参考資料

COSEL

TEST DATA OF LEA100F-48

(100V INPUT)

Regulated DC Power Supply

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コーセル株式会社

COSEL CO.,LTD.

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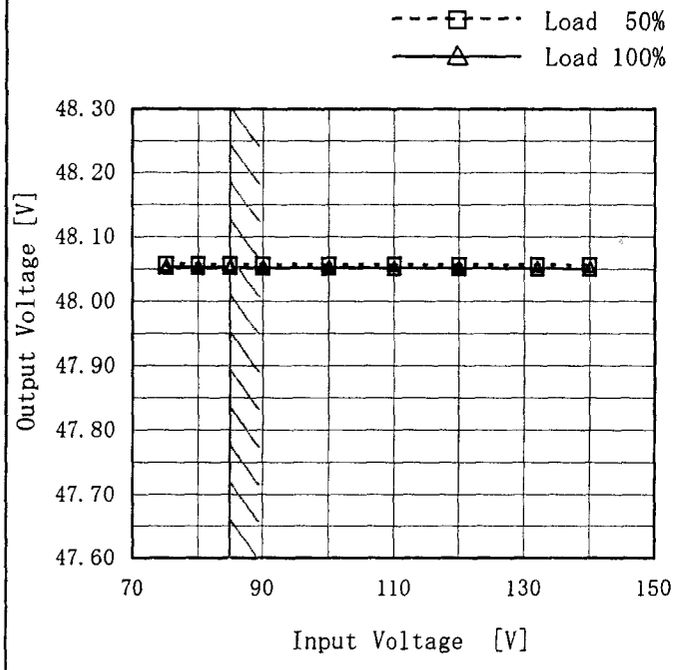
Model	LEA100F-48
Item	Line Regulation 静的入力変動
Object	+48V2.2A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格入力電圧範囲を示す。

2. Values

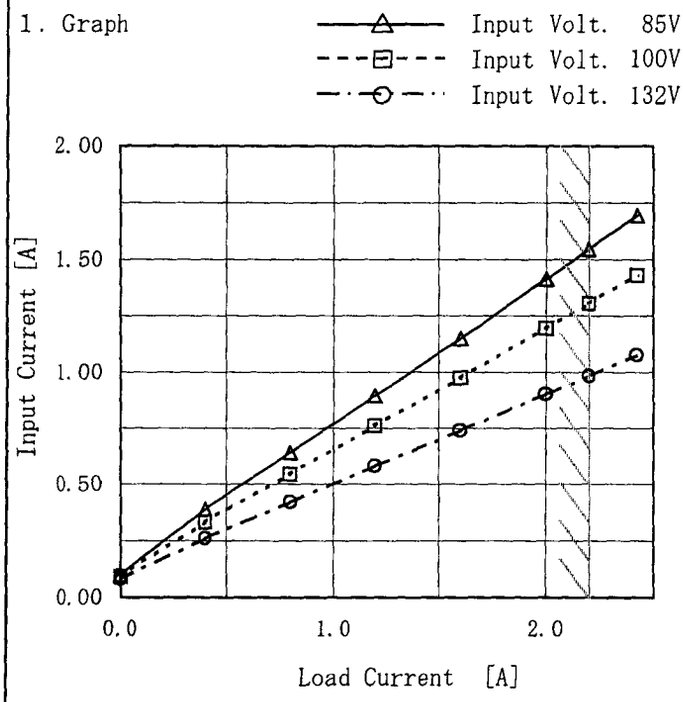
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	48.058	48.054
80	48.058	48.053
85	48.058	48.053
90	48.057	48.052
100	48.057	48.052
110	48.057	48.052
120	48.057	48.052
132	48.057	48.051
140	48.056	48.051

COSEL

Model	LEA100F-48
Item	Input Current (by Load Current) 入力電流（負荷特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.098	0.089	0.079
0.40	0.388	0.333	0.261
0.80	0.640	0.545	0.419
1.20	0.895	0.760	0.580
1.60	1.150	0.974	0.739
2.00	1.414	1.195	0.904
2.20	1.546	1.305	0.983
2.42	1.696	1.431	1.076
—	—	—	—
—	—	—	—
—	—	—	—

BC−0820

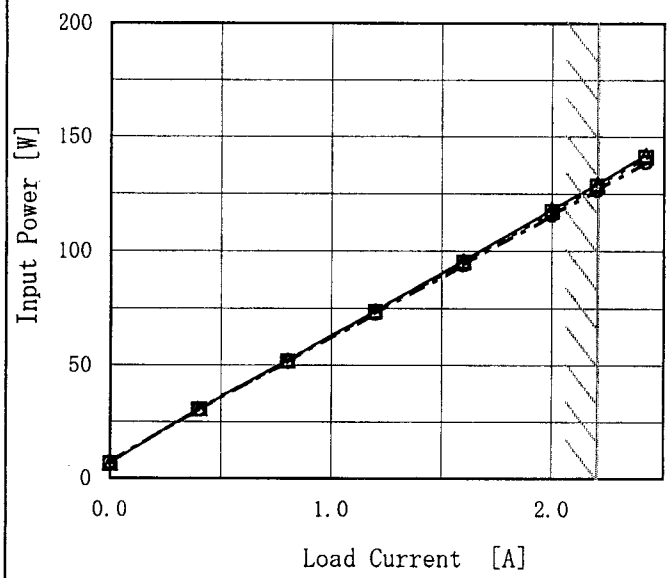
COSEL

Model	LEA100F-48
Item	Input Power (by Load Current) 入力電力（負荷特性）
Object	――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph

―△― Input Volt. 85V
- - -□- - - Input Volt. 100V
―·○·― Input Volt. 132V



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

（注）斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	6.5	6.6	6.7
0.40	30.7	30.5	30.2
0.80	52.2	51.8	51.2
1.20	73.9	73.5	72.6
1.60	95.8	95.0	93.9
2.00	118.2	117.2	115.8
2.20	129.3	128.3	126.4
2.42	142.0	140.9	138.6
--	—	—	—
--	—	—	—
--	—	—	—

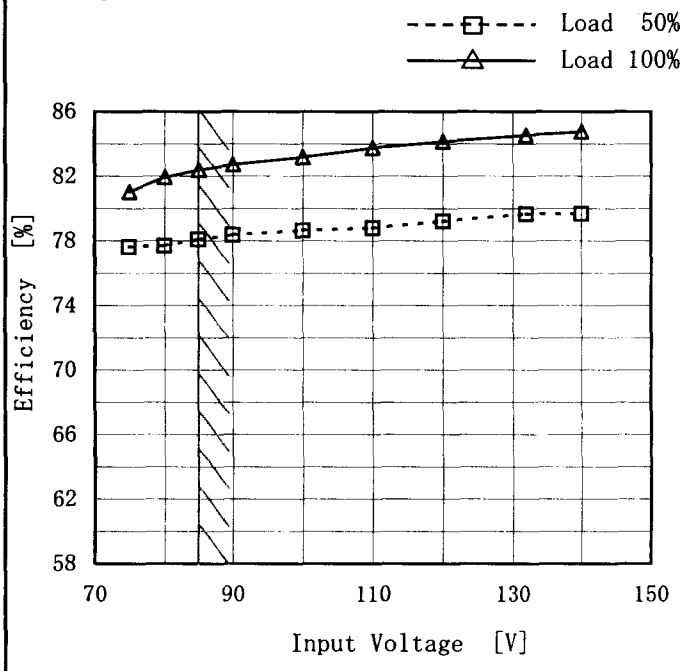
BC－0820

COSEL

Model	LEA100F-48
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	――――――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格入力電圧範囲を示す。

2. Values

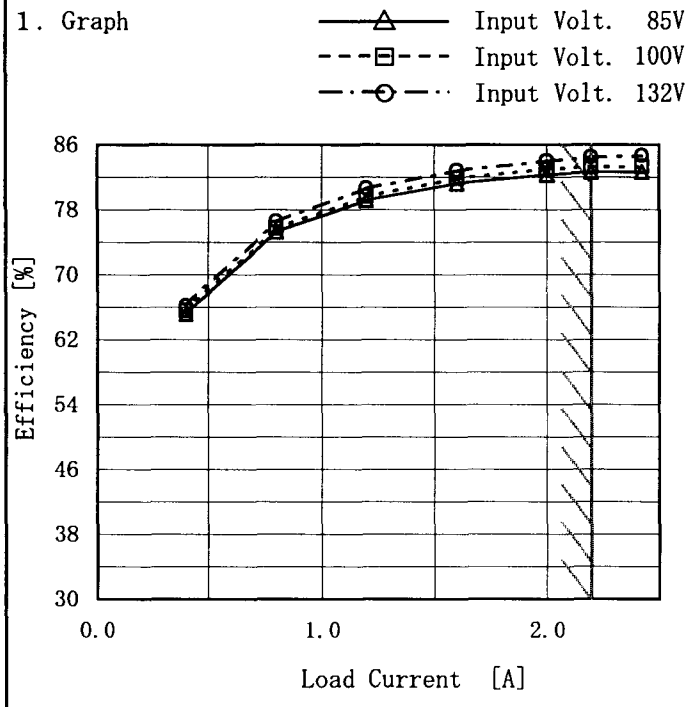
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	77.6	81.0
80	77.7	81.9
85	78.1	82.4
90	78.4	82.7
100	78.7	83.2
110	78.8	83.8
120	79.2	84.2
132	79.7	84.5
140	79.7	84.8

