参考資料

COSEL

TEST DATA OF LGA50A-3R3-Y

Regulated DC Power Supply
May 20, 2011

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COSEL CO.,LTD.

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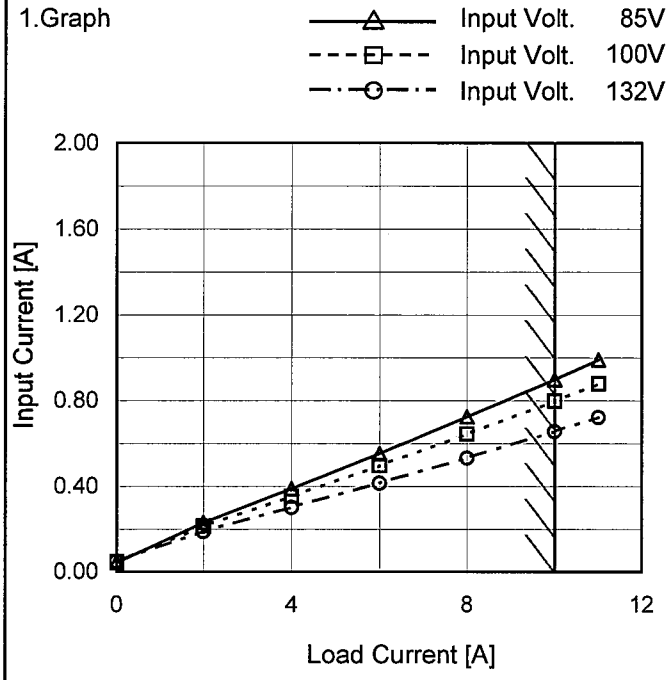
Model	LGA50A-3R3-Y
Item	Input Current (by Load Current)
Object	————————

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. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	0.045	0.047	0.050
2	0.231	0.213	0.190
4	0.390	0.353	0.302
6	0.553	0.495	0.415
8	0.725	0.644	0.533
10	0.900	0.797	0.657
11	0.992	0.878	0.723
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-10540

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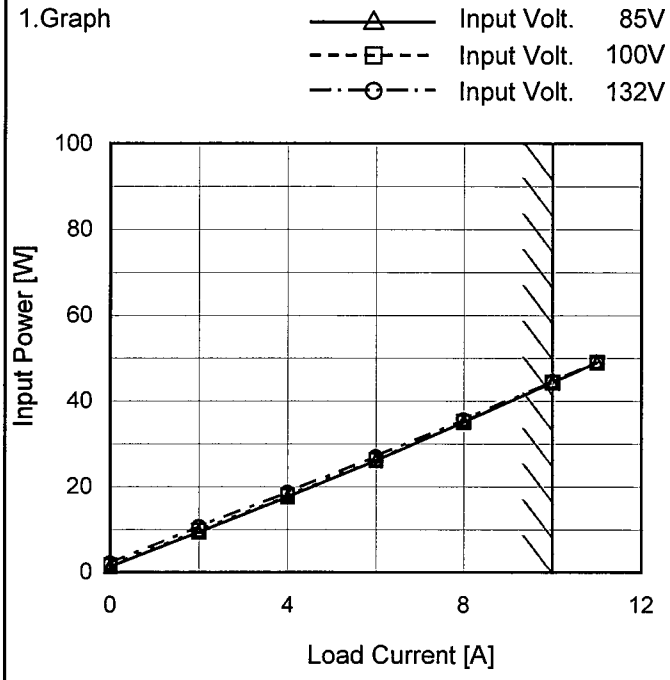
Model	LGA50A-3R3-Y
Item	Input Power (by Load Current)
Object	————————

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. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	1.36	1.59	2.19
2	9.45	9.79	10.71
4	17.70	17.87	18.69
6	26.20	26.30	27.10
8	35.10	35.10	35.70
10	44.40	44.30	44.60
11	49.10	49.00	49.20
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-10540

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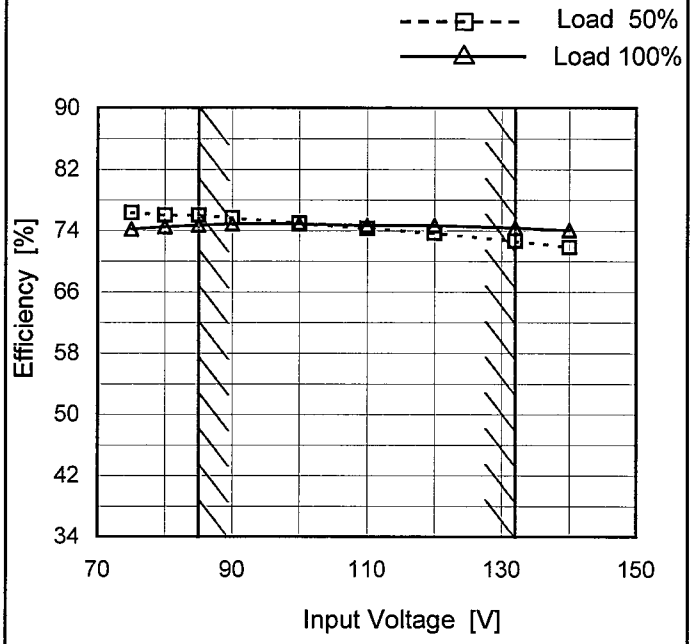
Model	LGA50A-3R3-Y
Item	Efficiency (by Input Voltage)
Object	———————

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	76.3	74.2
80	76.0	74.6
85	76.0	74.7
90	75.6	74.9
100	75.0	74.9
110	74.3	74.7
120	73.7	74.7
132	72.6	74.4
140	71.8	74.1

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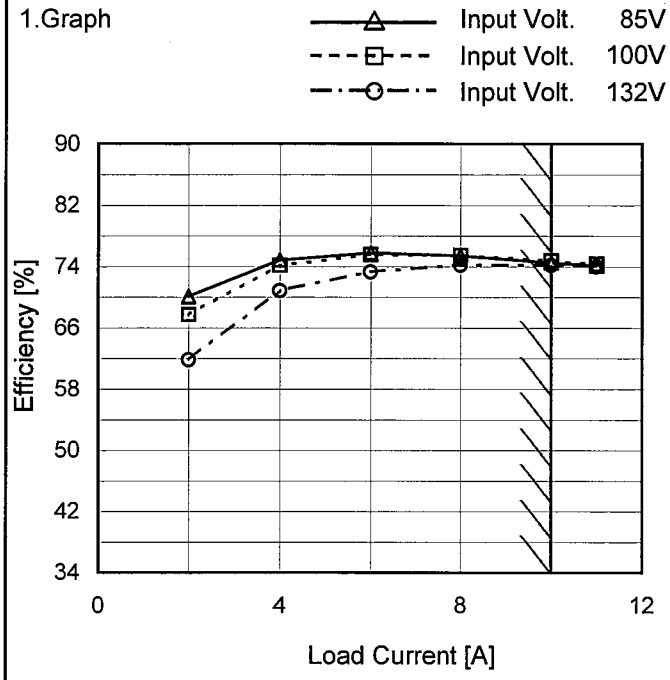
Model	LGA50A-3R3-Y
Item	Efficiency (by Load Current)
Object	————————

