参考資料

COSEL

TEST DATA OF LCA30S-48

Regulated DC Power Supply
Feb.5. 2004

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COSEL CO.,LTD.

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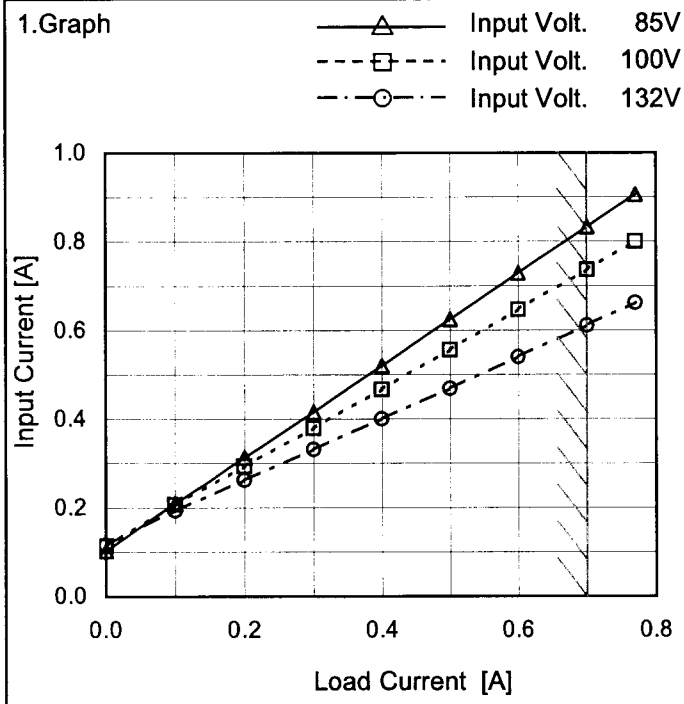
(Final Page 19)

COSEL

Model	LCA30S-48
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

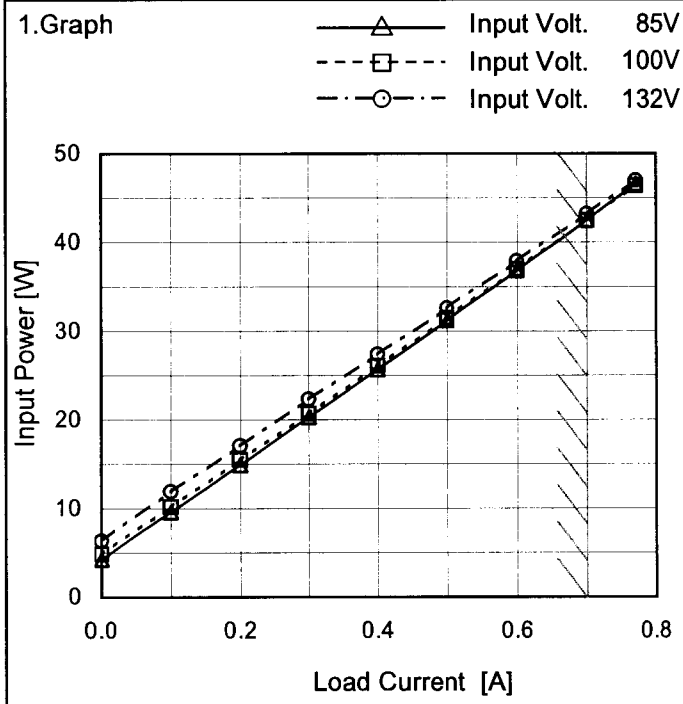
Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.102	0.114	0.116
0.10	0.210	0.207	0.194
0.20	0.314	0.295	0.263
0.30	0.416	0.380	0.332
0.40	0.520	0.468	0.401
0.50	0.625	0.557	0.469
0.60	0.729	0.647	0.540
0.70	0.833	0.737	0.611
0.77	0.906	0.801	0.662
--	-	-	-
--	-	-	-

COSEL

Model	LCA30S-48
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

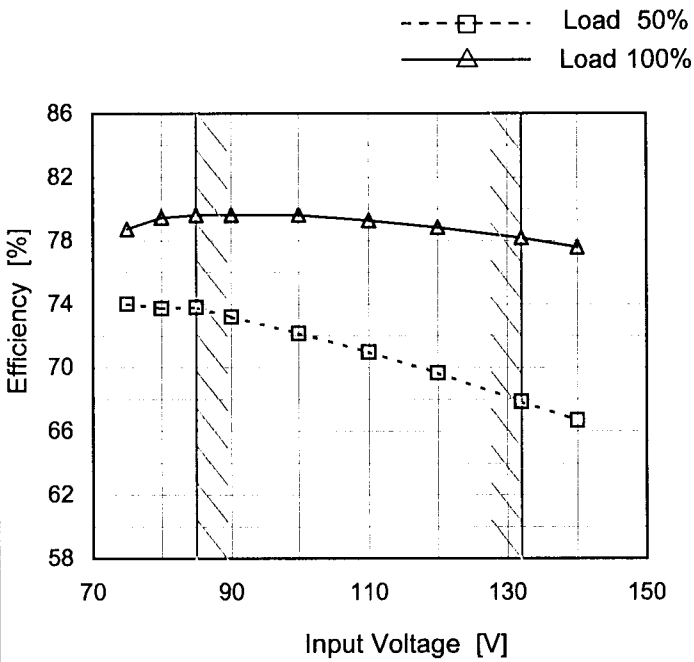
Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	4.23	4.90	6.36
0.10	9.60	10.20	11.94
0.20	14.92	15.51	17.10
0.30	20.30	20.73	22.33
0.40	25.70	26.10	27.42
0.50	31.20	31.50	32.60
0.60	36.80	37.00	37.90
0.70	42.50	42.50	43.20
0.77	46.60	46.40	47.00
--	-	-	-
--	-	-	-