COSEL

Model	LEA100F-48
Item	Efficiency (by Load Current) 効率 (負荷特性)
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	—	—	—
0.40	65.2	65.6	66.2
0.80	75.3	75.7	76.6
1.20	79.2	79.6	80.7
1.60	81.2	81.9	82.8
2.00	82.3	83.0	84.0
2.20	82.6	83.3	84.5
2.42	82.7	83.3	84.7
--	—	—	—
--	—	—	—
--	—	—	—

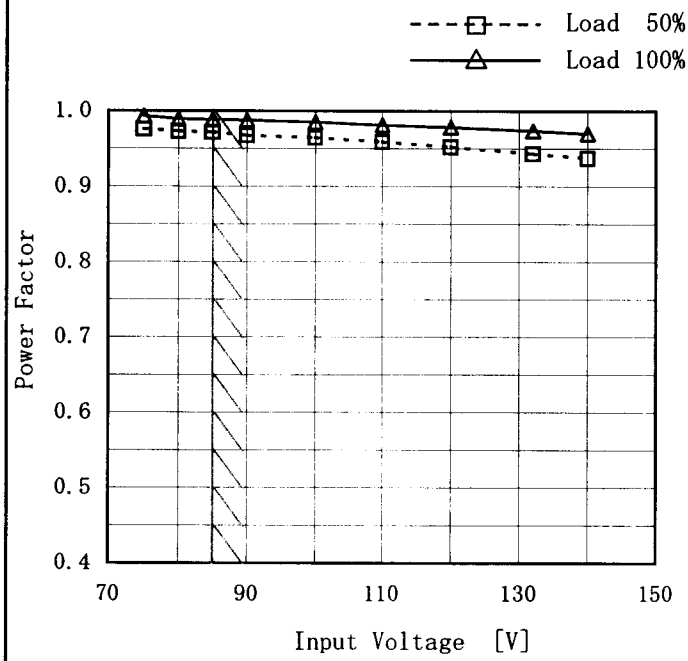
BC−0820

COSEL

Model	LEA100F-48
Item	Power Factor (by Input Voltage) 力率（入力電圧特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格入力電圧範囲を示す。

2. Values

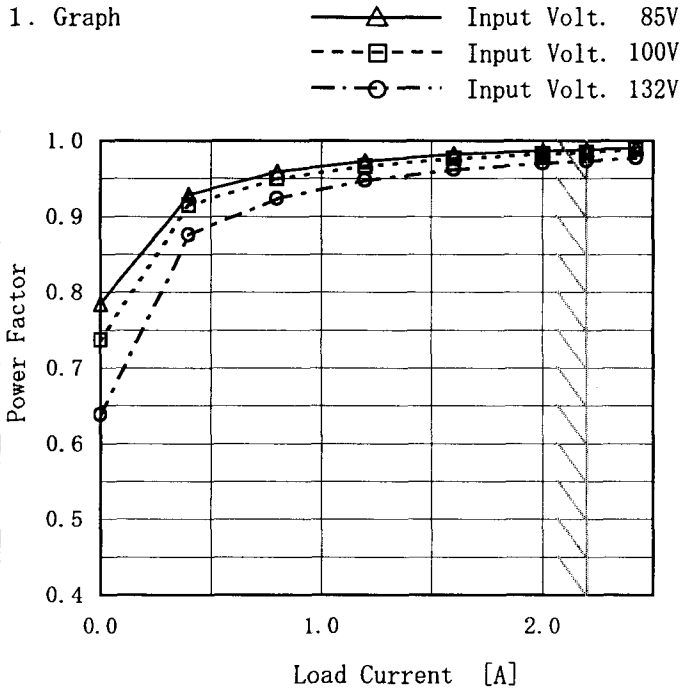
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.976	0.993
80	0.973	0.989
85	0.972	0.989
90	0.967	0.988
100	0.965	0.985
110	0.959	0.982
120	0.952	0.978
132	0.943	0.974
140	0.937	0.970

COSEL

Model	LEA100F-48
Item	Power Factor (by Load Current) 力率 (負荷特性)
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格負荷電流範囲を示す。

2. Values

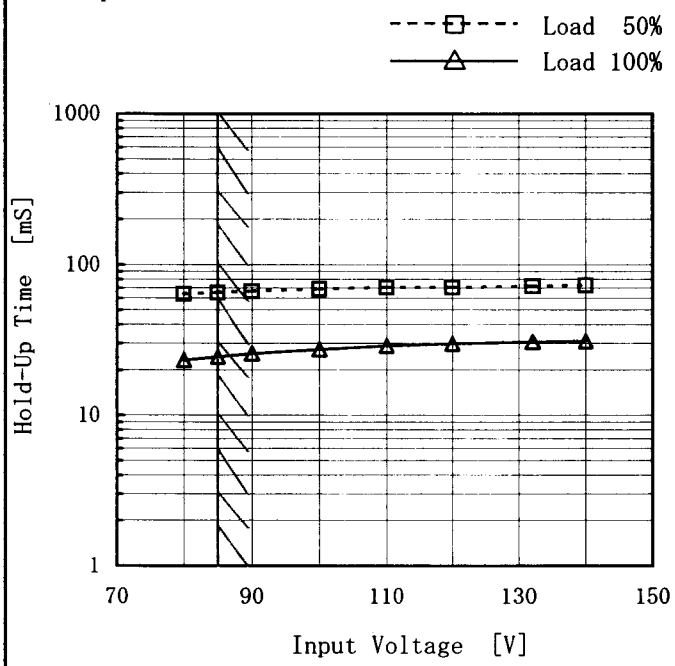
Load Current [A]	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.784	0.737	0.638
0.40	0.929	0.915	0.876
0.80	0.959	0.950	0.924
1.20	0.973	0.967	0.948
1.60	0.982	0.977	0.962
2.00	0.987	0.982	0.971
2.20	0.988	0.985	0.974
2.42	0.990	0.988	0.977
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	LEA100F-48
Item	Hold-Up Time 出力保持時間
Object	+48V2.2A

Temperature 25℃
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.

出力保持時間とは、入力電圧断から出力電圧が定電圧精度の範囲を保持しているところまでの時間。
（注）斜線は定格入力電圧範囲を示す。

2. Values

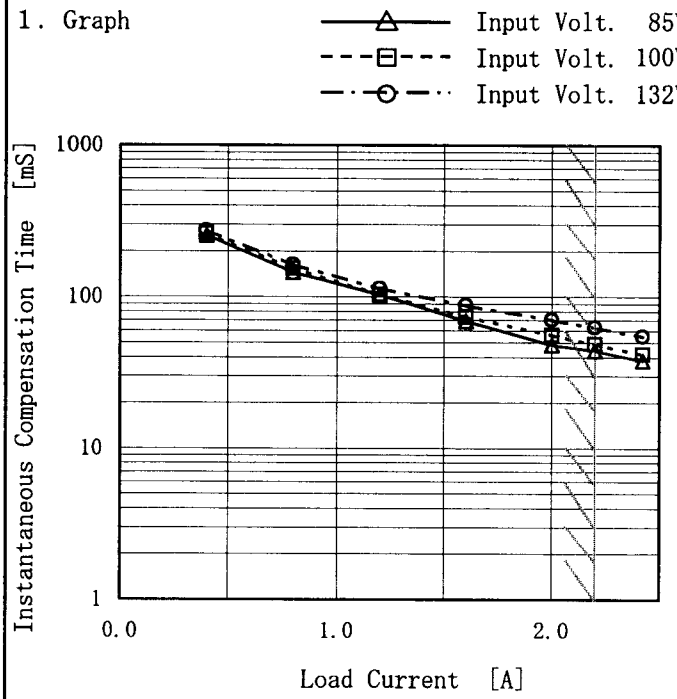
Input Voltage [V]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	—	—
80	64	23
85	65	25
90	67	26
100	69	27
110	71	29
120	71	30
132	72	31
140	73	31

COSEL

Model	LEA100F-48
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+48V2.2A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格負荷電流範囲を示す。

