COSEL

参考資料

TEST DATA OF LFA300F-5-TY

Regulated DC Power Supply
December 22, 2010

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COSEL CO.,LTD.

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Item	Input Current (by Load Current)
Object	————————

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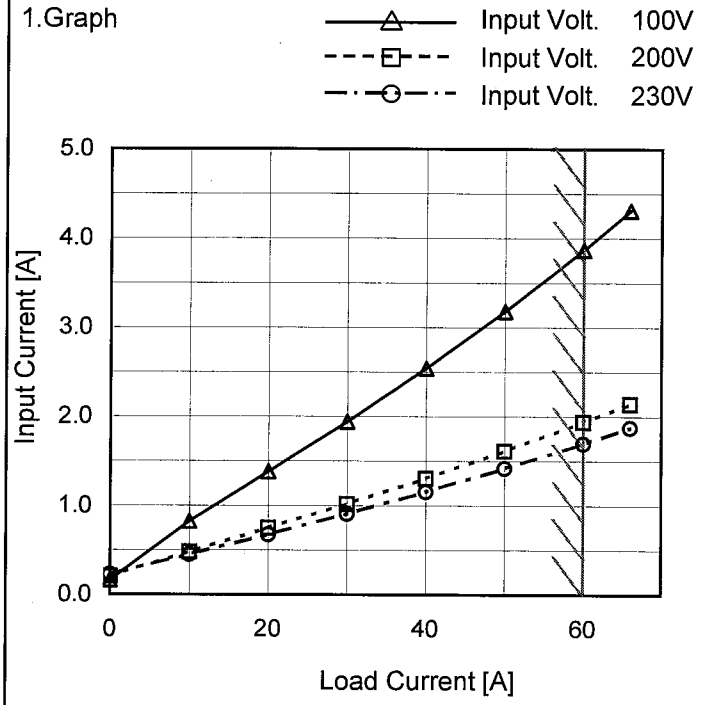

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0	0.162	0.206	0.228
10	0.822	0.479	0.450
20	1.378	0.746	0.672
30	1.940	1.018	0.906
40	2.540	1.305	1.154
50	3.178	1.612	1.418
60	3.870	1.938	1.696
66	4.310	2.142	1.874
--	-	-	-
--	-	-	-
--	-	-	-

BC-10492

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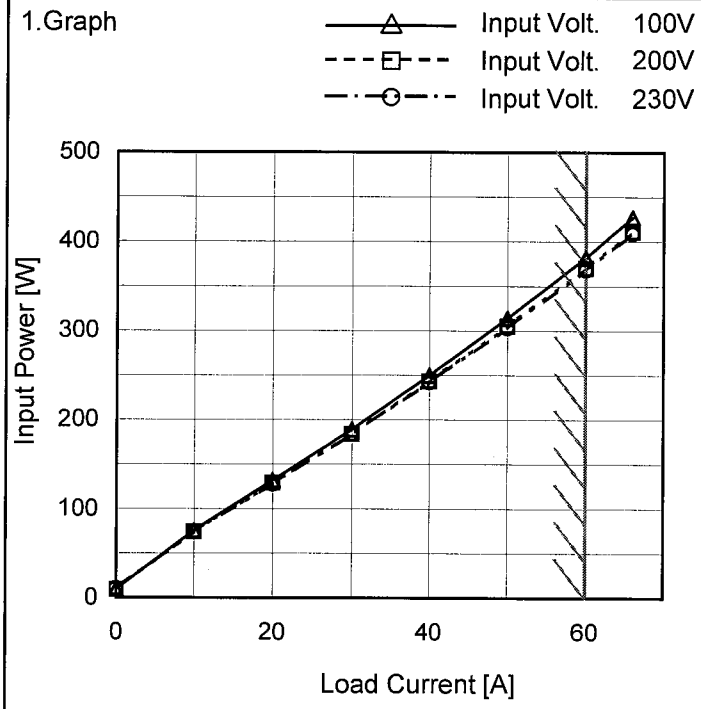
Model	LFA300F-5-TY
Item	Input Power (by Load Current)
Object	————————

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. 200[V]	Input Volt. 230[V]
0	9.5	9.0	10.0
10	75.3	74.0	74.0
20	131.7	129.0	128.0
30	189.0	184.0	184.0
40	249.6	243.0	242.0
50	313.8	305.0	303.0
60	382.0	370.0	368.0
66	427.0	411.0	409.0
--	-	-	-
--	-	-	-
--	-	-	-

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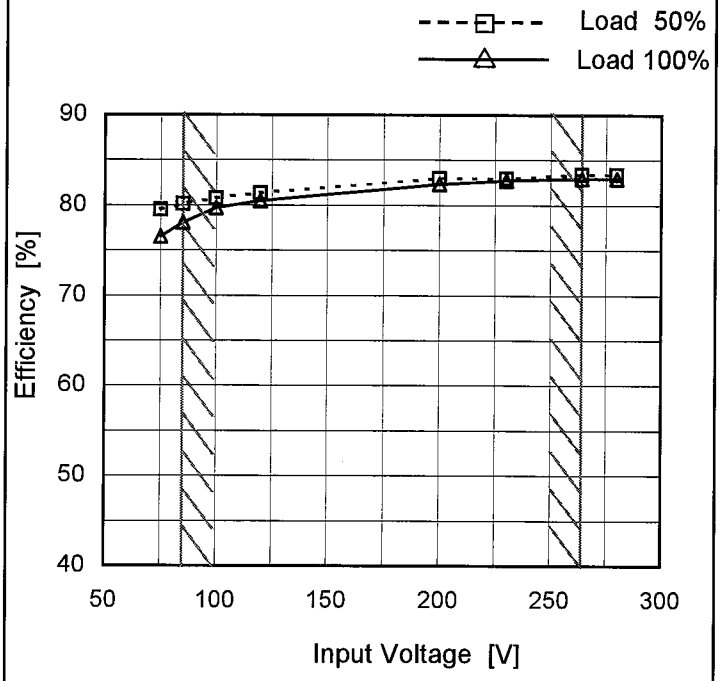
Model	LFA300F-5-TY
Item	Efficiency (by Input Voltage)
Object	———————

