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参考資料

TEST DATA OF PLA600F-36

Regulated DC Power Supply
August 19, 2011

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CONTENTS

1.Input Current (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 1
2.Input Power (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 2
3.Efficiency (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 3
4.Efficiency (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 4
5.Power Factor (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・ 5
6.Power Factor (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・ 6
7.Inrush Current ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 7
8.Leakage Current ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 8
9.Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 9
10.Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 10
11.Dynamic Load Response ・・・・・・・・・・・・・・・・・・・・・・・・・・ 11
12.Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・・・・・・・・ 12
13.Ripple-Noise ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 13
14.Ripple Voltage (by Ambient Temperature) ・・・・・・・・・・・・・・・・・ 14
15.Ambient Temperature Drift ・・・・・・・・・・・・・・・・・・・・・・・・ 15
16.Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・・・・・・・・ 16
17.Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 17
18.Rise and Fall Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 18
19.Hold-Up Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 19
20.Instantaneous Interruption Compensation ・・・・・・・・・・・・・・・・・ 20
21.Minimum Input Voltage for Regulated Output Voltage ・・・・・・・・・・・ 21
22.Overcurrent Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・ 22
23.Overvoltage Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・ 23
24.Figure of Testing Circuitry ・・・・・・・・・・・・・・・・・・・・・・・・ 24
(Final Page 25)

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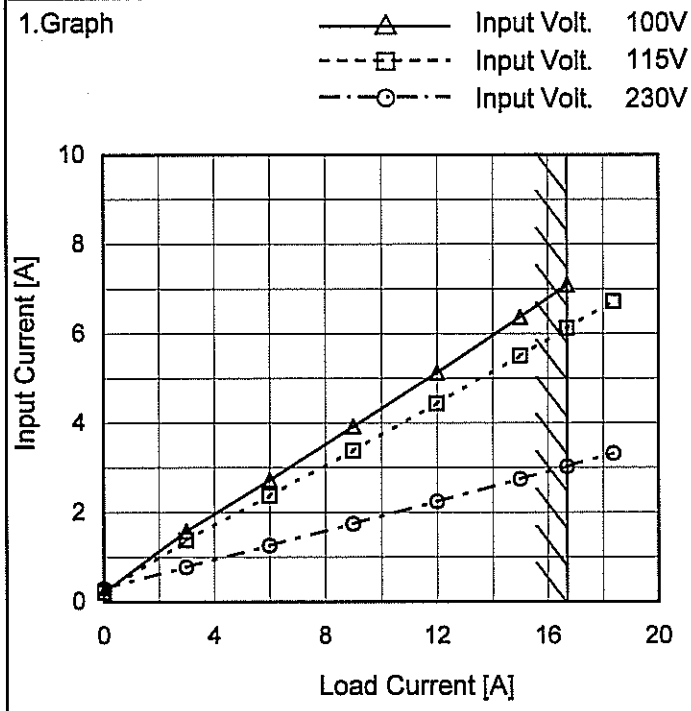
Model	PLA600F-36
Item	Input Current (by Load Current)
Object	———————

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]
0.00	0.216	0.211	0.294
3.00	1.578	1.376	0.775
6.00	2.720	2.370	1.255
9.00	3.920	3.382	1.744
12.00	5.130	4.440	2.238
15.00	6.370	5.500	2.746
16.70	7.090	6.120	3.028
18.37	-	6.720	3.316
---	-	-	-
---	-	-	-
---	-	-	-

BC-10615

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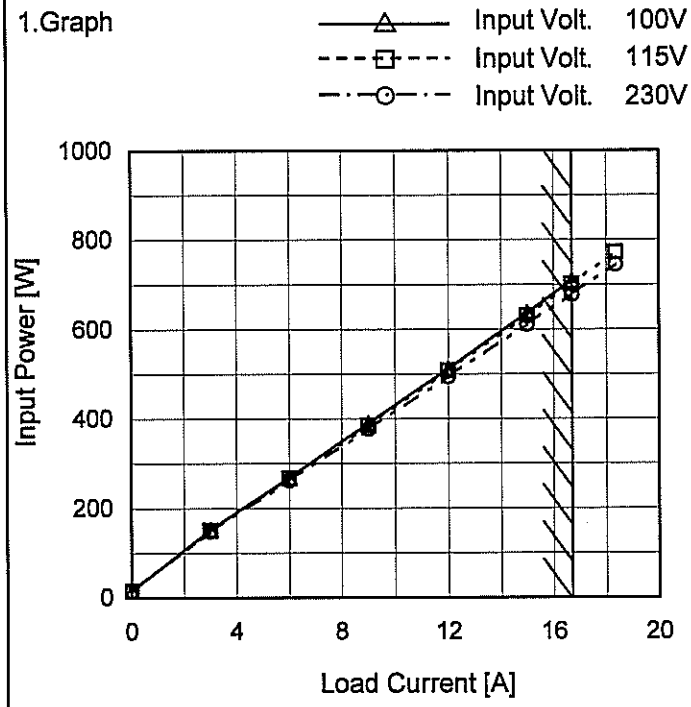
Model	PLA600F-36
Item	Input Power (by Load Current)
Object	————————

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	15.5	15.6	16.0
3.00	152.1	151.1	149.0
6.00	268.5	267.0	262.0
9.00	390.0	385.2	377.0
12.00	512.0	508.0	494.0
15.00	637.0	631.0	611.0
16.70	709.0	701.0	678.0
18.37	-	772.0	745.0
---	-	-	-
---	-	-	-
---	-	-	-

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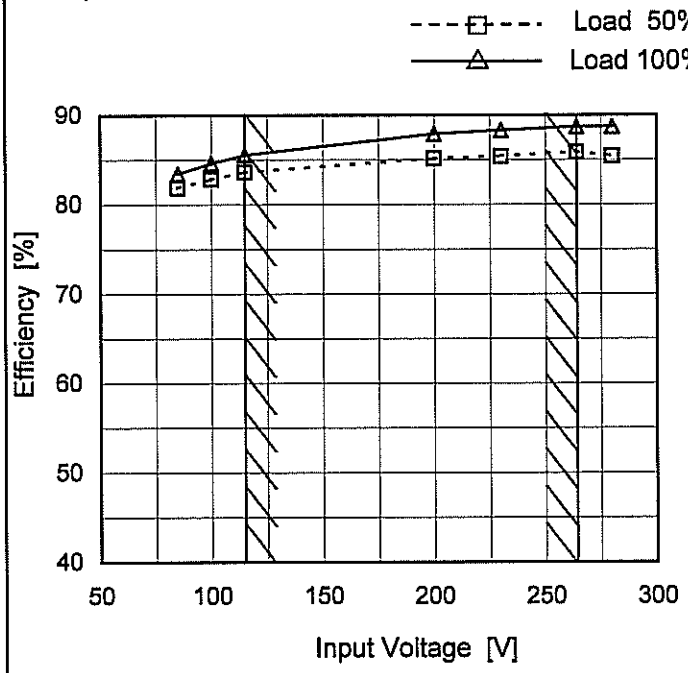
Model	PLA600F-36
Item	Efficiency (by Input Voltage)
Object	———————

