参考資料

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TEST DATA OF LGA75A-24

Regulated DC Power Supply
April 4, 2008

Approved by : Yoshiaki Shimizu
Yoshiaki Shimizu Design Manager

Prepared by : Yousuke Murata
Yousuke Murata Design Engineer

COSEL CO.,LTD.

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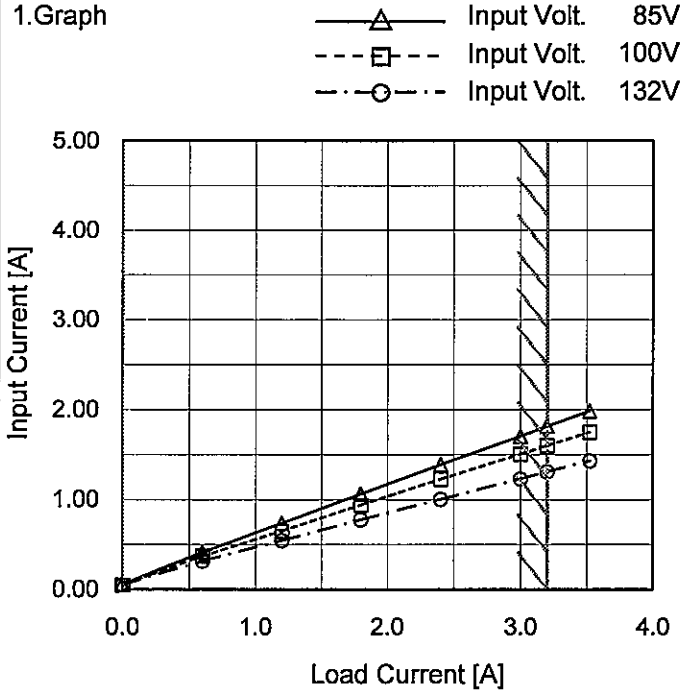
Model	LGA75A-24
Item	Input Current (by Load Current)
Object	————————

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]
0.00	0.055	0.052	0.051
0.60	0.414	0.369	0.316
1.20	0.735	0.652	0.543
1.80	1.061	0.940	0.773
2.40	1.387	1.225	1.002
3.00	1.701	1.502	1.231
3.20	1.813	1.600	1.307
3.52	1.983	1.749	1.429
--	-	-	-
--	-	-	-
--	-	-	-

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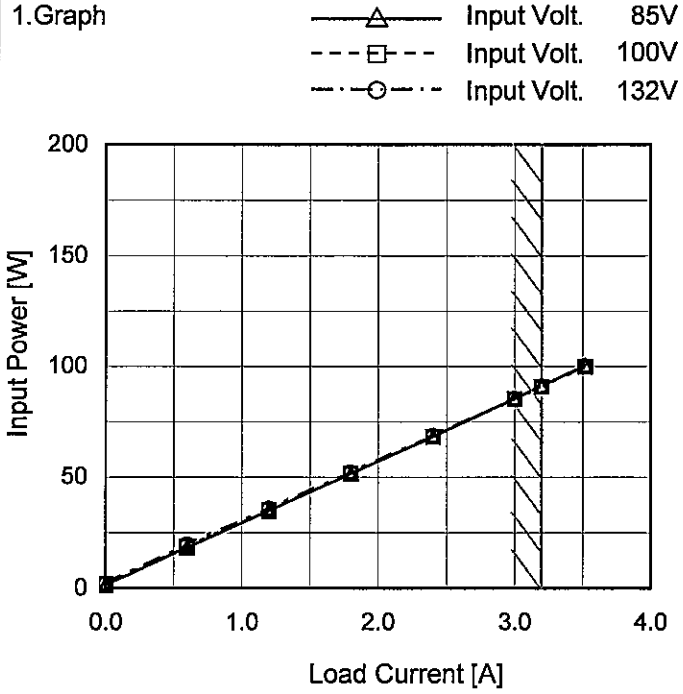
Model	LGA75A-24
Item	Input Power (by Load Current)
Object	————————

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	1.5	1.8	2.2
0.60	18.3	18.6	19.7
1.20	34.8	35.0	35.8
1.80	51.4	51.5	52.2
2.40	68.3	68.1	68.6
3.00	85.4	85.0	85.4
3.20	91.1	90.6	91.0
3.52	100.5	99.8	100.0
--	-	-	-
--	-	-	-
--	-	-	-

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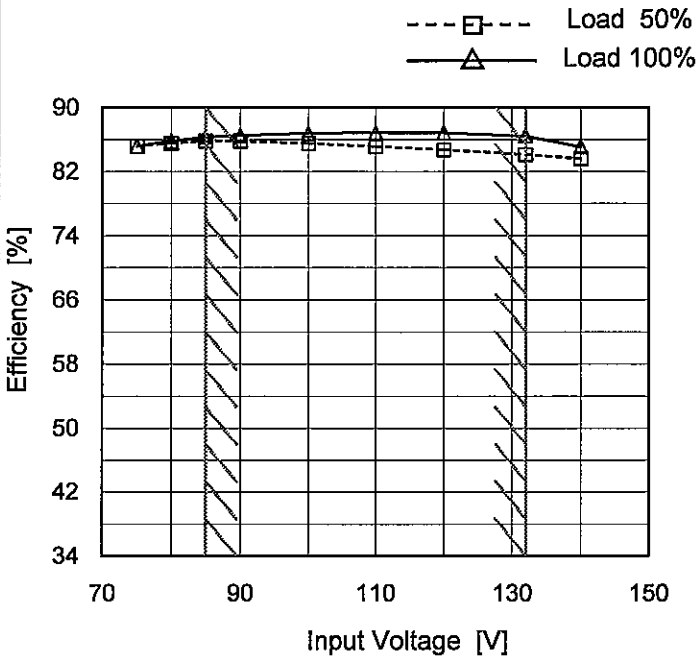
Model	LGA75A-24
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	85.1	85.2
80	85.6	85.8
85	85.8	86.3
90	85.8	86.5
100	85.5	86.8
110	85.1	86.9
120	84.8	86.9
132	84.1	86.5
140	83.6	85.1

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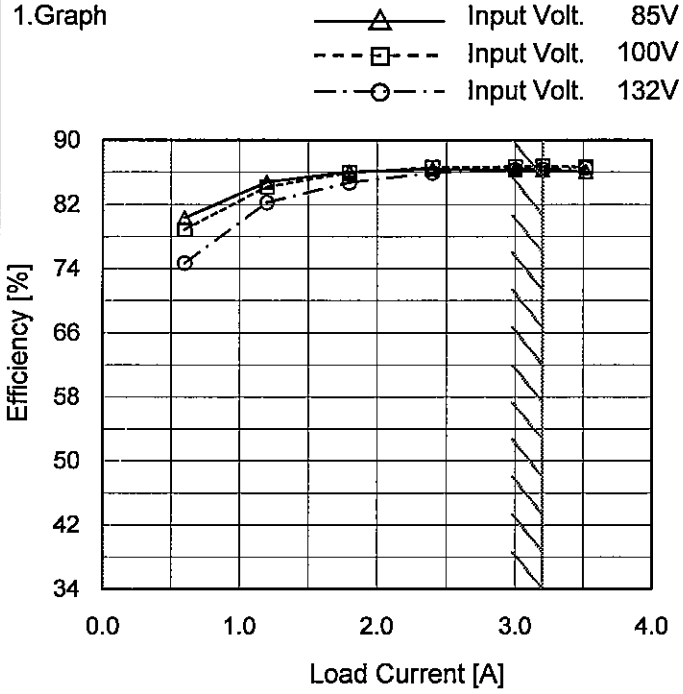
Model	LGA75A-24
Item	Efficiency (by Load Current)
Object	――――――

