参考資料

COSEL

TEST DATA OF LGA100A-3R3-Y

Regulated DC Power Supply
May 20, 2011

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COSEL CO.,LTD.

参考資料

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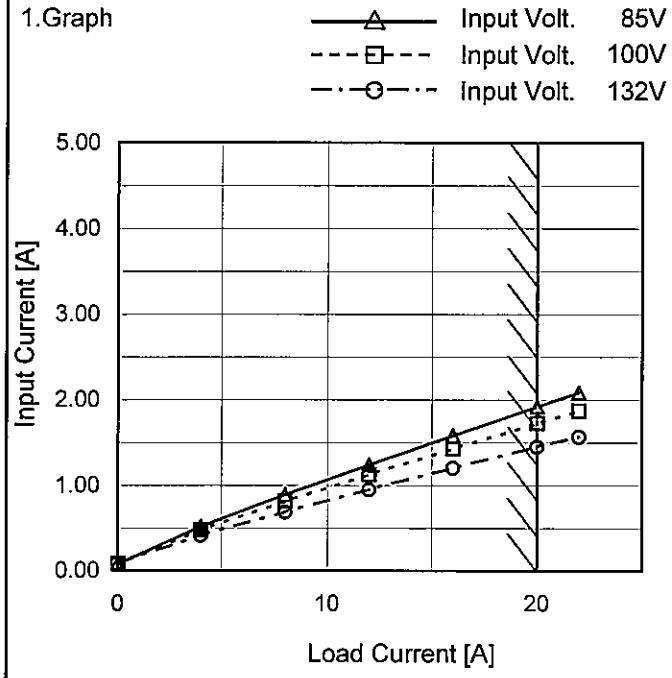
Model	LGA100A-3R3-Y
Item	Input Current (by Load Current)
Object	――――――

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	0.079	0.082	0.090
4	0.521	0.476	0.416
8	0.894	0.810	0.691
12	1.243	1.123	0.951
16	1.583	1.426	1.204
20	1.920	1.724	1.450
22	2.087	1.872	1.570
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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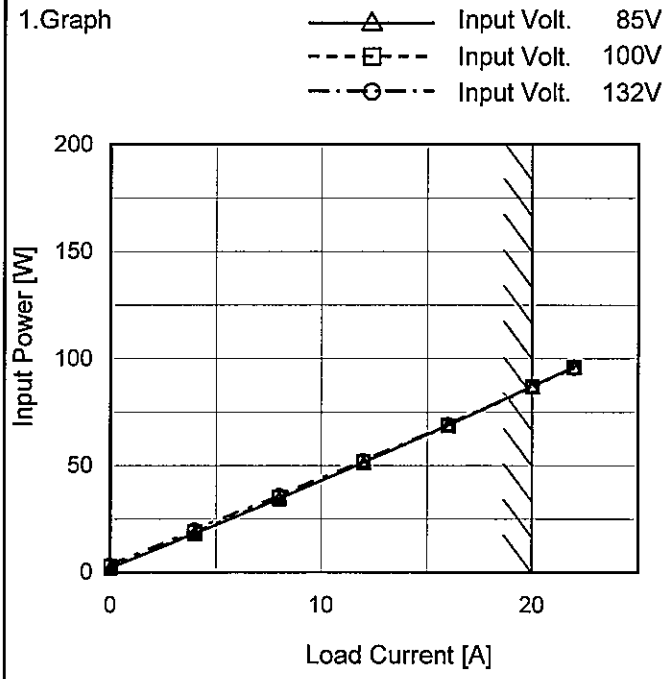
Model	LGA100A-3R3-Y
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

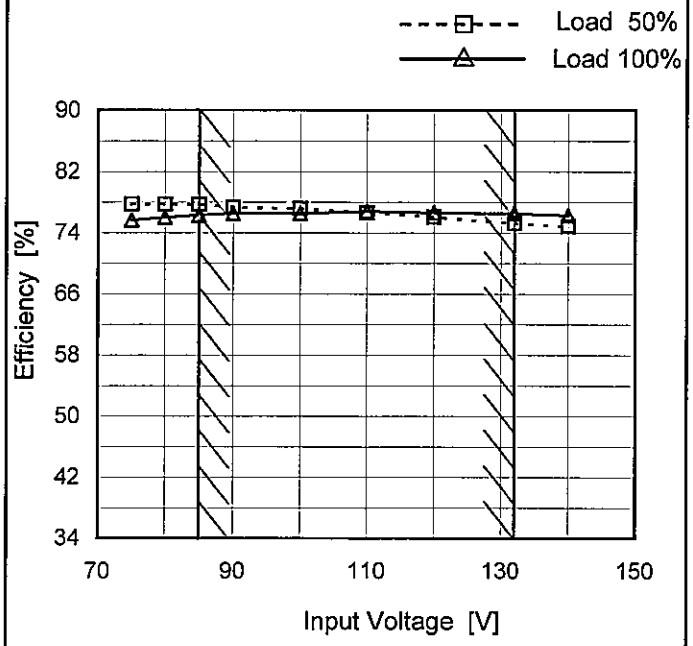
Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	2.19	2.58	3.51
4	18.30	18.80	20.00
8	34.60	34.90	36.00
12	51.40	51.50	52.30
16	69.00	68.60	69.20
20	87.20	86.70	87.00
22	96.30	95.70	95.70
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LGA100A-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	77.7	75.7
80	77.7	76.0
85	77.7	76.3
90	77.3	76.6
100	77.1	76.6
110	76.6	76.8
120	76.1	76.7
132	75.2	76.6
140	74.9	76.3

