参考資料

COSEL

TEST DATA OF LCA30S-3

Regulated DC Power Supply
Aug.11. 2004

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COSEL CO.,LTD.

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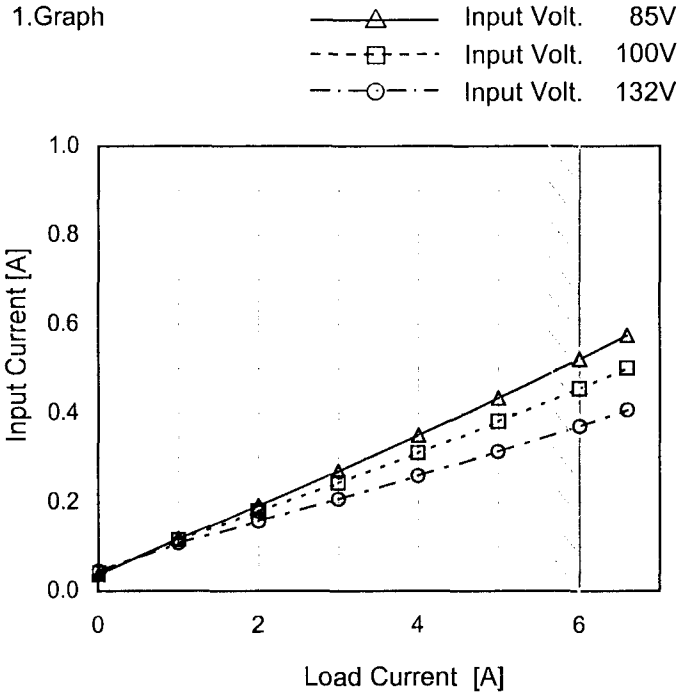
(Final Page 20)

COSEL

Model	LCA30S-3
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

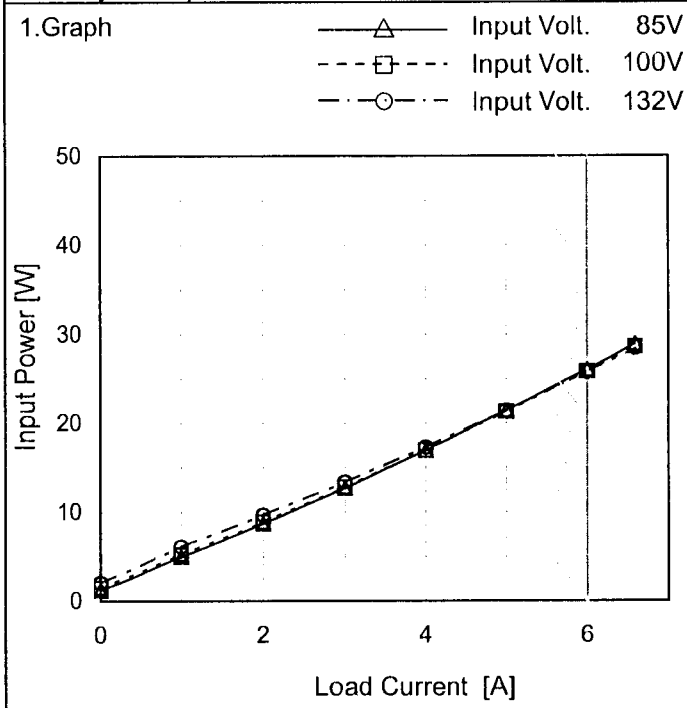
Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	0.038	0.041	0.045
1.0	0.119	0.116	0.108
2.0	0.192	0.179	0.158
3.0	0.269	0.243	0.207
4.0	0.350	0.310	0.259
5.0	0.434	0.381	0.314
6.0	0.521	0.455	0.371
6.6	0.575	0.501	0.407
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LCA30S-3
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

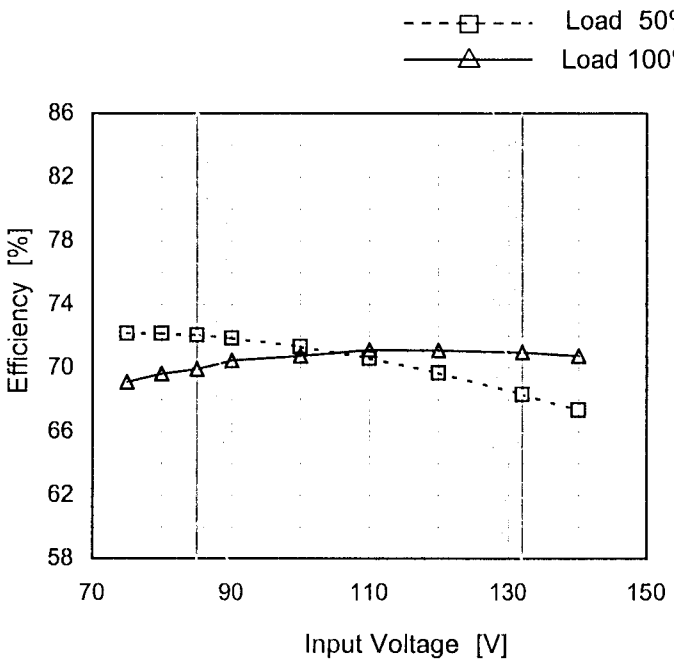
Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	1.23	1.47	2.06
1.0	4.95	5.22	6.09
2.0	8.70	8.89	9.66
3.0	12.69	12.80	13.35
4.0	16.92	16.92	17.28
5.0	21.40	21.26	21.42
6.0	26.00	25.80	25.73
6.6	28.90	28.60	28.40
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LCA30S-3
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	72.2	69.1
80	72.2	69.6
85	72.1	69.9
90	71.9	70.4
100	71.3	70.7
110	70.6	71.1
120	69.7	71.1
132	68.3	71.0
140	67.4	70.7