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	81.9	83.5 ※1
100	82.9	84.6 ※2
115	83.6	85.5
200	85.1	87.9
230	85.4	88.3
264	85.9	88.7
280	85.4	88.7
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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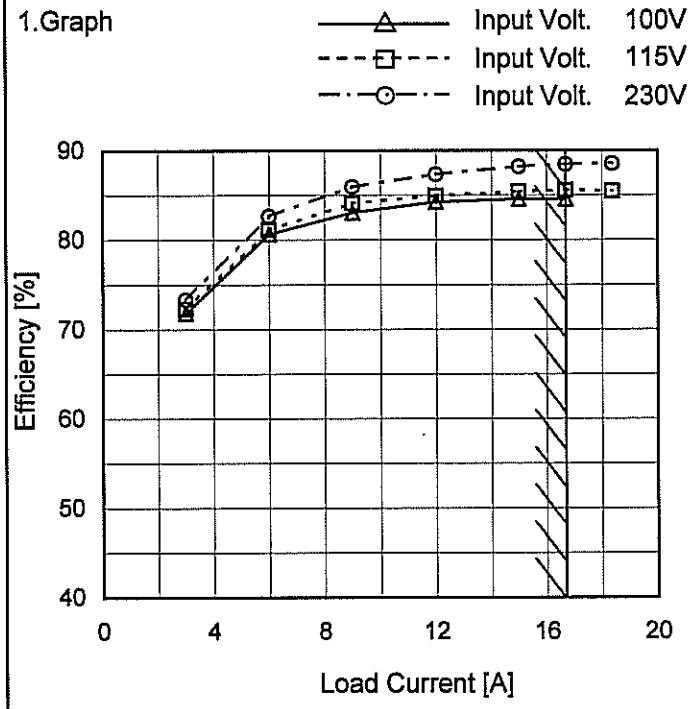
Model	PLA600F-36
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
3.00	71.8	72.3	73.3
6.00	80.7	81.1	82.7
9.00	83.1	84.1	85.9
12.00	84.3	84.9	87.3
15.00	84.6	85.4	88.2
16.70	84.6	85.6	88.5
18.37	-	85.4	88.5
--	-	-	-
--	-	-	-
--	-	-	-

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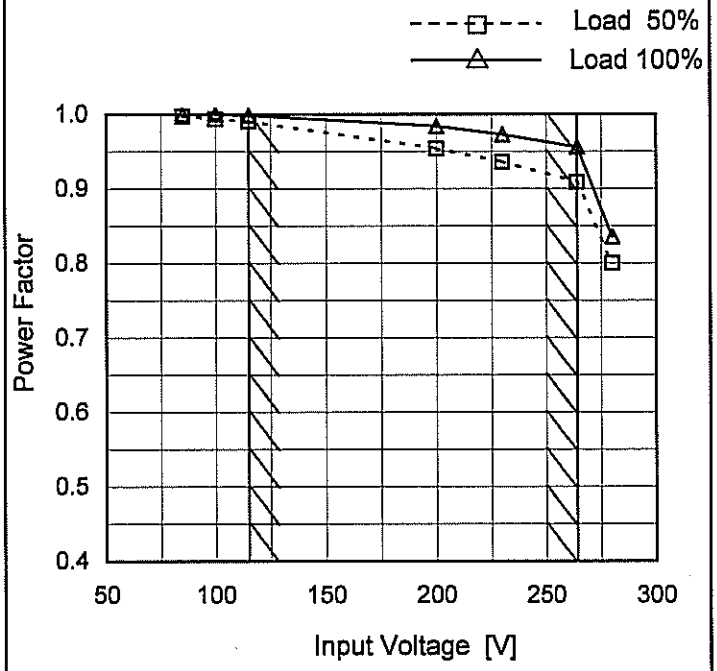
Model	PLA600F-36
Item	Power Factor (by Input Voltage)
Object	————————

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	0.997	0.999 ※1
100	0.994	0.999 ※2
115	0.991	0.999
200	0.954	0.984
230	0.936	0.973
264	0.909	0.956
280	0.800	0.836
---	-	-
---	-	-

※1:Load 80%
※2:Load 90%

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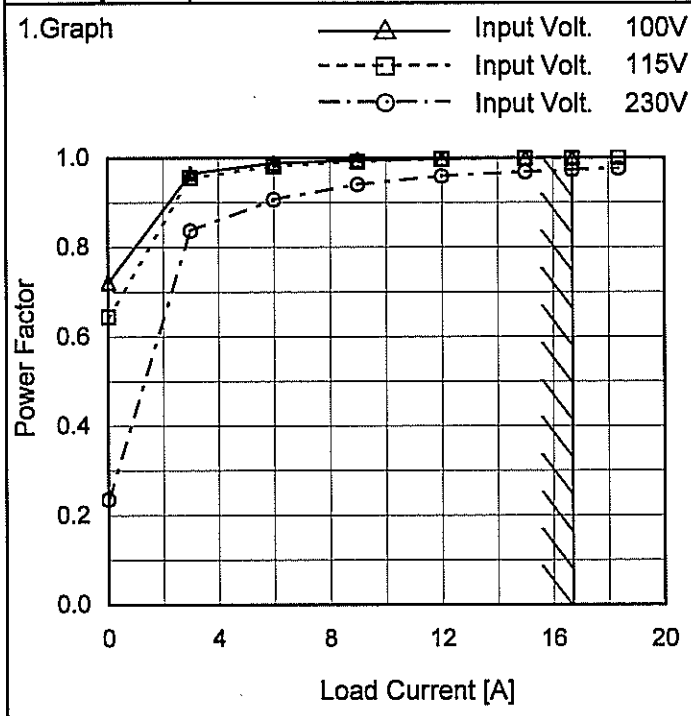
Model	PLA600F-36
Item	Power Factor (by Load Current)
Object	————————

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	0.721	0.645	0.235
3.00	0.964	0.956	0.837
6.00	0.988	0.981	0.907
9.00	0.995	0.991	0.940
12.00	0.998	0.996	0.959
15.00	0.999	0.998	0.968
16.70	0.999	0.999	0.973
18.37	-	0.999	0.976
—	-	-	-
—	-	-	-
—	-	-	-

