参考資料

COSEL

TEST DATA OF LGA100A-24

Regulated DC Power Supply
April 15 , 2008

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COSEL CO.,LTD.

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Object	————————

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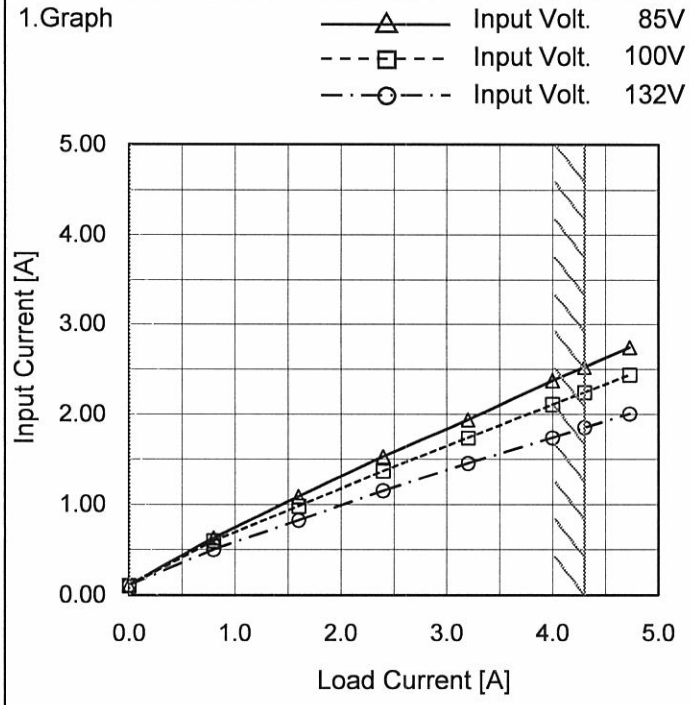

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.106	0.102	0.108
0.80	0.629	0.596	0.502
1.60	1.087	0.981	0.823
2.40	1.528	1.369	1.150
3.20	1.937	1.739	1.452
4.00	2.370	2.107	1.737
4.30	2.520	2.239	1.852
4.73	2.739	2.433	2.004
--	-	-	-
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--	-	-	-

BC-10158

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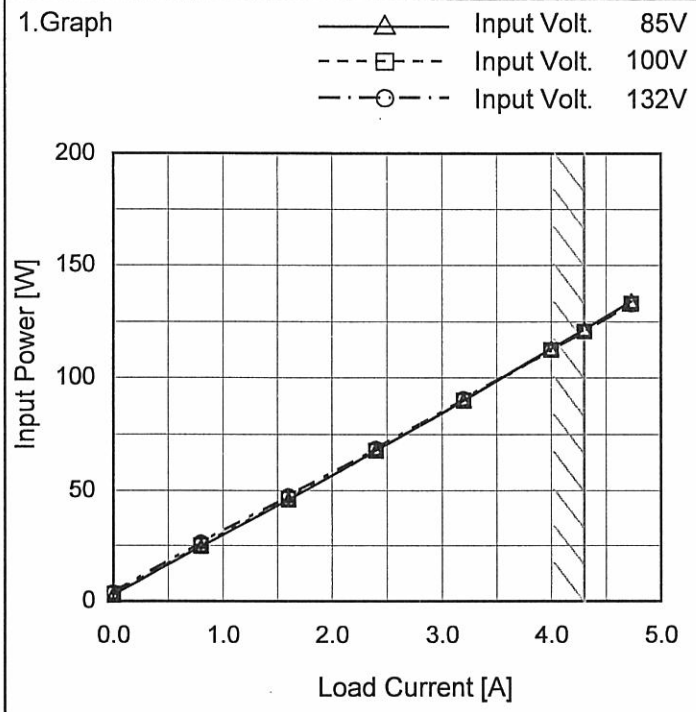
Model	LGA100A-24
Item	Input Power (by Load Current)
Object	————————

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]
0.00	2.8	3.2	3.8
0.80	24.5	25.1	26.5
1.60	45.9	46.3	47.5
2.40	67.8	67.7	68.7
3.20	90.0	90.0	90.6
4.00	112.8	112.2	112.2
4.30	121.5	120.6	120.6
4.73	134.1	132.9	132.6
--	-	-	-
--	-	-	-
--	-	-	-

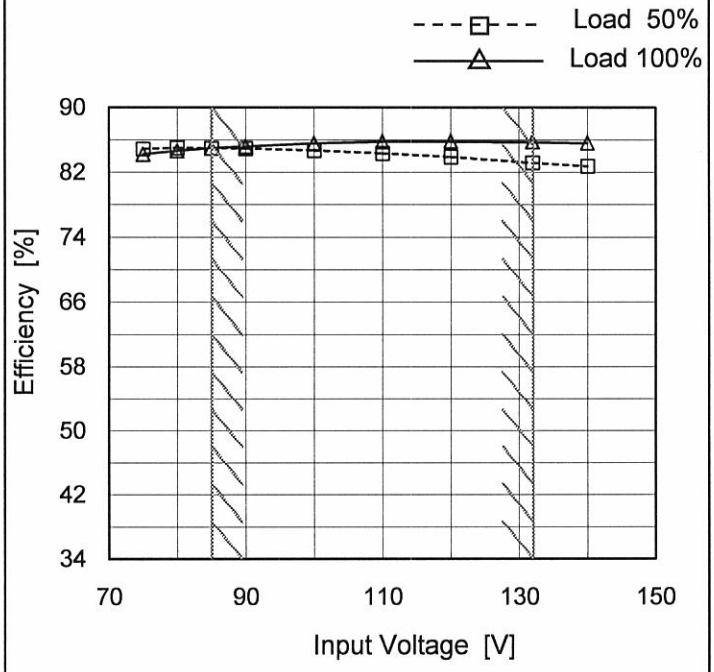
BC-10158

COSEL

Model	LGA100A-24
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	84.9	84.2
80	85.0	84.6
85	85.0	85.0
90	84.9	85.2
100	84.7	85.6
110	84.3	85.8
120	83.9	85.8
132	83.2	85.7
140	82.7	85.6

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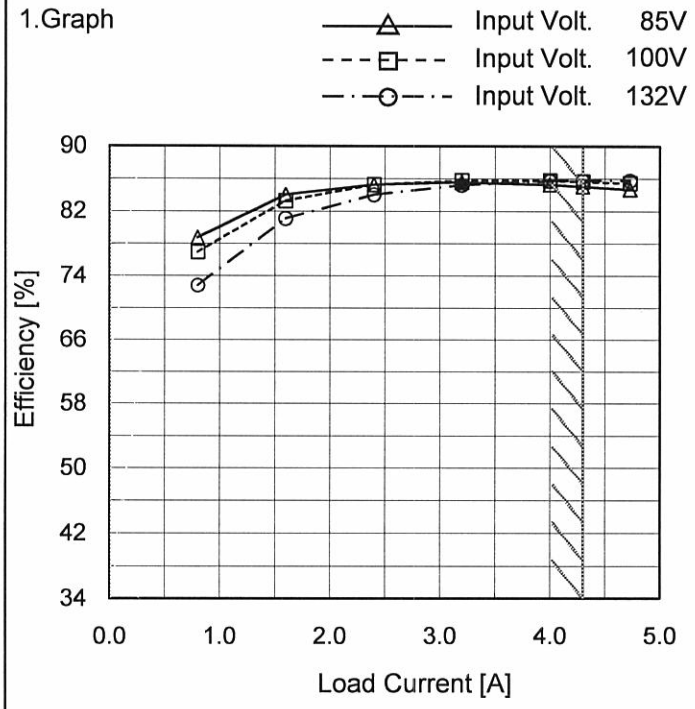
Model	LGA100A-24
Item	Efficiency (by Load Current)
Object	————————