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	-	-	-
0.60	80.3	78.9	74.7
1.20	84.7	84.2	82.2
1.80	86.0	85.9	84.7
2.40	86.4	86.6	85.9
3.00	86.3	86.7	86.3
3.20	86.3	86.7	86.4
3.52	86.1	86.7	86.5
--	-	-	-
--	-	-	-
--	-	-	-

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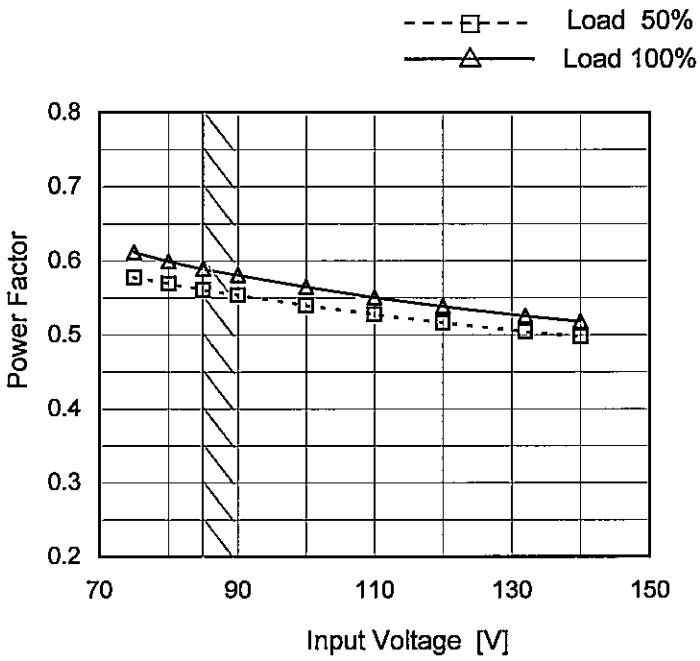
Model	LGA75A-24
Item	Power Factor (by Input Voltage)
Object	――――――――

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	0.578	0.612
80	0.569	0.599
85	0.561	0.589
90	0.553	0.580
100	0.539	0.564
110	0.528	0.550
120	0.516	0.538
132	0.504	0.526
140	0.498	0.518

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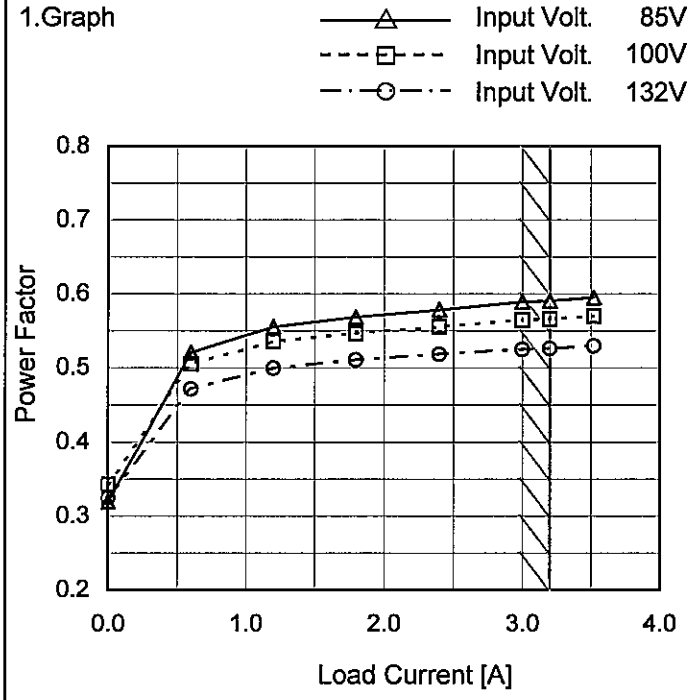
Model	LGA75A-24
Item	Power Factor (by Load Current)
Object	————————

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	0.319	0.342	0.324
0.60	0.520	0.505	0.471
1.20	0.555	0.535	0.499
1.80	0.568	0.546	0.510
2.40	0.578	0.555	0.518
3.00	0.589	0.564	0.525
3.20	0.590	0.565	0.526
3.52	0.595	0.570	0.529
--	-	-	-
--	-	-	-
--	-	-	-