COSEL

Model	LCA30S-48
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	74.0	78.7
80	73.7	79.4
85	73.8	79.6
90	73.2	79.6
100	72.1	79.6
110	71.0	79.3
120	69.6	78.8
132	67.8	78.2
140	66.7	77.6

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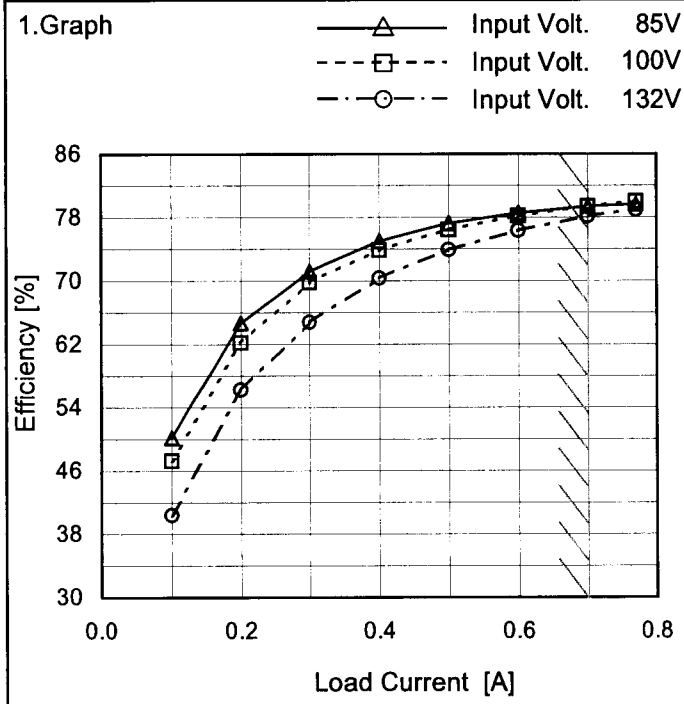
Model	LCA30S-48
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
0.10	50.2	47.3	40.4
0.20	64.7	62.2	56.3
0.30	71.2	69.8	64.8
0.40	75.0	73.9	70.3
0.50	77.3	76.5	73.9
0.60	78.6	78.2	76.3
0.70	79.4	79.4	78.2
0.77	79.7	80.0	79.0
--	-	-	-
--	-	-	-

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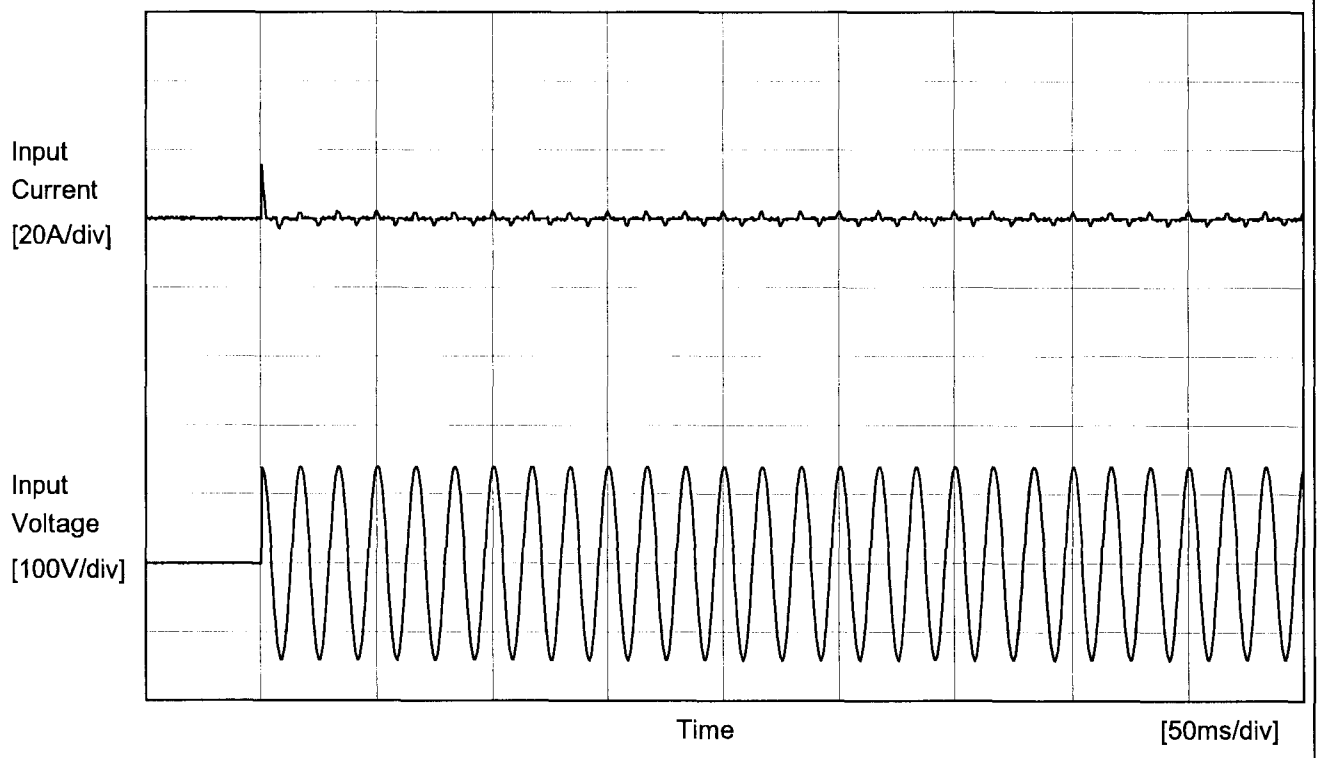
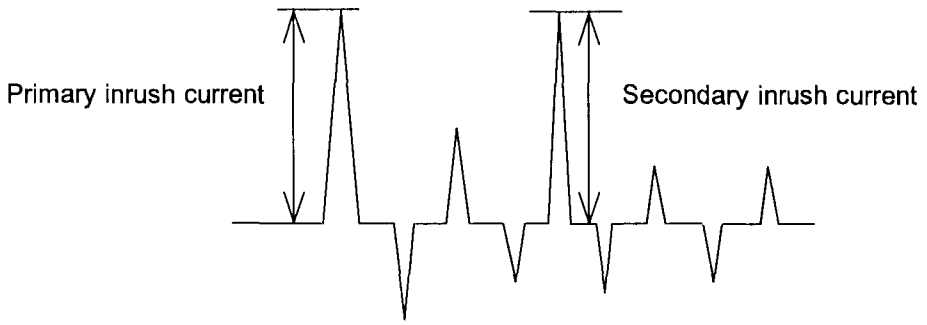
Model	LCA30S-48
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	15.5 A
Secondary inrush current	2.3 A