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]
0.00	-	-	-
0.80	78.7	76.9	72.8
1.60	84.0	83.3	81.1
2.40	85.2	85.2	84.0
3.20	85.6	85.8	85.2
4.00	85.3	85.8	85.7
4.30	85.0	85.6	85.8
4.73	84.7	85.4	85.8
--	-	-	-
--	-	-	-
--	-	-	-

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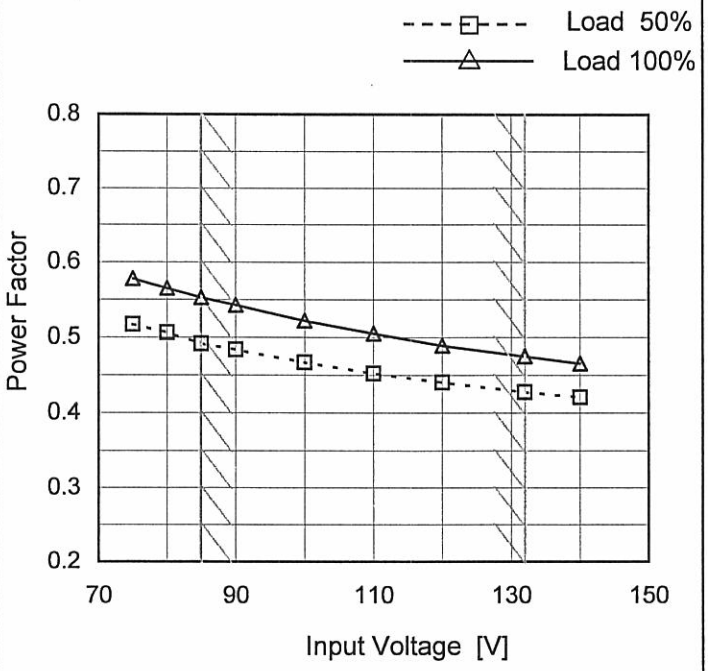
Model	LGA100A-24
Item	Power Factor (by Input Voltage)
Object	———————————

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	0.517	0.578
80	0.506	0.565
85	0.491	0.553
90	0.484	0.543
100	0.467	0.522
110	0.452	0.505
120	0.440	0.489
132	0.428	0.475
140	0.420	0.465

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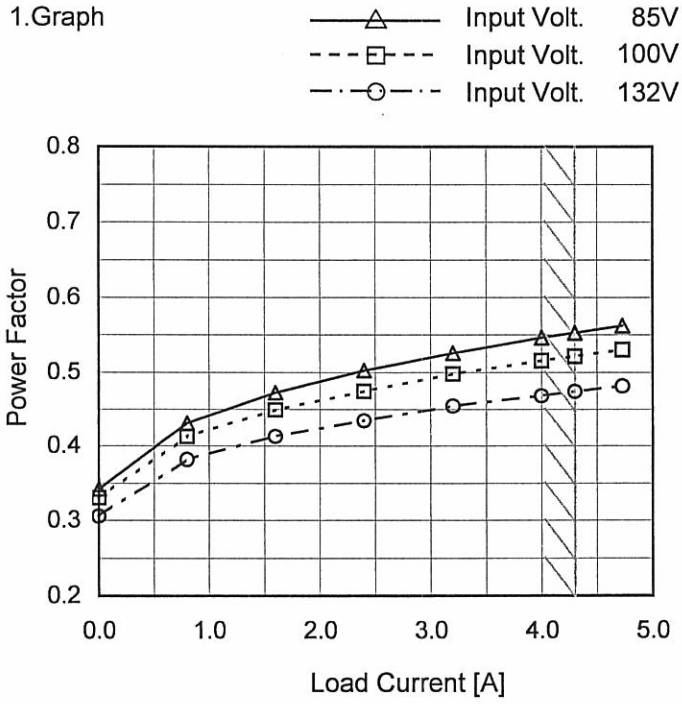
Model	LGA100A-24
Item	Power Factor (by Load Current)
Object	————————