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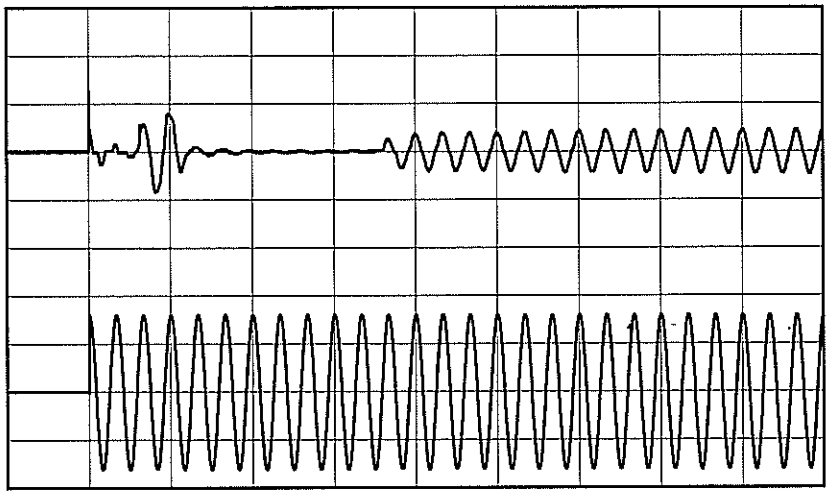
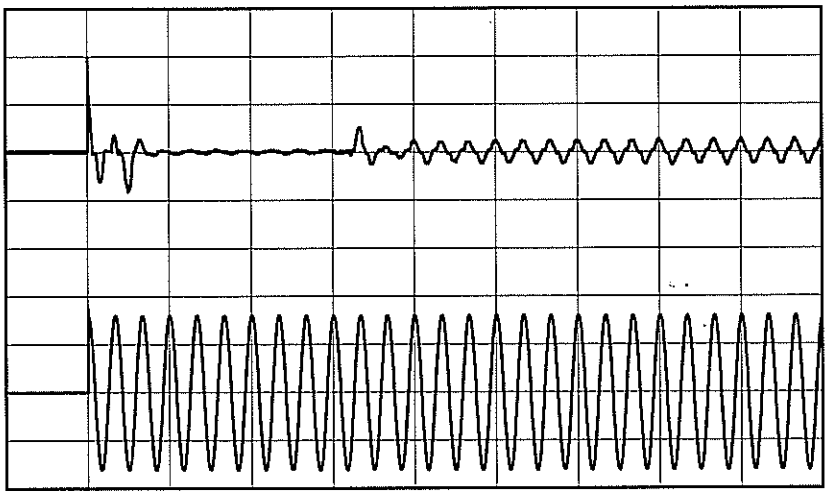
Model	PLA600F-36
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



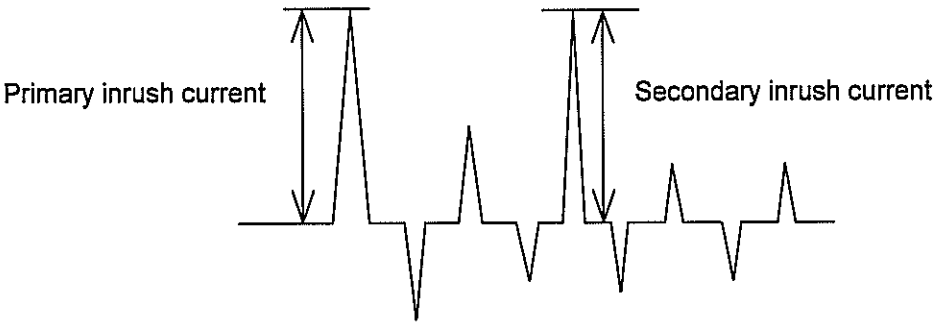
Input Voltage 115 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
25.4 A
Secondary inrush current :
14.9 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
39.5 A
Secondary inrush current :
10.1 A



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Model	PLA600F-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	0.31	0.33	0.66	Operation
	One of phases	0.43	0.51	1.10	Stand by
IEC60950-1	Both phases	0.25	0.29	0.64	Operation
	One of phases	0.44	0.50	1.10	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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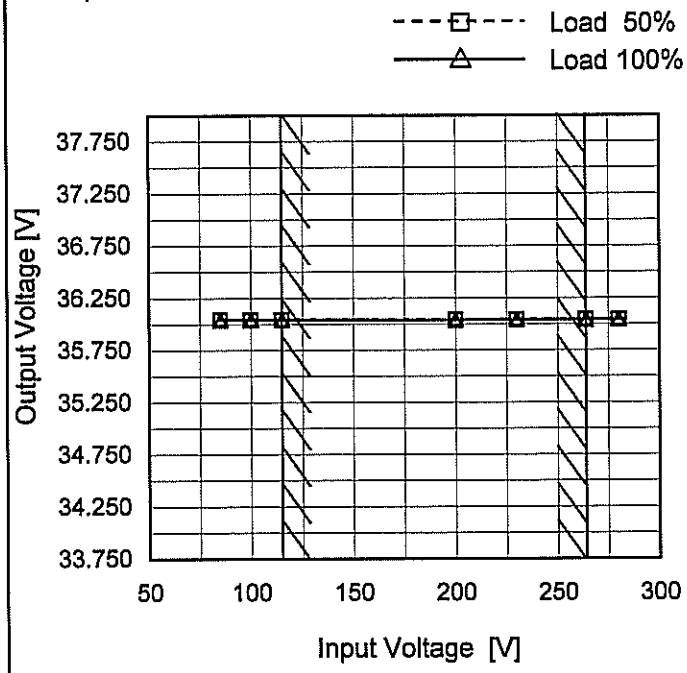
Model	PLA600F-36
Item	Line Regulation
Object	+36V16.7A

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	36.043	36.042 ※1
100	36.044	36.042 ※2
115	36.044	36.042
200	36.043	36.041
230	36.043	36.041
264	36.044	36.041
280	36.044	36.041
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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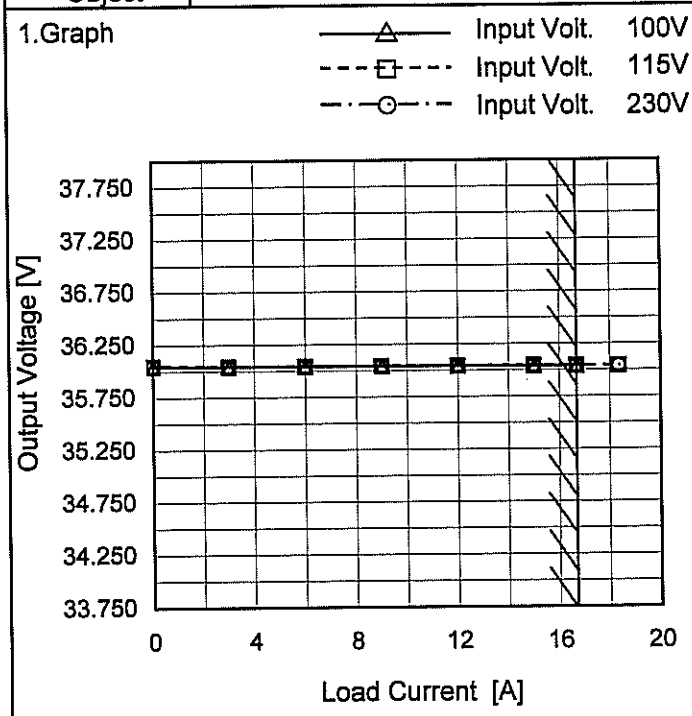
Model	PLA600F-36
Item	Load Regulation
Object	+36V16.7A

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	36.047	36.048	36.048
3.00	36.043	36.044	36.043
6.00	36.042	36.043	36.042
9.00	36.042	36.042	36.042
12.00	36.041	36.042	36.041
15.00	36.040	36.041	36.041
16.70	36.040	36.040	36.041
18.37	-	36.040	36.040
—	-	-	-
—	-	-	-
—	-	-	-