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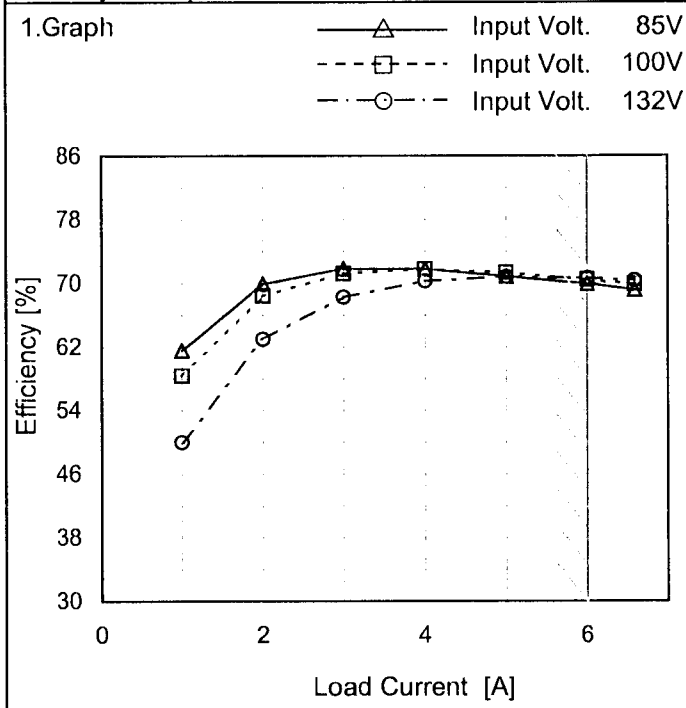
Model	LCA30S-3
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
1.0	61.5	58.3	50.0
2.0	69.9	68.4	63.0
3.0	71.8	71.2	68.3
4.0	71.7	71.7	70.3
5.0	70.8	71.3	70.8
6.0	69.9	70.4	70.6
6.6	69.1	69.9	70.4
--	-	-	-
--	-	-	-
--	-	-	-

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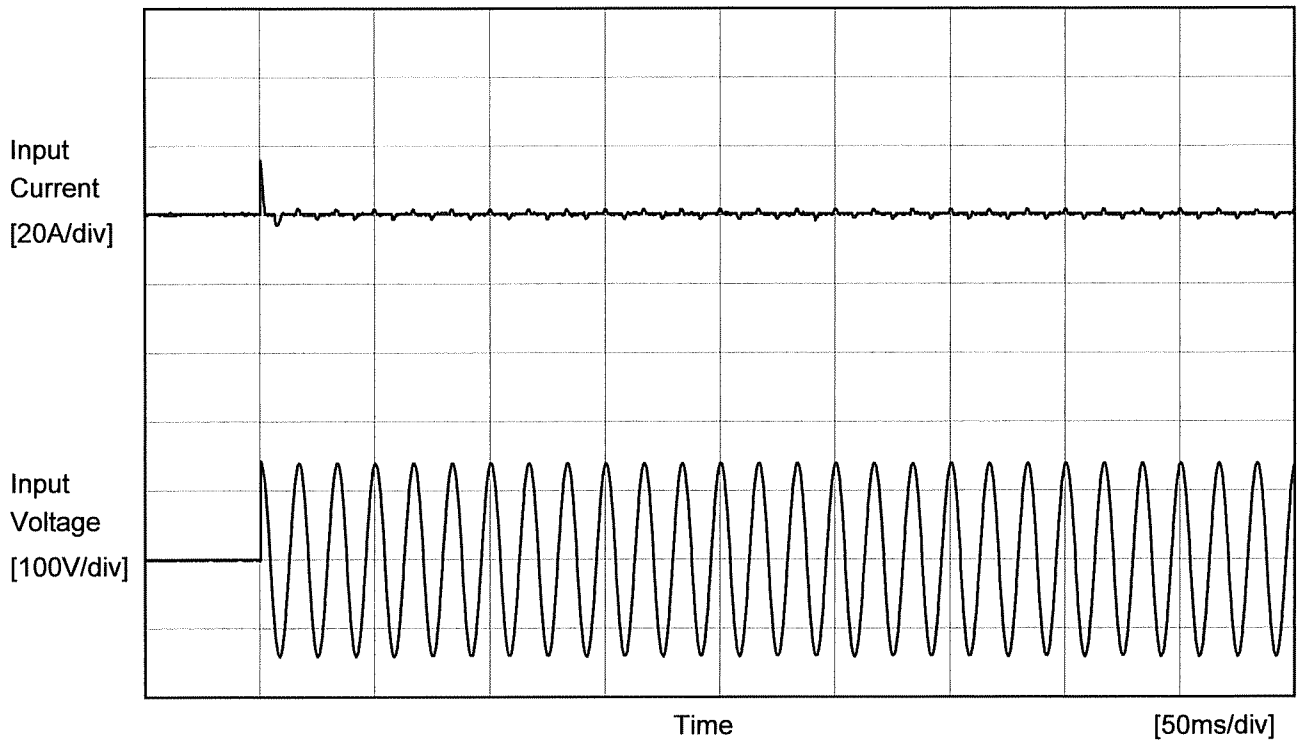
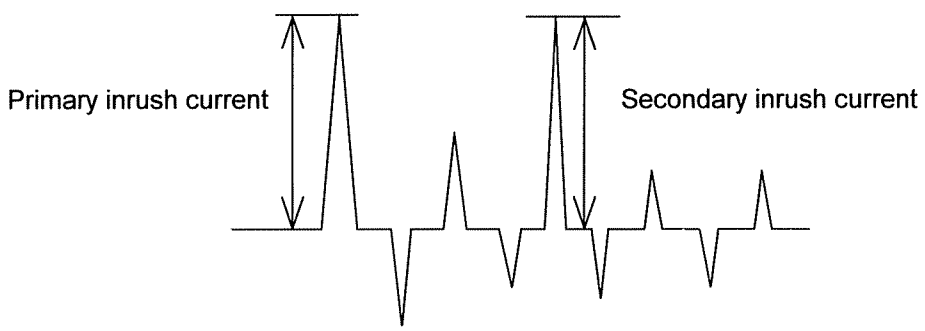
Model	LCA30S-3
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	15.7 A
Secondary inrush current	1.9 A