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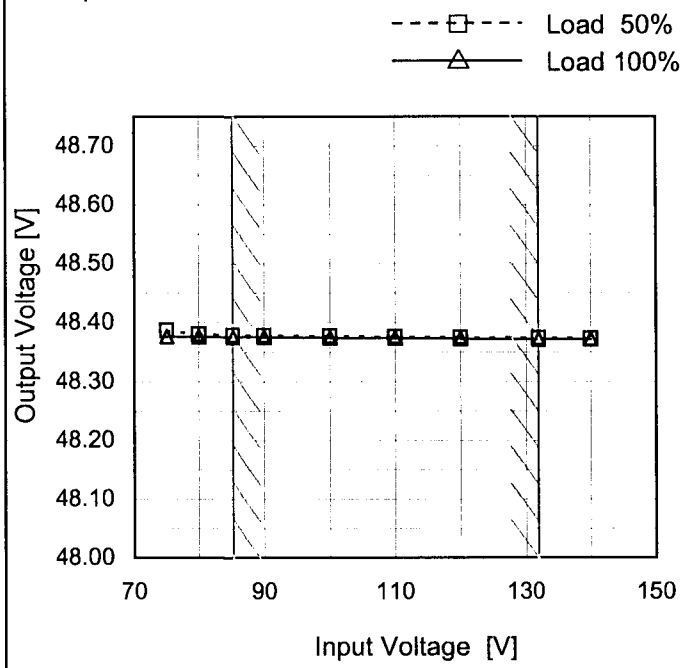
Model	LCA30S-48
Item	Line Regulation
Object	+48V0.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

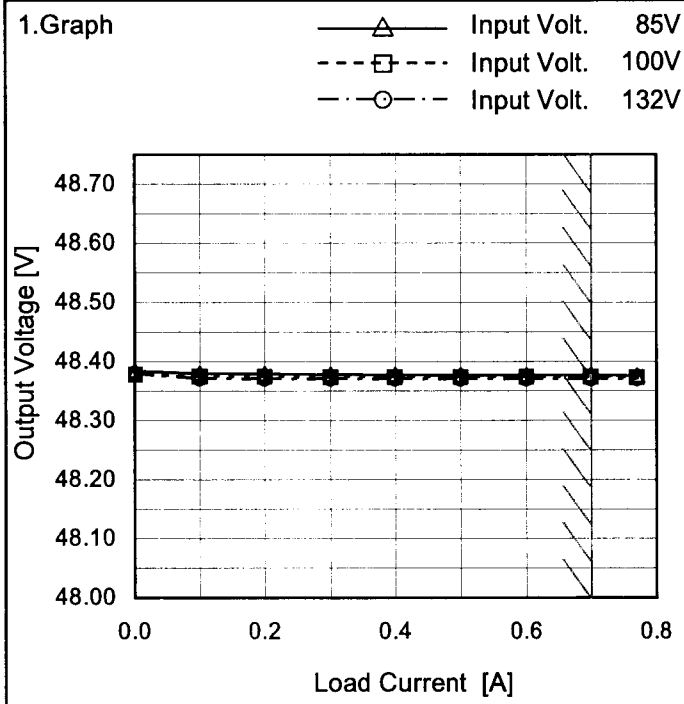
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	48.387	48.376
80	48.380	48.376
85	48.379	48.376
90	48.378	48.375
100	48.377	48.374
110	48.376	48.374
120	48.375	48.373
132	48.374	48.371
140	48.373	48.371

COSEL

Model	LCA30S-48
Item	Load Regulation
Object	+48V0.7A

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	48.384	48.378	48.380
0.10	48.380	48.375	48.371
0.20	48.379	48.374	48.371
0.30	48.378	48.374	48.371
0.40	48.378	48.374	48.371
0.50	48.377	48.374	48.371
0.60	48.377	48.374	48.371
0.70	48.377	48.374	48.371
0.77	48.376	48.374	48.371
--	-	-	-
--	-	-	-

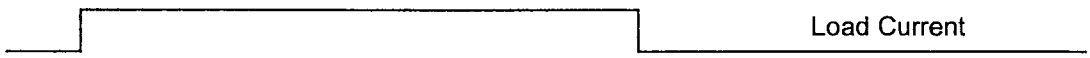
COSEL

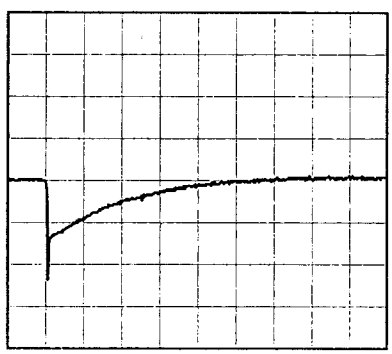
Model	LCA30S-48
Item	Dynamic Load Response
Object	+48V0.7A

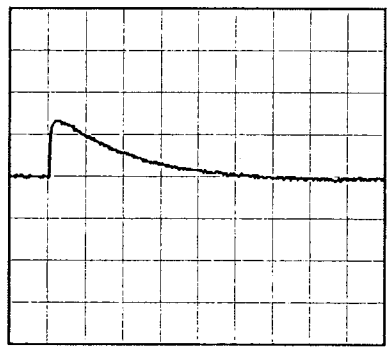
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

