COSEL

参考資料

TEST DATA OF PLA300F-48

Regulated DC Power Supply
August 28, 2017

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COSEL CO.,LTD.

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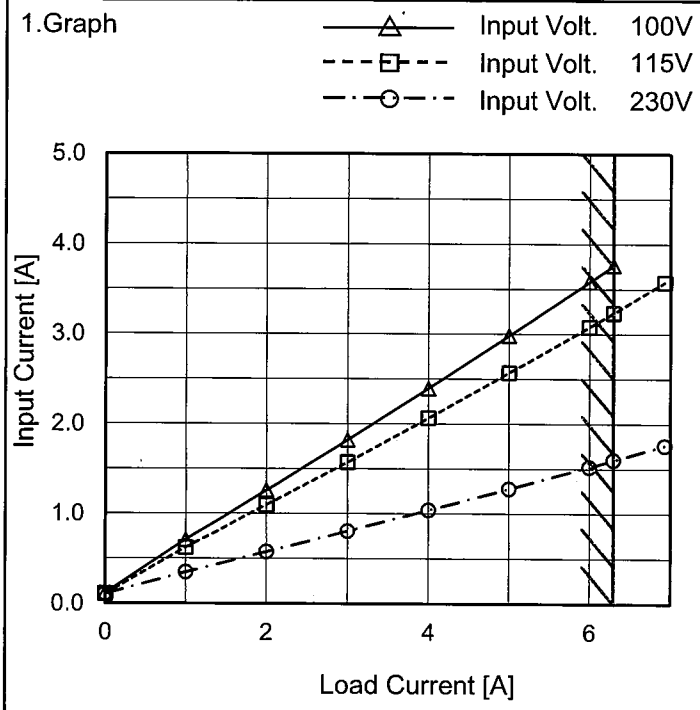

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	0.115	0.106	0.106
1.00	0.709	0.620	0.348
2.00	1.258	1.096	0.577
3.00	1.819	1.570	0.807
4.00	2.394	2.064	1.042
5.00	2.981	2.568	1.280
6.00	3.582	3.079	1.523
6.30	3.763	3.234	1.598
6.93	-	3.576	1.761
--	-	-	-
--	-	-	-

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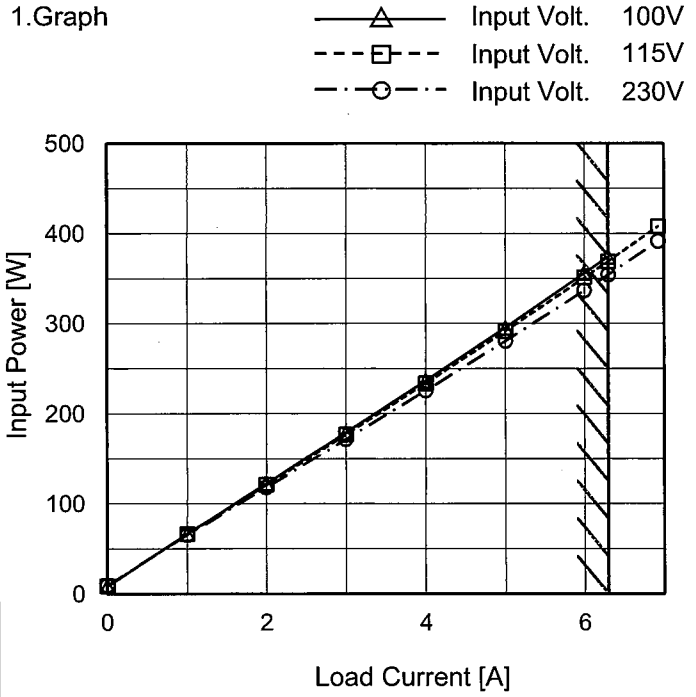
Model	PLA300F-48
Item	Input Power (by Load Current)
Object	———————

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	8.6	8.6	9.4
1.00	66.9	66.4	65.6
2.00	122.6	121.2	118.3
3.00	178.9	176.9	171.6
4.00	236.7	233.7	225.7
5.00	295.5	291.6	280.6
6.00	356.0	351.0	336.9
6.30	373.9	368.9	354.3
6.93	-	407.9	391.6
--	-	-	-
--	-	-	-

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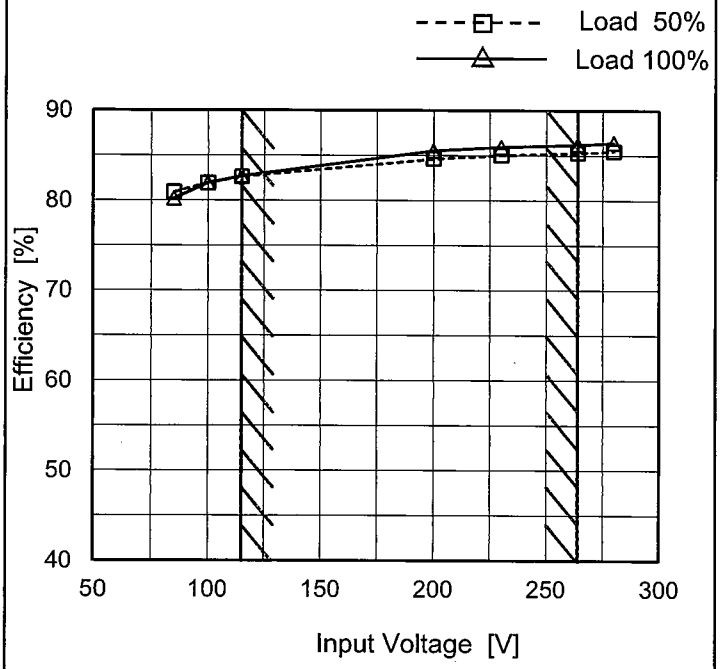
Model	PLA300F-48
Item	Efficiency (by Input Voltage)
Object	――――――――