2. Values

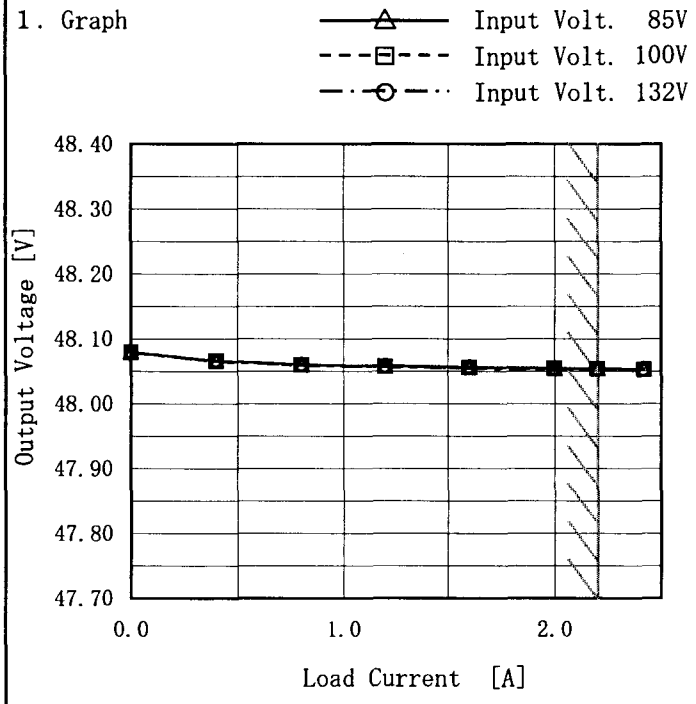
Load Current [A]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	—	—	—
0.40	253	262	272
0.80	145	154	163
1.20	103	104	113
1.60	69	74	88
2.00	48	56	71
2.20	44	49	63
2.42	38	42	55
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	LEA100F-48
Item	Load Regulation 静的負荷変動
Object	+48V2.2A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格負荷電流範囲を示す。

2. Values

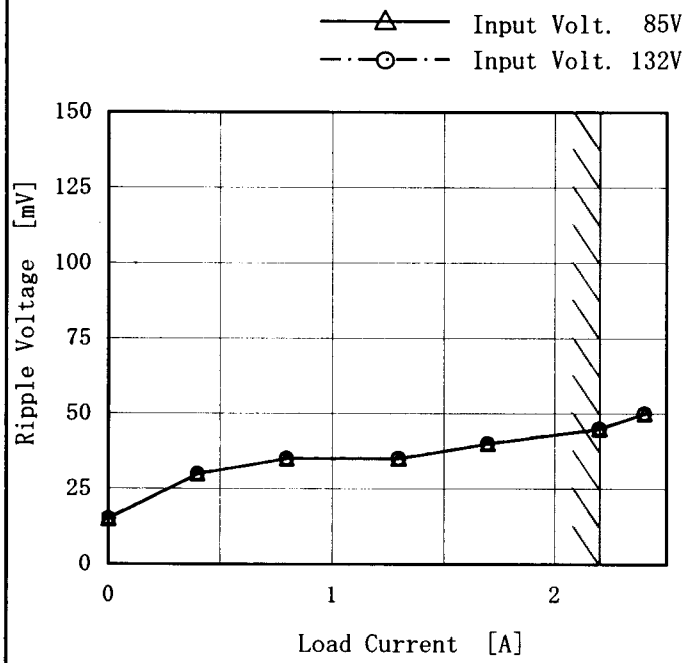
Load Current [A]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	48.079	48.079	48.080
0.40	48.066	48.066	48.066
0.80	48.060	48.060	48.060
1.20	48.058	48.058	48.057
1.60	48.057	48.056	48.056
2.00	48.055	48.054	48.054
2.20	48.054	48.054	48.053
2.42	48.054	48.053	48.052
--	—	—	—
--	—	—	—

COSEL

Model	LEA100F-48
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）
Object	+48V2.2A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

リップル電圧は、下図ｐ－ｐ値で示される。
（注）斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

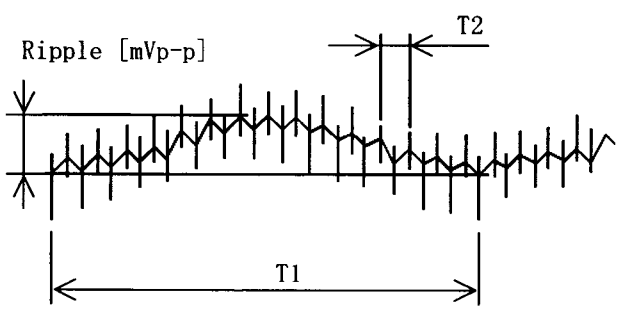


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

2. Values

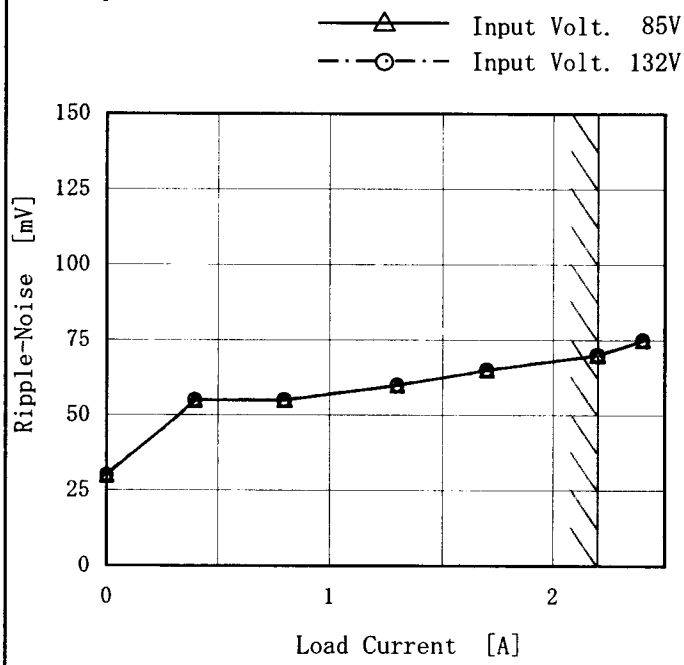
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	15	15
0.4	30	30
0.8	35	35
1.3	35	35
1.7	40	40
2.2	45	45
2.4	50	50
--	—	—
--	—	—
--	—	—
--	—	—

COSEL

Model	LEA100F-48
Item	Ripple-Noise リップルノイズ
Object	+48V2.2A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

リップルノイズは、下図ｐ－ｐ値で示される。
（注）斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

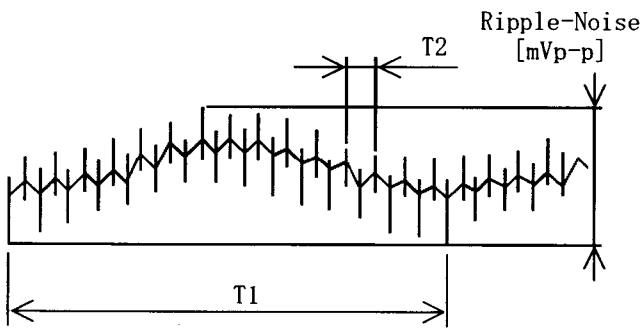


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

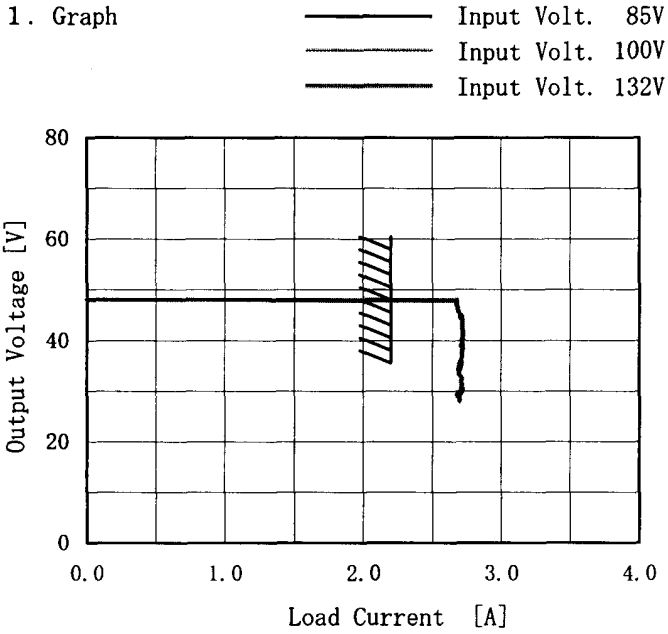
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	30	30
0.4	55	55
0.8	55	55
1.3	60	60
1.7	65	65
2.2	70	70
2.4	75	75
--	—	—
--	—	—
--	—	—
--	—	—

COSEL

Model	LEA100F-48
Item	Overcurrent Protection 過電流保護
Object	+48V2.2A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated load current.
(注) 斜線は定格負荷電流範囲を示す。

Intermittent operation occurs when the output voltage is from 28V to 0V.
28V～0V間は、間欠モードとなる。