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%
75	79.5	76.5
85	80.1	78.1
100	80.7	79.7
120	81.3	80.5
200	82.9	82.3
230	82.9	82.7
264	83.4	83.0
280	83.4	83.0
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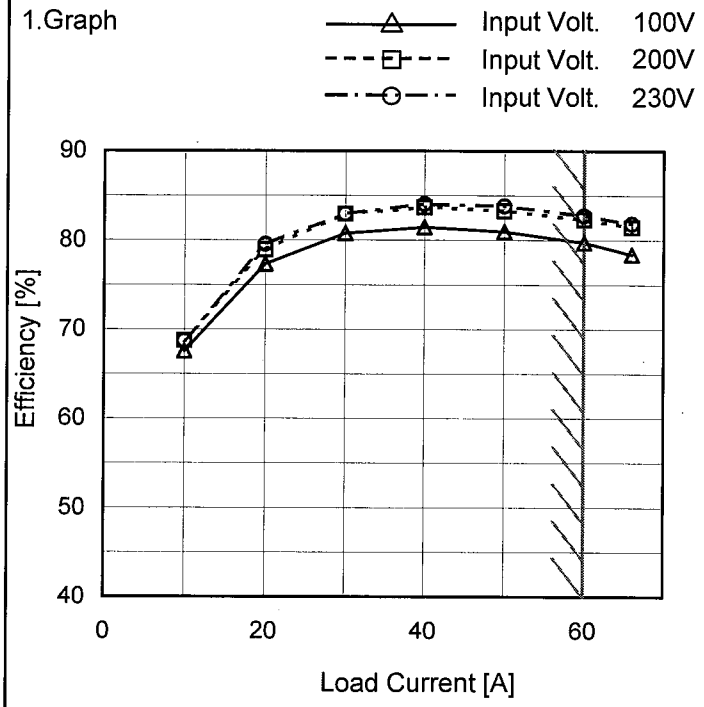
Model	LFA300F-5-TY
Item	Efficiency (by Load Current)
Object	————————

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. 200[V]	Input Volt. 230[V]
0	-	-	-
10	67.5	68.7	68.7
20	77.3	78.9	79.6
30	80.8	82.9	82.9
40	81.5	83.7	84.0
50	80.9	83.3	83.8
60	79.7	82.3	82.7
66	78.4	81.5	81.9
--	-	-	-
--	-	-	-
--	-	-	-

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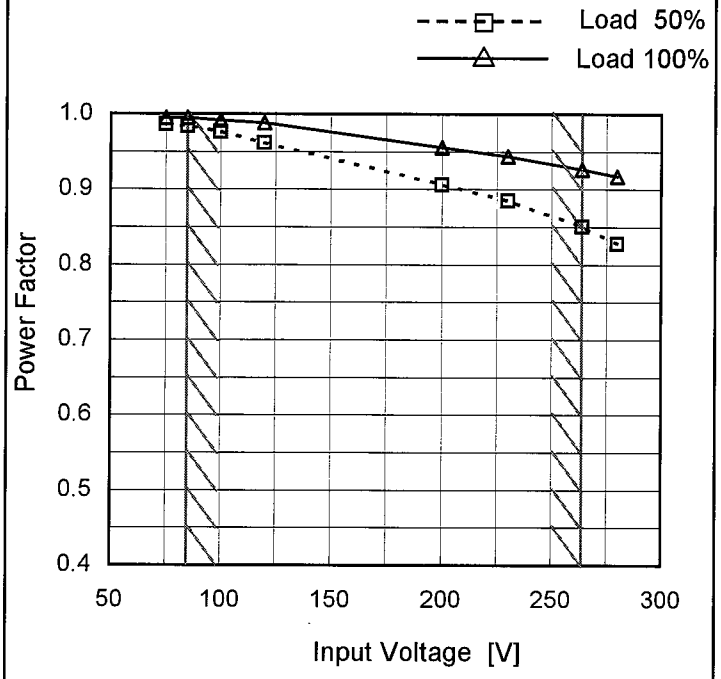
Model	LFA300F-5-TY
Item	Power Factor (by Input Voltage)
Object	———————

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%
75	0.987	0.995
85	0.984	0.995
100	0.976	0.992
120	0.962	0.988
200	0.906	0.956
230	0.885	0.944
264	0.851	0.927
280	0.828	0.918
--	-	-

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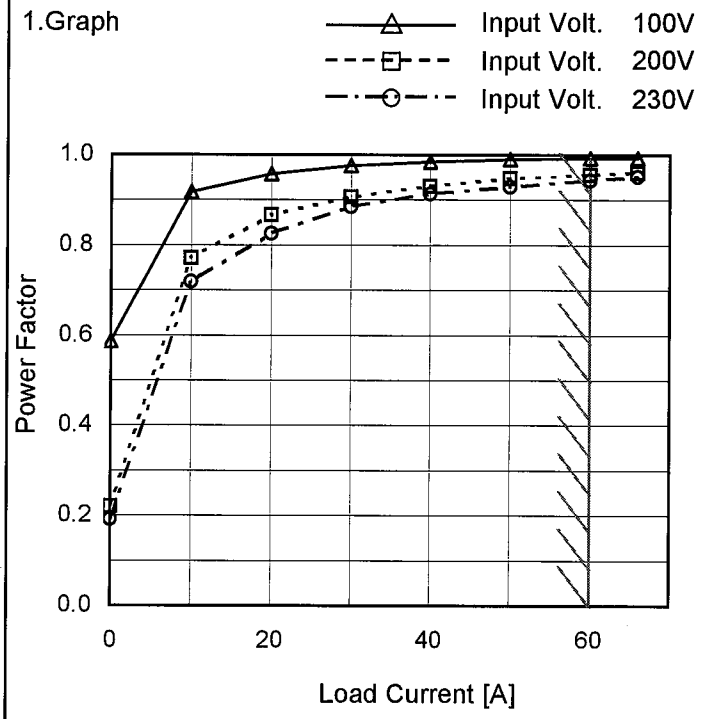
Model	LFA300F-5-TY
Item	Power Factor (by Load Current)
Object	————————

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. 200[V]	Input Volt. 230[V]
0	0.586	0.220	0.192
10	0.917	0.771	0.718
20	0.957	0.866	0.826
30	0.976	0.906	0.885
40	0.984	0.931	0.913
50	0.990	0.947	0.929
60	0.992	0.956	0.944
66	0.993	0.960	0.951
--	-	-	-
--	-	-	-
--	-	-	-

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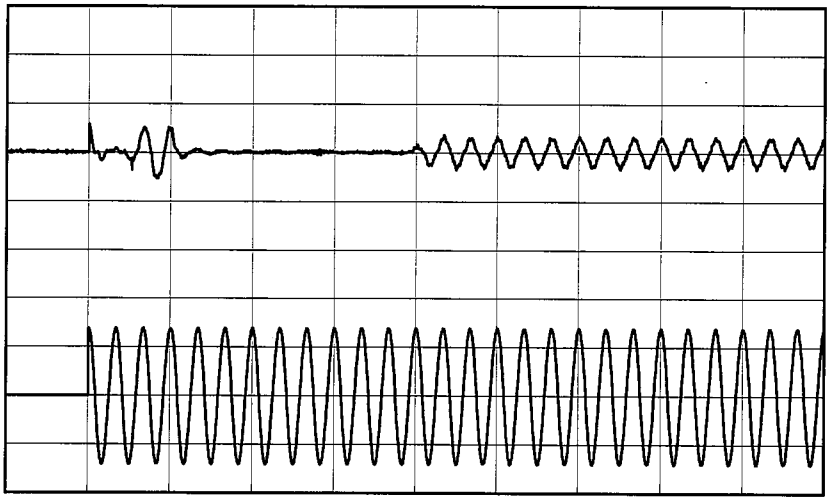
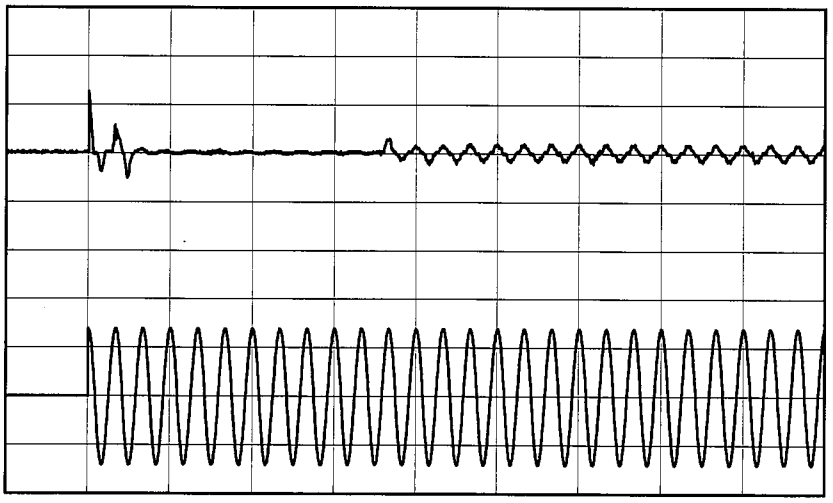
Model	LFA300F-5-TY
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



