参考資料

COSEL

TEST DATA OF LEA100F-18

(200V INPUT)

Regulated DC Power Supply
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COSEL CO.,LTD.

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CONTENTS

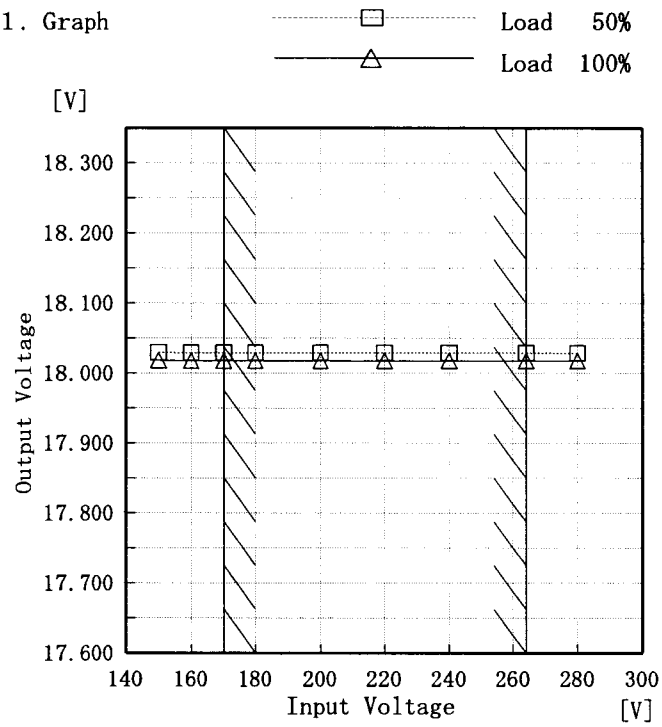
(Final Page 29)

COSEL

Model	LEA100F-18
Item	Line Regulation 静的入力変動
Object	+18.0V5.6A

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%
150	18.030	18.018
160	18.029	18.018
170	18.029	18.018
180	18.029	18.018
200	18.029	18.018
220	18.029	18.018
240	18.029	18.018
264	18.029	18.018
280	18.029	18.018

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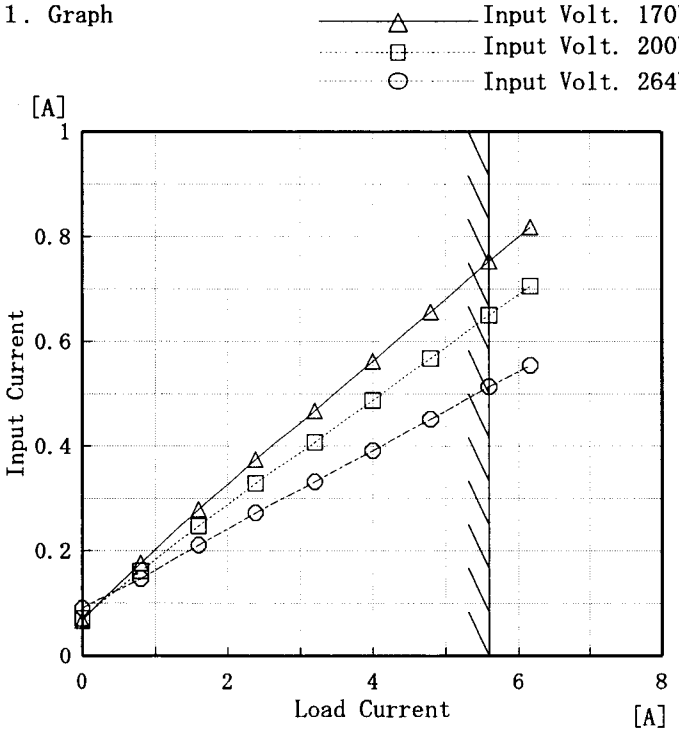
COSEL

Model	LEA100F-18		
Item	Input Current (by Load Current) 入力電流 (負荷特性)	Temperature Testing Circuitry	25℃ Figure A
Object	————		

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. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	0.066	0.071	0.091
0.80	0.177	0.161	0.147
1.60	0.279	0.248	0.212
2.40	0.374	0.329	0.273
3.20	0.468	0.408	0.332
4.00	0.562	0.488	0.392
4.80	0.657	0.568	0.452
5.60	0.753	0.650	0.514
6.16	0.818	0.706	0.555
—	—	—	—
—	—	—	—
—	—	—	—

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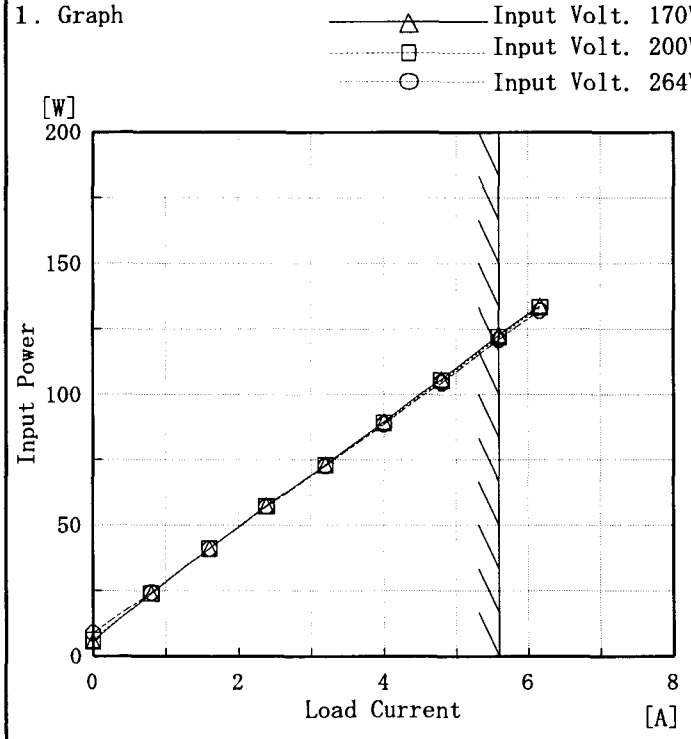
Model	LEA100F-18
Item	Input Power (by Load Current) 入力電力（負荷特性）
Object	————

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 Power [W]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	5.50	6.00	8.70
0.80	23.90	23.90	24.20
1.60	41.10	41.00	41.10
2.40	57.40	57.20	57.10
3.20	73.30	73.00	72.70
4.00	89.60	89.20	88.60
4.80	105.90	105.30	104.50
5.60	122.60	122.00	121.00
6.16	133.90	133.20	132.00
—	—	—	—
—	—	—	—
—	—	—	—