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	80.9	80.2 ※1
100	81.9	81.9 ※2
115	82.6	82.7
200	84.6	85.5
230	85.0	86.0
264	85.3	86.2
280	85.5	86.4
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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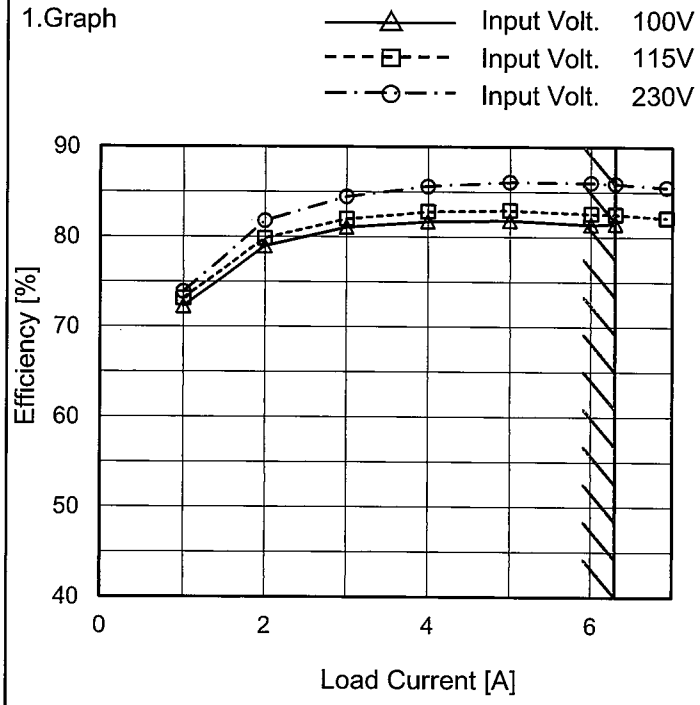
Model	PLA300F-48
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
1.00	72.3	73.2	73.9
2.00	78.9	79.9	81.8
3.00	81.1	82.0	84.5
4.00	81.7	82.8	85.6
5.00	81.8	83.0	86.1
6.00	81.4	82.6	86.0
6.30	81.5	82.5	85.9
6.93	-	82.1	85.5
--	-	-	-
--	-	-	-

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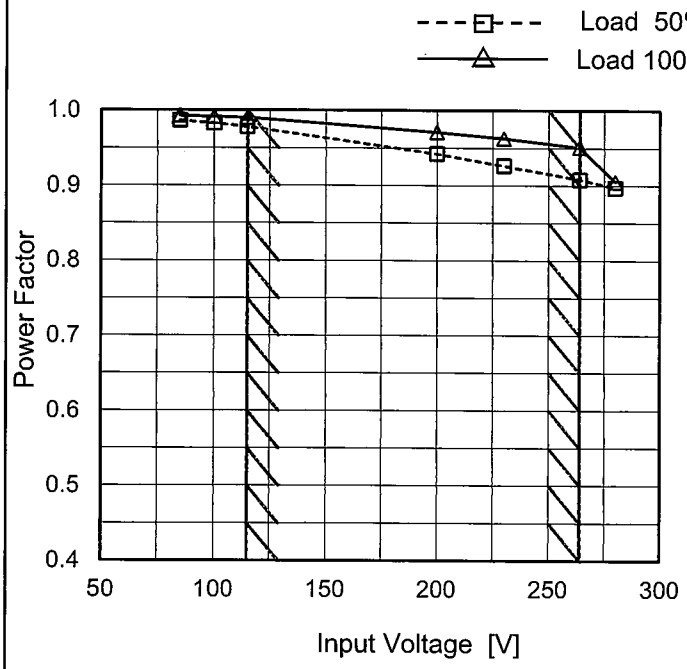
Model	PLA300F-48
Item	Power Factor (by Input Voltage)
Object	————————

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	0.987	0.993 ※1
100	0.983	0.992 ※2
115	0.978	0.990
200	0.942	0.971
230	0.927	0.963
264	0.908	0.951
280	0.897	0.905
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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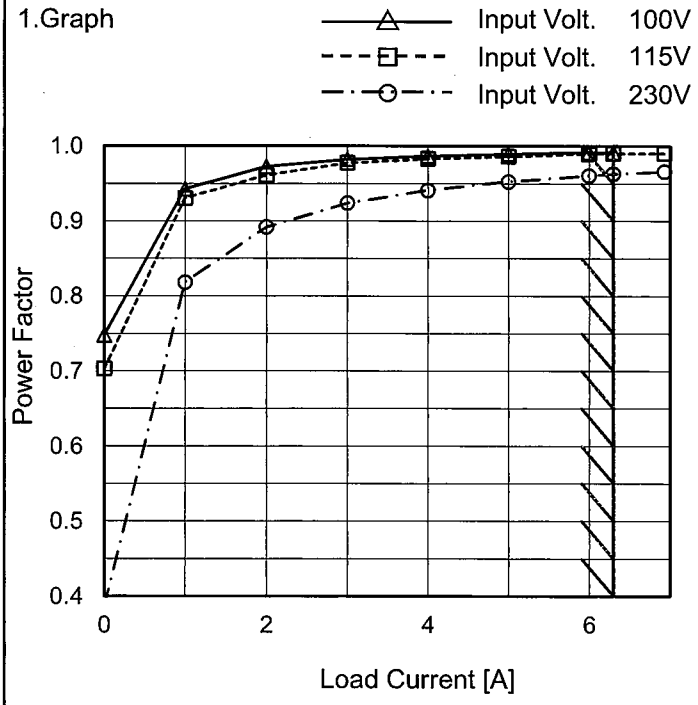
Model	PLA300F-48
Item	Power Factor (by Load Current)
Object	———————

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	0.748	0.703	0.386
1.00	0.943	0.931	0.818
2.00	0.973	0.961	0.892
3.00	0.982	0.978	0.924
4.00	0.987	0.983	0.941
5.00	0.990	0.986	0.953
6.00	0.992	0.990	0.961
6.30	0.992	0.990	0.963
6.93	-	0.991	0.966
--	-	-	-
--	-	-	-

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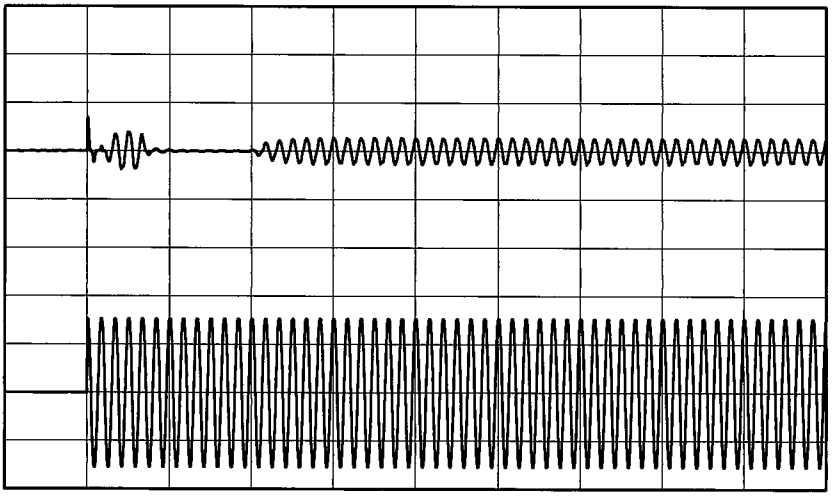
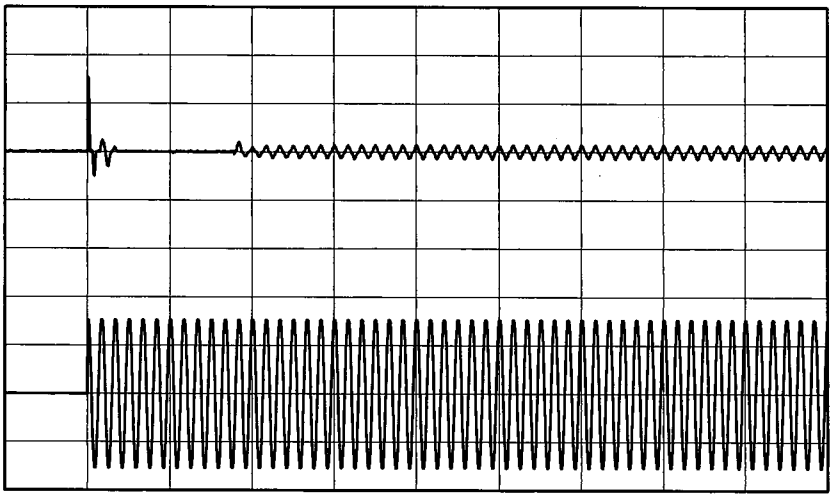
Model	PLA300F-48
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