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. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	-	-	-
2	70.1	67.7	61.9
4	74.9	74.2	70.9
6	75.9	75.6	73.3
8	75.5	75.5	74.2
10	74.6	74.7	74.2
11	74.2	74.3	74.0
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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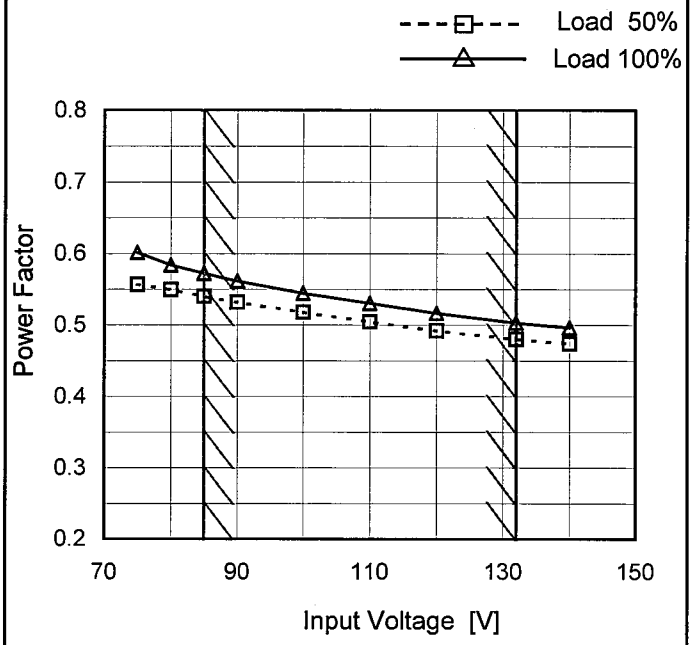
Model	LGA50A-3R3-Y
Item	Power Factor (by Input Voltage)
Object	———————

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	0.556	0.602
80	0.549	0.584
85	0.540	0.572
90	0.532	0.562
100	0.518	0.545
110	0.505	0.531
120	0.492	0.517
132	0.480	0.503
140	0.474	0.497

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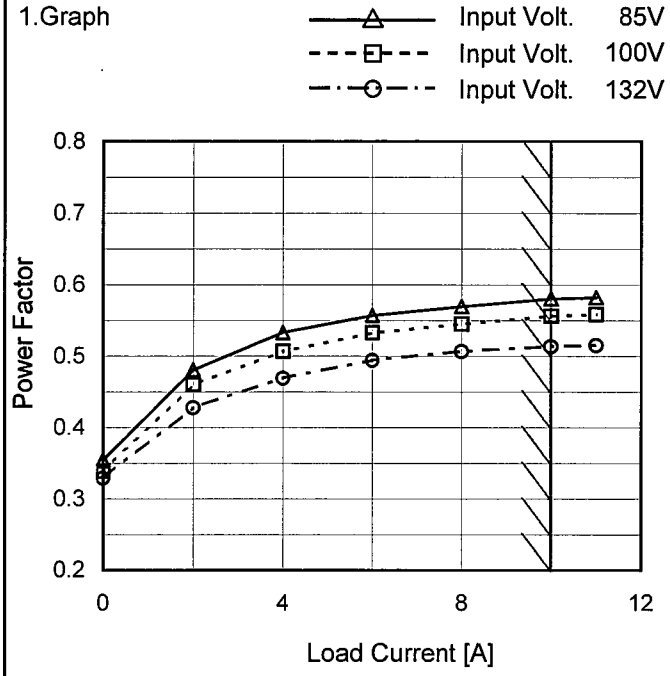
Model	LGA50A-3R3-Y
Item	Power Factor (by Load Current)
Object	———————

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. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	0.354	0.338	0.329
2	0.481	0.460	0.428
4	0.533	0.507	0.469
6	0.557	0.532	0.495
8	0.570	0.545	0.507
10	0.580	0.556	0.514
11	0.582	0.558	0.516
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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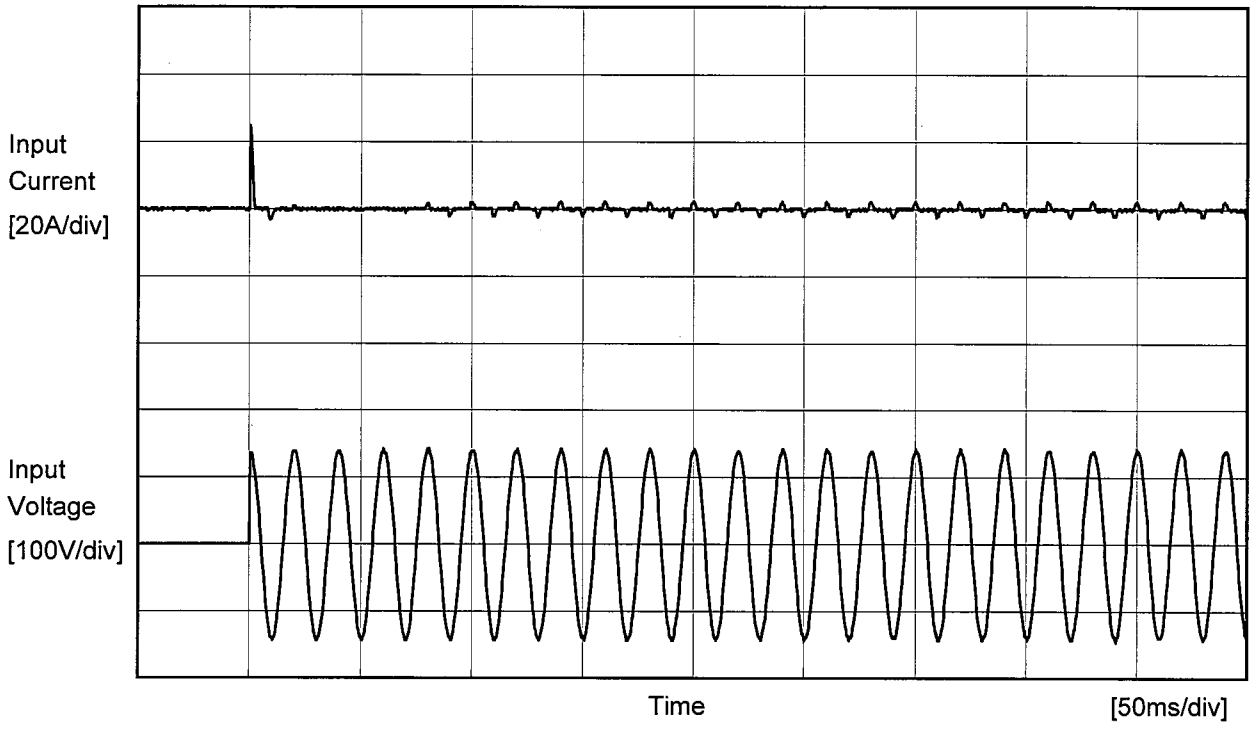
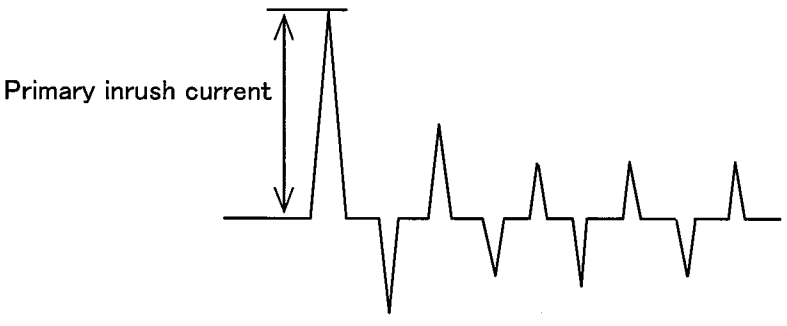
Model	LGA50A-3R3-Y		
Item	Inrush Current	Temperature	25°C
		Testing Circuitry	Figure A
Object	———————		