2. Values

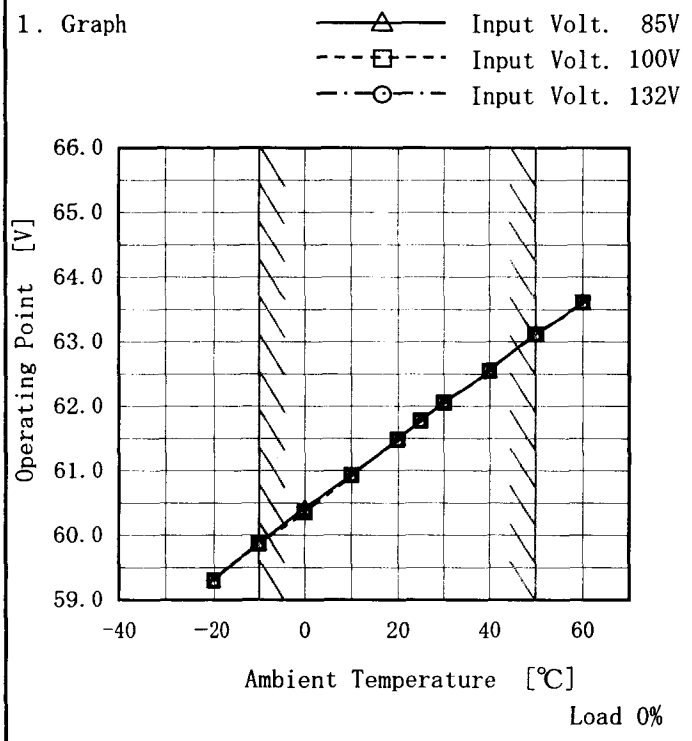
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
48.0	2.67	2.68	2.68
45.6	2.69	2.69	2.69
43.2	2.72	2.72	2.72
38.4	2.72	2.71	2.72
33.6	2.70	2.70	2.69
28.8	2.68	2.69	2.69
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	LEA100F-48
Item	Overvoltage Protection 過電圧保護
Object	+48V2.2A

Testing Circuitry Figure A

1. Graph



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

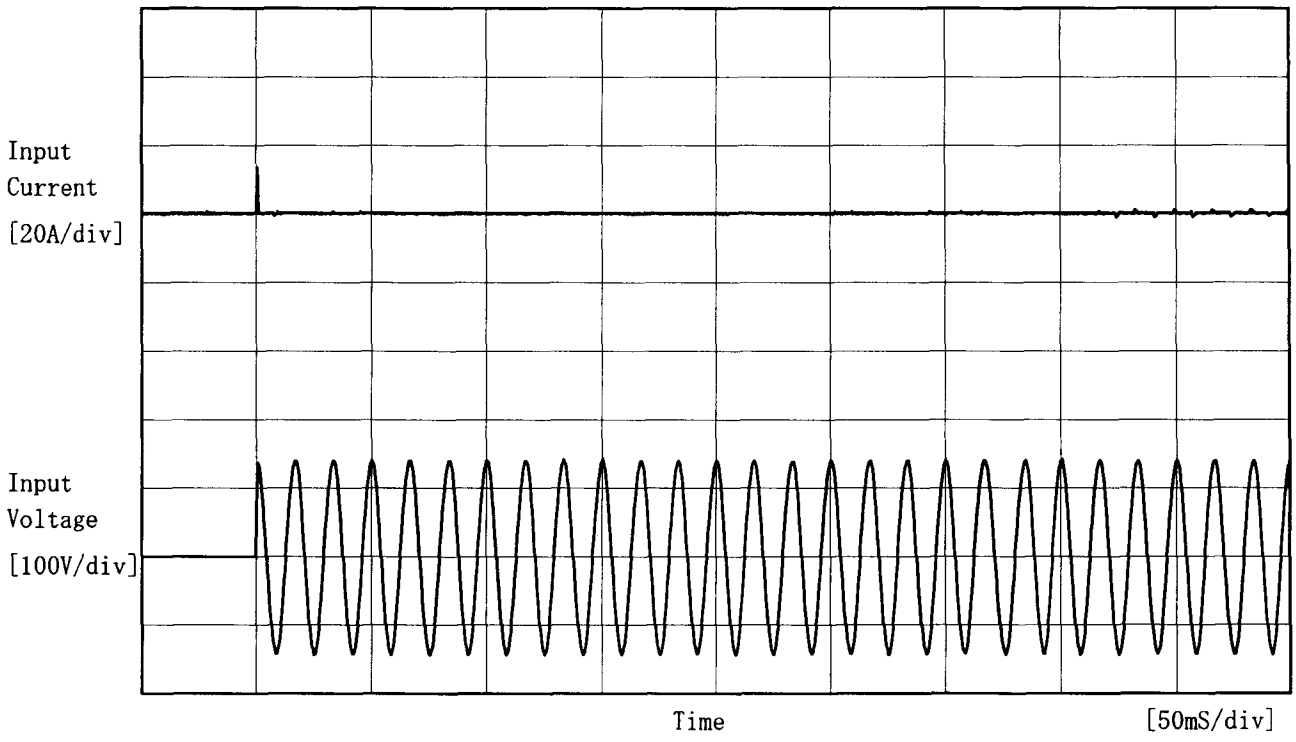
(注) 斜線は定格周囲温度範囲を示す。

2. Values

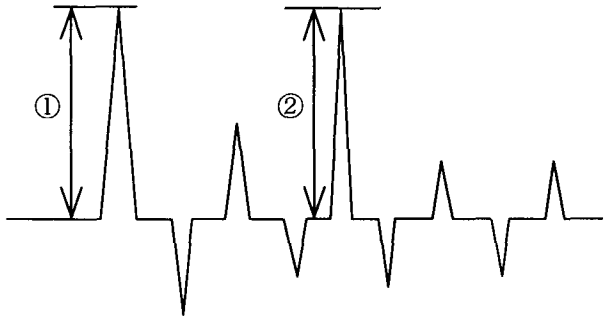
Ambient Temperature [℃]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	59.30	59.30	59.30
-10	59.87	59.87	59.87
0	60.43	60.36	60.36
10	60.93	60.93	60.93
20	61.49	61.49	61.49
25	61.78	61.78	61.78
30	62.06	62.06	62.06
40	62.55	62.55	62.55
50	63.12	63.12	63.12
60	63.61	63.61	63.61
--	—	—	—

COSEL

Model	LEA100F-48		
Item	Inrush Current 突入電流	Temperature Testing Circuitry	25℃ Figure A
Object	――――――		



Input Voltage 100 V
Frequency 60 Hz
Load 100 %
Inrush Current
① 13.6 [A]
② 1.2 [A]



COSEL

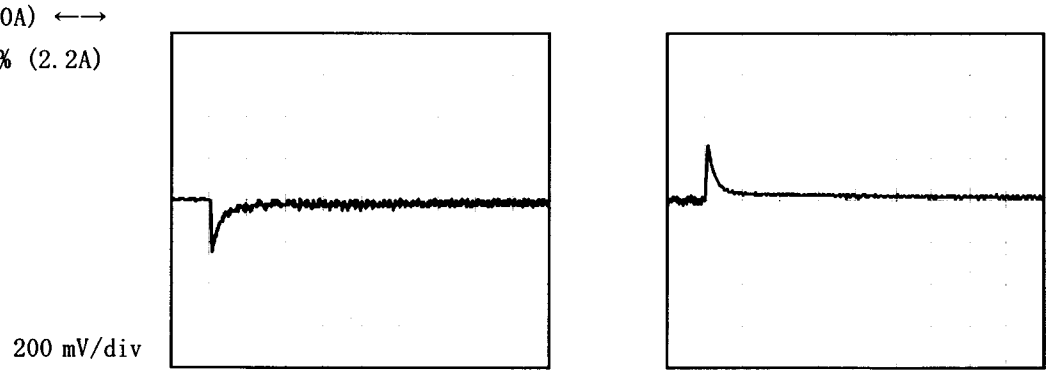
Model	LEA100F-48		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+48V2.2A		

Input Volt. 100 V

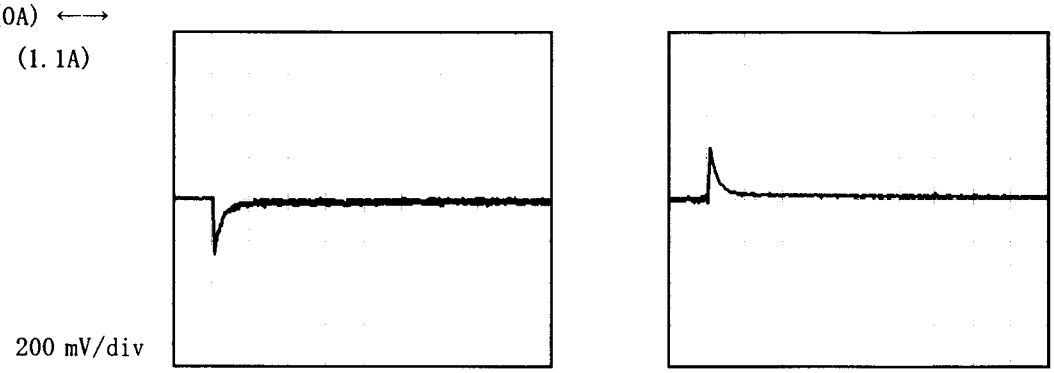
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (2.2A)



