参考資料

COSEL

TEST DATA OF LCA50S-48

Regulated DC Power Supply
Aug.6. 2004

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COSEL CO.,LTD.

参考資料

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参考資料

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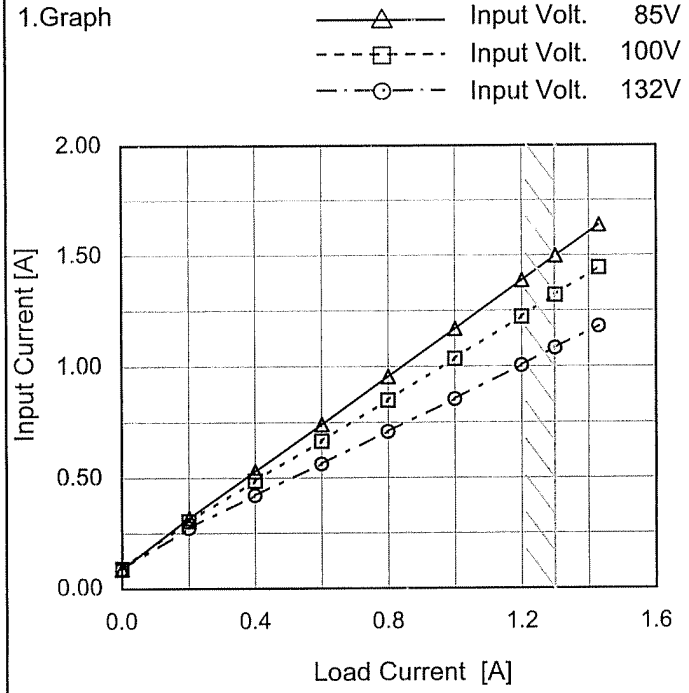
Model	LCA50S-48
Item	Input Current (by Load Current)
Object	――――――

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	0.088	0.090	0.087
0.20	0.319	0.305	0.274
0.40	0.530	0.487	0.421
0.60	0.741	0.666	0.563
0.80	0.955	0.849	0.708
1.00	1.170	1.034	0.854
1.20	1.388	1.222	1.004
1.30	1.498	1.320	1.082
1.43	1.638	1.444	1.180
--	-	-	-
--	-	-	-

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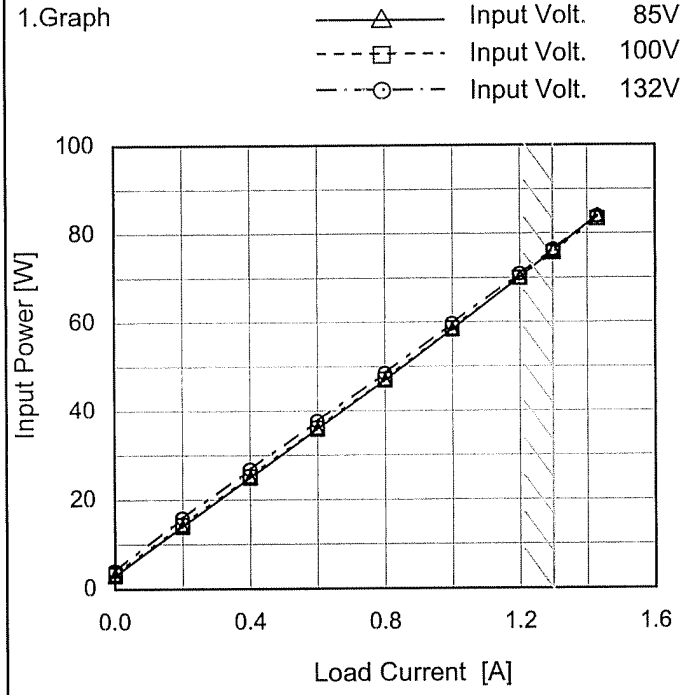
COSEL

Model	LCA50S-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

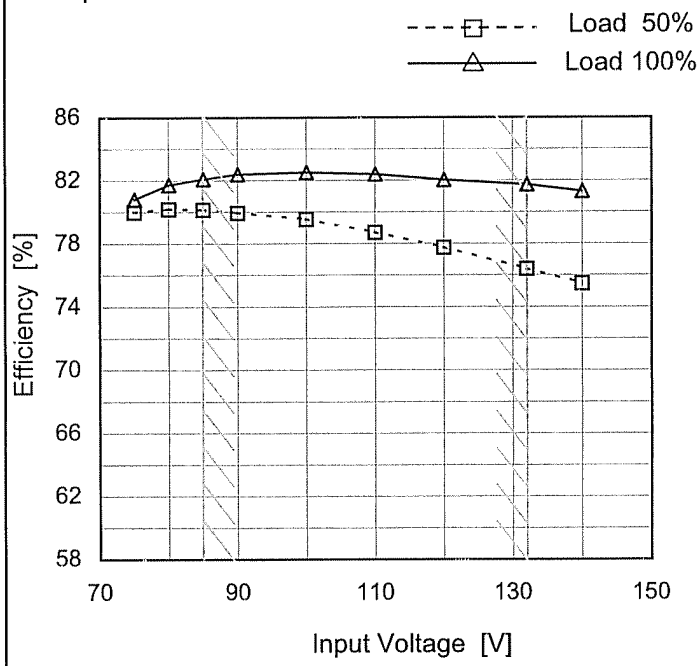
Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	3.00	3.34	4.01
0.20	13.98	14.37	15.84
0.40	25.00	25.30	26.80
0.60	36.00	36.20	37.70
0.80	47.00	47.20	48.50
1.00	58.40	58.60	59.60
1.20	70.10	70.00	70.80
1.30	76.20	75.70	76.40
1.43	84.10	83.40	83.90
--	-	-	-
--	-	-	-