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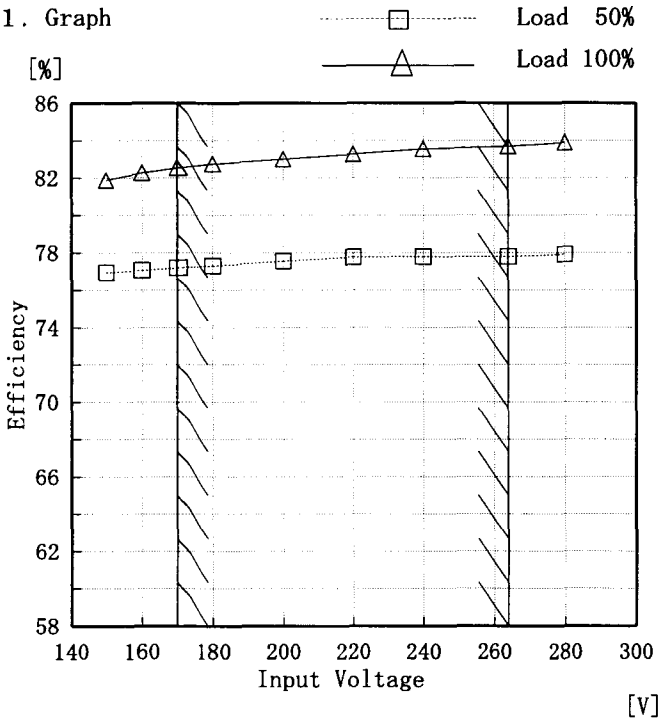
COSEL

Model	LEA100F-18
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%
150	76.9	81.9
160	77.1	82.3
170	77.2	82.5
180	77.3	82.7
200	77.5	83.0
220	77.8	83.3
240	77.8	83.6
264	77.8	83.7
280	77.9	83.9

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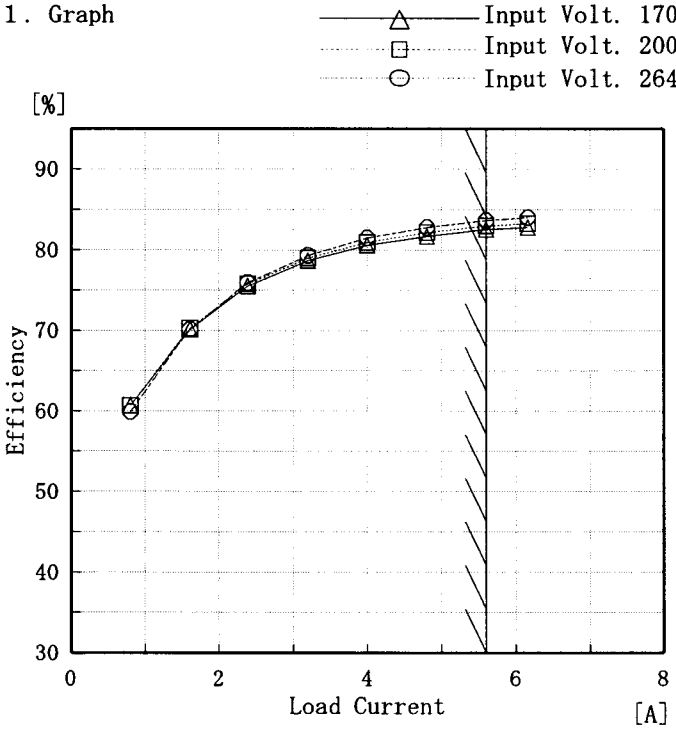
Model	LEA100F-18
Item	Efficiency (by Load Current) 効率 (負荷特性)
Object	————

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. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.80	60.7	60.7	59.9
1.60	70.2	70.3	70.1
2.40	75.5	75.8	75.9
3.20	78.7	79.0	79.3
4.00	80.6	80.9	81.5
4.80	81.7	82.1	82.8
5.60	82.5	83.0	83.6
6.16	82.8	83.2	84.0
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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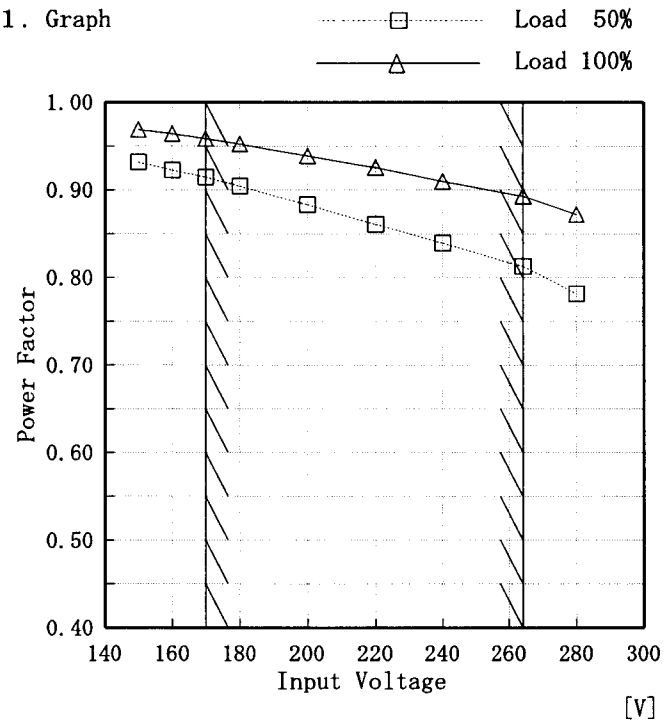
COSEL

Model	LEA100F-18
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%
150	0.93	0.97
160	0.92	0.96
170	0.91	0.96
180	0.90	0.95
200	0.88	0.94
220	0.86	0.93
240	0.84	0.91
264	0.81	0.89
280	0.78	0.87

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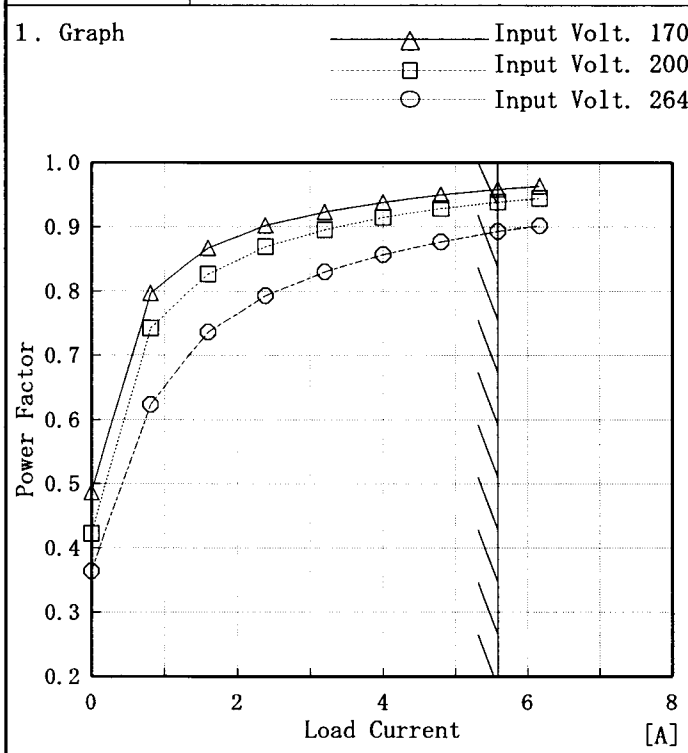
Model	LEA100F-18
Item	Power Factor (by Load Current) 力率（負荷特性）
Object	————

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. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	0.49	0.42	0.36
0.80	0.80	0.74	0.62
1.60	0.87	0.83	0.74
2.40	0.90	0.87	0.79
3.20	0.92	0.90	0.83
4.00	0.94	0.91	0.86
4.80	0.95	0.93	0.88
5.60	0.96	0.94	0.89
6.16	0.96	0.94	0.90
—	—	—	—
—	—	—	—
—	—	—	—