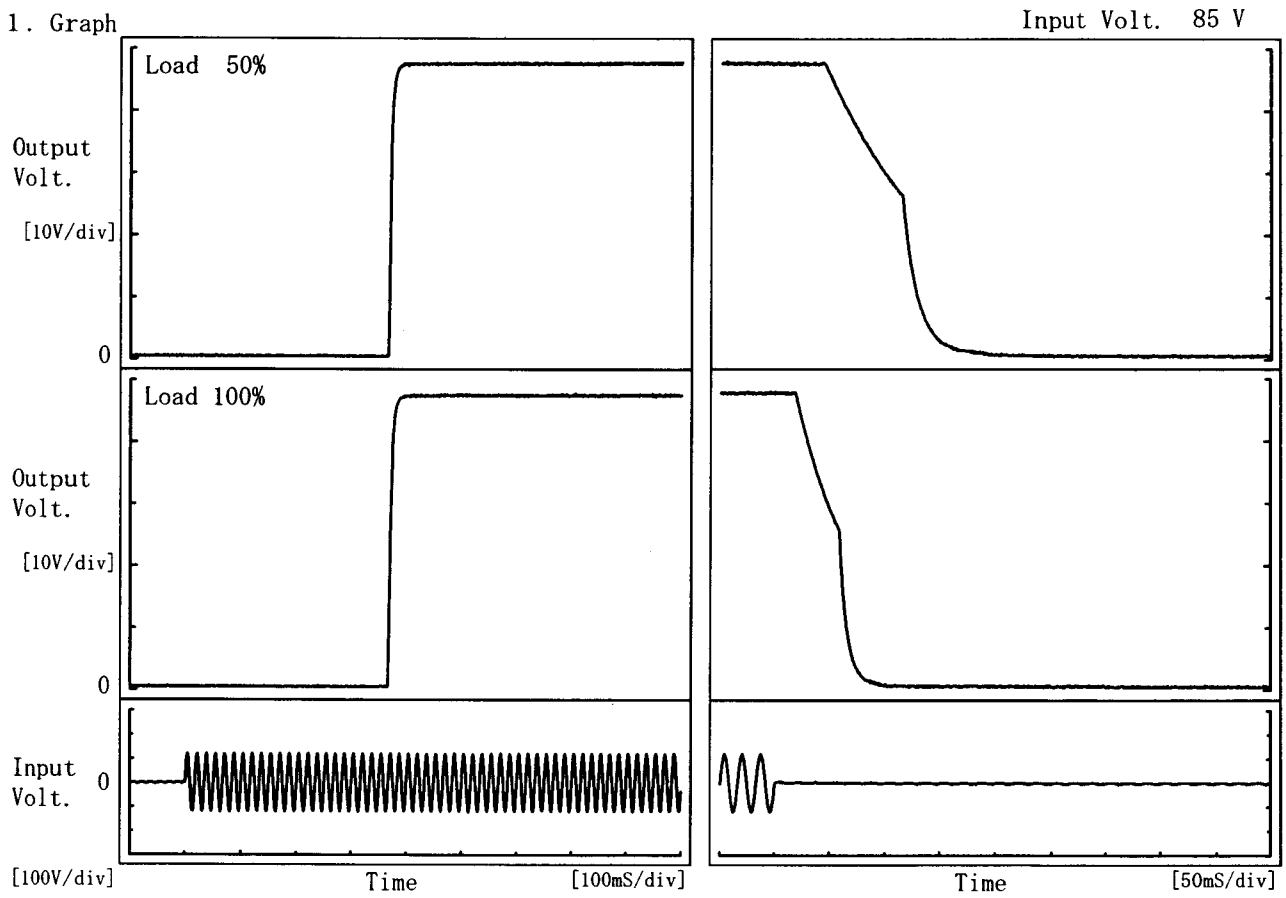
Min. Load (0A) ⟷
Load 50% (1.1A)



COSEL

Model	LEA100F-48		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+48V2.2A		

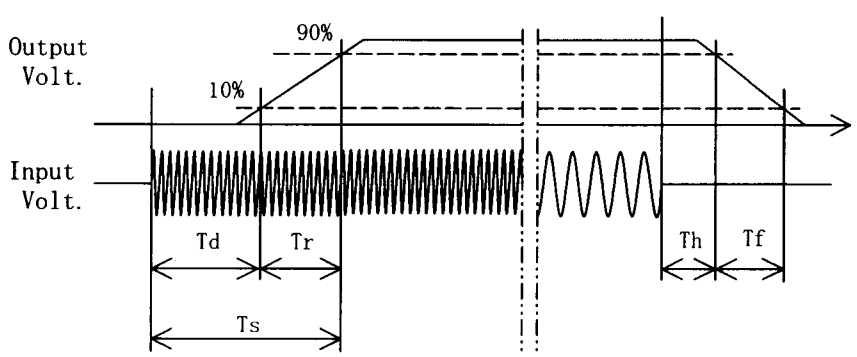
1. Graph



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	367.0	10.0	377.0	55.5	83.8
100 %	367.0	11.0	378.0	24.0	46.8



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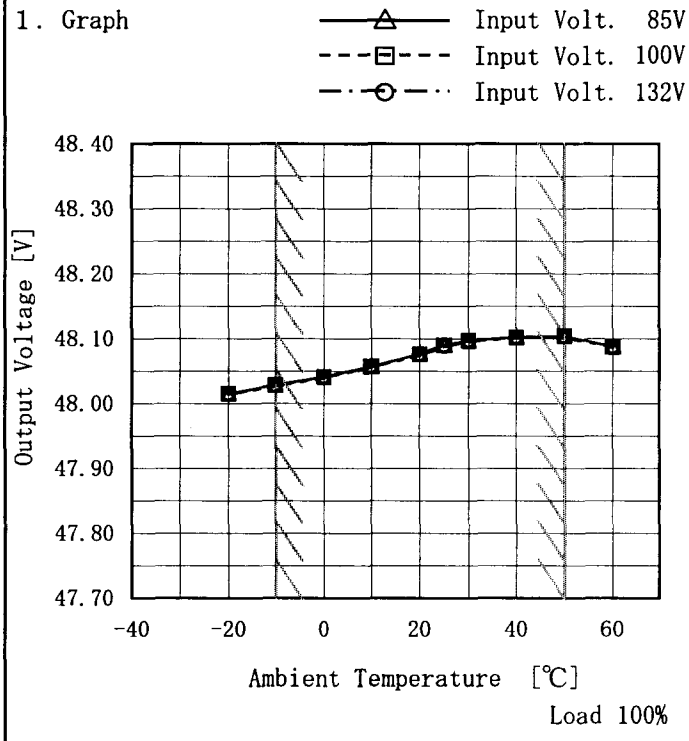
COSEL

Model	LEA100F-48
Item	Ambient Temperature Drift 周囲温度変動
Object	+48V2.2A

Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格周囲温度範囲を示す。

2. Values

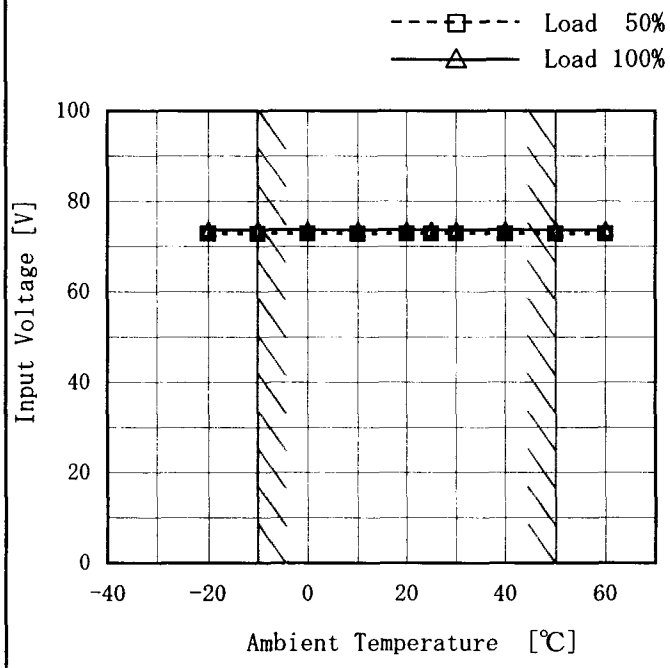
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	48.016	48.016	48.015
-10	48.028	48.028	48.027
0	48.042	48.041	48.040
10	48.058	48.057	48.057
20	48.076	48.076	48.075
25	48.090	48.090	48.088
30	48.097	48.097	48.096
40	48.103	48.102	48.101
50	48.105	48.104	48.103
60	48.088	48.087	48.087
--	—	—	—