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	24.8 A



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Model	LGA50A-3R3-Y	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	———————————	

1.Results

Standards	Leakage Current [mA]		
	Input Volt. 100 [V]	Input Volt. 120 [V]	Input Volt. 132 [V]
(A)DEN-AN	0.18	0.20	0.24
(B)IEC60950-1	0.18	0.25	0.27

frequency 60Hz

2.Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

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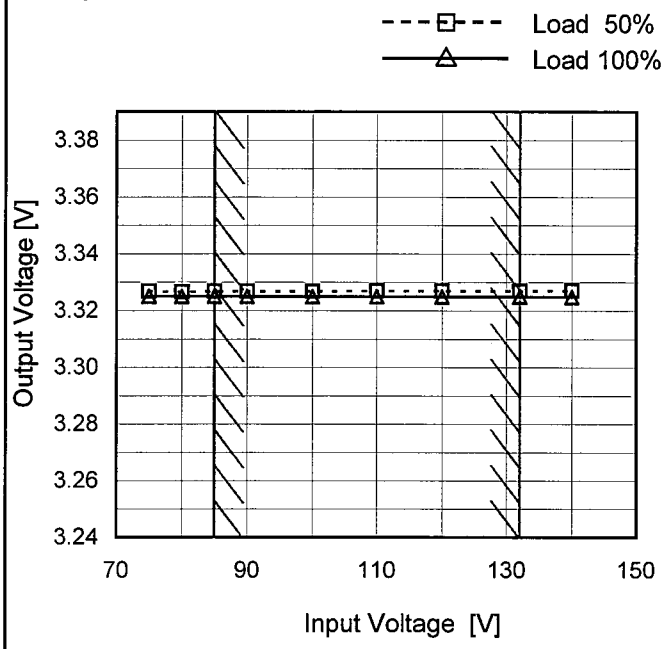
Model	LGA50A-3R3-Y
Item	Line Regulation
Object	+3.3V10A

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	3.327	3.325
80	3.327	3.325
85	3.327	3.325
90	3.327	3.325
100	3.327	3.325
110	3.327	3.325
120	3.327	3.325
132	3.327	3.325
140	3.327	3.325

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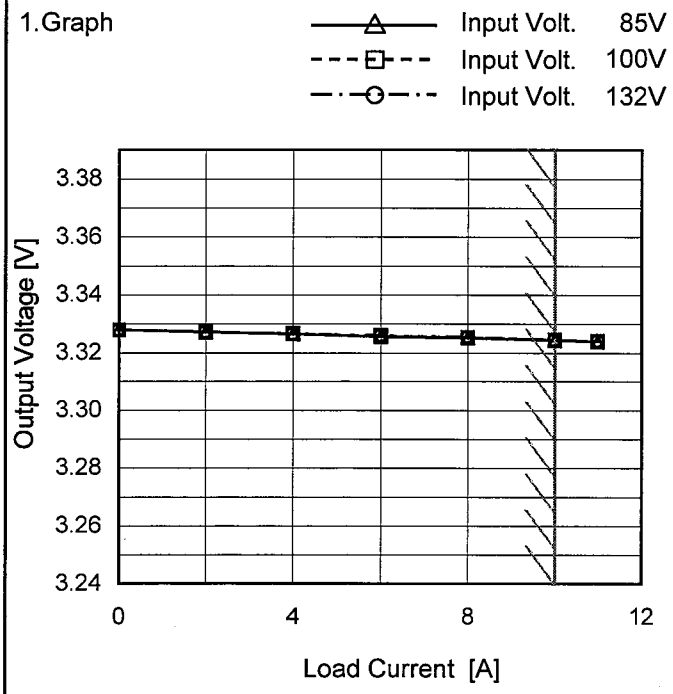
Model	LGA50A-3R3-Y
Item	Load Regulation
Object	+3.3V10A

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. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	3.328	3.328	3.328
2	3.327	3.327	3.327
4	3.326	3.327	3.327
6	3.326	3.326	3.326
8	3.325	3.325	3.326
10	3.324	3.324	3.324
11	3.324	3.324	3.324
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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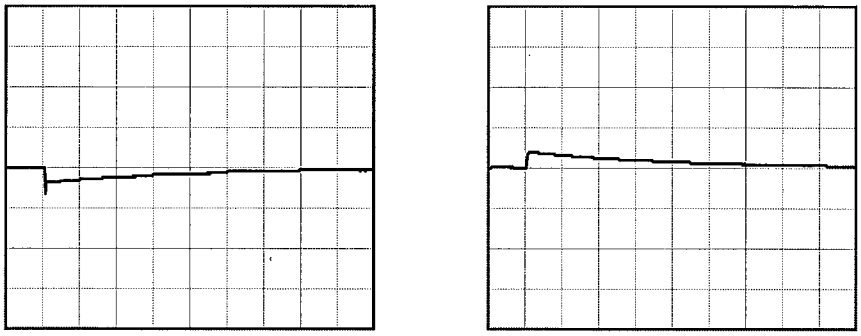
Model	LGA50A-3R3-Y		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure C
Object	+3.3V10A		

