参考資料

COSEL

TEST DATA OF LDA50F-24-H

Regulated DC Power Supply
Sep.13. 2004

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COSEL CO.,LTD.

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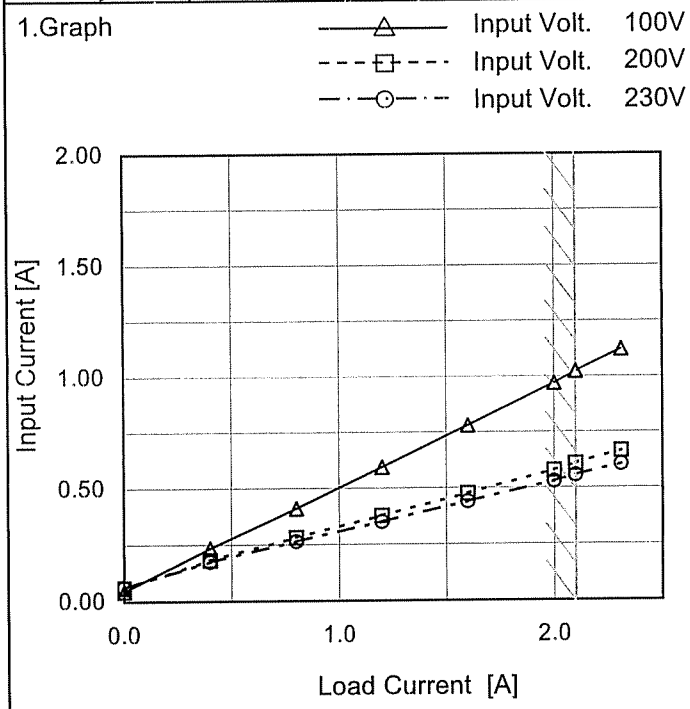


Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.045	0.059	0.061
0.40	0.235	0.182	0.175
0.80	0.411	0.282	0.265
1.20	0.594	0.378	0.351
1.60	0.780	0.475	0.440
2.00	0.970	0.577	0.529
2.10	1.023	0.608	0.556
2.31	1.122	0.665	0.605
--	-	-	-
--	-	-	-
--	-	-	-

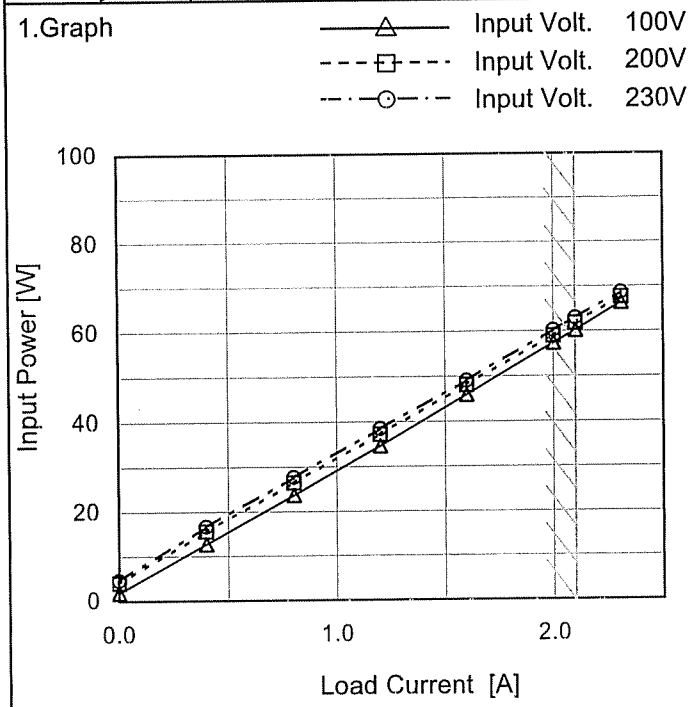
BC-0963

COSEL

Model	LDA50F-24-H
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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	1.80	4.00	4.60
0.40	12.69	15.60	16.70
0.80	23.70	26.50	27.70
1.20	34.70	37.30	38.50
1.60	46.00	48.10	49.10
2.00	57.40	59.00	60.20
2.10	60.20	61.80	62.90
2.31	66.40	67.60	68.60
--	-	-	-
--	-	-	-
--	-	-	-

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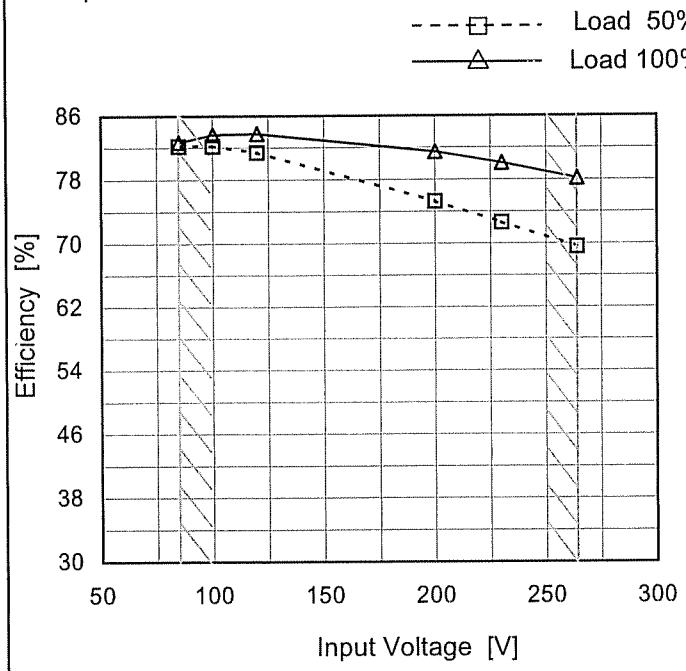
COSEL

Model	LDA50F-24-H
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%
85	82.2	82.7
100	82.2	83.7
120	81.4	83.8
200	75.3	81.5
230	72.6	80.1
264	69.6	78.2
--	-	-
--	-	-
--	-	-