COSEL

Model	LEA100F-48
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+48V2.2A

Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格周囲温度範囲を示す。

2. Values

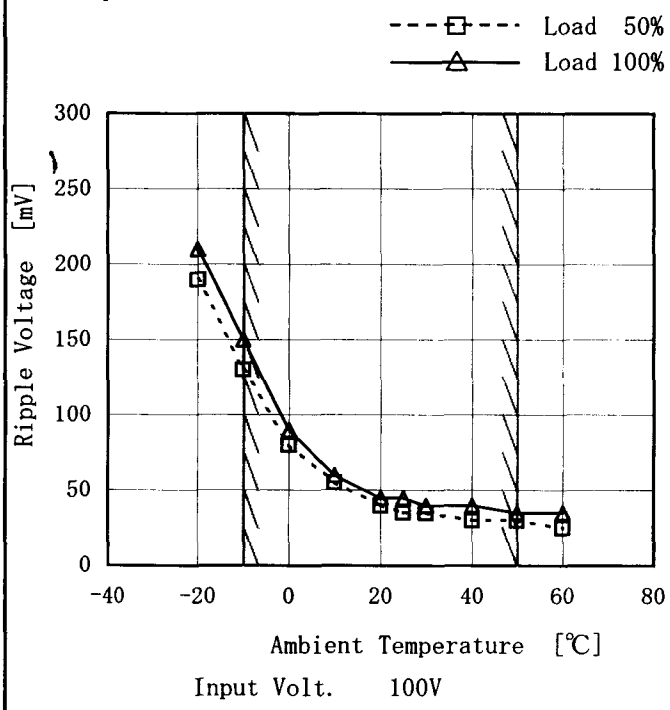
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	73	74
-10	73	74
0	73	74
10	73	74
20	73	74
25	73	74
30	73	74
40	73	74
50	73	74
60	73	74
--	—	—

COSEL

Model	LEA100F-48
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+48V2.2A

Testing Circuitry Figure A

1. Graph



Input Volt. 100V

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

(注) 斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temperature [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	190	210
-10	130	150
0	80	90
10	55	60
20	40	45
25	35	45
30	35	40
40	30	40
50	30	35
60	25	35
--	—	—

COSEL

Model	LEA100F-48	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+48V2.2A	

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℃

Input Voltage : 85 ～ 132V

Load Current : 0 ～ 2.2A

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

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage}}{\text{Rated Output Voltage}} \times 100$$

1. 定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 : -10 ～ 50℃

入力電圧 : 85 ～ 132V

負荷電流 : 0 ～ 2.2A

* 定電圧精度(変動値) = ±(出力電圧の最高値−出力電圧の最低値)／2

$$\text{* 定電圧精度(変動率)} = \frac{\text{変動値}}{\text{定格出力電圧}} \times 100$$

2. Values

Item	Temperature [℃]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	132	0	12.071	±17	±0.1
Minimum Voltage	55	85	0.9	12.037		

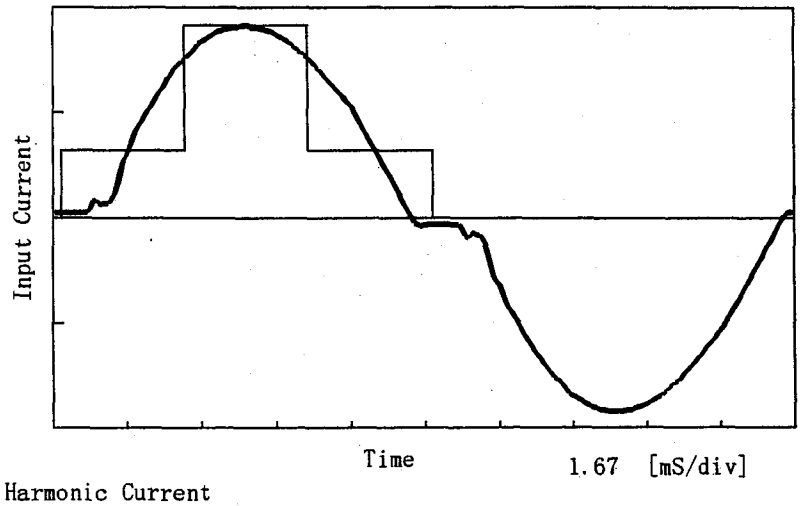
COSEL

Model	LEA100F-48		
Item	Harmonic Current 高調波電流	Temperature Testing Circuitry	25℃ Figure E
Object	————		

1. Input Current Waveform

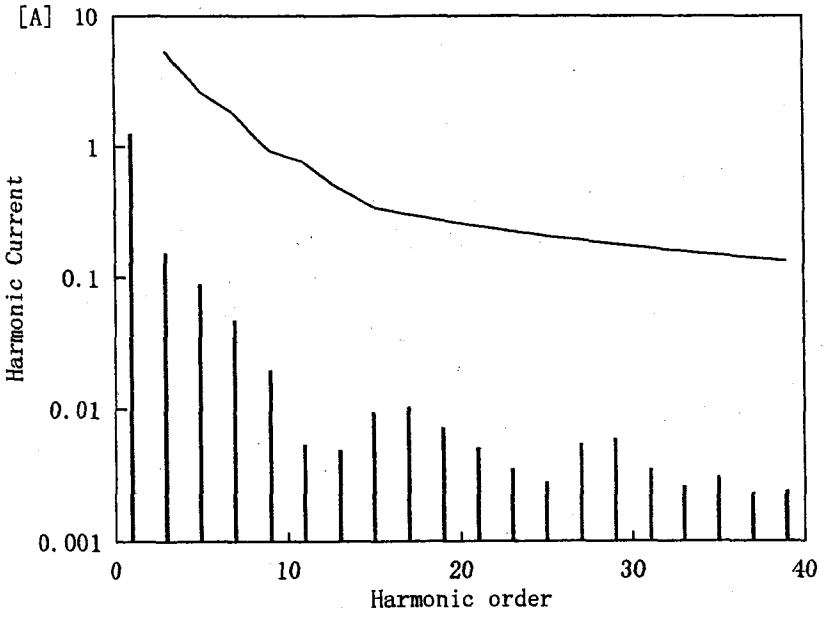
——— Input Current

——— Envelope of the input current to classify equipment as Class D
クラスDの機器を決定するための入力電流包絡線



Conditions	Values
Input Voltage [V]	99.9
Input Current [A]	1.279
Active Power [W]	126.3
Apparent Power[VA]	127.8
Frequency [Hz]	60
Power Factor	0.988
Output Power [W]	105.6

2. Harmonic Current



——— Harmonic Current
高調波電流

——— Limits for Class A equipment
クラスAの機器に対する限度値

Harmonics order 高調波次数	Limits 限度値 [A]	Values 測定値 [A]
1	—	1.26500
2	—	0.00050
3	5.29530	0.15460
4	—	0.00030
5	2.62462	0.08980
6	—	0.00010
7	1.77277	0.04740
8	—	0.00000
9	0.92092	0.01980
10	—	0.00010
11	0.75976	0.00540
12	—	0.00010
13	0.48348	0.00490
14	—	0.00010
15	0.34535	0.00950
16	—	0.00000
17	0.30472	0.01030
18	—	0.00000
19	0.27264	0.00720
20	—	0.00000
21	0.24668	0.00510
22	—	0.00010
23	0.22523	0.00350
24	—	0.00010
25	0.20721	0.00280
26	—	0.00000
27	0.19186	0.00540
28	—	0.00000
29	0.17863	0.00590
30	—	0.00000
31	0.16710	0.00350
32	—	0.00000
33	0.15698	0.00260
34	—	0.00000
35	0.14801	0.00310
36	—	0.00010
37	0.14000	0.00230
38	—	0.00000
39	0.13283	0.00240
40	—	0.00000

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COSEL

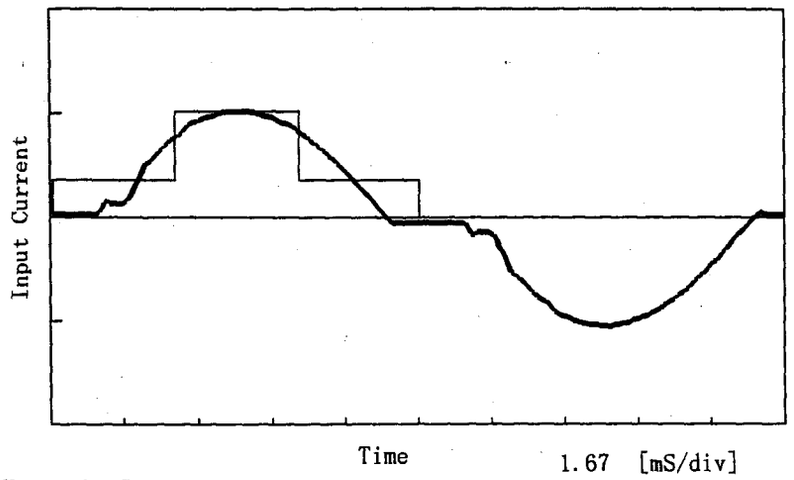
Model	LEA100F-48
Item	Harmonic Current 高調波電流
Object	———