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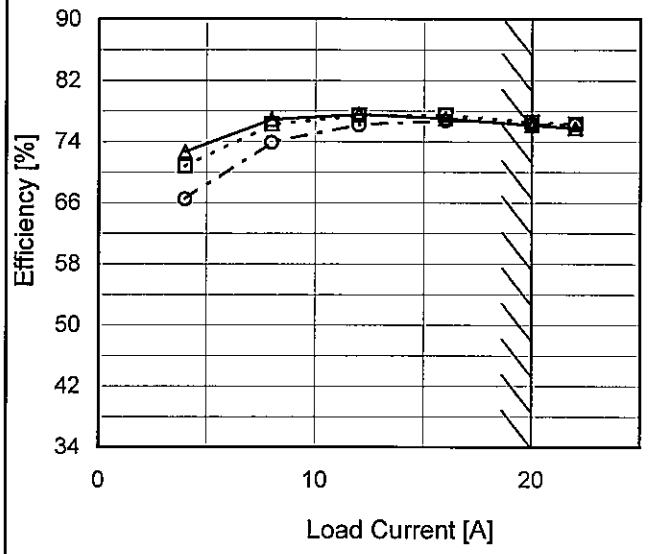
Model	LGA100A-3R3-Y
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
4	72.7	70.7	66.5
8	76.9	76.2	73.9
12	77.6	77.4	76.2
16	77.0	77.5	76.8
20	76.2	76.6	76.3
22	75.8	76.3	76.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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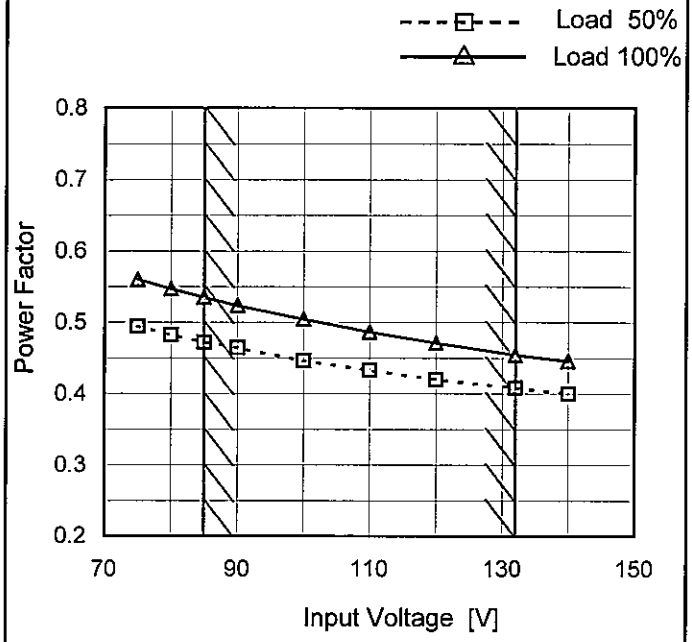
Model	LGA100A-3R3-Y
Item	Power Factor (by Input Voltage)
Object	――――――――

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	0.494	0.560
80	0.483	0.547
85	0.472	0.535
90	0.464	0.524
100	0.446	0.505
110	0.433	0.486
120	0.420	0.472
132	0.408	0.455
140	0.400	0.446

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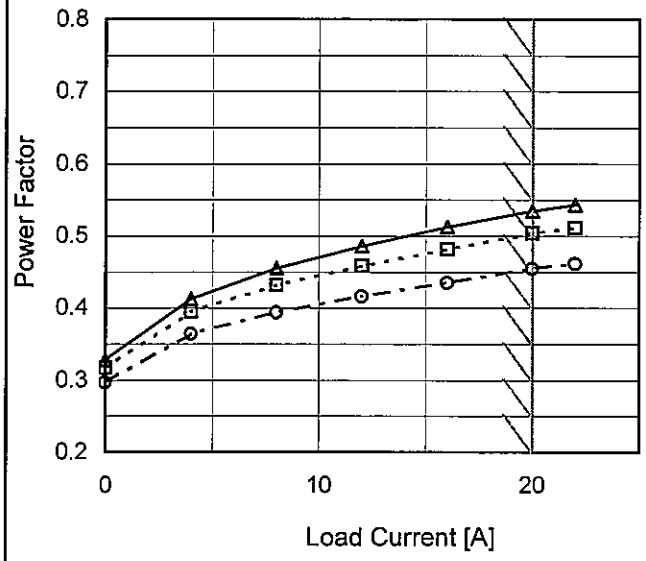
Model	LGA100A-3R3-Y
Item	Power Factor (by Load Current)
Object	――――――

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	0.328	0.317	0.297
4	0.413	0.395	0.364
8	0.455	0.431	0.395
12	0.487	0.459	0.416
16	0.513	0.481	0.435
20	0.535	0.503	0.455
22	0.543	0.511	0.462
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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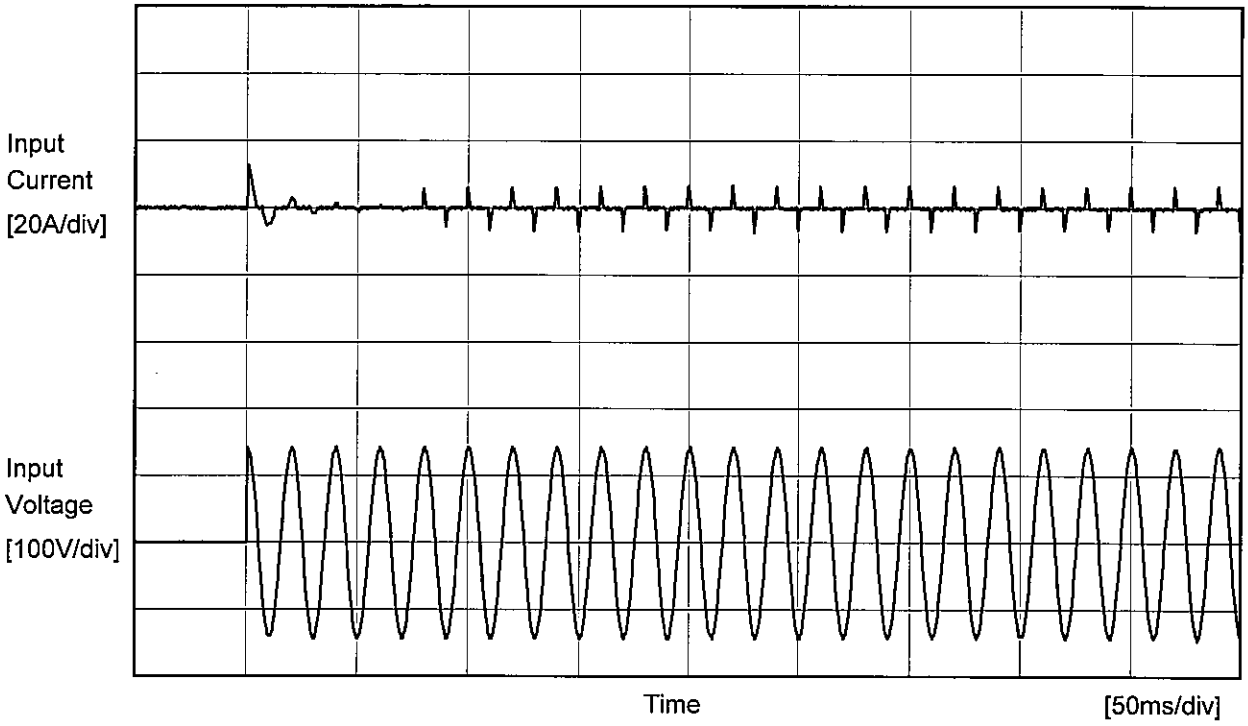
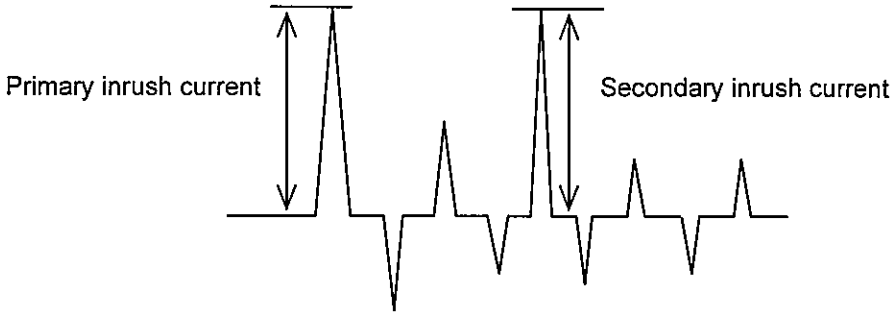
Model	LGA100A-3R3-Y
Item	Inrush Current
Object	――――――