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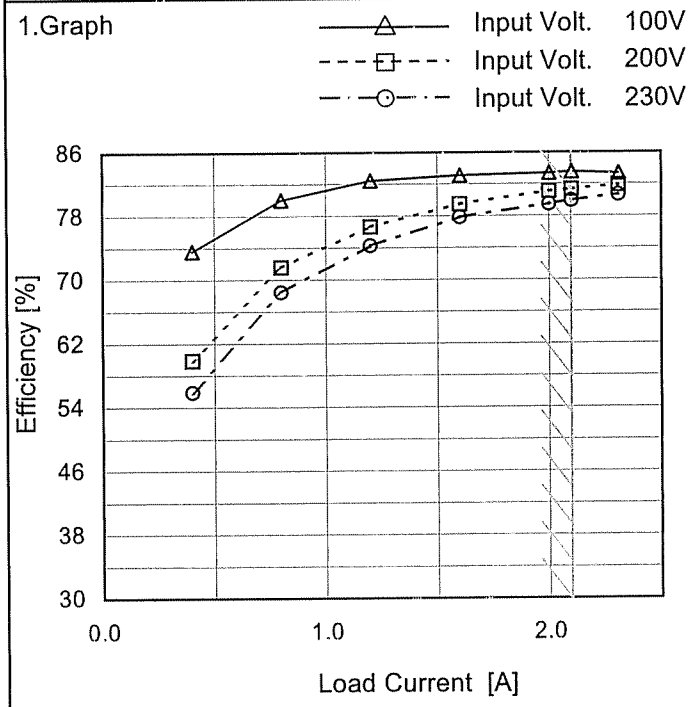
Model	LDA50F-24-H
Item	Efficiency (by Load Current)
Object	————————

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.40	73.6	59.9	55.9
0.80	80.1	71.6	68.5
1.20	82.4	76.7	74.3
1.60	83.1	79.5	77.8
2.00	83.4	81.1	79.5
2.10	83.5	81.4	79.9
2.31	83.3	81.9	80.7
--	-	-	-
--	-	-	-
--	-	-	-

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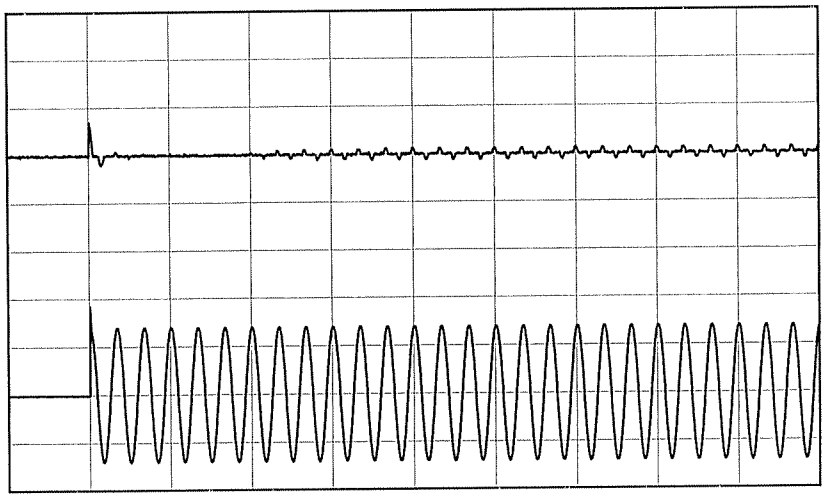
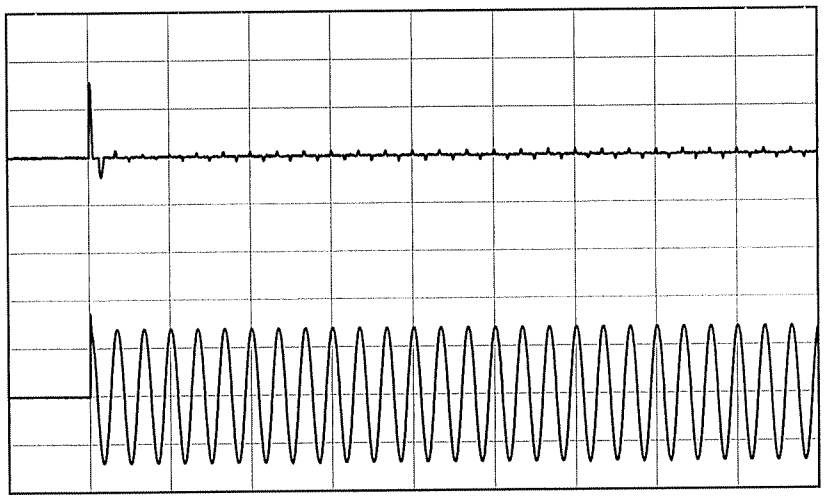
Model	LDA50F-24-H
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



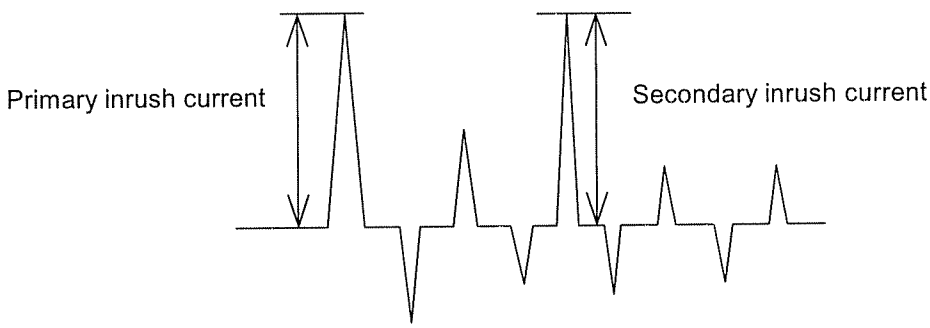
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
14.0 A
Secondary inrush current :
2.8 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
31.1 A
Secondary inrush current :
2.5 A