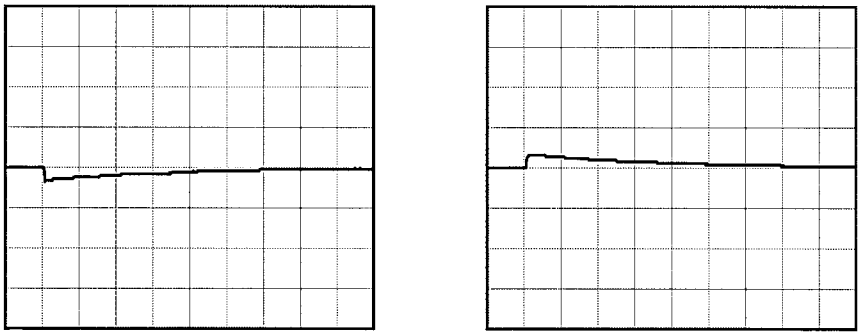
Input Volt. 100 V
Cycle 1000 ms

Response. t1=t2=50 μ s. Typ

Min. Load (0A) ⟷
Load 100% (10A)



Min. Load (0A) ⟷
Load 50% (5A)



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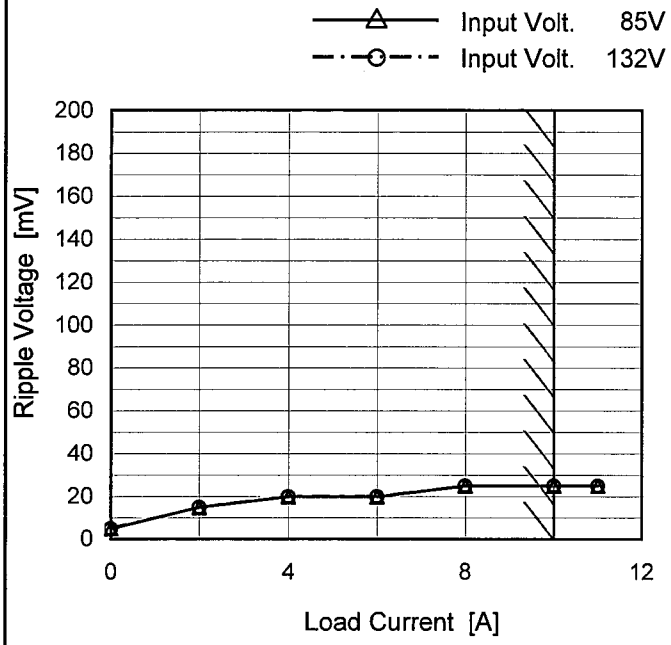
Model	LGA50A-3R3-Y
Item	Ripple Voltage (by Load Current)
Object	+3.3V10A

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. 85 [V]	Input Volt. 132 [V]
0	5	5
2	15	15
4	20	20
6	20	20
8	25	25
10	25	25
11	25	25
--	-	-
--	-	-
--	-	-
--	-	-

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

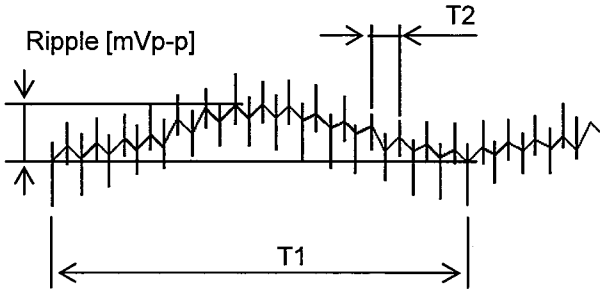


Fig. Complex Ripple Wave Form

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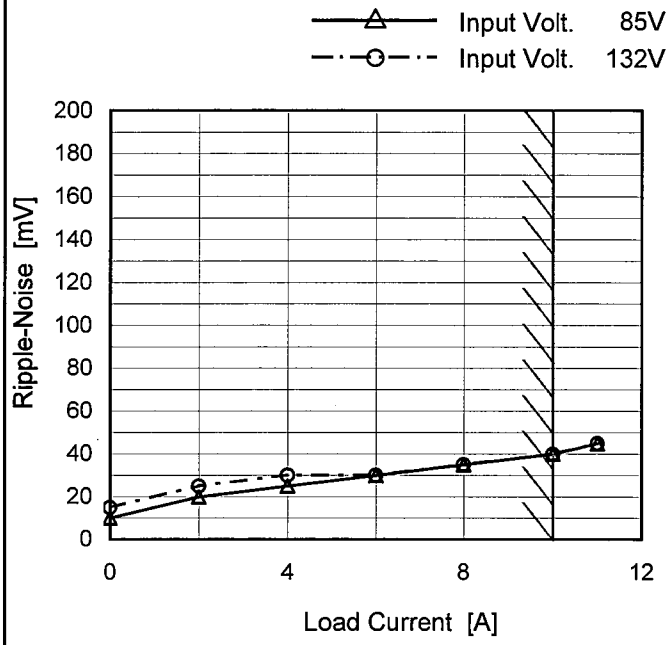
Model	LGA50A-3R3-Y
Item	Ripple-Noise
Object	+3.3V10A

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. 85 [V]	Input Volt. 132 [V]
0	10	15
2	20	25
4	25	30
6	30	30
8	35	35
10	40	40
11	45	45
--	-	-
--	-	-
--	-	-
--	-	-