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	12.7 A
Secondary inrush current	7.3 A



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Model	LGA100A-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	0.29	0.37	0.41
(B)IEC60950-1	0.29	0.35	0.40

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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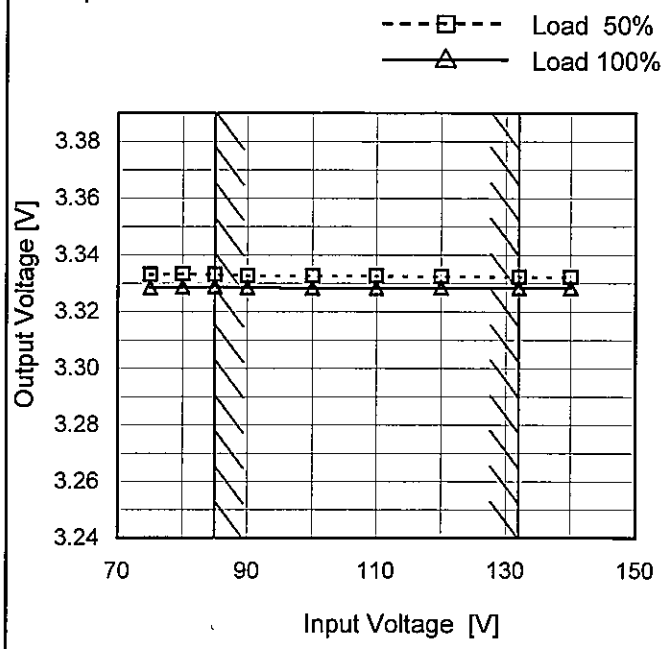
Model	LGA100A-3R3-Y
Item	Line Regulation
Object	+3.3V20A

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	3.333	3.329
80	3.333	3.329
85	3.333	3.329
90	3.333	3.329
100	3.333	3.328
110	3.333	3.328
120	3.332	3.329
132	3.332	3.328
140	3.332	3.328

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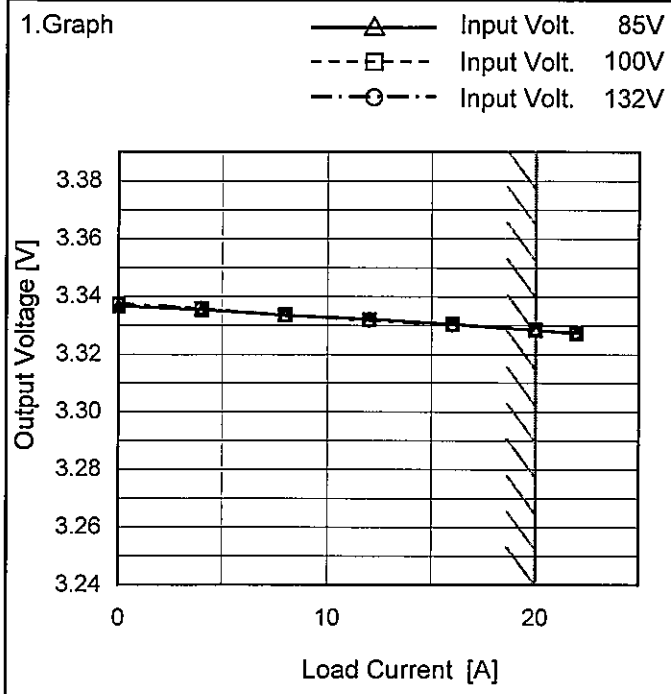
Model	LGA100A-3R3-Y
Item	Load Regulation
Object	+3.3V20A

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	3.337	3.337	3.338
4	3.336	3.336	3.336
8	3.334	3.334	3.333
12	3.332	3.332	3.332
16	3.331	3.330	3.330
20	3.329	3.328	3.329
22	3.327	3.327	3.328
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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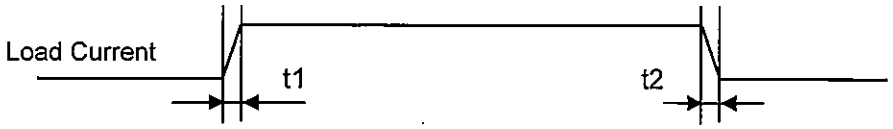
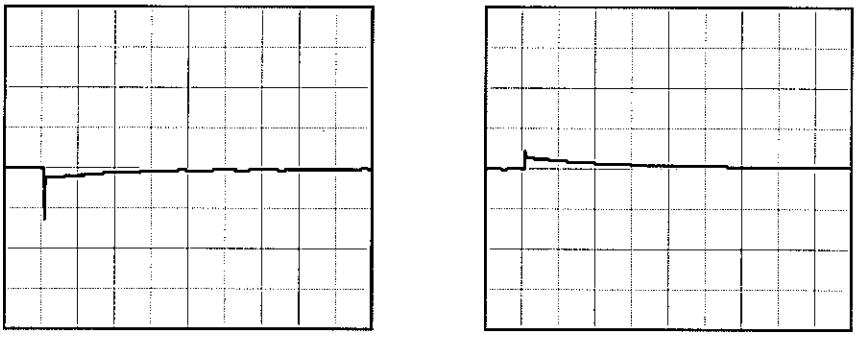
Model	LGA100A-3R3-Y		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure C
Object	+3.3V20A		