COSEL

Model	LCA50S-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

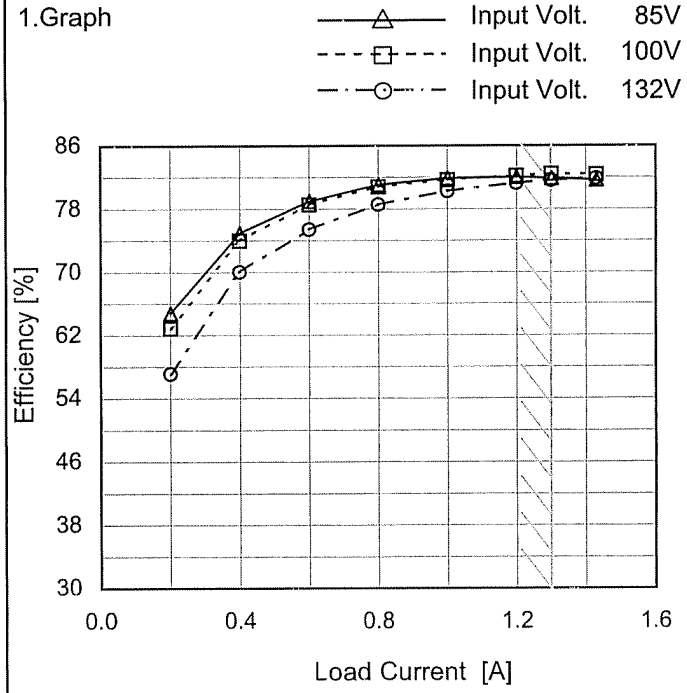
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	80.0	80.8
80	80.2	81.7
85	80.1	82.1
90	79.9	82.4
100	79.6	82.5
110	78.7	82.4
120	77.7	82.0
132	76.4	81.7
140	75.5	81.3

COSEL

Model	LCA50S-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.

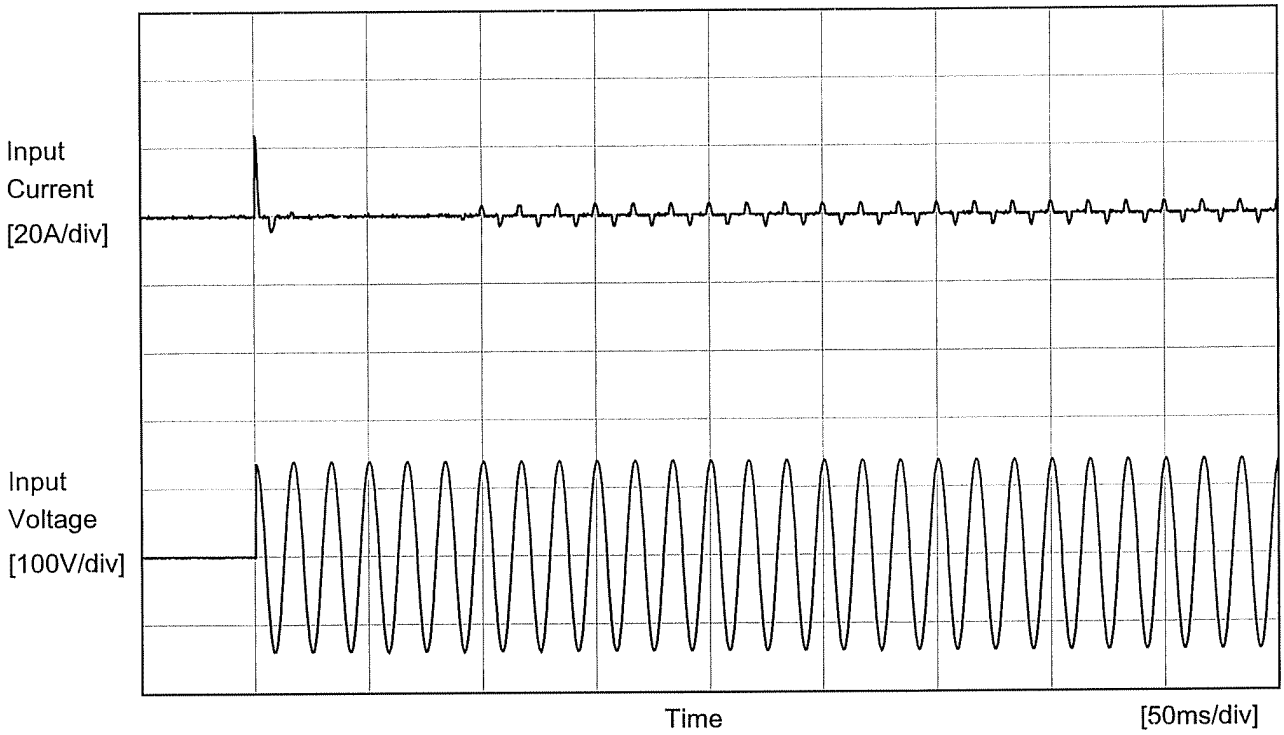
2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	-	-	-
0.20	64.8	62.9	57.1
0.40	75.0	74.0	70.0
0.60	79.0	78.6	75.4
0.80	81.1	80.8	78.6
1.00	81.9	81.6	80.2
1.20	82.1	82.2	81.3
1.30	81.9	82.4	81.6
1.43	81.7	82.3	81.9
--	-	-	-
--	-	-	-

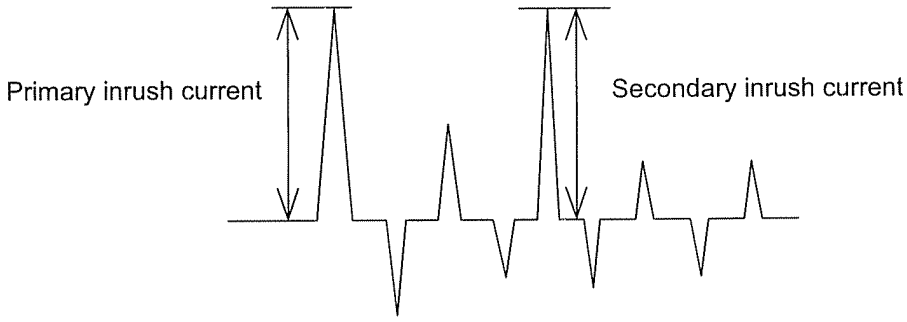
COSEL

Model	LCA50S-48
Item	Inrush Current
Object	――――――

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	23.6 A
Secondary inrush current	3.6 A

