参考資料

COSEL

TEST DATA OF LGA150A-15

Regulated DC Power Supply
May 20, 2011

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COSEL CO.,LTD.

参考資料

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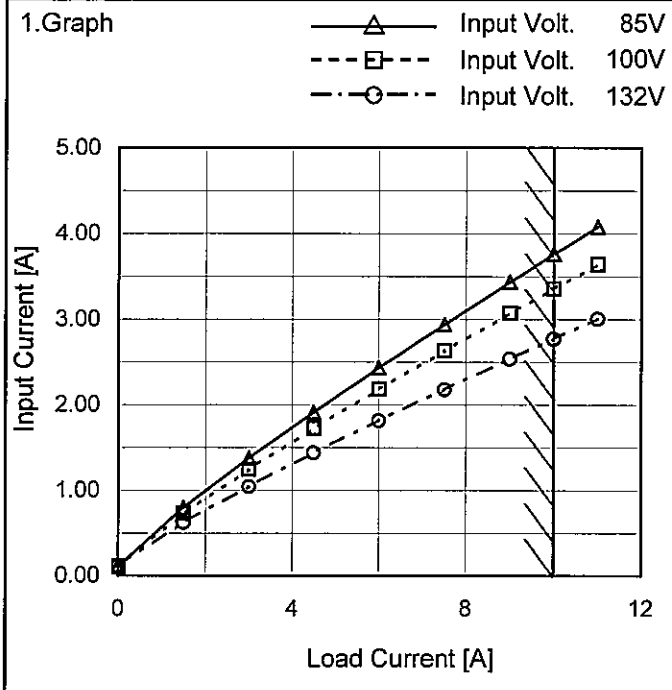
COSEL

Model	LGA150A-15
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	0.109	0.112	0.119
1.5	0.801	0.729	0.626
3.0	1.378	1.243	1.046
4.5	1.916	1.724	1.440
6.0	2.434	2.183	1.816
7.5	2.940	2.630	2.182
9.0	3.436	3.070	2.540
10.0	3.760	3.356	2.774
11.0	4.080	3.640	3.008
--	-	-	-
--	-	-	-

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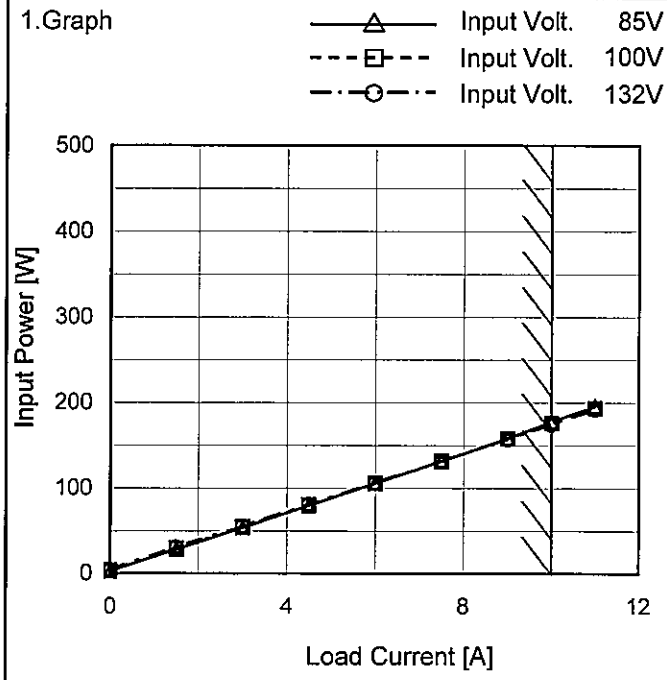
Model	LGA150A-15
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

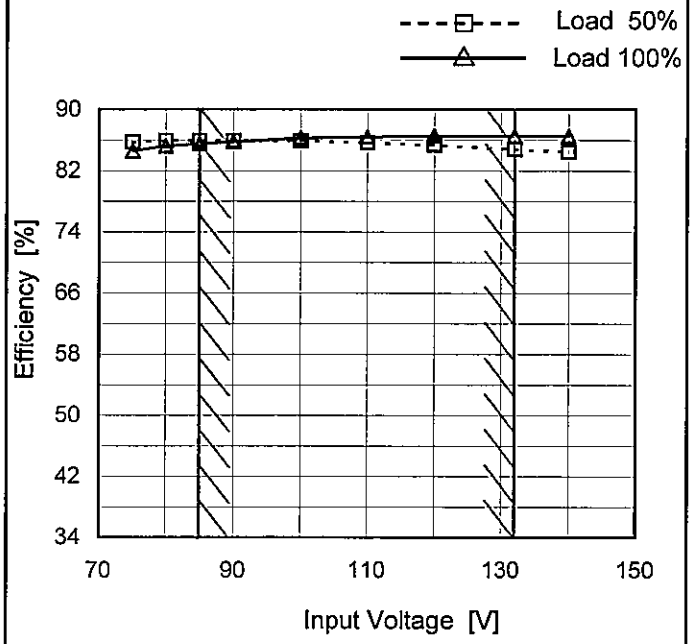
Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	3.1	3.5	4.6
1.5	28.9	29.5	31.1
3.0	54.0	54.4	55.8
4.5	79.8	80.1	81.3
6.0	105.9	105.6	106.4
7.5	132.0	131.4	131.7
9.0	158.7	157.8	157.5
10.0	178.0	175.5	174.6
11.0	196.0	193.2	192.0
--	-	-	-
--	-	-	-

COSEL

Model	LGA150A-15
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

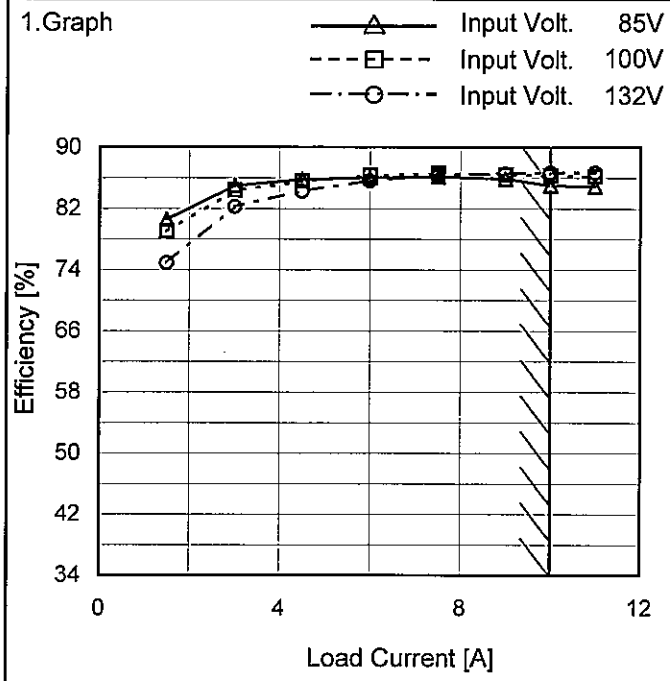
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	85.7	84.6
80	85.9	85.3
85	85.9	85.5
90	85.9	85.8
100	85.9	86.3
110	85.6	86.4
120	85.3	86.6
132	84.8	86.6
140	84.5	86.5