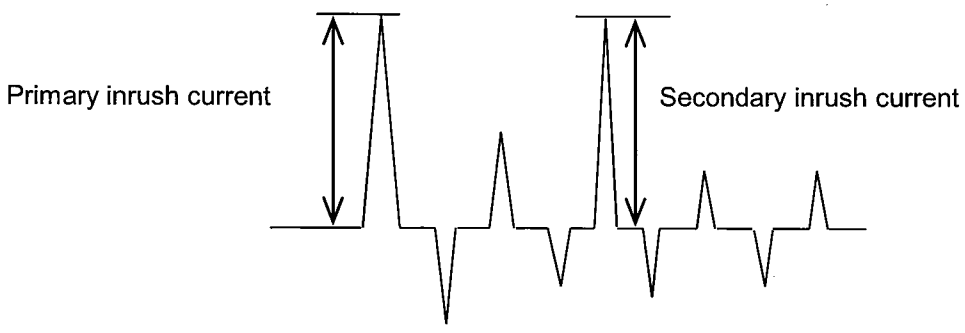
Input Voltage 115 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
14.2 A
Secondary inrush current :
7.7 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
31.2 A
Secondary inrush current :
4.0 A



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Model	PLA300F-48	
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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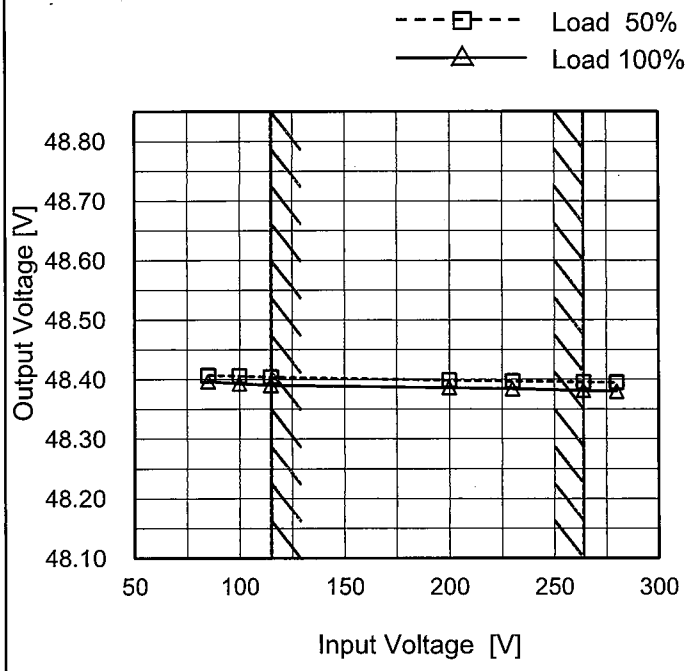
Model	PLA300F-48
Item	Line Regulation
Object	+48V6.3A

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	48.407	48.397 ※1
100	48.406	48.393 ※2
115	48.404	48.390
200	48.399	48.386
230	48.397	48.384
264	48.396	48.382
280	48.395	48.380
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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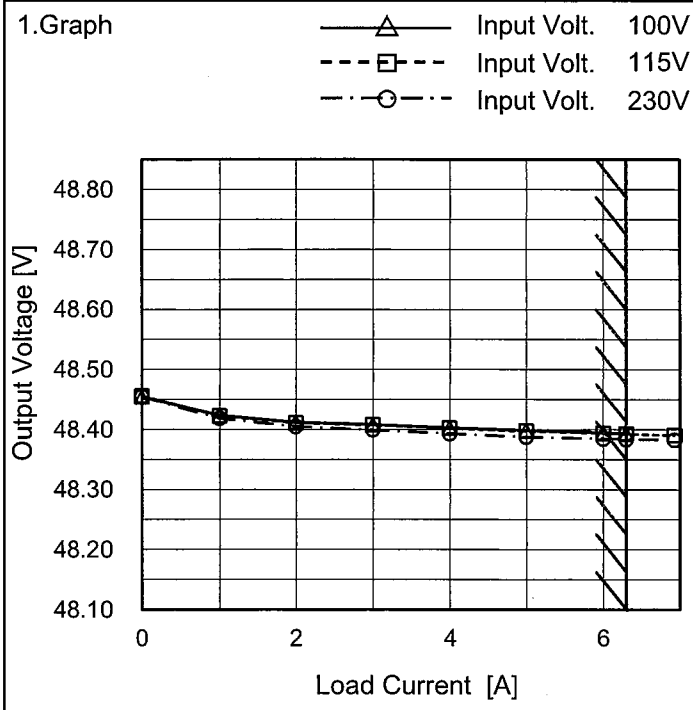
Model	PLA300F-48
Item	Load Regulation
Object	+48V6.3A

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	48.455	48.456	48.455
1.00	48.424	48.423	48.419
2.00	48.412	48.411	48.405
3.00	48.408	48.407	48.400
4.00	48.403	48.402	48.393
5.00	48.399	48.398	48.388
6.00	48.395	48.394	48.385
6.30	48.394	48.393	48.384
6.93	-	48.391	48.383
--	-	-	-
--	-	-	-