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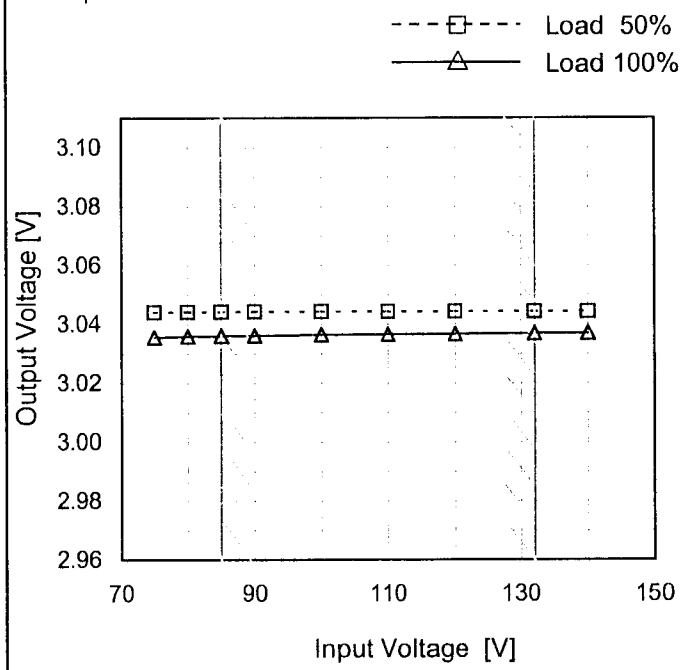
Model	LCA30S-3
Item	Line Regulation
Object	+3V6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

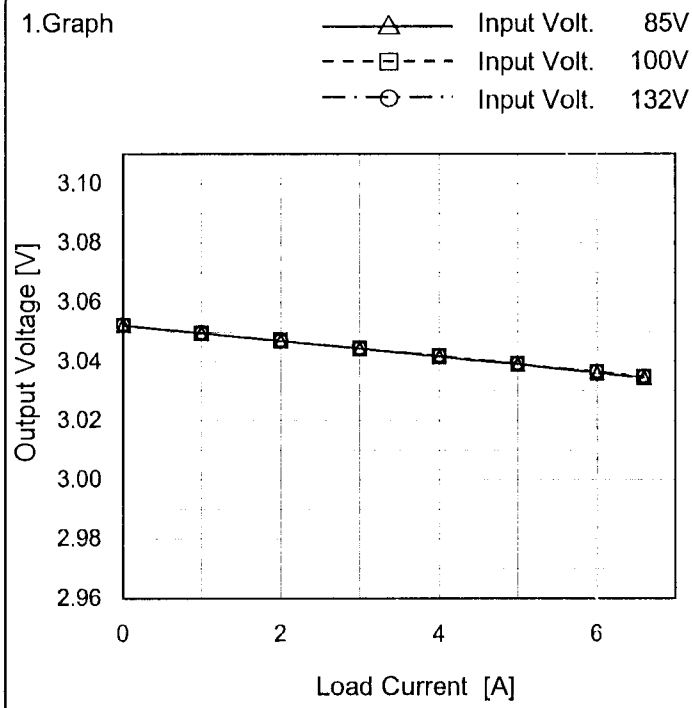
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	3.044	3.036
80	3.044	3.036
85	3.044	3.036
90	3.044	3.036
100	3.044	3.037
110	3.044	3.037
120	3.044	3.037
132	3.044	3.037
140	3.044	3.037

COSEL

Model	LCA30S-3
Item	Load Regulation
Object	+3V6A

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	3.052	3.052	3.052
1.0	3.050	3.050	3.050
2.0	3.047	3.047	3.047
3.0	3.044	3.044	3.045
4.0	3.042	3.042	3.042
5.0	3.039	3.039	3.039
6.0	3.036	3.036	3.037
6.6	3.035	3.035	3.035
--	-	-	-
--	-	-	-
--	-	-	-

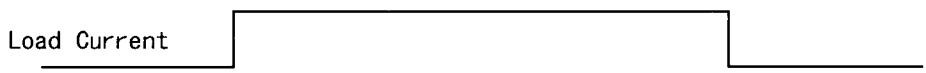
COSEL

Model	LCA30S-3		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+3V6A		

Input Volt. 100 V

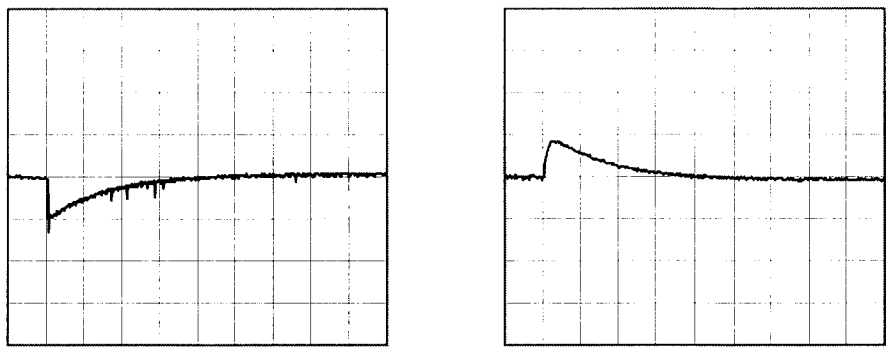
Cycle 1000 ms

Load Current



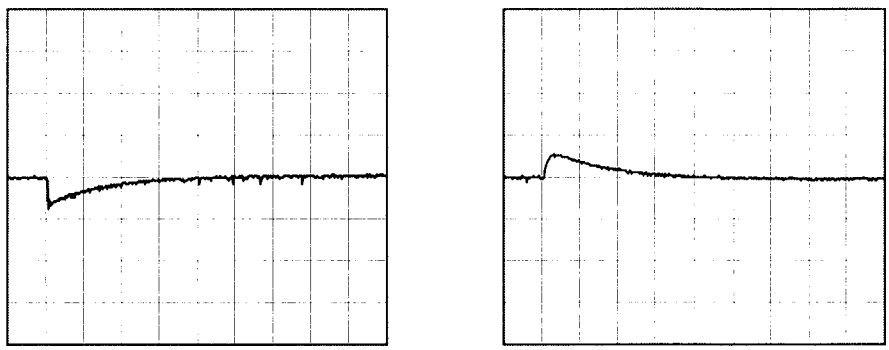
Min. Load (0A) ←→

Load 100% (6A)



