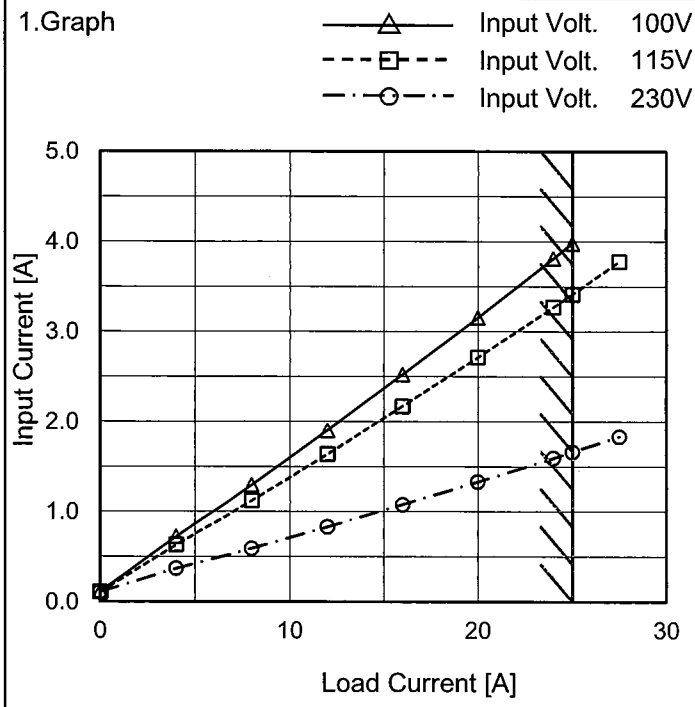
1.Graph



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. 115[V]	Input Volt. 230[V]
0.0	0.115	0.109	0.110
4.0	0.724	0.633	0.370
8.0	1.298	1.122	0.592
12.0	1.902	1.638	0.832
16.0	2.522	2.169	1.079
20.0	3.156	2.714	1.333
24.0	3.812	3.272	1.596
25.0	3.979	3.412	1.664
27.5	-	3.779	1.836
--	-	-	-
--	-	-	-

BC-11201

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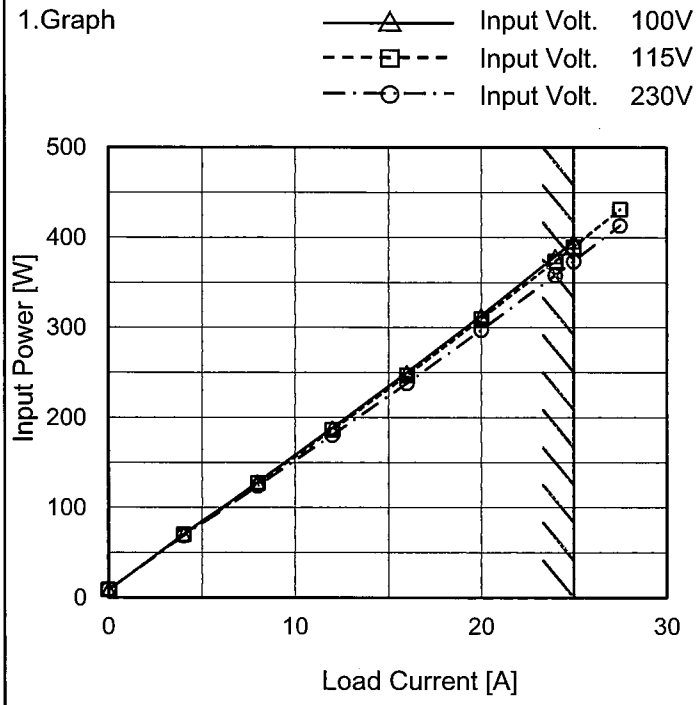
Model	PLA300F-12
Item	Input Power (by Load Current)
Object	———————

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]
0.0	8.6	8.8	9.2
4.0	70.5	70.0	69.0
8.0	128.2	126.9	124.0
12.0	188.5	186.3	180.6
16.0	250.3	247.1	238.3
20.0	313.5	309.6	297.3
24.0	379.1	373.7	358.0
25.0	395.5	389.6	373.6
27.5	-	431.3	413.3
--	-	-	-
--	-	-	-

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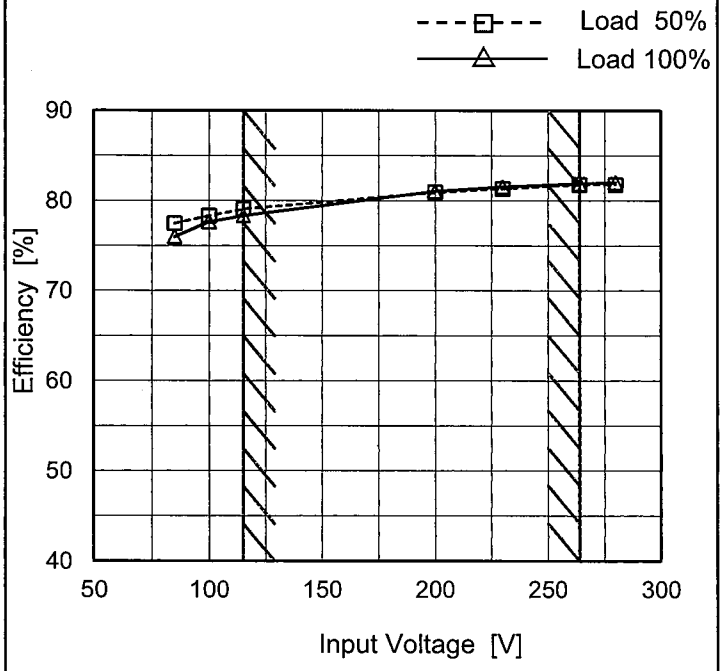
Model	PLA300F-12
Item	Efficiency (by Input Voltage)
Object	――――――――

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	77.5	76.0 ※1
100	78.3	77.7 ※2
115	79.1	78.3
200	80.9	81.1
230	81.3	81.6
264	81.8	81.9
280	81.8	82.0
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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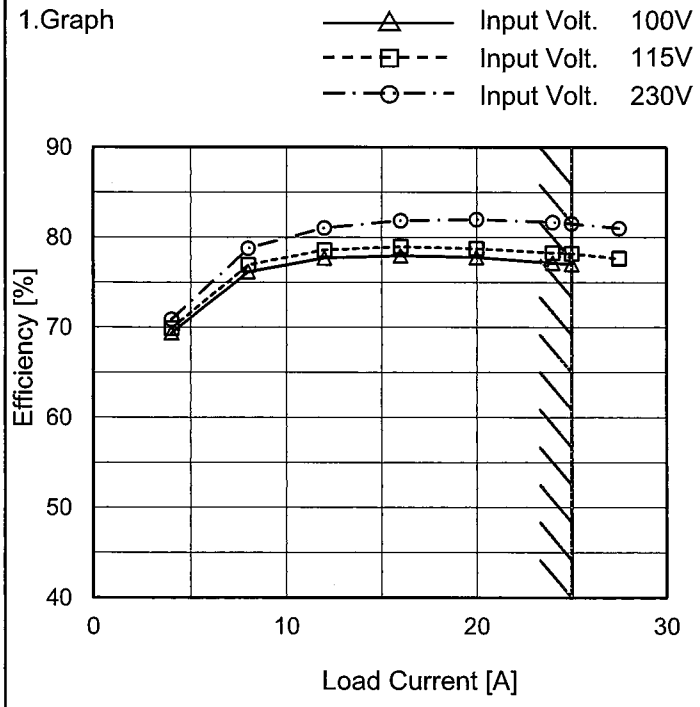
Model	PLA300F-12
Item	Efficiency (by Load Current)
Object	———————

