参考資料

COSEL

TEST DATA OF PLA600F-5

Regulated DC Power Supply
August 19, 2011

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COSEL CO.,LTD.

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Object	————————

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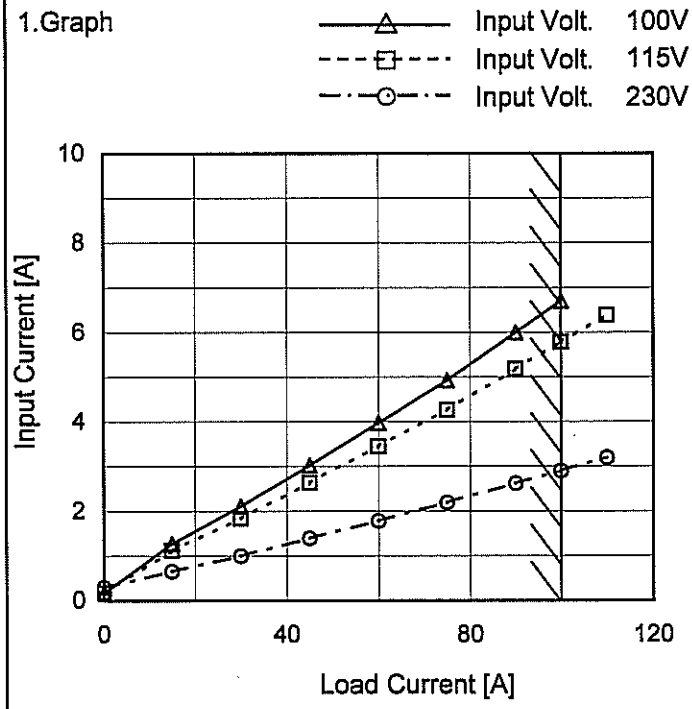
1.Graph



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	0.172	0.180	0.296
15	1.274	1.122	0.652
30	2.110	1.838	1.000
45	3.028	2.638	1.396
60	3.970	3.445	1.782
75	4.930	4.270	2.190
90	6.000	5.180	2.622
100	6.700	5.780	2.904
110	-	6.390	3.194
--	-	-	-
--	-	-	-

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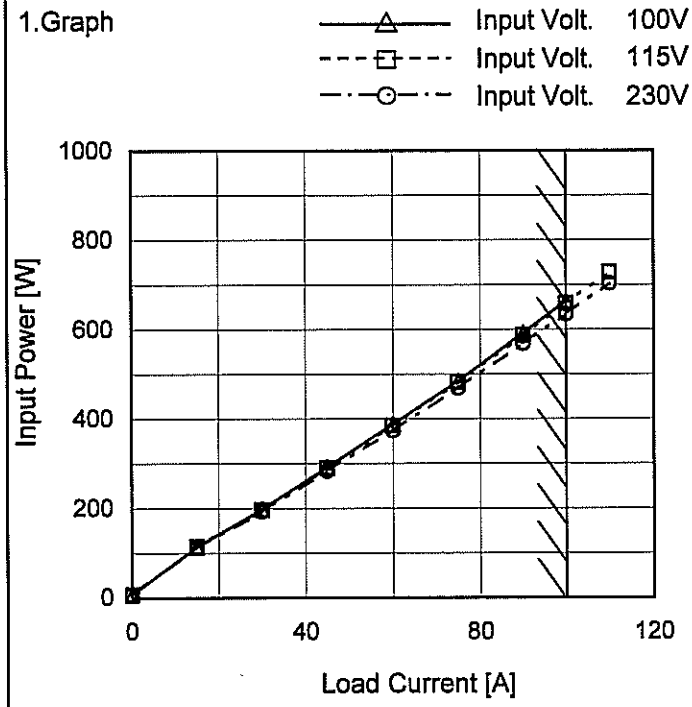
Model	PLA600F-5
Item	Input Power (by Load Current)
Object	————————

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	7.5	7.2	7.0
15	114.5	114.0	112.0
30	198.3	197.1	193.0
45	292.3	290.3	284.0
60	388.0	385.2	374.0
75	485.0	482.0	469.0
90	593.0	587.0	569.0
100	664.0	658.0	634.0
110	-	728.0	703.0
---	-	-	-
---	-	-	-

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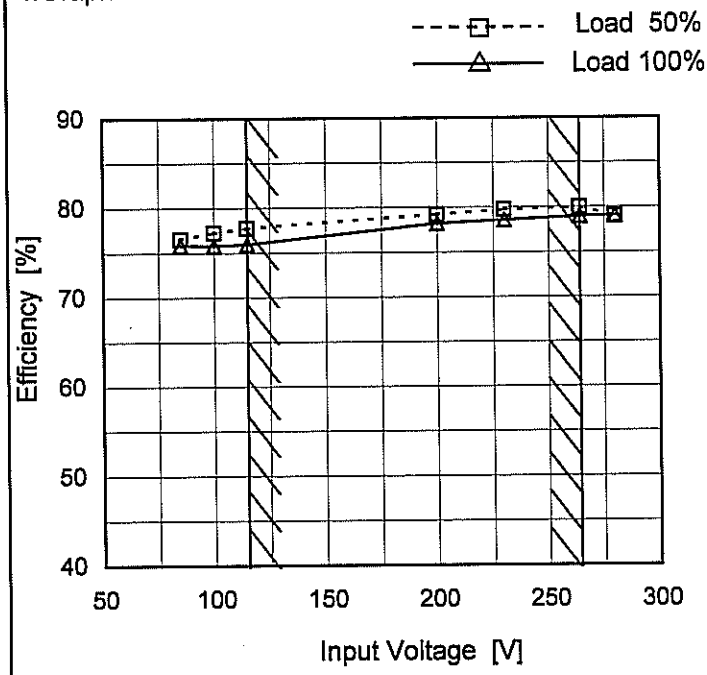
Model	PLA600F-5
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	76.5	75.9 ※1
100	77.3	75.8 ※2
115	77.8	76.0
200	79.2	78.2
230	79.7	78.6
264	80.0	79.0
280	79.0	79.1
--	-	-
--	-	-