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

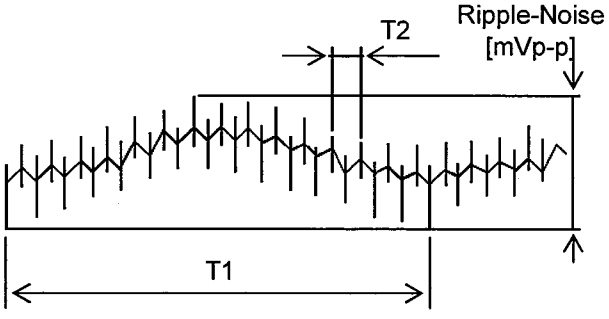


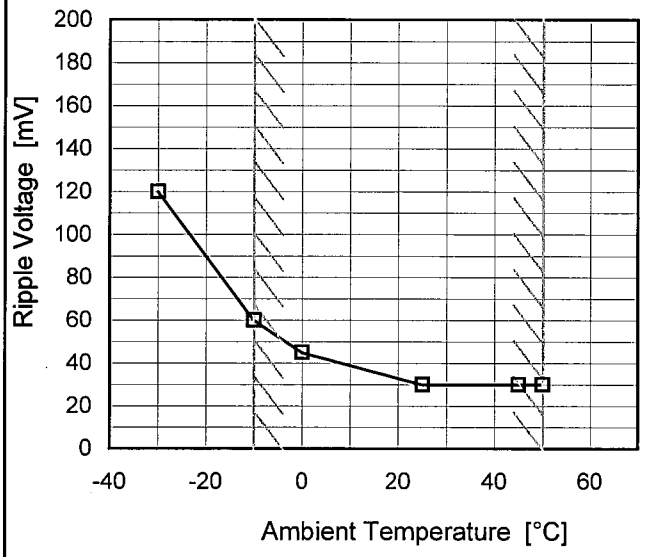
Fig. Complex Ripple Wave Form

COSEL

Model	LGA50A-3R3-Y
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V10A

Testing Circuitry Figure C

1.Graph



Input Volt. 100V

Input 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]
-30	120
-10	60
0	45
25	30
45	30
50	30
--	-
--	-
--	-
--	-
--	-

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

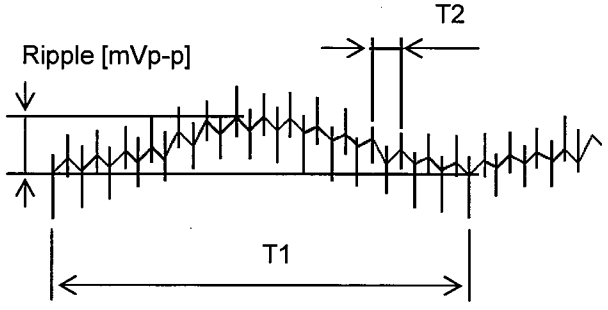


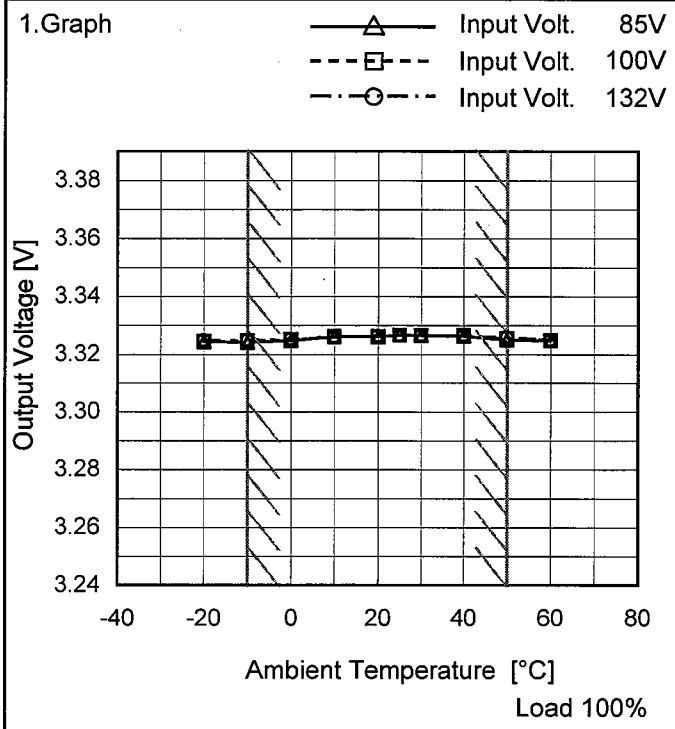
Fig. Complex Ripple Wave Form

COSEL

Model	LGA50A-3R3-Y
Item	Ambient Temperature Drift
Object	+3.3V10A

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. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	3.324	3.324	3.325
-10	3.324	3.325	3.325
0	3.325	3.325	3.325
10	3.326	3.326	3.326
20	3.326	3.326	3.326
25	3.327	3.327	3.327
30	3.326	3.327	3.327
40	3.326	3.326	3.326
50	3.325	3.326	3.326
60	3.325	3.325	3.325
--	-	-	-

COSEL

Model	LGA50A-3R3-Y	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V10A	

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 - 132V
Load Current : 0 - 10A

* 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

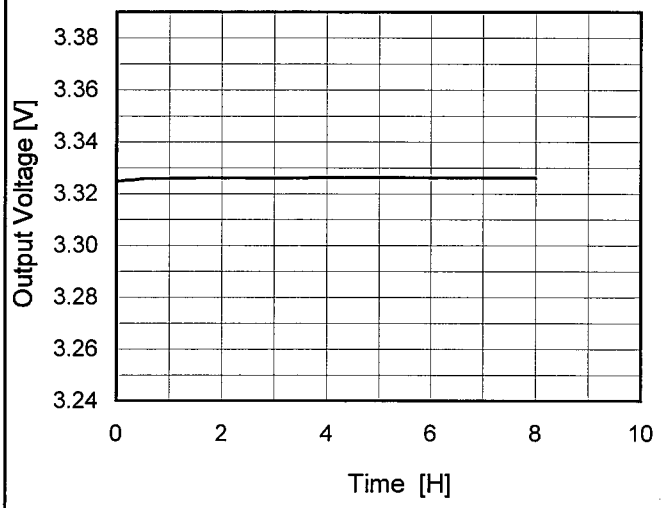
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	85	0	3.330	±3	±0.1
Minimum Voltage	-10	85	10	3.324		

COSEL

Model	LGA50A-3R3-Y
Item	Time Lapse Drift
Object	+3.3V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	3.325
0.5	3.326
1.0	3.326
2.0	3.326
3.0	3.326
4.0	3.326
5.0	3.326
6.0	3.326
7.0	3.326
8.0	3.326