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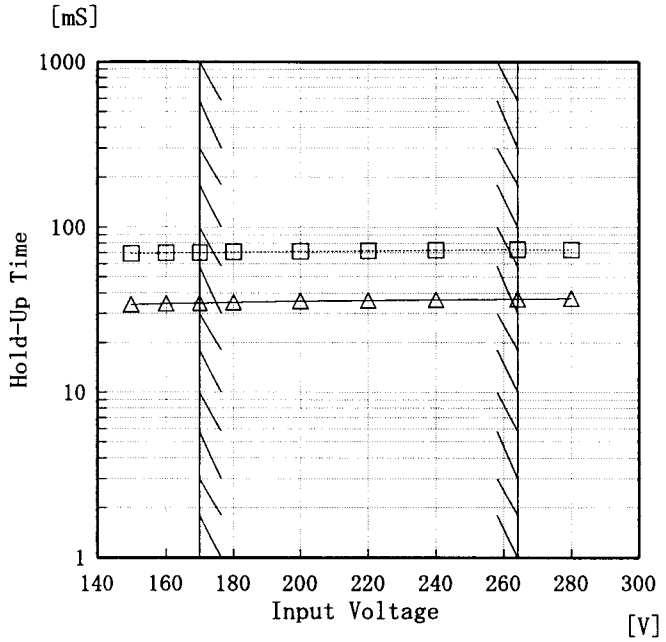
Model	LEA100F-18
Item	Hold-Up Time 出力保持時間
Object	+18.0V5.6A

Temperature 25℃
Testing Circuitry Figure A

1. Graph

Load 50%
Load 100%



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、定電圧精度の規格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%
150	69	34
160	70	34
170	70	35
180	71	35
200	71	36
220	72	36
240	73	36
264	73	37
280	73	37

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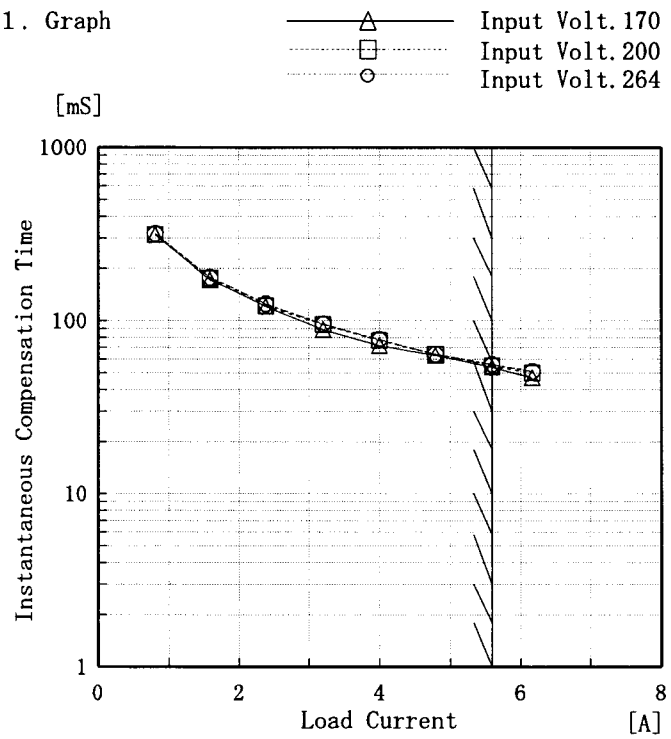
Model	LEA100F-18		
Item	Instantaneous Interruption Compensation 瞬時停電保障	Temperature Testing Circuitry	25℃ Figure A
Object	+18.0V5.6A		

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 load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。
(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Time [mS]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	—	—	—
0.80	312	314	318
1.60	172	176	178
2.40	121	122	125
3.20	89	95	96
4.00	72	77	78
4.80	63	64	64
5.60	54	55	56
6.16	47	50	51
—	—	—	—
—	—	—	—

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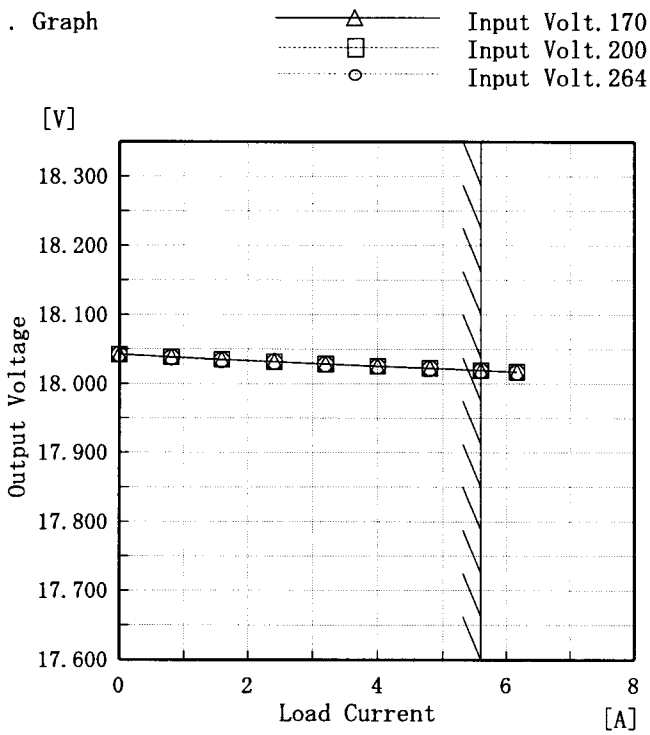
Model	LEA100F-18
Item	Load Regulation 静的負荷変動
Object	+18.0V5.6A

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

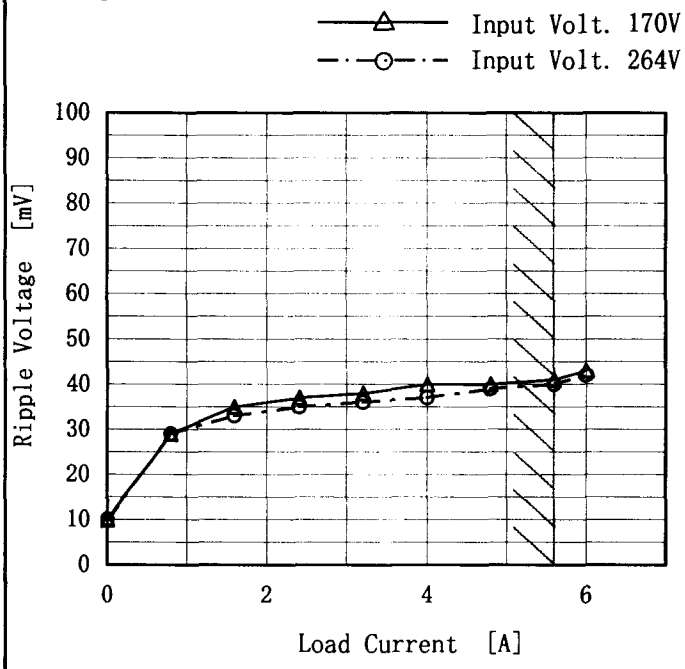
Load Current [A]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	18.043	18.042	18.042
0.80	18.039	18.038	18.038
1.60	18.035	18.035	18.035
2.40	18.032	18.032	18.031
3.20	18.029	18.028	18.028
4.00	18.026	18.025	18.025
4.80	18.023	18.022	18.022
5.60	18.019	18.019	18.019
6.16	18.017	18.017	18.017
—	—	—	—