Min. Load (0A) ←→

Load 50% (3A)



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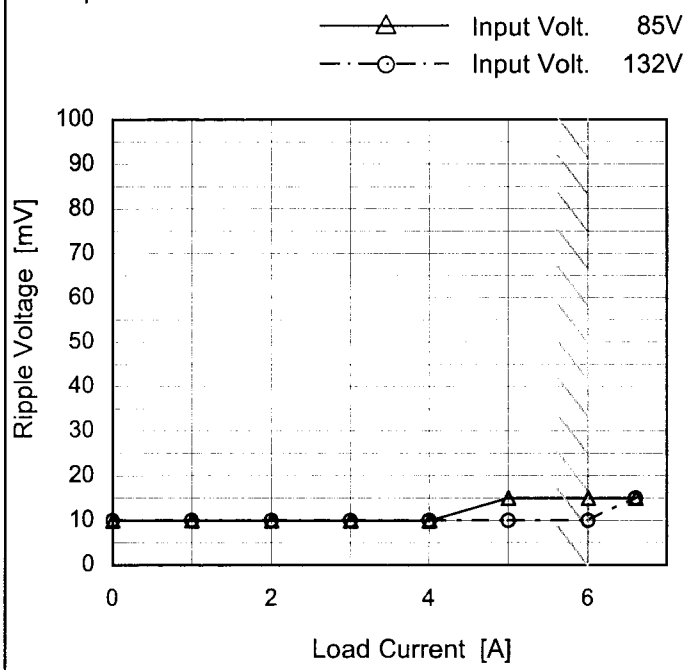
Model	LCA30S-3
Item	Ripple Voltage (by Load Current)
Object	+3V6A

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

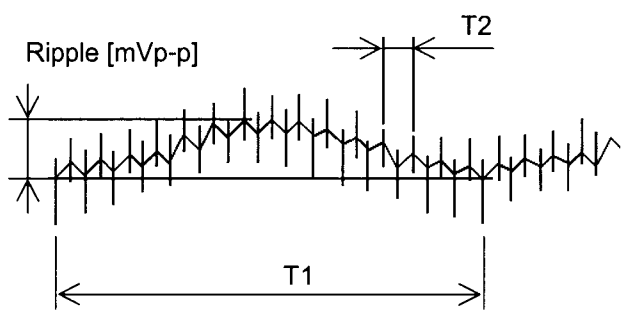


Fig. Complex Ripple Wave Form

2.Values

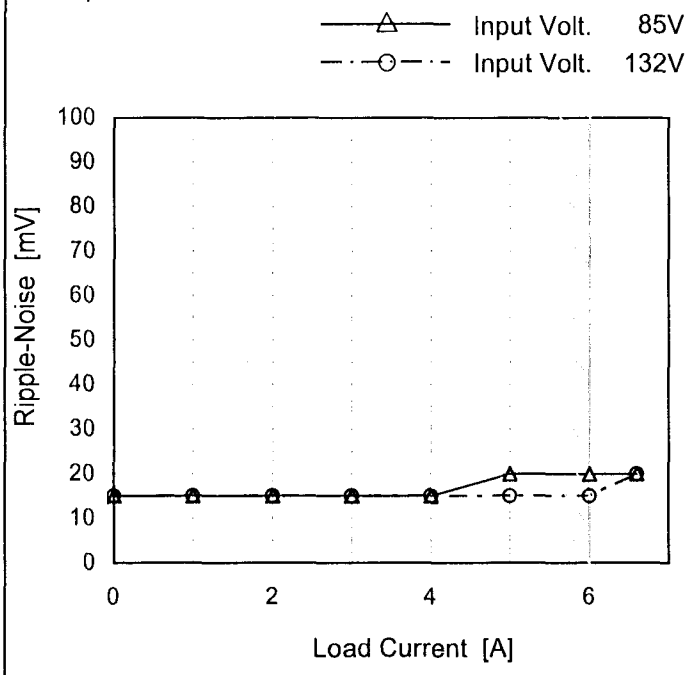
Load Current [A]	Ripple Voltage [mV] Input Volt. 85 [V]	Ripple Voltage [mV] Input Volt. 132 [V]
0.0	10	10
1.0	10	10
2.0	10	10
3.0	10	10
4.0	10	10
5.0	15	10
6.0	15	10
6.6	15	15
--	-	-
--	-	-
--	-	-