Min. Load (0 A) -- Load 100% (0.7 A)





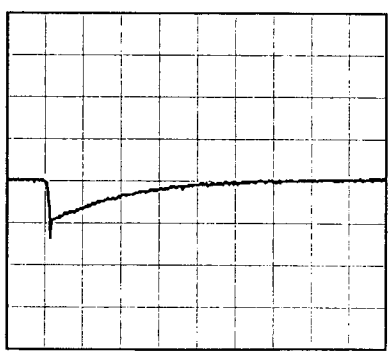


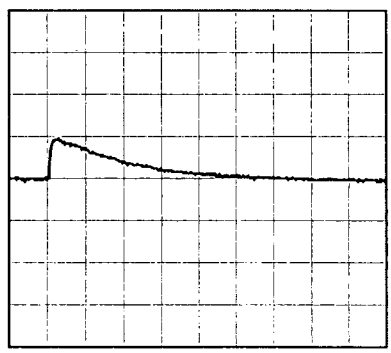
200[mV/div]

10[ms/div]

10[ms/div]

Min. Load (0 A) -- Load 50% (0.35 A)





200[mV/div]

10[ms/div]

10[ms/div]

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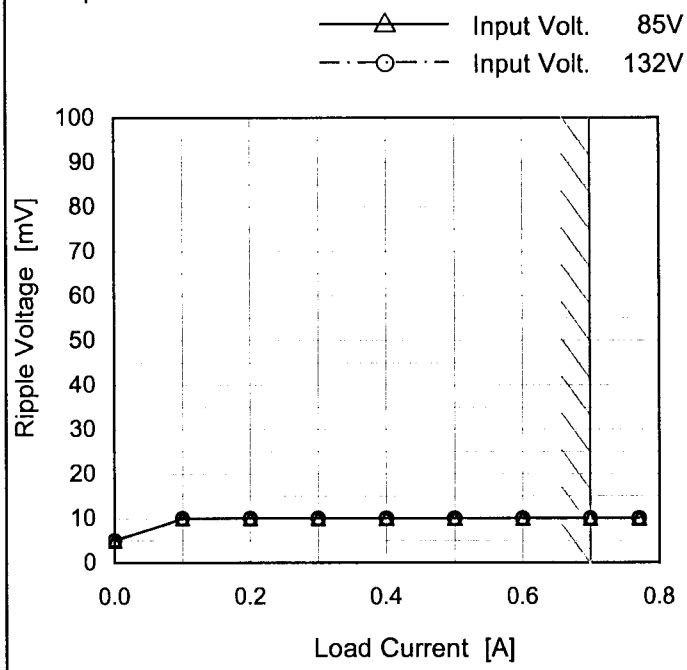
Model	LCA30S-48
Item	Ripple Voltage (by Load Current)
Object	+48V0.7A

Temperature 25°C
Testing Circuitry Figure A

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

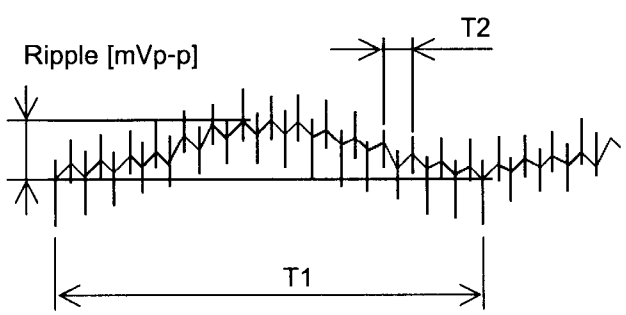


Fig. Complex Ripple Wave Form

2.Values

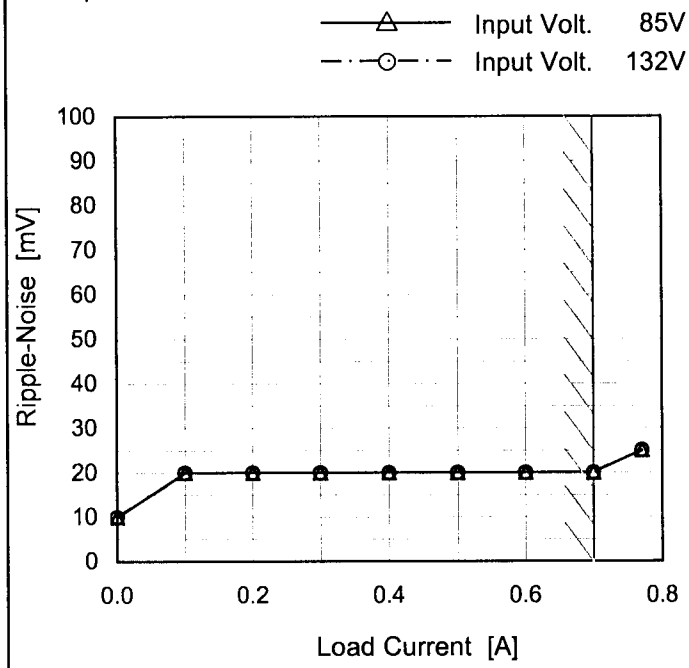
Load Current [A]	Ripple Voltage [mV] Input Volt. 85 [V]	Ripple Voltage [mV] Input Volt. 132 [V]
0.00	5	5
0.10	10	10
0.20	10	10
0.30	10	10
0.40	10	10
0.50	10	10
0.60	10	10
0.70	10	10
0.77	10	10
--	-	-
--	-	-

COSEL

Model	LCA30S-48
Item	Ripple-Noise
Object	+48V0.7A

Temperature 25°C
Testing Circuitry Figure A

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	10	10
0.10	20	20
0.20	20	20
0.30	20	20
0.40	20	20
0.50	20	20
0.60	20	20
0.70	20	20
0.77	25	25
--	-	-
--	-	-