COSEL

Model	LEA100F-18
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）
Object	+18V5.6A

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

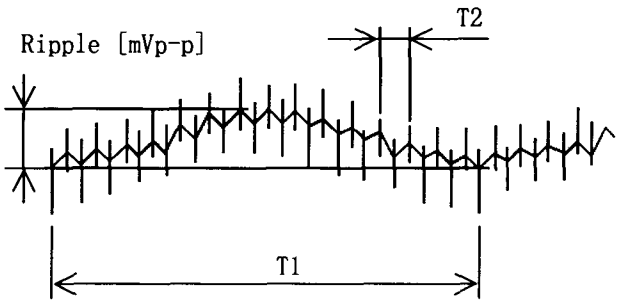


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

2. Values

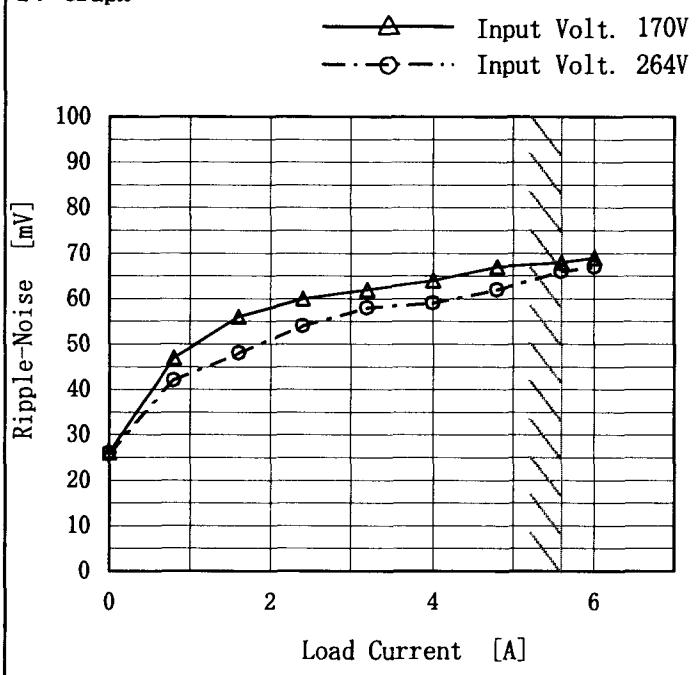
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 170 [V]	Input Volt. 264 [V]
0.0	10	10
0.8	29	29
1.6	35	33
2.4	37	35
3.2	38	36
4.0	40	37
4.8	40	39
5.6	41	40
6.0	43	42
--	—	—
--	—	—

COSEL

Model	LEA100F-18
Item	Ripple-Noise リップルノイズ
Object	+18V5.6A

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

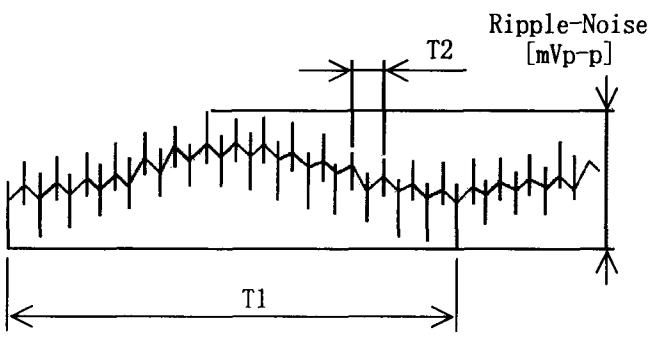


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

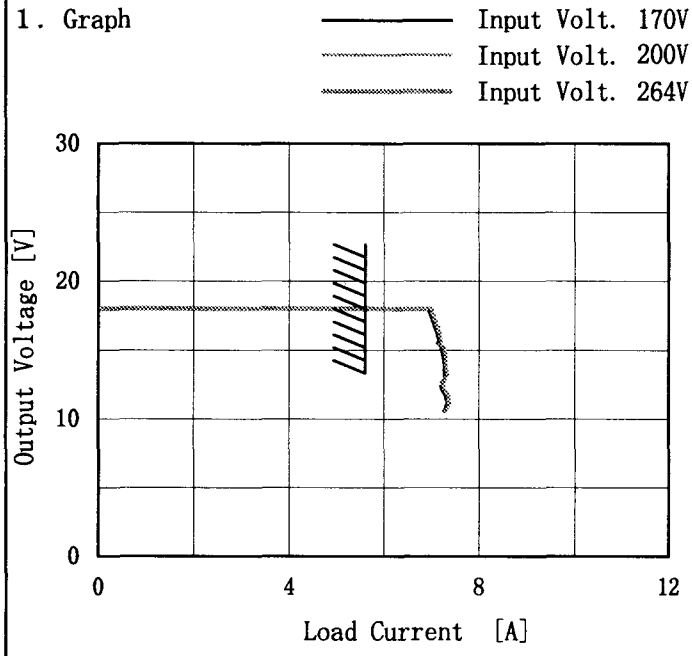
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 170 [V]	Input Volt. 264 [V]
0.0	26	26
0.8	47	42
1.6	56	48
2.4	60	54
3.2	62	58
4.0	64	59
4.8	67	62
5.6	68	66
6.0	69	67
—	—	—
—	—	—

COSEL

Model	LEA100F-18
Item	Overcurrent Protection 過電流保護
Object	+18V5.6A

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 opertion occurs when the output voltage is from 10.5V to 0V.
10.5V～0V間は、間欠モードとなる。

2. Values

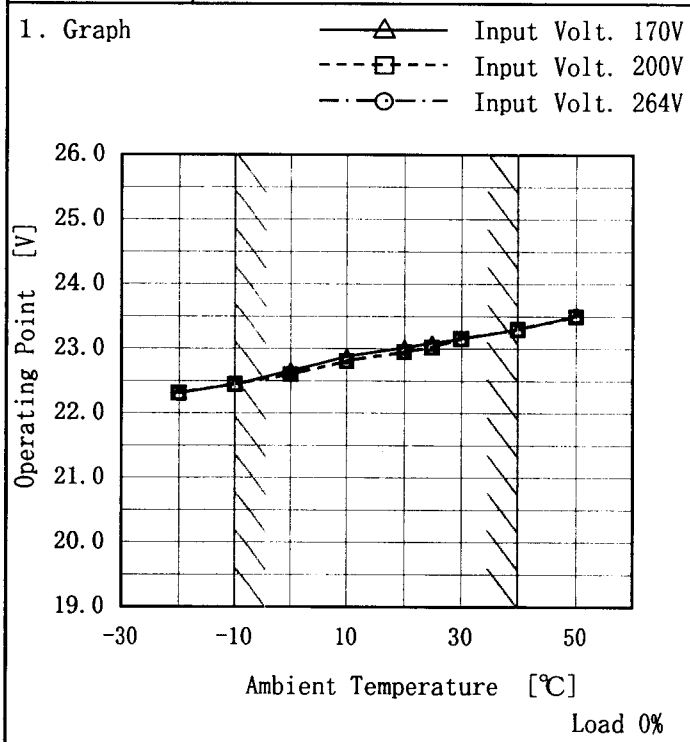
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
18.0	6.93	6.97	6.98
17.1	7.02	7.05	7.07
16.2	7.11	7.14	7.16
14.4	7.24	7.27	7.29
12.6	7.19	7.22	7.23
10.8	7.26	7.29	7.30
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	LEA100F-18
Item	Overvoltage Protection 過電圧保護
Object	+18V5.6A