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]
0.0	-	-	-
4.0	69.4	69.9	70.9
8.0	76.2	76.9	78.8
12.0	77.7	78.6	81.1
16.0	78.0	79.0	81.9
20.0	77.8	78.8	82.0
24.0	77.2	78.3	81.7
25.0	77.0	78.2	81.5
27.5	-	77.7	81.0
--	-	-	-
--	-	-	-

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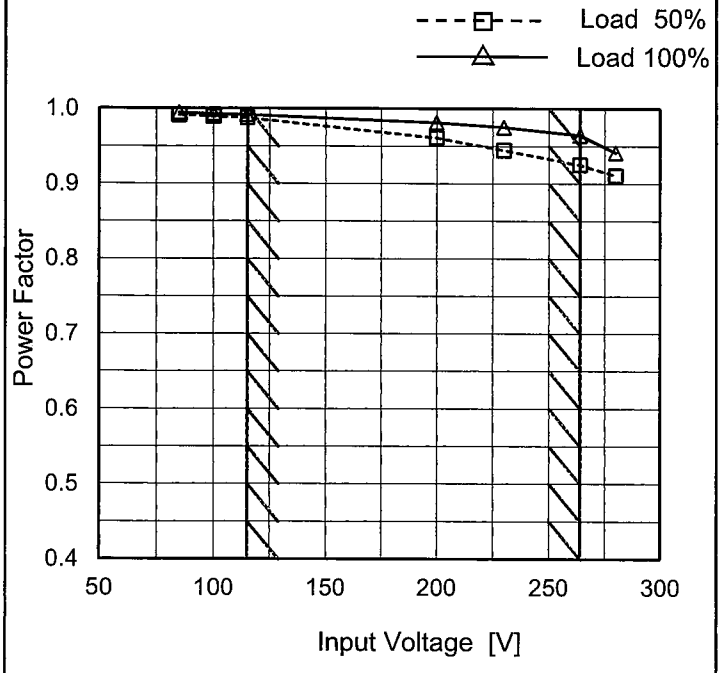
Model	PLA300F-12
Item	Power Factor (by Input Voltage)
Object	――――――――

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	0.992	0.995 ※1
100	0.990	0.993 ※2
115	0.987	0.992
200	0.961	0.982
230	0.945	0.975
264	0.925	0.965
280	0.911	0.942
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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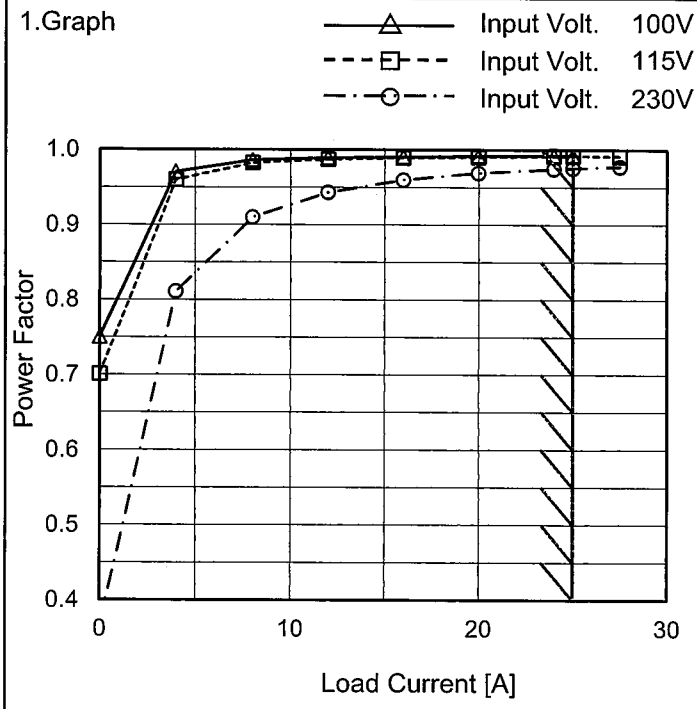
Model	PLA300F-12
Item	Power Factor (by Load Current)
Object	————————

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	0.750	0.701	0.365
4.0	0.971	0.960	0.811
8.0	0.986	0.983	0.910
12.0	0.990	0.987	0.943
16.0	0.991	0.989	0.960
20.0	0.992	0.990	0.969
24.0	0.993	0.992	0.975
25.0	0.993	0.992	0.976
27.5	-	0.991	0.978
--	-	-	-
--	-	-	-

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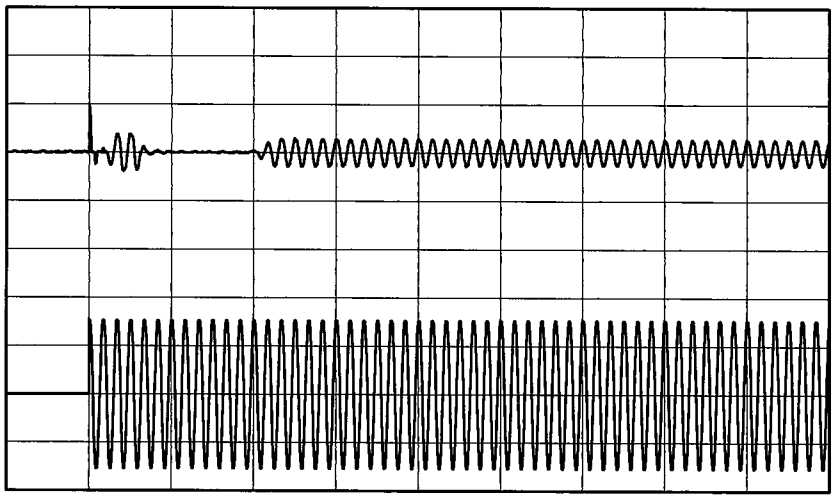
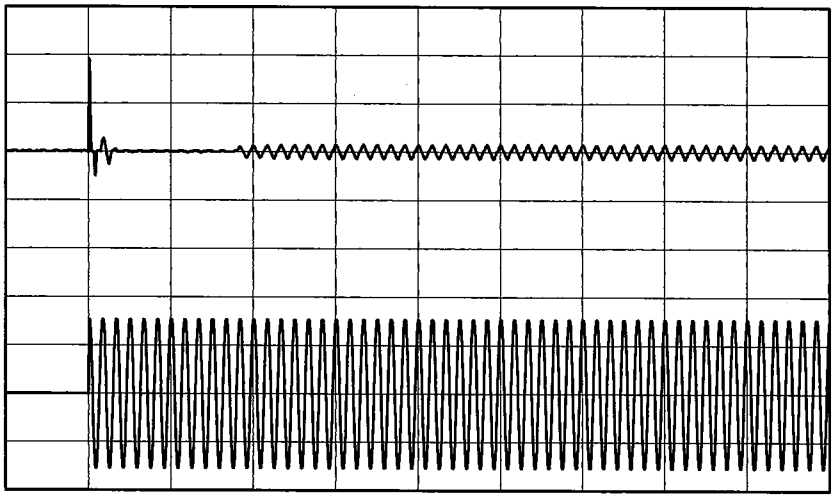
Model	PLA300F-12
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