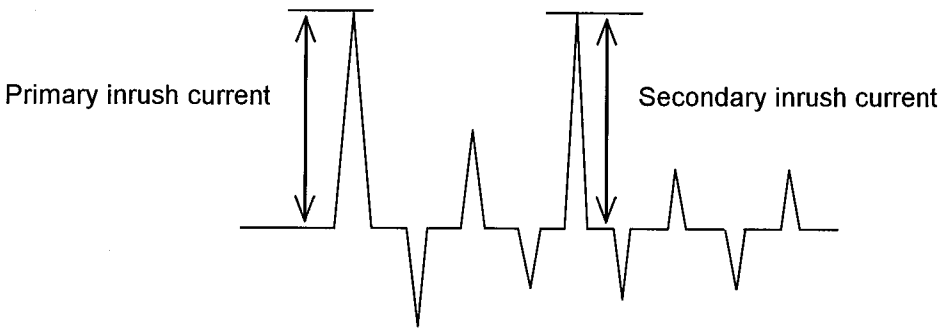
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
11.4 A
Secondary inrush current :
9.6 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
25.1 A
Secondary inrush current :
5.9 A



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Model	LFA300F-5-TY		
Item	Leakage Current	Temperature	25°C
Object	———————	Testing Circuitry	Figure B

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.33	0.53	0.60	Operation
	One of phases	0.34	0.70	0.83	Stand by
IEC60950-1	Both phases	0.24	0.50	0.57	Operation
	One of phases	0.32	0.68	0.74	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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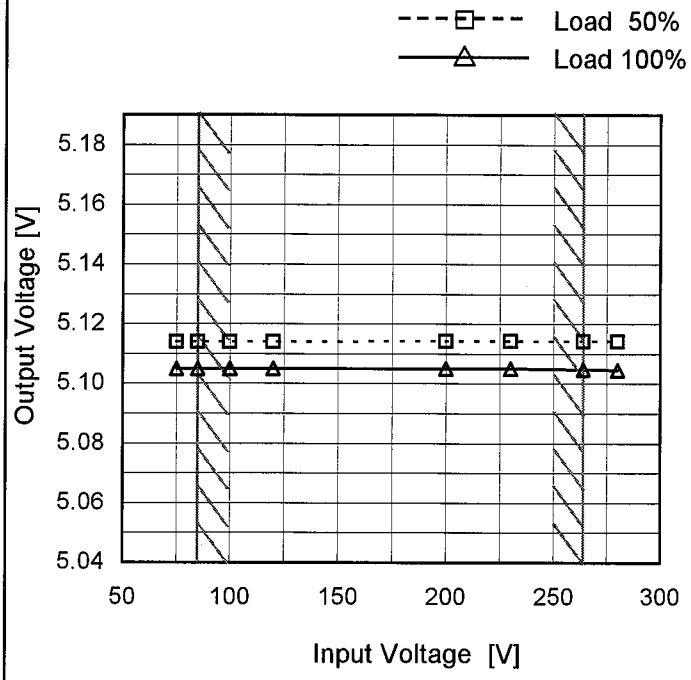
Model	LFA300F-5-TY
Item	Line Regulation
Object	+5V60A

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%
75	5.114	5.105
85	5.114	5.105
100	5.114	5.105
120	5.114	5.105
200	5.114	5.105
230	5.114	5.105
264	5.114	5.105
280	5.114	5.104
--	-	-

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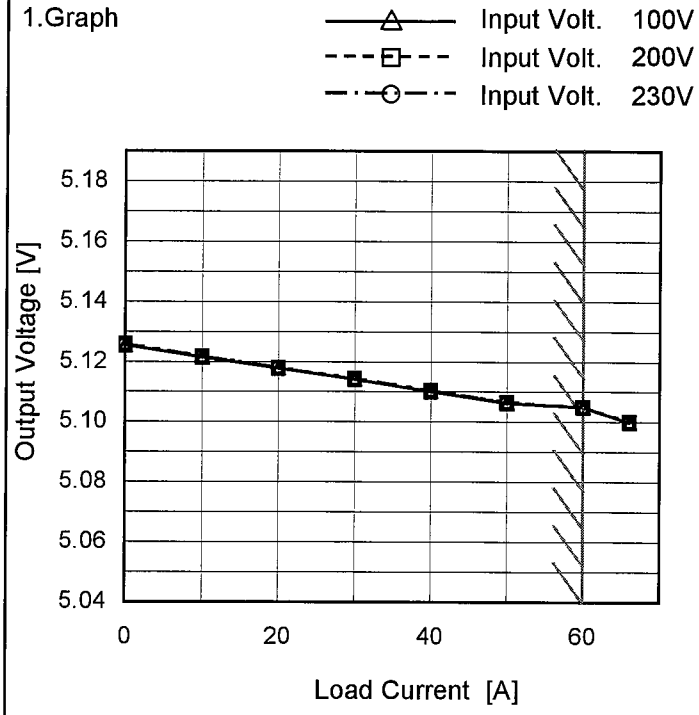
Model	LFA300F-5-TY
Item	Load Regulation
Object	+5V60A

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. 200[V]	Input Volt. 230[V]
0	5.126	5.126	5.126
10	5.121	5.122	5.122
20	5.118	5.118	5.118
30	5.114	5.114	5.114
40	5.110	5.111	5.110
50	5.106	5.107	5.106
60	5.105	5.105	5.105
66	5.100	5.100	5.100
--	-	-	-
--	-	-	-
--	-	-	-