Input Volt. 100 V
Cycle 1000 ms

Response. t1=t2=50 μs. Typ



Min. Load (0A) ⟷
Load 100% (20A)

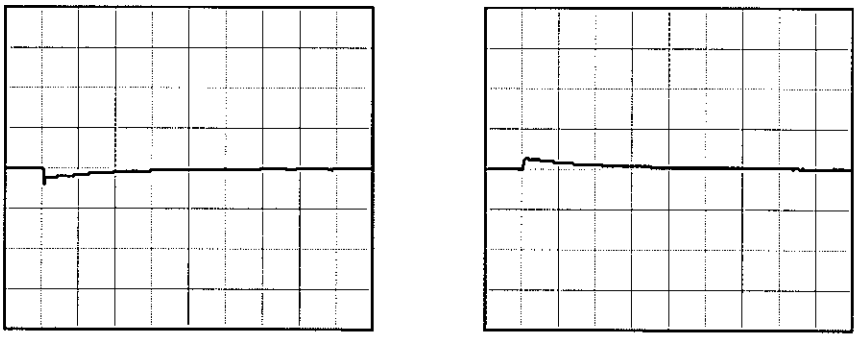


100 mV/div

10 ms/div

10 ms/div

Min. Load (0A) ⟷
Load 50% (10A)



100 mV/div

10 ms/div

10 ms/div

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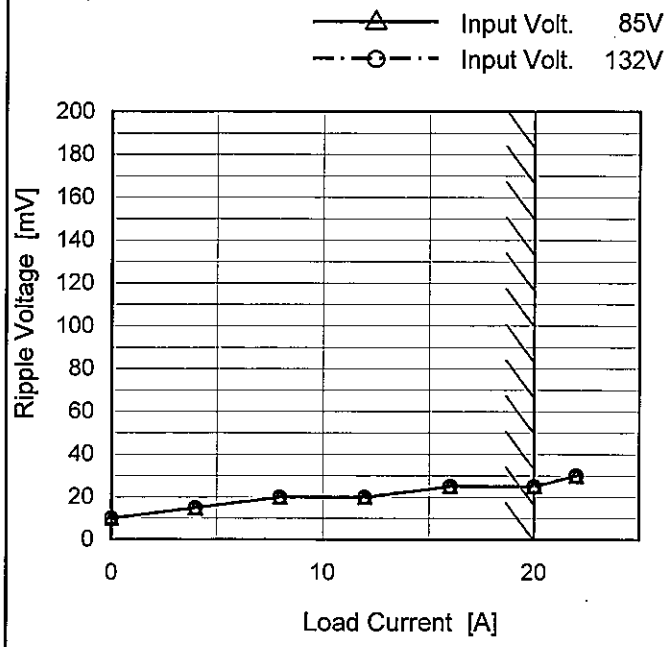
Model	LGA100A-3R3-Y
Item	Ripple Voltage (by Load Current)
Object	+3.3V20A

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

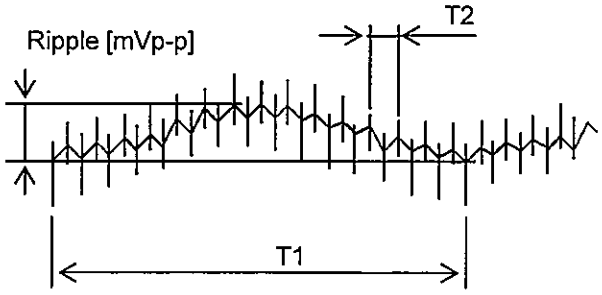


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0	10	10
4	15	15
8	20	20
12	20	20
16	25	25
20	25	25
22	30	30
--	-	-
--	-	-
--	-	-
--	-	-

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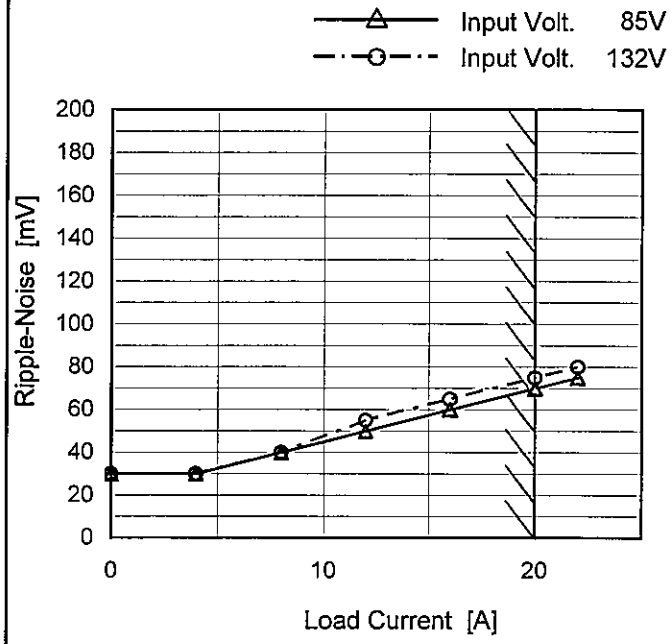
Model	LGA100A-3R3-Y
Item	Ripple-Noise
Object	+3.3V20A

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.

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

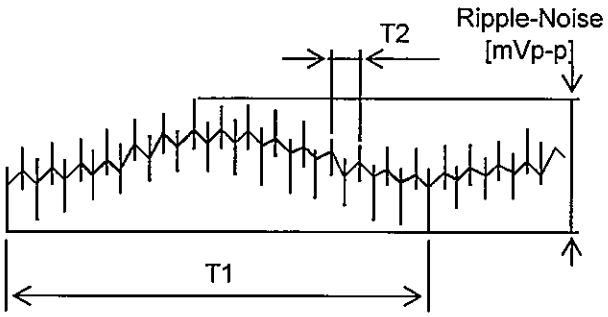


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 85 [V]	Ripple-Noise [mV] Input Volt. 132 [V]
0	30	30
4	30	30
8	40	40
12	50	55
16	60	65
20	70	75
22	75	80
--	-	-
--	-	-
--	-	-
--	-	-