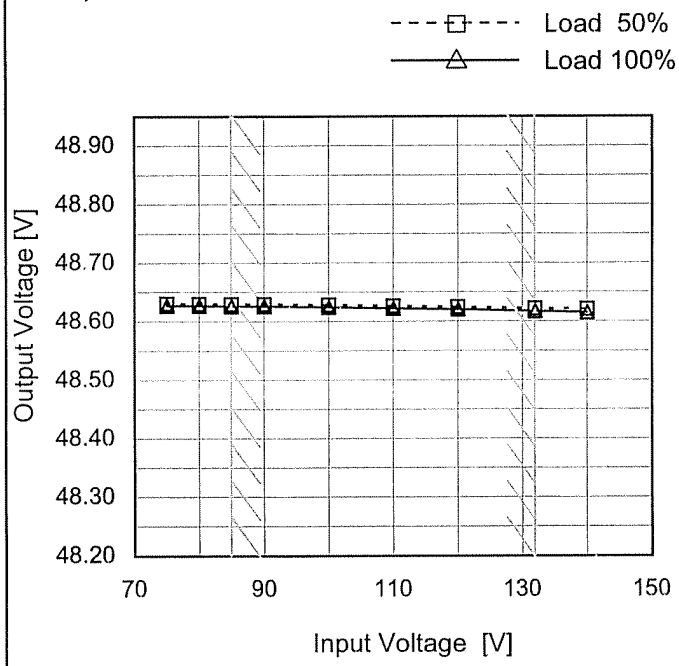


COSEL

Model	LCA50S-48
Item	Line Regulation
Object	+48V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

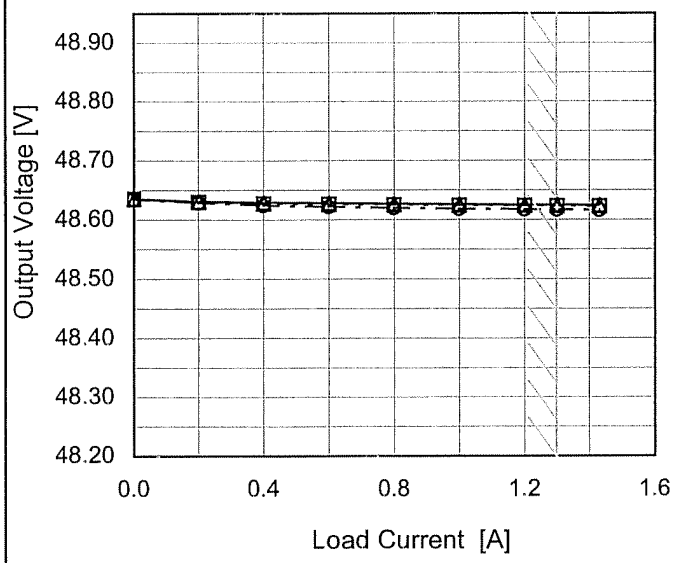
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	48.630	48.628
80	48.630	48.627
85	48.630	48.626
90	48.629	48.626
100	48.628	48.625
110	48.626	48.622
120	48.625	48.621
132	48.622	48.618
140	48.621	48.616

COSEL

Model	LCA50S-48
Item	Load Regulation
Object	+48V1.3A

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	48.635	48.635	48.634
0.20	48.631	48.630	48.628
0.40	48.630	48.627	48.624
0.60	48.628	48.626	48.622
0.80	48.627	48.625	48.620
1.00	48.626	48.624	48.618
1.20	48.625	48.623	48.617
1.30	48.625	48.623	48.616
1.43	48.625	48.622	48.616
--	-	-	-
--	-	-	-

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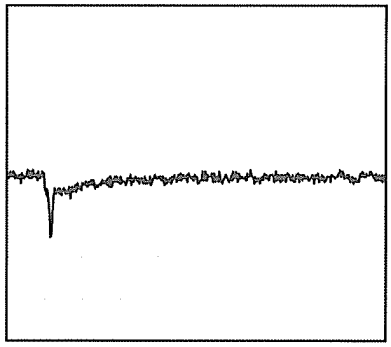
Model	LCA50S-48		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+48V1.3A		

Input Volt. 100 V

Cycle 1000 ms

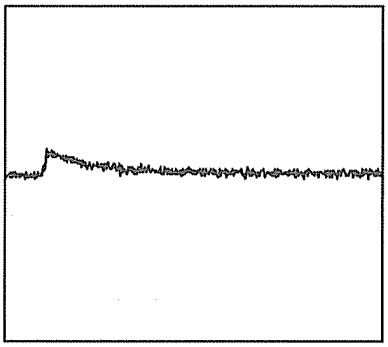
Load Current

Min. Load (0A) ←→
Load 100% (1.3A)



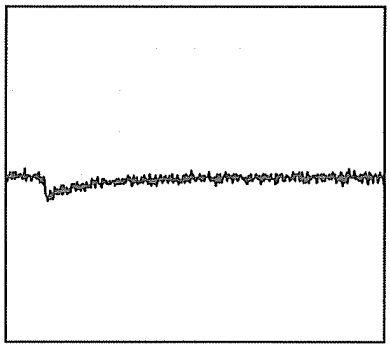
100 mV/div

10 ms/div



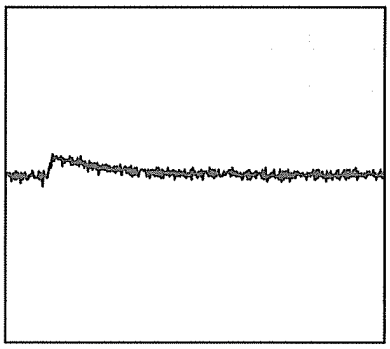
10 ms/div

Min. Load (0A) ←→
Load 50% (0.65A)