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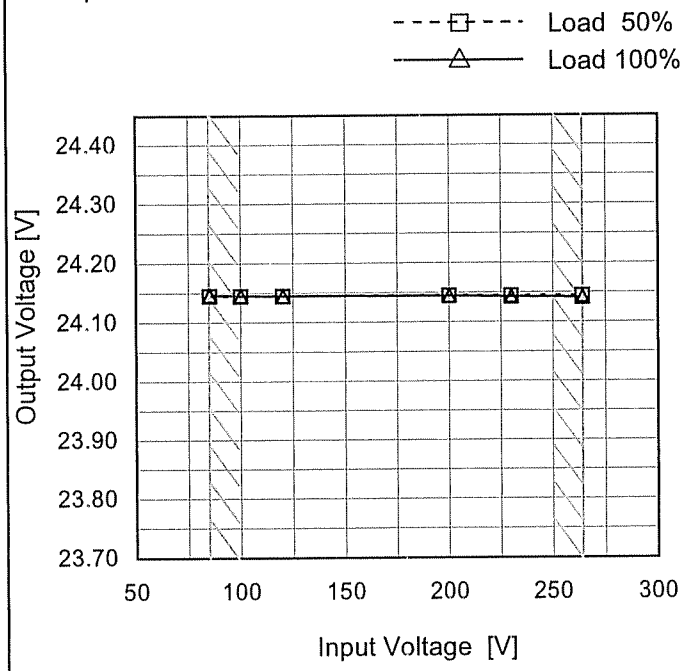
Model	LDA50F-24-H
Item	Line Regulation
Object	+24V2.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

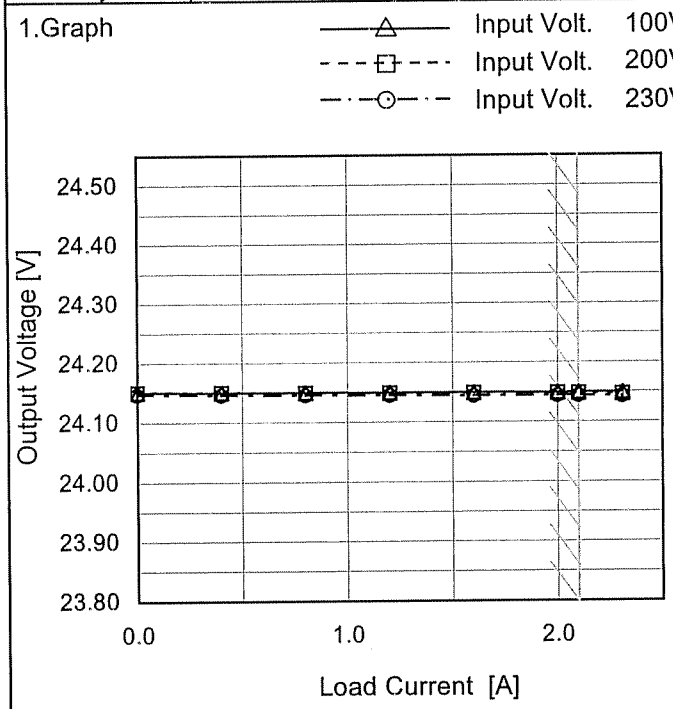
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	24.145	24.147
100	24.145	24.146
120	24.145	24.146
200	24.145	24.145
230	24.145	24.143
264	24.144	24.142
--	-	-
--	-	-
--	-	-

COSEL

Model	LDA50F-24-H
Item	Load Regulation
Object	+24V2.1A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	24.151	24.151	24.147
0.40	24.150	24.150	24.146
0.80	24.150	24.149	24.145
1.20	24.150	24.149	24.145
1.60	24.150	24.148	24.144
2.00	24.149	24.148	24.144
2.10	24.150	24.148	24.144
2.31	24.150	24.146	24.143
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

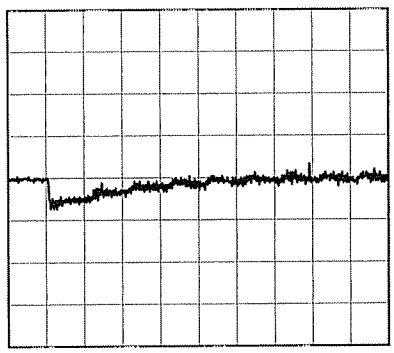
Model	LDA50F-24-H		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+24V2.1A		

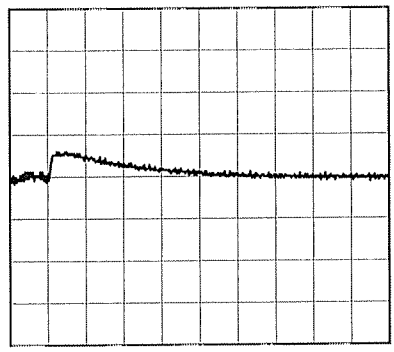
Input Volt. 100 V

Cycle 1000 ms

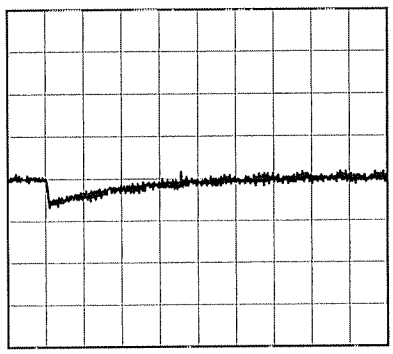
Load Current

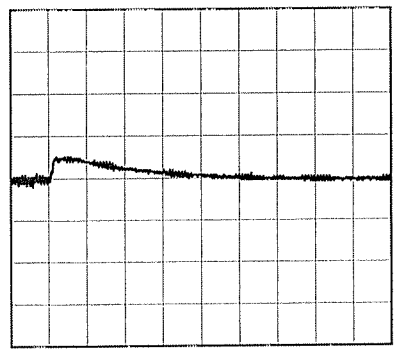
Min. Load (0A) ←→
Load 100% (2.1A)



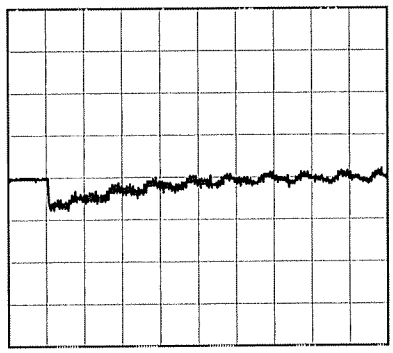


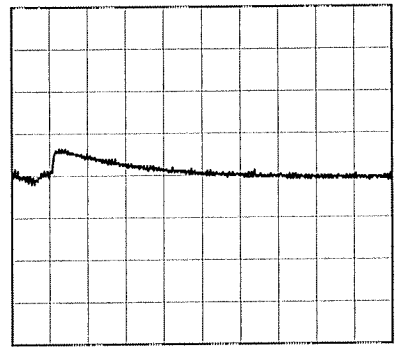
Min. Load (0A) ←→
Load 50% (1.05A)