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

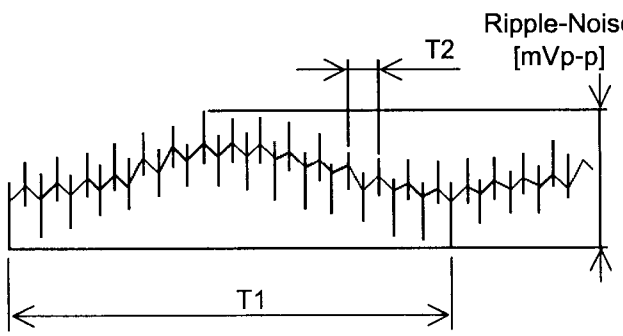


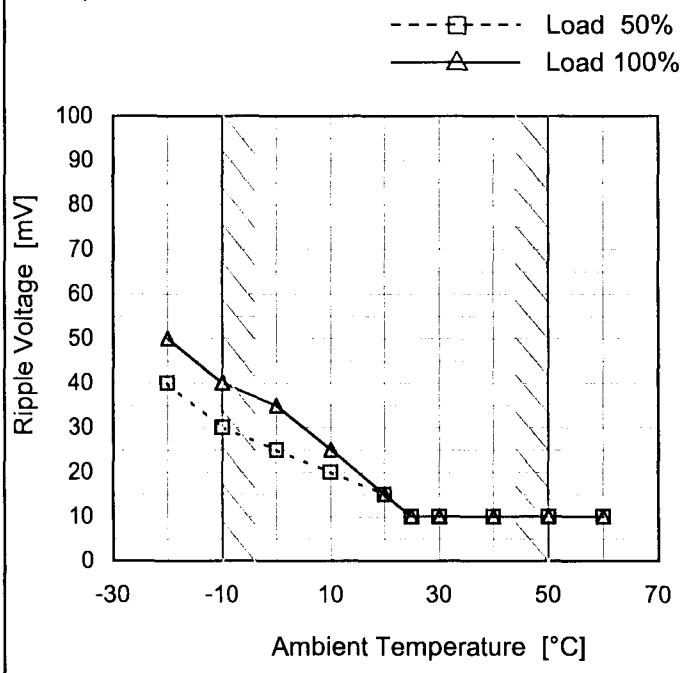
Fig. Complex Ripple Wave Form

COSEL

Model	LCA30S-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V0.7A

Testing Circuitry Figure A

1.Graph



Input Volt. 100V

Measured by 20 MHz Oscilloscope.

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

2.Values

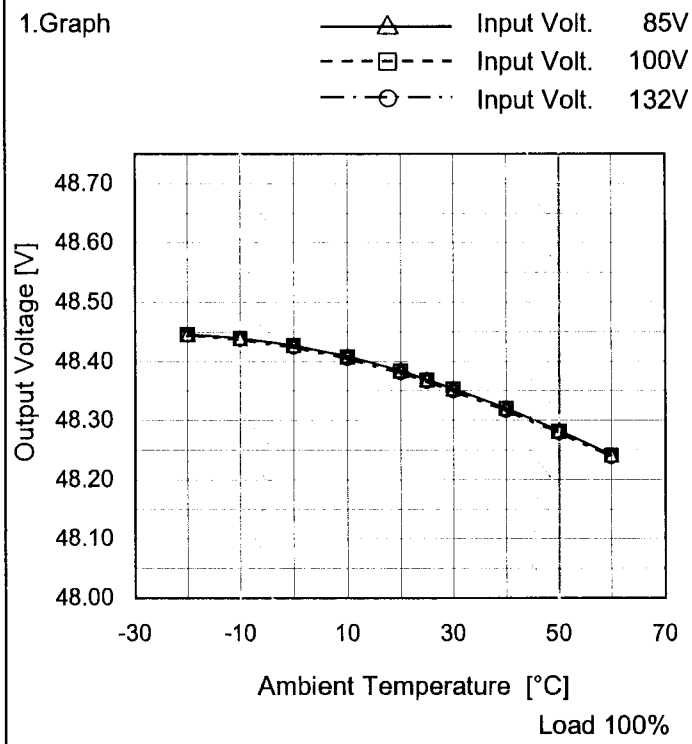
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	40	50
-10	30	40
0	25	35
10	20	25
20	15	15
25	10	10
30	10	10
40	10	10
50	10	10
60	10	10
--	-	-

COSEL

Model	LCA30S-48
Item	Ambient Temperature Drift
Object	+48V0.7A

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	48.446	48.445	48.444
-10	48.440	48.439	48.437
0	48.427	48.426	48.424
10	48.408	48.407	48.405
20	48.384	48.383	48.381
25	48.369	48.368	48.366
30	48.354	48.352	48.350
40	48.321	48.319	48.316
50	48.282	48.281	48.278
60	48.241	48.240	48.238
--	-	-	-

COSEL

Model	LCA30S-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V0.7A	

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 - 0.7A

* 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	132	0	48.446	±85	±0.2
Minimum Voltage	50	132	0.7	48.276		