COSEL

Model	LGA150A-15
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

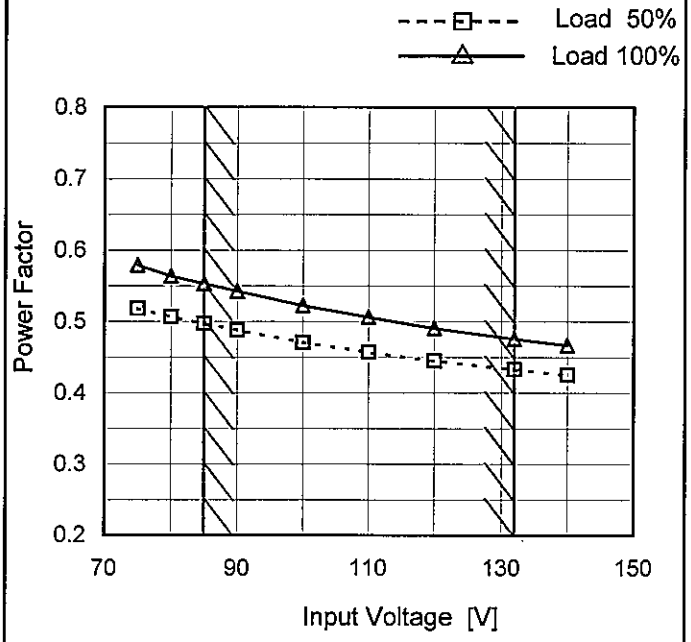
Load Current [A]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	-	-	-
1.5	80.6	79.0	74.9
3.0	85.0	84.4	82.3
4.5	85.9	85.6	84.3
6.0	86.0	86.3	85.7
7.5	86.2	86.6	86.4
9.0	85.9	86.4	86.6
10.0	85.1	86.3	86.7
11.0	84.9	86.2	86.7
--	-	-	-
--	-	-	-

COSEL

Model	LGA150A-15
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	0.518	0.579
80	0.507	0.564
85	0.497	0.553
90	0.488	0.543
100	0.471	0.523
110	0.457	0.507
120	0.445	0.491
132	0.433	0.476
140	0.425	0.467

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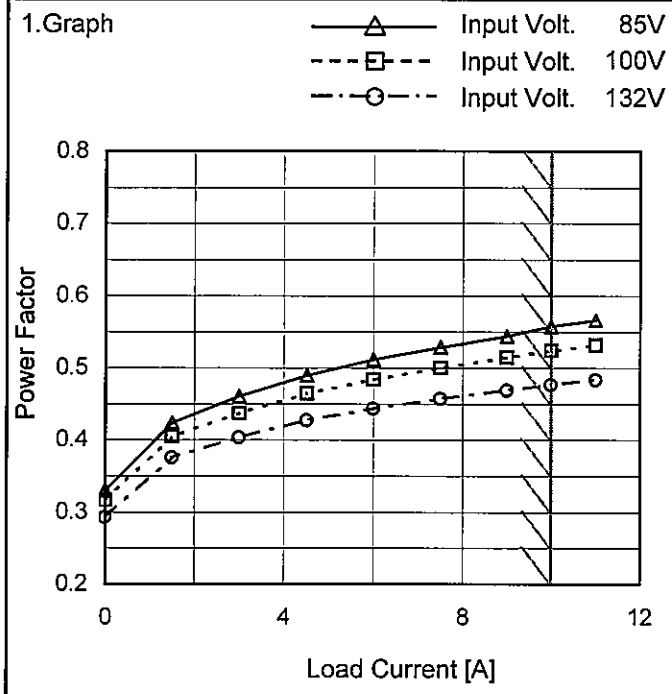
Model	LGA150A-15
Item	Power Factor (by Load Current)
Object	————————

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	0.331	0.316	0.293
1.5	0.424	0.405	0.376
3.0	0.461	0.437	0.404
4.5	0.490	0.465	0.427
6.0	0.512	0.484	0.444
7.5	0.529	0.500	0.457
9.0	0.544	0.515	0.470
10.0	0.558	0.524	0.477
11.0	0.566	0.531	0.484
--	-	-	-
--	-	-	-