COSEL

Model	LCA30S-3
Item	Ripple-Noise
Object	+3V6A

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

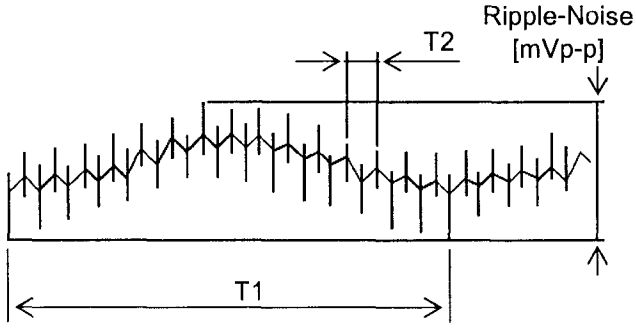


Fig. Complex Ripple Wave Form

2.Values

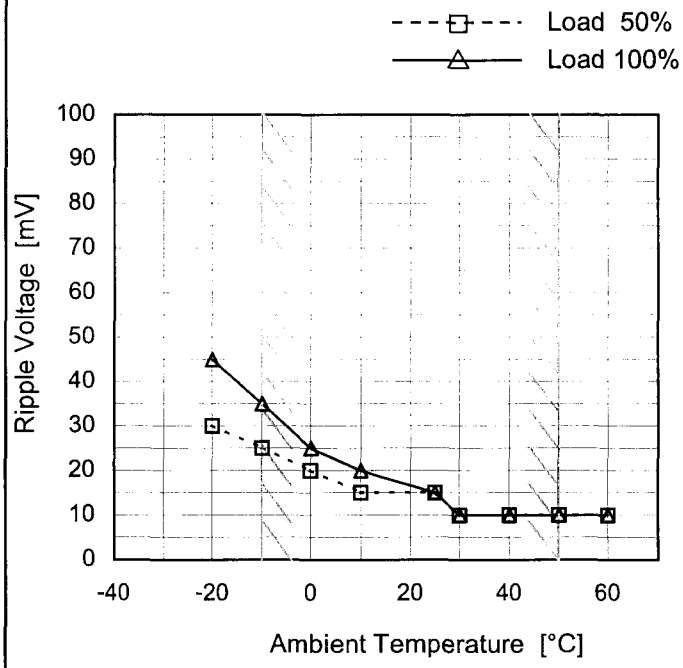
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	15	15
1.0	15	15
2.0	15	15
3.0	15	15
4.0	15	15
5.0	20	15
6.0	20	15
6.6	20	20
--	-	-
--	-	-
--	-	-

COSEL

Model	LCA30S-3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3V6A

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

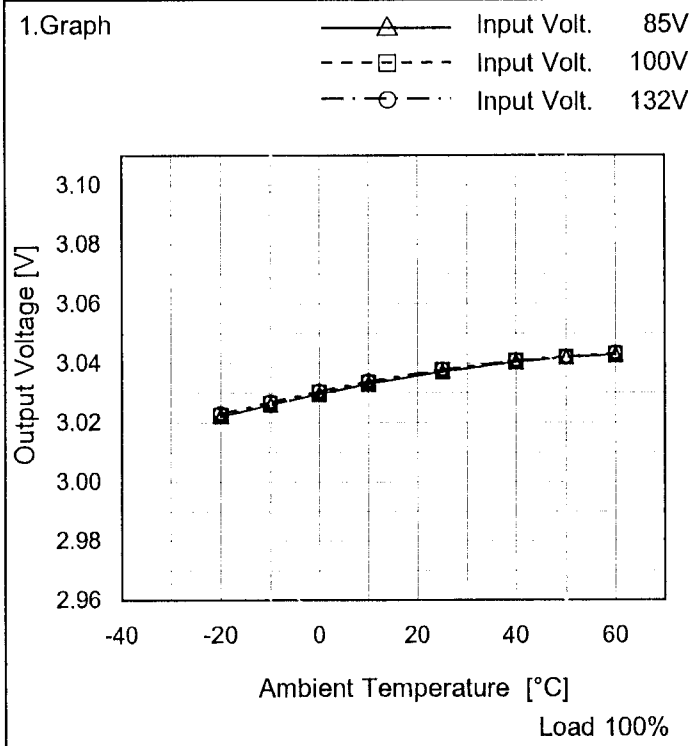
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	30	45
-10	25	35
0	20	25
10	15	20
25	15	15
30	10	10
40	10	10
50	10	10
60	10	10
--	-	-
--	-	-

COSEL

Model	LCA30S-3
Item	Ambient Temperature Drift
Object	+3V6A

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	3.022	3.022	3.023
-10	3.026	3.027	3.027
0	3.030	3.030	3.031
10	3.033	3.034	3.034
25	3.037	3.038	3.038
40	3.040	3.041	3.041
50	3.042	3.042	3.042
60	3.043	3.043	3.043
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LCA30S-3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3V6A	

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 - 6A

* 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

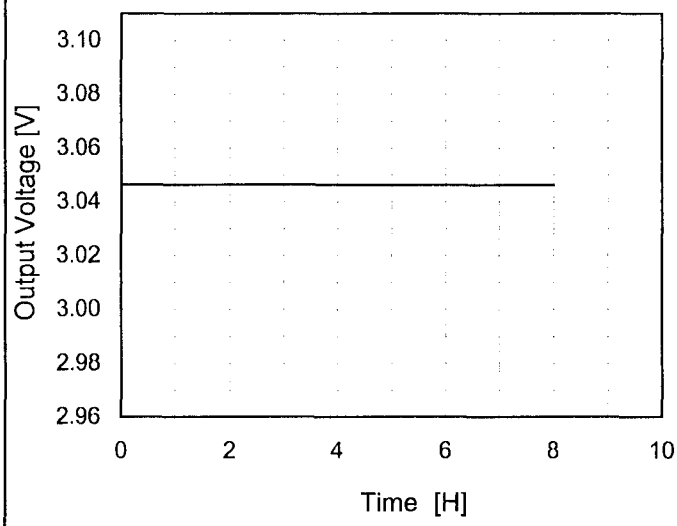
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	100	0	3.100	±34	±1.1
Minimum Voltage	50	85	10	3.032		

COSEL

Model	LCA30S-3
Item	Time Lapse Drift
Object	+3V6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