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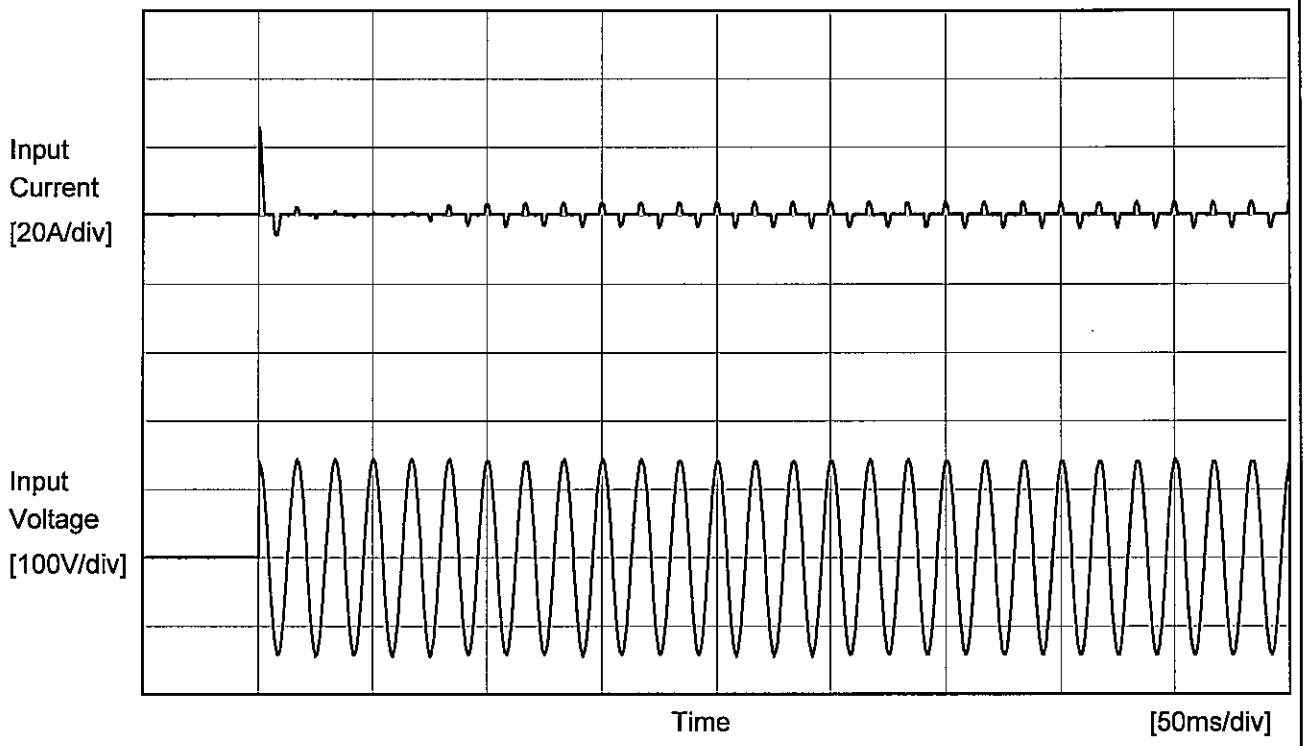
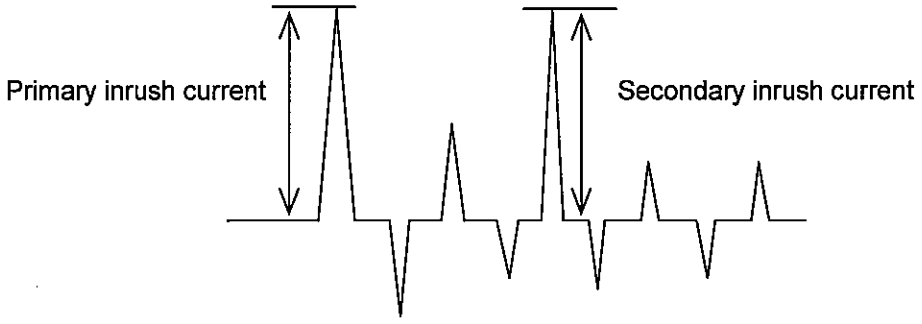
Model	LGA75A-24	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	————————		



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	25.3 A
Secondary inrush current	3.9 A



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Model	LGA75A-24		
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	0.08	0.10	0.12
(B)IEC60950	0.09	0.11	0.12

frequency 60Hz

Standards	Leakage Current [mA]		
	Input Volt. [V]	Input Volt. [V]	Input Volt. [V]
(B)IEC60950	-	-	-

2.Condition

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

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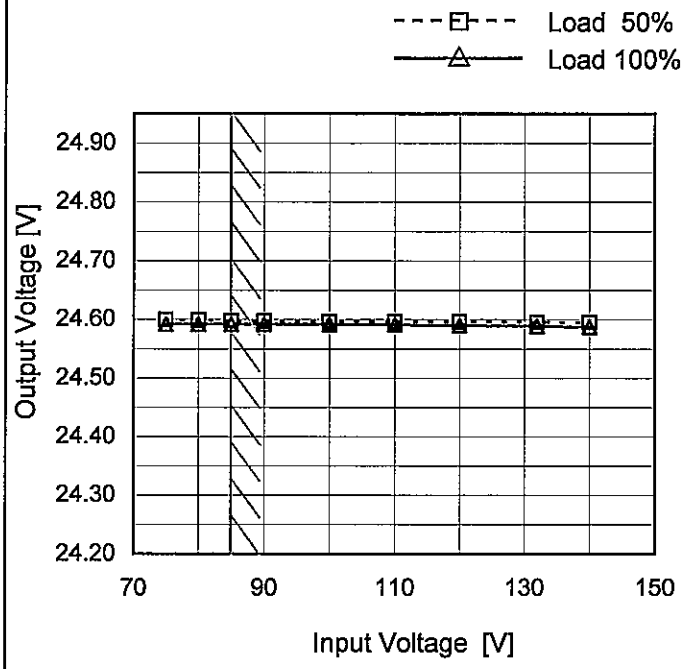
Model	LGA75A-24
Item	Line Regulation
Object	+24V3.2A

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	24.600	24.591
80	24.599	24.591
85	24.598	24.591
90	24.597	24.591
100	24.597	24.591
110	24.596	24.591
120	24.596	24.590
132	24.596	24.589
140	24.595	24.587

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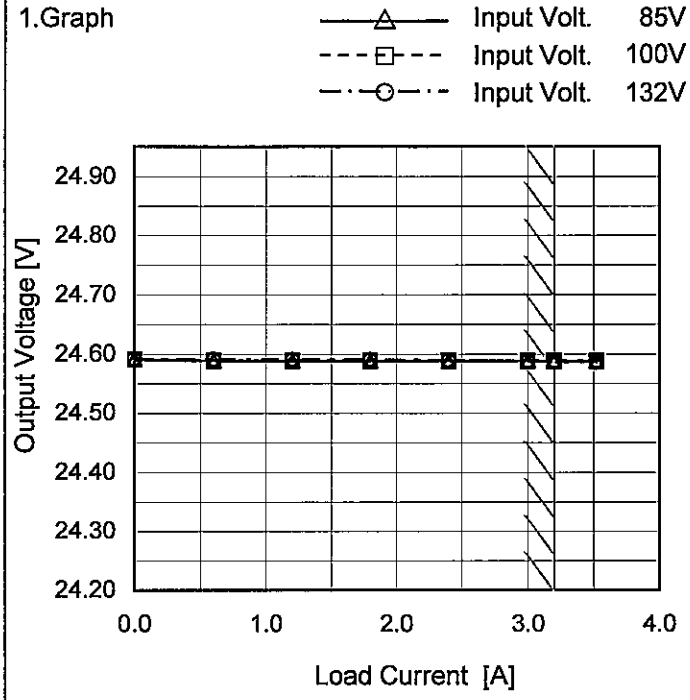
Model	LGA75A-24
Item	Load Regulation
Object	+24V3.2A

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	24.591	24.591	24.592
0.60	24.588	24.590	24.591
1.20	24.588	24.590	24.591
1.80	24.588	24.589	24.591
2.40	24.588	24.589	24.590
3.00	24.588	24.589	24.588
3.20	24.588	24.589	24.587
3.52	24.587	24.588	24.586
---	-	-	-
---	-	-	-
---	-	-	-

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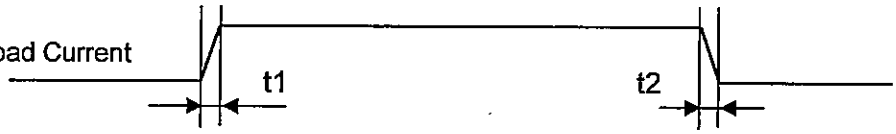
Model	LGA75A-24		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure C
Object	+24V3.2A		