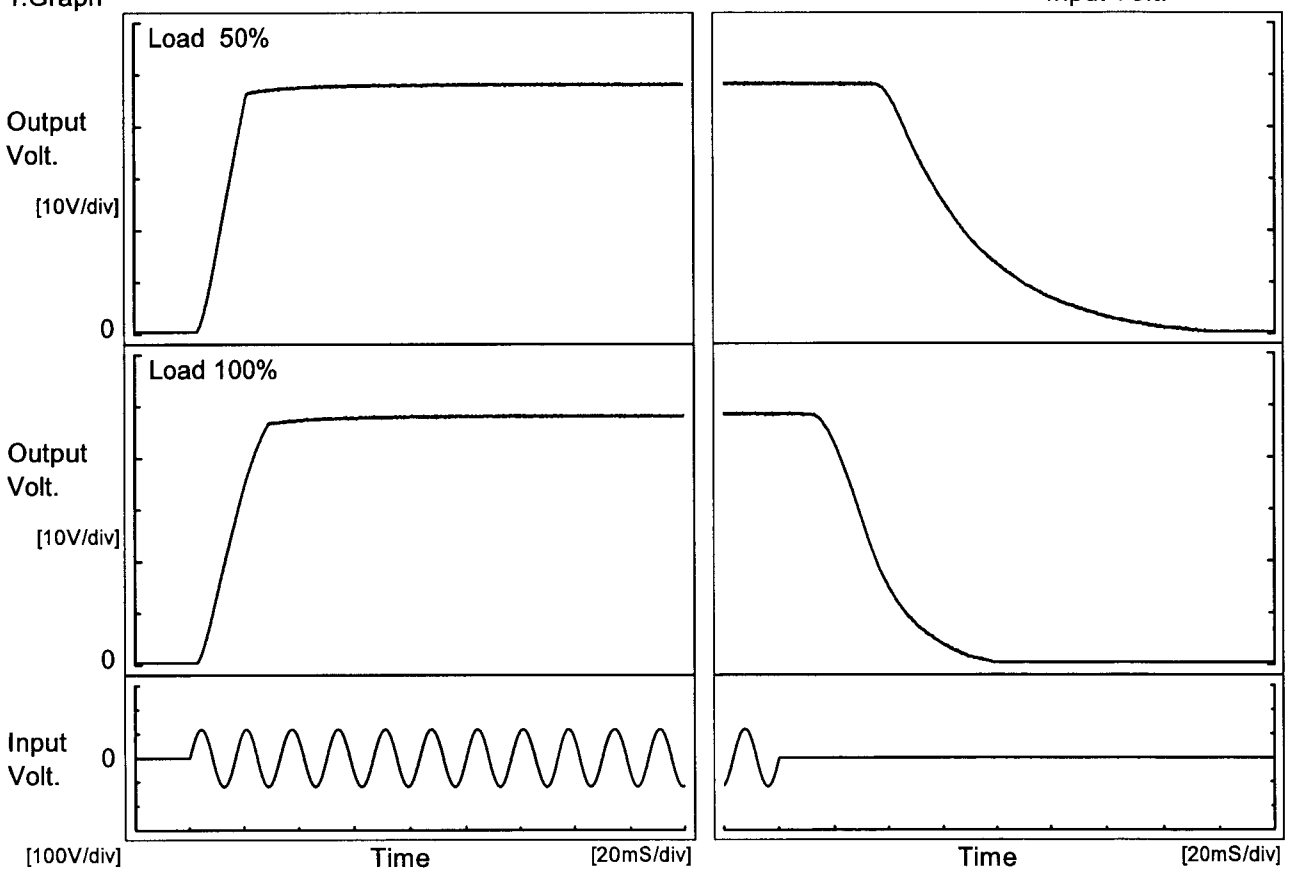
COSEL

Model	LCA30S-48
Item	Rise and Fall Time
Object	+48V0.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

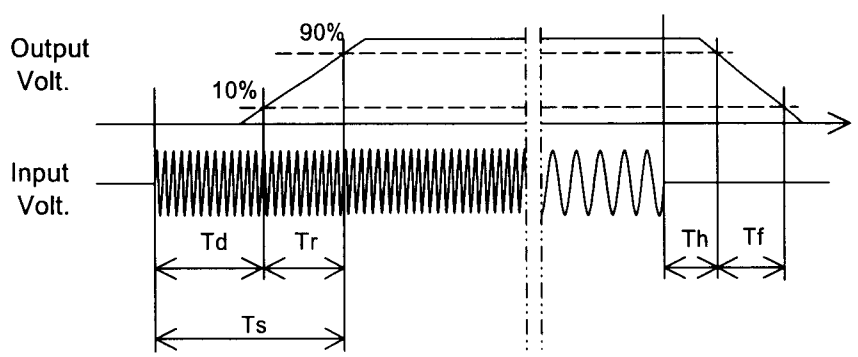
Input Volt. 85 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	6.0	14.4	20.4	42.7	66.0
100 %	6.4	20.2	26.6	19.3	37.1

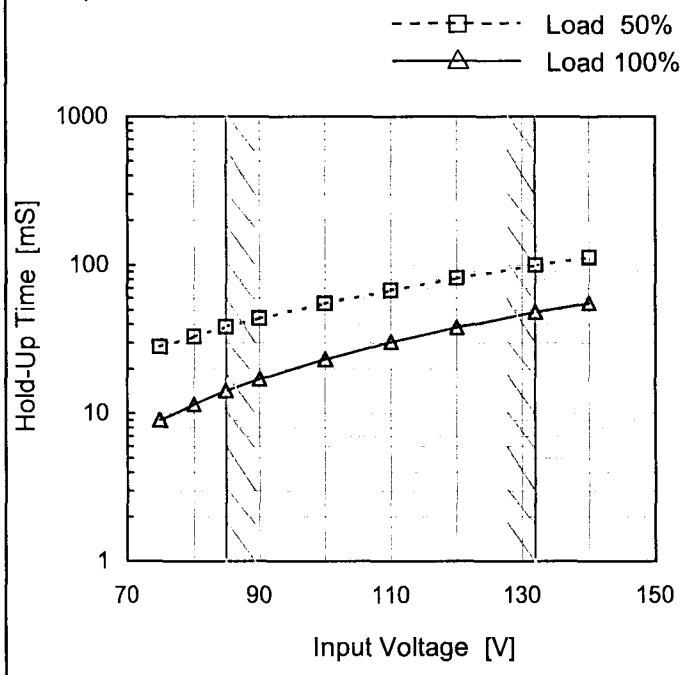


COSEL

Model	LCA30S-48
Item	Hold-Up Time
Object	+48V0.7A

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	28	9
80	33	12
85	38	14
90	44	17
100	55	23
110	68	30
120	81	38
132	100	48
140	113	56