100 mV/div

10 ms/div



10 ms/div

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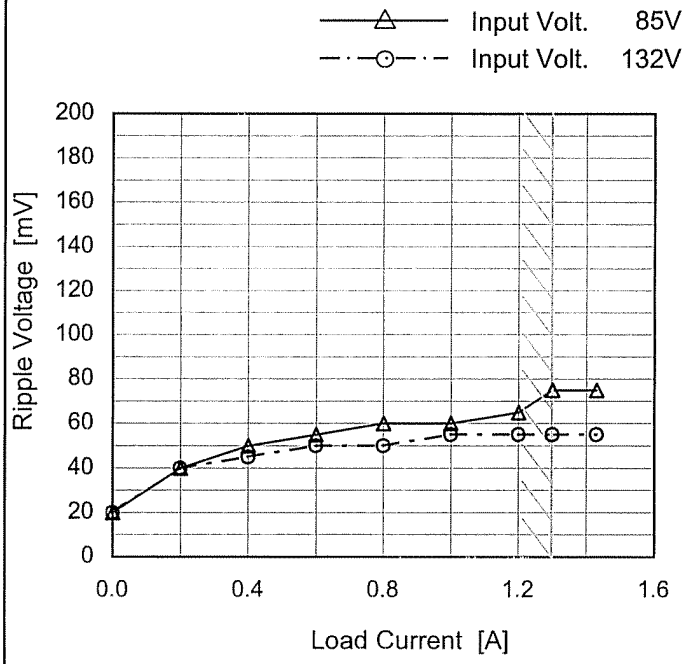
Model	LCA50S-48
Item	Ripple Voltage (by Load Current)
Object	+48V1.3A

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

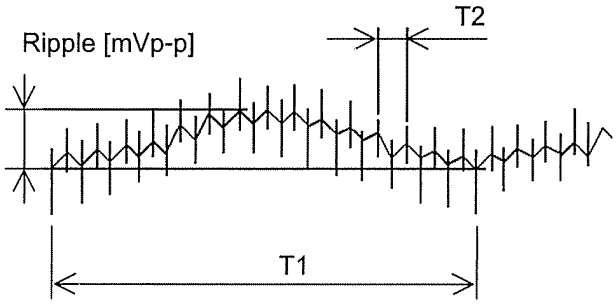


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 85 [V]	Ripple Voltage [mV] Input Volt. 132 [V]
0.00	20	20
0.20	40	40
0.40	50	45
0.60	55	50
0.80	60	50
1.00	60	55
1.20	65	55
1.30	75	55
1.43	75	55
--	-	-
--	-	-

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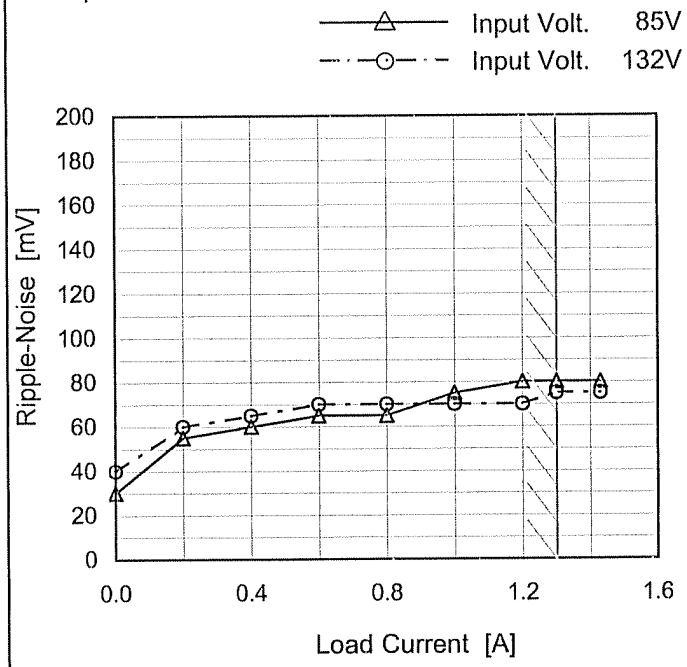
Model	LCA50S-48
Item	Ripple-Noise
Object	+48V1.3A

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.

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

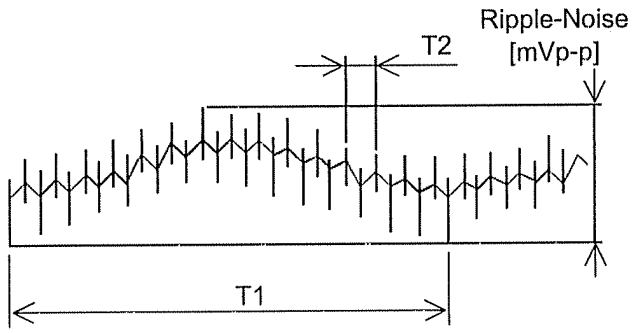


Fig. Complex Ripple Wave Form

2.Values

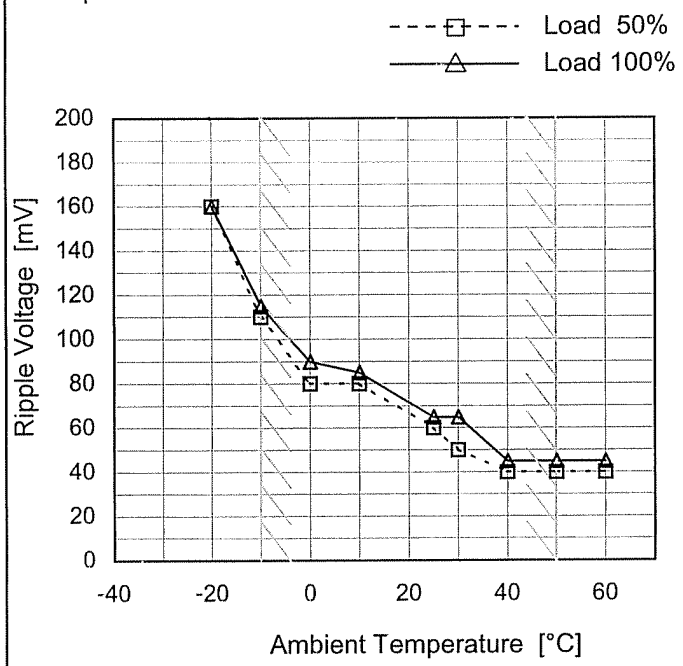
Load Current [A]	Ripple-Noise [mV] Input Volt. 85 [V]	Ripple-Noise [mV] Input Volt. 132 [V]
0.00	30	40
0.20	55	60
0.40	60	65
0.60	65	70
0.80	65	70
1.00	75	70
1.20	80	70
1.30	80	75
1.43	80	75
--	-	-
--	-	-