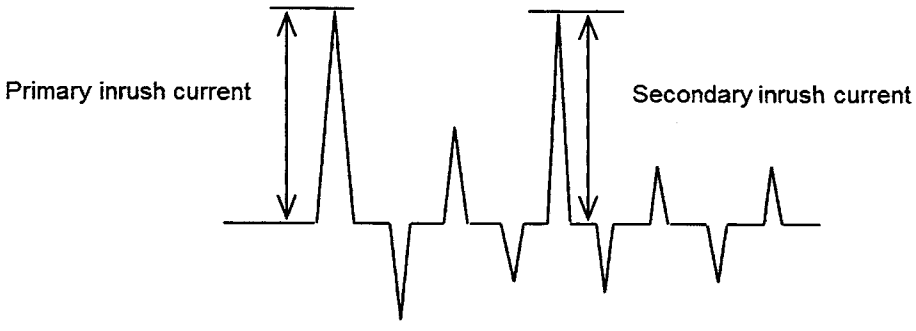
Input Voltage 115 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
19.2 A
Secondary inrush current :
7.6 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
38.3 A
Secondary inrush current :
3.1 A



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Model	PLA300F-12	
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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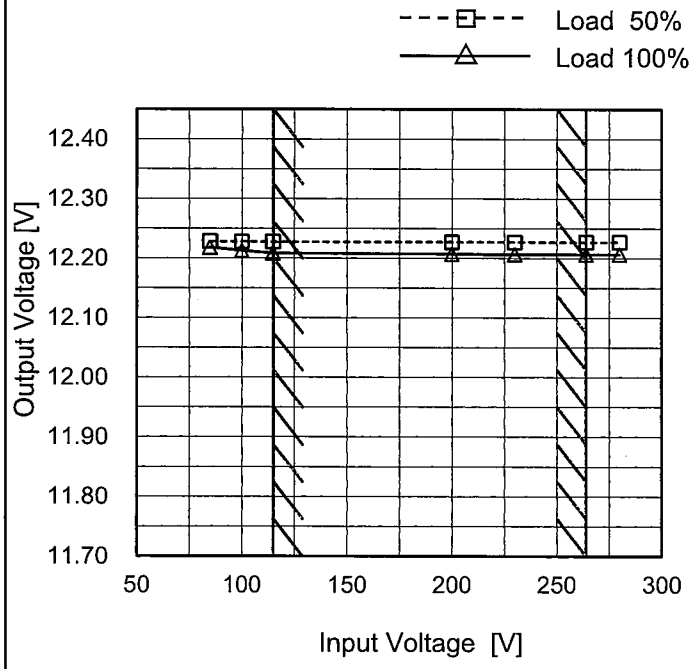
Model	PLA300F-12
Item	Line Regulation
Object	+12V25A

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	12.228	12.218 ※1
100	12.228	12.213 ※2
115	12.228	12.208
200	12.227	12.207
230	12.227	12.207
264	12.227	12.206
280	12.227	12.206
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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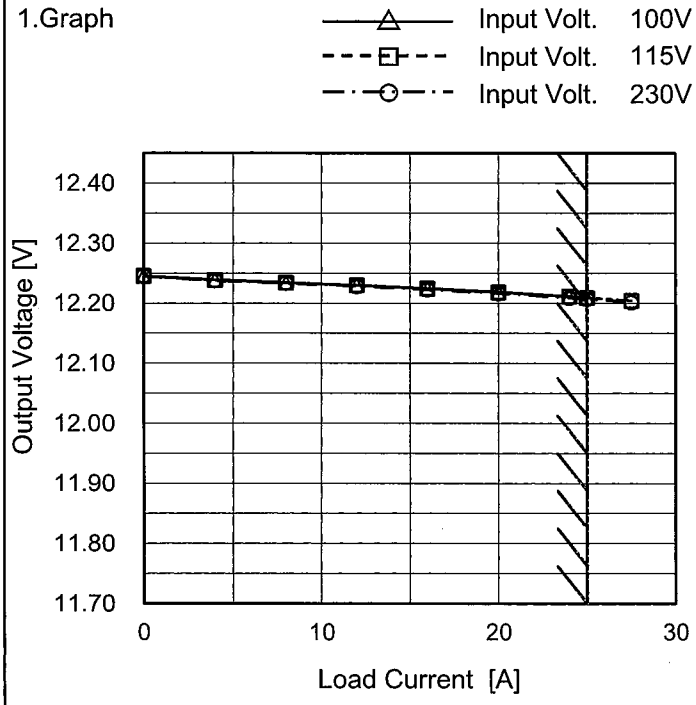
Model	PLA300F-12
Item	Load Regulation
Object	+12V25A

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]
0.0	12.246	12.246	12.245
4.0	12.239	12.238	12.238
8.0	12.234	12.234	12.234
12.0	12.230	12.230	12.229
16.0	12.225	12.225	12.223
20.0	12.219	12.218	12.217
24.0	12.211	12.211	12.209
25.0	12.210	12.209	12.207
27.5	-	12.204	12.202
--	-	-	-
--	-	-	-