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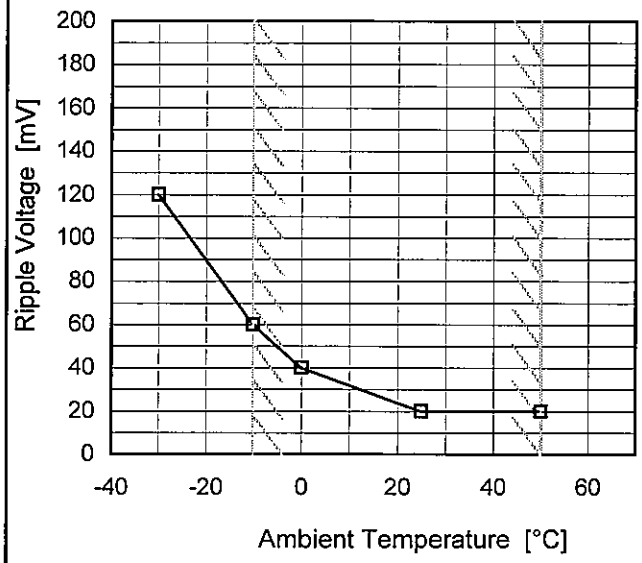
Model	LGA100A-3R3-Y
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V20A

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.

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

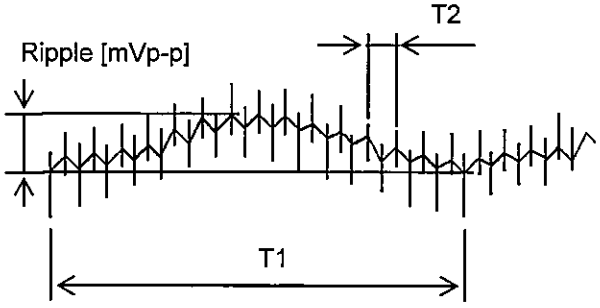


Fig. Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]
-30	120
-10	60
0	40
25	20
50	20
--	-
--	-
--	-
--	-
--	-
--	-

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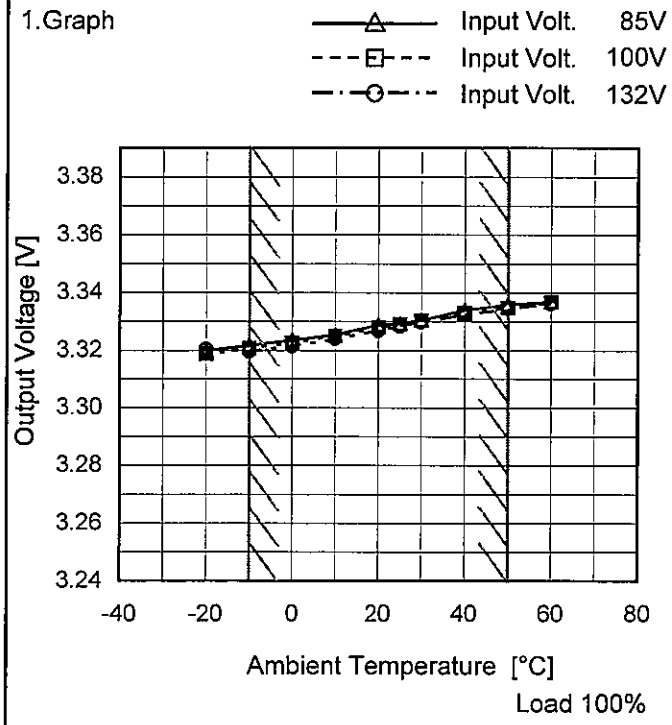
Model	LGA100A-3R3-Y
Item	Ambient Temperature Drift
Object	+3.3V20A

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	3.320	3.319	3.321
-10	3.322	3.321	3.320
0	3.324	3.322	3.321
10	3.325	3.325	3.324
20	3.329	3.328	3.327
25	3.329	3.329	3.328
30	3.331	3.330	3.330
40	3.334	3.333	3.332
50	3.336	3.335	3.334
60	3.337	3.337	3.336
--	-	-	-

COSEL

Model	LGA100A-3R3-Y	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V20A	

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 - 20A

* 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	100	0	3.342	±11	±0.3
Minimum Voltage	-10	132	20	3.320		

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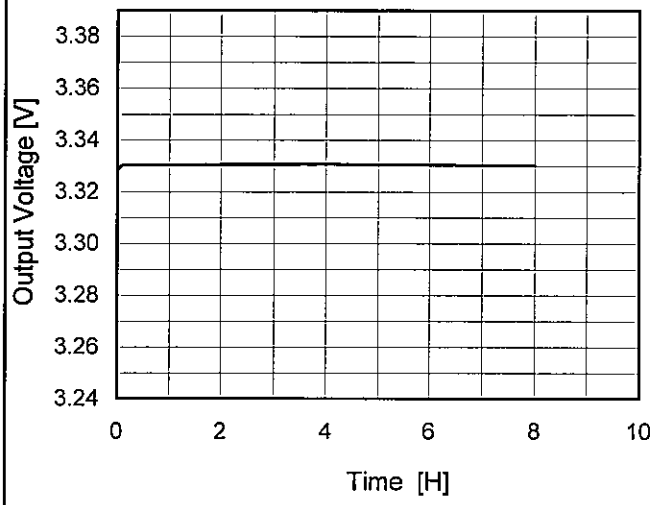
Model	LGA100A-3R3-Y
Item	Time Lapse Drift
Object	+3.3V20A

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	3.328
0.5	3.331
1.0	3.331
2.0	3.331
3.0	3.331
4.0	3.331
5.0	3.331
6.0	3.331
7.0	3.330
8.0	3.330