COSEL

Model	LCA50S-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V1.3A

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

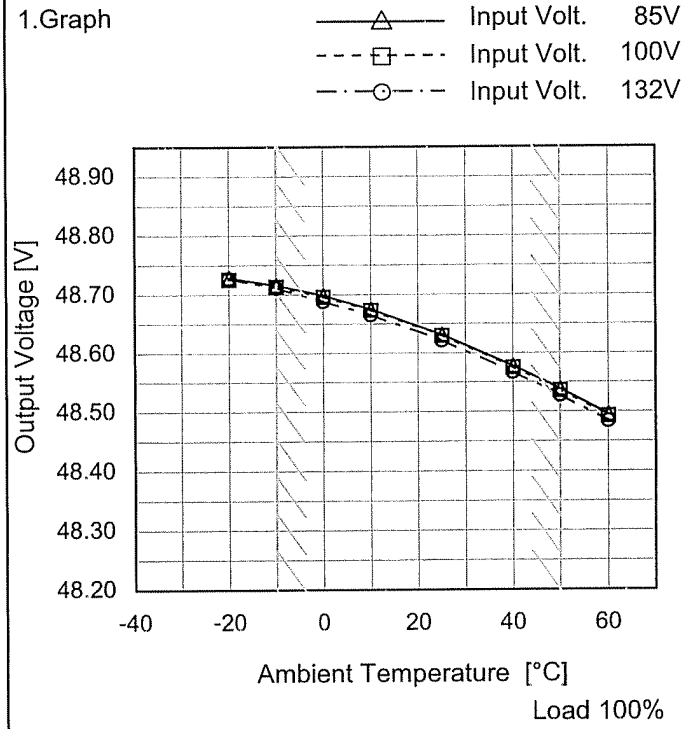
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	160	160
-10	110	115
0	80	90
10	80	85
25	60	65
30	50	65
40	40	45
50	40	45
60	40	45
--	-	-
--	-	-

COSEL

Model	LCA50S-48
Item	Ambient Temperature Drift
Object	+48V1.3A

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	48.729	48.726	48.727
-10	48.716	48.714	48.711
0	48.699	48.696	48.688
10	48.675	48.673	48.665
25	48.632	48.629	48.621
40	48.578	48.575	48.567
50	48.539	48.536	48.528
60	48.496	48.493	48.484
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LCA50S-48
Item	Output Voltage Accuracy
Object	+48V1.3A

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 - 50°C
Input Voltage : 85 - 132V
Load Current : 0 - 1.3A

* 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

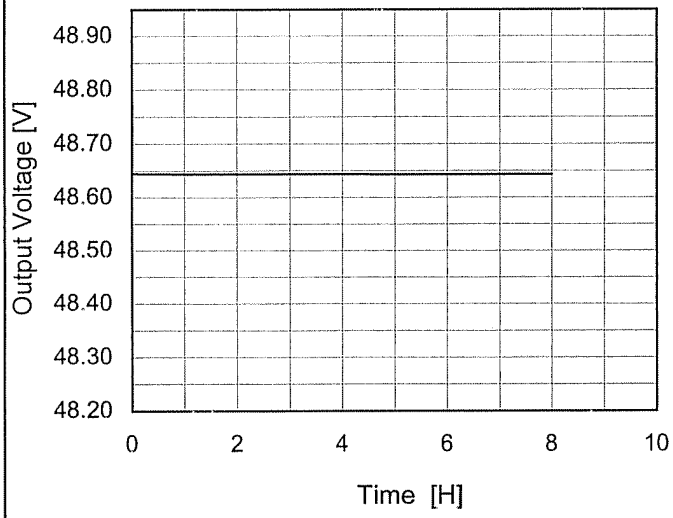
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	48.725	±101	±0.2
Minimum Voltage	50	132	1.3	48.523		

COSEL

Model	LCA50S-48
Item	Time Lapse Drift
Object	+48V1.3A

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	48.645
0.5	48.644
1.0	48.644
2.0	48.644
3.0	48.644
4.0	48.644
5.0	48.643
6.0	48.643
7.0	48.643
8.0	48.643