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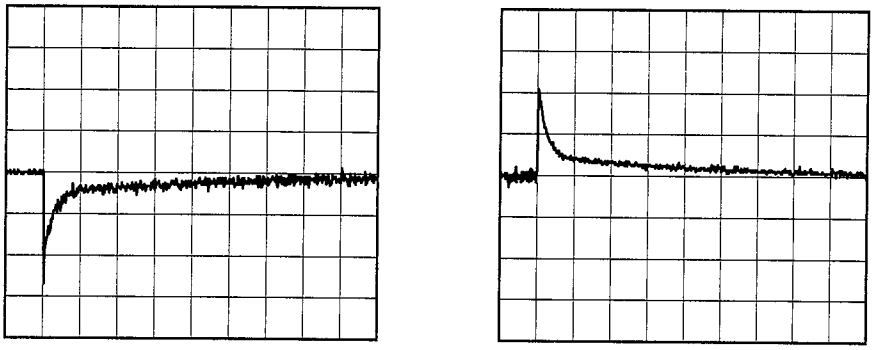
Model	LFA300F-5-TY		
Item	Dynamic Load Response	Temperature	25˚C
		Testing Circuitry	Figure A
Object	+5V60A		

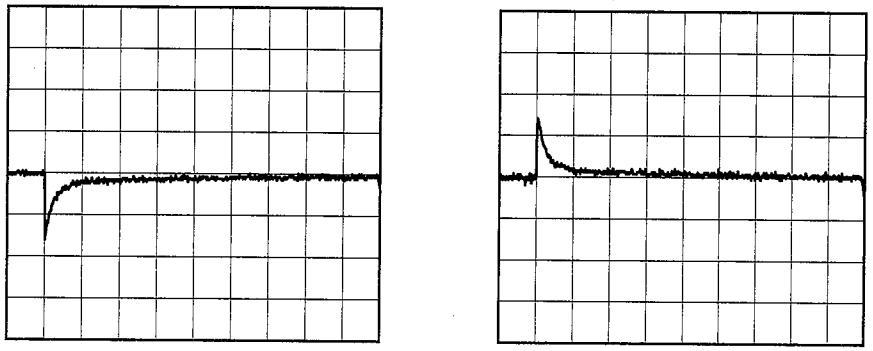
Input Volt. 100 V
Cycle 1000 ms

Response. t1=t2=50us. Typ

Min. Load (0A) ⟷
Load 100% (60A)



Min. Load (0A) ⟷
Load 50% (30A)



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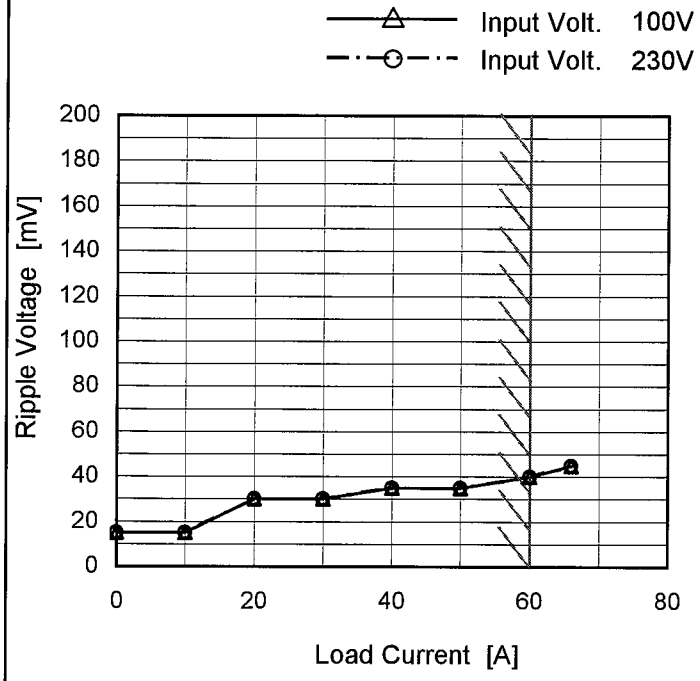
Model	LFA300F-5-TY
Item	Ripple Voltage (by Load Current)
Object	+5V60A

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. 100 [V]	Input Volt. 230 [V]
0	15	15
10	15	15
20	30	30
30	30	30
40	35	35
50	35	35
60	40	40
66	45	45
--	-	-
--	-	-
--	-	-

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

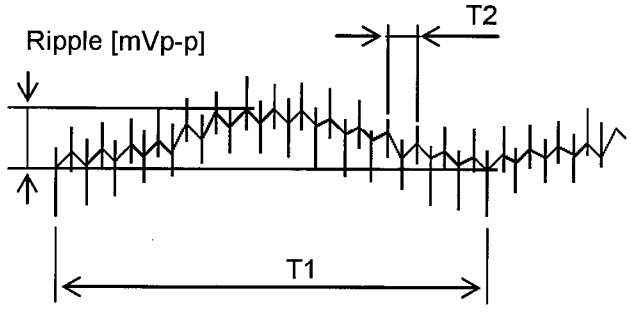


Fig. Complex Ripple Wave Form

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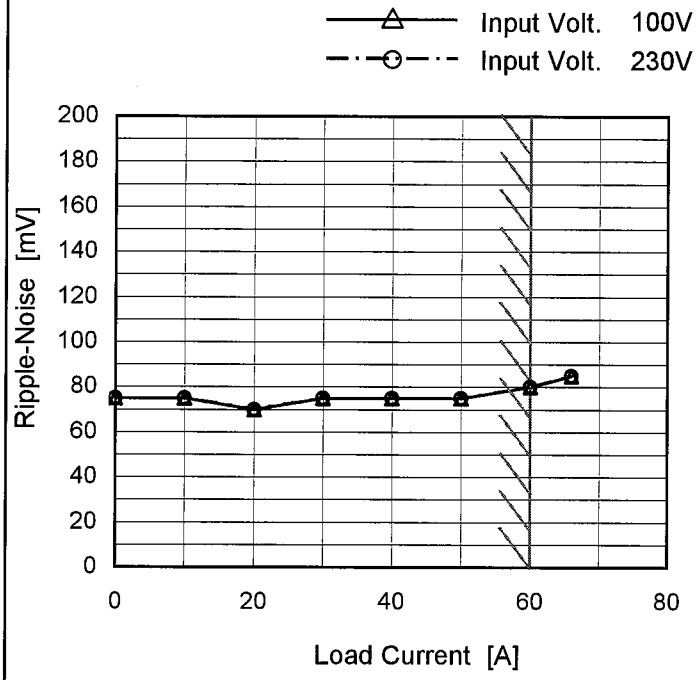
Model	LFA300F-5-TY
Item	Ripple-Noise
Object	+5V60A

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. 100 [V]	Input Volt. 230 [V]
0	75	75
10	75	75
20	70	70
30	75	75
40	75	75
50	75	75
60	80	80
66	85	85
--	-	-
--	-	-
--	-	-