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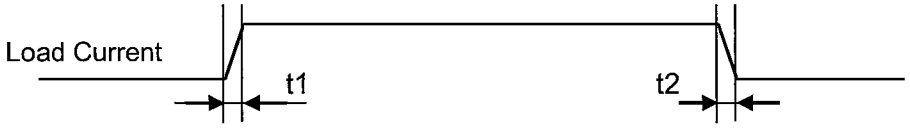
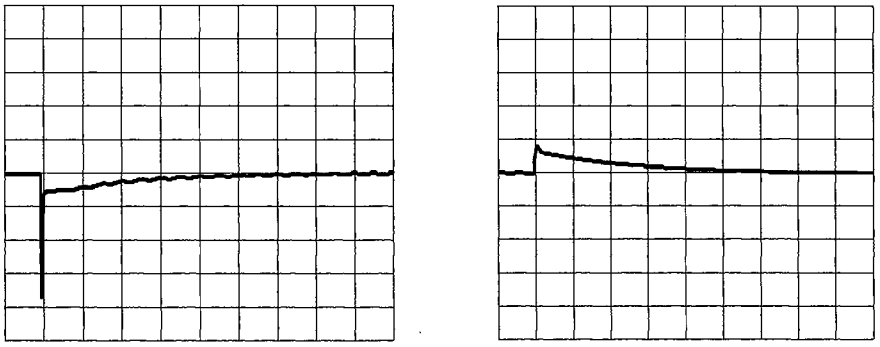
Model	PLA300F-48		
Item	Dynamic Load Response	Temperature	25˚C
		Testing Circuitry	Figure A
Object	+48V6.3A		

Input Volt. 115 V
Cycle 1000 ms

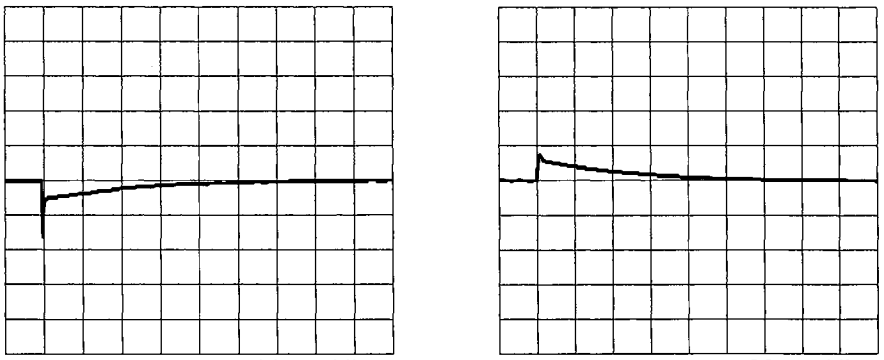
Response. t1=t2=50us. Typ



Min. Load (0A) ⟷
Load 100% (6.3A)



Min. Load (0A) ⟷
Load 50% (3.15A)



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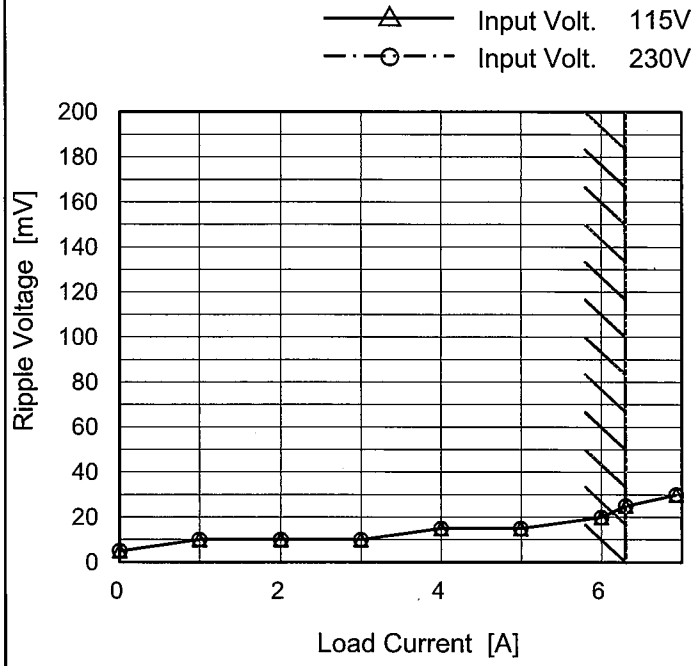
Model	PLA300F-48
Item	Ripple Voltage (by Load Current)
Object	+48V6.3A

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.

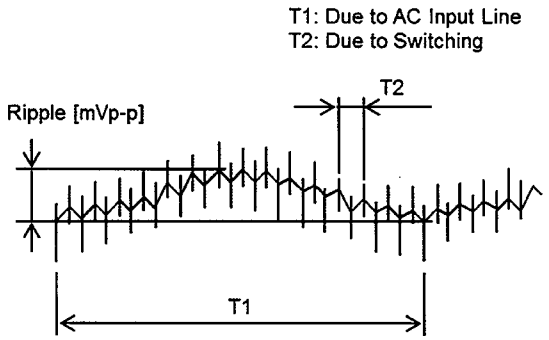


Fig. Complex Ripple Wave Form

2.Values

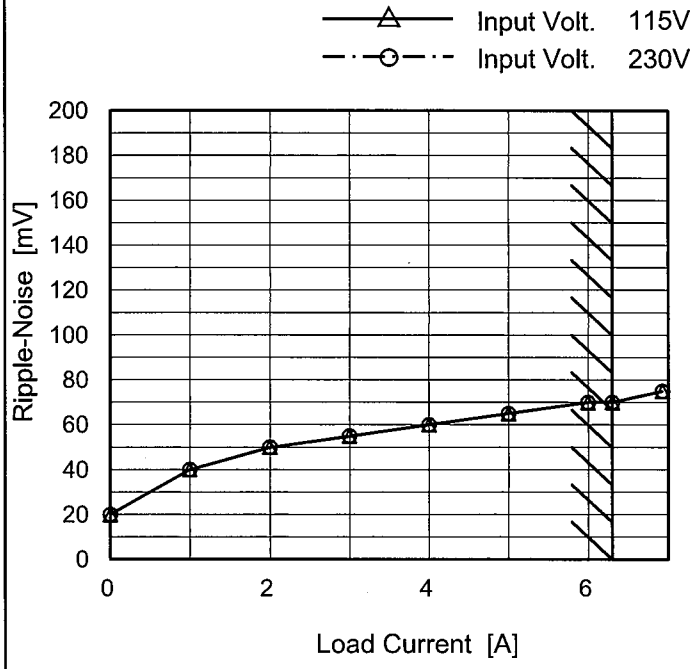
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0.00	5	5
1.00	10	10
2.00	10	10
3.00	10	10
4.00	15	15
5.00	15	15
6.00	20	20
6.30	25	25
6.93	30	30
--	-	-
--	-	-

COSEL

Model	PLA300F-48
Item	Ripple-Noise
Object	+48V6.3A

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.