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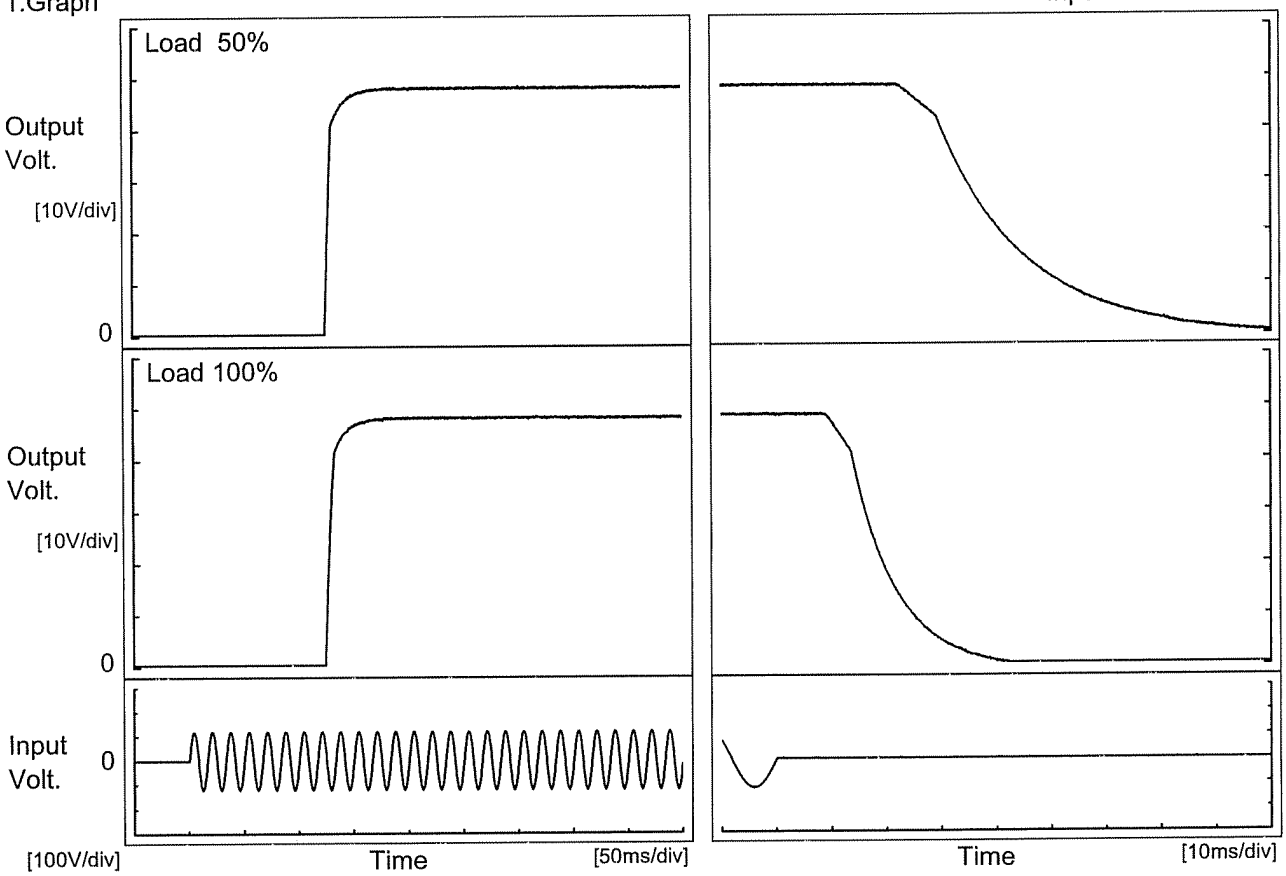
Model	LCA50S-48
Item	Rise and Fall Time
Object	+48V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

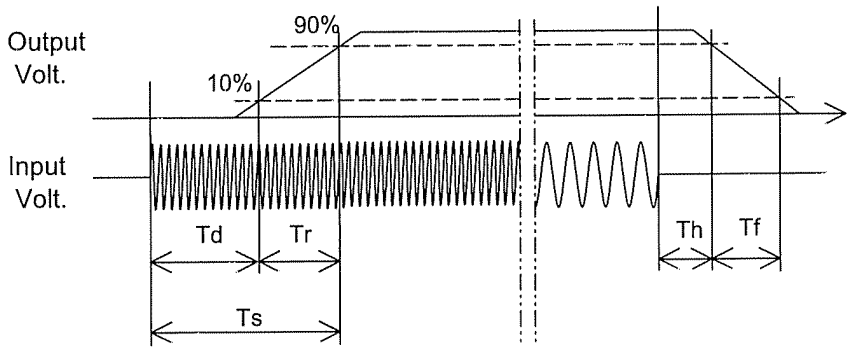
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	125.5	11.0	136.5	27.6	34.1
100 %	125.5	11.8	137.3	12.1	17.2



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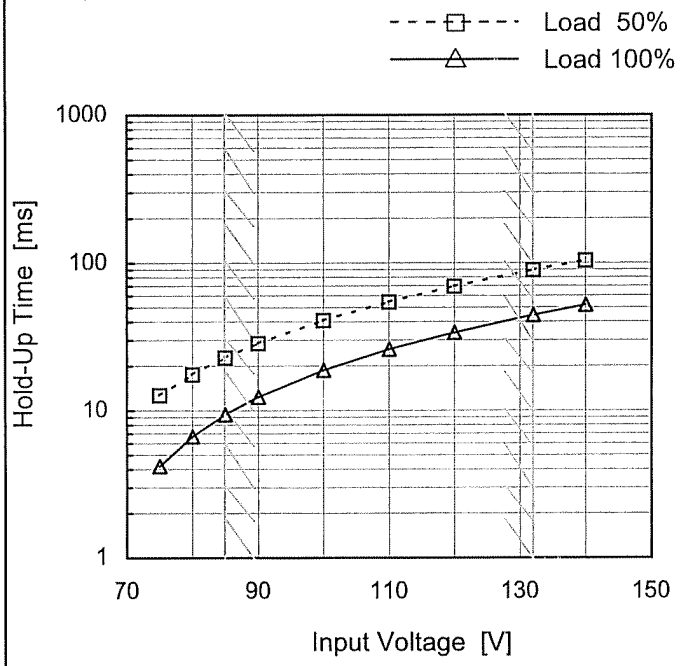
Model	LCA50S-48
Item	Hold-Up Time
Object	+48V1.3A

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

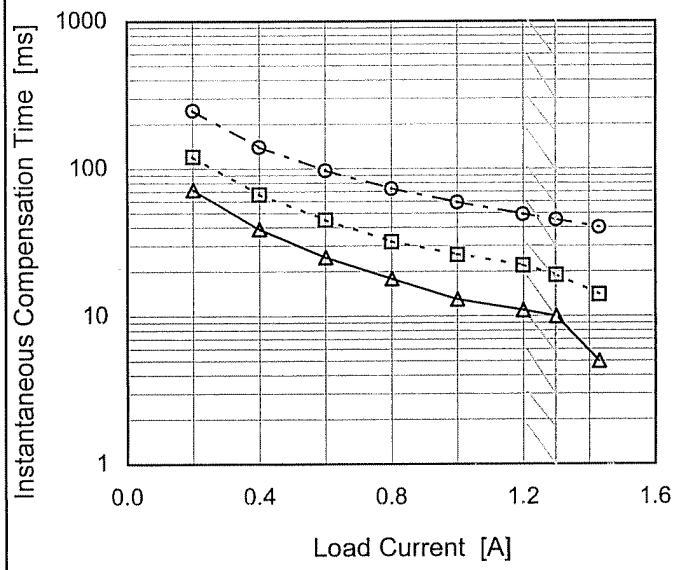
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	13	4
80	18	7
85	23	9
90	29	12
100	41	19
110	54	26
120	69	34
132	89	44
140	104	52