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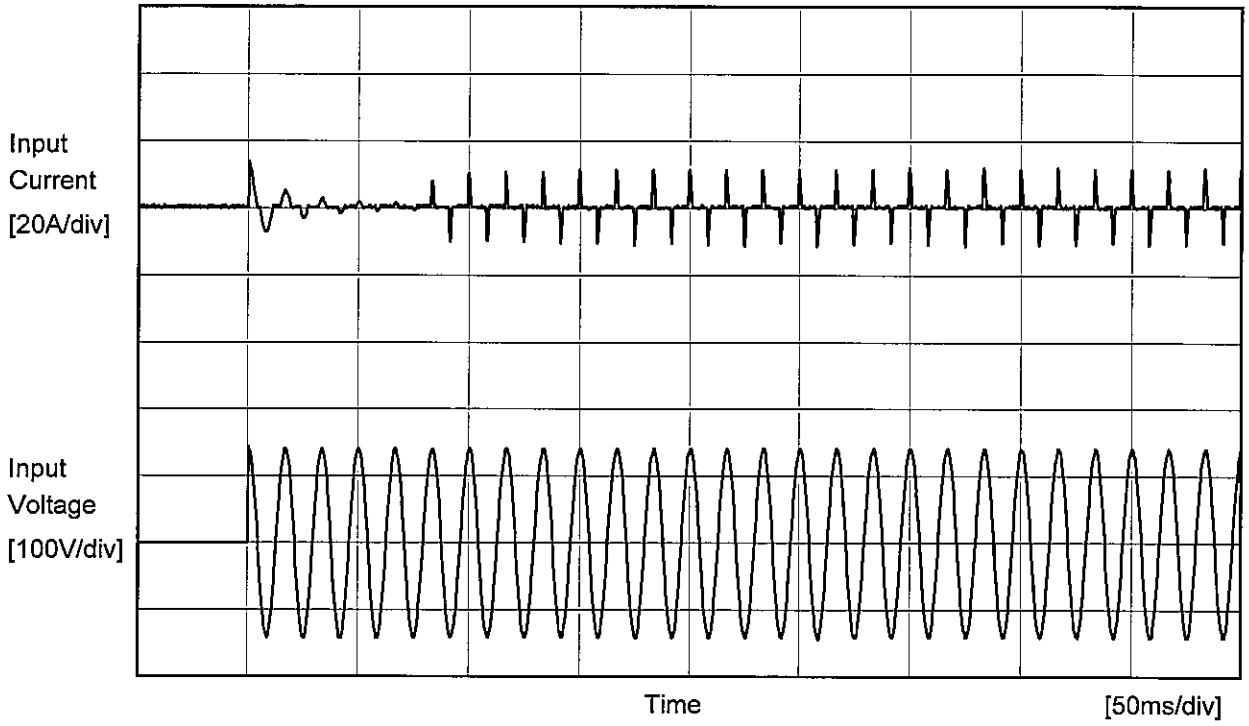
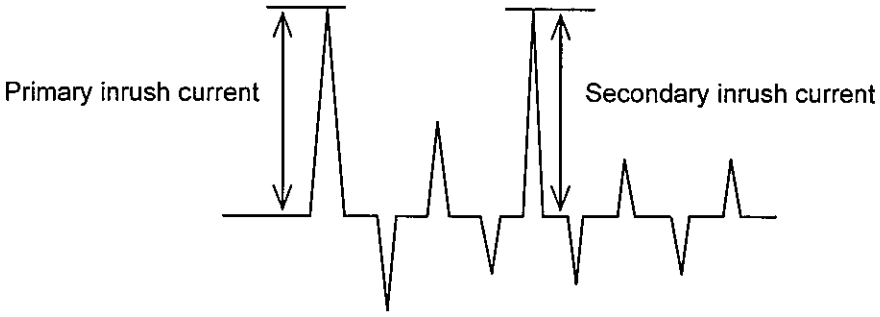
Model	LGA150A-15
Item	Inrush Current
Object	――――――

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	13.9 A
Secondary inrush current	11.7 A



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Model	LGA150A-15		
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	0.30	0.39	0.43
(B)IEC60950-1	0.30	0.37	0.42

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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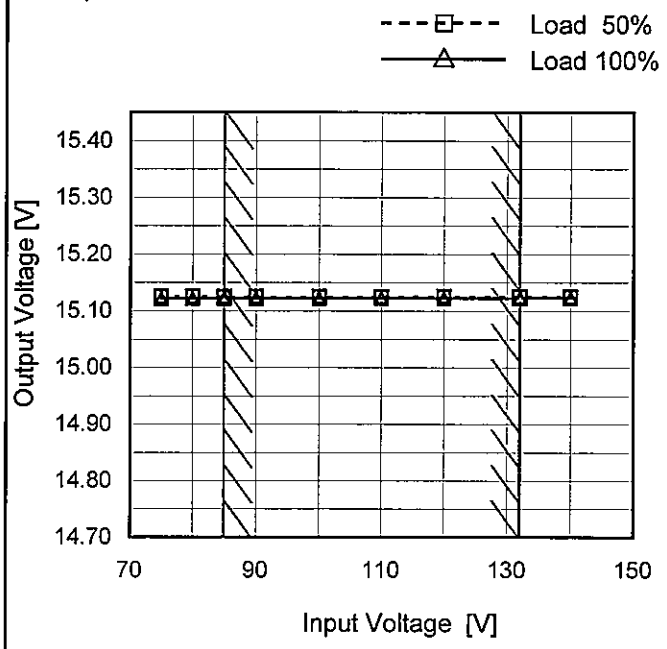
Model	LGA150A-15
Item	Line Regulation
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

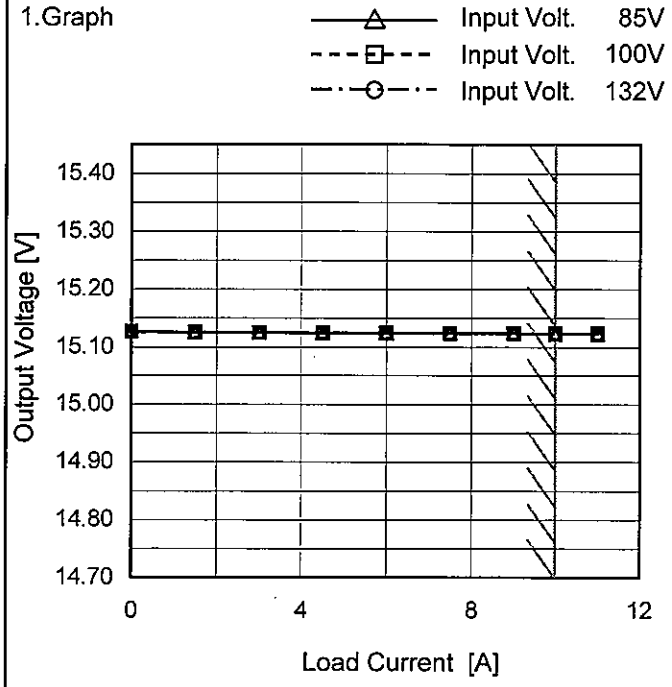
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	15.125	15.122
80	15.125	15.122
85	15.125	15.123
90	15.125	15.123
100	15.125	15.123
110	15.125	15.123
120	15.125	15.123
132	15.125	15.123
140	15.125	15.123

COSEL

Model	LGA150A-15
Item	Load Regulation
Object	+15V10A

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]
0.0	15.127	15.127	15.126
1.5	15.125	15.125	15.124
3.0	15.125	15.124	15.124
4.5	15.125	15.124	15.124
6.0	15.124	15.124	15.123
7.5	15.124	15.123	15.123
9.0	15.124	15.123	15.123
10.0	15.123	15.123	15.123
11.0	15.123	15.123	15.122
--	-	-	-
--	-	-	-

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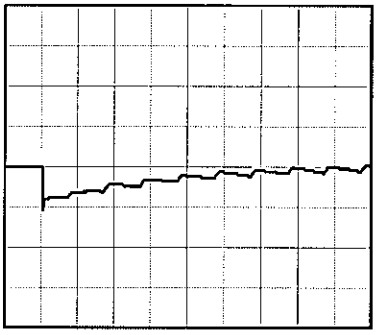
Model	LGA150A-15		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure C
Object	+15V10A		