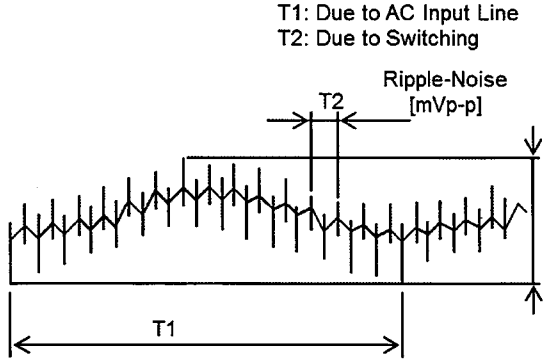


Fig. Complex Ripple Wave Form

2.Values

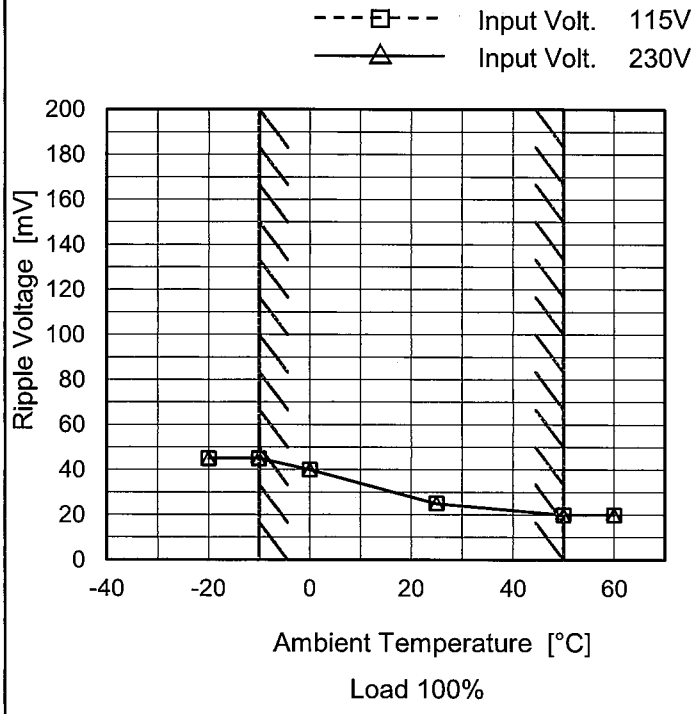
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
0.00	20	20
1.00	40	40
2.00	50	50
3.00	55	55
4.00	60	60
5.00	65	65
6.00	70	70
6.30	70	70
6.93	75	75
--	-	-
--	-	-

COSEL

Model	PLA300F-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V6.3A

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

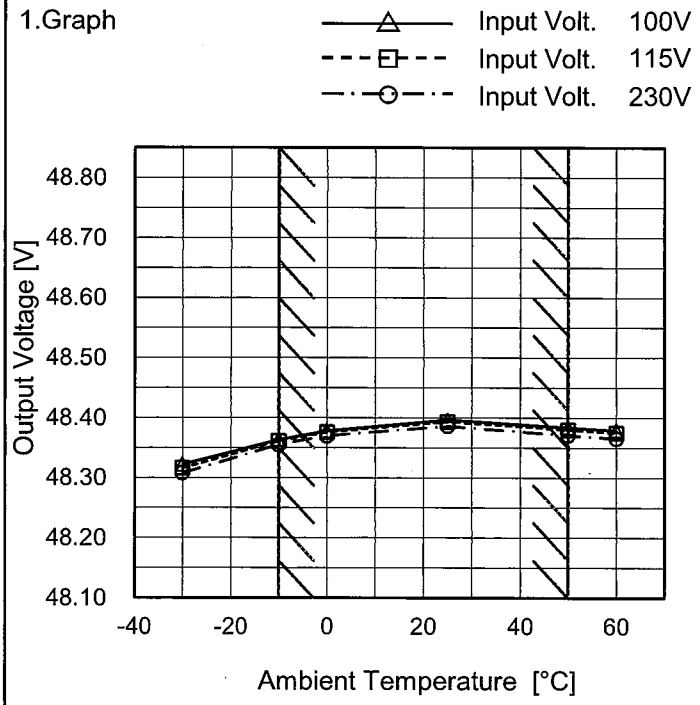
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 115 [V]	Input Volt. 230 [V]
-20	45	45
-10	45	45
0	40	40
25	25	25
50	20	20
60	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-48
Item	Ambient Temperature Drift
Object	+48V6.3A

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	48.322	48.316	48.308
-10	48.363	48.361	48.355
0	48.378	48.376	48.370
25	48.397	48.394	48.386
50	48.384	48.380	48.371
60	48.379	48.375	48.365
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

COSEL

Model	PLA300F-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V6.3A	

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 - 6.3A

* 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	115	0	48.456	±51	±0.1
Minimum Voltage	-10	230	6.3	48.355		

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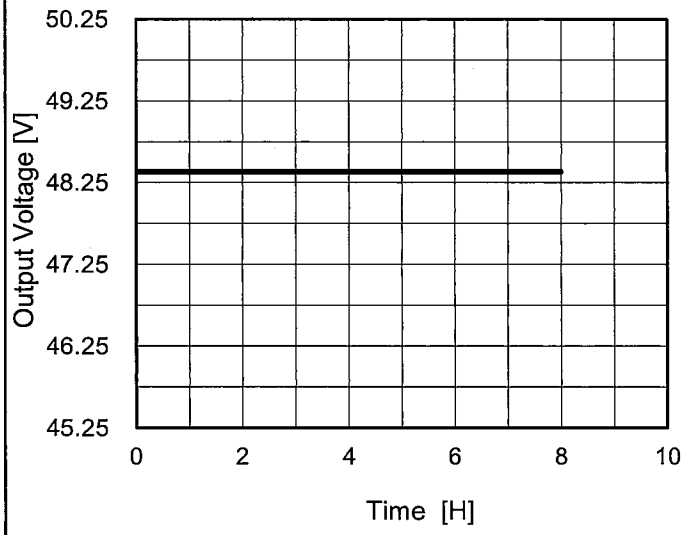
Model	PLA300F-48
Item	Time Lapse Drift
Object	+48V6.3A

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	48.391
0.5	48.382
1.0	48.382
2.0	48.383
3.0	48.383
4.0	48.383
5.0	48.383
6.0	48.383
7.0	48.383
8.0	48.383