※1 : Load 80%
※2 : Load 90%

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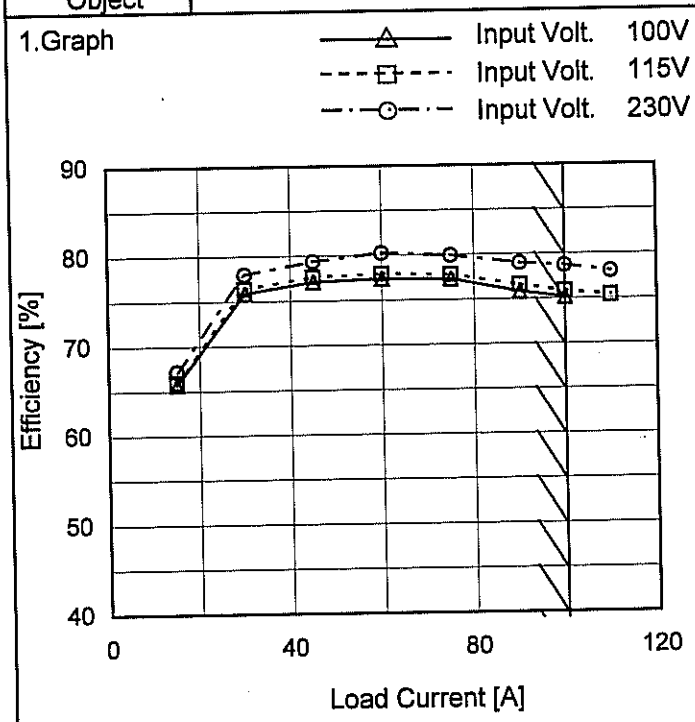
Model	PLA600F-5
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
15	65.7	66.0	67.2
30	75.9	76.3	78.0
45	77.1	77.6	79.4
60	77.4	77.9	80.3
75	77.3	77.8	79.9
90	75.8	76.6	79.0
100	75.2	75.9	78.7
110	-	75.4	78.0
--	-	-	-
--	-	-	-

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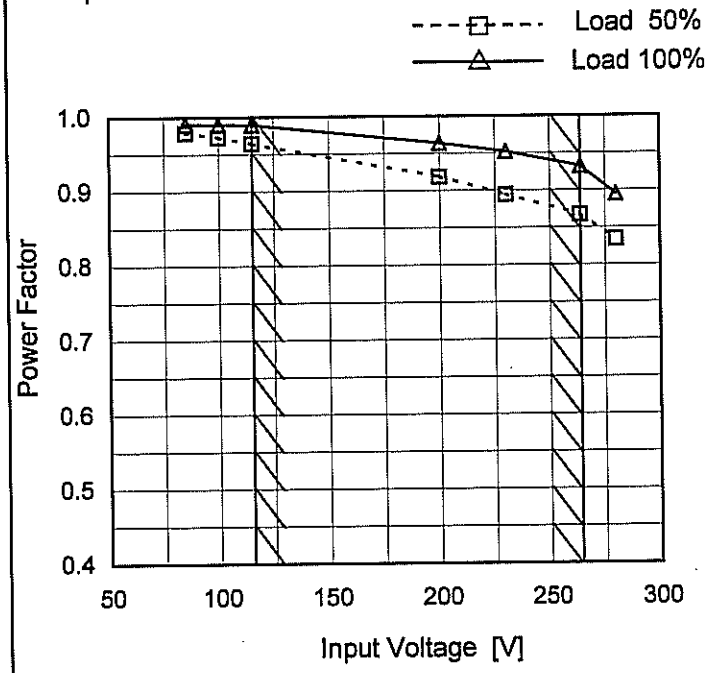
Model	PLA600F-5
Item	Power Factor (by Input Voltage)
Object	――――――――

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	0.979	0.991 ※1
100	0.973	0.990 ※2
115	0.964	0.989
200	0.919	0.964
230	0.895	0.952
264	0.867	0.932
280	0.834	0.895
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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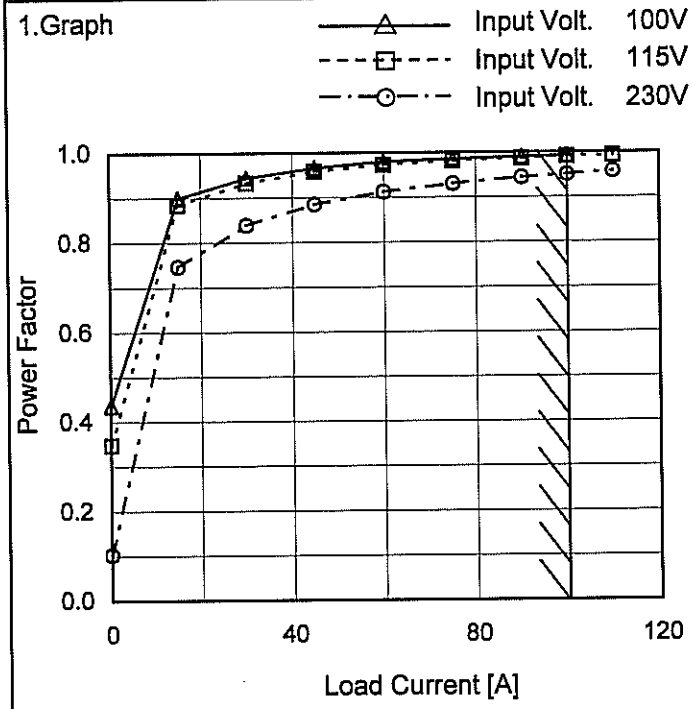
Model	PLA600F-5
Item	Power Factor (by Load Current)
Object	————————

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	0.436	0.348	0.103
15	0.899	0.884	0.747
30	0.944	0.933	0.839
45	0.966	0.958	0.885
60	0.980	0.973	0.912
75	0.986	0.982	0.931
90	0.990	0.987	0.944
100	0.993	0.991	0.951
110	-	0.992	0.958
---	-	-	-
---	-	-	-

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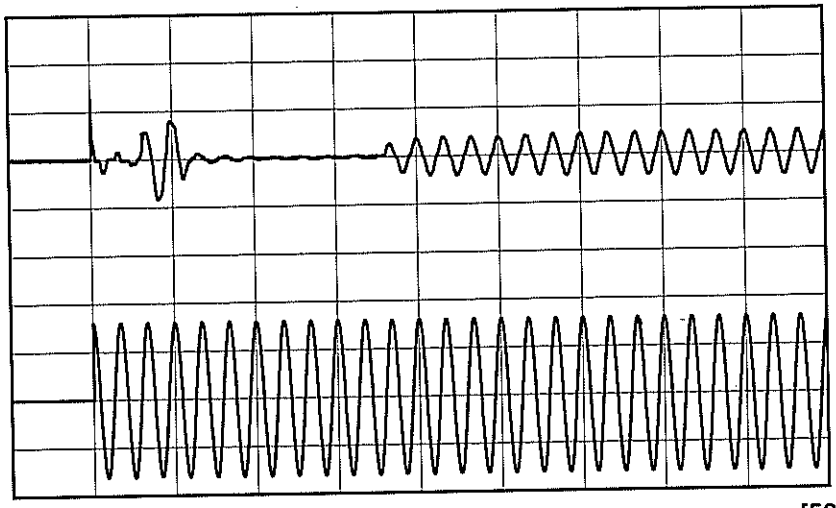
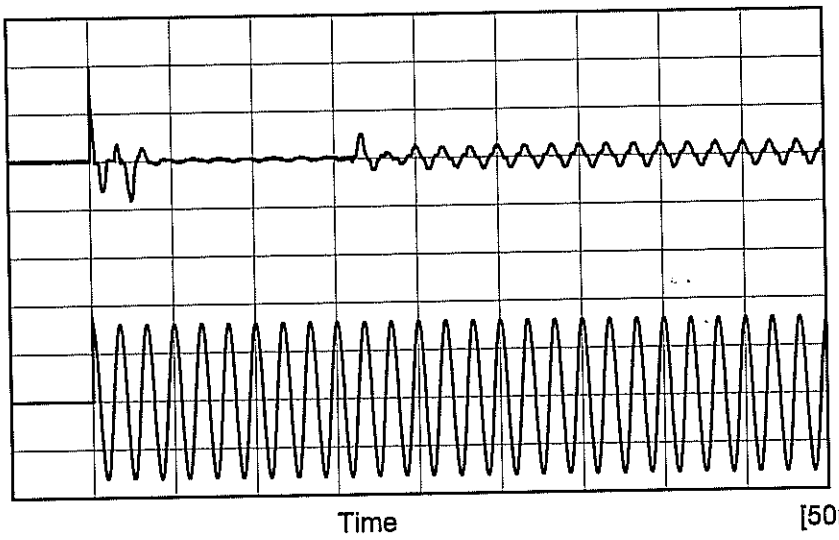
Model	PLA600F-5
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