Temperature 25℃
Testing Circuitry Figure E

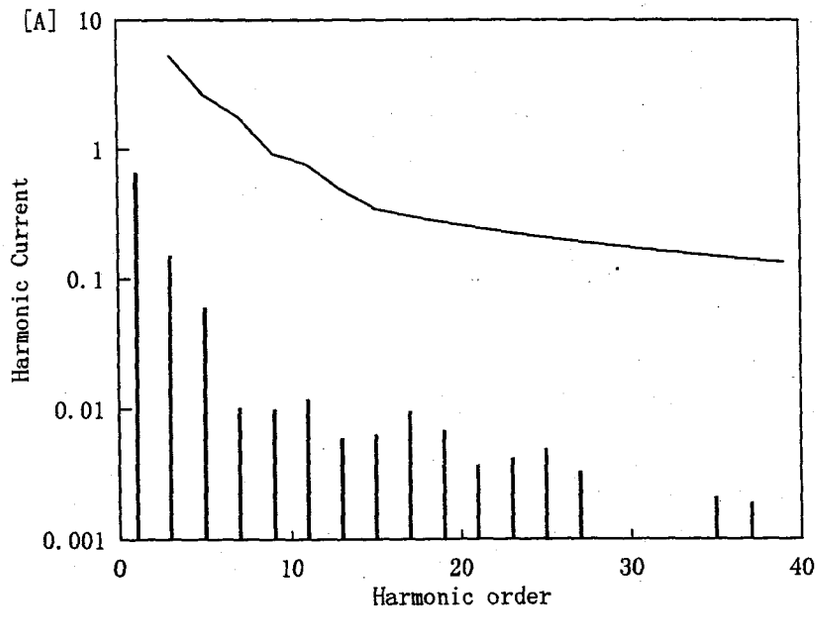
1. Input Current Waveform

——— Input Current

——— Envelope of the input current to classify equipment as Class D
ｸﾗｽDの機器を決定するための入力電流包絡線



2. Harmonic Current



——— Harmonic Current
高調波電流

——— Limits for Class A equipment
ｸﾗｽAの機器に対する限度値

Conditions	Values
Input Voltage [V]	100.1
Input Current [A]	0.681
Active Power [W]	66
Apparent Power[VA]	68.2
Frequency [Hz]	60
Power Factor	0.968
Output Power [W]	52.8

Harmonics order 高調波次数	Limits 限度値 [A]	Values 測定値 [A]
1	—	0.66030
2	—	0.00050
3	5.28472	0.15270
4	—	0.00010
5	2.61938	0.06000
6	—	0.00010
7	1.76923	0.01030
8	—	0.00010
9	0.91908	0.01000
10	—	0.00010
11	0.75824	0.01190
12	—	0.00000
13	0.48252	0.00600
14	—	0.00000
15	0.34466	0.00640
16	—	0.00000
17	0.30411	0.00960
18	—	0.00010
19	0.27210	0.00690
20	—	0.00010
21	0.24618	0.00370
22	—	0.00000
23	0.22478	0.00420
24	—	0.00000
25	0.20679	0.00490
26	—	0.00000
27	0.19148	0.00330
28	—	0.00010
29	0.17827	0.00090
30	—	0.00010
31	0.16677	0.00060
32	—	0.00000
33	0.15666	0.00080
34	—	0.00000
35	0.14771	0.00210
36	—	0.00000
37	0.13973	0.00190
38	—	0.00010
39	0.13256	0.00090
40	—	0.00010

COSEL

Model	LEA100F-48		
Item	Leakage Current 漏洩電流	Temperature Testing Circuitry	25℃ Figure B
Object	――――――――――		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A)DEN-AN	0.15	0.18	0.24
(B)IEC60950	0.15	0.18	0.24

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B)IEC60950	—	—	—

2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

交流入力の両相について測定し、その大きい方を漏洩電流測定値とする。

COSEL

Model	LEA100F-48		
Item	Line Noise Tolerance 入力雑音耐量	Temperature Testing Circuitry	25℃ Figure C
Object	+48V2.2A		

1. Conditions

・Input Voltage : 100 V
・Pulse Voltage : 2000 V
・Pulse Cycle : 10 mS
・Pulse Input Duration : 1 min. or more
・Load : 100 %

2. Results

Pulse Width [nS]	MODE	POLARITY	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation
1000	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation

COSEL

Model	LEA100F-48 **		
Item	Conducted Emission 雑音端子電圧	Temperature Testing Circuitry	25℃ Figure D
Object	――――――――――		

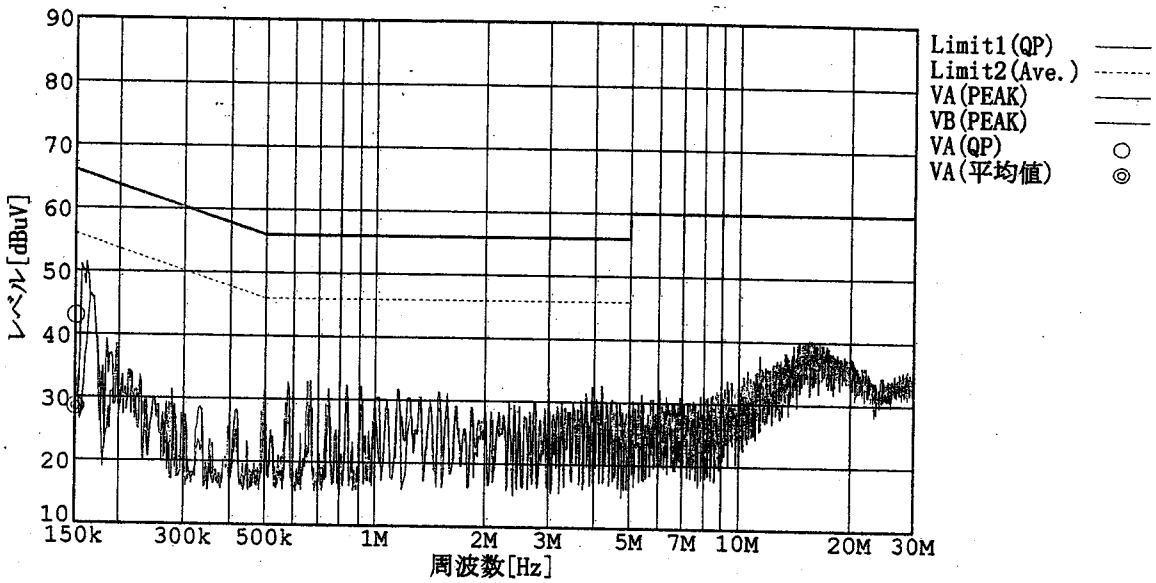
1. Graph

Remarks

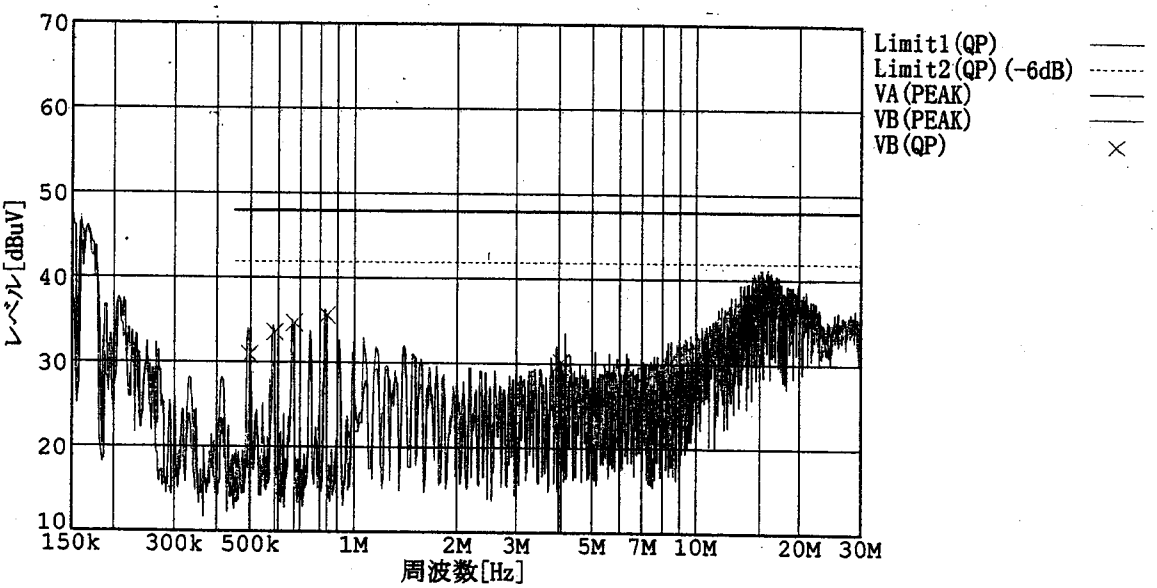
Input Volt. 100V (VCCI Class B)
120V (FCC Class B)

Load 100%

規格1：[VCCI] Class B(QP)
規格2：[VCCI] Class B(平均値)



規格1：[FCC Part15] Class B
規格2：[FCC Part15] Class B(-6dB)