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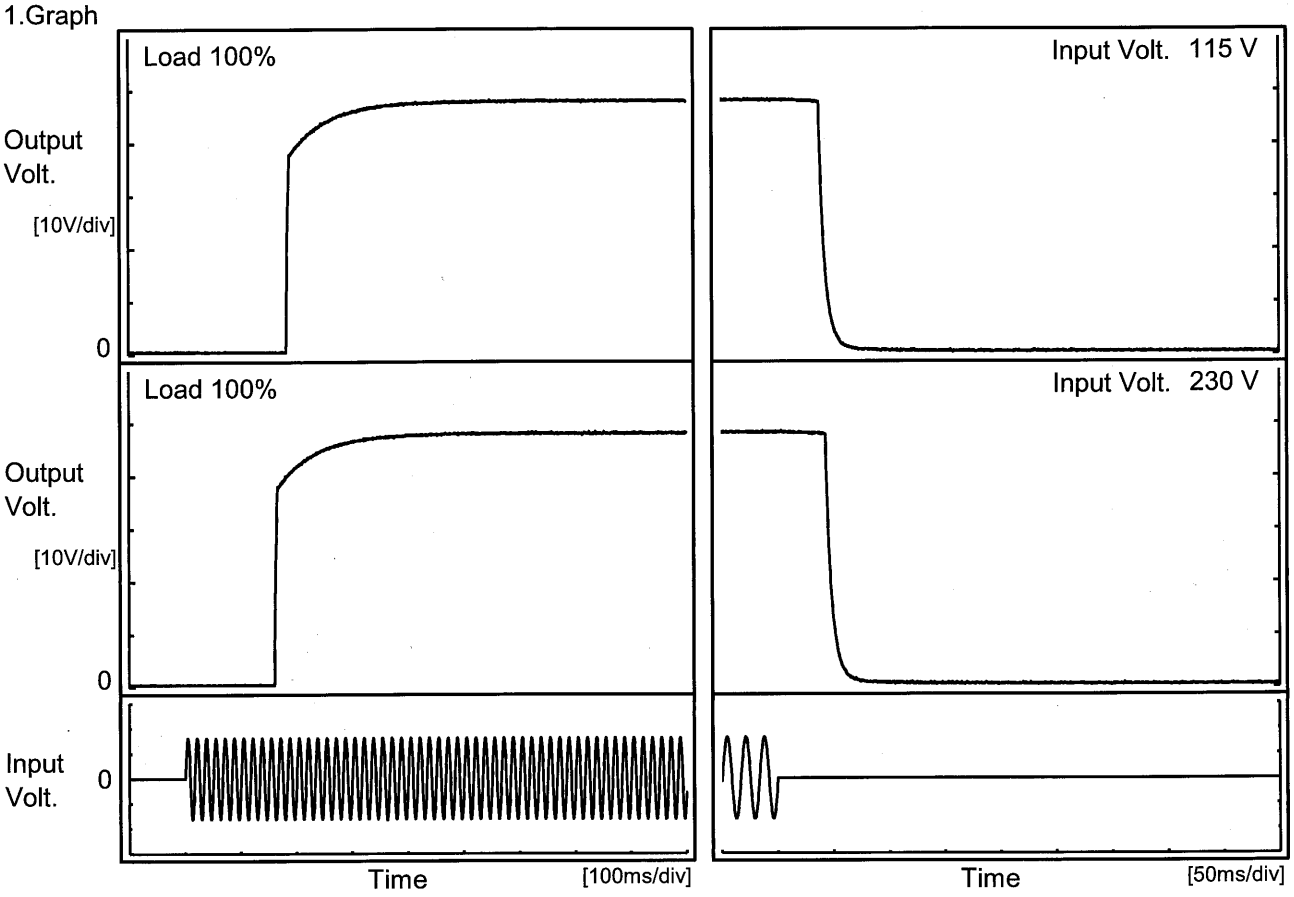
Model	PLA300F-48	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+48V6.3A	

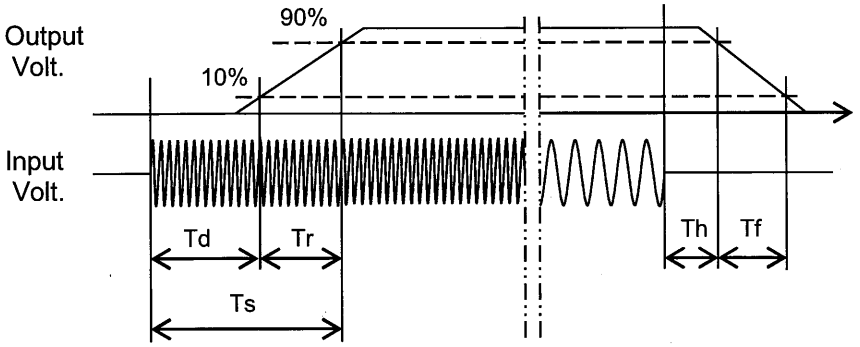
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	184.5	61.0	245.5	37.8	12.5
230 V	162.0	60.0	222.0	43.5	12.5



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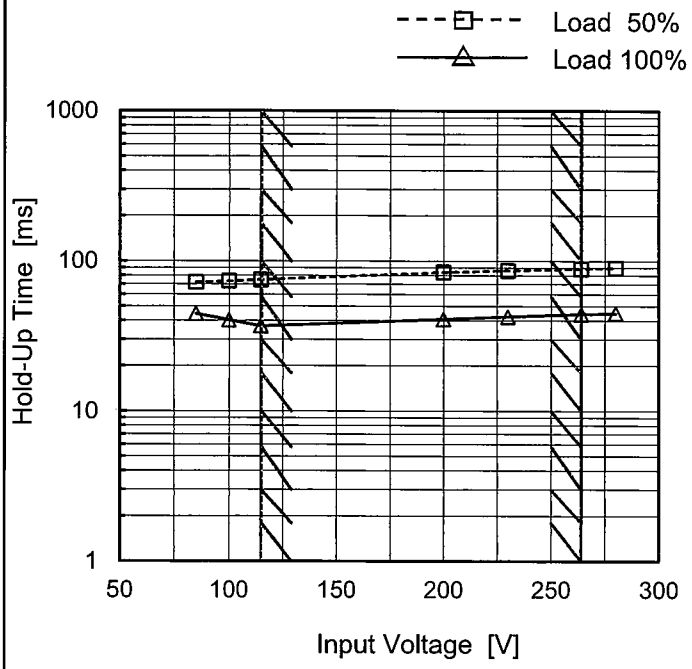
Model	PLA300F-48
Item	Hold-Up Time
Object	+48V6.3A