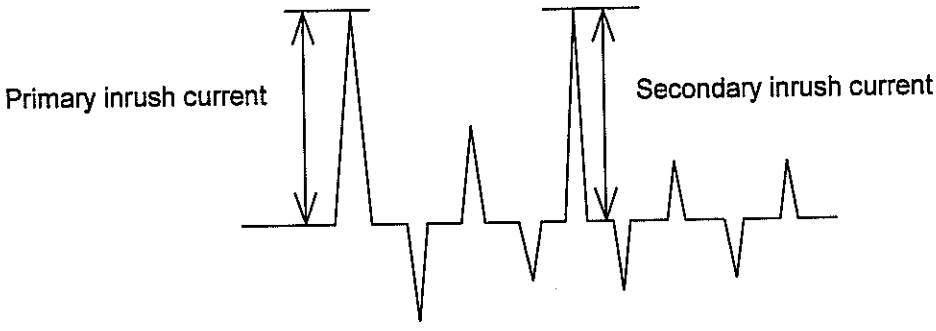
Input Voltage 115 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
25.4 A
Secondary inrush current :
15.0 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
39.3 A
Secondary inrush current :
10.1 A



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Model	PLA600F-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	0.31	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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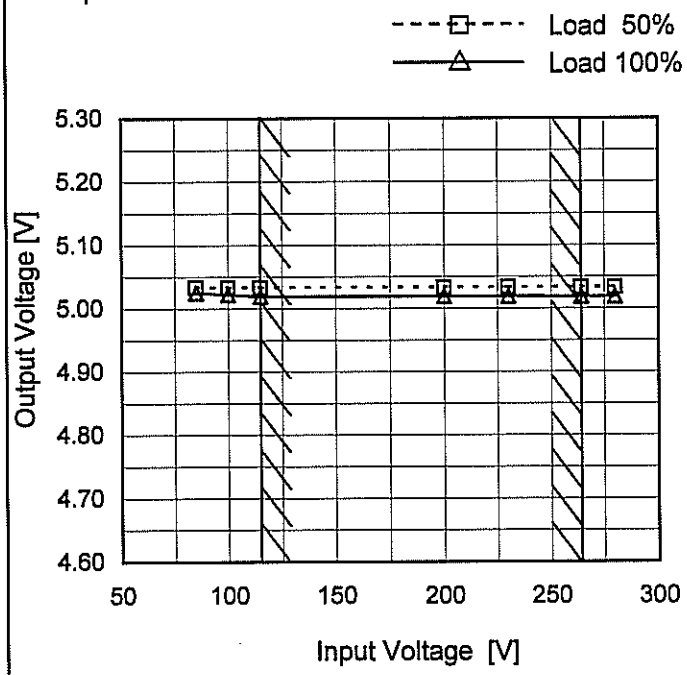
Model	PLA600F-5
Item	Line Regulation
Object	+5V100A

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	5.034	5.025 ※1
100	5.034	5.022 ※2
115	5.034	5.019
200	5.033	5.019
230	5.033	5.019
264	5.033	5.019
280	5.033	5.019
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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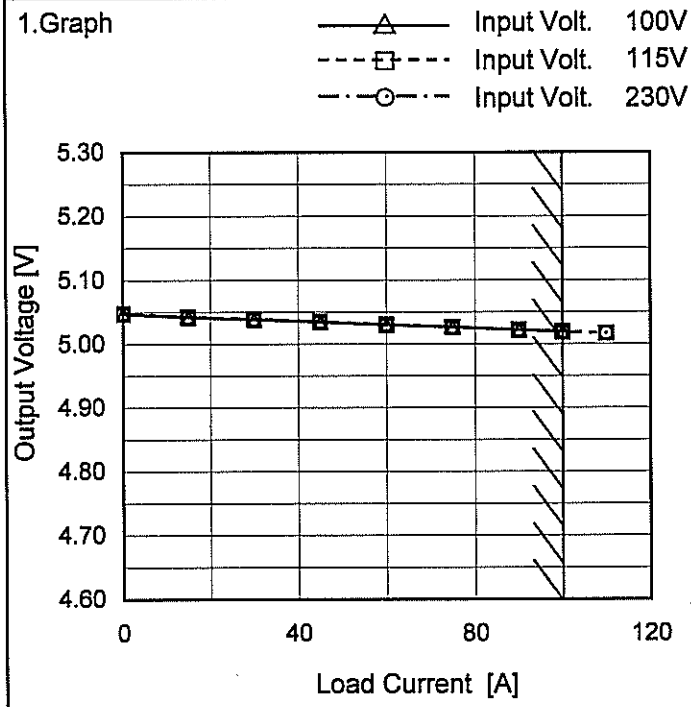
Model	PLA600F-5
Item	Load Regulation
Object	+5V100A

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	5.048	5.048	5.048
15	5.042	5.043	5.043
30	5.039	5.039	5.039
45	5.035	5.035	5.035
60	5.030	5.030	5.031
75	5.027	5.027	5.026
90	5.022	5.022	5.022
100	5.019	5.019	5.019
110	-	5.016	5.016
--	-	-	-
--	-	-	-

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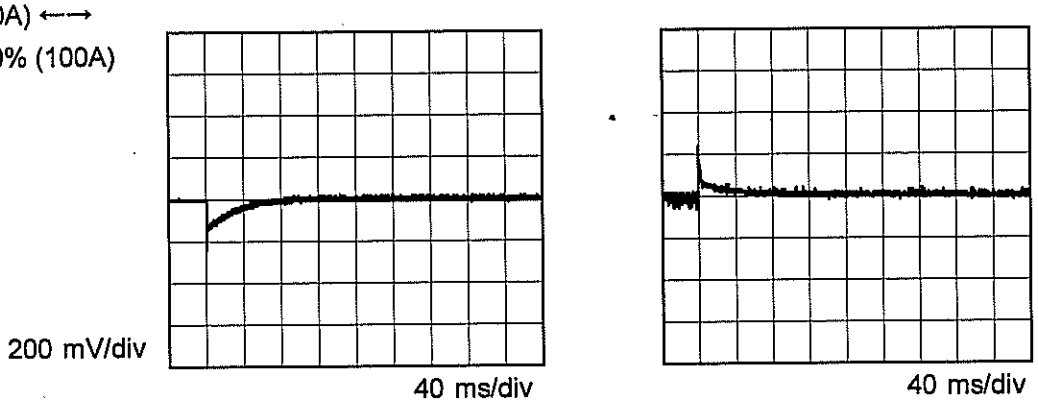
Model	PLA600F-5		
Item	Dynamic Load Response	Temperature	25˚C
		Testing Circuitry	Figure A
Object	+5V100A		