Min. Load (0A)
Load Peak (3.0A)





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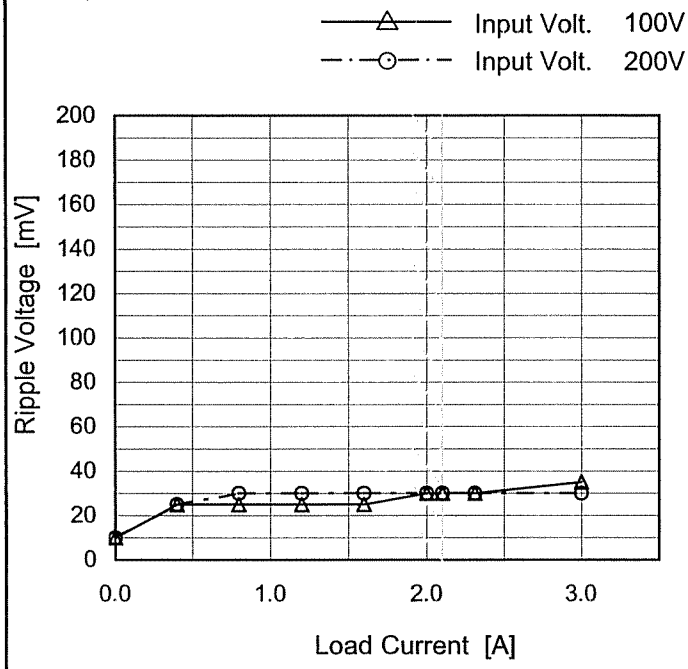
Model	LDA50F-24-H
Item	Ripple Voltage (by Load Current)
Object	+24V2.1A

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

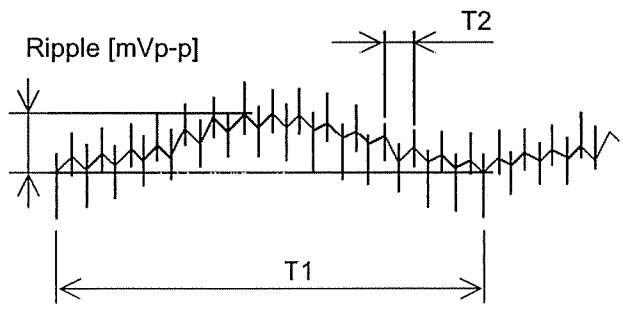


Fig. Complex Ripple Wave Form

2.Values

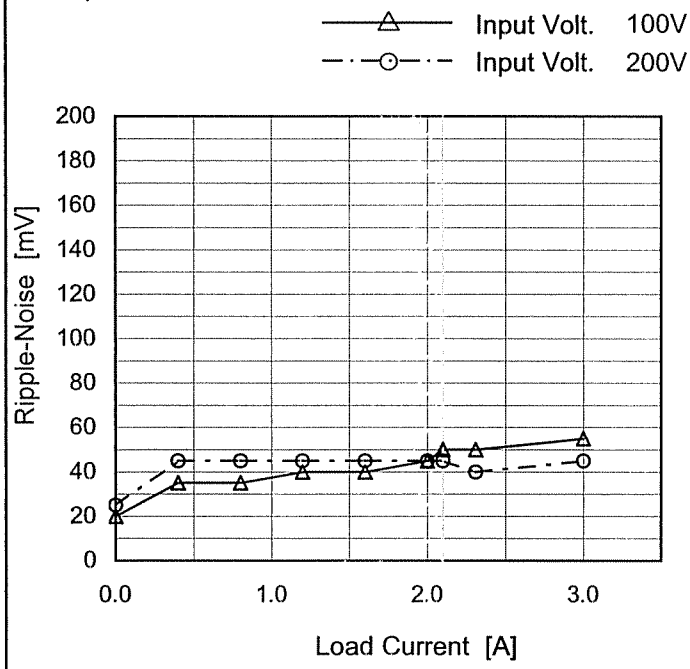
Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 200 [V]
0.00	10	10
0.40	25	25
0.80	25	30
1.20	25	30
1.60	25	30
2.00	30	30
2.10	30	30
2.31	30	30
3.00	35	30
---	-	-
---	-	-

COSEL

Model	LDA50F-24-H
Item	Ripple-Noise
Object	+24V2.1A

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. 100 [V]	Input Volt. 200 [V]
0.00	20	25
0.40	35	45
0.80	35	45
1.20	40	45
1.60	40	45
2.00	45	45
2.10	50	45
2.31	50	40
3.00	55	45
--	-	-
--	-	-