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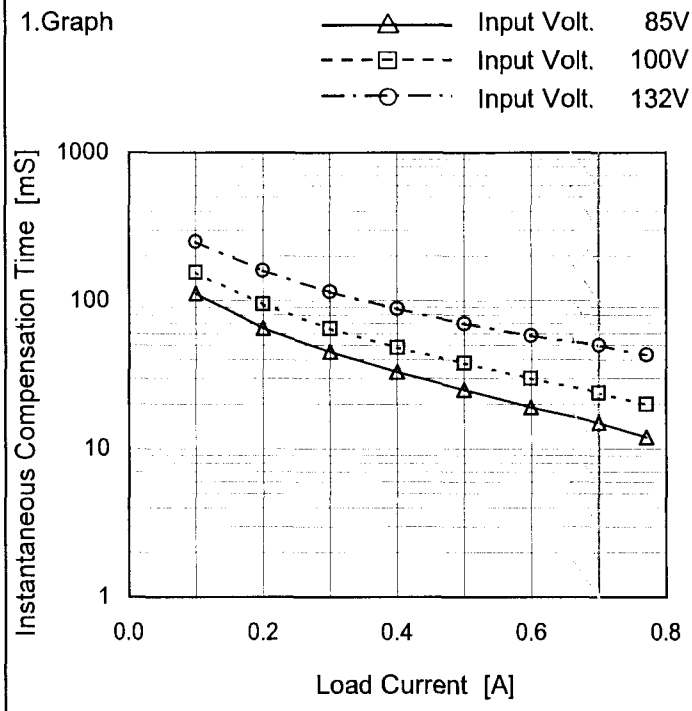
Model	LCA30S-48
Item	Instantaneous Interruption Compensation
Object	+48V0.7A

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	-	-	-
0.10	112	155	251
0.20	65	95	160
0.30	45	65	115
0.40	33	48	88
0.50	25	38	70
0.60	19	30	58
0.70	15	24	50
0.77	12	20	43
--	-	-	-
--	-	-	-

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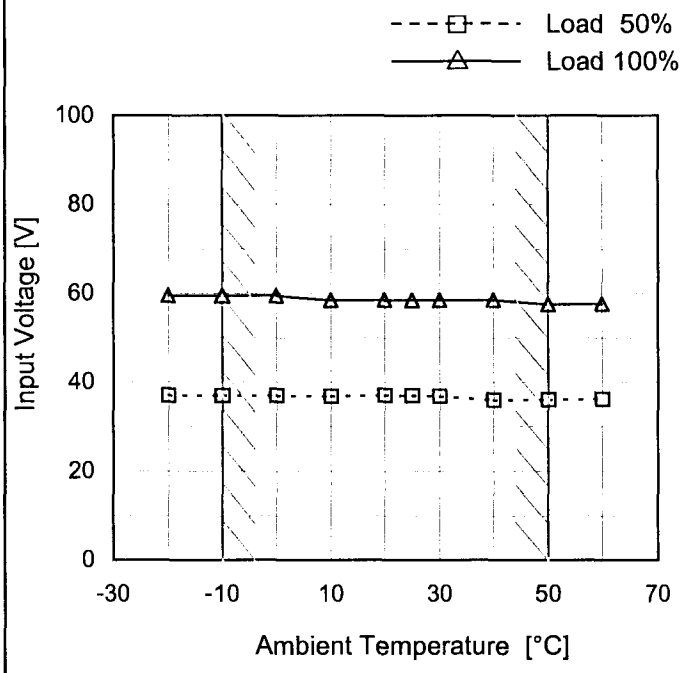
Model	LCA30S-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V0.7A

Testing Circuitry Figure A

1.Graph



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

2.Values

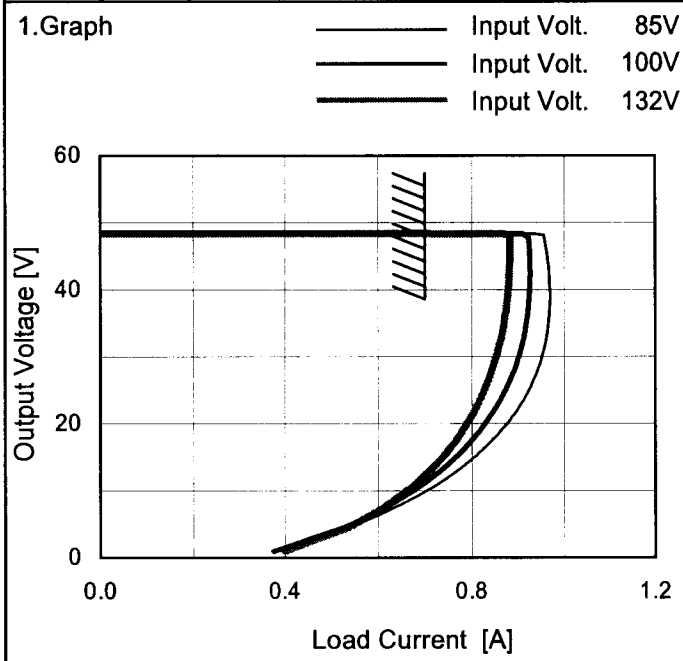
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	37	60
-10	37	60
0	37	60
10	37	59
20	37	59
25	37	59
30	37	59
40	36	59
50	36	58
60	37	58
--	-	-

COSEL

Model	LCA30S-48
Item	Overcurrent Protection
Object	+48V0.7A

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]
48.0	0.73	0.73	0.73
45.6	0.96	0.92	0.88
43.2	0.97	0.93	0.88
38.4	0.97	0.92	0.88
33.6	0.96	0.91	0.87
28.8	0.95	0.90	0.85
24.0	0.91	0.87	0.82
19.2	0.87	0.82	0.78
14.4	0.80	0.76	0.73
9.6	0.69	0.66	0.66
4.8	0.54	0.53	0.54
0.0	0.37	0.37	0.40