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]
0.00	0.342	0.330	0.306
0.80	0.431	0.412	0.381
1.60	0.472	0.449	0.412
2.40	0.503	0.474	0.434
3.20	0.526	0.498	0.454
4.00	0.546	0.516	0.468
4.30	0.553	0.522	0.474
4.73	0.562	0.530	0.481
--	-	-	-
--	-	-	-
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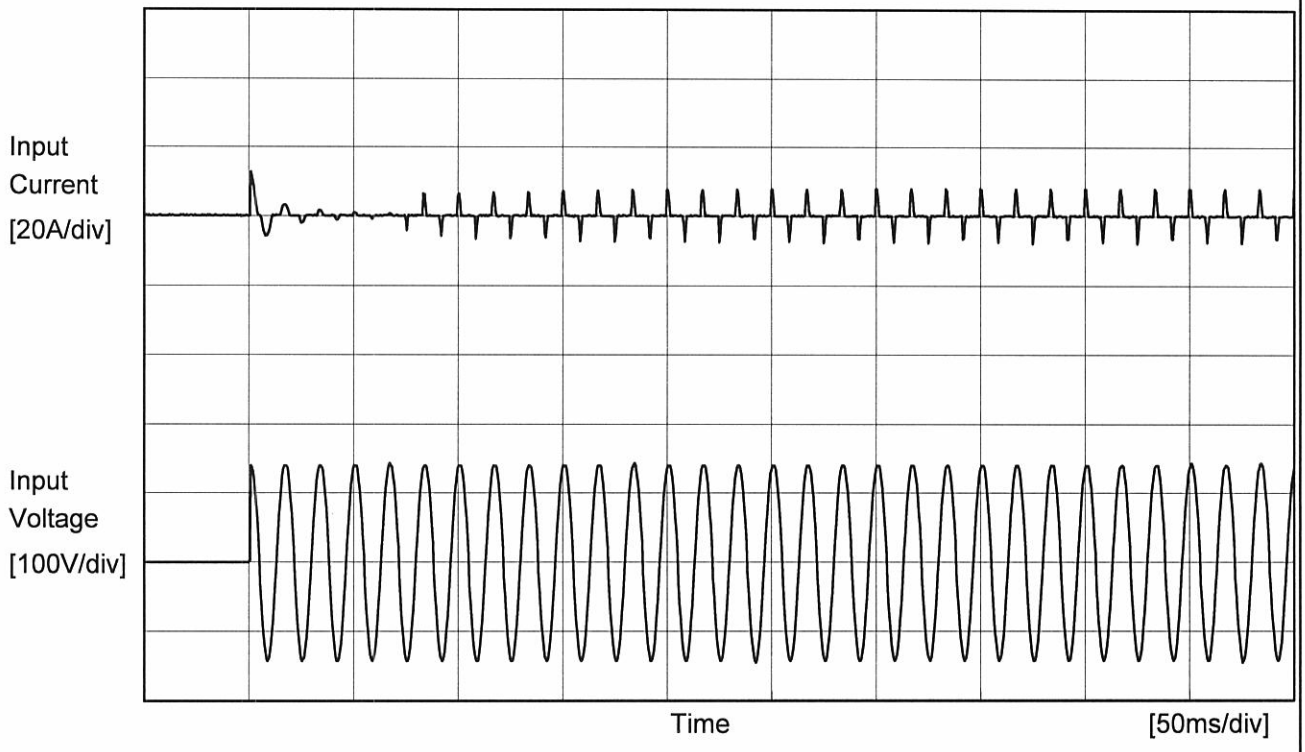
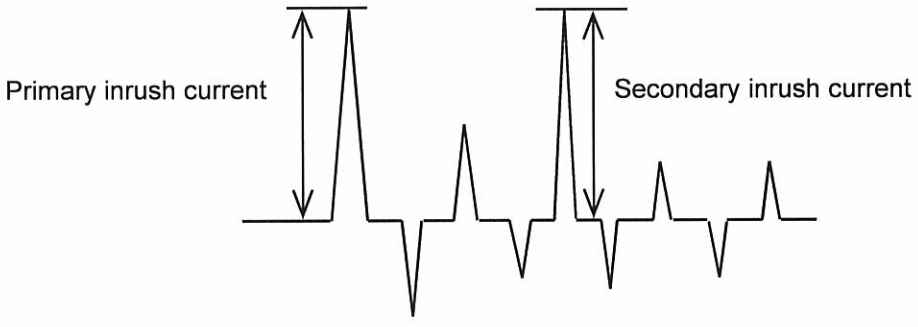
Model	LGA100A-24
Item	Inrush Current
Object	————————

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	7.9 A



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Model	LGA100A-24		
Item	Leakage Current	Temperature	25°C
Object	———————————	Testing Circuitry	Figure B

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	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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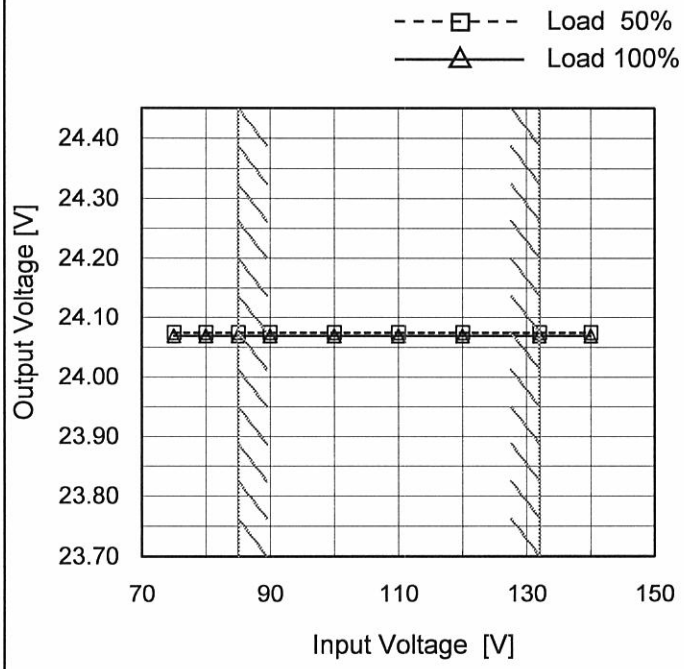
Model	LGA100A-24
Item	Line Regulation
Object	+24V4.3A

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	24.075	24.069
80	24.075	24.069
85	24.075	24.069
90	24.075	24.069
100	24.075	24.069
110	24.075	24.069
120	24.075	24.069
132	24.075	24.069
140	24.075	24.069

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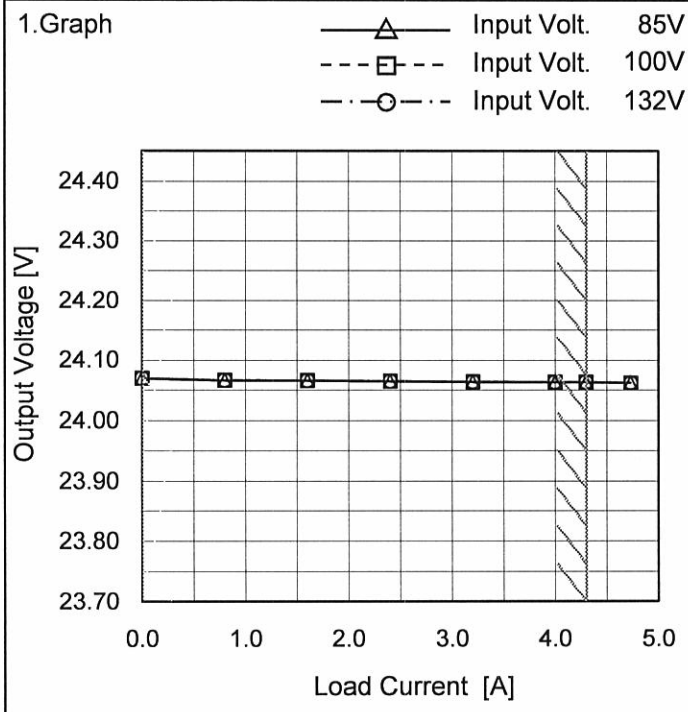
Model	LGA100A-24
Item	Load Regulation
Object	+24V4.3A

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]
0.00	24.070	24.070	24.070
0.80	24.067	24.067	24.067
1.60	24.066	24.066	24.066
2.40	24.065	24.065	24.065
3.20	24.064	24.064	24.064
4.00	24.063	24.063	24.063
4.30	24.063	24.063	24.063
4.73	24.063	24.063	24.063
--	-	-	-
--	-	-	-
--	-	-	-