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

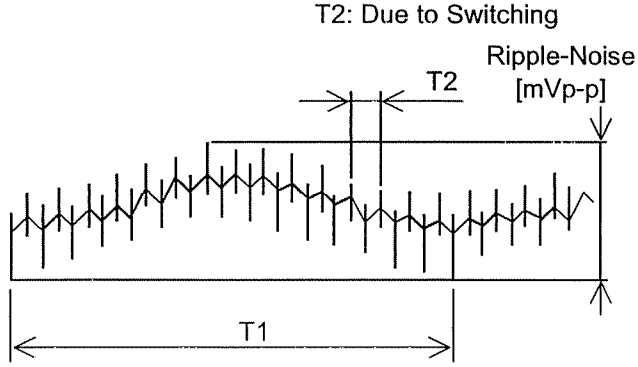


Fig. Complex Ripple Wave Form

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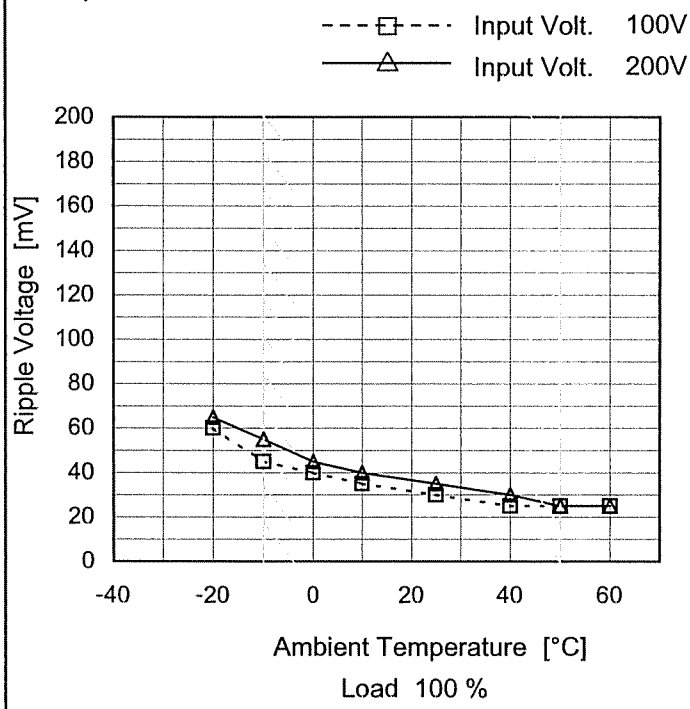
COSEL

Model	LDA50F-24-H
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V2.1A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

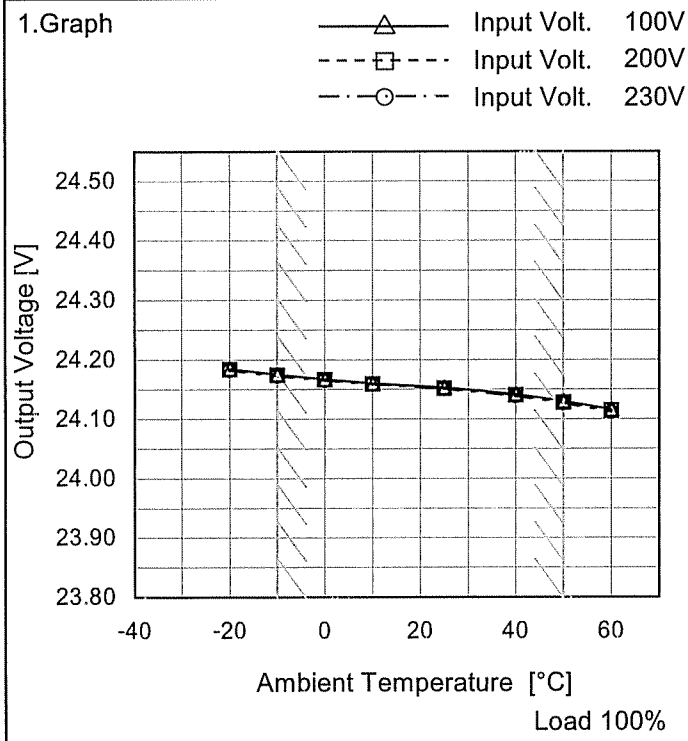
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-20	60	65
-10	45	55
0	40	45
10	35	40
25	30	35
40	25	30
50	25	25
60	25	25
--	-	-
--	-	-
--	-	-

COSEL

Model	LDA50F-24-H
Item	Ambient Temperature Drift
Object	+24V2.1A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	24.185	24.184	24.183
-10	24.176	24.174	24.173
0	24.168	24.167	24.165
10	24.161	24.159	24.159
25	24.153	24.152	24.151
40	24.142	24.140	24.139
50	24.130	24.128	24.127
60	24.116	24.114	24.112
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	LDA50F-24-H	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V2.1A	

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 - 264V
Load Current : 0 - 2.1A

* 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

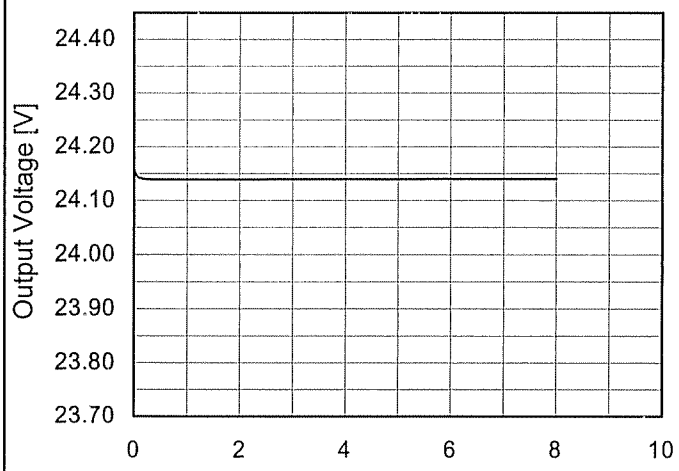
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	264	0	24.175	±26	±0.1
Minimum Voltage	50	264	2.1	24.124		

COSEL

Model	LDA50F-24-H
Item	Time Lapse Drift
Object	+24V2.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