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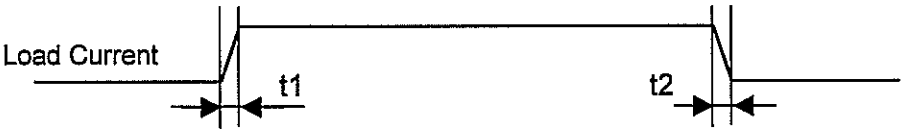
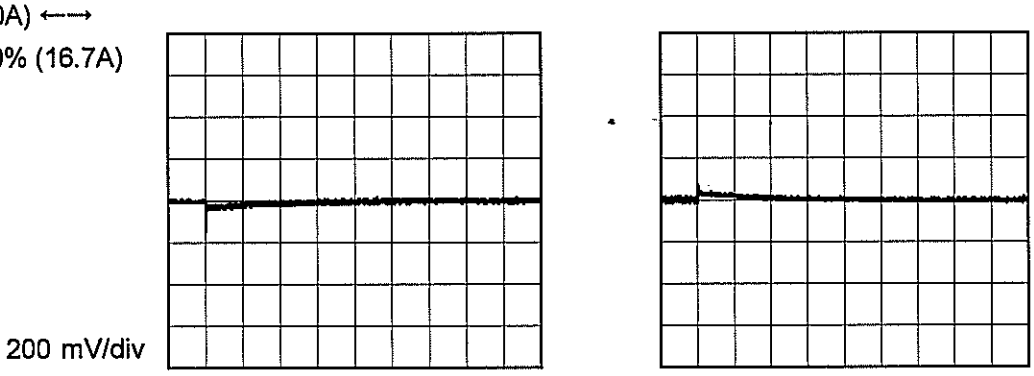
Model	PLA600F-36		
Item	Dynamic Load Response	Temperature	25˚C
		Testing Circuitry	Figure A
Object	+36V16.7A		

Input Volt. 115 V
Cycle 1000 ms

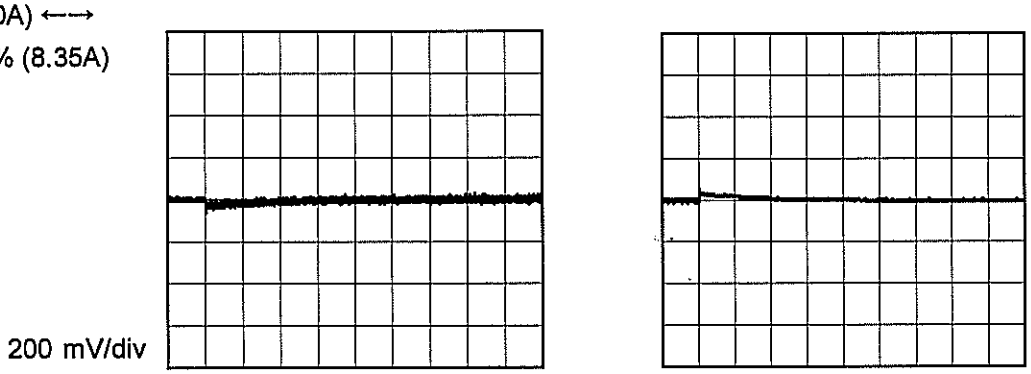
Response. t1=t2=50us. Typ



Min. Load (0A) ⟷
Load 100% (16.7A)



Min. Load (0A) ⟷
Load 50% (8.35A)



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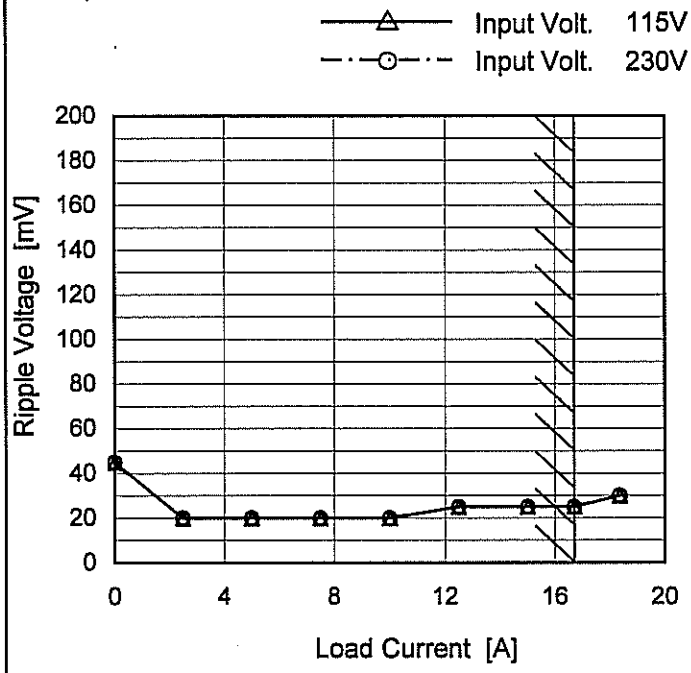
Model	PLA600F-36
Item	Ripple Voltage (by Load Current)
Object	+36V16.7A

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]
0.0	45	45
2.5	20	20
5.0	20	20
7.5	20	20
10.0	20	20
12.5	25	25
15.0	25	25
16.7	25	25
18.4	30	30
--	-	-
--	-	-

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

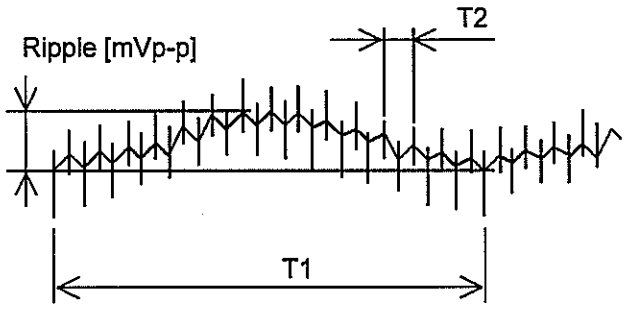


Fig. Complex Ripple Wave Form

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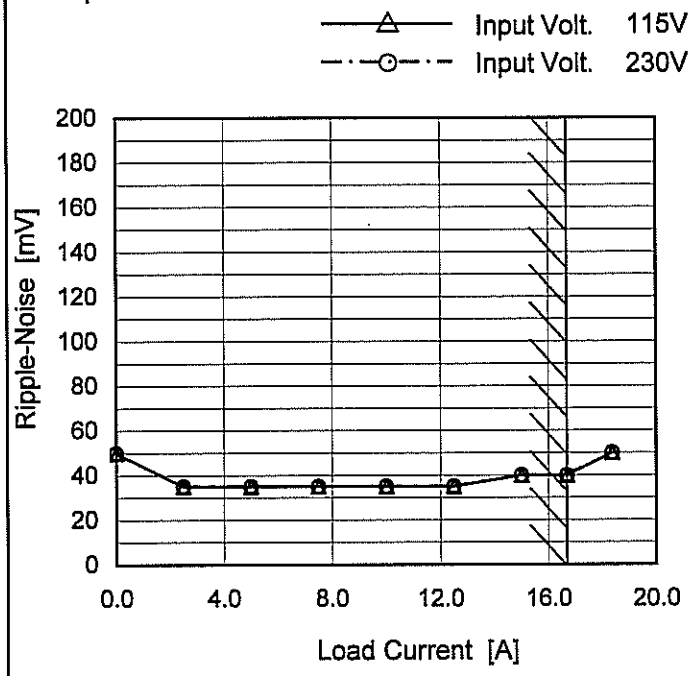
Model	PLA600F-36
Item	Ripple-Noise
Object	+36V16.7A