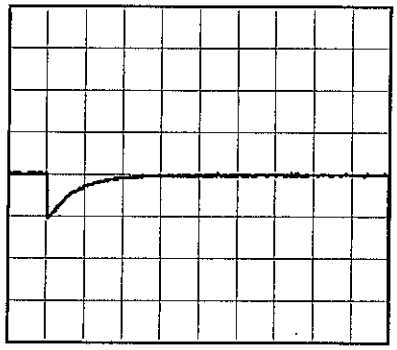
Input Volt. 100 V

Cycle 1000 ms

Response. t1=t2=50 μ s. Typ

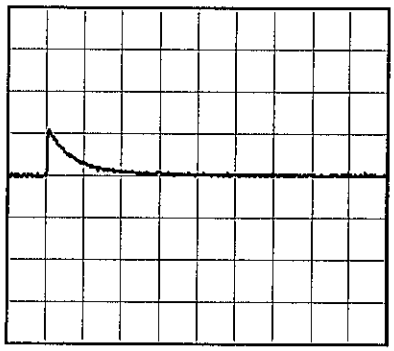


Min. Load (0A) ⟷
Load 100% (3.2A)



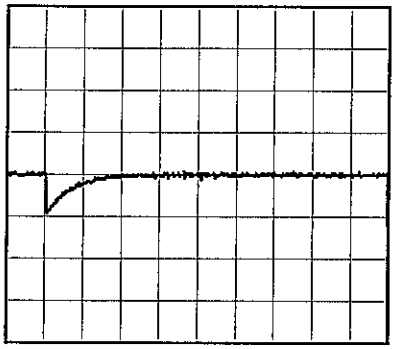
100 mV/div

40 ms/div



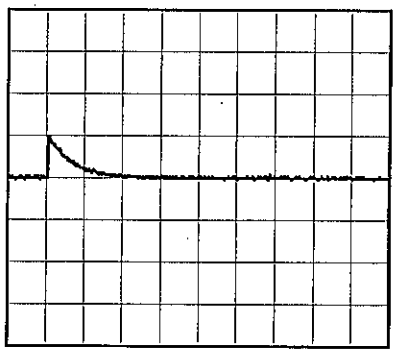
40 ms/div

Min. Load (0A) ⟷
Load 50% (1.6A)



100 mV/div

40 ms/div



40 ms/div

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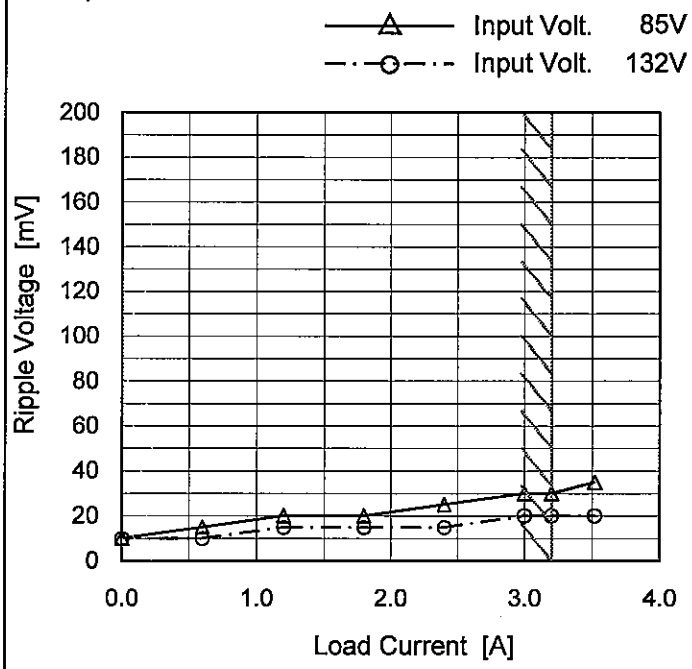
Model	LGA75A-24
Item	Ripple Voltage (by Load Current)
Object	+24V3.2A

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

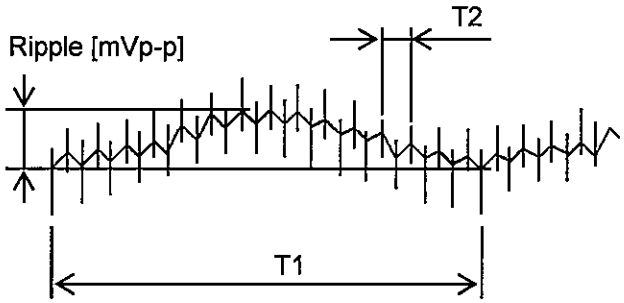


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.00	10	10
0.60	15	10
1.20	20	15
1.80	20	15
2.40	25	15
3.00	30	20
3.20	30	20
3.52	35	20
--	-	-
--	-	-
--	-	-

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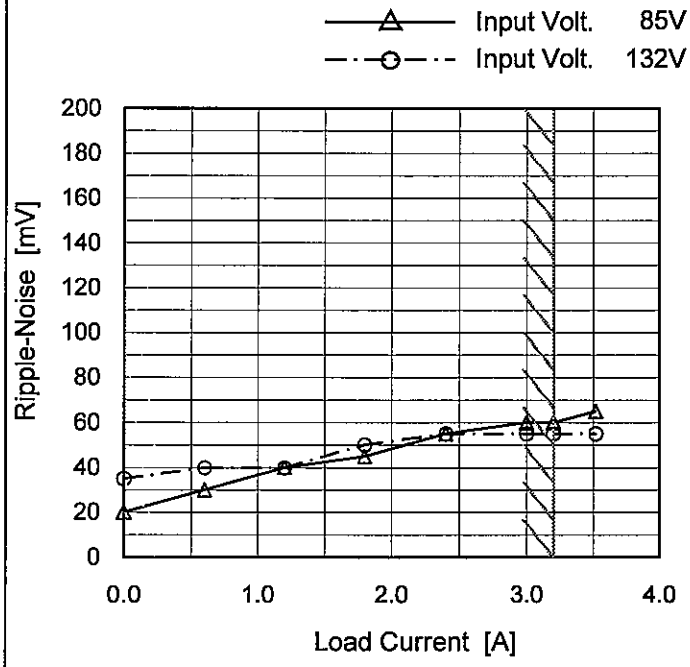
Model	LGA75A-24
Item	Ripple-Noise
Object	+24V3.2A

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

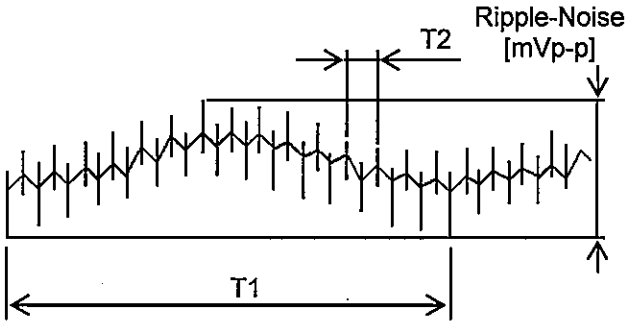


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 85 [V]	Ripple-Noise [mV] Input Volt. 132 [V]
0.00	20	35
0.60	30	40
1.20	40	40
1.80	45	50
2.40	55	55
3.00	60	55
3.20	60	55
3.52	65	55
--	-	-
--	-	-
--	-	-