Testing Circuitry Figure A

1. Graph



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

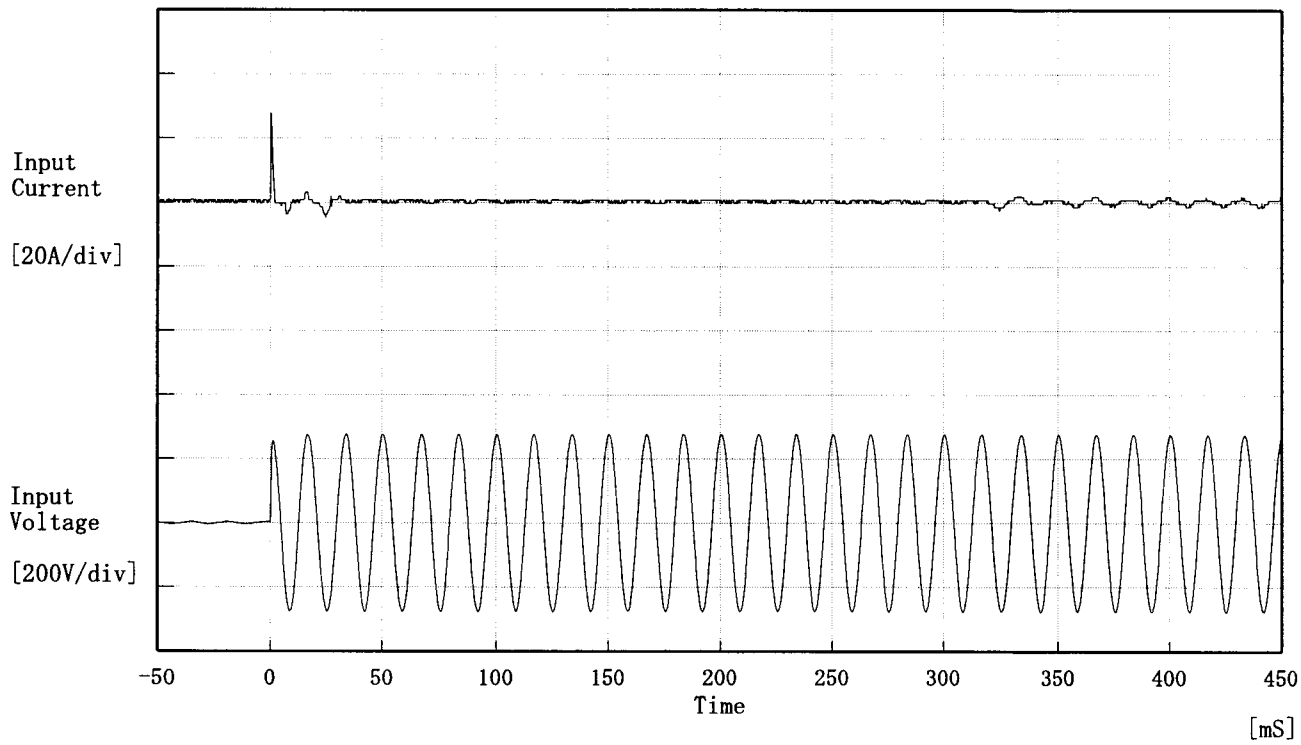
(注) 斜線は定格周囲温度範囲を示す。

2. Values

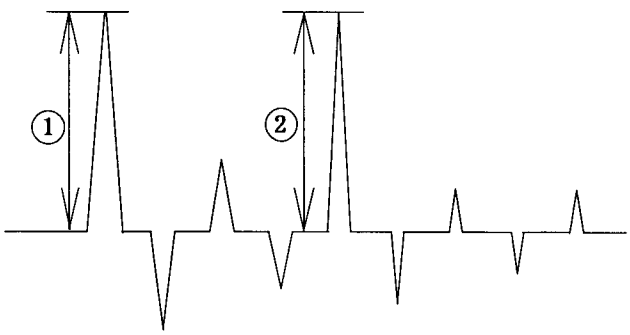
Ambient Temperature [℃]	Operating Point [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	22.31	22.31	22.31
-10	22.45	22.45	22.45
0	22.66	22.60	22.60
10	22.88	22.81	22.81
20	23.02	22.95	22.95
25	23.09	23.02	23.02
30	23.16	23.16	23.16
40	23.30	23.30	23.30
50	23.51	23.50	23.51
--	—	—	—
--	—	—	—

COSEL

Model	LEA100F-18		
Item	Inrush Current 突入電流	Temperature Testing Circuitry	25℃ Figure A
Object	———————		



Input Voltage 200 V
Frequency 60 Hz
Load 100 %
Inrush Current
① 27.75 [A]
② 2.54 [A]