Input Volt. 100 V
Cycle 1000 ms

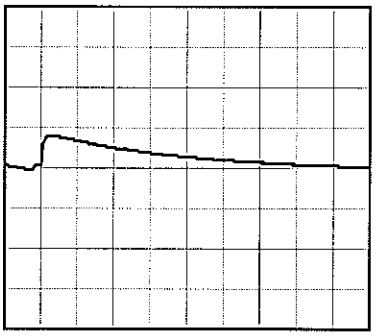
Response. t1=t2=50 μs. Typ

Min. Load (0A) ←→
Load 100% (10A)



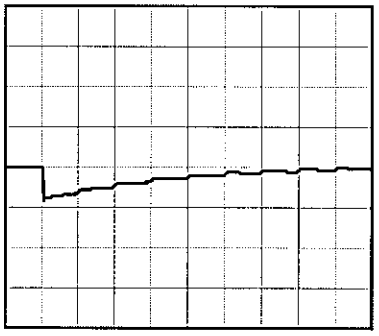
100 mV/div

10 ms/div



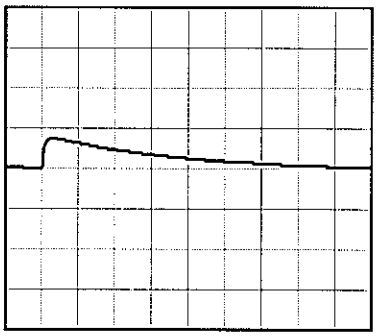
10 ms/div

Min. Load (0A) ←→
Load 50% (5A)



100 mV/div

10 ms/div



10 ms/div

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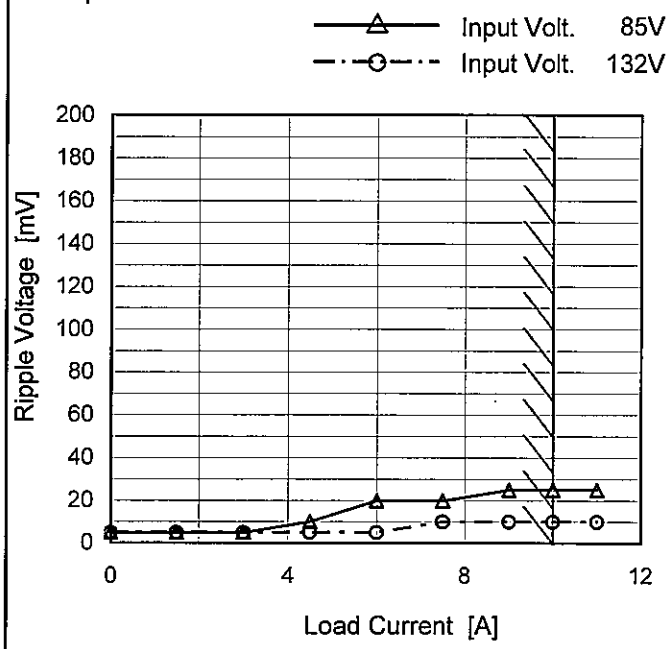
Model	LGA150A-15
Item	Ripple Voltage (by Load Current)
Object	+15V10A

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

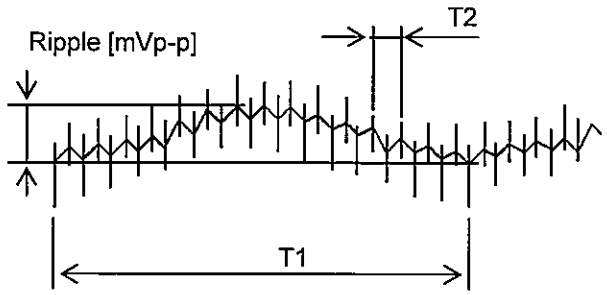


Fig. Complex Ripple Wave Form

2.Values

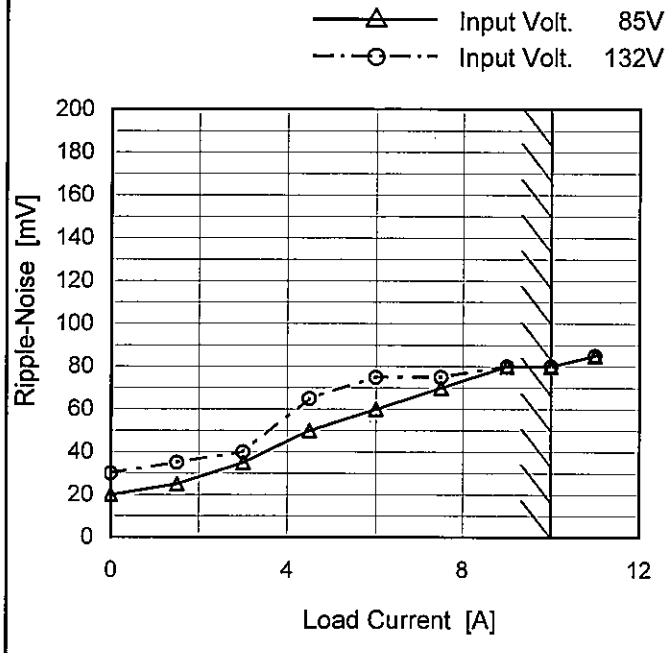
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	5	5
1.5	5	5
3.0	5	5
4.5	10	5
6.0	20	5
7.5	20	10
9.0	25	10
10.0	25	10
11.0	25	10
--	-	-
--	-	-

COSEL

Model	LGA150A-15
Item	Ripple-Noise
Object	+15V10A

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

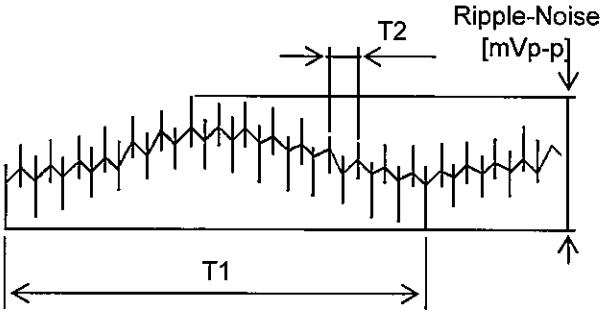


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	20	30
1.5	25	35
3.0	35	40
4.5	50	65
6.0	60	75
7.5	70	75
9.0	80	80
10.0	80	80
11.0	85	85
--	-	-
--	-	-