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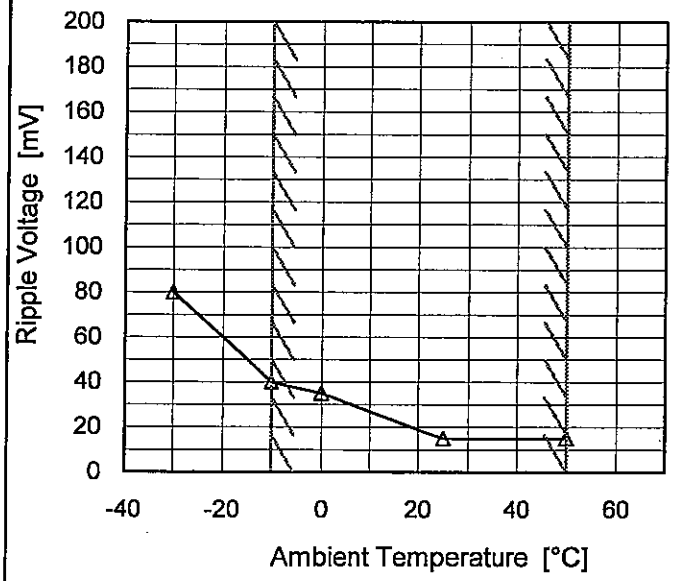
Model	LGA75A-24
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V3.2A

Testing Circuitry FigureC

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

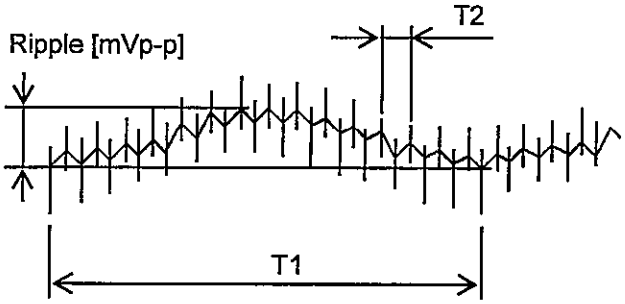


Fig. Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]
-30	80
-10	40
0	35
25	15
50	15
--	-
--	-
--	-
--	-
--	-
--	-

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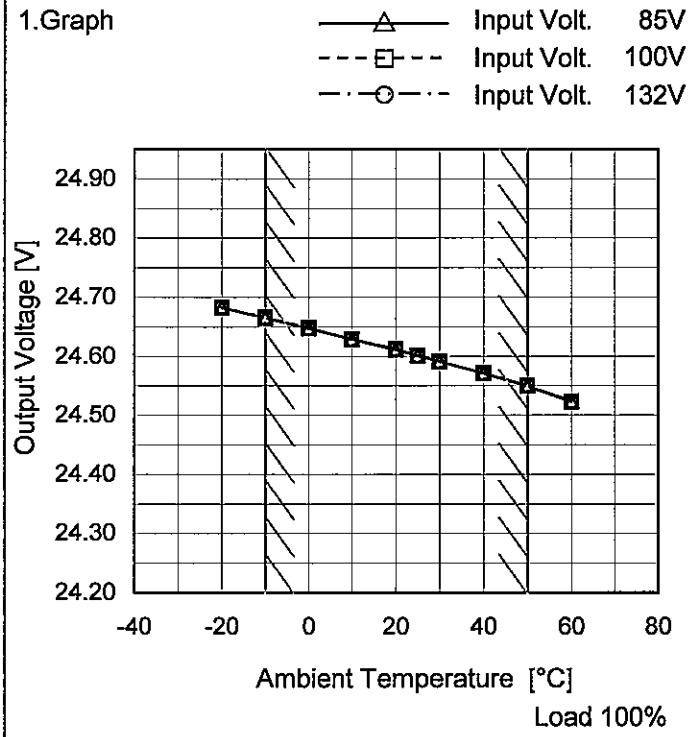
Model	LGA75A-24
Item	Ambient Temperature Drift
Object	+24V3.2A

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	24.683	24.683	24.683
-10	24.665	24.666	24.665
0	24.647	24.648	24.647
10	24.629	24.629	24.629
20	24.611	24.612	24.612
25	24.601	24.601	24.601
30	24.591	24.591	24.591
40	24.571	24.571	24.571
50	24.549	24.550	24.550
60	24.523	24.523	24.523
---	-	-	-

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Model	LGA75A-24	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V3.2A	

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 - 3.2A

* 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	24.671	±61	±0.3
Minimum Voltage	50	85	3.2	24.549		

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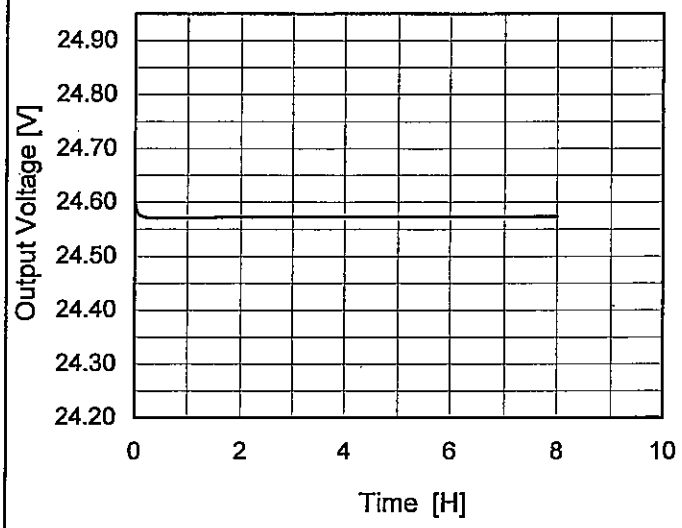
Model	LGA75A-24
Item	Time Lapse Drift
Object	+24V3.2A

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	24.607
0.5	24.570
1.0	24.571
2.0	24.572
3.0	24.573
4.0	24.573
5.0	24.573
6.0	24.574
7.0	24.573
8.0	24.573