2.Values

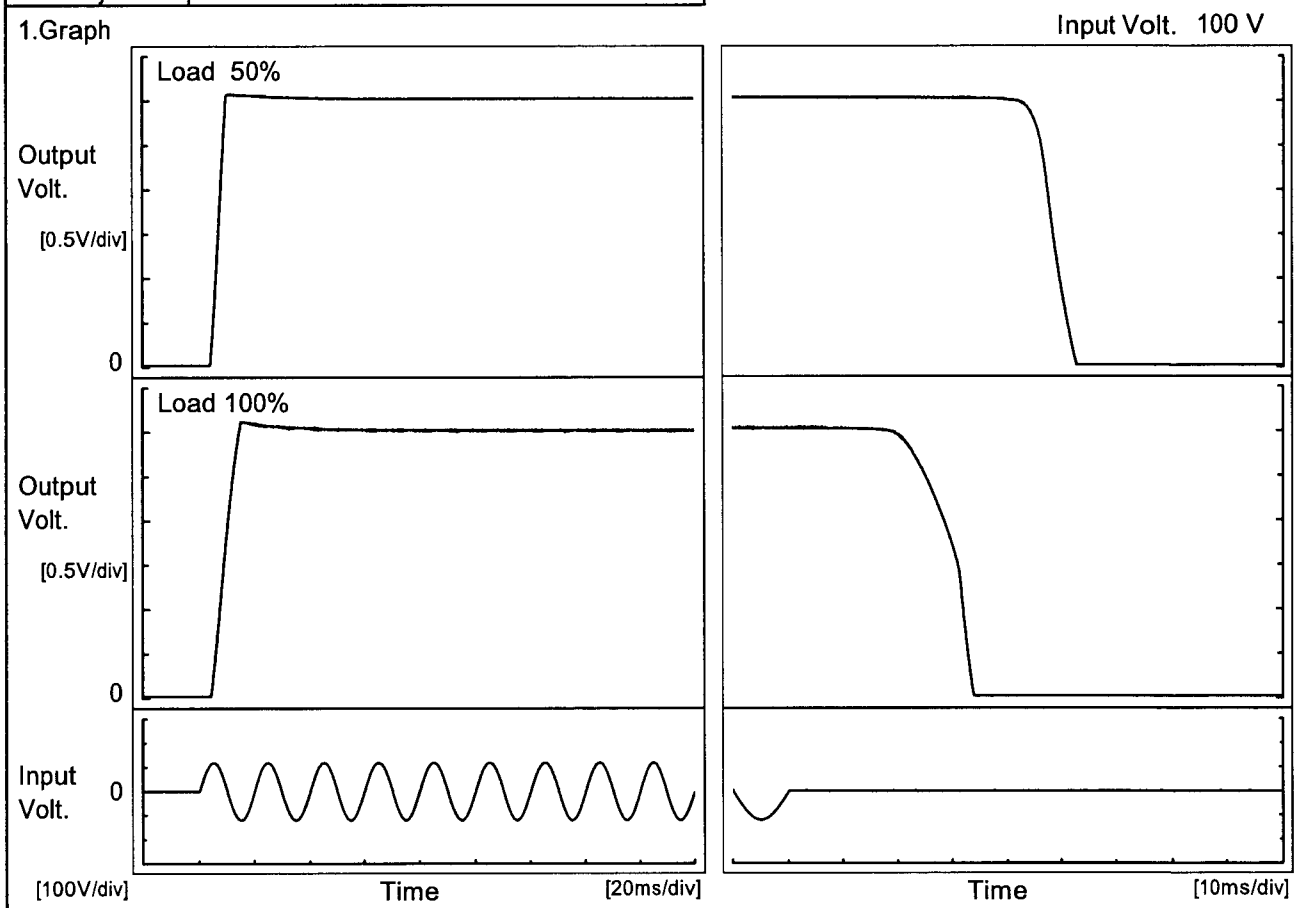
Time since start [H]	Output Voltage [V]
0.0	3.046
0.5	3.046
1.0	3.046
2.0	3.046
3.0	3.046
4.0	3.046
5.0	3.046
6.0	3.046
7.0	3.046
8.0	3.046

COSEL

Model	LCA30S-3
Item	Rise and Fall Time
Object	+3V6A

Temperature 25°C
Testing Circuitry Figure A

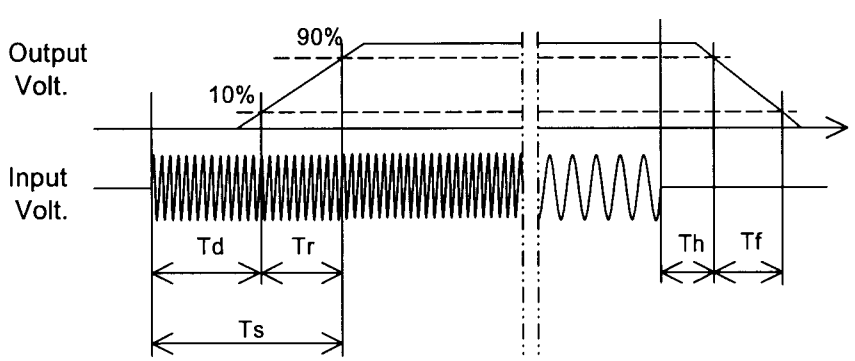
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	4.8	4.5	9.3	45.3	6.4
100 %	5.4	7.8	13.2	23.2	10.1