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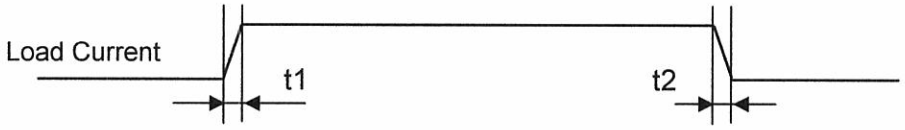
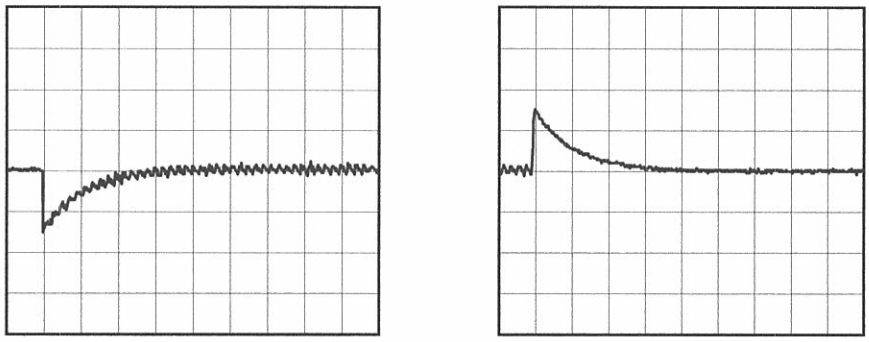
Model	LGA100A-24		
Item	Dynamic Load Response	Temperature	25°C
Object	+24V4.3A	Testing Circuitry	Figure A

Input Volt. 100 V
Cycle 1000 ms

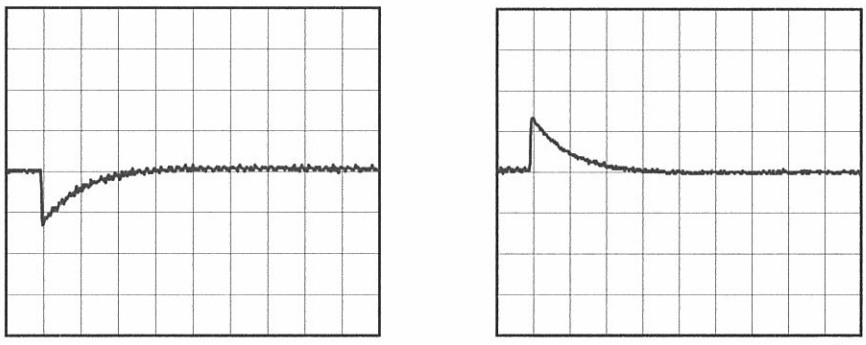
Response. t1=t2=50us. Typ



Min. Load (0A) ⟷
Load 100% (4.3A)



Min. Load (0A) ⟷
Load 50% (2.15A)



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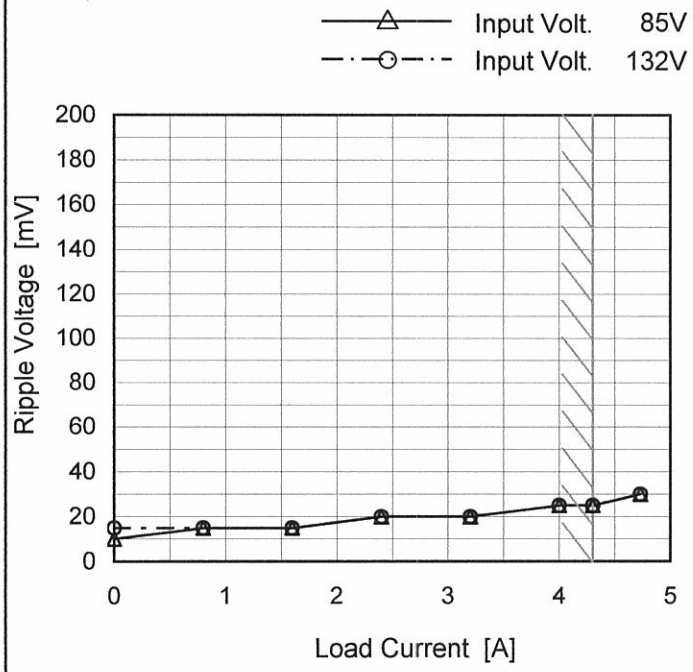
Model	LGA100A-24
Item	Ripple Voltage (by Load Current)
Object	+24V4.3A

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

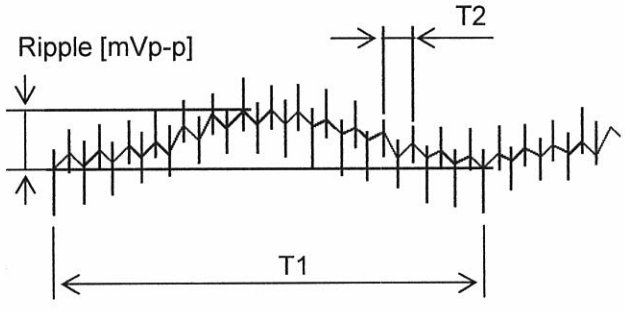


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 85 [V]	Ripple Voltage [mV] Input Volt. 132 [V]
0.00	10	15
0.80	15	15
1.60	15	15
2.40	20	20
3.20	20	20
4.00	25	25
4.30	25	25
4.73	30	30
--	-	-
--	-	-
--	-	-

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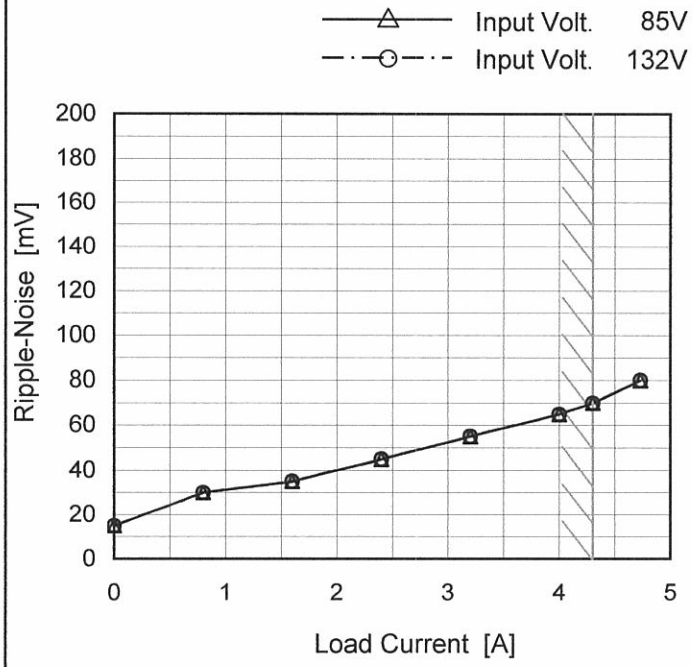
Model	LGA100A-24
Item	Ripple-Noise
Object	+24V4.3A

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]
0.00	15	15
0.80	30	30
1.60	35	35
2.40	45	45
3.20	55	55
4.00	65	65
4.30	70	70
4.73	80	80
--	-	-
--	-	-
--	-	-