Input Volt. 115 V Response. t1=t2=50us. Typ

Cycle 1000 ms

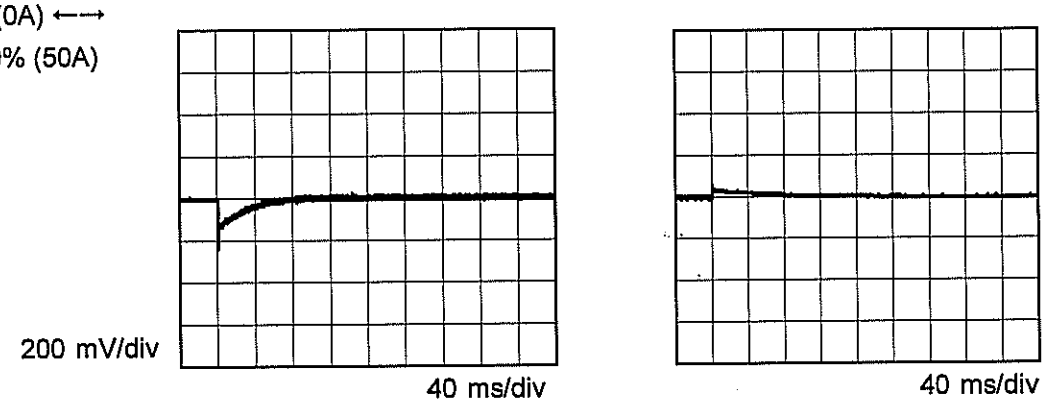
Min. Load (0A) ⟷

Load 100% (100A)



Min. Load (0A) ⟷

Load 50% (50A)



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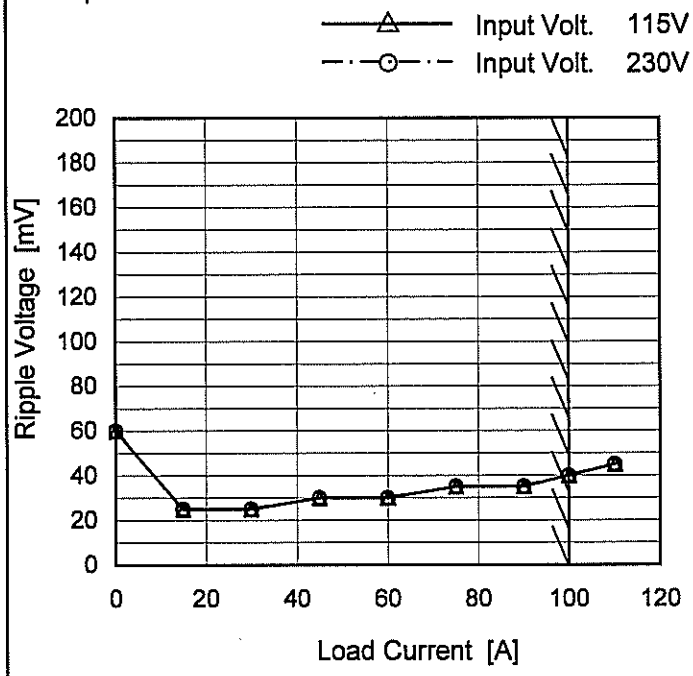
Model	PLA600F-5
Item	Ripple Voltage (by Load Current)
Object	+5V100A

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.

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

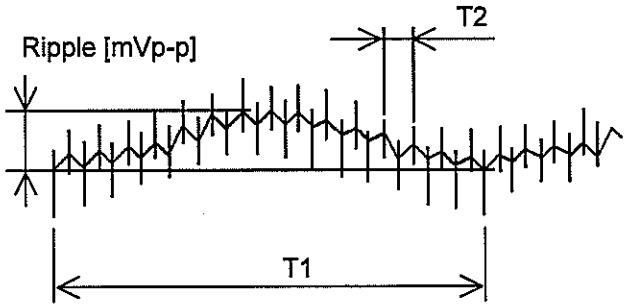


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 115 [V]	Input Volt. 230 [V]
0	60	60
15	25	25
30	25	25
45	30	30
60	30	30
75	35	35
90	35	35
100	40	40
110	45	45
--	-	-
--	-	-

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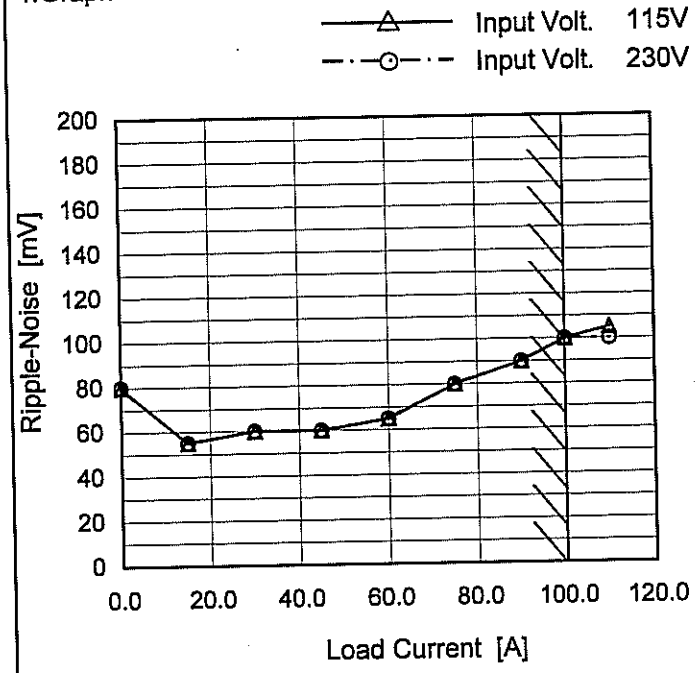
Model	PLA600F-5
Item	Ripple-Noise
Object	+5V100A

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	80	80
15	55	55
30	60	60
45	60	60
60	65	65
75	80	80
90	90	90
100	100	100
110	105	100
--	-	-
--	-	-