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]
0.0	50	50
2.5	35	35
5.0	35	35
7.5	35	35
10.0	35	35
12.5	35	35
15.0	40	40
16.7	40	40
18.4	50	50
—	-	-
—	-	-

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

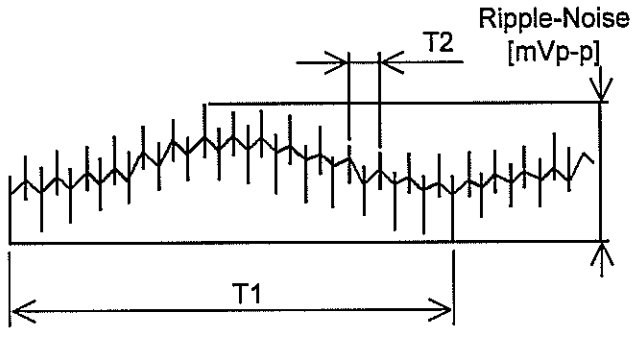


Fig. Complex Ripple Wave Form

BC-10615

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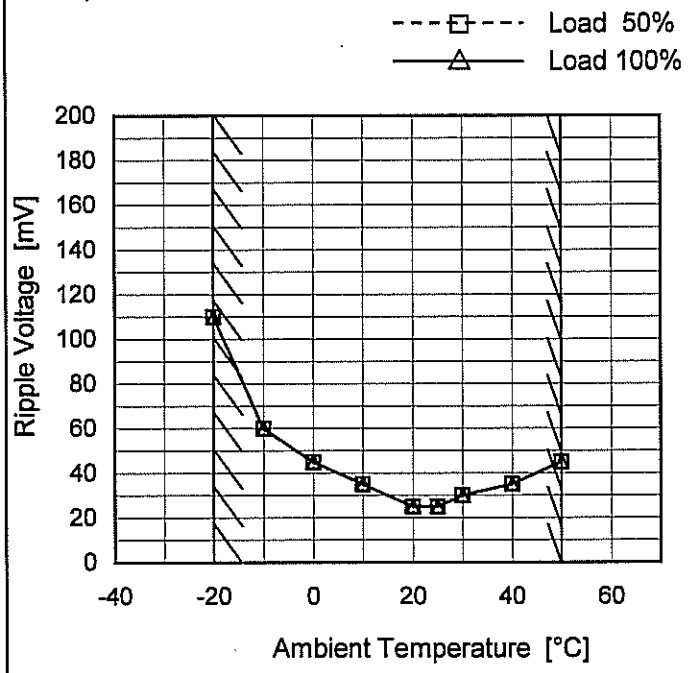
Model	PLA600F-36
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V16.7A

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	110	110
-10	60	60
0	45	45
10	35	35
20	25	25
25	25	25
30	30	30
40	35	35
50	45	45
--	-	-
--	-	-

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

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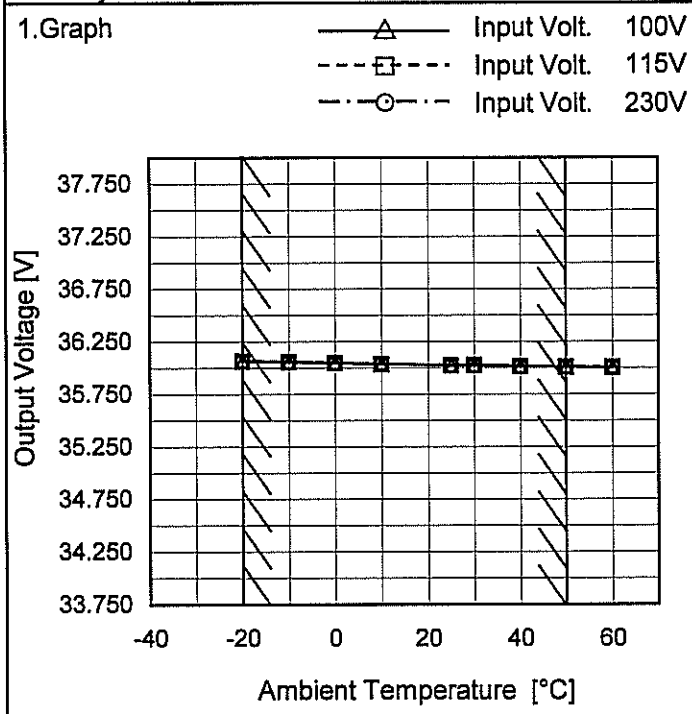
Model	PLA600F-36
Item	Ambient Temperature Drift
Object	+36V16.7A

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	36.067	36.067	36.066
-10	36.058	36.058	36.057
0	36.049	36.049	36.048
10	36.038	36.038	36.037
25	36.026	36.025	36.025
30	36.027	36.027	36.026
40	36.015	36.015	36.014
50	36.010	36.010	36.010
60	36.004	36.005	36.005
--	-	-	-
--	-	-	-

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

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Model	PLA600F-36	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+36V16.7A	

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 : -20 - 50°C
Input Voltage : 115 - 264V
Load Current : 0 - 16.7A

* 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	-20	115	0	36.076	±33	±0.1
Minimum Voltage	50	264	16.7	36.010		

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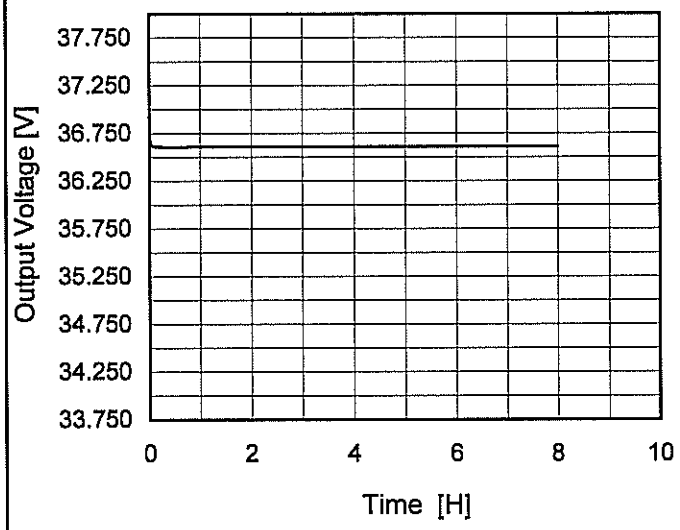
Model	PLA600F-36
Item	Time Lapse Drift
Object	+36V16.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 230V
Load 100%

* The characteristic of AC115V is equal.