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

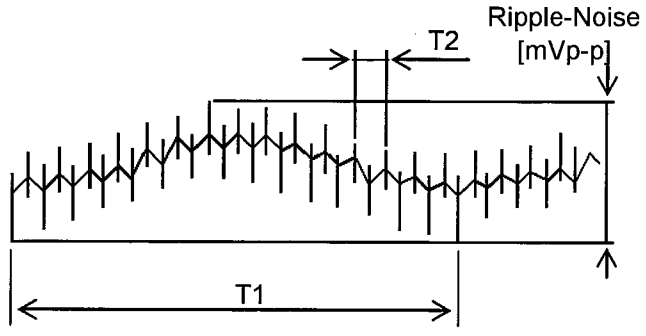


Fig. Complex Ripple Wave Form

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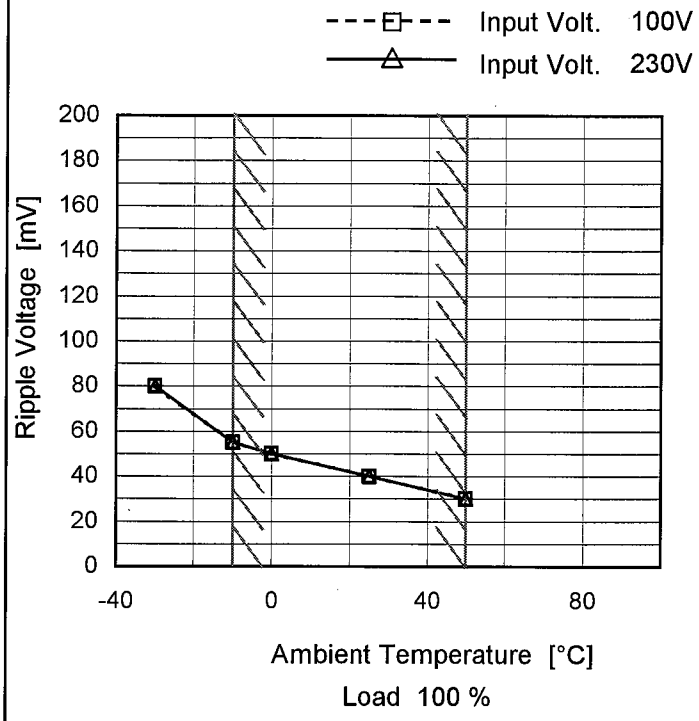
Model	LFA300F-5-TY
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V60A

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. 100 [V]	Input Volt. 230 [V]
-30	80	80
-10	55	55
0	50	50
25	40	40
50	30	30
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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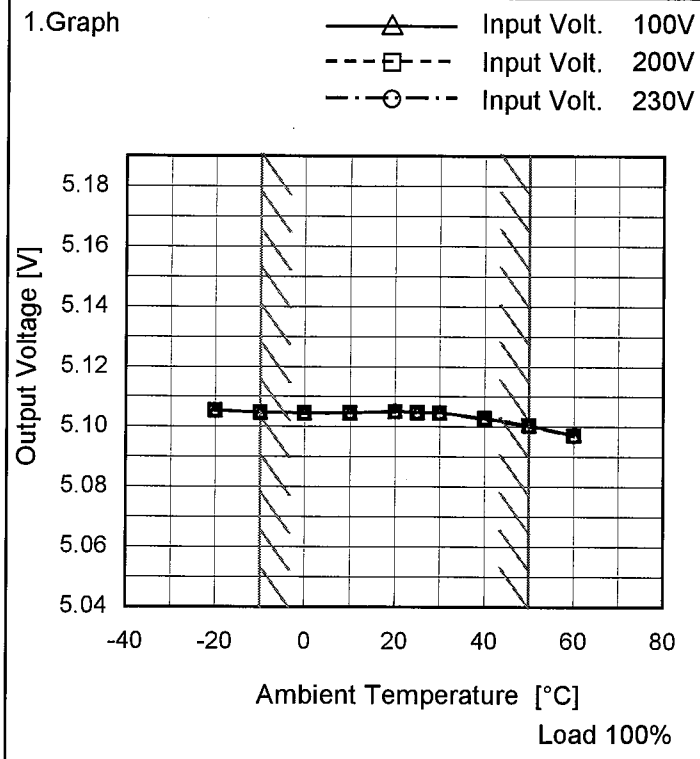
Model	LFA300F-5-TY
Item	Ambient Temperature Drift
Object	+5V60A

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. 200[V]	Input Volt. 230[V]
-20	5.105	5.106	5.106
-10	5.105	5.105	5.105
0	5.105	5.105	5.104
10	5.105	5.105	5.105
20	5.105	5.105	5.105
25	5.105	5.105	5.105
30	5.105	5.105	5.105
40	5.103	5.103	5.103
50	5.101	5.101	5.100
60	5.097	5.097	5.097
--	-	-	-

COSEL

Model	LFA300F-5-TY	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V60A	

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 : 85 - 264V
Load Current : 0 - 60A

* 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

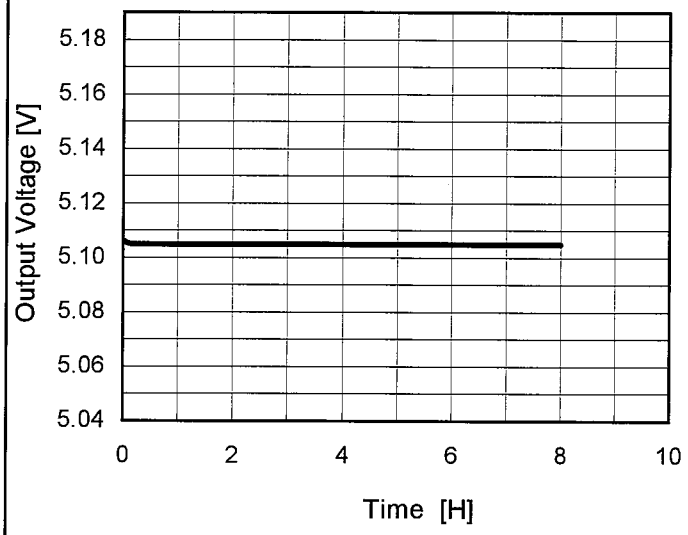
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	30	264	0	5.128	±14	±0.3
Minimum Voltage	50	264	60	5.100		

COSEL

Model	LFA300F-5-TY
Item	Time Lapse Drift
Object	+5V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC230V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.106
0.5	5.105
1.0	5.105
2.0	5.105
3.0	5.105
4.0	5.105
5.0	5.105
6.0	5.105
7.0	5.105
8.0	5.105