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

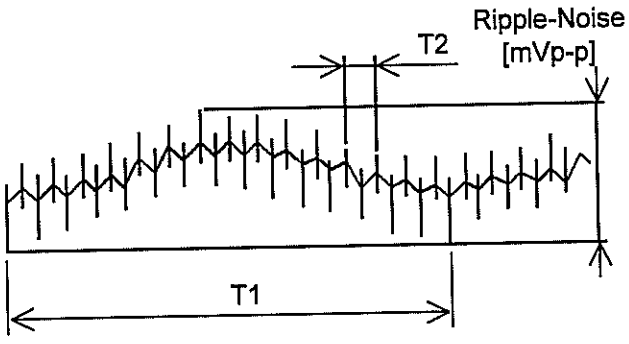


Fig. Complex Ripple Wave Form

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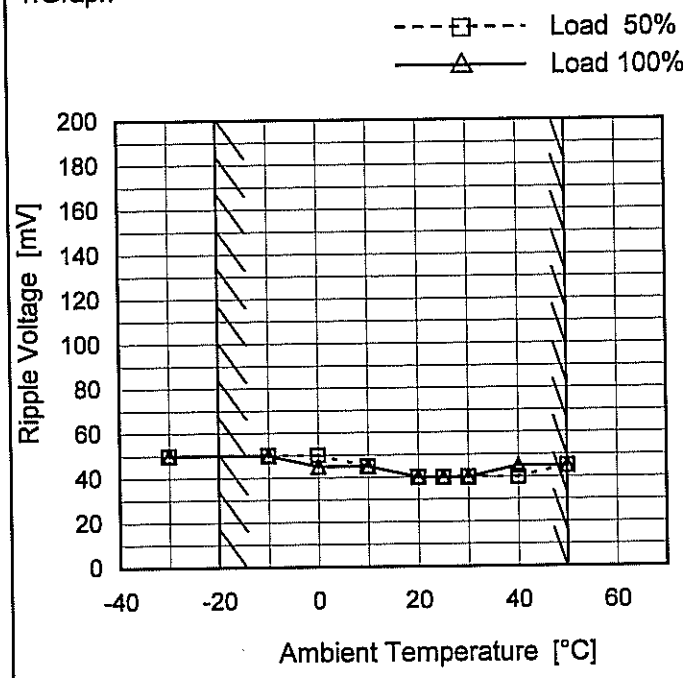
Model	PLA600F-5
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V100A

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]
-30	50	50
-10	50	50
0	50	45
10	45	45
20	40	40
25	40	40
30	40	40
40	40	45
50	45	45
—	-	-
--	-	-

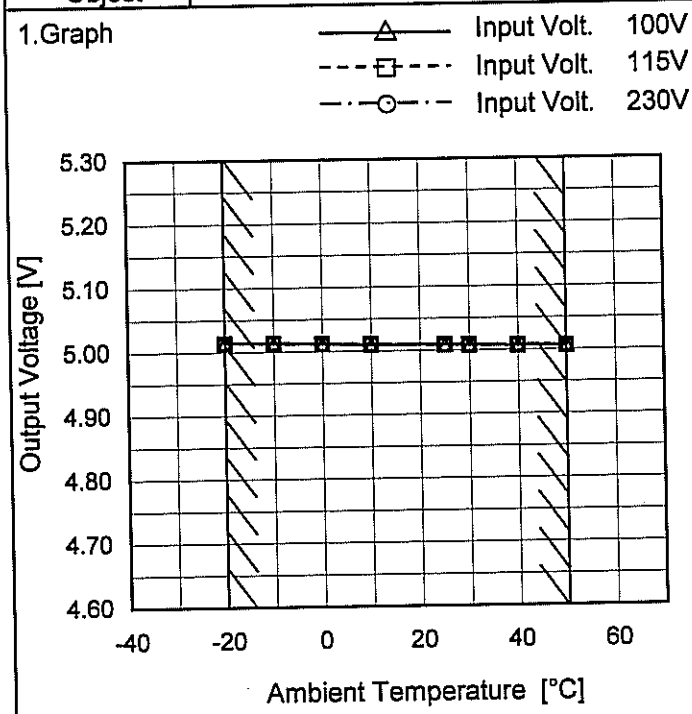
Note: In case of Input Volt. 100V, Load 90%.
Other case Load 100%.

COSEL

Model	PLA600F-5
Item	Ambient Temperature Drift
Object	+5V100A

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	5.015	5.014	5.014
-10	5.013	5.013	5.014
0	5.012	5.012	5.012
10	5.010	5.011	5.011
25	5.009	5.009	5.009
30	5.008	5.009	5.008
40	5.007	5.007	5.008
50	5.007	5.006	5.007
--	-	-	-
--	-	-	-
--	-	-	-

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

COSEL

Model	PLA600F-5
Item	Output Voltage Accuracy
Object	+5V100A

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 : -20 - 50°C
Input Voltage : 115 - 264V
Load Current : 0 - 100A

* 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	50	115	0	5.046	±20	±0.4
Minimum Voltage	50	115	100	5.006		

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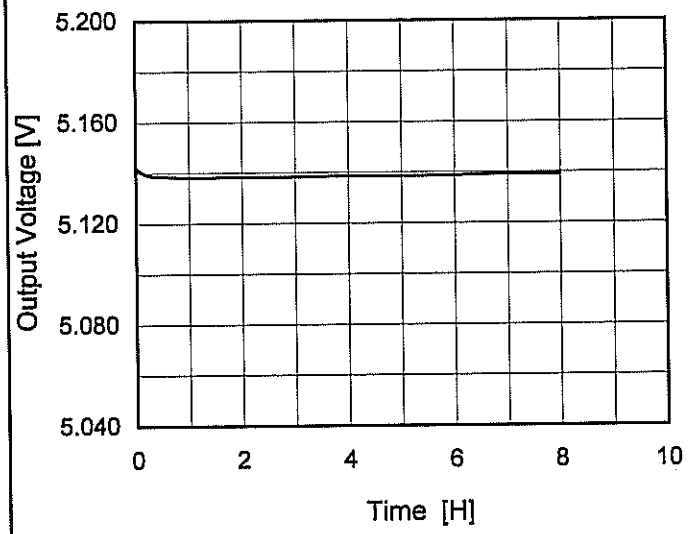
Model	PLA600F-5
Item	Time Lapse Drift
Object	+5V100A

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	5.140
0.5	5.139
1.0	5.138
2.0	5.138
3.0	5.138
4.0	5.139
5.0	5.139
6.0	5.139
7.0	5.139
8.0	5.139