2.Values

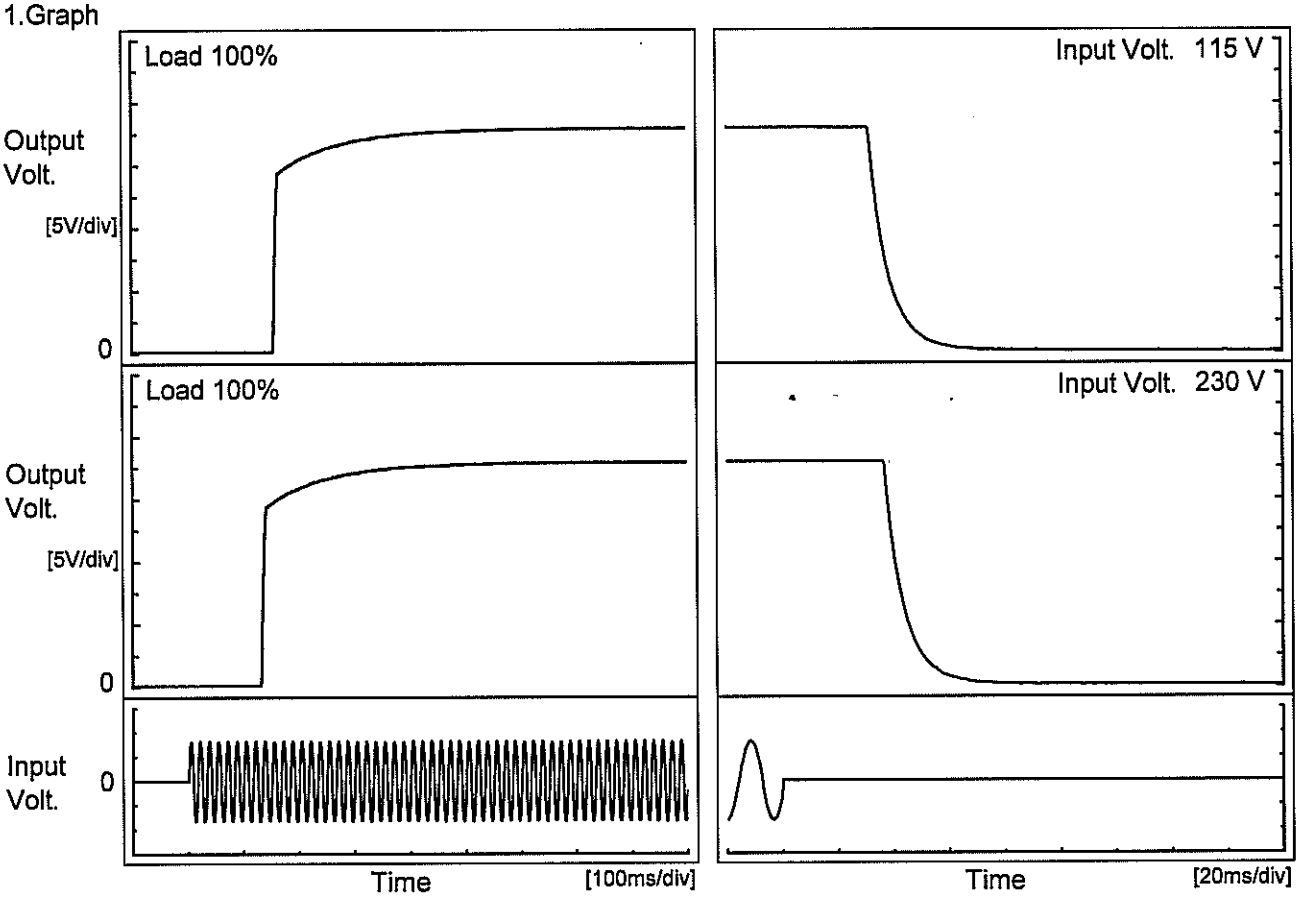
Time since start [H]	Output Voltage [V]
0.0	36.721
0.5	36.610
1.0	36.610
2.0	36.610
3.0	36.611
4.0	36.611
5.0	36.613
6.0	36.613
7.0	36.613
8.0	36.613

COSEL

Model	PLA600F-36
Item	Rise and Fall Time
Object	+36V16.7A

Temperature 25°C
Testing Circuitry Figure A

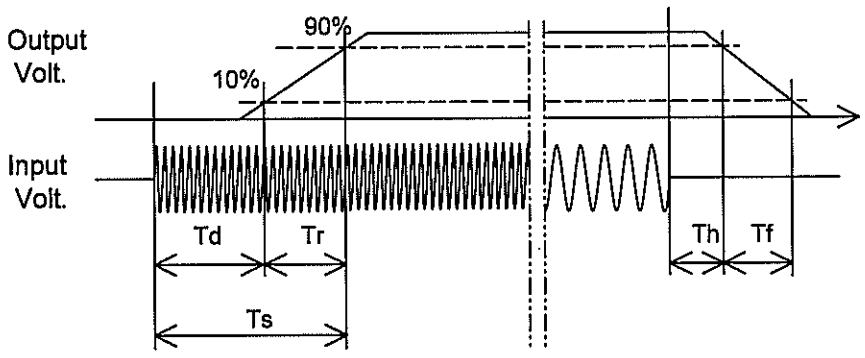
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	156.0	90.0	246.0	31.5	15.5
230 V	133.5	88.0	221.5	37.0	15.5

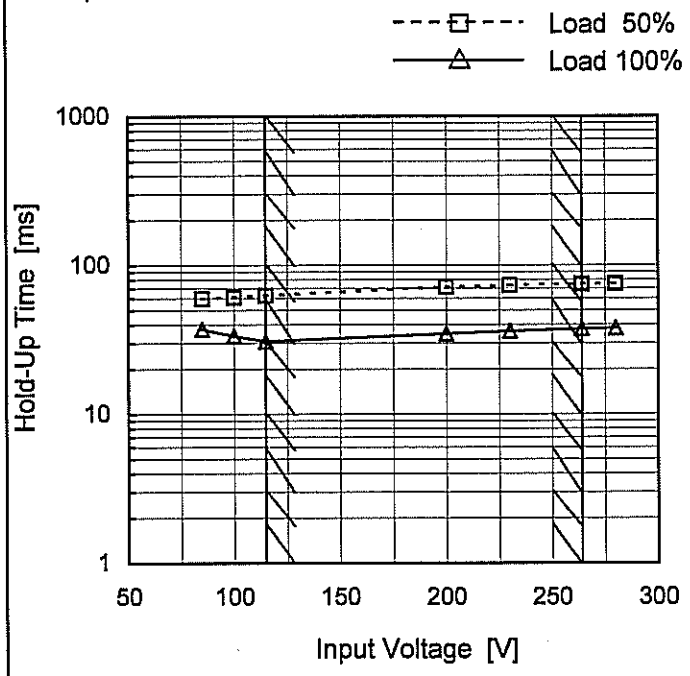


COSEL

Model	PLA600F-36
Item	Hold-Up Time
Object	+36V16.7A

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	60	37 ※1
100	61	34 ※2
115	63	31
200	71	35
230	73	36
264	75	38
280	75	38
---	-	-
---	-	-