COSEL

Model	LCA50S-48
Item	Instantaneous Interruption Compensation
Object	+48V1.3A

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	-	-	-
0.20	72	121	248
0.40	39	67	140
0.60	25	45	97
0.80	18	32	73
1.00	13	26	59
1.20	11	22	49
1.30	10	19	45
1.43	5	14	40
--	-	-	-
--	-	-	-

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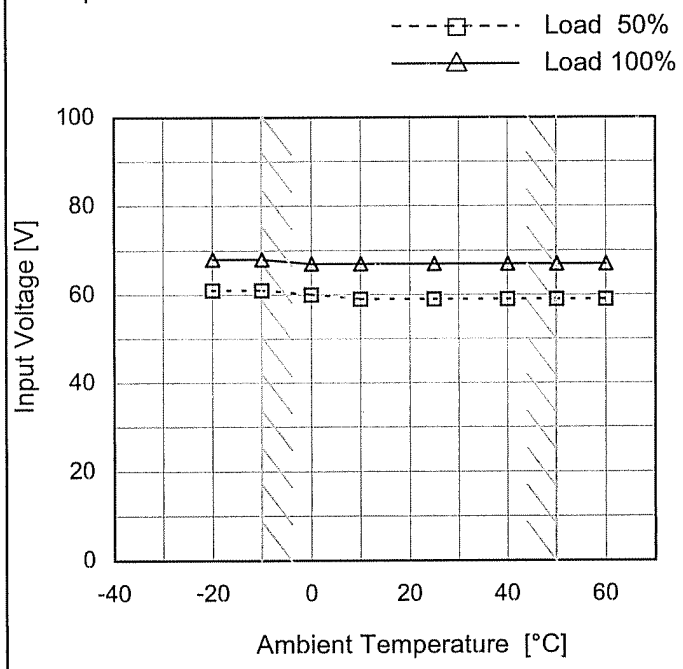
COSEL

Model	LCA50S-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V1.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

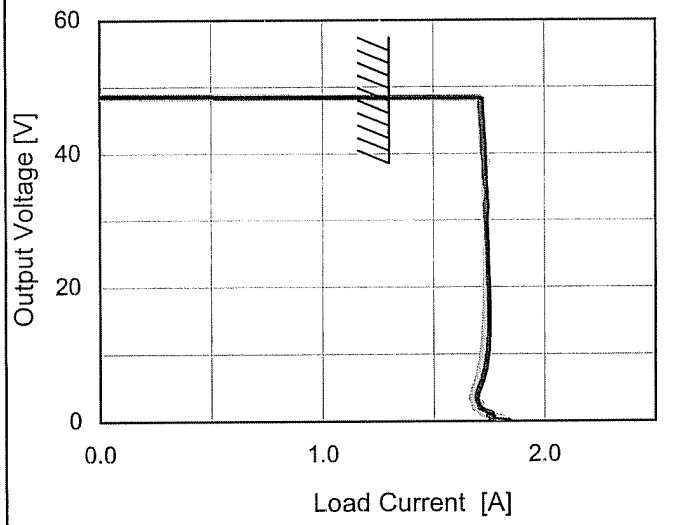
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	61	68
-10	61	68
0	60	67
10	59	67
25	59	67
40	59	67
50	59	67
60	59	67
--	-	-
--	-	-
--	-	-

COSEL

Model	LCA50S-48
Item	Overcurrent Protection
Object	+48V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

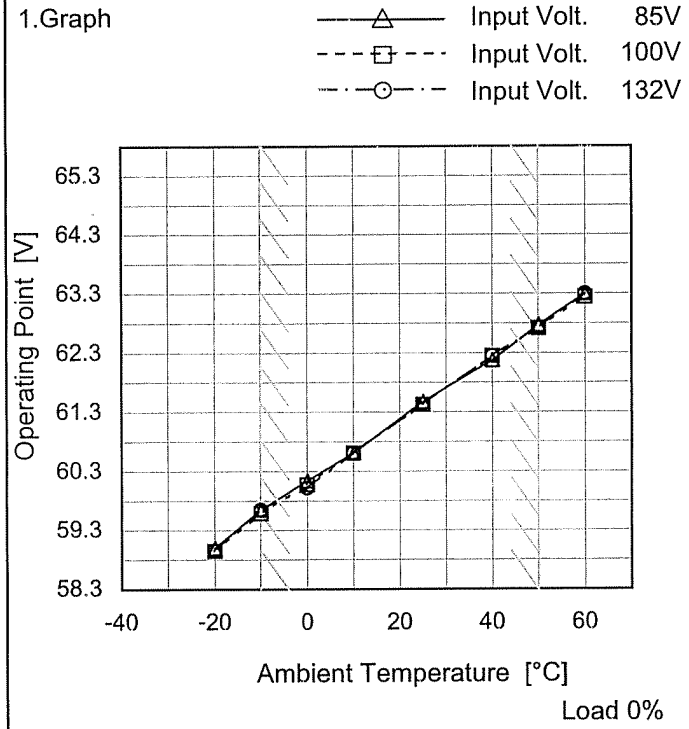
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
48.0	1.72	1.71	1.71
45.6	1.73	1.71	1.71
43.2	1.73	1.72	1.72
38.4	1.74	1.73	1.74
33.6	1.74	1.74	1.73
28.8	1.74	1.74	1.74
24.0	1.75	1.74	1.74
19.2	1.75	1.75	1.74
14.4	1.76	1.75	1.73
9.6	1.75	1.74	1.72
4.8	1.71	1.70	1.68
0.0	1.82	1.67	2.02