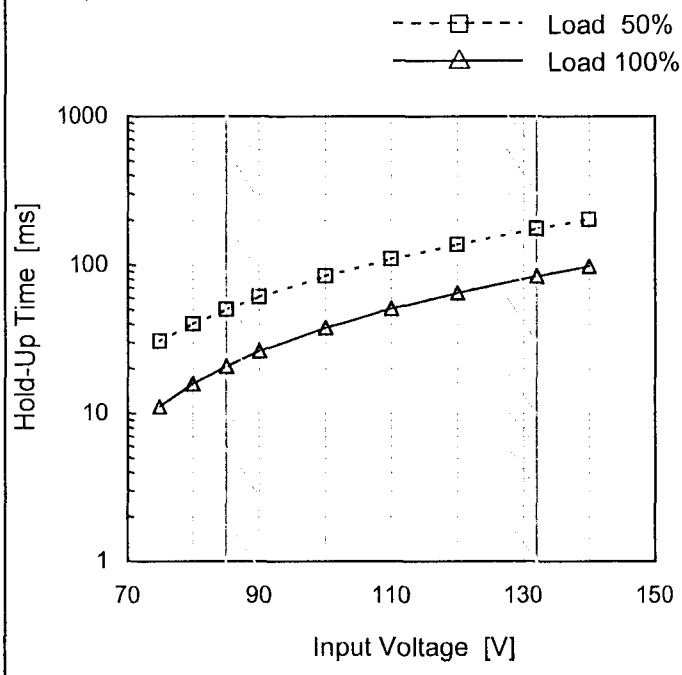


COSEL

Model	LCA30S-3
Item	Hold-Up Time
Object	+3V6A

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

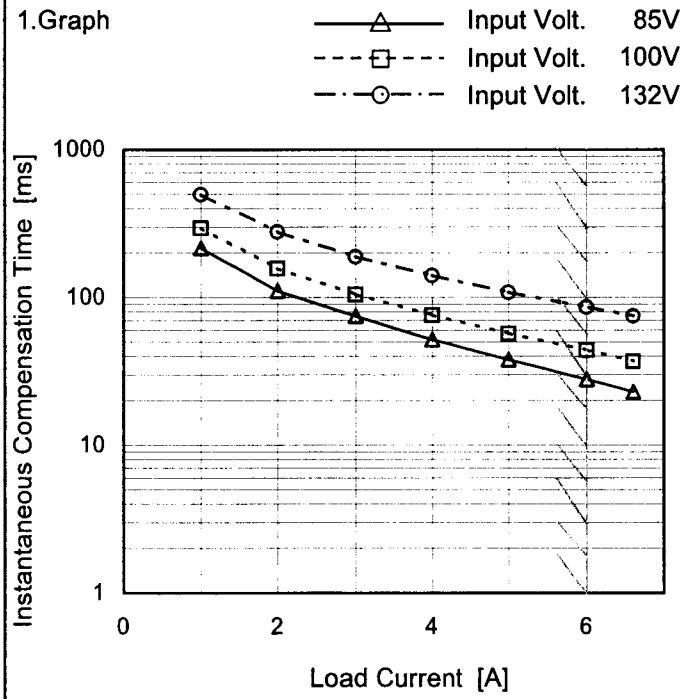
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	31	11
80	40	16
85	50	21
90	61	26
100	84	38
110	110	51
120	138	65
132	175	84
140	202	98

COSEL

Model	LCA30S-3
Item	Instantaneous Interruption Compensation
Object	+3V6A

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	-	-	-
1.0	216	295	496
2.0	111	157	278
3.0	75	105	189
4.0	52	76	141
5.0	38	57	108
6.0	28	44	86
6.6	23	37	75
--	-	-	-
--	-	-	-
--	-	-	-

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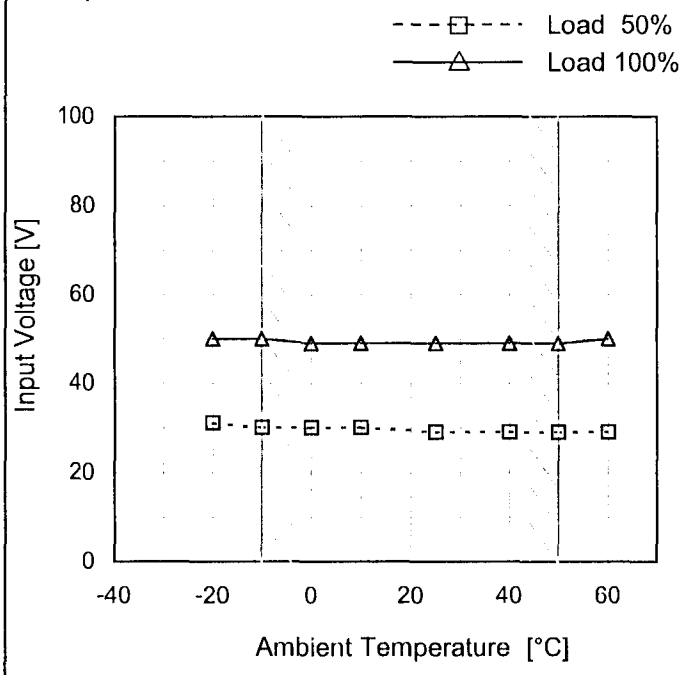
Model	LCA30S-3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3V6A

Testing Circuitry Figure A

1.Graph



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

2.Values

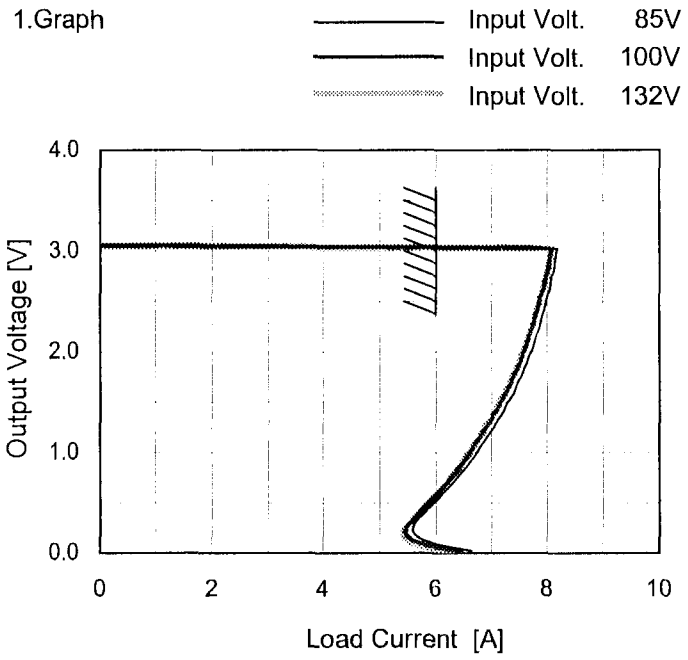
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	31	50
-10	30	50
0	30	49
10	30	49
25	29	49
40	29	49
50	29	49
60	29	50
--	-	-
--	-	-
--	-	-