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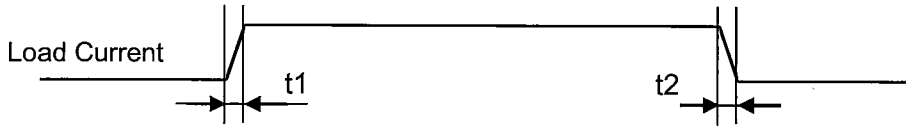
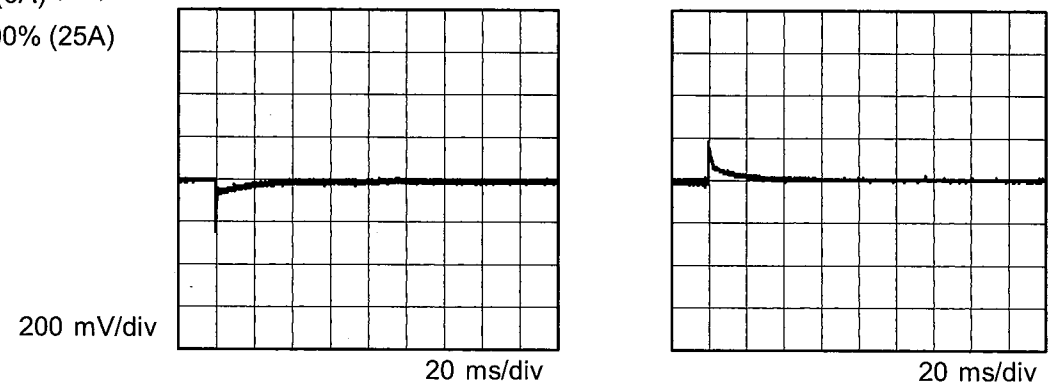
Model	PLA300F-12		
Item	Dynamic Load Response	Temperature	25˚C
Object	+12V25A	Testing Circuitry	Figure A

Input Volt. 115 V
Cycle 1000 ms

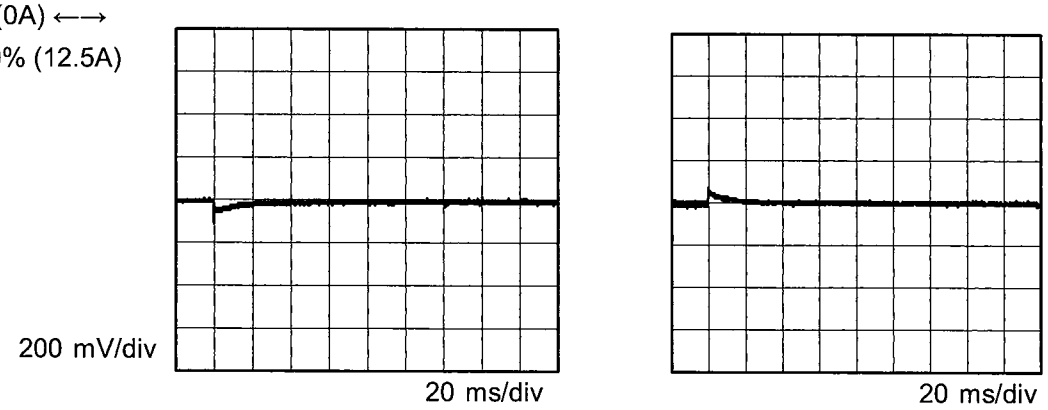
Response. t1=t2=50us. Typ



Min. Load (0A) ⟷
Load 100% (25A)



Min. Load (0A) ⟷
Load 50% (12.5A)



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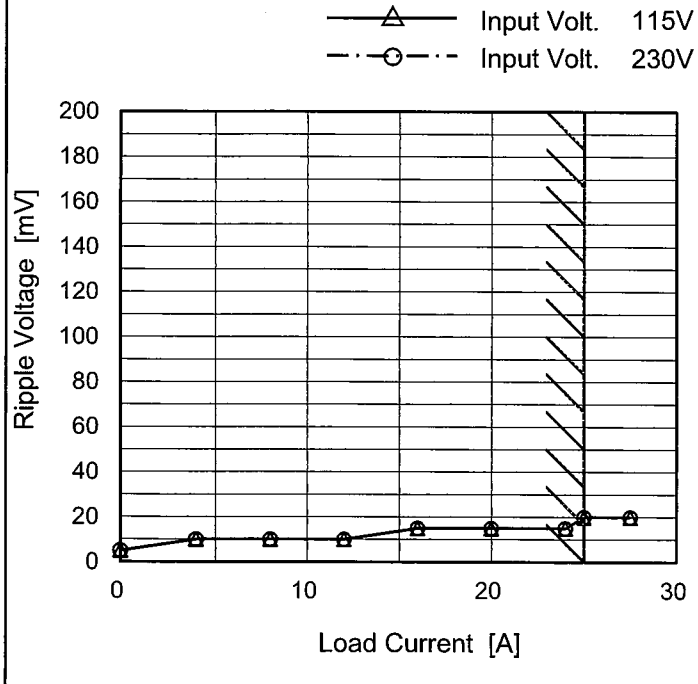
Model	PLA300F-12
Item	Ripple Voltage (by Load Current)
Object	+12V25A

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.

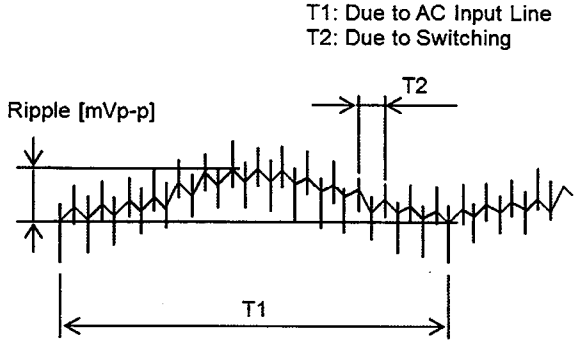


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0.0	5	5
4.0	10	10
8.0	10	10
12.0	10	10
16.0	15	15
20.0	15	15
24.0	15	15
25.0	20	20
27.5	20	20
--	-	-
--	-	-

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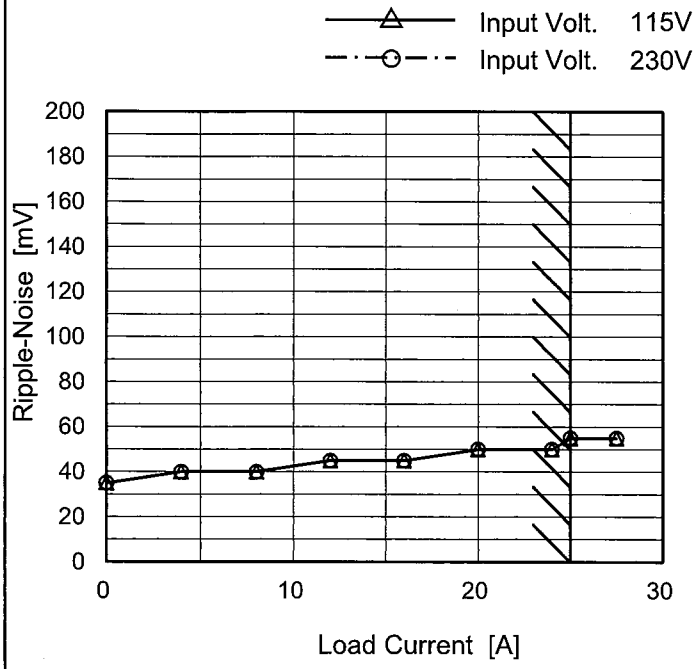
Model	PLA300F-12
Item	Ripple-Noise
Object	+12V25A

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.