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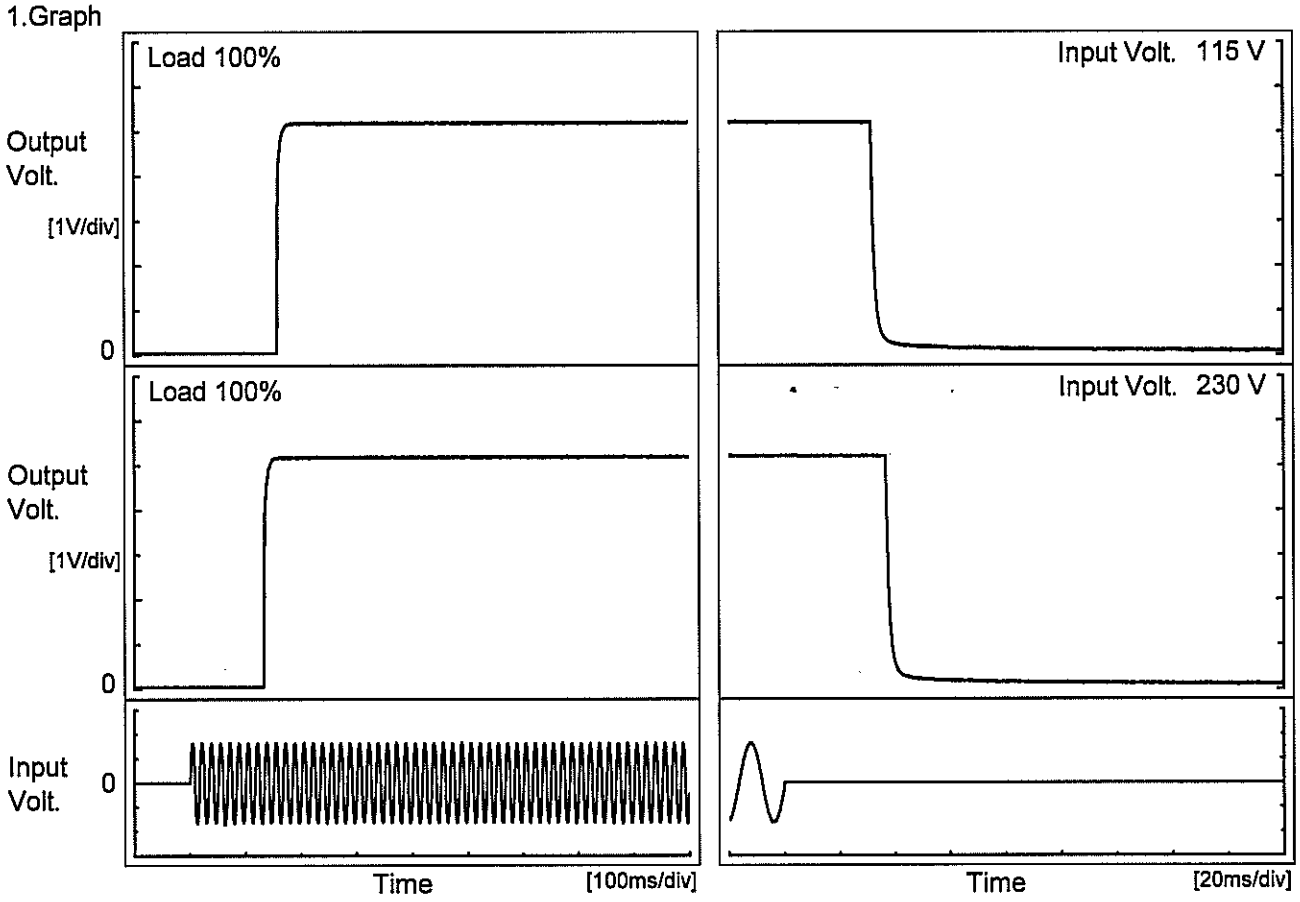
Model	PLA600F-5
Item	Rise and Fall Time
Object	+5V100A

Temperature 25°C
Testing Circuitry Figure A

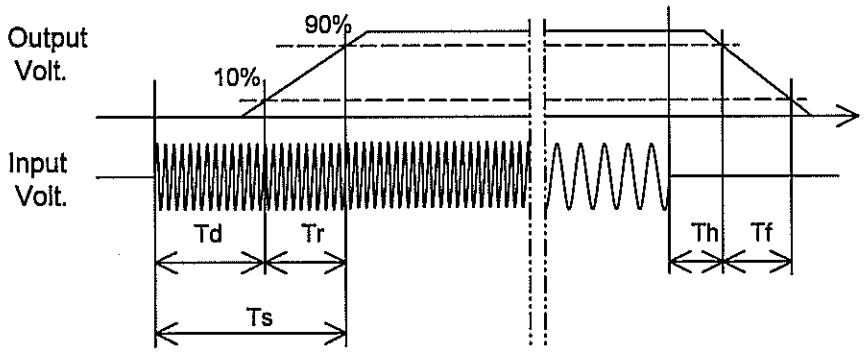
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	158.0	5.0	163.0	31.5	3.5
230 V	134.5	4.5	139.0	36.7	3.5

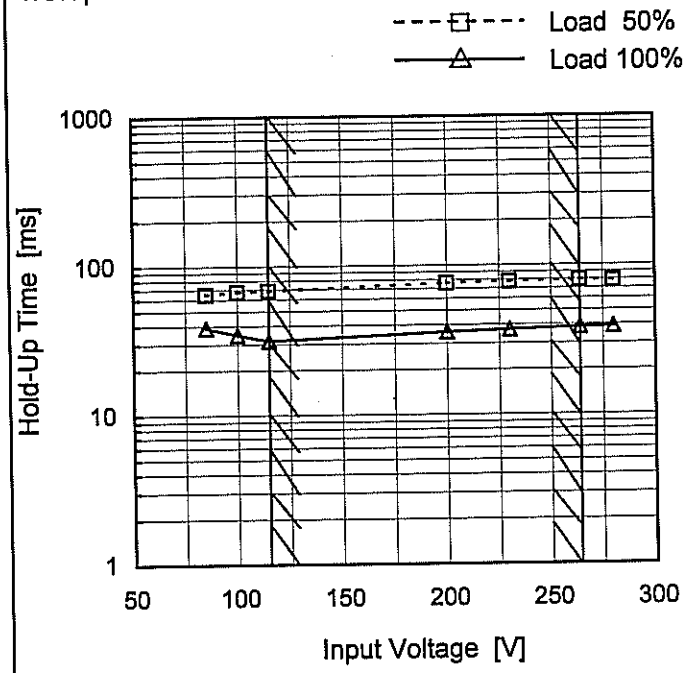


COSEL

Model	PLA600F-5
Item	Hold-Up Time
Object	+5V100A

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	65	39 ※1
100	68	35 ※2
115	69	32
200	76	36
230	78	37
264	79	38
280	78	39
--	-	-
--	-	-