COSEL

Model	LCA30S-3
Item	Overcurrent Protection
Object	+3V6A

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]
3.00	6.89	7.72	7.72
2.85	8.13	8.02	8.03
2.70	8.05	7.96	7.97
2.40	7.95	7.82	7.82
2.10	7.77	7.64	7.64
1.80	7.56	7.42	7.41
1.50	7.28	7.20	7.13
1.20	6.99	6.86	6.86
0.90	6.58	6.53	6.52
0.60	6.15	6.04	6.05
0.30	5.61	5.58	5.59
0.00	7.05	6.85	6.74

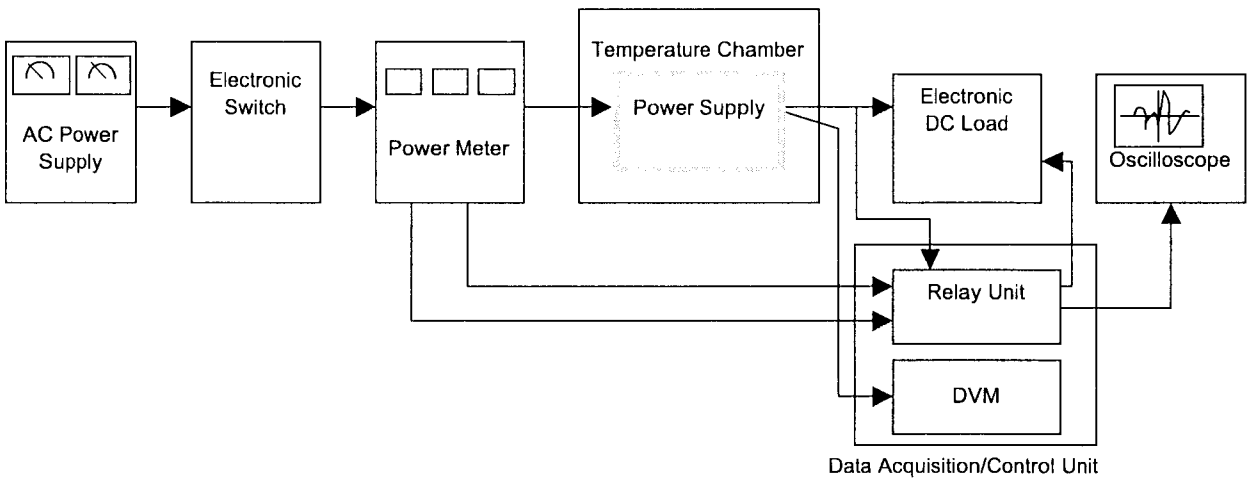


Figure A

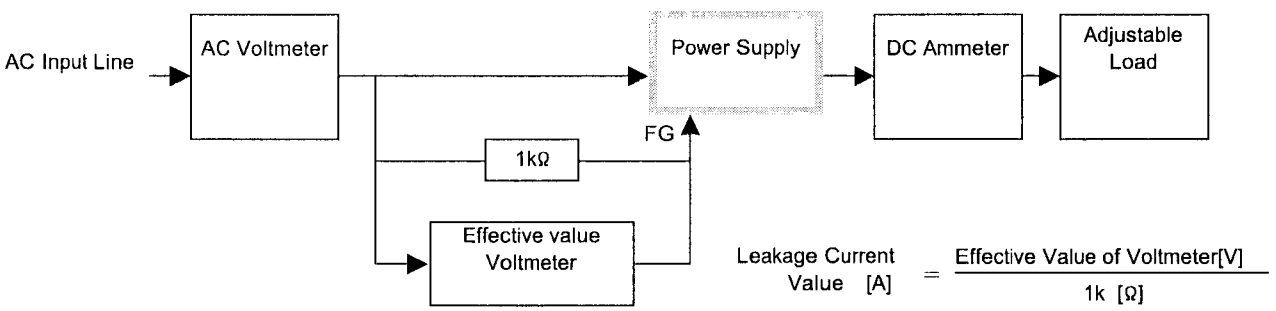


Figure B (DEN-AN)

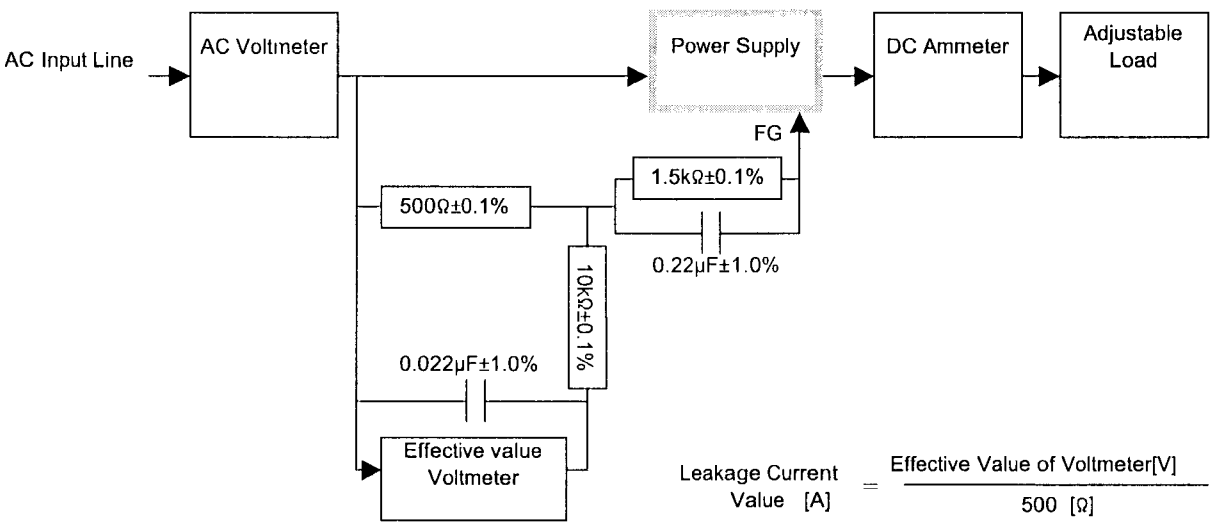


Figure B (IEC60950)