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

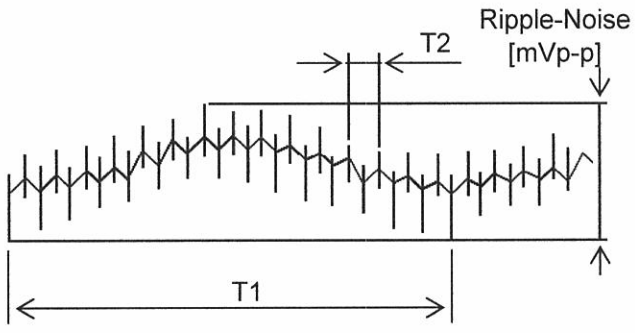


Fig. Complex Ripple Wave Form

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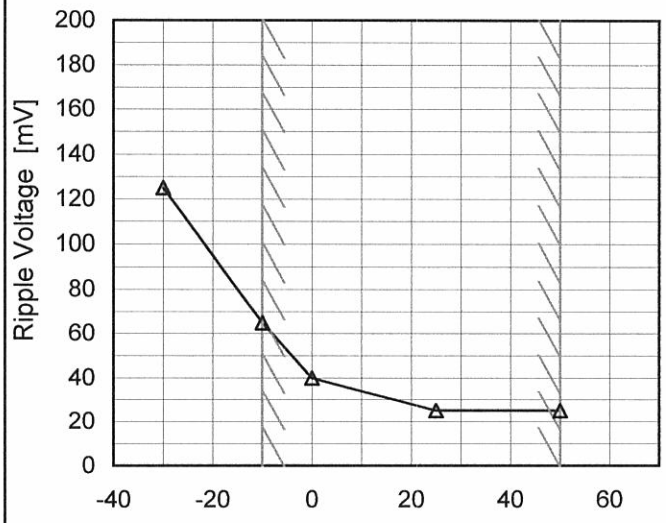
Model	LGA100A-24
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V4.3A

Testing Circuitry FigureC

1.Graph



Input Volt. 100V

Input Load. 100%

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 ambient temperature.

T1: Due to AC Input Line

T2: Due to Switching

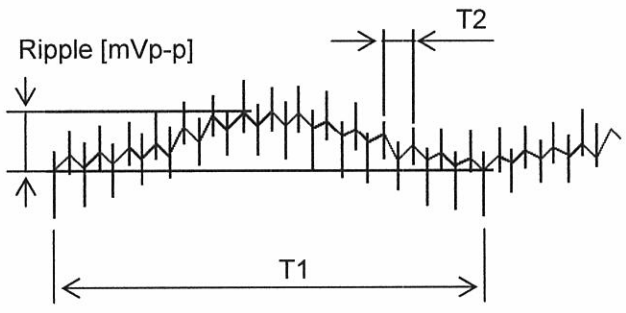


Fig. Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]
-30	125
-10	65
0	40
25	25
50	25
--	-
--	-
--	-
--	-
--	-
--	-

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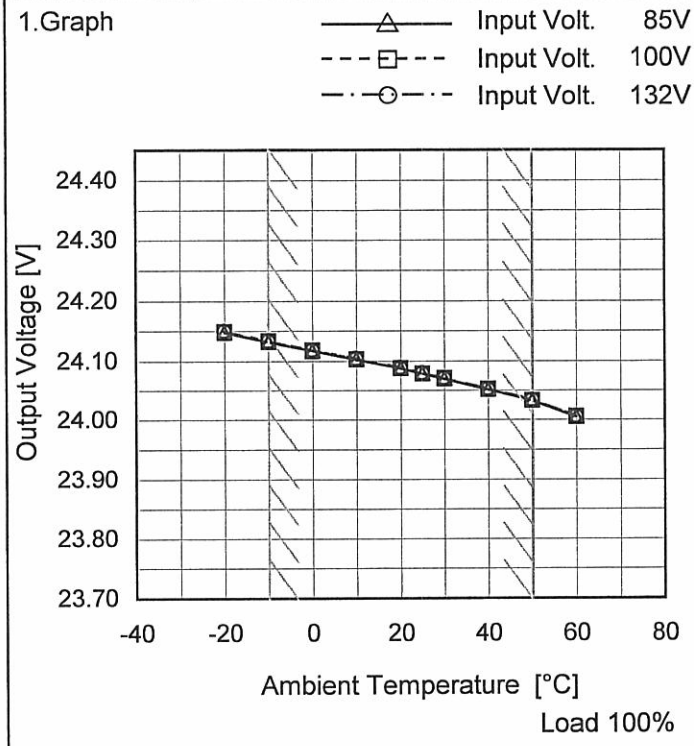
Model	LGA100A-24
Item	Ambient Temperature Drift
Object	+24V4.3A

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	24.148	24.149	24.150
-10	24.132	24.133	24.133
0	24.117	24.118	24.118
10	24.103	24.103	24.104
20	24.088	24.088	24.089
25	24.079	24.079	24.080
30	24.070	24.071	24.071
40	24.052	24.053	24.053
50	24.033	24.033	24.034
60	24.005	24.006	24.006
--	-	-	-

COSEL

Model	LGA100A-24	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V4.3A	

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 - 4.3A

* 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

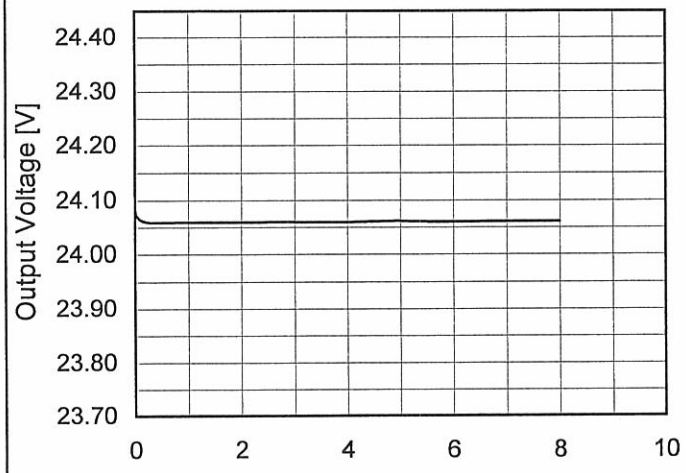
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	24.140	±54	±0.2
Minimum Voltage	50	85	4.3	24.033		

COSEL

Model	LGA100A-24
Item	Time Lapse Drift
Object	+24V4.3A

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	24.082
0.5	24.059
1.0	24.059
2.0	24.060
3.0	24.060
4.0	24.060
5.0	24.062
6.0	24.060
7.0	24.061
8.0	24.061