※1:Load 80%
※2:Load 90%

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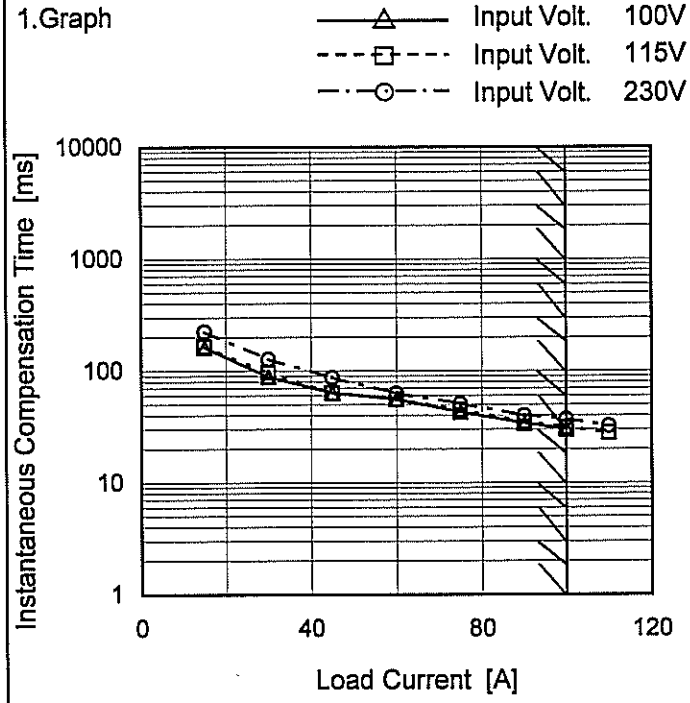
Model	PLA600F-5
Item	Instantaneous Interruption Compensation
Object	+5V100A

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	-	-	-
15	163	165	225
30	89	97	128
45	64	64	87
60	56	56	63
75	43	45	51
90	34	35	40
100	30	31	37
110	-	28	32
---	-	-	-
---	-	-	-

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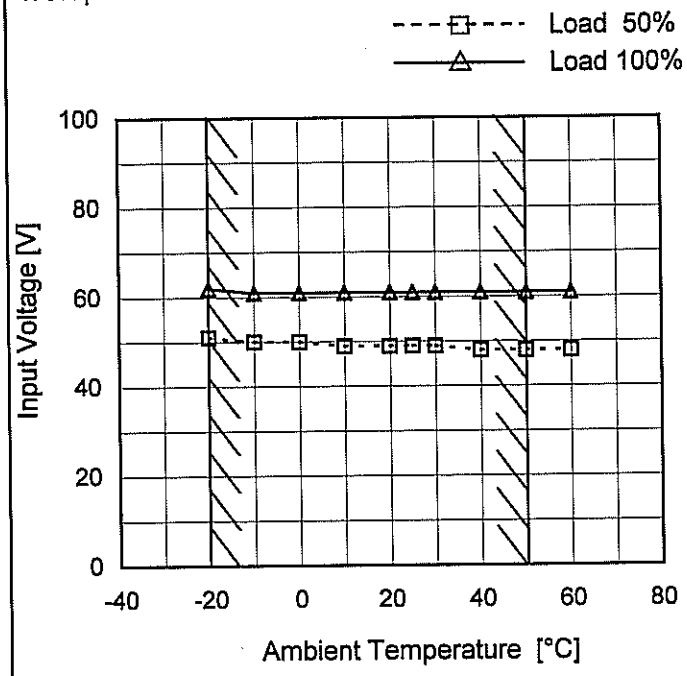
Model	PLA600F-5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V100A

Testing Circuitry Figure A

1.Graph



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

2.Values

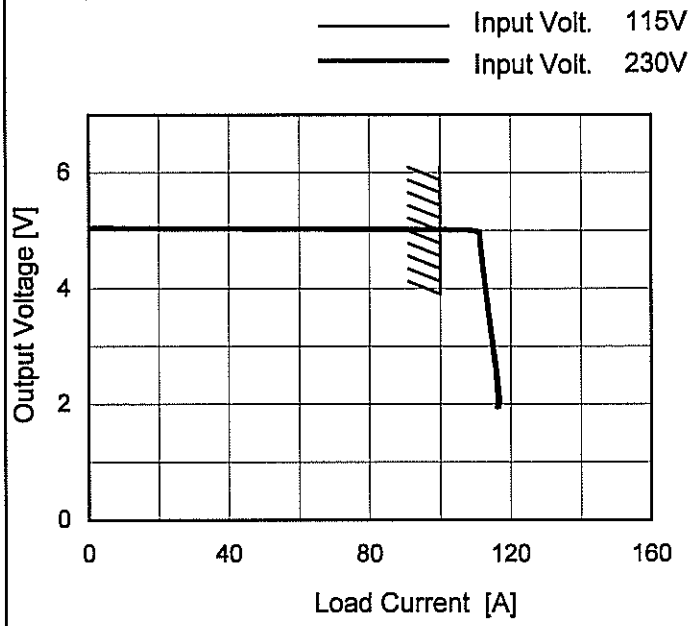
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	51	62
-10	50	61
0	50	61
10	49	61
20	49	61
25	49	61
30	49	61
40	48	61
50	48	61
60	48	61
—	-	-

COSEL

Model	PLA600F-5
Item	Overcurrent Protection
Object	+5V100A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

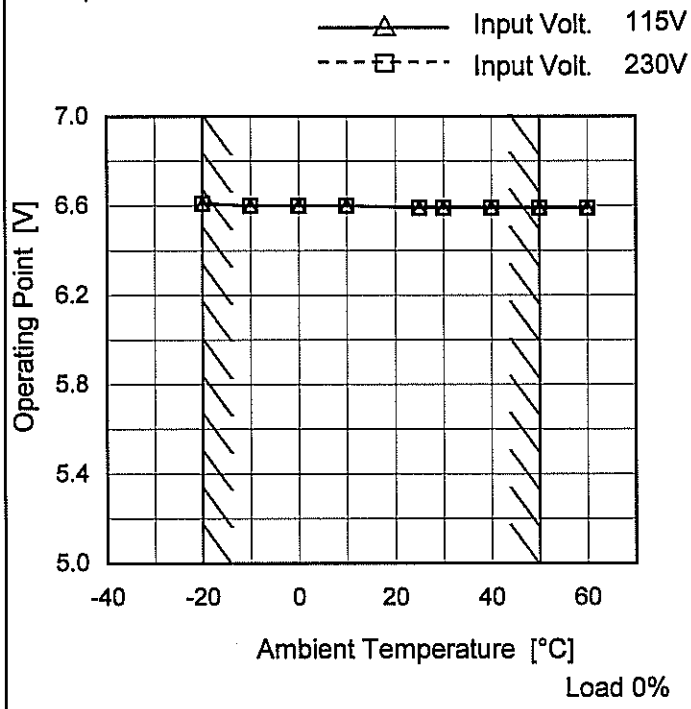
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
4.75	111.80	111.53
4.50	112.10	111.66
4.00	113.09	112.86
3.50	114.19	113.85
3.00	115.27	114.88
2.50	116.42	115.97
2.00	116.97	116.35
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	PLA600F-5
Item	Overvoltage Protection
Object	+5V100A

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
30	6.59	6.59
40	6.59	6.59
50	6.59	6.59
60	6.59	6.59
--	-	-
--	-	-