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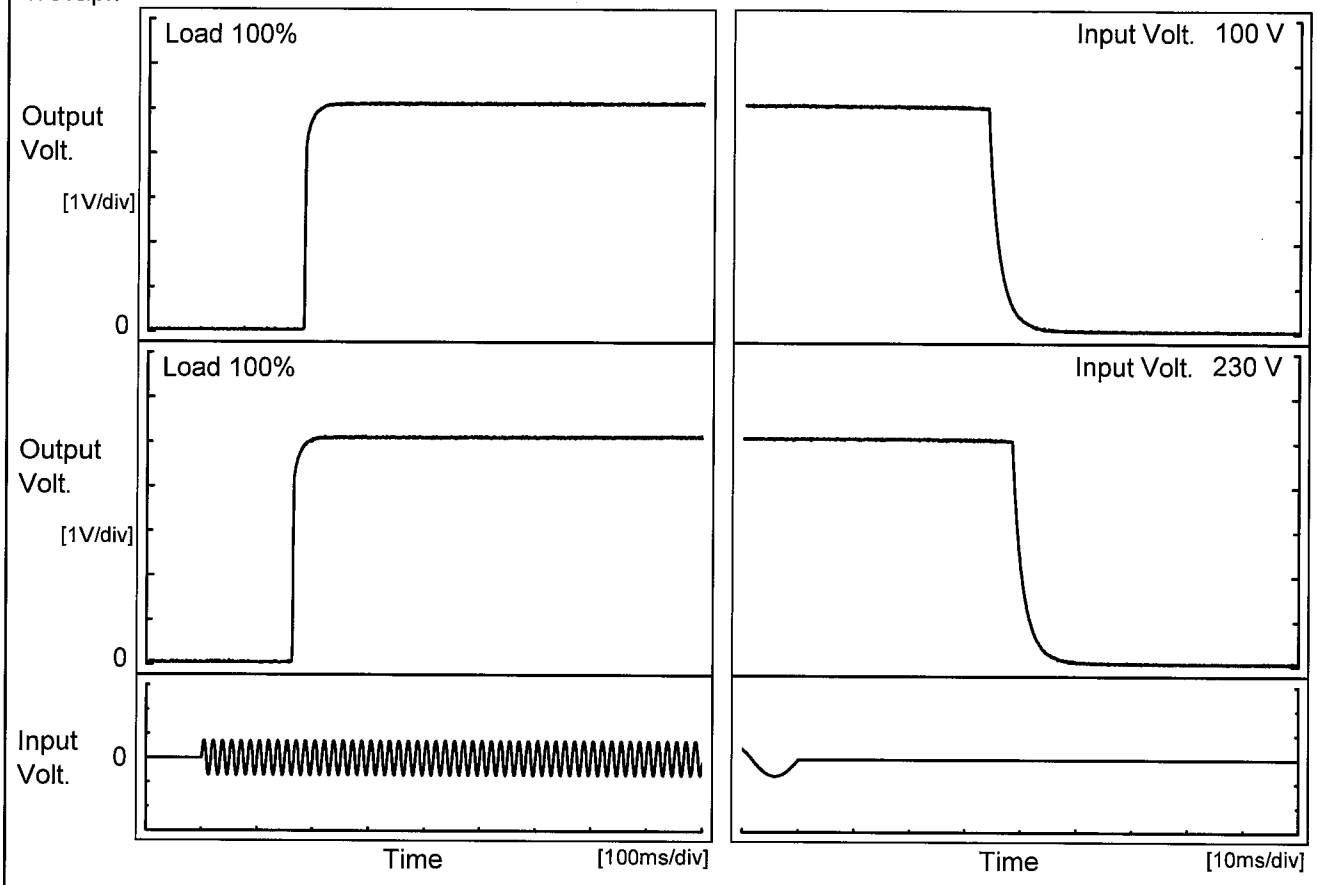
Model	LFA300F-5-TY
Item	Rise and Fall Time
Object	+5V60A

Temperature 25°C
Testing Circuitry Figure A

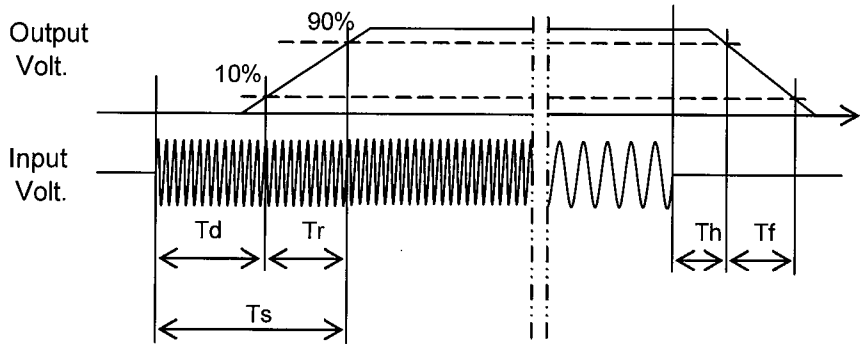
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	182.5	7.5	190.0	34.1	4.7
230 V	164.0	7.5	171.5	38.7	4.6



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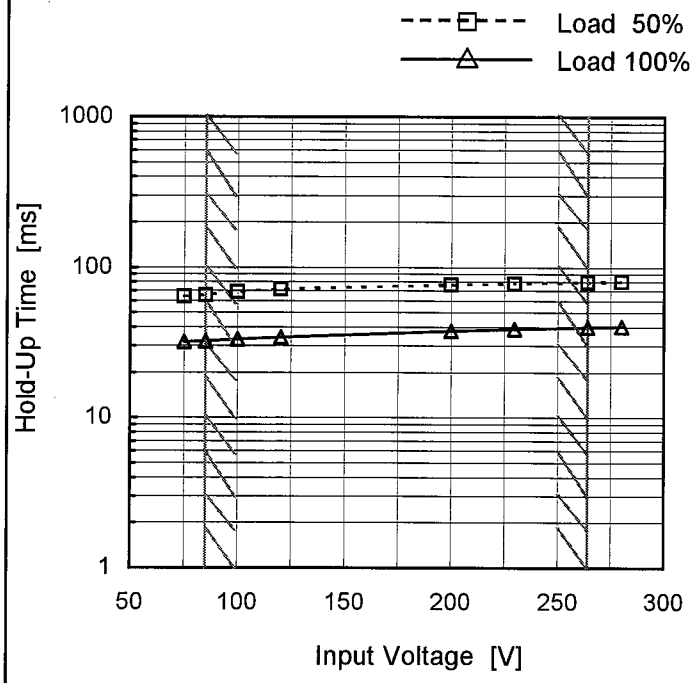
Model	LFA300F-5-TY
Item	Hold-Up Time
Object	+5V60A

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%
75	64	32
85	65	32
100	69	33
120	72	34
200	76	38
230	78	39
264	79	40
280	80	40
--	-	-

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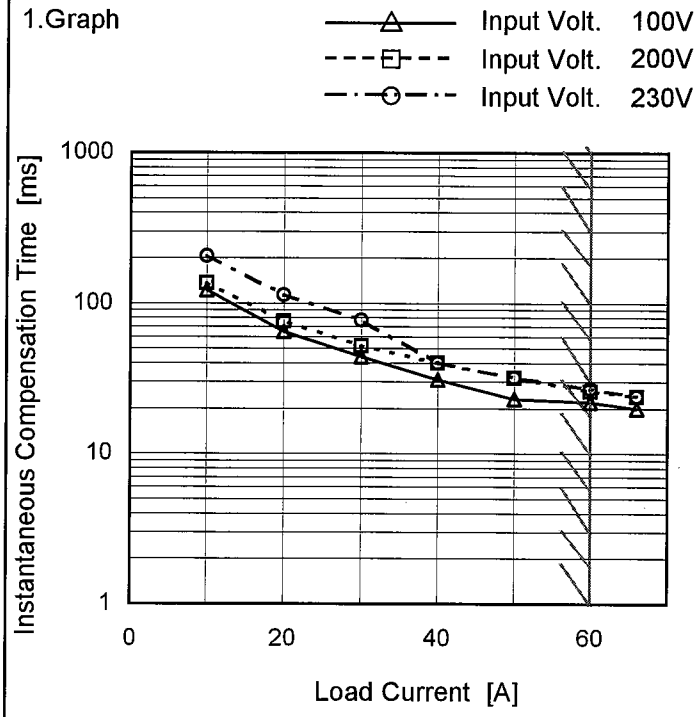
Model	LFA300F-5-TY
Item	Instantaneous Interruption Compensation
Object	+5V60A