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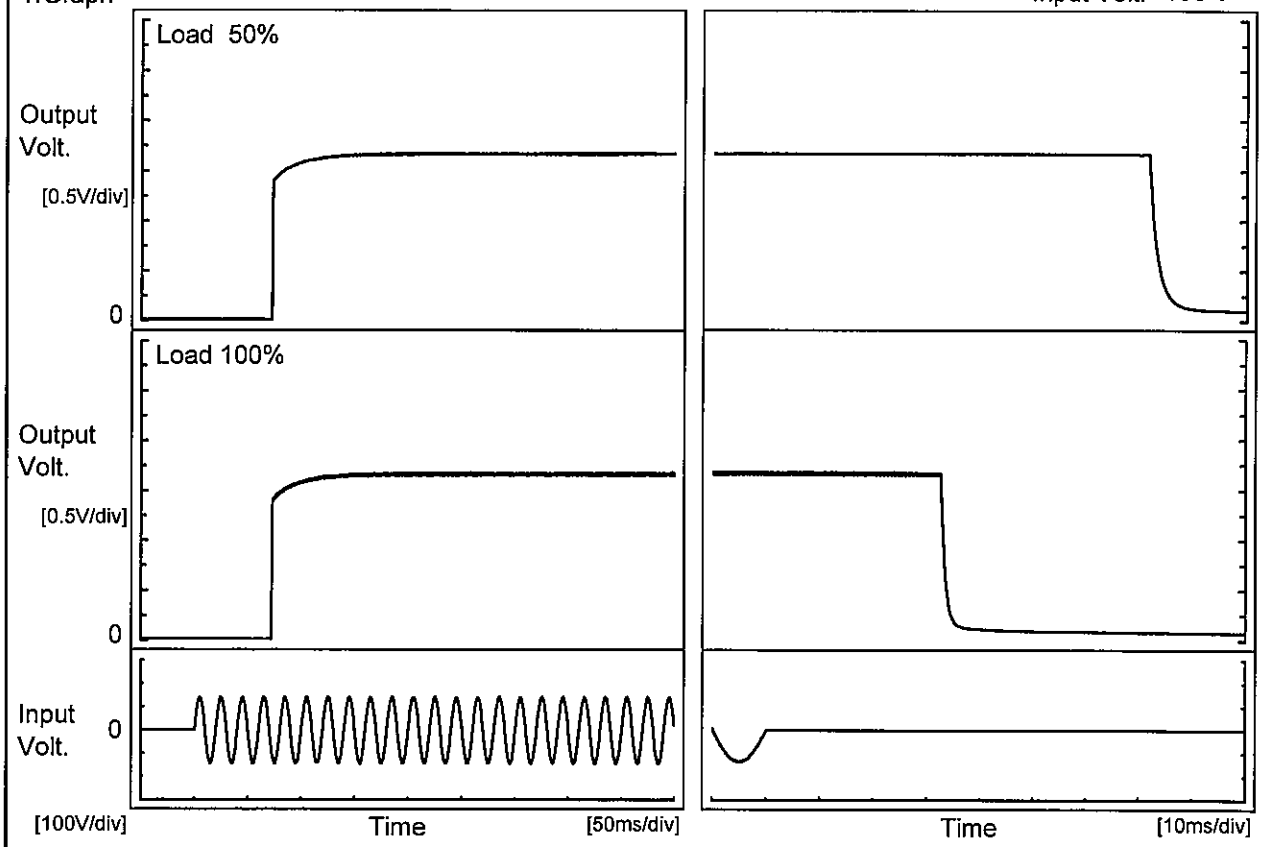
Model	LGA100A-3R3-Y
Item	Rise and Fall Time
Object	+3.3V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

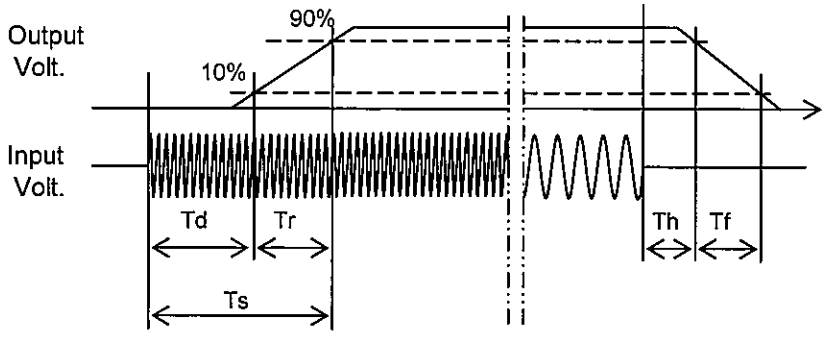
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	72.3	10.0	82.3	71.9	5.0
100 %	72.0	9.0	81.0	32.9	2.5



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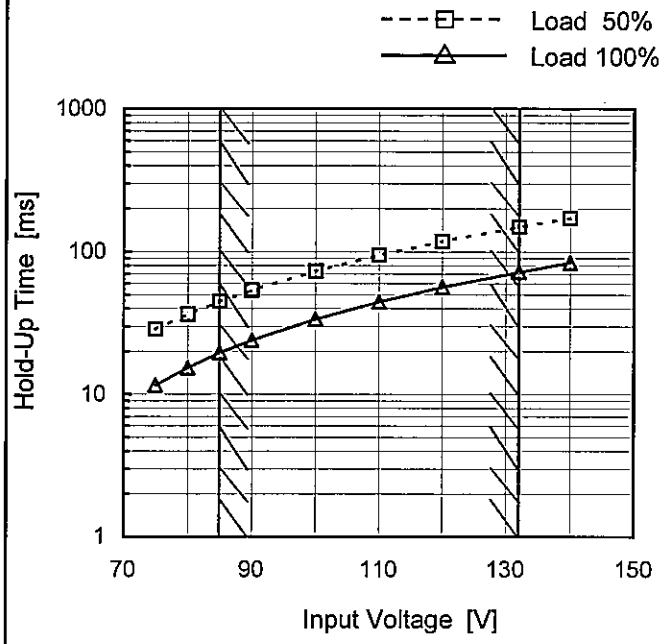
Model	LGA100A-3R3-Y
Item	Hold-Up Time
Object	+3.3V20A

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

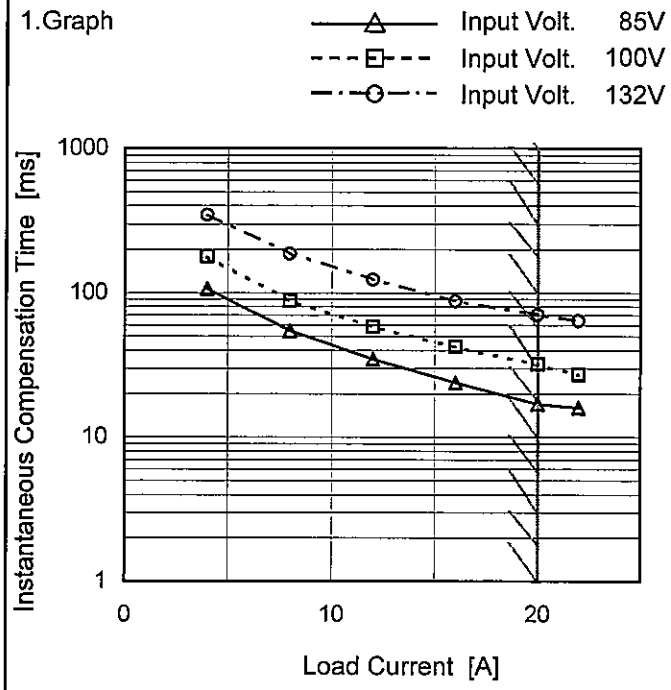
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	29	12
80	36	15
85	45	20
90	54	24
100	73	34
110	94	45
120	118	56
132	149	72
140	171	84