COSEL

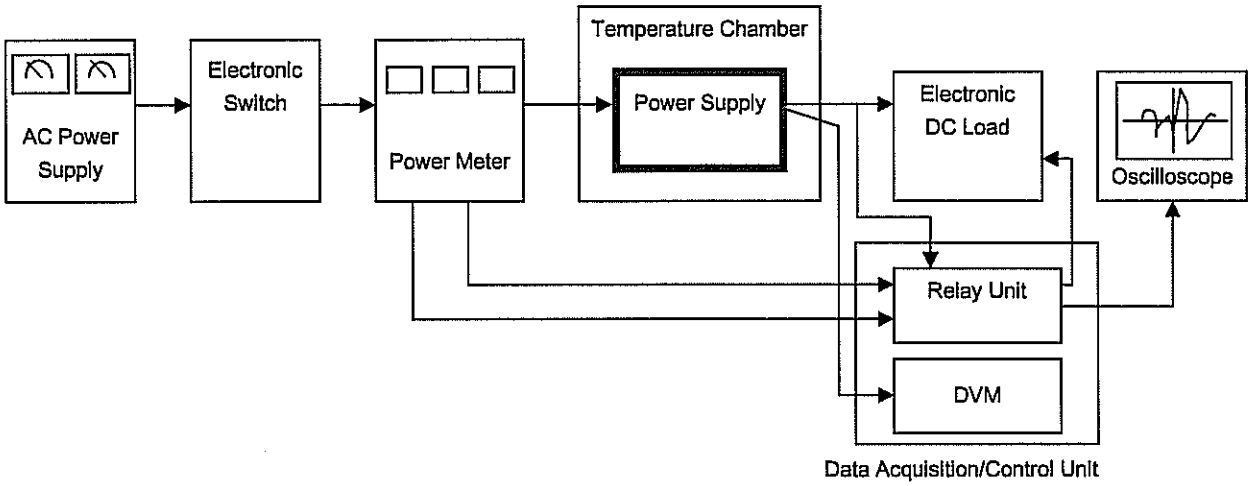


Figure A

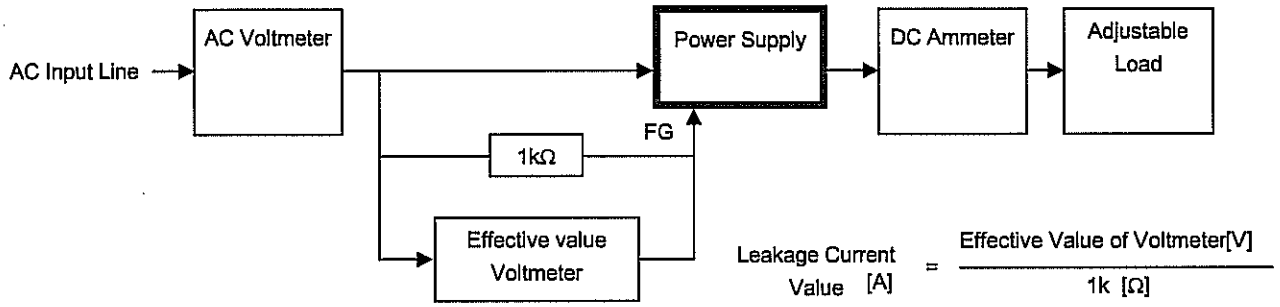


Figure B (DEN-AN)

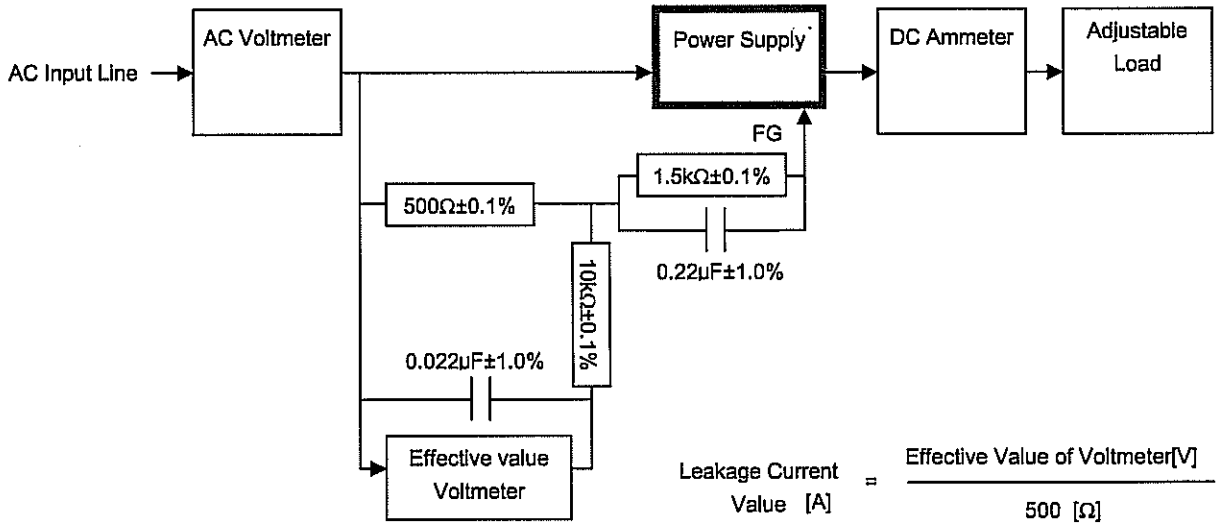


Figure B (IEC60950-1)

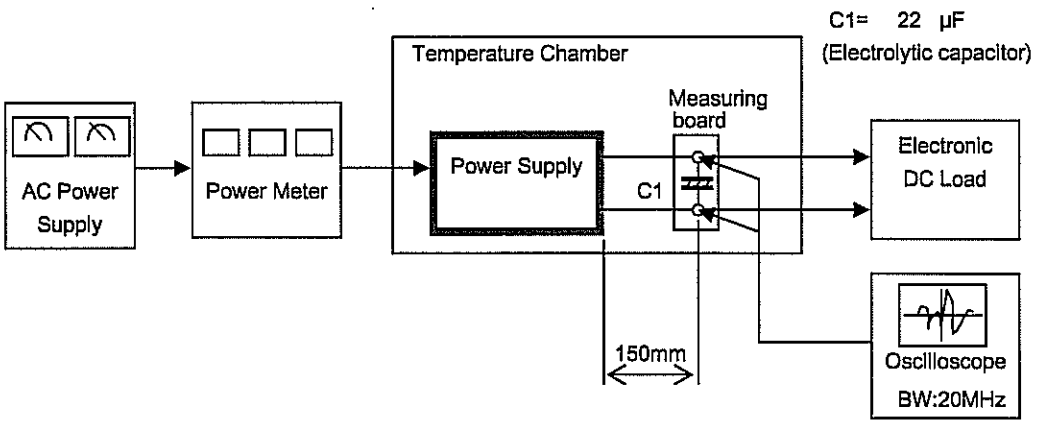

C1= 22 µF
(Electrolytic capacitor)
Temperature Chamber
Measuring board
AC Power Supply
Power Meter
Power Supply
C1
Electronic DC Load
150mm
Oscilloscope
BW:20MHz

Figure C