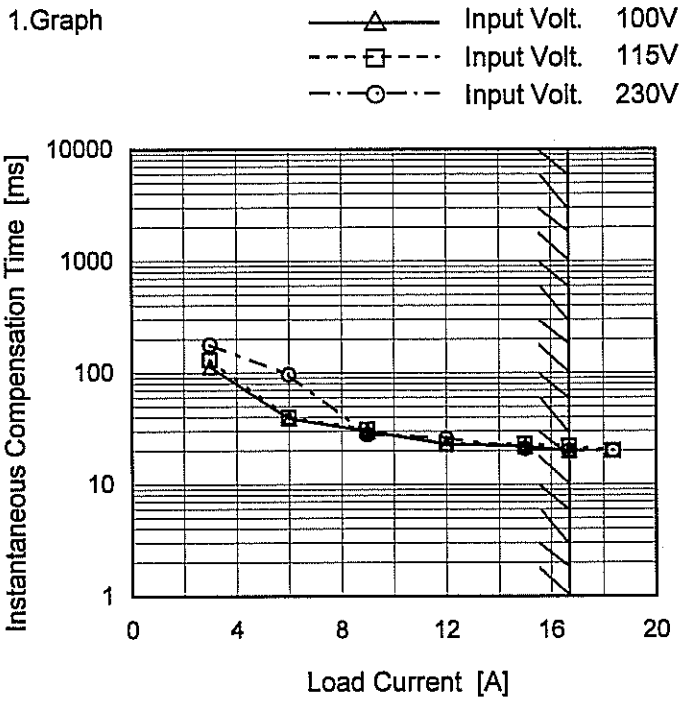
※1:Load 80%
※2:Load 90%

COSEL

Model	PLA600F-36
Item	Instantaneous Interruption Compensation
Object	+36V16.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

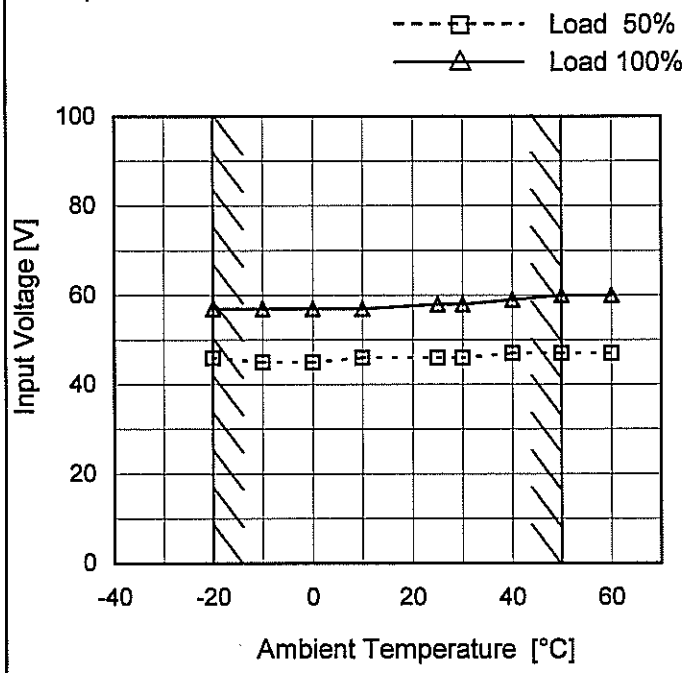
Load Current [A]	Time [ms] Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	-	-	-
3.00	114	131	179
6.00	39	40	97
9.00	30	31	28
12.00	23	23	26
15.00	22	23	21
16.70	20	22	20
18.37	-	20	20
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	PLA600F-36
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+36V16.7A

Testing Circuitry Figure A

1.Graph



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

2.Values

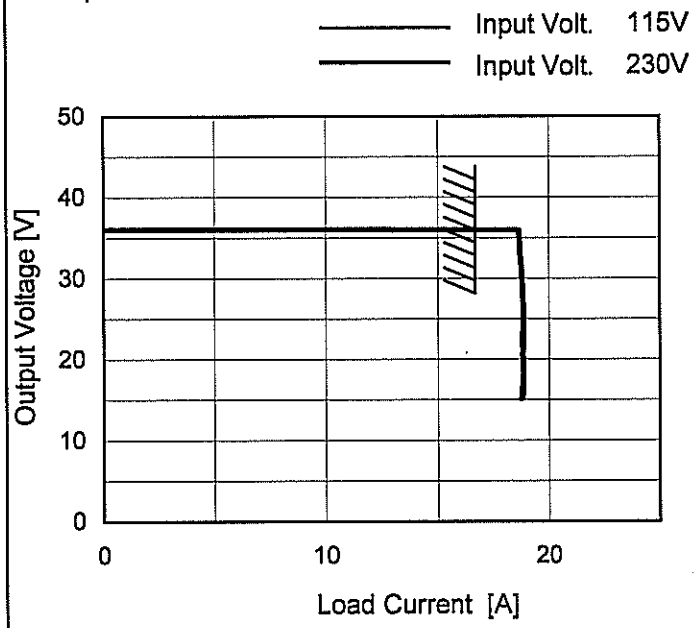
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	46	57
-10	45	57
0	45	57
10	46	57
25	46	58
30	46	58
40	47	59
50	47	60
60	47	60
--	-	-
--	-	-

COSEL

Model	PLA600F-36
Item	Overcurrent Protection
Object	+36V16.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

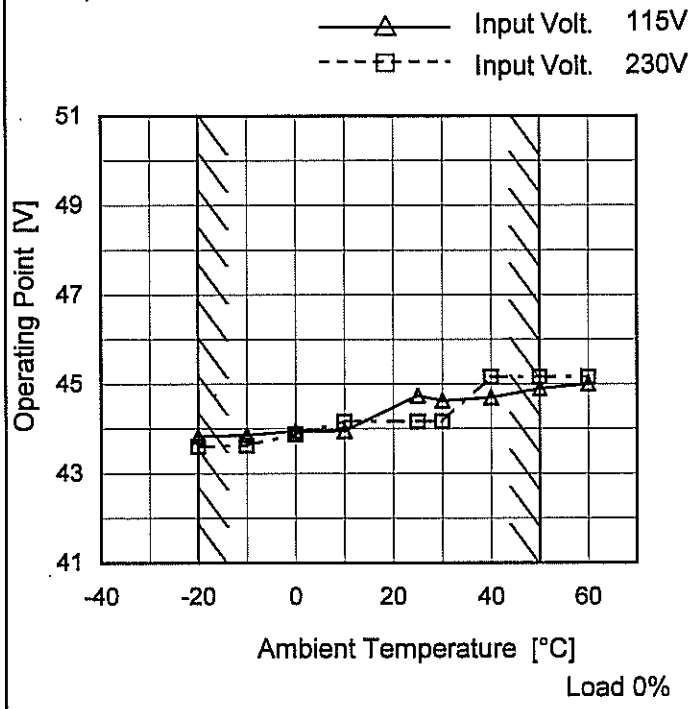
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
34.2	18.66	18.69
32.4	18.72	18.73
28.8	18.81	18.81
25.2	18.91	18.84
21.6	18.90	18.81
18.0	18.91	18.83
14.4	18.87	18.79
10.8	18.88	18.80
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA600F-36
Item	Overvoltage Protection
Object	+36V16.7A

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	43.83	43.60
-10	43.86	43.63
0	43.95	43.87
10	43.95	44.16
25	44.74	44.16
30	44.63	44.16
40	44.70	45.16
50	44.90	45.16
60	45.00	45.16
--	-	-
--	-	-