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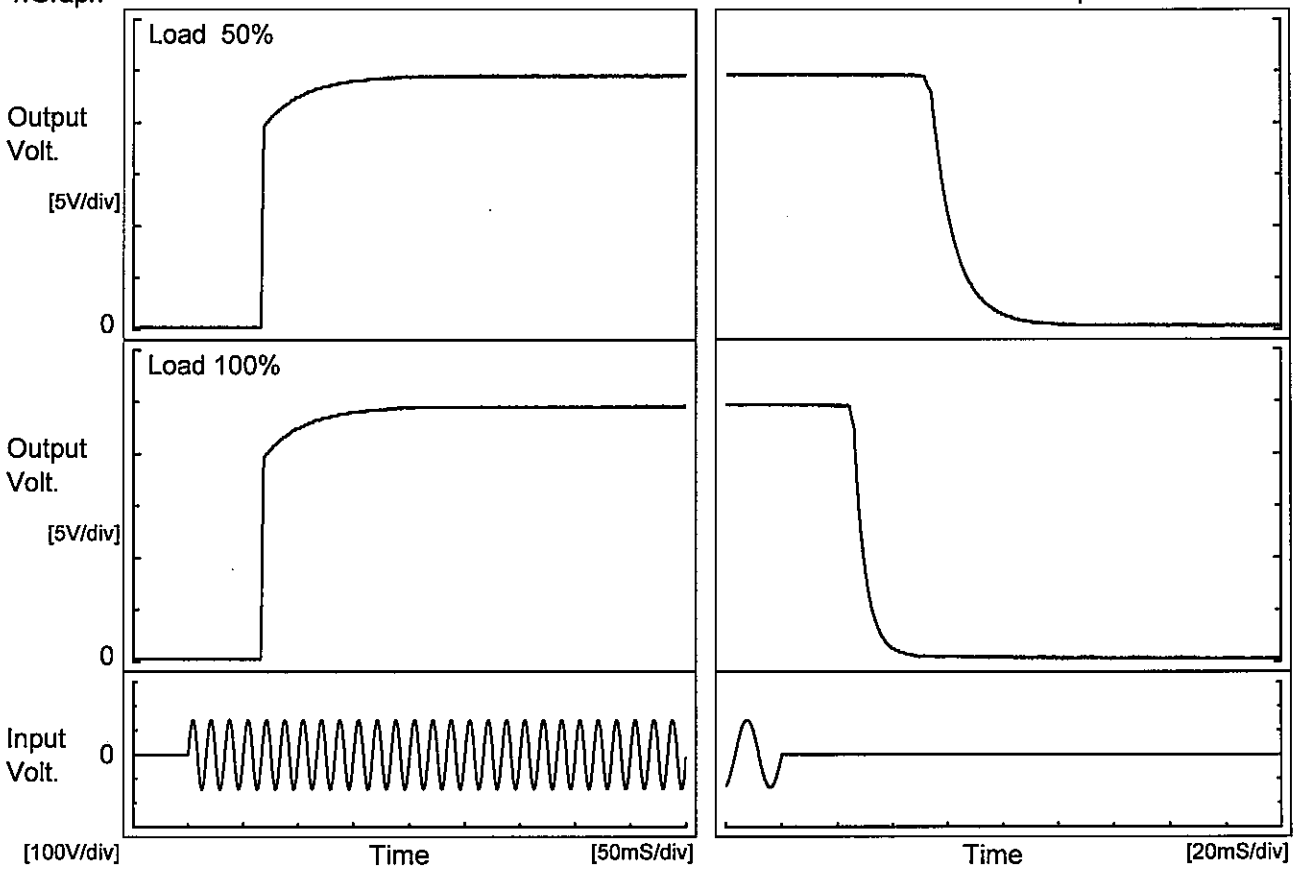
Model	LGA75A-24	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+24V3.2A	

1.Graph

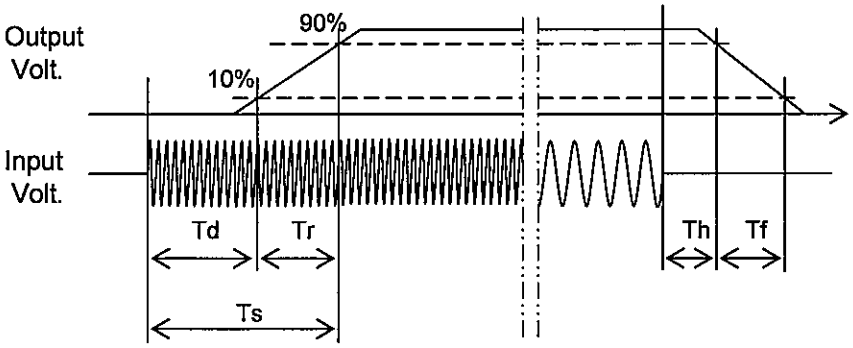
Input Volt. 100 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	66.3	23.0	89.3	54.4	19.0
100 %	66.5	22.8	89.3	26.0	9.6



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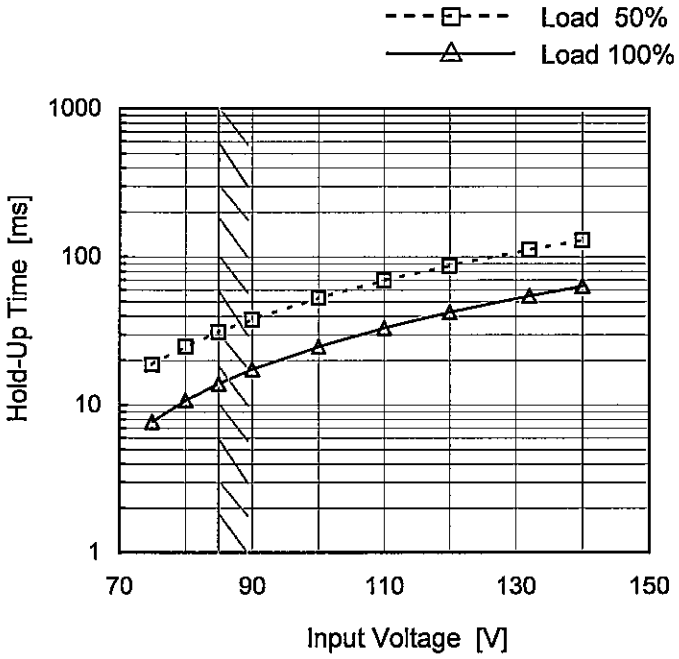
Model	LGA75A-24
Item	Hold-Up Time
Object	+24V3.2A

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

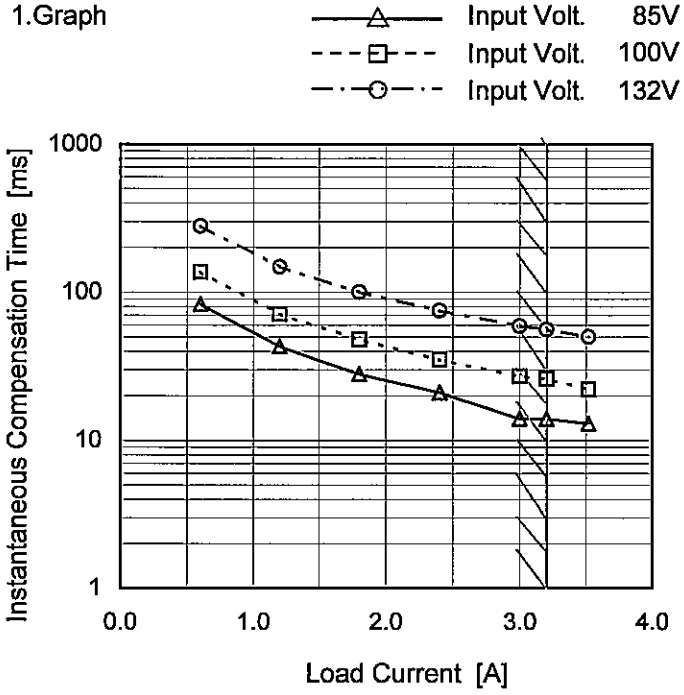
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	19	8
80	25	11
85	31	14
90	38	17
100	53	25
110	69	33
120	87	42
132	111	55
140	129	63