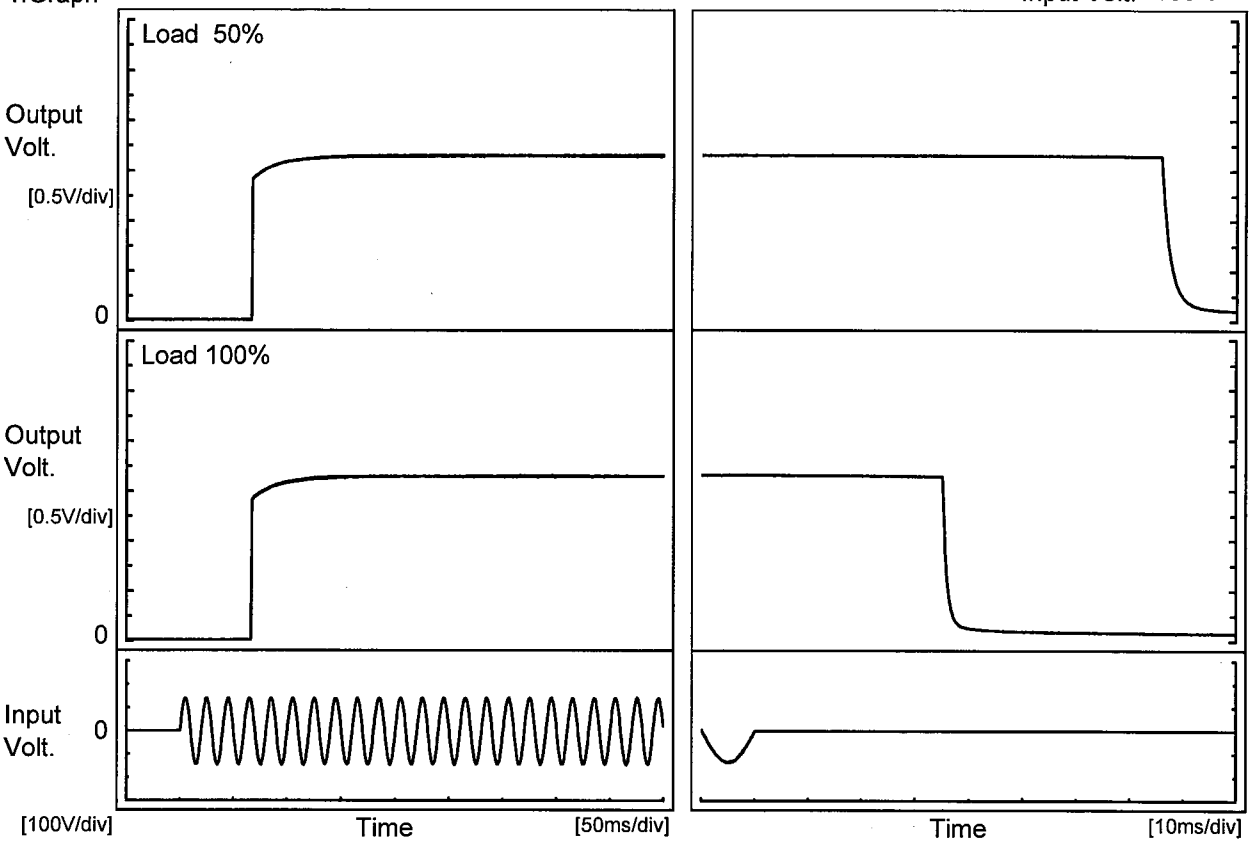
COSEL

Model	LGA50A-3R3-Y
Item	Rise and Fall Time
Object	+3.3V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

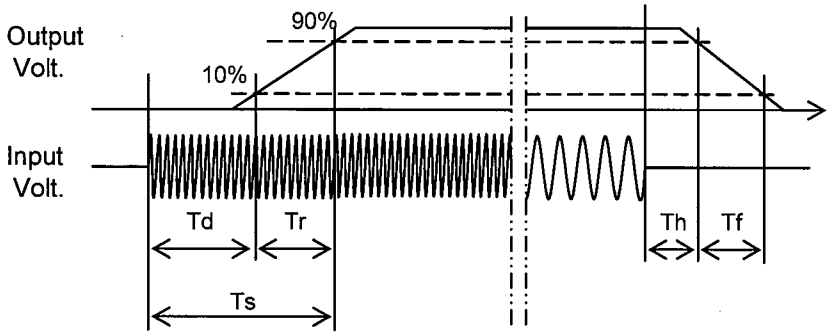
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	67.0	9.8	76.8	76.0	5.3
100 %	66.8	9.8	76.6	35.2	2.7

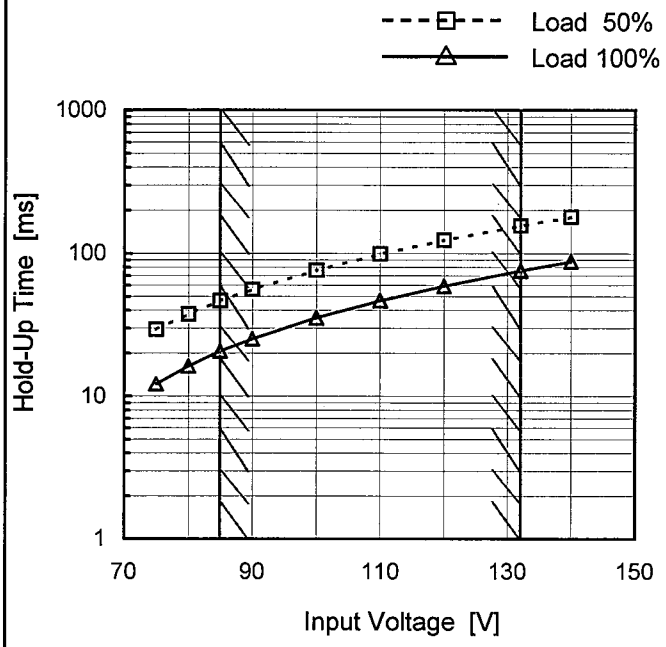


COSEL

Model	LGA50A-3R3-Y
Item	Hold-Up Time
Object	+3.3V10A

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	29	12
80	38	16
85	46	21
90	56	25
100	76	35
110	98	47
120	123	59
132	155	76
140	179	88

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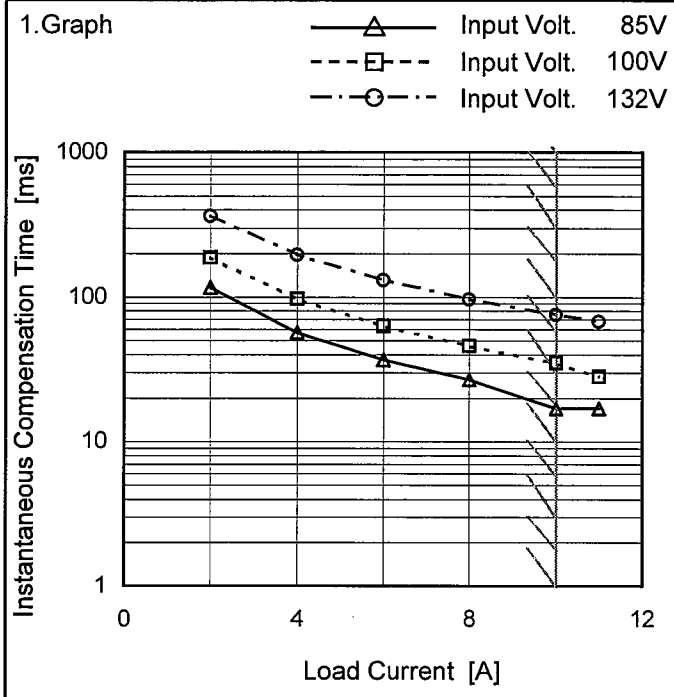
Model	LGA50A-3R3-Y
Item	Instantaneous Interruption Compensation
Object	+3.3V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