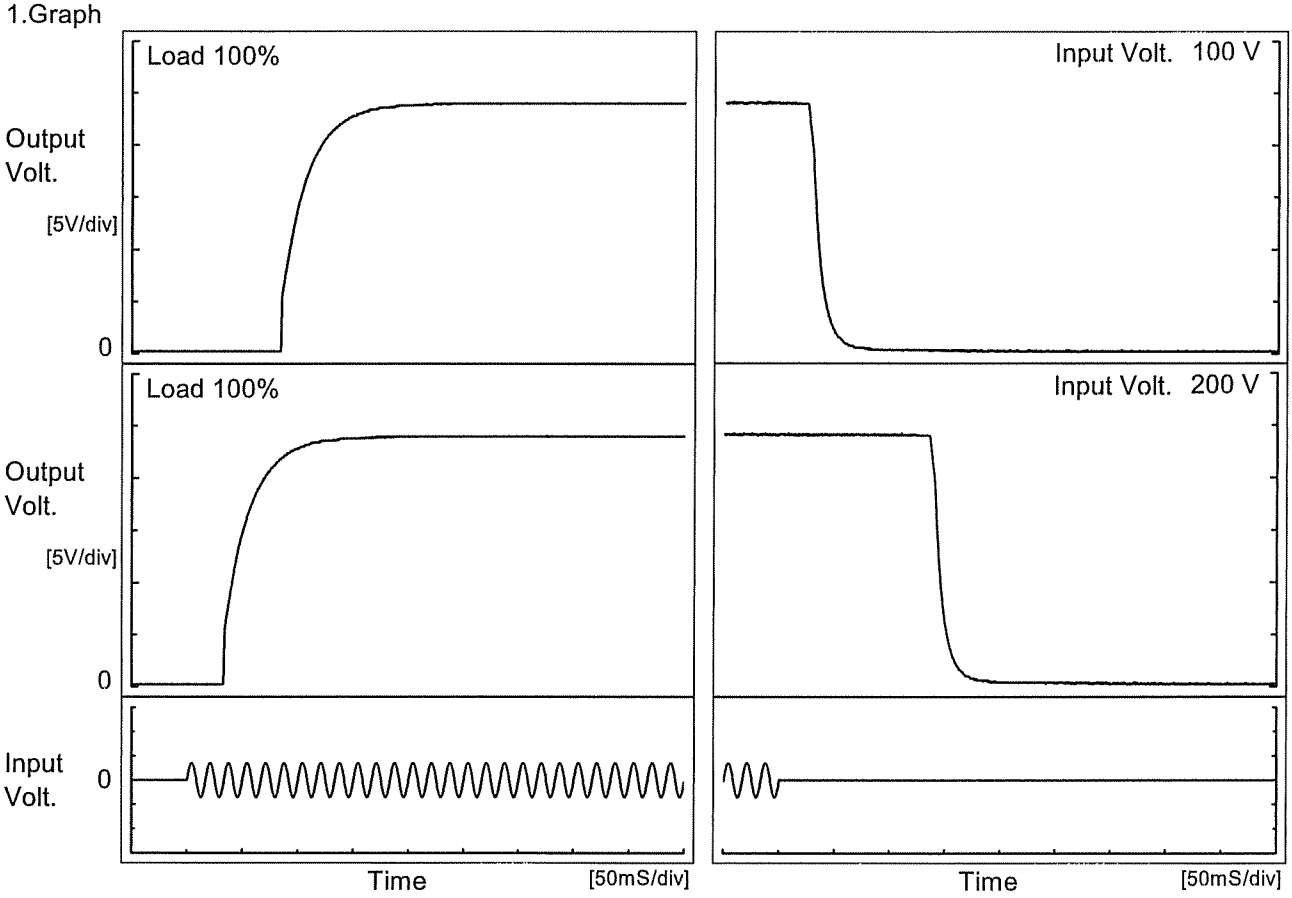
Time since start [H]	Output Voltage [V]
0.0	24.158
0.5	24.139
1.0	24.139
2.0	24.139
3.0	24.140
4.0	24.140
5.0	24.140
6.0	24.140
7.0	24.140
8.0	24.140

COSEL

Model	LDA50F-24-H
Item	Rise and Fall Time
Object	+24V2.1A

Temperature 25°C
Testing Circuitry Figure A

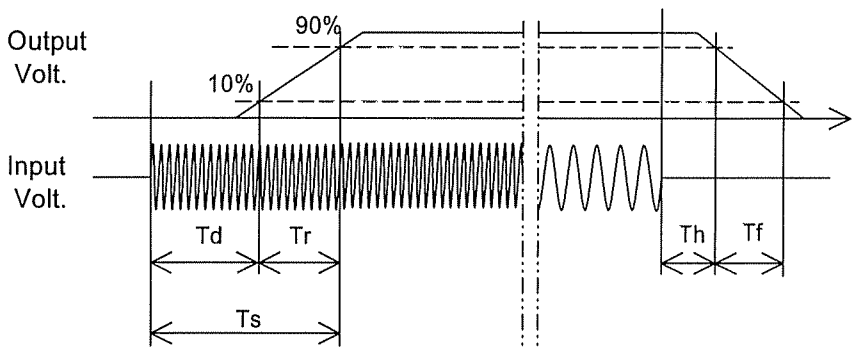
1.Graph



2.Values

[mS]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	84.5	50.5	135.0	27.0	20.0
200 V	33.5	49.8	83.3	138.0	20.5

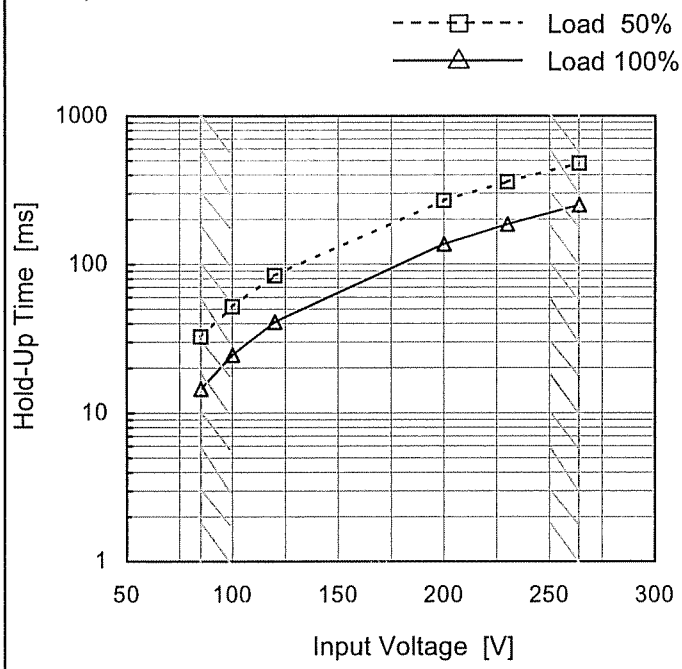


COSEL

Model	LDA50F-24-H
Item	Hold-Up Time
Object	+24V2.1A

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

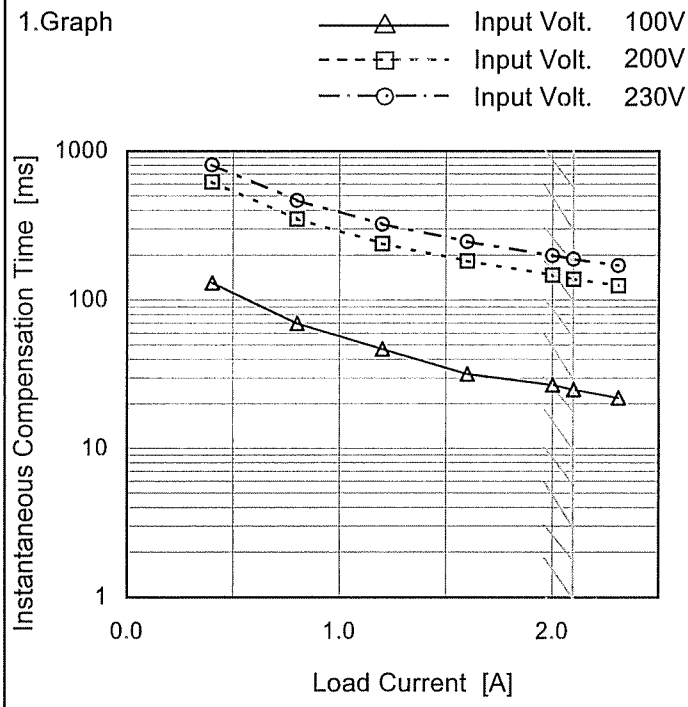
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	33	15
100	52	25
120	84	41
200	268	137
230	359	186
264	478	250
--	-	-
--	-	-
--	-	-