COSEL

Model	LGA75A-24
Item	Instantaneous Interruption Compensation
Object	+24V3.2A

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	-	-	-
0.60	83	137	280
1.20	43	71	148
1.80	28	48	100
2.40	21	35	75
3.00	14	27	59
3.20	14	26	56
3.52	13	22	50
--	-	-	-
--	-	-	-
--	-	-	-

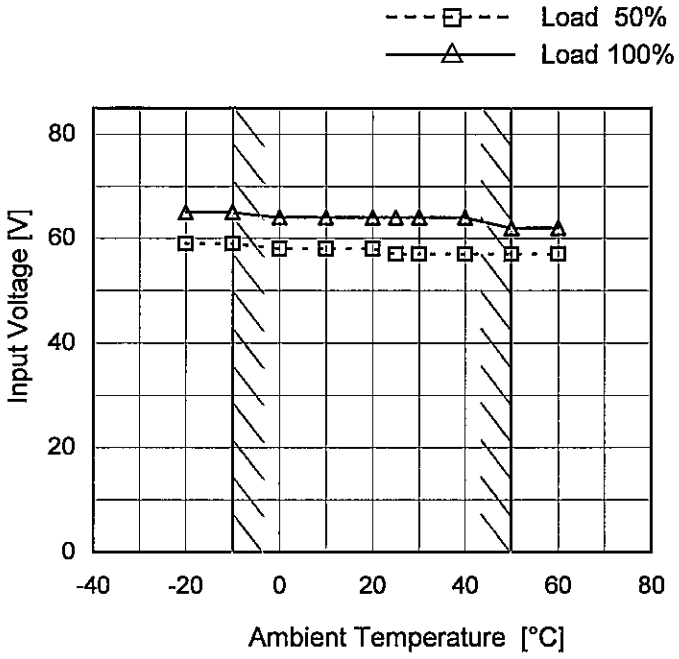
BC-10155

COSEL

Model	LGA75A-24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V3.2A

Testing Circuitry Figure A

1.Graph



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

2.Values

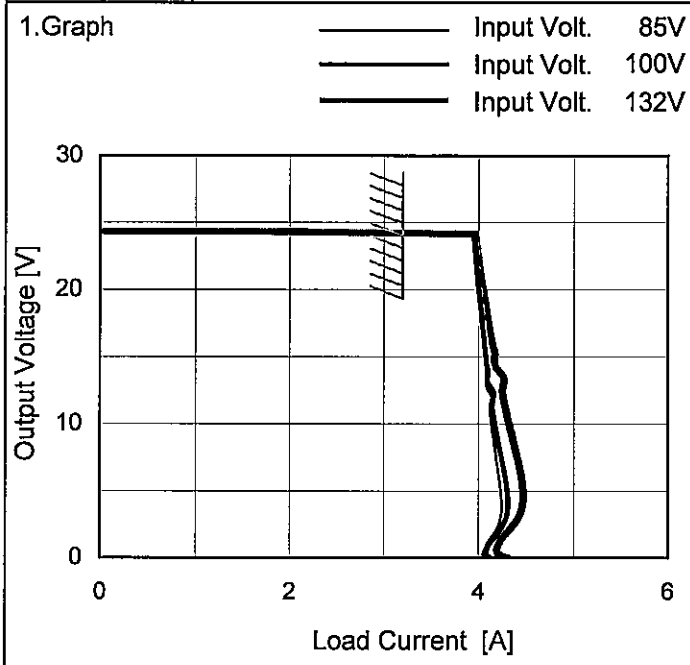
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	59	65
-10	59	65
0	58	64
10	58	64
20	58	64
25	57	64
30	57	64
40	57	64
50	57	62
60	57	62
--	-	-

COSEL

Model	LGA75A-24
Item	Overcurrent Protection
Object	+24V3.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

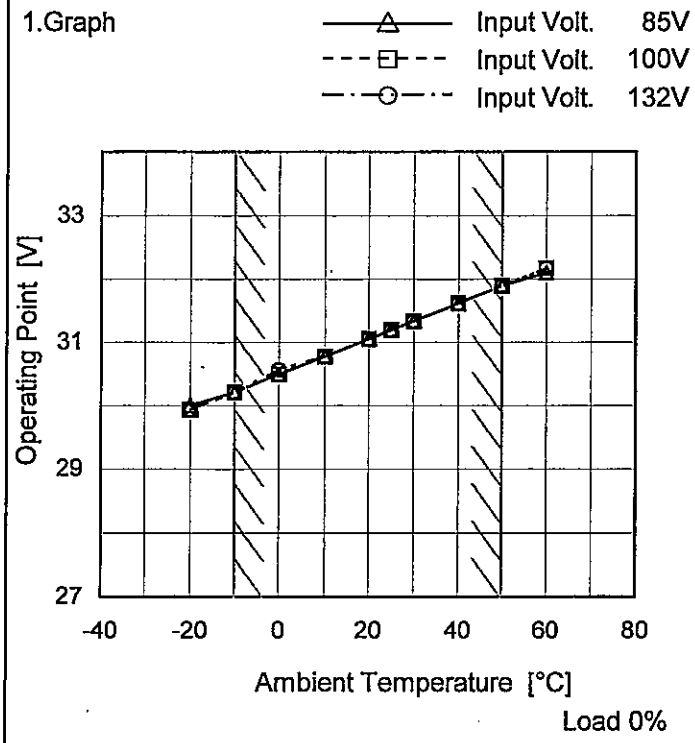
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.0	3.97	3.95	3.97
22.8	3.98	3.96	3.99
21.6	3.99	3.95	3.97
19.2	4.02	4.01	4.06
16.8	4.04	4.05	4.12
14.4	4.07	4.08	4.16
12.0	4.13	4.16	4.26
9.6	4.14	4.18	4.33
7.2	4.19	4.24	4.41
4.8	4.23	4.30	4.47
2.4	4.21	4.26	4.36
0.0	4.08	4.14	4.32

COSEL

Model	LGA75A-24
Item	Overvoltage Protection
Object	+24V3.2A

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	30.00	29.93	29.93
-10	30.21	30.21	30.21
0	30.49	30.49	30.56
10	30.77	30.77	30.77
20	31.05	31.05	31.05
25	31.19	31.19	31.19
30	31.33	31.33	31.33
40	31.61	31.61	31.61
50	31.89	31.89	31.89
60	32.10	32.17	32.17
---	-	-	-