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. 200[V]	Input Volt. 230[V]
0	-	-	-
10	123	137	206
20	65	76	113
30	44	52	77
40	31	40	40
50	23	32	32
60	22	26	27
66	20	24	24
--	-	-	-
--	-	-	-
--	-	-	-

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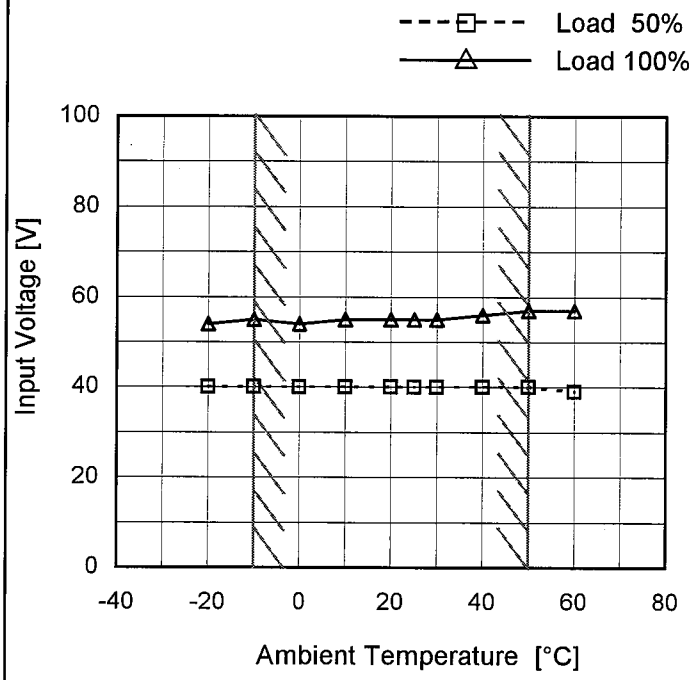
Model	LFA300F-5-TY
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V60A

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	40	54
-10	40	55
0	40	54
10	40	55
20	40	55
25	40	55
30	40	55
40	40	56
50	40	57
60	39	57
--	-	-

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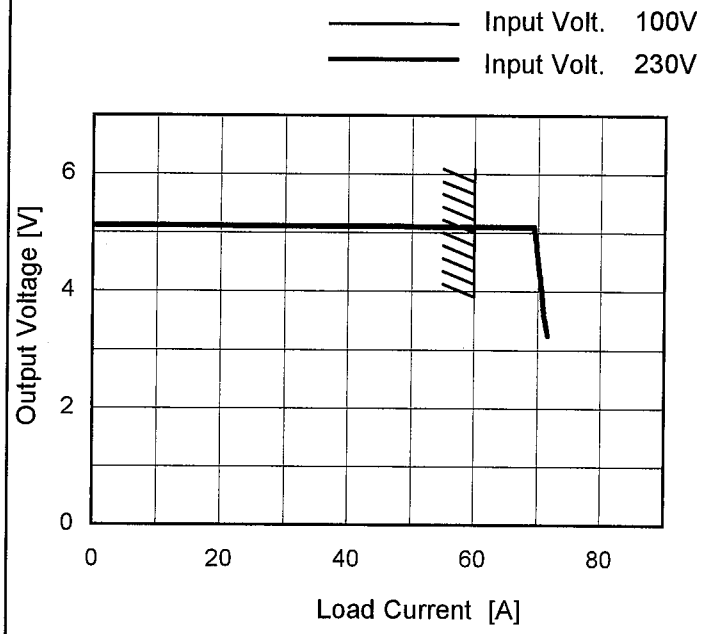
Model	LFA300F-5-TY
Item	Overcurrent Protection
Object	+5V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when the output voltage is from 3V to 0V.

2.Values

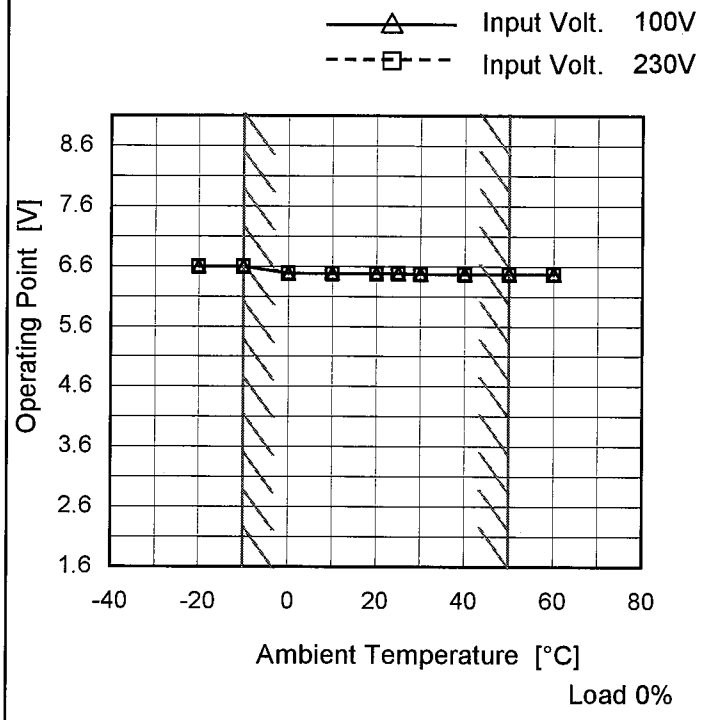
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 230[V]
5.00	69.50	69.50
4.75	69.83	69.80
4.50	70.13	69.96
4.00	70.58	70.58
3.50	71.13	71.04
3.00	71.40	71.49
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	LFA300F-5-TY
Item	Overvoltage Protection
Object	+5V60A

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. 100[V]	Input Volt. 230[V]
-20	6.61	6.61
-10	6.61	6.61
0	6.49	6.49
10	6.49	6.49
20	6.49	6.49
25	6.49	6.49
30	6.48	6.48
40	6.48	6.48
50	6.48	6.48
60	6.48	6.48
--	-	-