COSEL

Model	LDA50F-24-H
Item	Instantaneous Interruption Compensation
Object	+24V2.1A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	-	-	-
0.40	131	620	807
0.80	70	349	465
1.20	47	240	322
1.60	32	183	247
2.00	27	147	199
2.10	25	138	189
2.31	22	125	171
--	-	-	-
--	-	-	-
--	-	-	-

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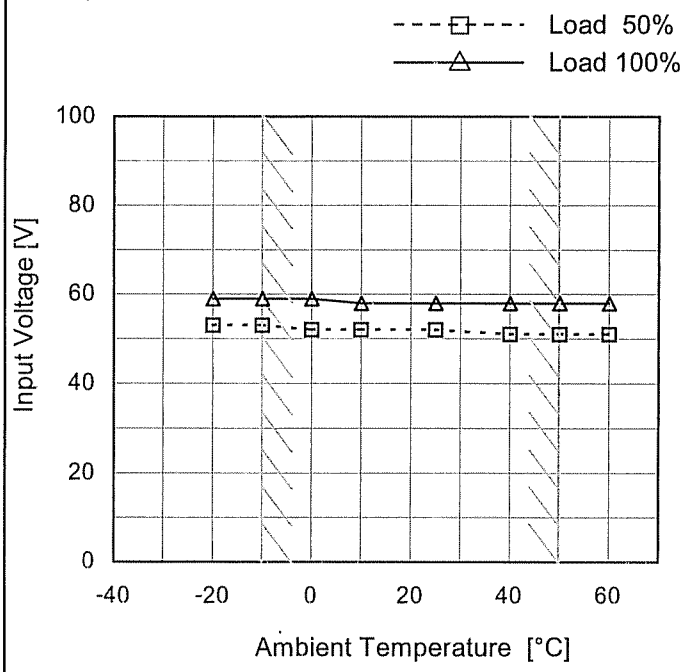
Model	LDA50F-24-H
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V2.1A

Testing Circuitry Figure A

1.Graph



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

2.Values

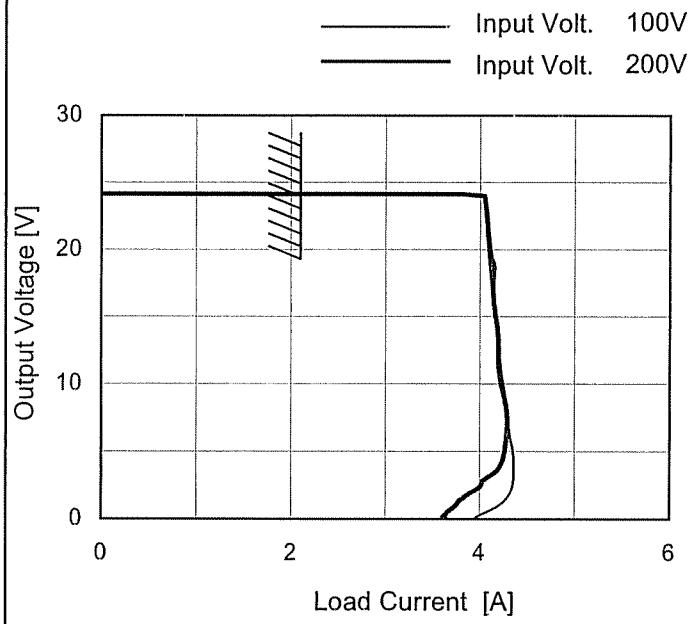
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	53	59
-10	53	59
0	52	59
10	52	58
25	52	58
40	51	58
50	51	58
60	51	58
--	-	-
--	-	-
--	-	-

COSEL

Model	LDA50F-24-H
Item	Overcurrent Protection
Object	+24V2.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

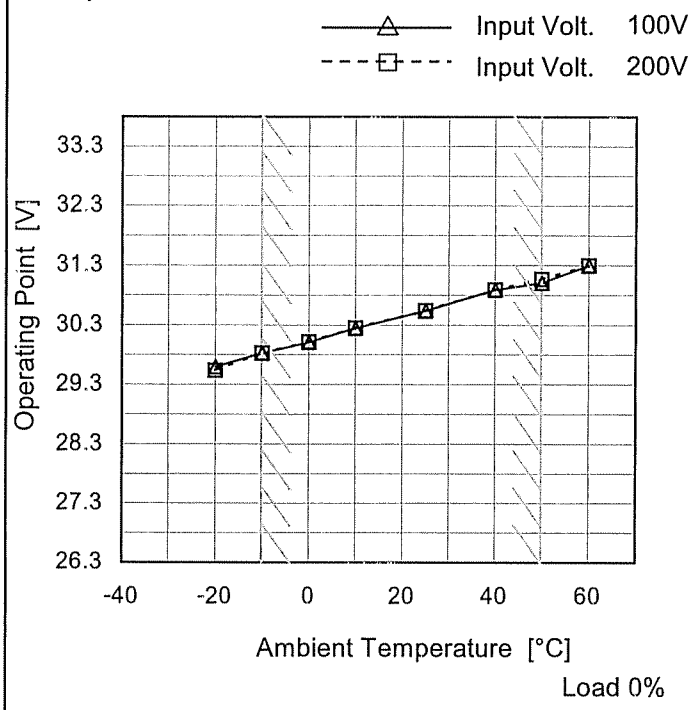
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
24.0	4.05	4.04
22.8	4.05	4.06
21.6	4.07	4.08
19.2	4.09	4.12
16.8	4.13	4.14
14.4	4.17	4.18
12.0	4.21	4.19
9.6	4.25	4.24
7.2	4.30	4.28
4.8	4.35	4.25
2.4	4.34	3.99
0.0	3.90	3.66