COSEL

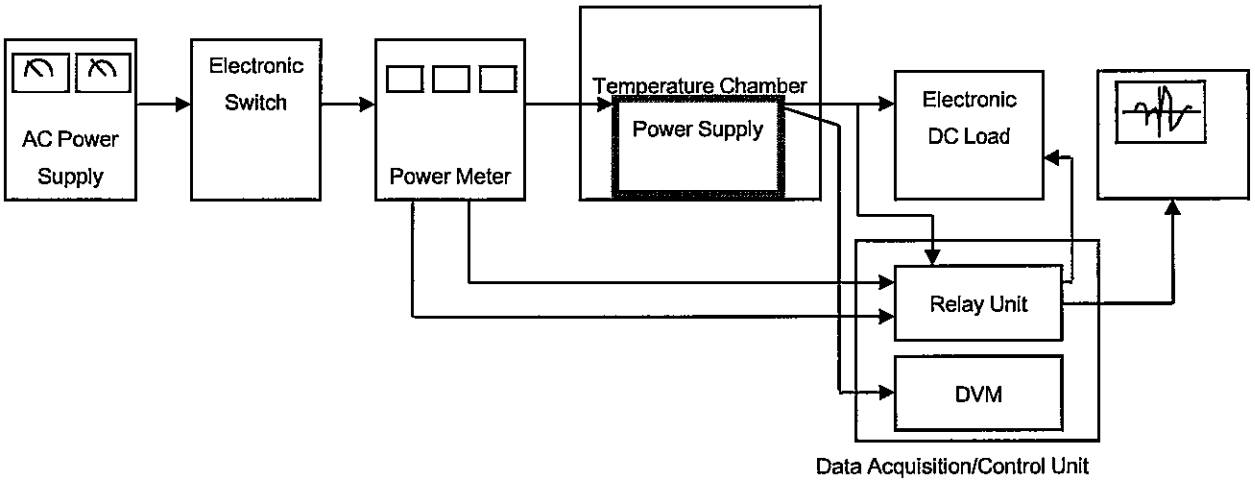


Figure A

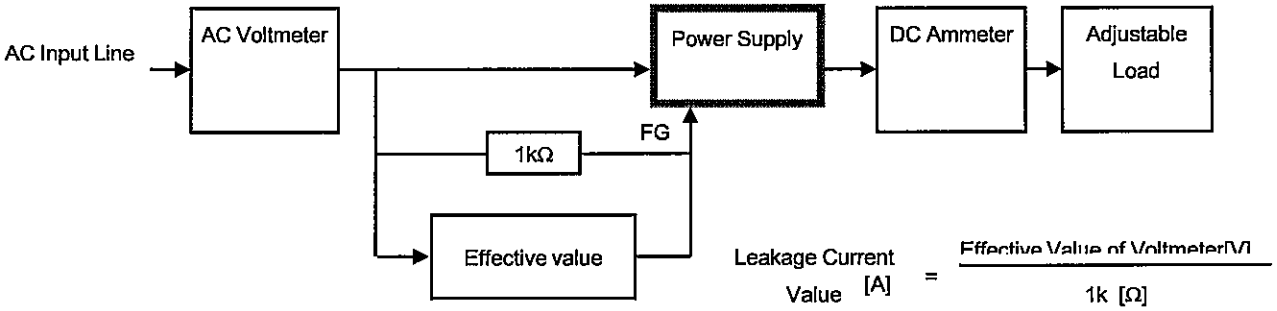


Figure B (DEN-AN)

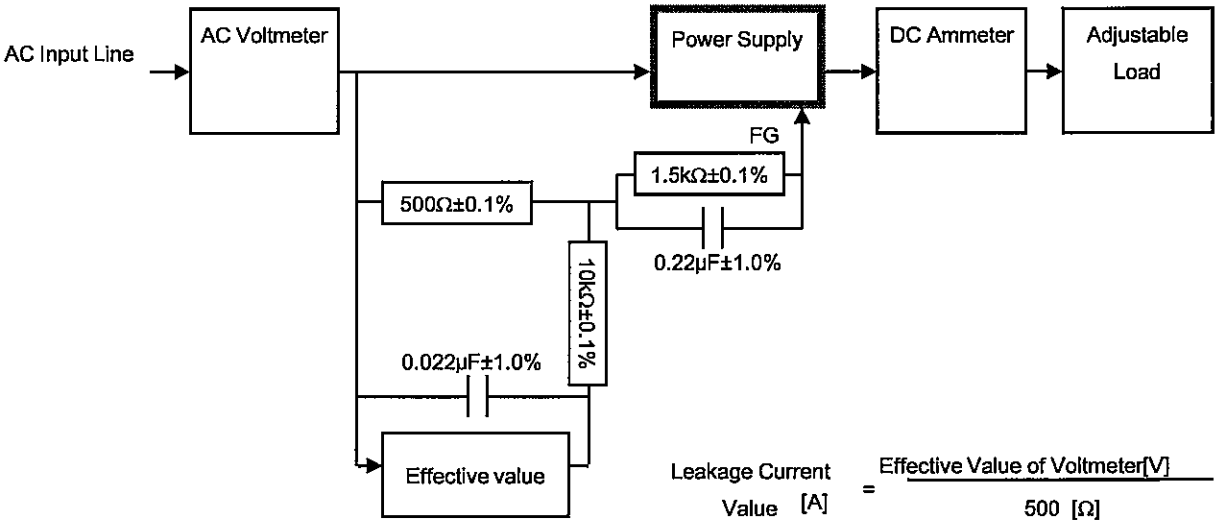


Figure B (IEC60950 -1)

COSEL

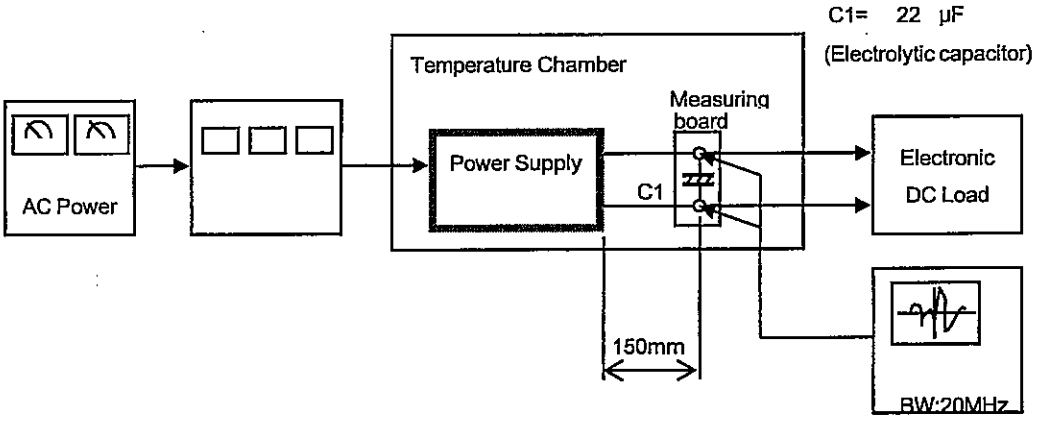


Figure C