COSEL

Model	LEA100F-18		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+18V5.6A		

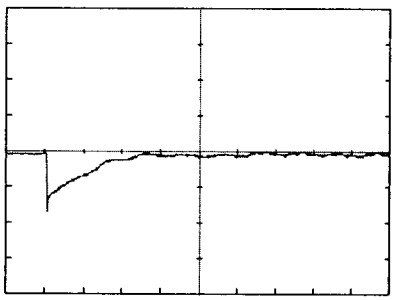
Input Volt. 200 V

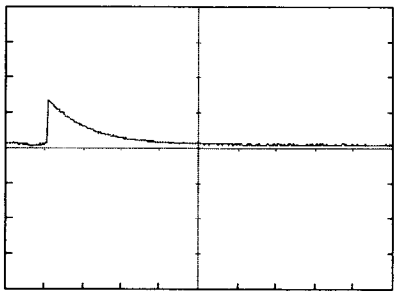
Cycle 1000 mS

Load Current

Min. Lord ⟷

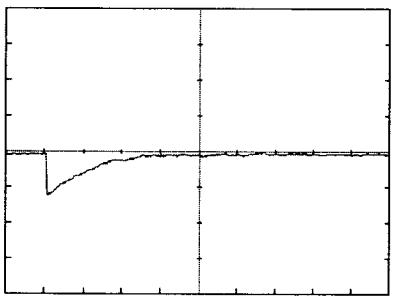
Lord 100 %

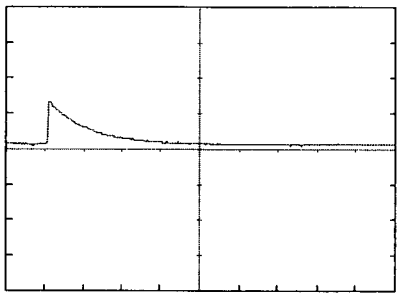




Min. Lord ⟷

Lord 50 %





50 mV/div

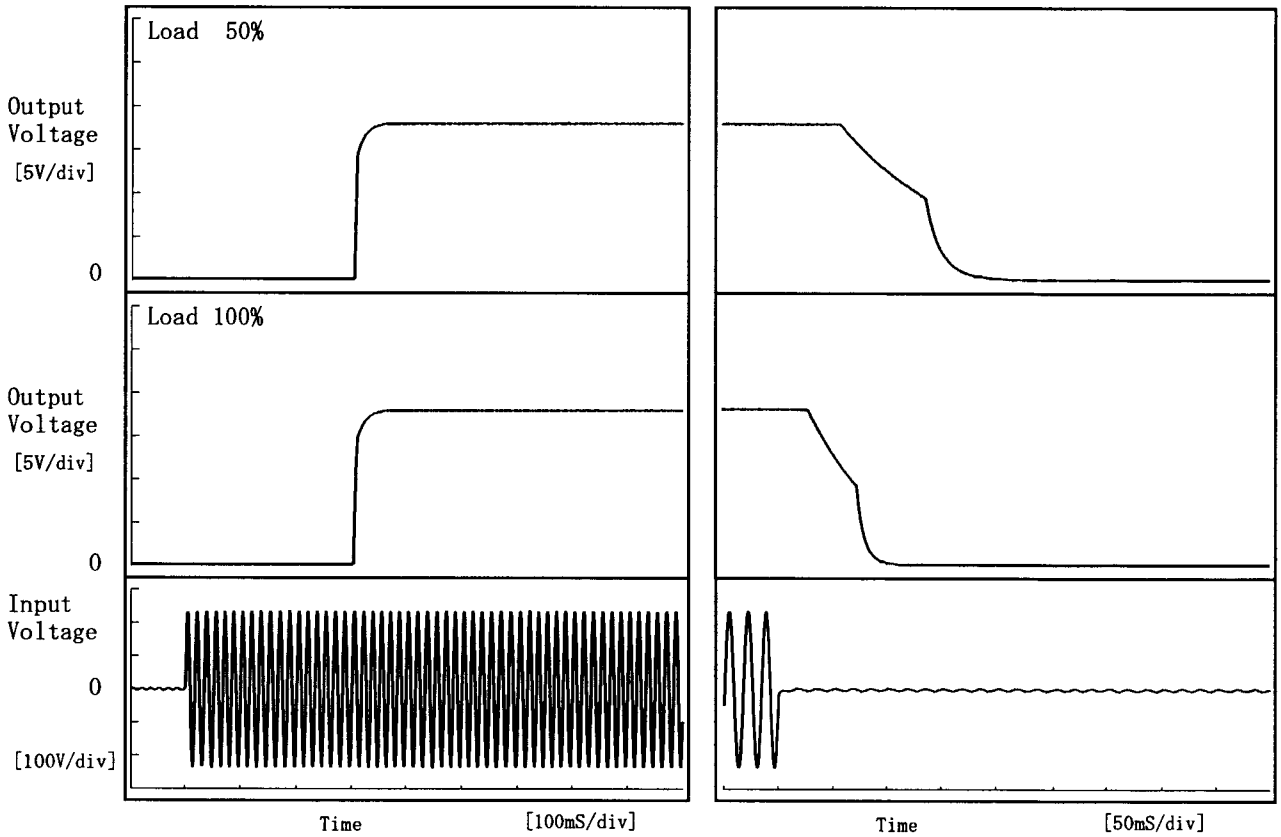
10 ms/div

COSEL

Model	LEA100F-18		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+18.0V5.6A		

1. Graph

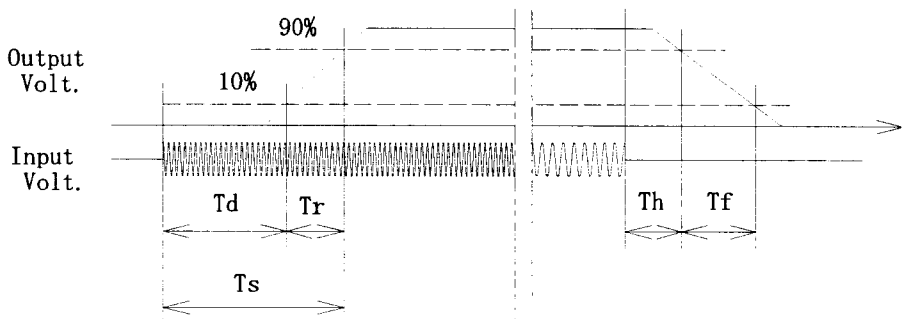
Input Volt. 170 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	304.0	17.5	321.5	70.0	90.8
100 %	303.0	18.0	321.0	35.0	50.5

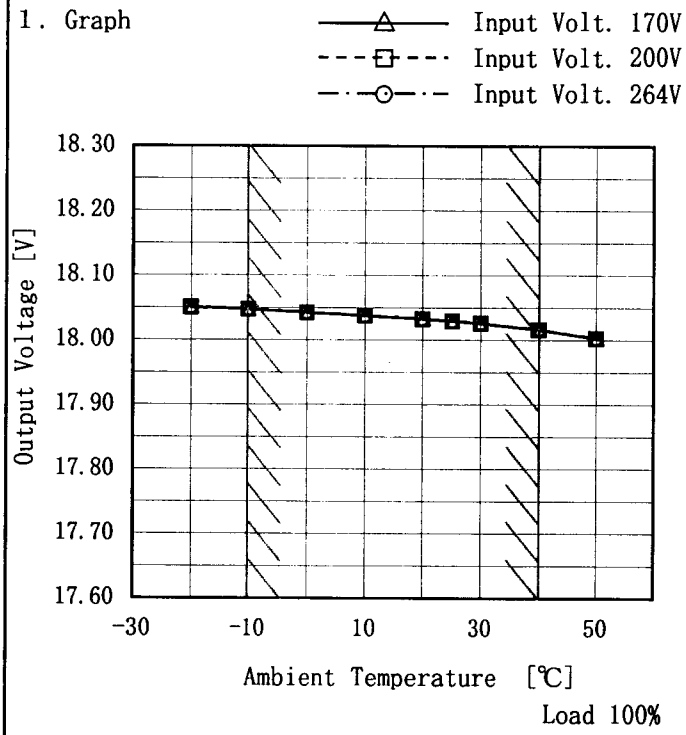


COSEL

Model	LEA100F-18
Item	Ambient Temperature Drift 周囲温度変動
Object	+18V5.6A

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

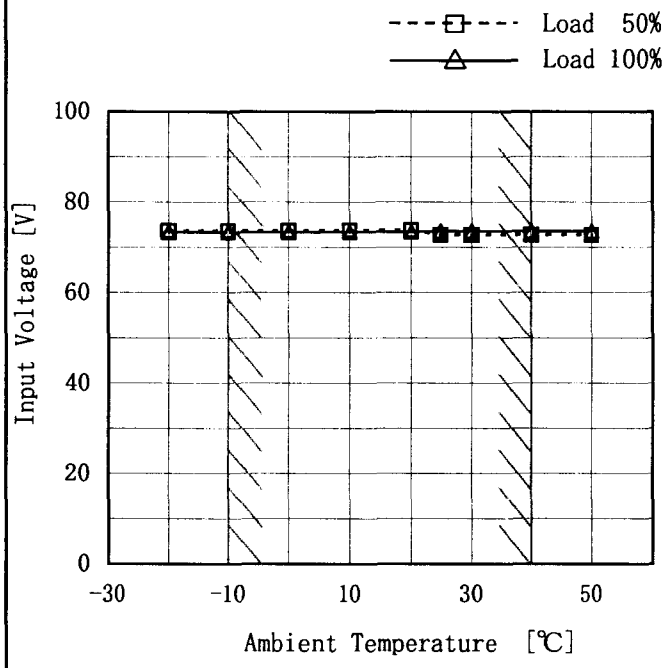
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	18.051	18.051	18.050
-10	18.047	18.047	18.047
0	18.043	18.043	18.043
10	18.038	18.038	18.038
20	18.033	18.032	18.032
25	18.030	18.030	18.030
30	18.026	18.026	18.026
40	18.017	18.016	18.016
50	18.003	18.003	18.003
--	—	—	—
--	—	—	—