COSEL

Model	LDA50F-24-H
Item	Overvoltage Protection
Object	+24V2.1A

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. 100[V]	Operating Point [V] Input Volt. 200[V]
-20	29.58	29.52
-10	29.81	29.81
0	29.99	30.00
10	30.23	30.23
25	30.52	30.52
40	30.87	30.87
50	30.99	31.05
60	31.28	31.28
--	-	-
--	-	-
--	-	-

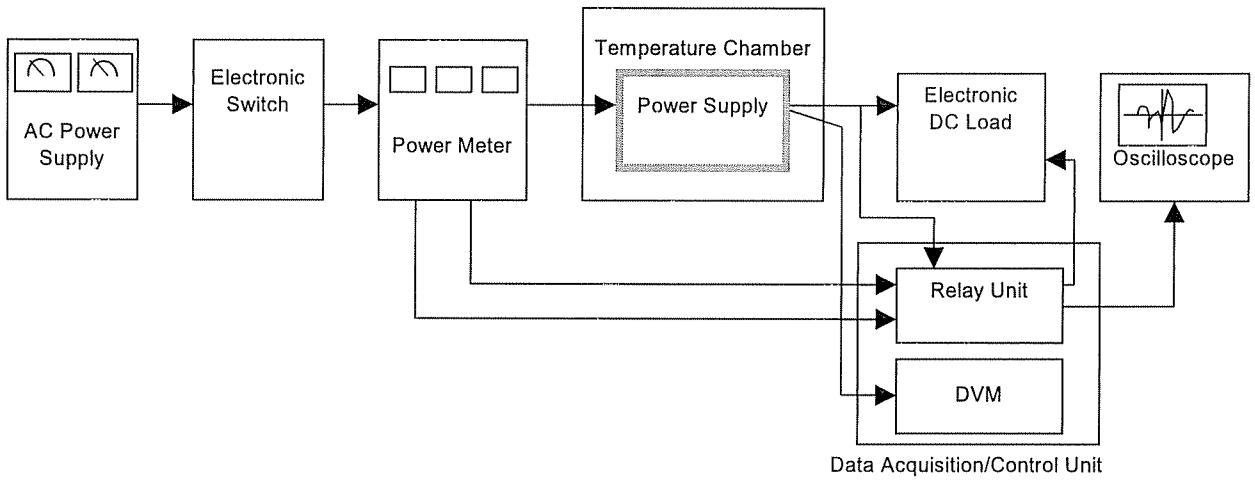


Figure A

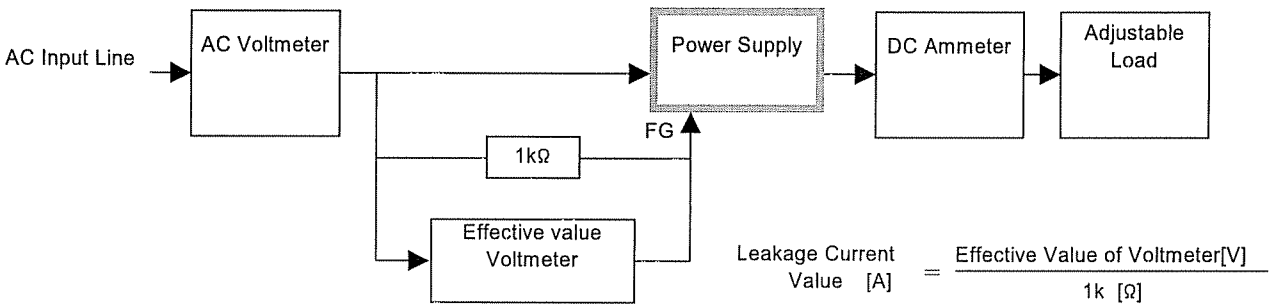


Figure B (DEN-AN)

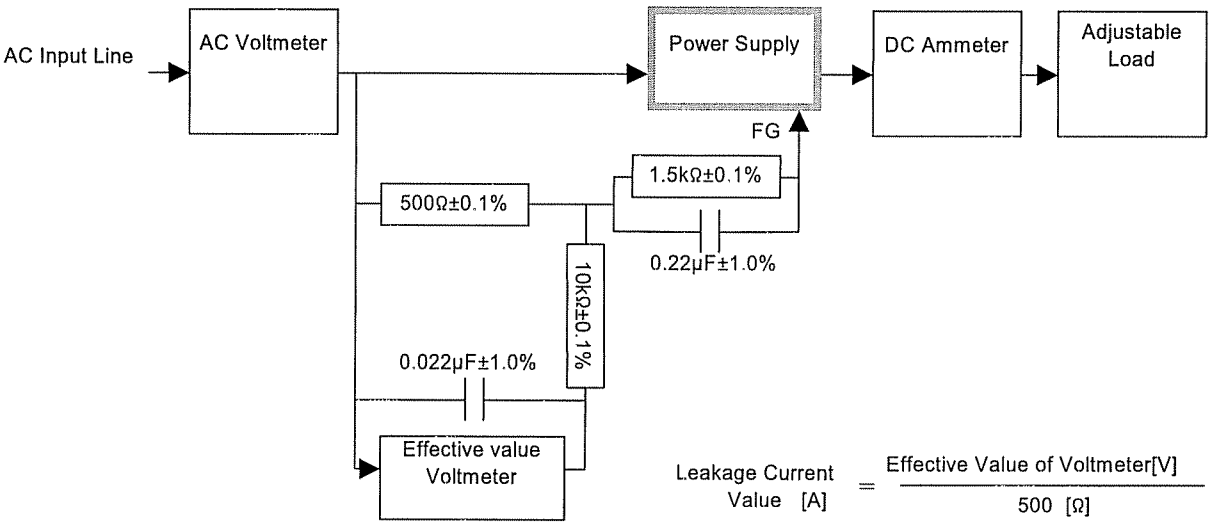


Figure B (IEC60950)