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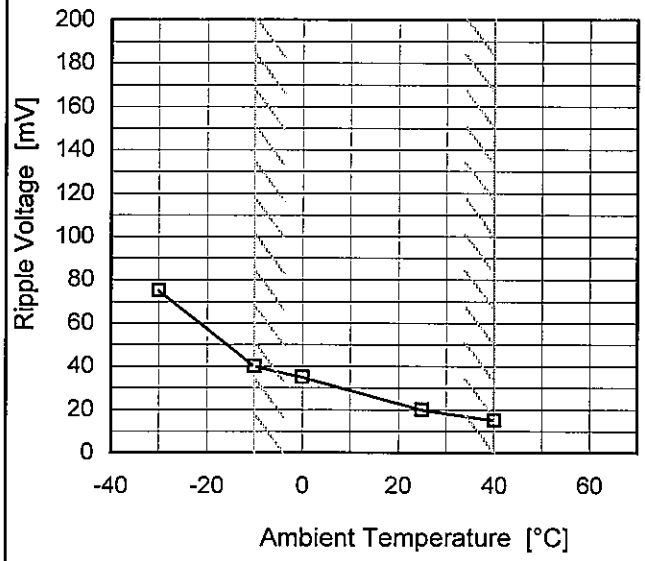
Model	LGA150A-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V10A

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

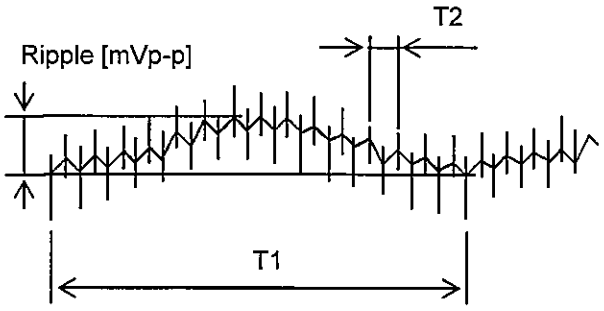


Fig. Complex Ripple Wave Form

2.Values

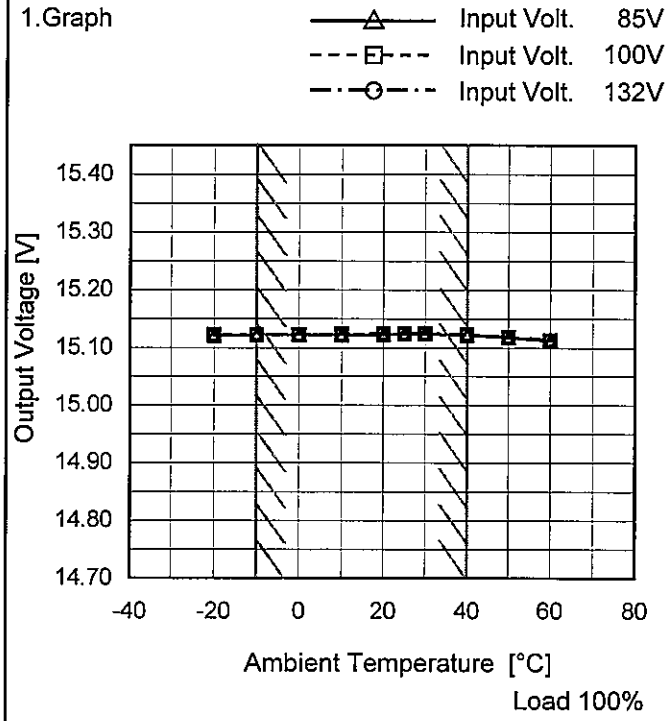
Ambient Temperature [°C]	Ripple Voltage [mV]
-30	75
-10	40
0	35
25	20
40	15
--	-
--	-
--	-
--	-
--	-
--	-

COSEL

Model	LGA150A-15
Item	Ambient Temperature Drift
Object	+15V10A

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	15.121	15.122	15.122
-10	15.122	15.122	15.123
0	15.122	15.122	15.123
10	15.122	15.123	15.123
20	15.123	15.124	15.124
25	15.124	15.124	15.125
30	15.124	15.124	15.125
40	15.122	15.122	15.123
50	15.118	15.118	15.119
60	15.112	15.113	15.113
--	-	-	-

COSEL

Model	LGA150A-15
Item	Output Voltage Accuracy
Object	+15V10A

Testing Circuitry Figure A

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 - 40°C
Input Voltage : 85 - 132V
Load Current : 0 - 10A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

* 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	85	0	15.128	±3	±0.1
Minimum Voltage	40	85	10	15.122		

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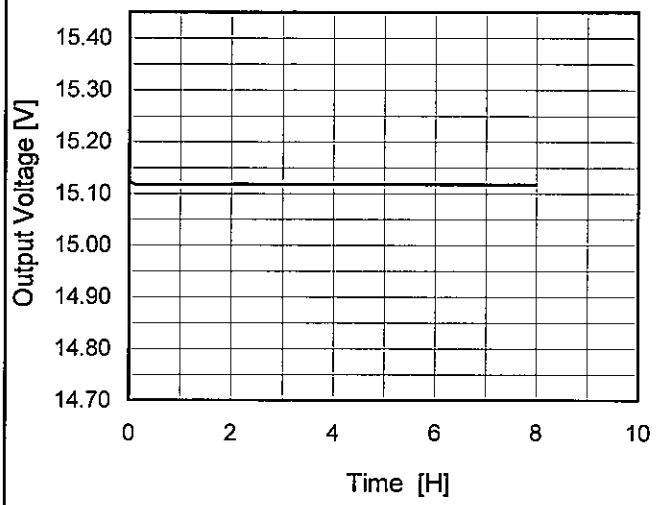
Model	LGA150A-15
Item	Time Lapse Drift
Object	+15V10A

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	15.127
0.5	15.117
1.0	15.117
2.0	15.118
3.0	15.118
4.0	15.119
5.0	15.118
6.0	15.118
7.0	15.118
8.0	15.118