COSEL

Model	LEA100F-18
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+18V5.6A

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

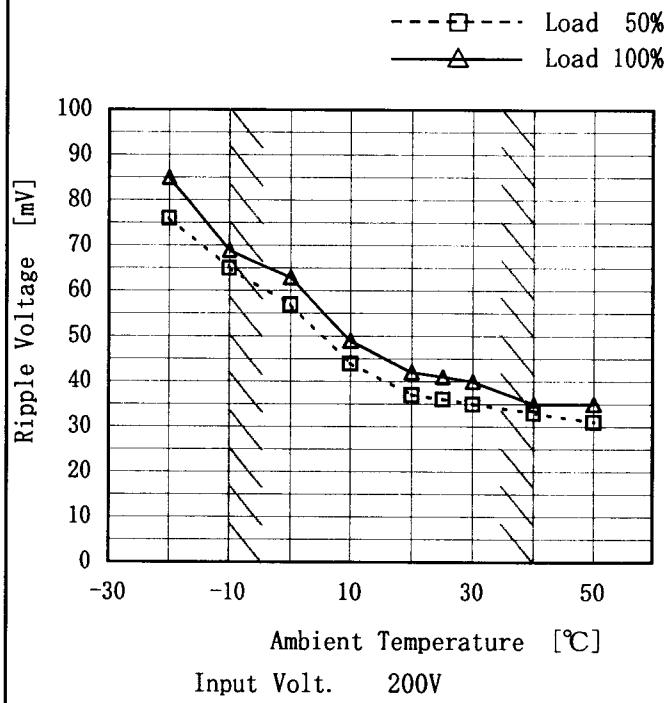
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	74	74
-10	74	74
0	74	74
10	74	74
20	74	74
25	73	74
30	73	74
40	73	74
50	73	74
—	—	—
—	—	—

COSEL

Model	LEA100F-18
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+18V5.6A

Testing Circuitry Figure A

1. Graph



Input Volt. 200V

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

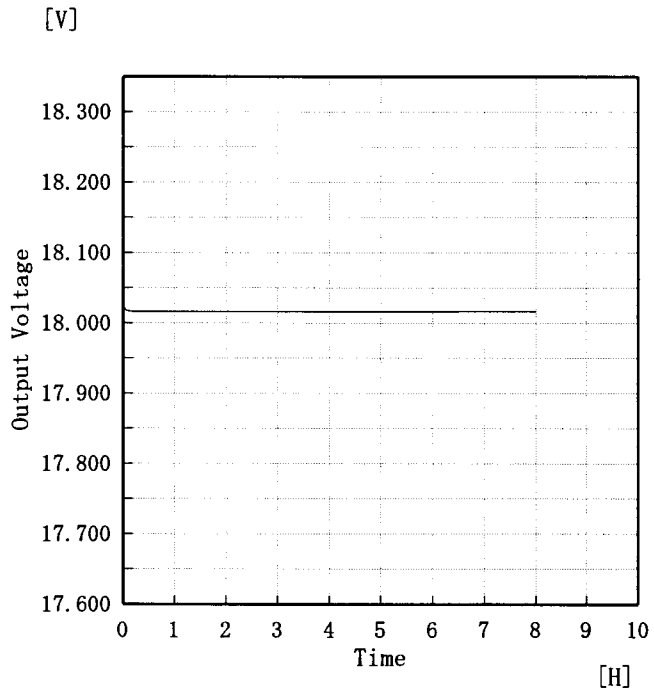
Ambient Temperature [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	76	85
-10	65	69
0	57	63
10	44	49
20	37	42
25	36	41
30	35	40
40	33	35
50	31	35
--	—	—
--	—	—

COSEL

Model	LEA100F-18
Item	Time Lapse Drift 経時ドリフト
Object	+18.0V5.6A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Input Volt. 200V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	18.028
0.5	18.016
1.0	18.016
2.0	18.016
3.0	18.016
4.0	18.016
5.0	18.016
6.0	18.016
7.0	18.017
8.0	18.017

COSEL

Model	LEA100F-18	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+18.0V5.6A	

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 : 170～264 V
Load Current : 0～5.6 A

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

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

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 170～264 V
負荷電流 0～5.6 A

* 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 Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration)[%]
Maximum Voltage	-10	264	0.0	18.069	±35	±0.2
Minimum Voltage	50	264	5.6	18.000		

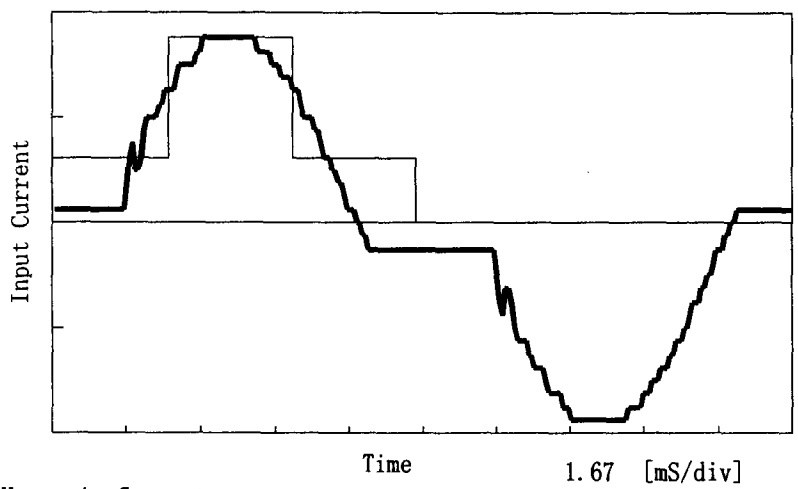
COSEL

Model	LEA100F-18		
Item	Harmonic Current 高調波電流	Temperature Testing Circuitry	25℃ Figure E
Object	————		