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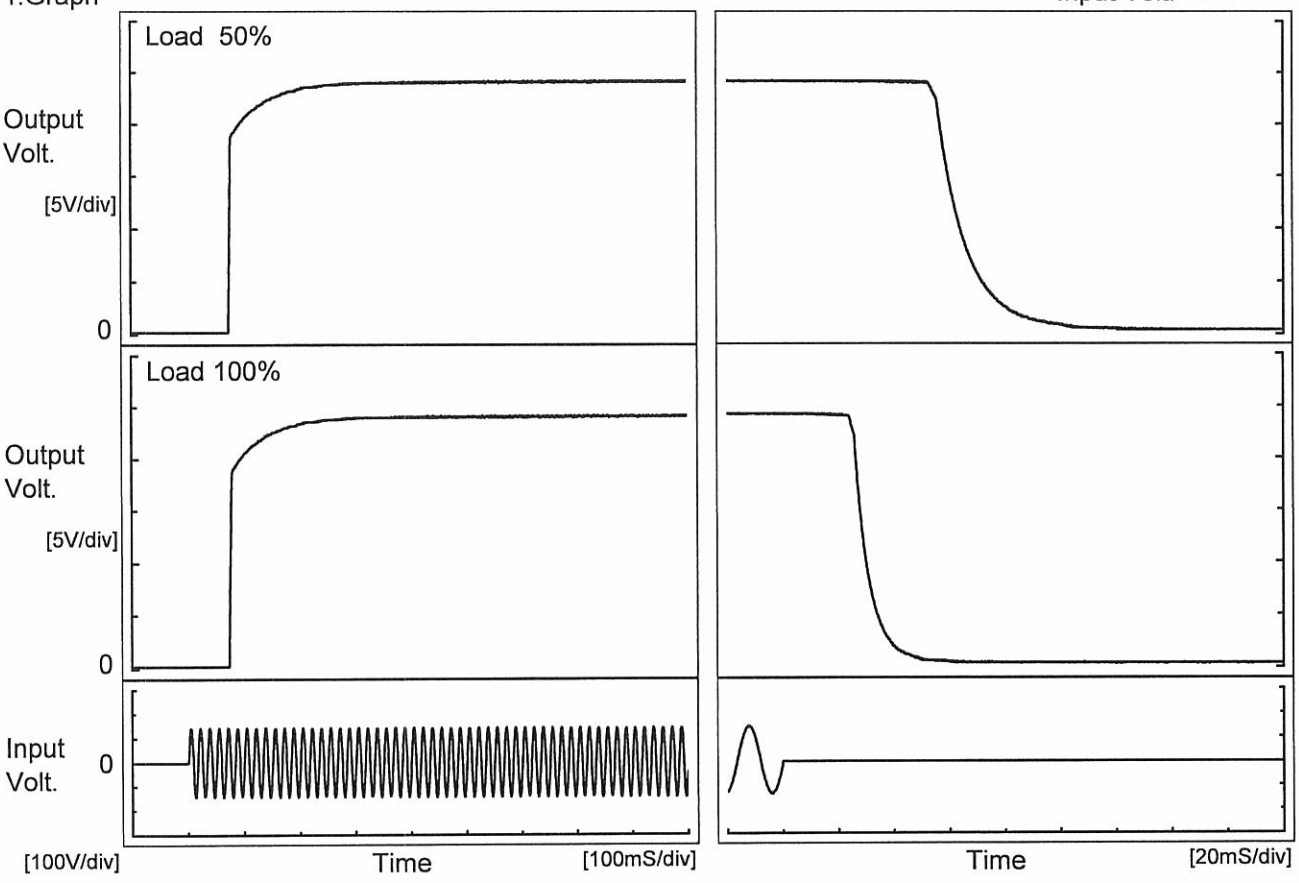
Model	LGA100A-24	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+24V4.3A	

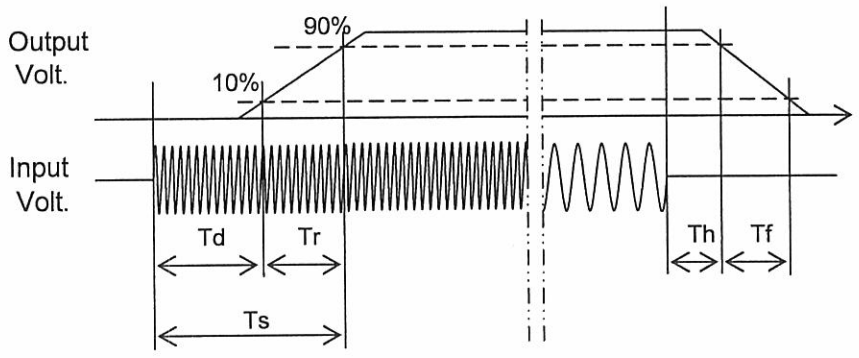
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	75.0	52.0	127.0	55.7	24.2
100 %	75.0	52.0	127.0	25.9	12.1



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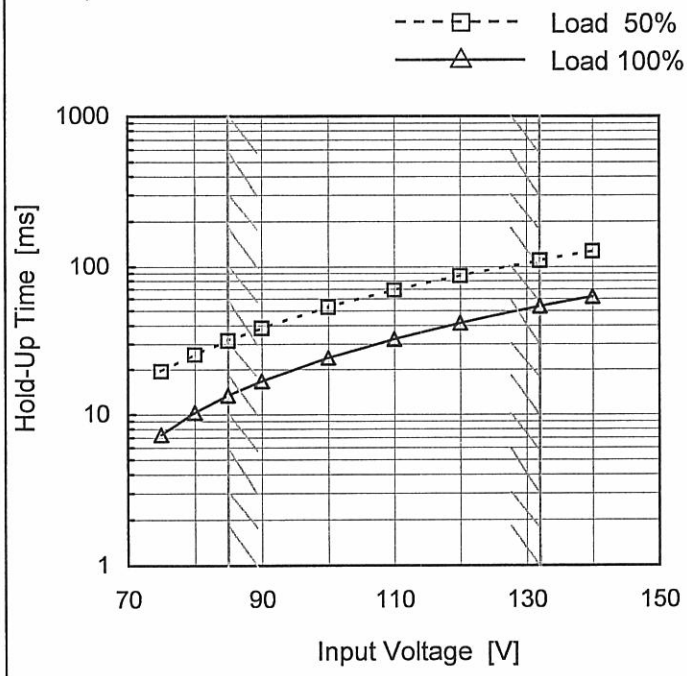
Model	LGA100A-24
Item	Hold-Up Time
Object	+24V4.3A

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	19	7
80	25	10
85	32	13
90	38	17
100	53	24
110	69	32
120	87	41
132	110	53
140	127	62

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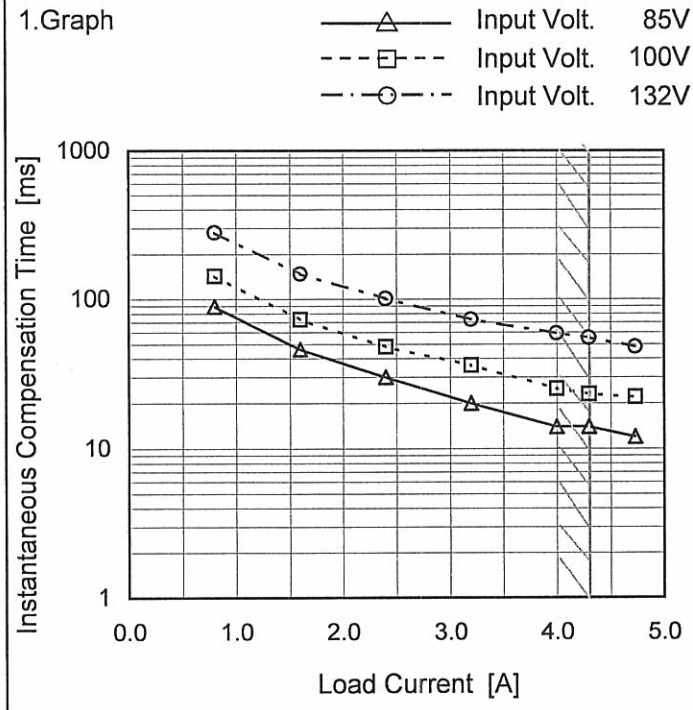
Model	LGA100A-24
Item	Instantaneous Interruption Compensation
Object	+24V4.3A