COSEL

Model	LGA100A-3R3-Y
Item	Instantaneous Interruption Compensation
Object	+3.3V20A

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	-	-	-
4	107	178	348
8	55	88	186
12	35	58	124
16	24	42	88
20	17	32	71
22	16	27	64
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

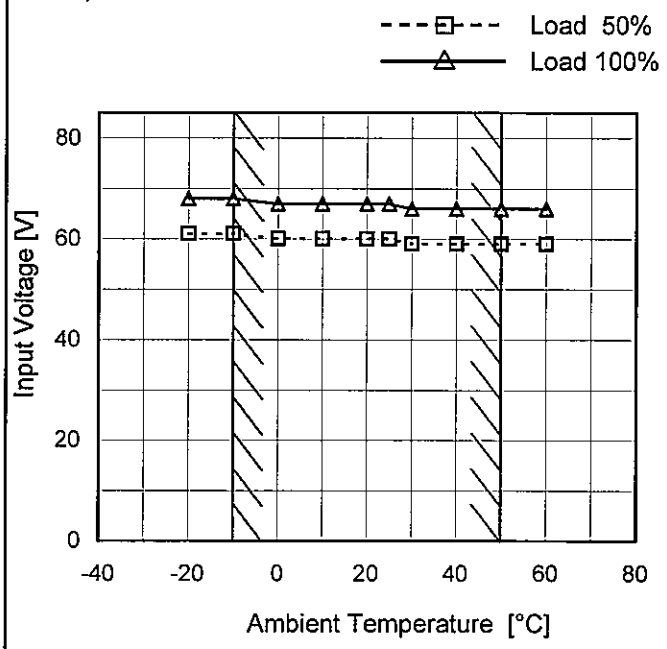
BC-10546

COSEL

Model	LGA100A-3R3-Y
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V20A

Testing Circuitry Figure A

1.Graph



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

2.Values

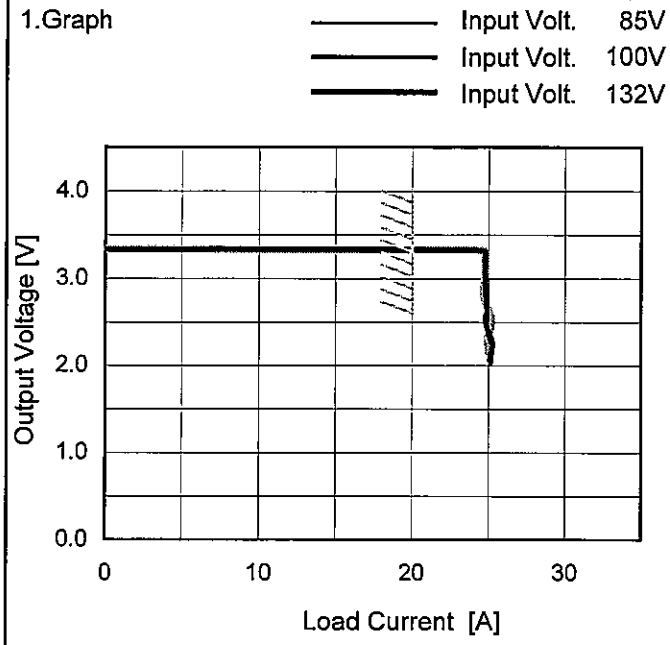
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	61	68
-10	61	68
0	60	67
10	60	67
20	60	67
25	60	67
30	59	66
40	59	66
50	59	66
60	59	66
--	-	-

COSEL

Model	LGA100A-3R3-Y
Item	Overcurrent Protection
Object	+3.3V20A

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 2.05V to 0V.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
3.30	21.96	22.04	22.04
3.14	24.74	24.78	24.77
2.97	24.77	24.78	24.76
2.64	24.90	24.89	24.97
2.31	25.02	25.20	24.93
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

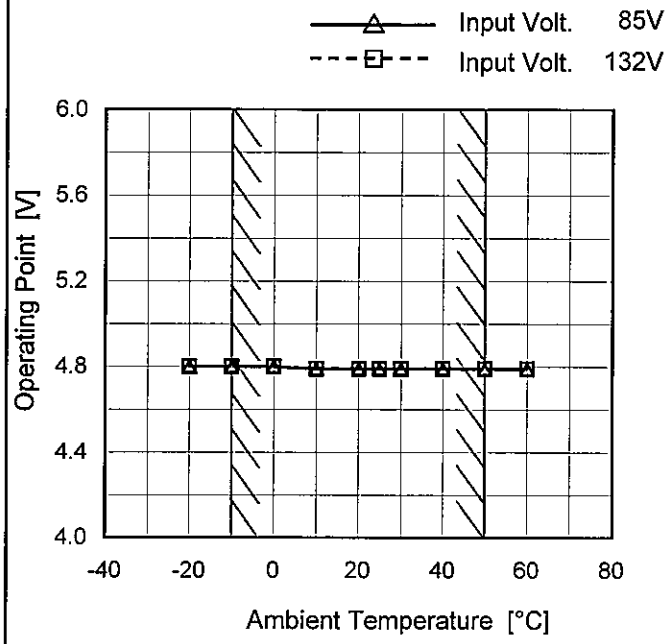
BC-10546

COSEL

Model	LGA100A-3R3-Y
Item	Overvoltage Protection
Object	+3.3V20A

Testing Circuitry Figure A

1.Graph



Load 0%

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	4.80	4.80
-10	4.80	4.80
0	4.80	4.80
10	4.79	4.79
20	4.79	4.79
25	4.79	4.79
30	4.79	4.79
40	4.79	4.79
50	4.79	4.79
60	4.79	4.79
--	-	-