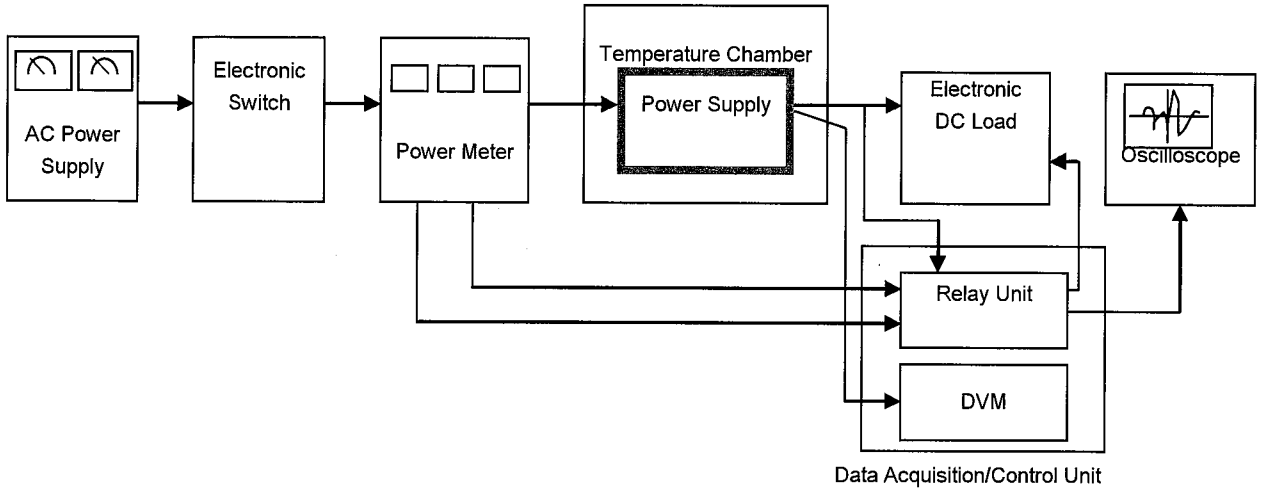


Figure A

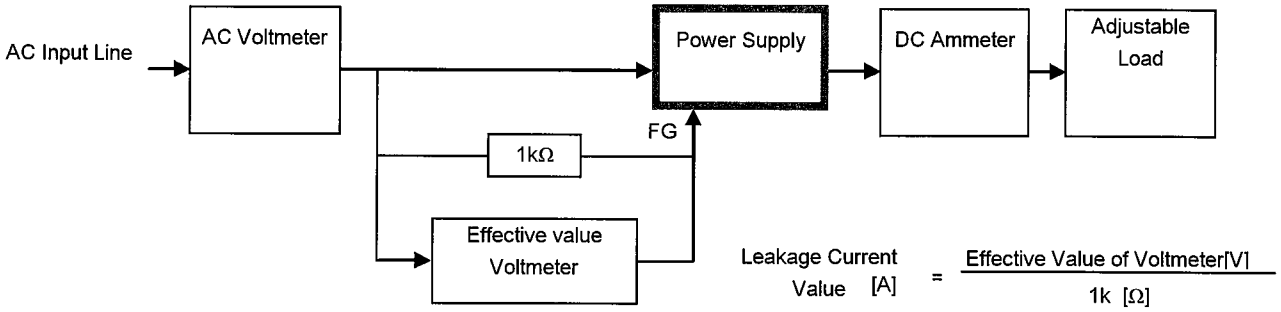


Figure B (DEN-AN)

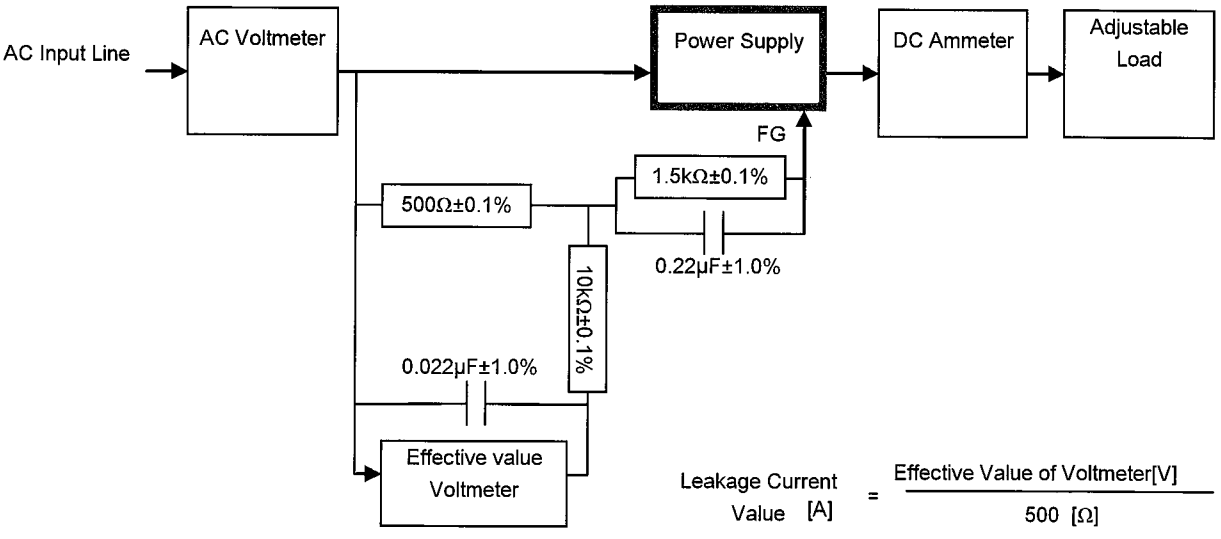


Figure B (IEC60950-1)

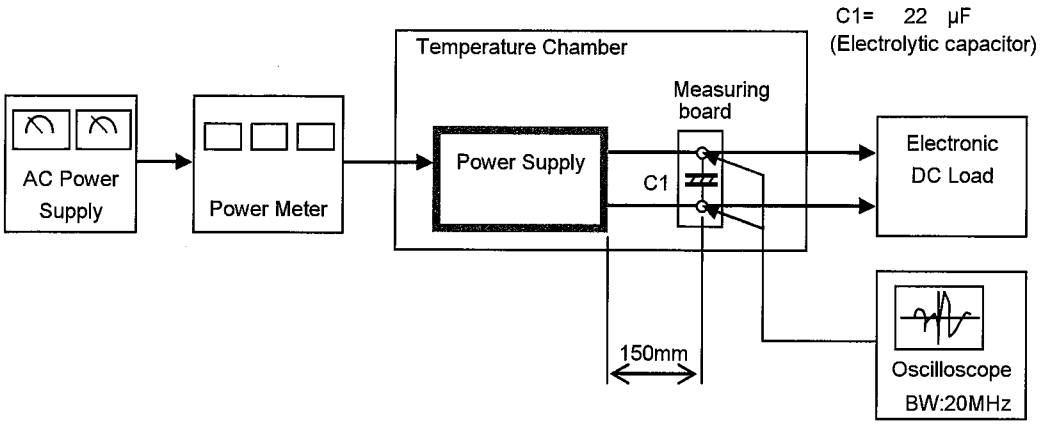

C1= 22 μF
(Electrolytic capacitor)
Temperature Chamber
Measuring board
AC Power Supply
Power Meter
Power Supply
C1
Electronic DC Load
150mm
Oscilloscope
BW:20MHz

Figure C