COSEL

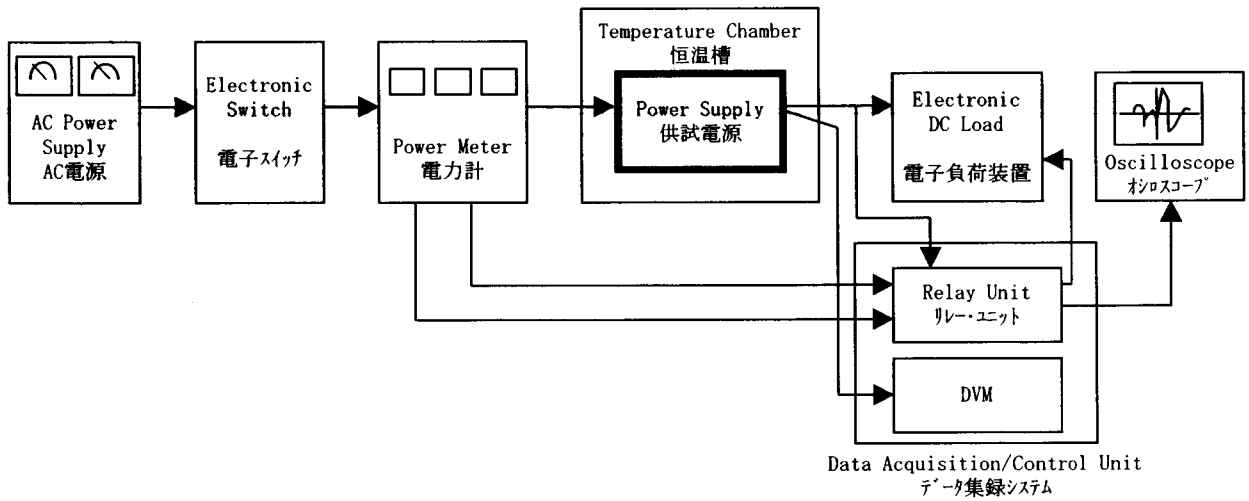


Figure A

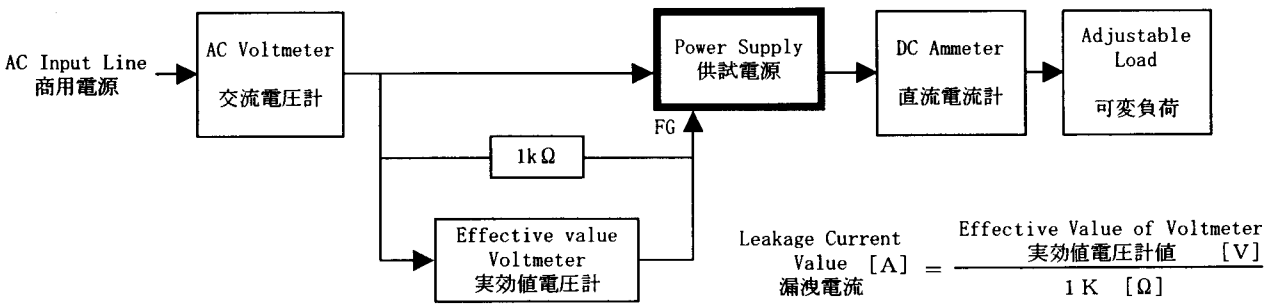


Figure B (DEN-AN)

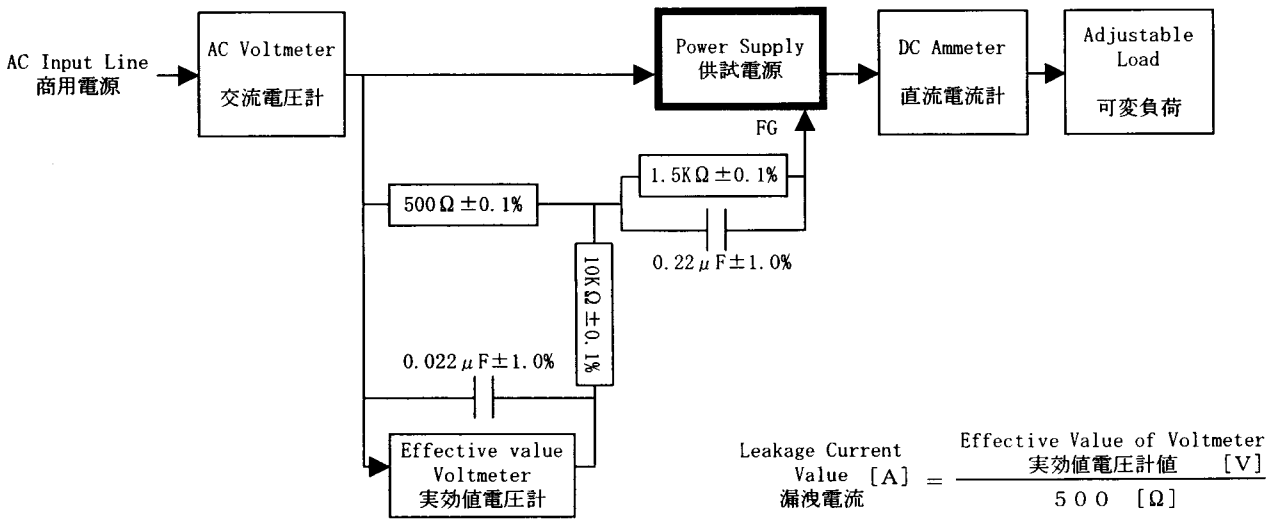


Figure B (IEC60950)

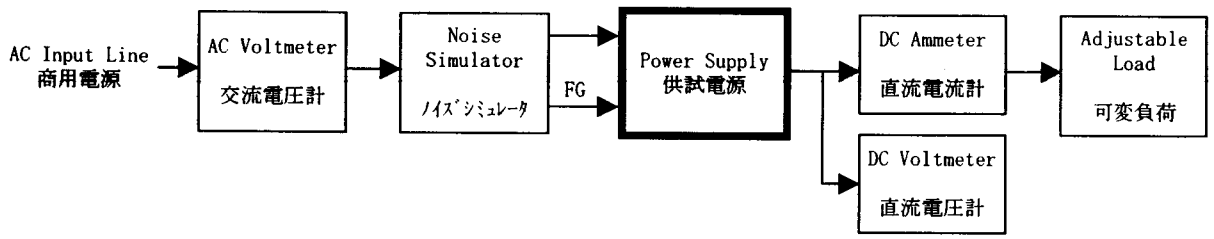


Figure C

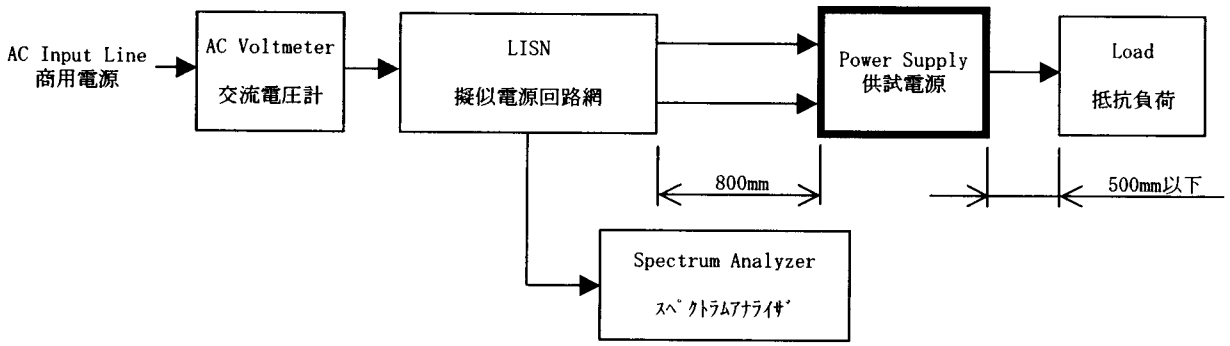


Figure D

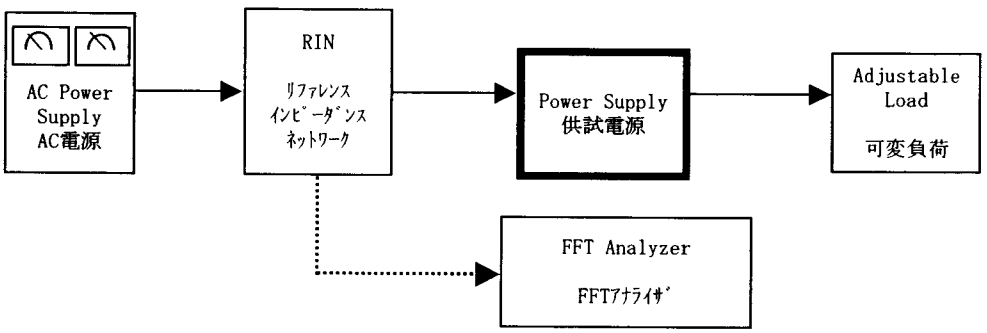


Figure E