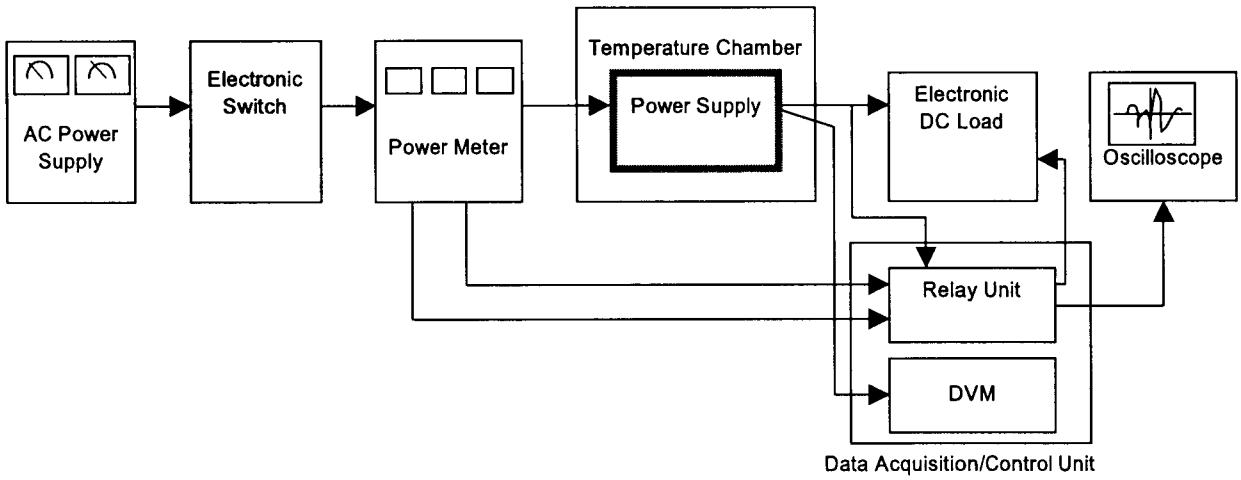


Figure A

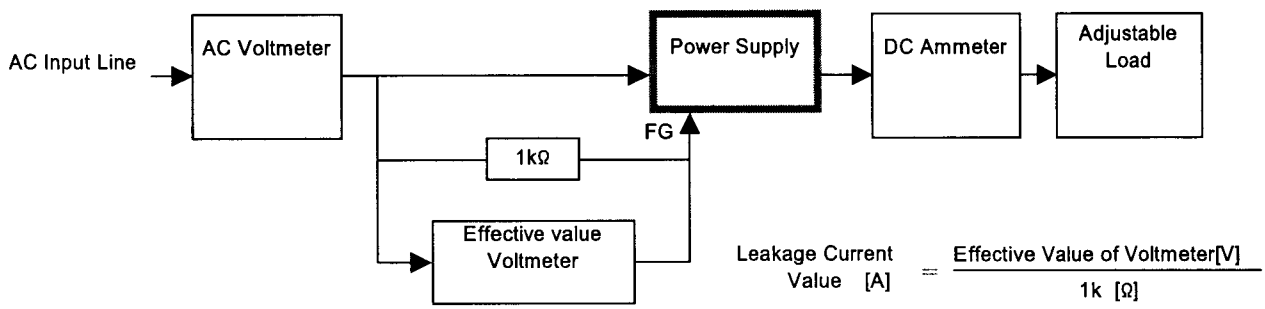


Figure B (DEN-AN)

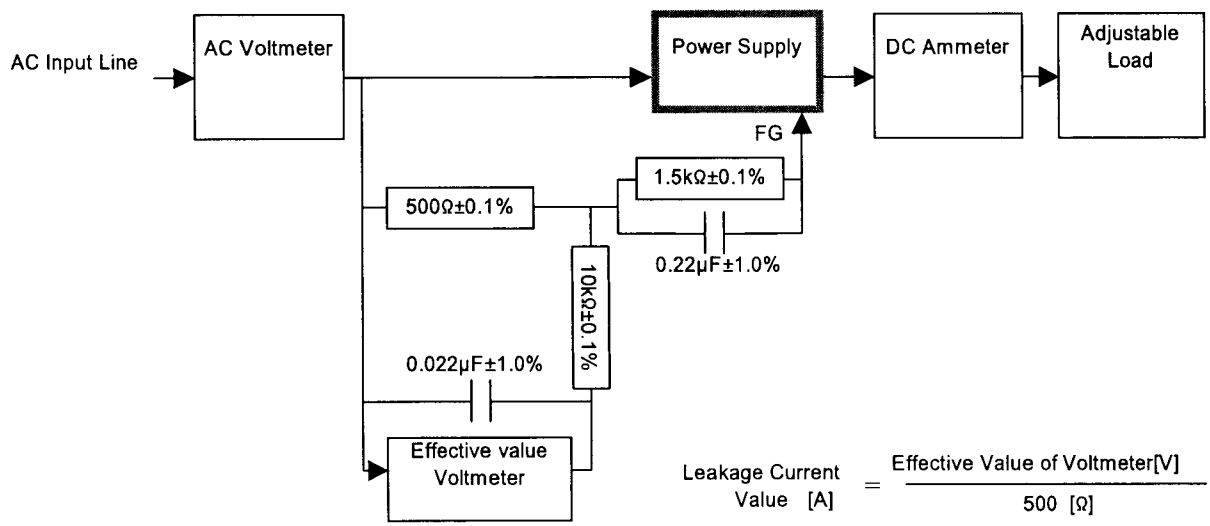


Figure B (IEC60950)