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]
0.00	-	-	-
0.80	89	143	281
1.60	46	73	148
2.40	30	48	101
3.20	20	36	73
4.00	14	25	59
4.30	14	23	55
4.73	12	22	48
--	-	-	-
--	-	-	-
--	-	-	-

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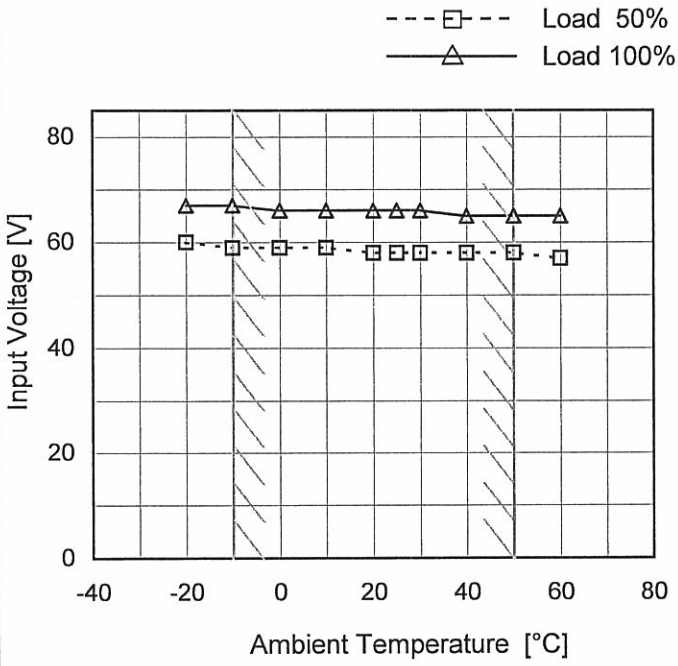
Model	LGA100A-24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V4.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

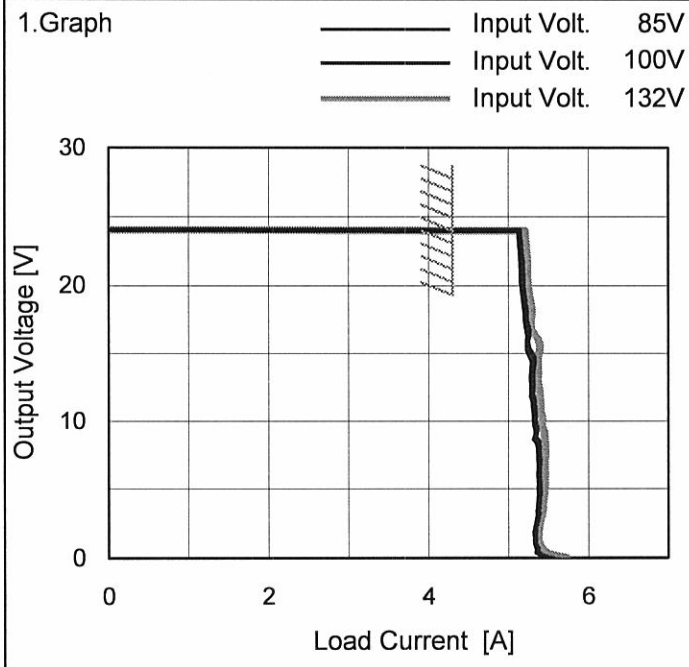
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	60	67
-10	59	67
0	59	66
10	59	66
20	58	66
25	58	66
30	58	66
40	58	65
50	58	65
60	57	65
--	-	-

COSEL

Model	LGA100A-24
Item	Overcurrent Protection
Object	+24V4.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

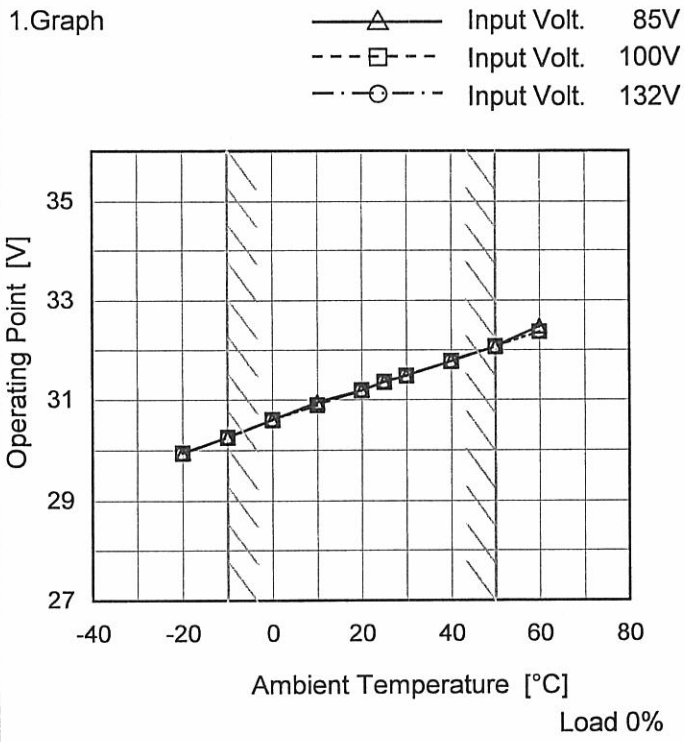
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.0	5.12	5.14	5.20
22.8	5.13	5.16	5.22
21.6	5.14	5.18	5.24
19.2	5.17	5.20	5.26
16.8	5.21	5.26	5.29
14.4	5.28	5.32	5.37
12.0	5.27	5.30	5.39
9.6	5.31	5.35	5.40
7.2	5.36	5.39	5.46
4.8	5.36	5.39	5.45
2.4	5.33	5.35	5.39
0.0	5.46	5.67	5.72

COSEL

Model	LGA100A-24
Item	Overvoltage Protection
Object	+24V4.3A

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. 100[V]	Input Volt. 132[V]
-20	29.94	29.94	29.94
-10	30.25	30.25	30.25
0	30.60	30.60	30.60
10	30.95	30.89	30.89
20	31.19	31.19	31.19
25	31.36	31.36	31.36
30	31.48	31.48	31.48
40	31.77	31.77	31.77
50	32.06	32.06	32.06
60	32.47	32.36	32.36
--	-	-	-