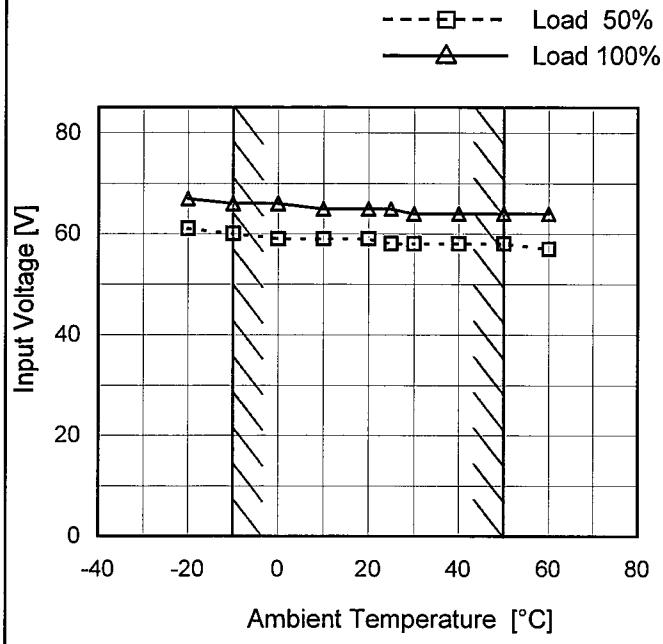
Load Current [A]	Time [ms]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	-	-	-
2	117	187	365
4	57	97	196
6	37	63	131
8	27	46	97
10	17	35	76
11	17	28	68
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LGA50A-3R3-Y
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V10A

Testing Circuitry Figure A

1.Graph



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

2.Values

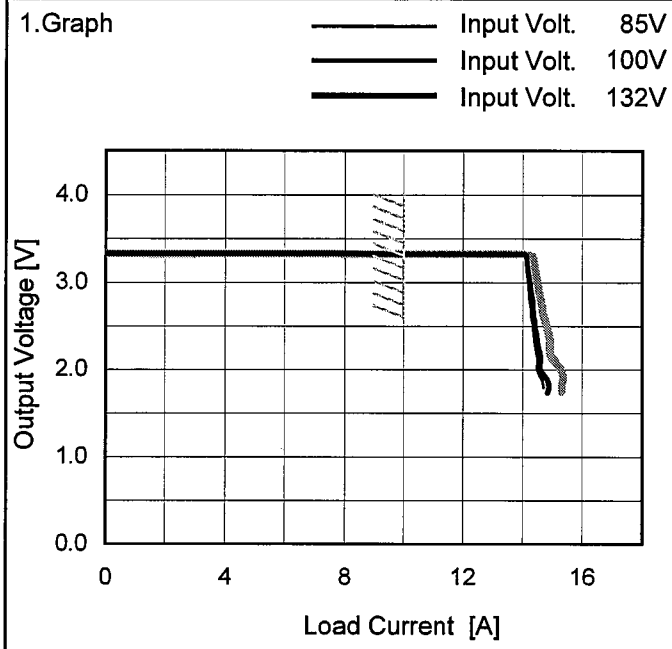
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	61	67
-10	60	66
0	59	66
10	59	65
20	59	65
25	58	65
30	58	64
40	58	64
50	58	64
60	57	64
--	-	-

COSEL

Model	LGA50A-3R3-Y
Item	Overcurrent Protection
Object	+3.3V10A

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 1.65V to 0V.

2.Values

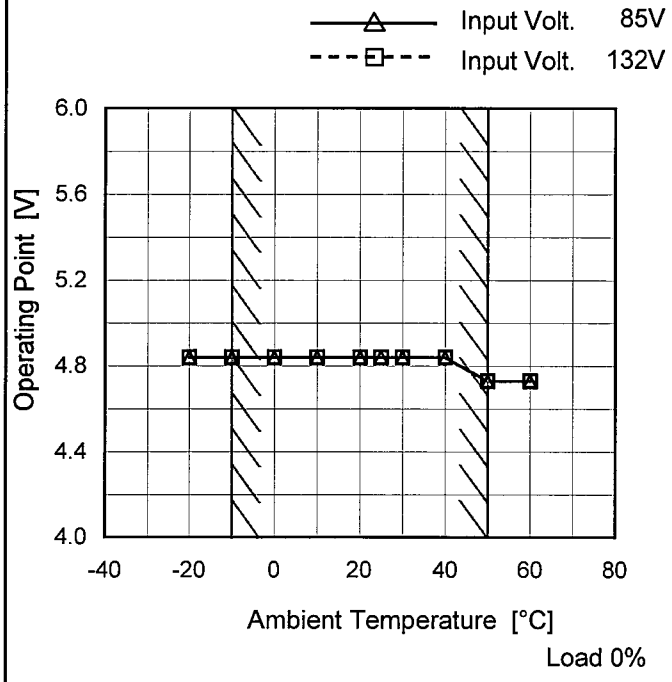
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
3.30	10.52	10.68	10.69
3.14	14.14	14.18	14.45
2.97	14.20	14.25	14.52
2.64	14.28	14.37	14.67
2.31	14.42	14.51	14.93
1.98	14.52	14.59	15.30
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LGA50A-3R3-Y
Item	Overvoltage Protection
Object	+3.3V10A

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. 85[V]	Input Volt. 132[V]
-20	4.84	4.84
-10	4.84	4.84
0	4.84	4.84
10	4.84	4.84
20	4.84	4.84
25	4.84	4.84
30	4.84	4.84
40	4.84	4.84
50	4.73	4.73
60	4.73	4.73
--	-	-