COSEL

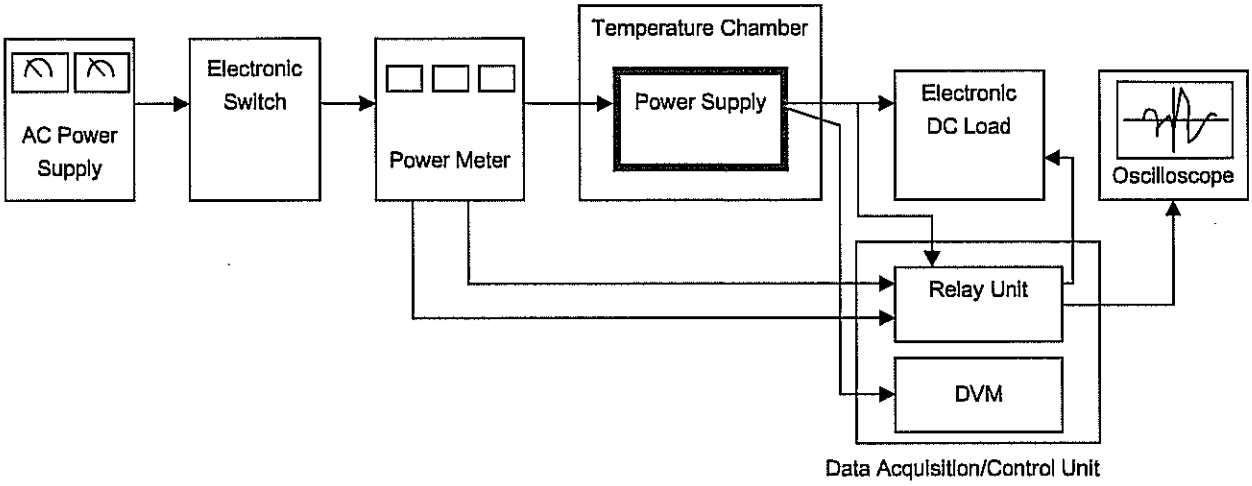


Figure A

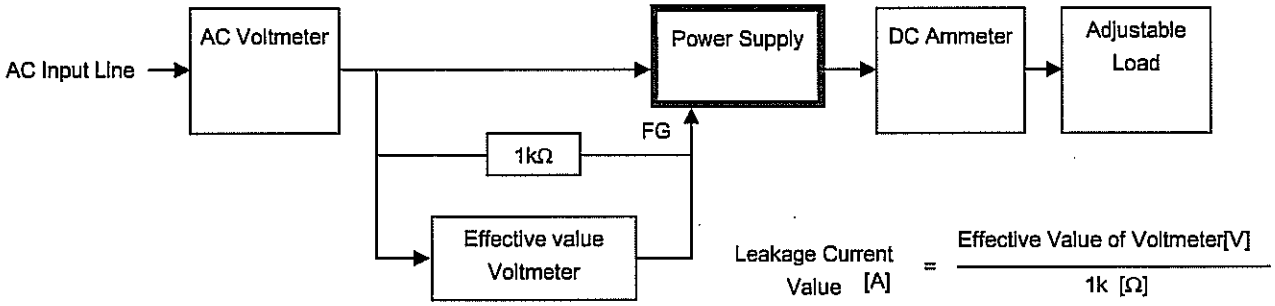


Figure B (DEN-AN)

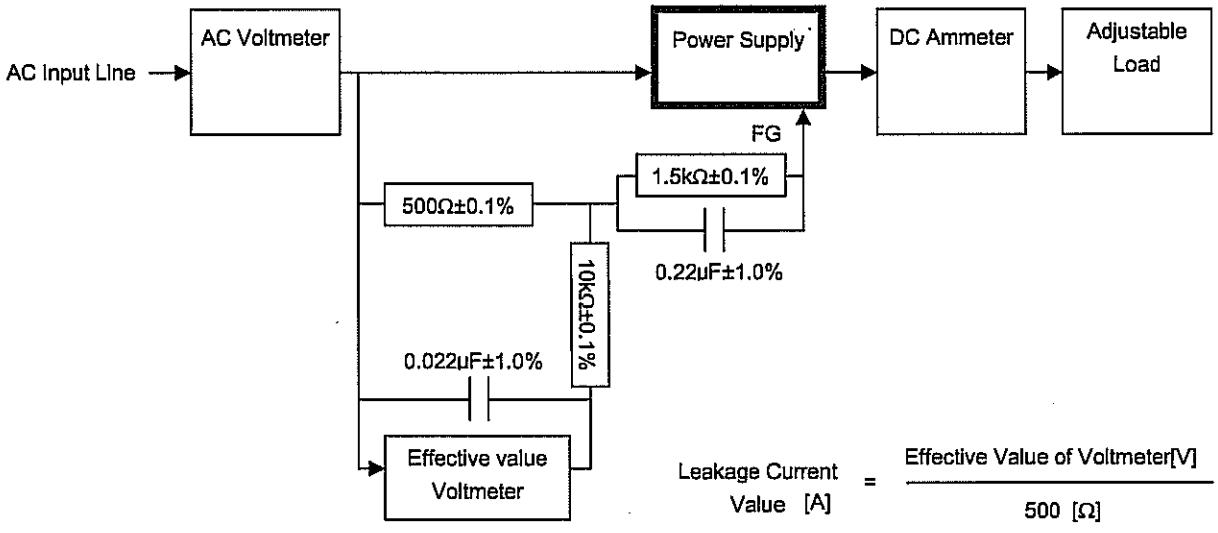


Figure B (IEC60950-1)

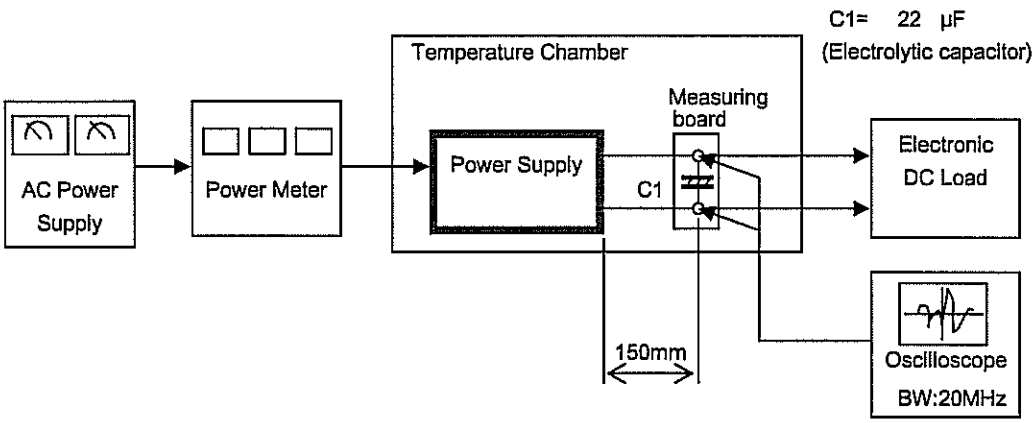

C1= 22 µF
(Electrolytic capacitor)
Temperature Chamber
Measuring board
AC Power Supply
Power Meter
Power Supply
C1
Electronic DC Load
150mm
Oscilloscope
BW:20MHz

Figure C