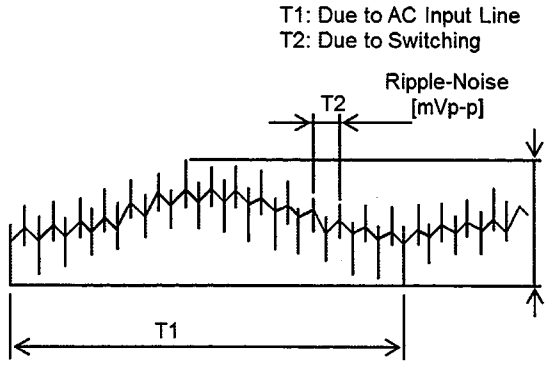


Fig. Complex Ripple Wave Form

2.Values

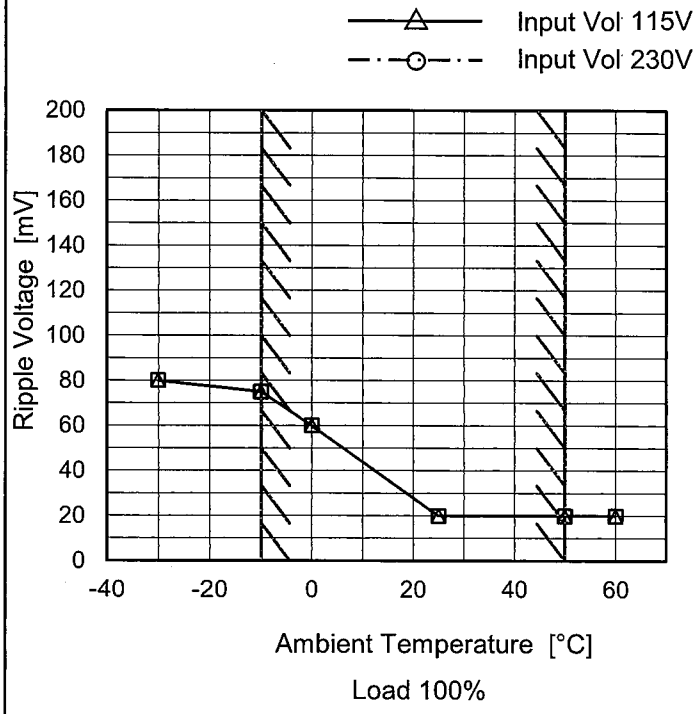
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0.0	35	35
4.0	40	40
8.0	40	40
12.0	45	45
16.0	45	45
20.0	50	50
24.0	50	50
25.0	55	55
27.5	55	55
--	-	-
--	-	-

COSEL

Model	PLA300F-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V25A

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

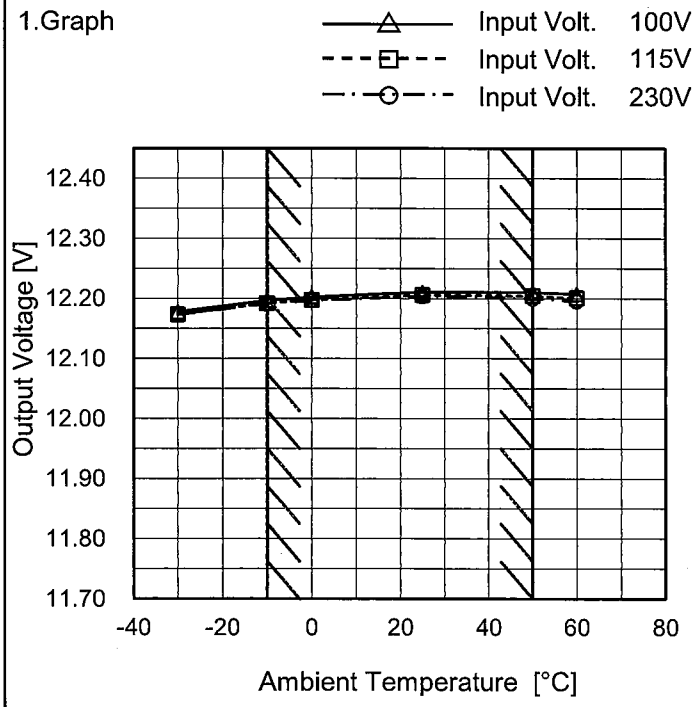
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
-30	80	80
-10	75	75
0	60	60
25	20	20
50	20	20
60	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-12
Item	Ambient Temperature Drift
Object	+12V25A

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	12.178	12.173	12.173
-10	12.197	12.192	12.191
0	12.203	12.198	12.197
25	12.211	12.206	12.204
50	12.210	12.205	12.201
60	12.208	12.201	12.196
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

COSEL

Model	PLA300F-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V25A	

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 - 25A

* 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	100	0	12.246	±20	±0.2
Minimum Voltage	-10	264	25	12.206		

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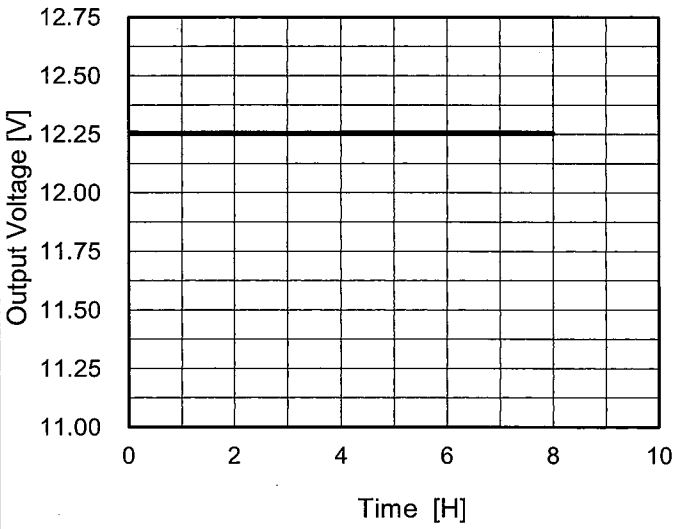
Model	PLA300F-12
Item	Time Lapse Drift
Object	+12V25A

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	12.258
0.5	12.253
1.0	12.253
2.0	12.253
3.0	12.254
4.0	12.254
5.0	12.254
6.0	12.254
7.0	12.254
8.0	12.254