COSEL

Model	LCA50S-48
Item	Overvoltage Protection
Object	+48V1.3A

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	59.03	58.98	58.98
-10	59.68	59.62	59.68
0	60.17	60.11	60.05
10	60.64	60.64	60.64
25	61.51	61.46	61.46
40	62.21	62.28	62.28
50	62.80	62.75	62.75
60	63.33	63.27	63.33
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

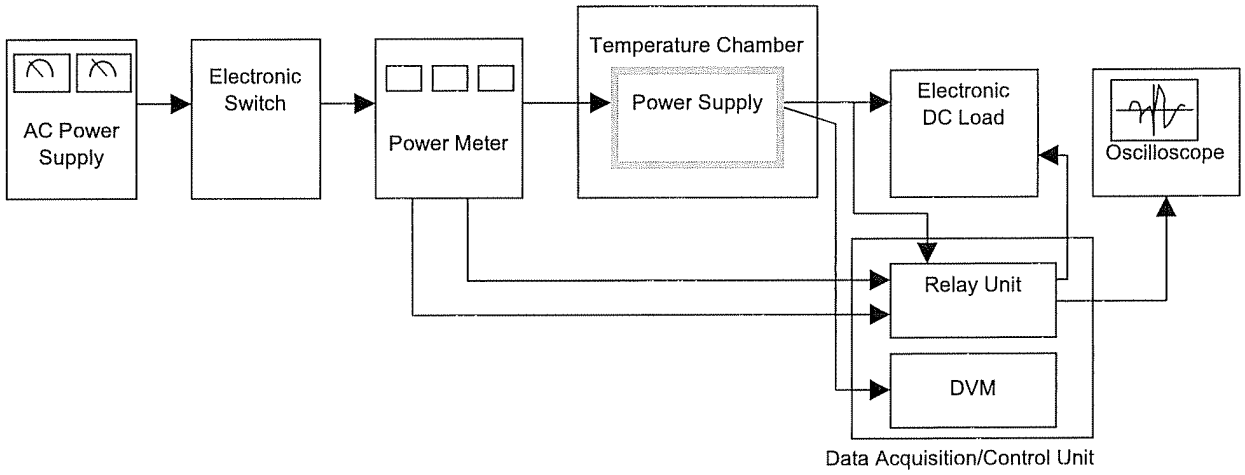


Figure A

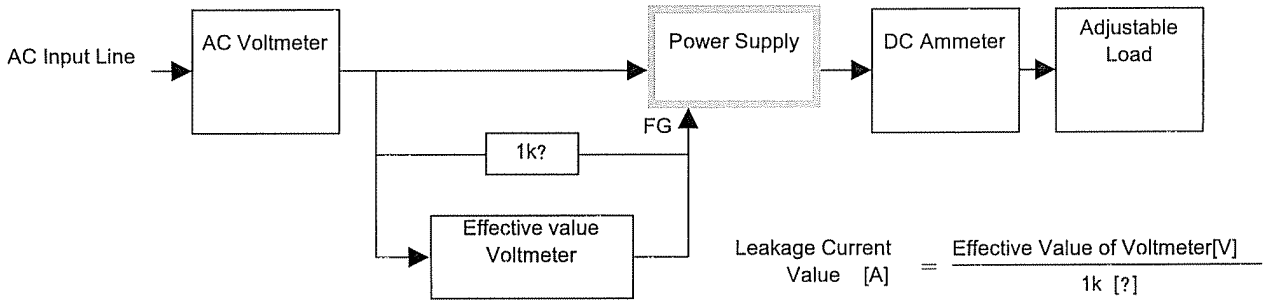


Figure B (DEN-AN)

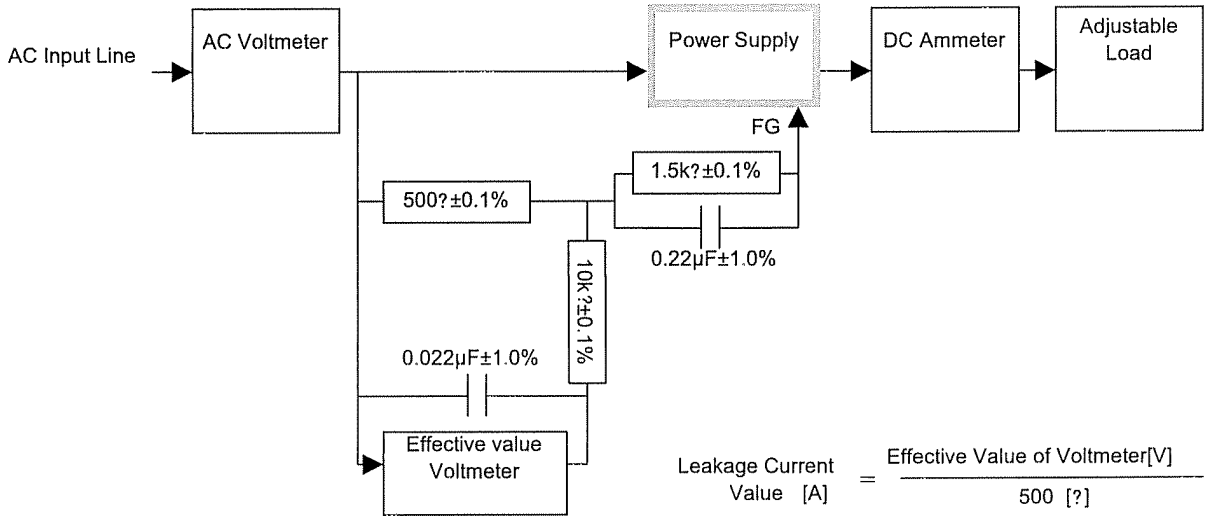


Figure B (IEC60950)