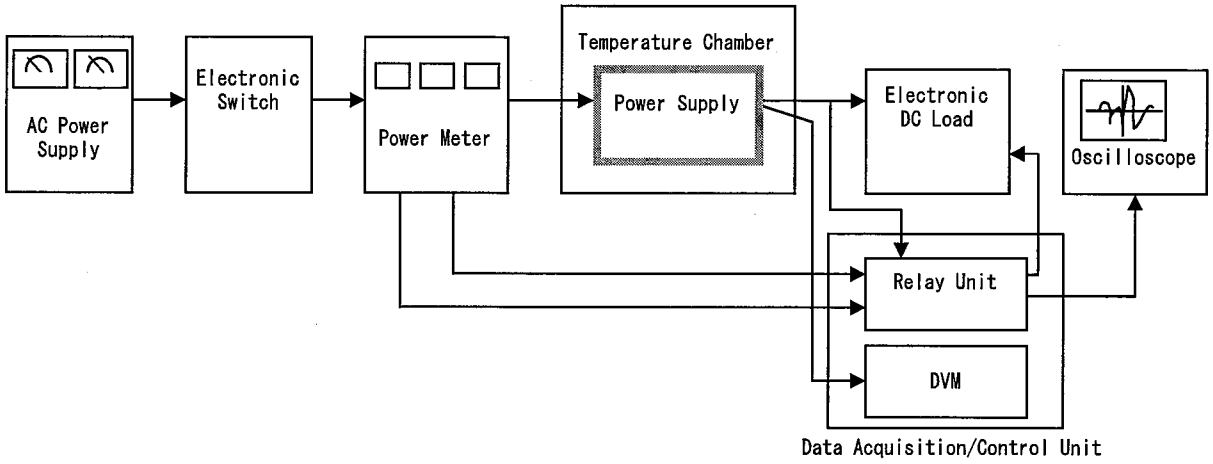


Figure A

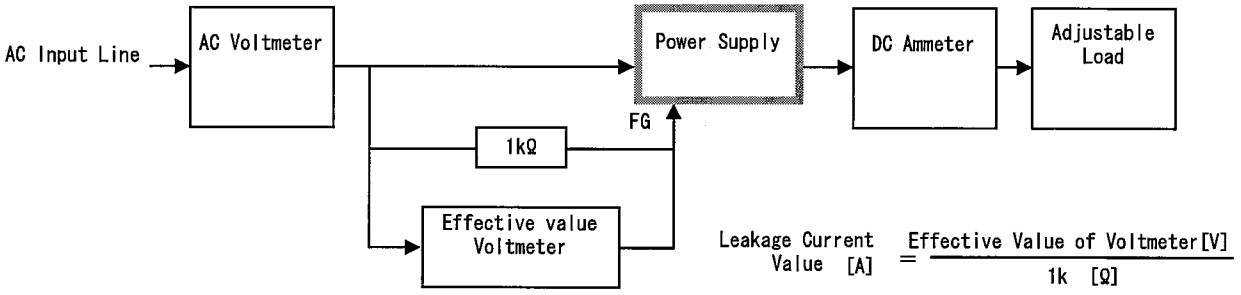


Figure B (DEN-AN)

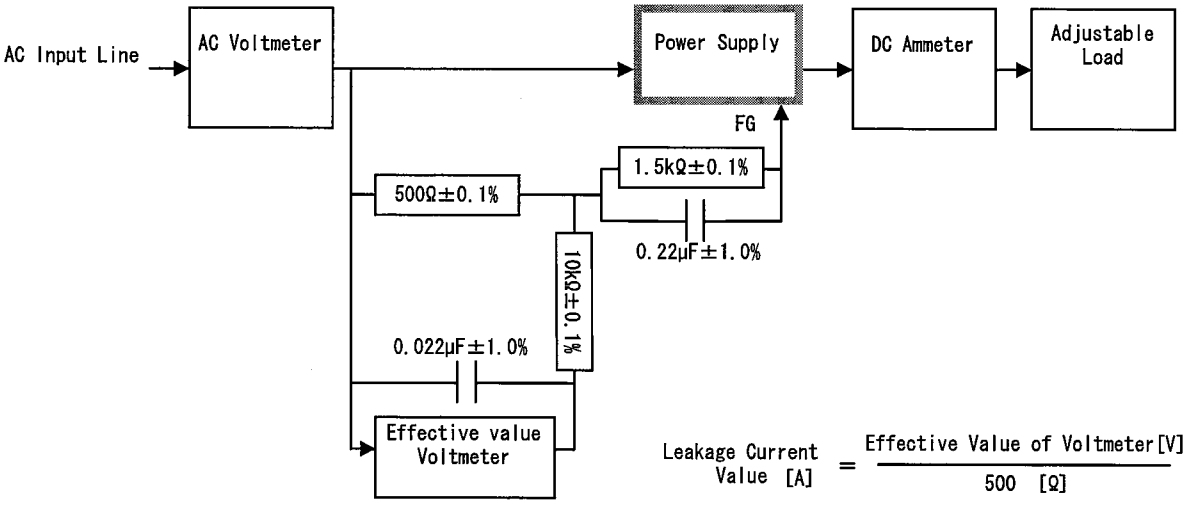


Figure B (IEC60950-1)

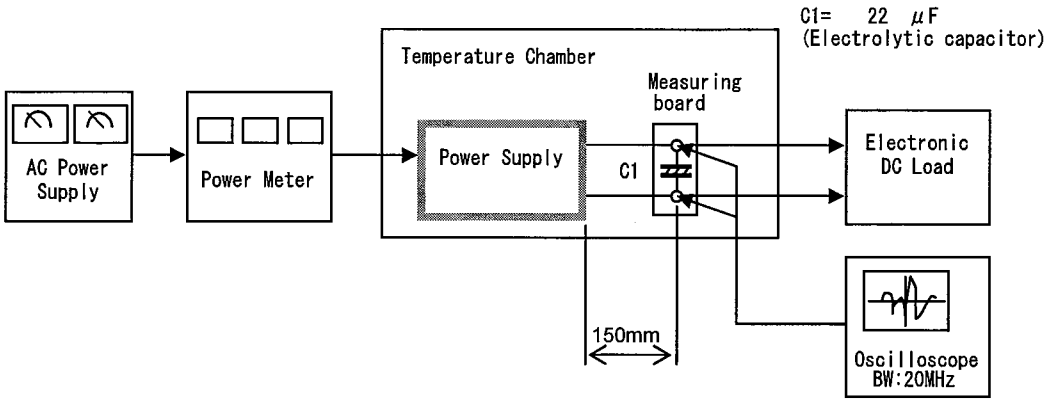

C1= 22 μF
(Electrolytic capacitor)
Temperature Chamber
Measuring board
AC Power Supply
Power Meter
Power Supply
C1
Electronic DC Load
150mm
Oscilloscope BW:20MHz

Figure C