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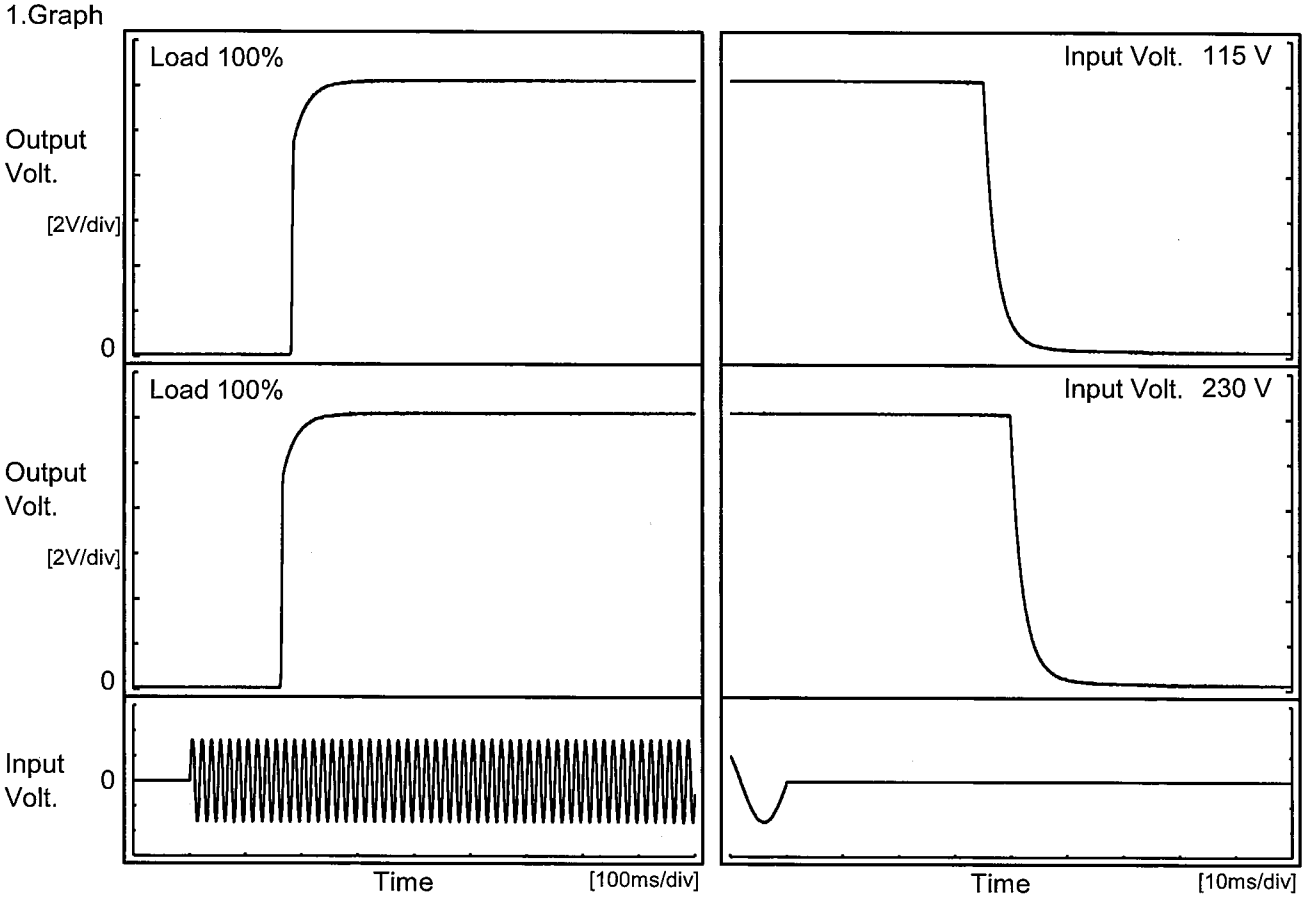
Model	PLA300F-12	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V25A	

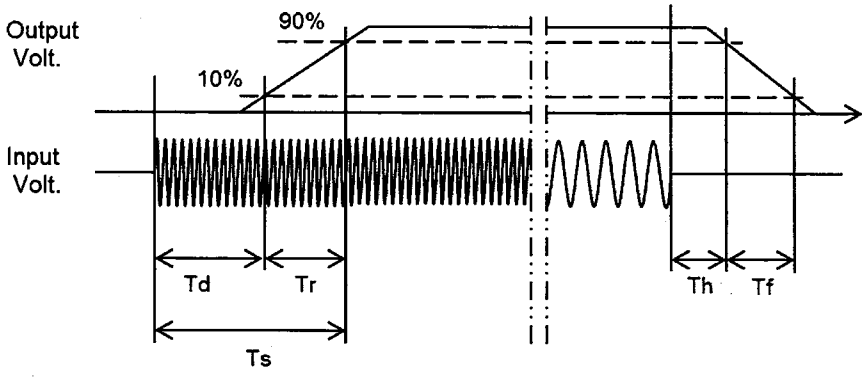
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	182.5	22.0	204.5	35.4	5.4
230 V	164.5	21.5	186.0	40.1	5.4



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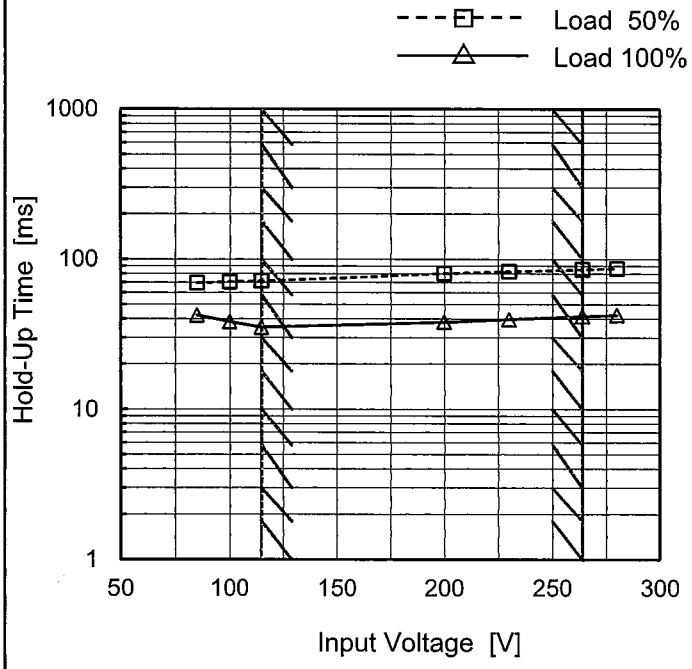
Model	PLA300F-12
Item	Hold-Up Time
Object	+12V25A