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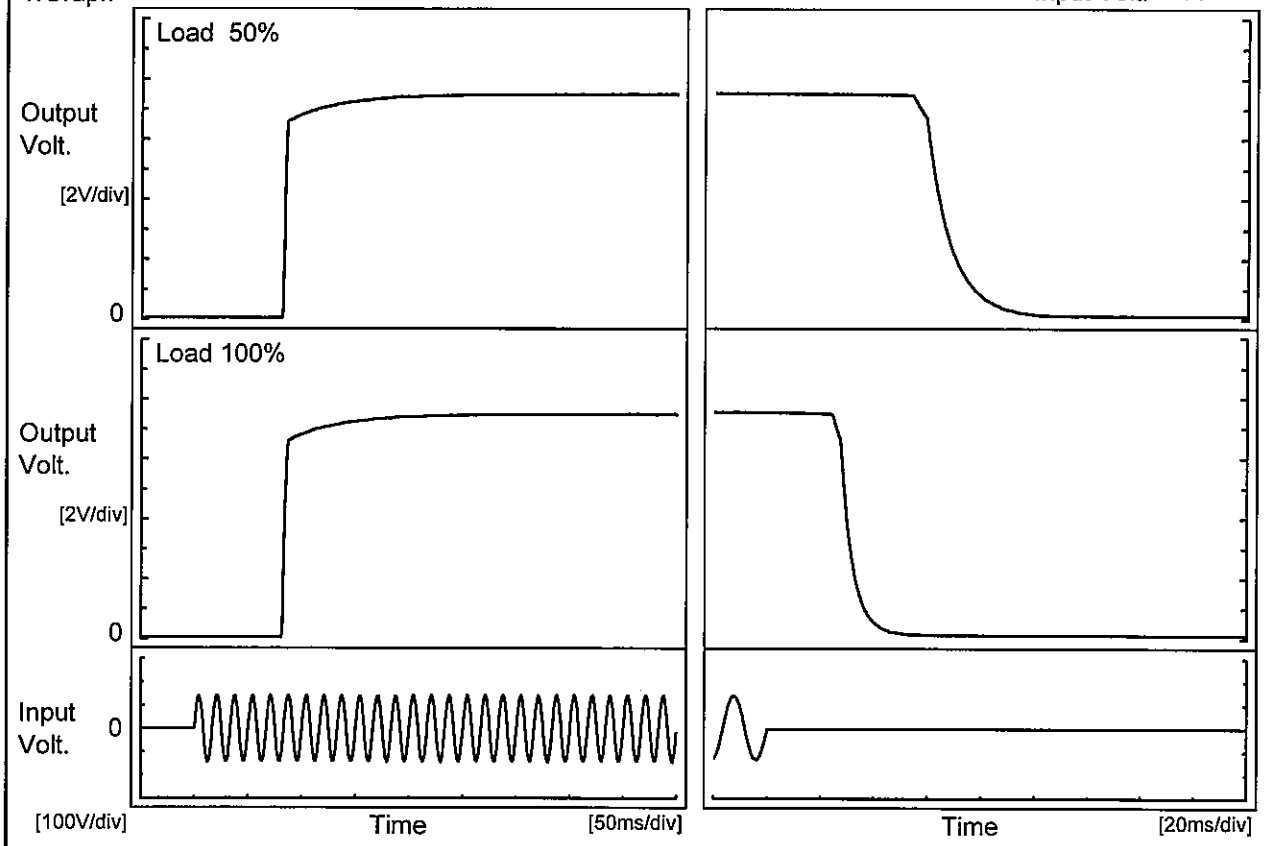
COSEL

Model	LGA150A-15
Item	Rise and Fall Time
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

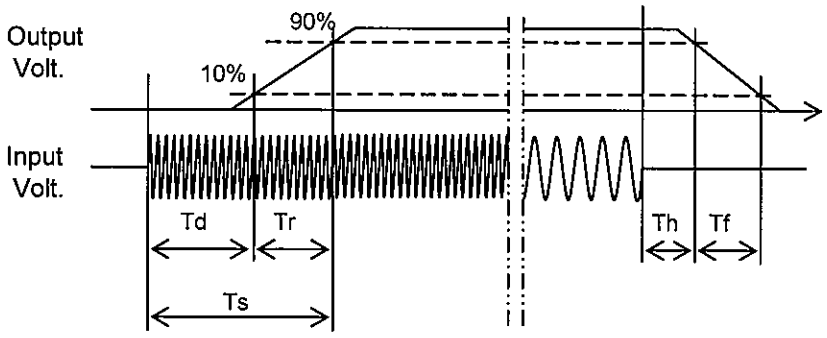
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	82.3	15.0	97.3	58.6	21.1
100 %	82.0	14.8	96.8	26.8	11.2



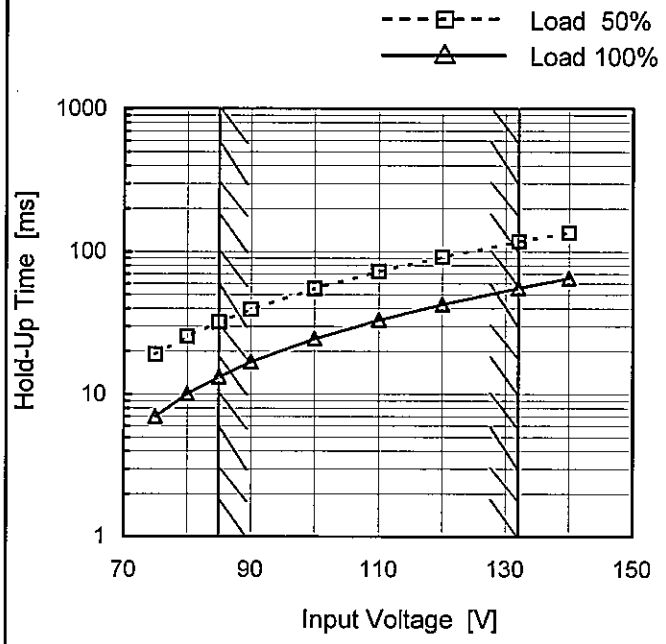
BC-10550

COSEL

Model	LGA150A-15
Item	Hold-Up Time
Object	+15V10A

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

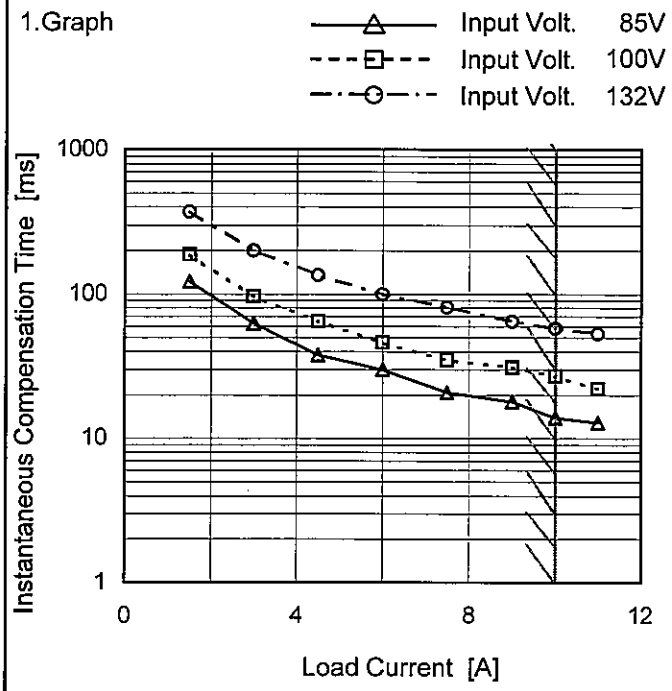
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	19	7
80	25	10
85	32	13
90	39	17
100	55	25
110	72	33
120	92	43
132	117	56
140	136	65