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	72	45 ※1
100	73	40 ※2
115	75	37
200	84	41
230	87	43
264	89	44
280	90	45
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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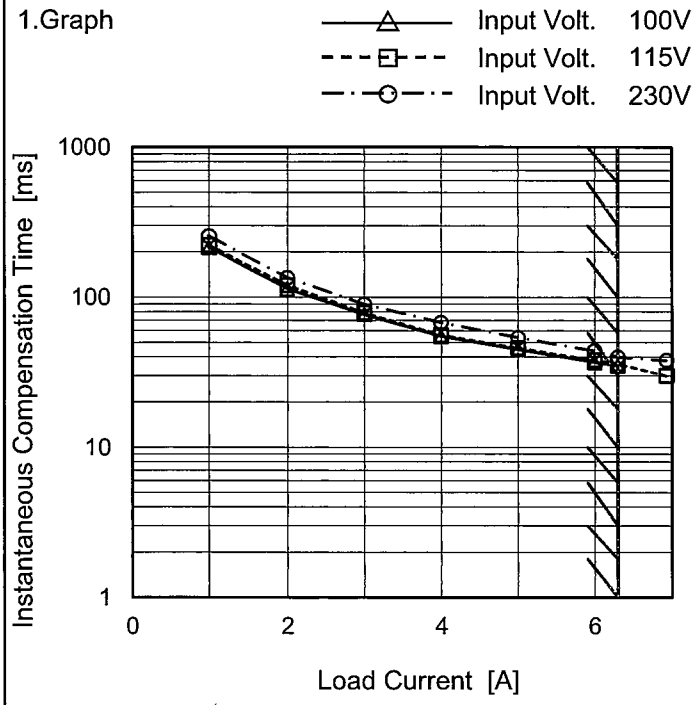
Model	PLA300F-48
Item	Instantaneous Interruption Compensation
Object	+48V6.3A

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	-	-	-
1.00	215	222	256
2.00	114	120	135
3.00	77	79	90
4.00	55	56	68
5.00	45	46	54
6.00	37	38	44
6.30	35	36	40
6.93	-	30	38
--	-	-	-
--	-	-	-

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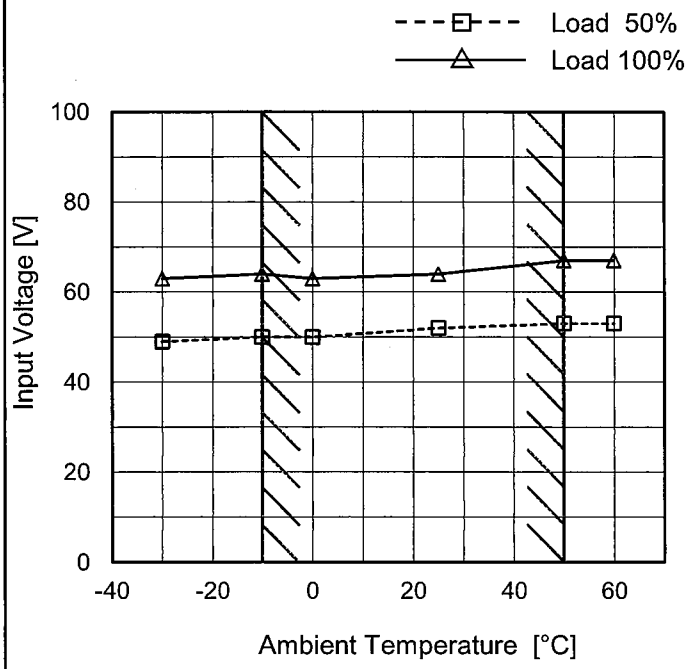
Model	PLA300F-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V6.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

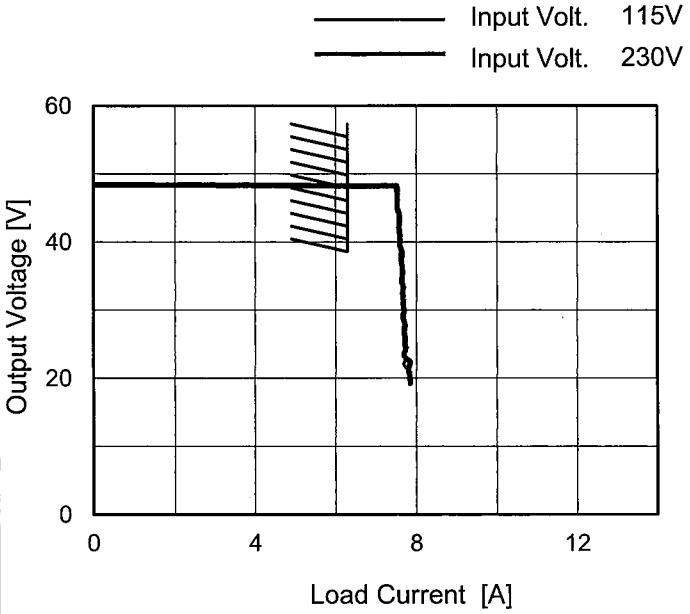
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	49	63
-10	50	64
0	50	63
25	52	64
50	53	67
60	53	67
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-48
Item	Overcurrent Protection
Object	+48V6.3A

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]
45.6	7.55	7.53
43.2	7.48	7.52
38.4	7.61	7.64
33.6	7.66	7.67
28.8	7.68	7.66
24.0	7.72	7.73
19.2	7.86	7.84
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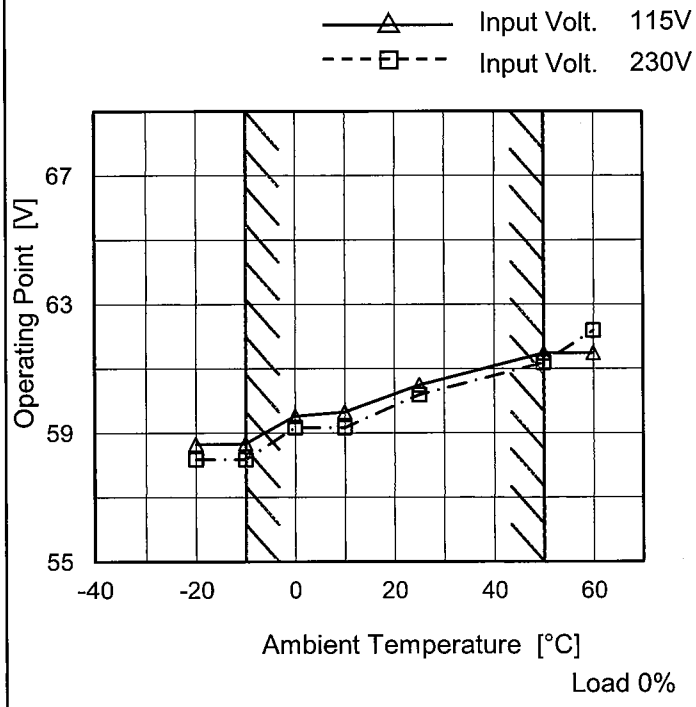
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA300F-48
Item	Overvoltage Protection
Object	+48V6.3A

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	58.65	58.18
-10	58.67	58.18
0	59.52	59.17
10	59.65	59.17
25	60.49	60.19
50	61.48	61.19
60	61.49	62.19
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--	-	-
--	-	-
--	-	-