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	69	42 ※1
100	71	38 ※2
115	72	35
200	80	38
230	83	40
264	85	42
280	87	43
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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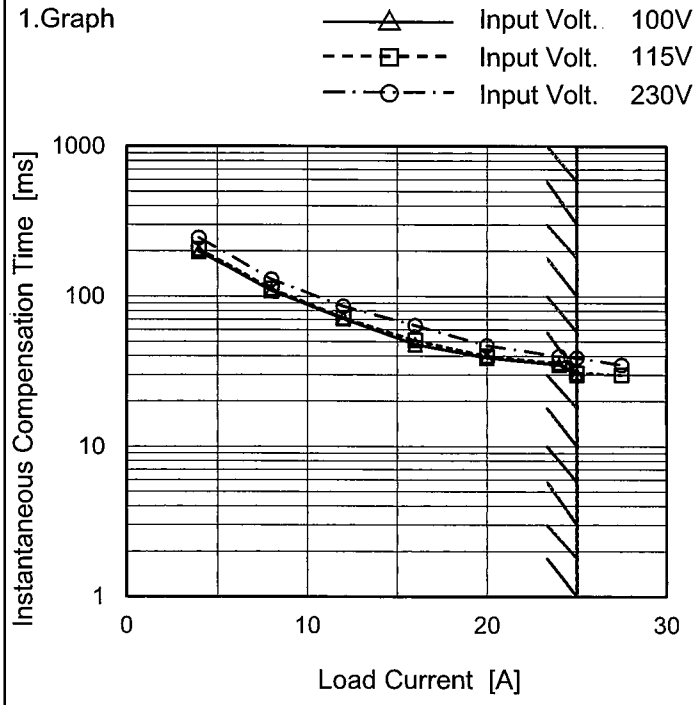
Model	PLA300F-12
Item	Instantaneous Interruption Compensation
Object	+12V25A

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]
0.0	-	-	-
4.0	198	206	246
8.0	109	112	130
12.0	71	72	86
16.0	48	51	64
20.0	39	40	47
24.0	35	36	40
25.0	30	31	39
27.5	-	30	35
--	-	-	-
--	-	-	-

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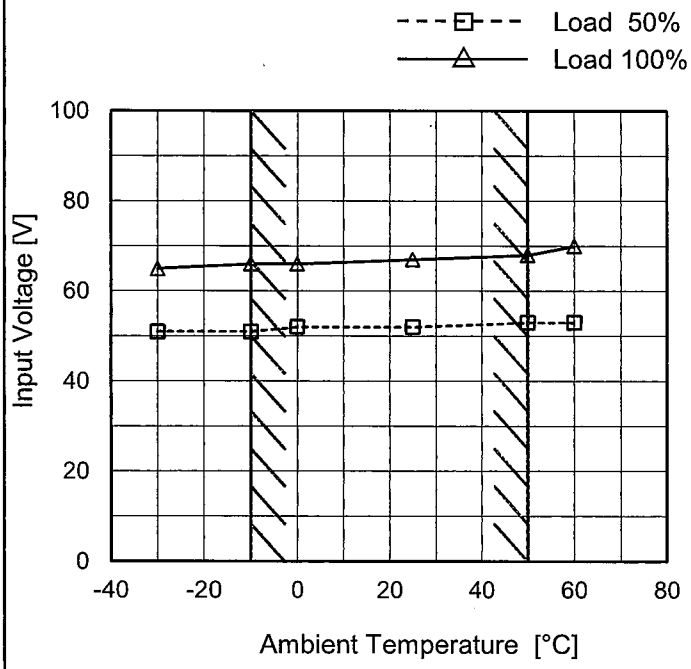
Model	PLA300F-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V25A

Testing Circuitry Figure A

1.Graph



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

2.Values

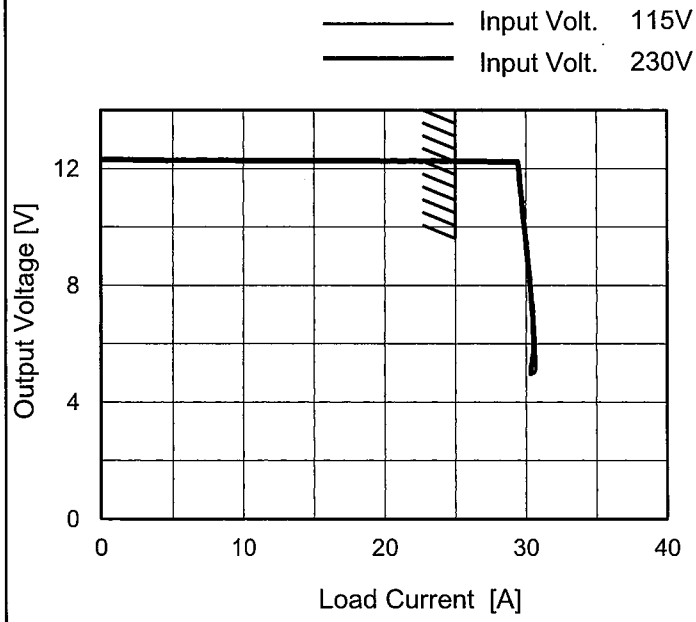
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	51	65
-10	51	66
0	52	66
25	52	67
50	53	68
60	53	70
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-12
Item	Overcurrent Protection
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

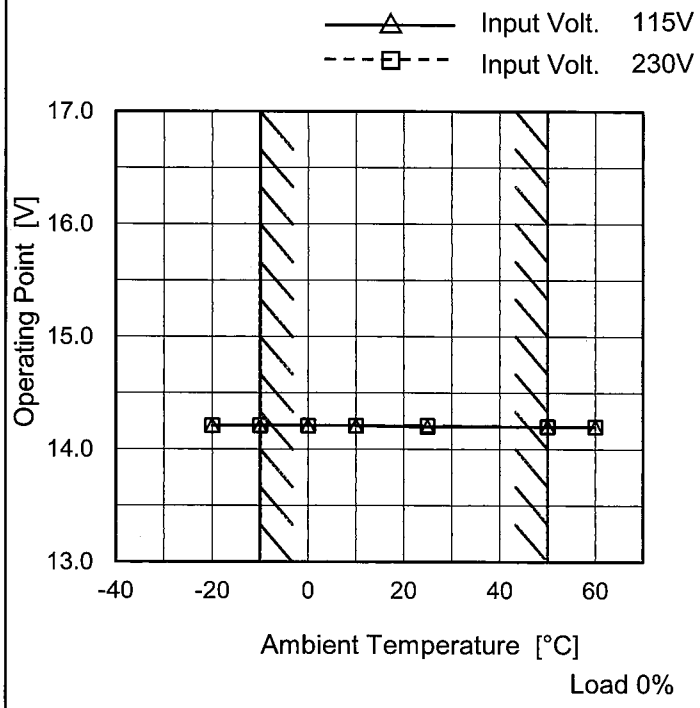
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
11.4	29.68	29.61
10.8	29.80	29.74
9.6	30.01	29.97
8.4	30.27	30.23
7.2	30.52	30.45
6.0	30.67	30.58
4.8	30.60	30.37
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-12
Item	Overvoltage Protection
Object	+12V25A

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	14.21	14.21
-10	14.21	14.21
0	14.21	14.21
10	14.21	14.21
25	14.20	14.21
50	14.20	14.20
60	14.20	14.20
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