COSEL

Model	LGA150A-15
Item	Instantaneous Interruption Compensation
Object	+15V10A

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]
0.0	-	-	-
1.5	122	186	372
3.0	63	96	201
4.5	38	65	135
6.0	30	46	100
7.5	21	35	81
9.0	18	31	65
10.0	14	27	58
11.0	13	22	53
--	-	-	-
--	-	-	-

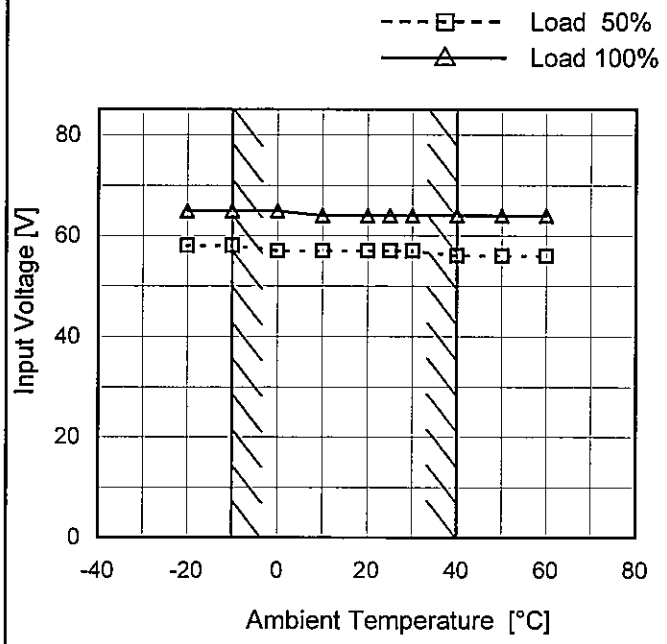
BC-10550

COSEL

Model	LGA150A-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V10A

Testing Circuitry Figure A

1.Graph



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

2.Values

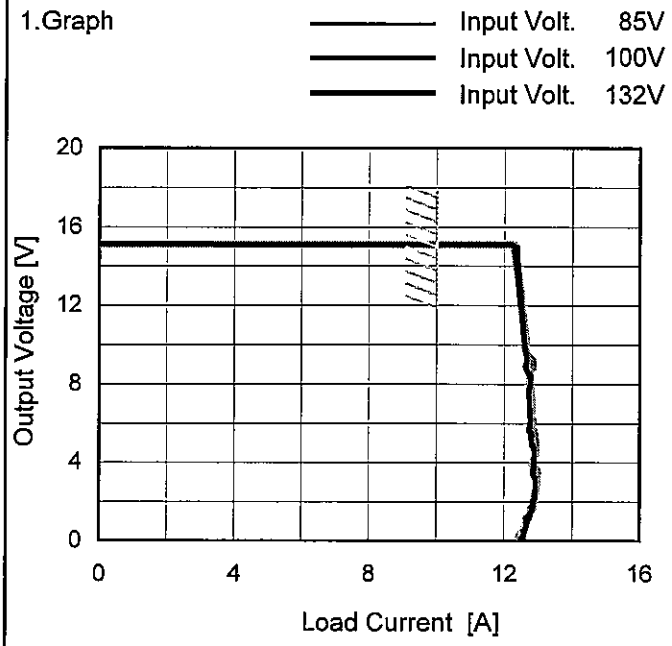
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	58	65
-10	58	65
0	57	65
10	57	64
20	57	64
25	57	64
30	57	64
40	56	64
50	56	64
60	56	64
--	-	-

COSEL

Model	LGA150A-15
Item	Overcurrent Protection
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

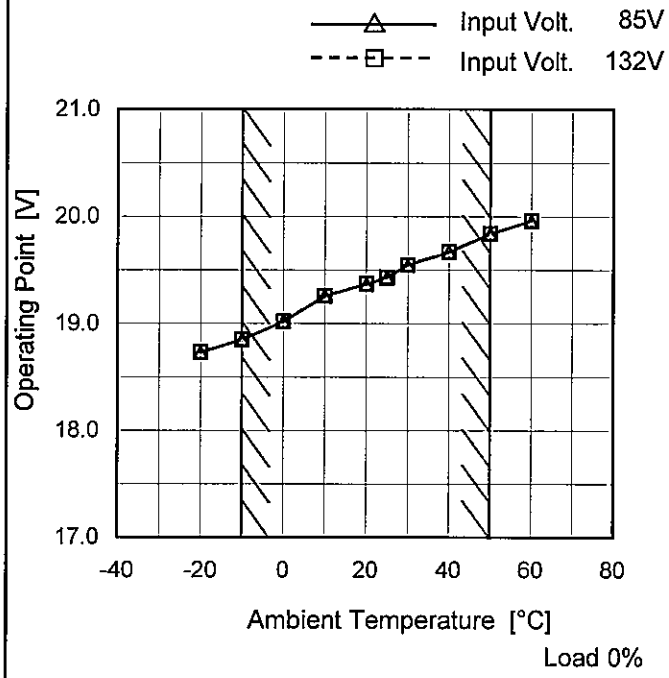
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
15.0	12.07	12.22	12.26
14.3	12.41	12.32	12.34
13.5	12.45	12.37	12.40
12.0	12.52	12.47	12.49
10.5	12.58	12.55	12.60
9.0	12.65	12.61	12.83
7.5	12.73	12.71	12.79
6.0	12.78	12.76	12.85
4.5	12.87	12.86	12.93
3.0	12.92	12.91	12.96
1.5	12.83	12.81	12.76
0.0	12.60	12.56	12.53

COSEL

Model	LGA150A-15
Item	Overvoltage Protection
Object	+15V10A

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	18.73	18.73
-10	18.85	18.85
0	19.02	19.02
10	19.26	19.26
20	19.37	19.37
25	19.43	19.43
30	19.55	19.55
40	19.67	19.67
50	19.84	19.84
60	19.96	19.96
--	-	-