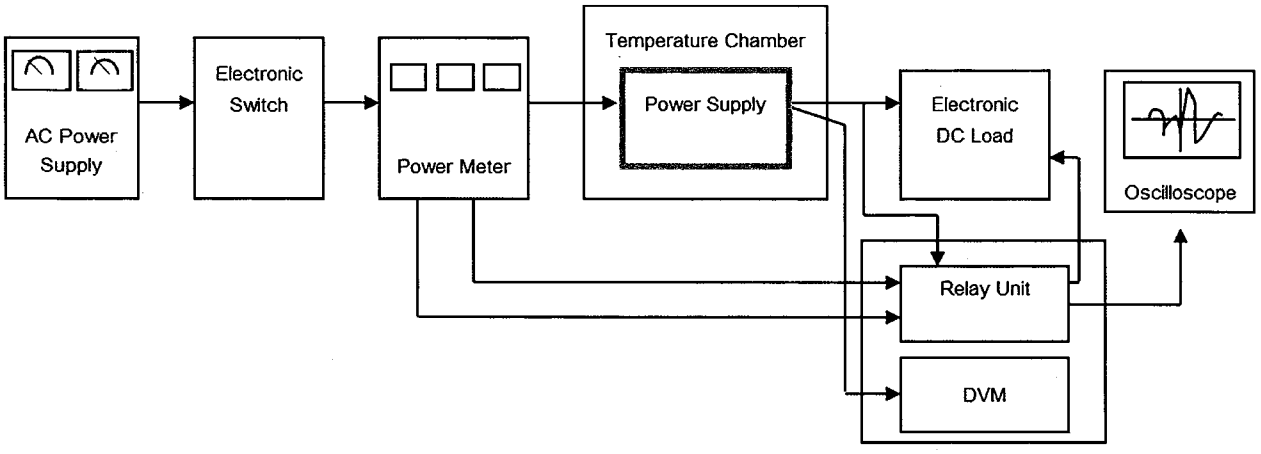


Figure A

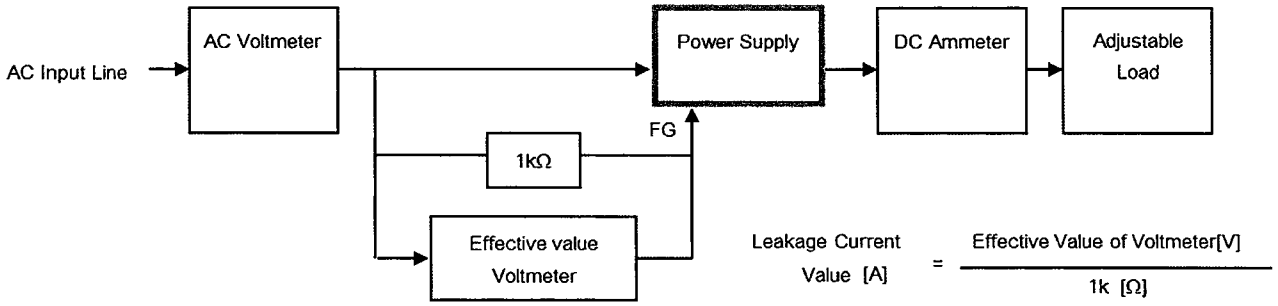


Figure B (DEN-AN)

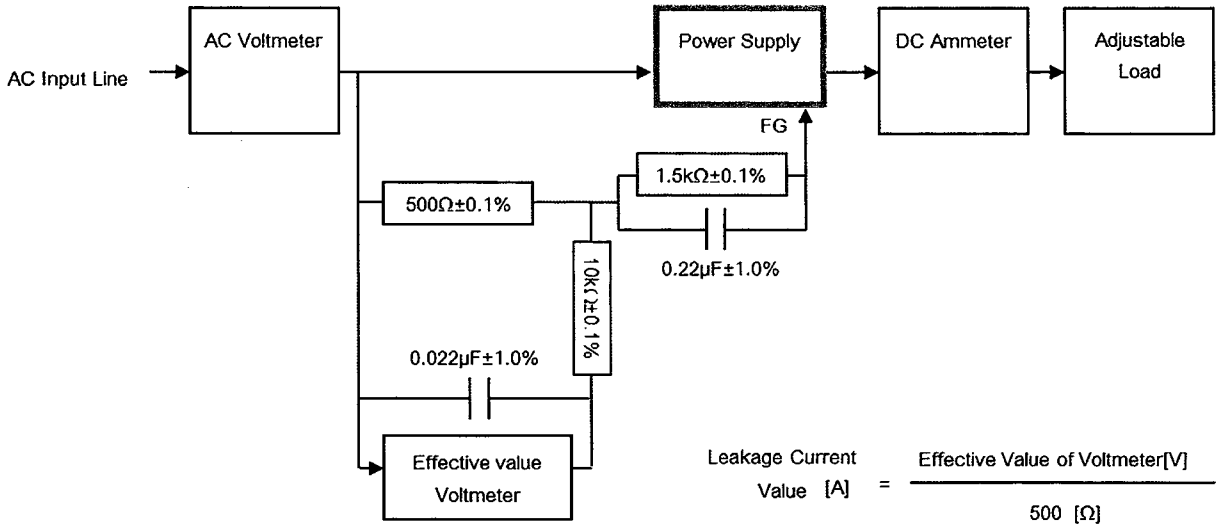
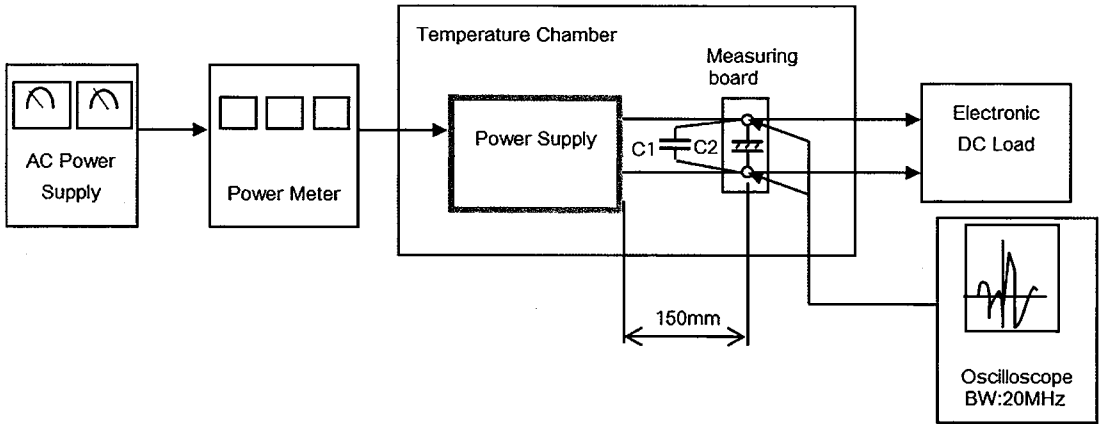


Figure B (IEC60950-1)



C1= 0.1 μF
(Ceramic capacitor)

C2= 22 μF
(Electrolytic capacitor)

Figure C