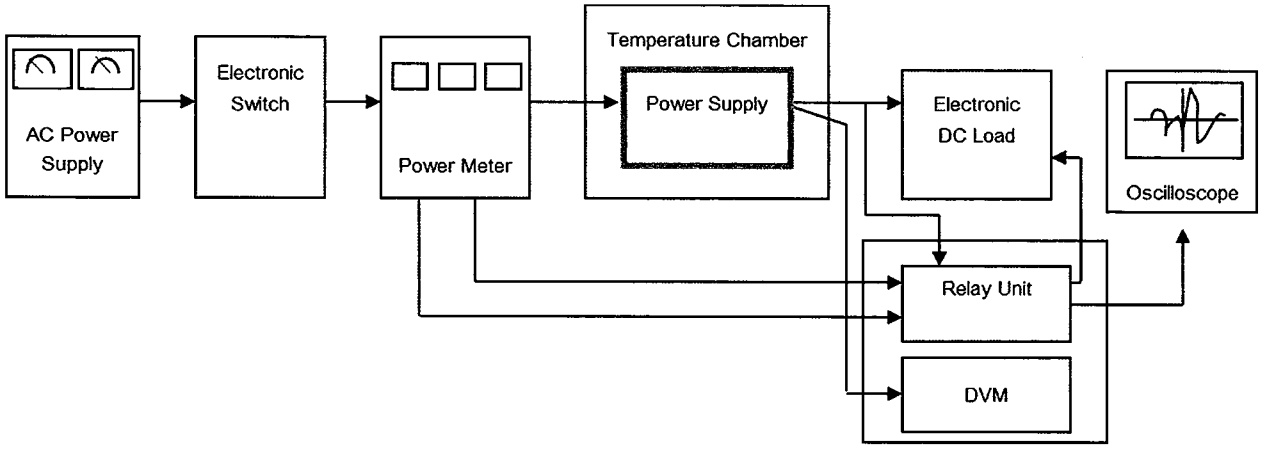


Figure A

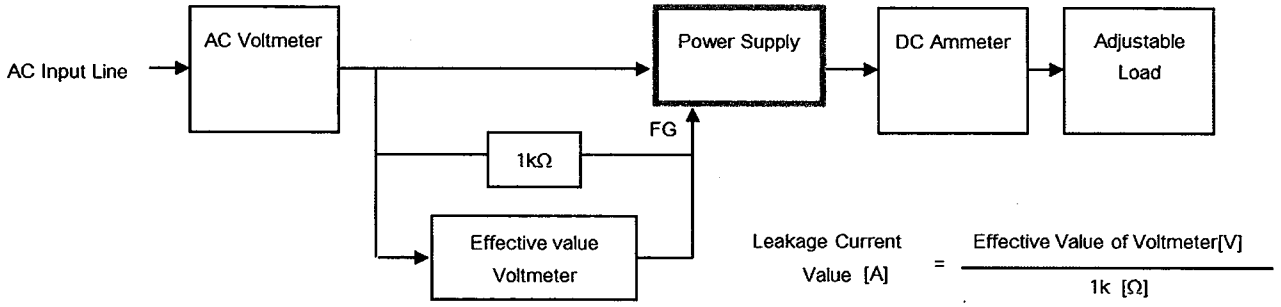


Figure B (DEN-AN)

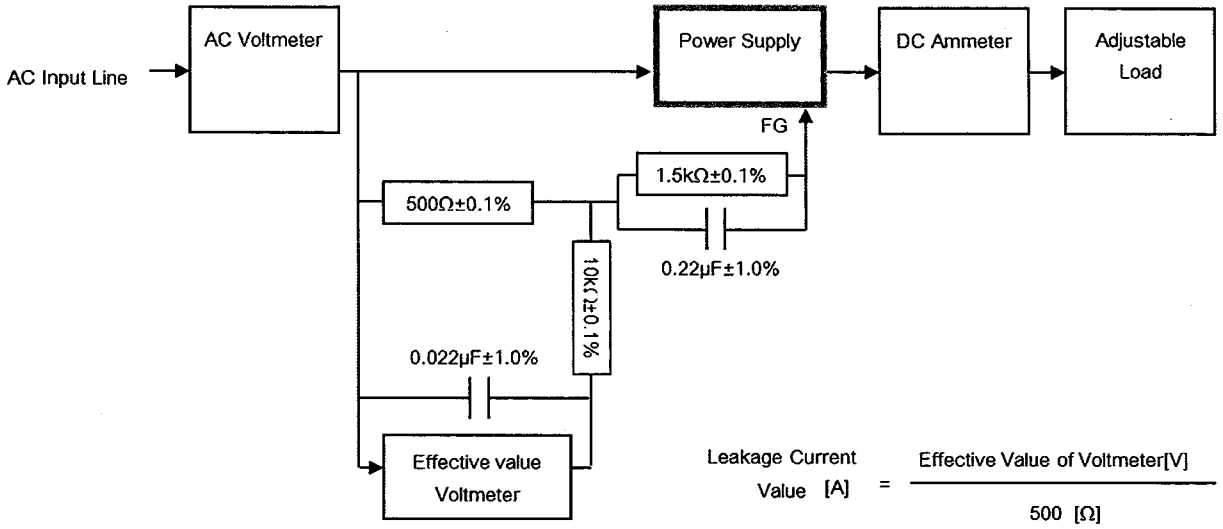
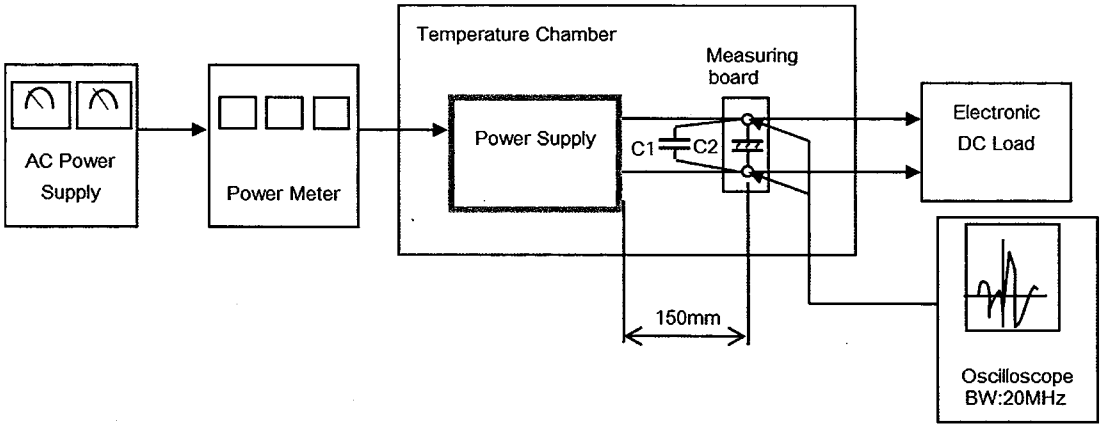


Figure B (IEC60950-1)



C1= 0.1 μF
(Ceramic capacitor)

C2= 22 μF
(Electrolytic capacitor)

Figure C