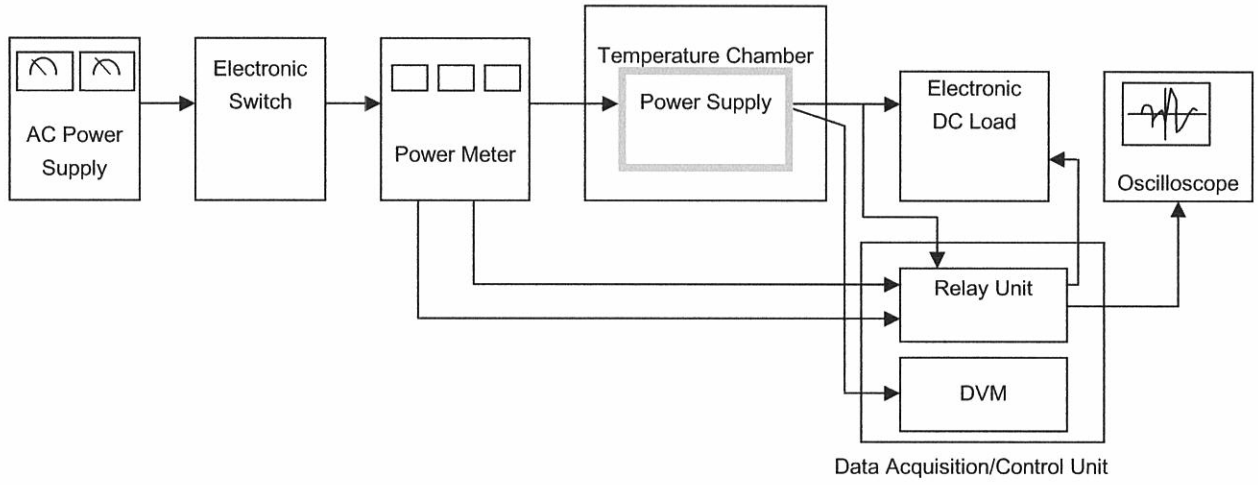


Figure A

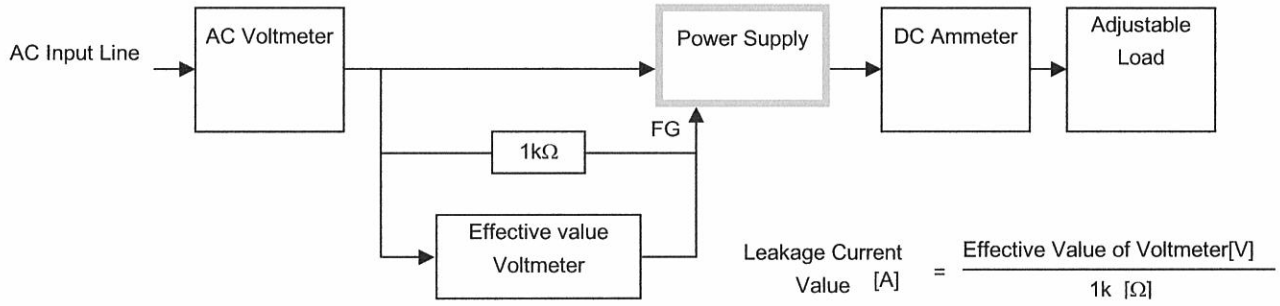


Figure B (DEN-AN)

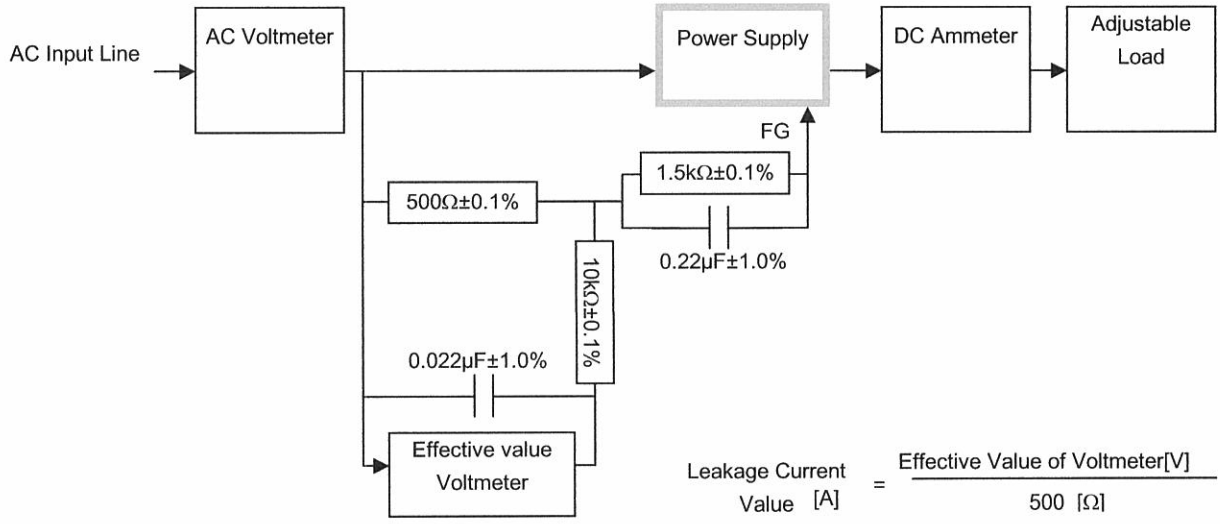


Figure B (IEC60950-1)

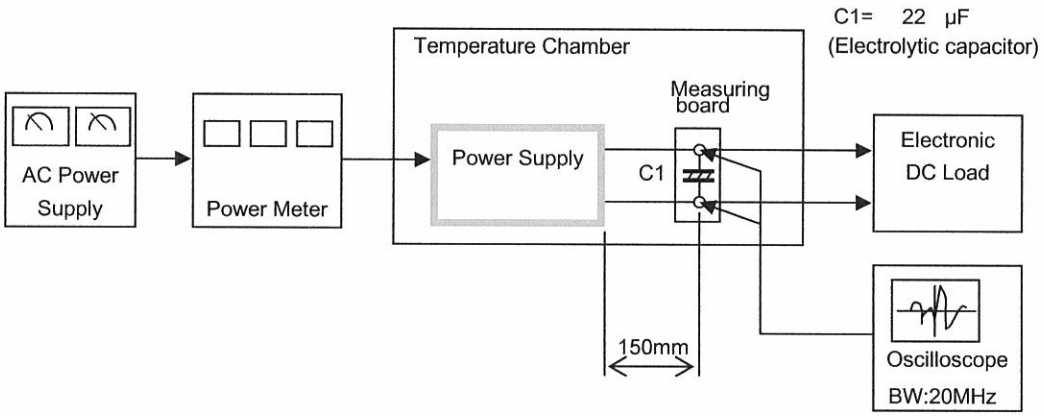

C1= 22 μF
(Electrolytic capacitor)
Temperature Chamber
Measuring board
AC Power Supply
Power Meter
Power Supply
C1
Electronic DC Load
150mm
Oscilloscope
BW:20MHz

Figure C