COSEL

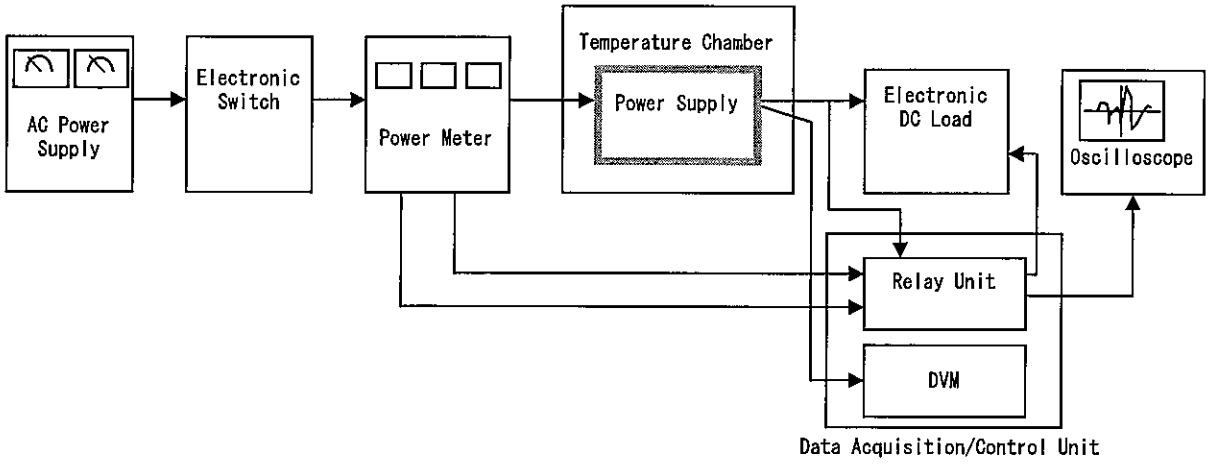


Figure A

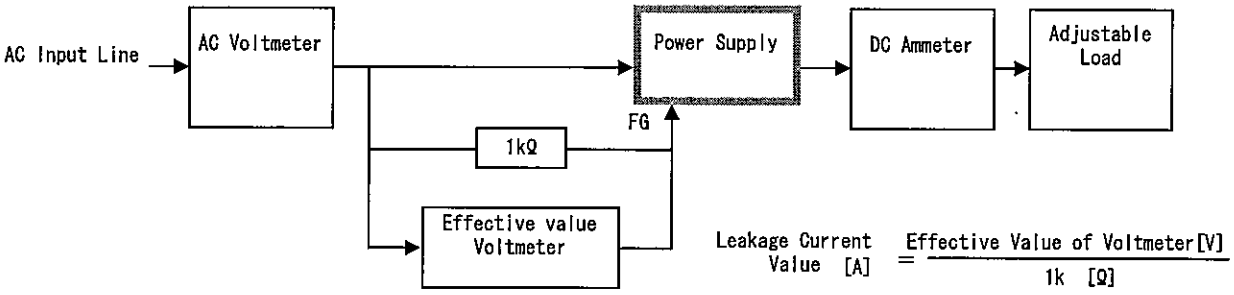


Figure B (DEN-AN)

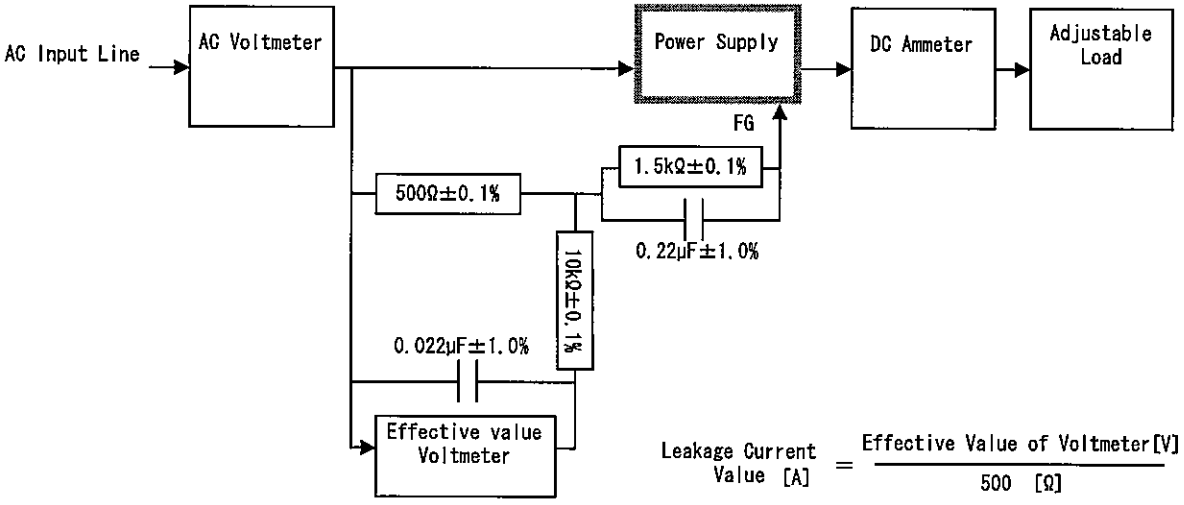


Figure B (IEC60950-1)

COSEL

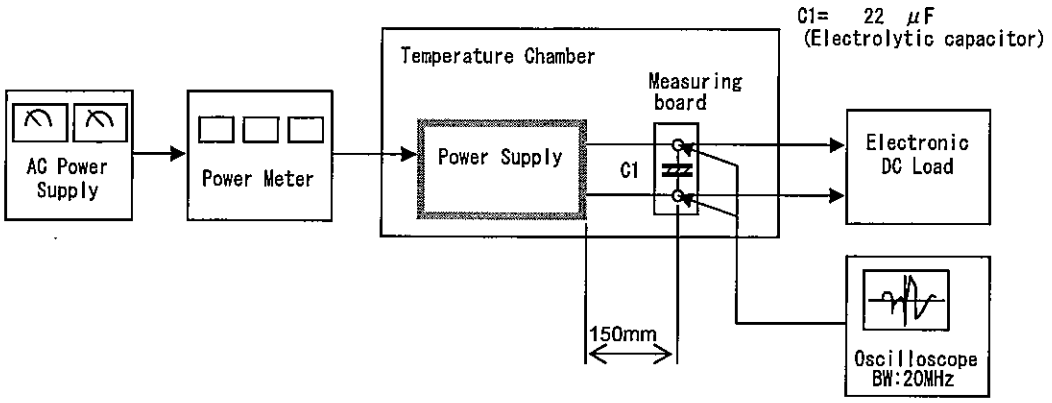


Figure C