COSEL

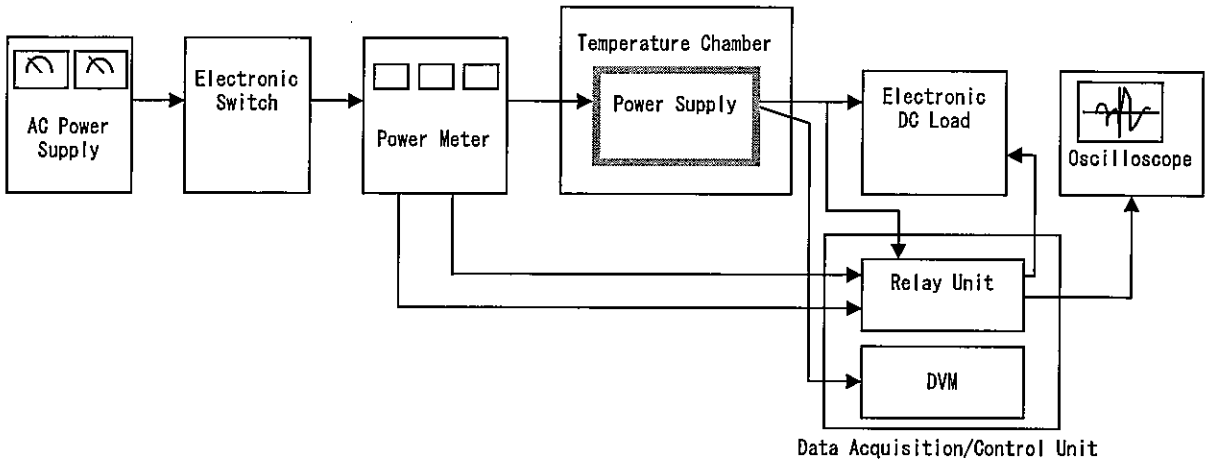


Figure A

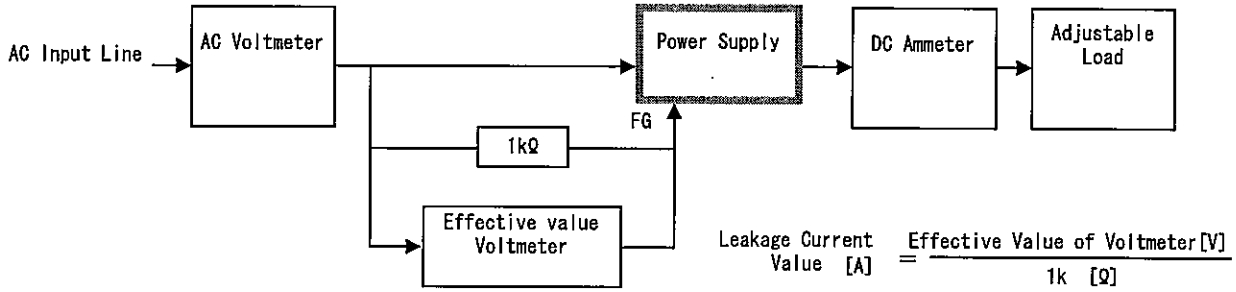


Figure B (DEN-AN)

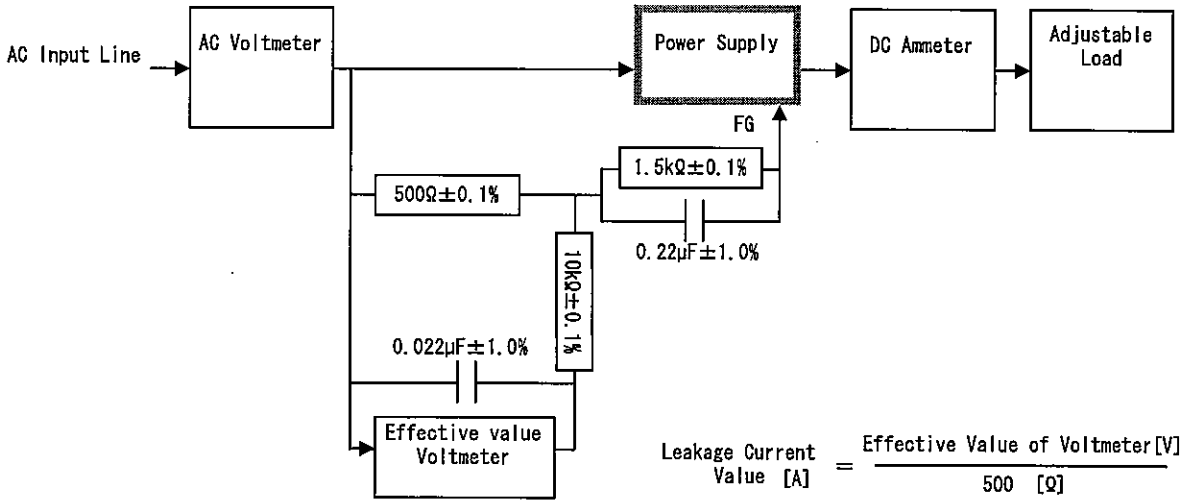


Figure B (IEC60950-1)

COSEL

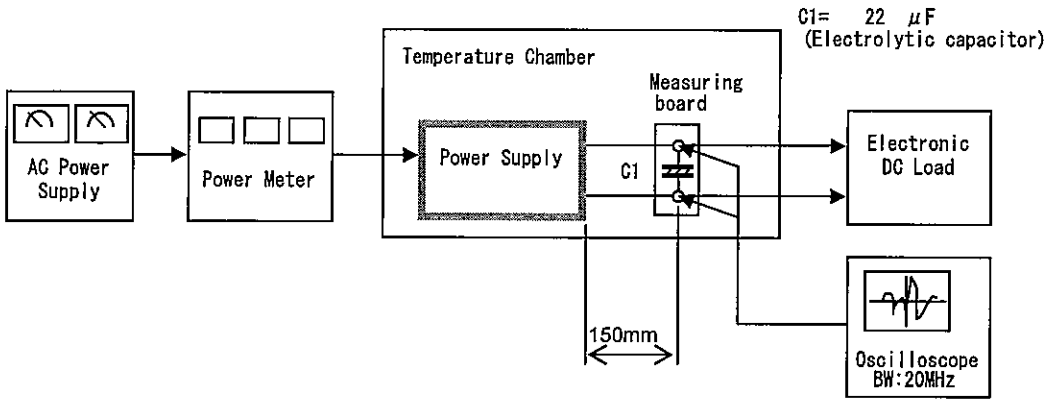


Figure C