1. Input Current Waveform

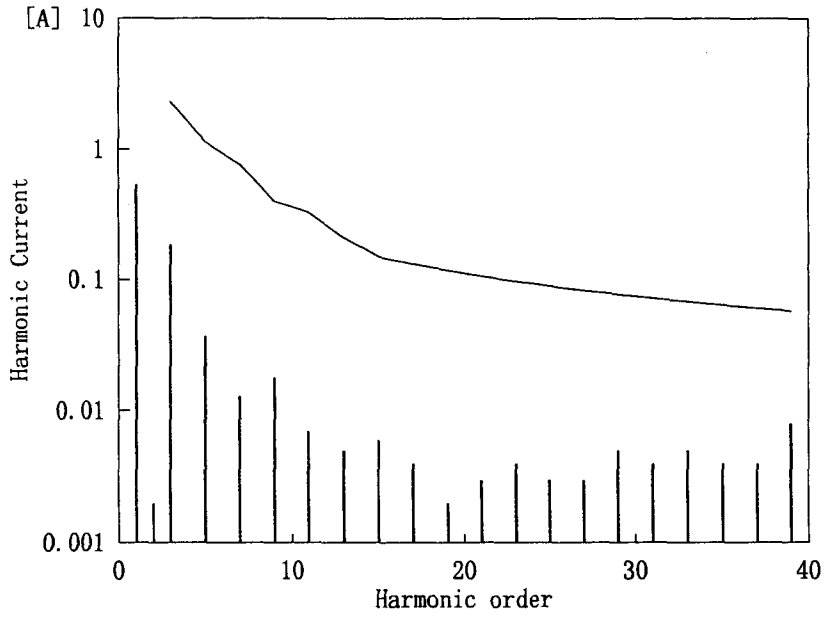
——— Input Current

——— 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]	230.9
Input Current [A]	0.572
Active Power [W]	121.2
Apparent Power[VA]	132
Frequency [Hz]	60
Power Factor	0.918
Output Power [W]	100

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	—	0.53700
2	—	0.00200
3	2.29104	0.18700
4	—	0.00000
5	1.13556	0.03700
6	—	0.00000
7	0.76700	0.01300
8	—	0.00100
9	0.39844	0.01800
10	—	0.00100
11	0.32871	0.00700
12	—	0.00100
13	0.20918	0.00500
14	—	0.00000
15	0.14942	0.00600
16	—	0.00000
17	0.13184	0.00400
18	—	0.00100
19	0.11796	0.00200
20	—	0.00100
21	0.10673	0.00300
22	—	0.00000
23	0.09744	0.00400
24	—	0.00000
25	0.08965	0.00300
26	—	0.00100
27	0.08301	0.00300
28	—	0.00000
29	0.07728	0.00500
30	—	0.00100
31	0.07230	0.00400
32	—	0.00000
33	0.06792	0.00500
34	—	0.00000
35	0.06404	0.00400
36	—	0.00000
37	0.06057	0.00400
38	—	0.00100
39	0.05747	0.00800
40	—	0.00000

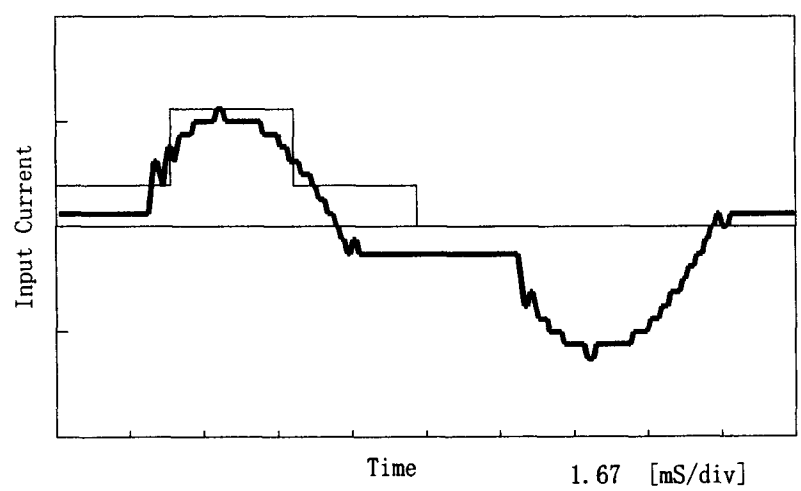
COSEL

Model	LEA100F-18 ..		
Item	Harmonic Current 高調波電流	Temperature Testing Circuitry	25℃ Figure E
Object	————		

1. Input Current Waveform

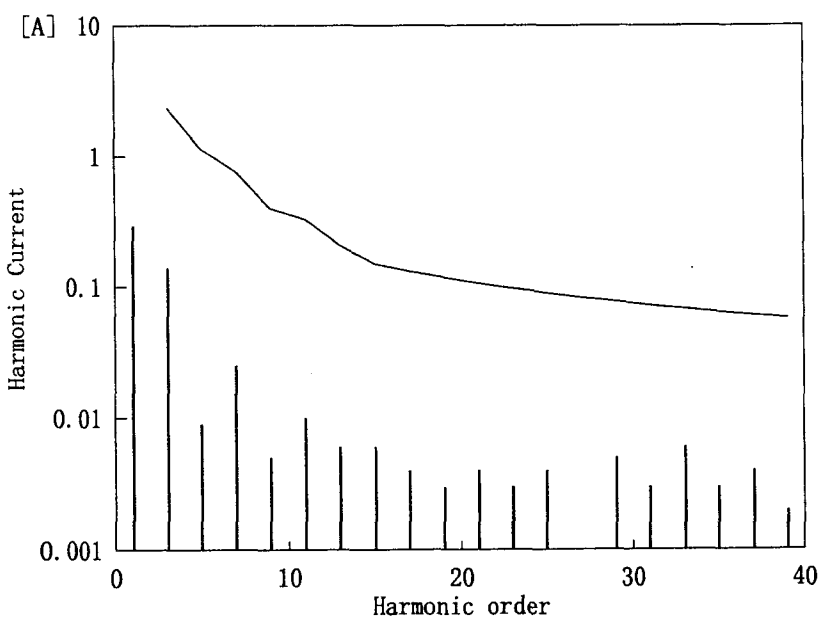
——— Input Current

——— 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]	231
Input Current [A]	0.328
Active Power [W]	64.4
Apparent Power[VA]	75.7
Frequency [Hz]	60
Power Factor	0.851
Output Power [W]	50

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	—	0.29400
2	—	0.00100
3	2.29004	0.14000
4	—	0.00000
5	1.13506	0.00900
6	—	0.00100
7	0.76667	0.02500
8	—	0.00100
9	0.39827	0.00500
10	—	0.00100
11	0.32857	0.01000
12	—	0.00000
13	0.20909	0.00600
14	—	0.00100
15	0.14935	0.00600
16	—	0.00000
17	0.13178	0.00400
18	—	0.00100
19	0.11791	0.00300
20	—	0.00000
21	0.10668	0.00400
22	—	0.00100
23	0.09740	0.00300
24	—	0.00100
25	0.08961	0.00400
26	—	0.00100
27	0.08297	0.00100
28	—	0.00000
29	0.07725	0.00500
30	—	0.00100
31	0.07227	0.00300
32	—	0.00100
33	0.06789	0.00600
34	—	0.00000
35	0.06401	0.00300
36	—	0.00000
37	0.06055	0.00400
38	—	0.00100
39	0.05744	0.00200
40	—	0.00100

COSEL

Model	LEA100F-18		
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	—	—	—
(B) IEC60950	—	—	—

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	0.31	0.43	0.49

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-18		
Item	Line Noise Tolerance 入力雑音耐量	Temperature Testing Circuitry	25℃ Figure C
Object	+18V5.6A		

1. Conditions

- Input Voltage : 200 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

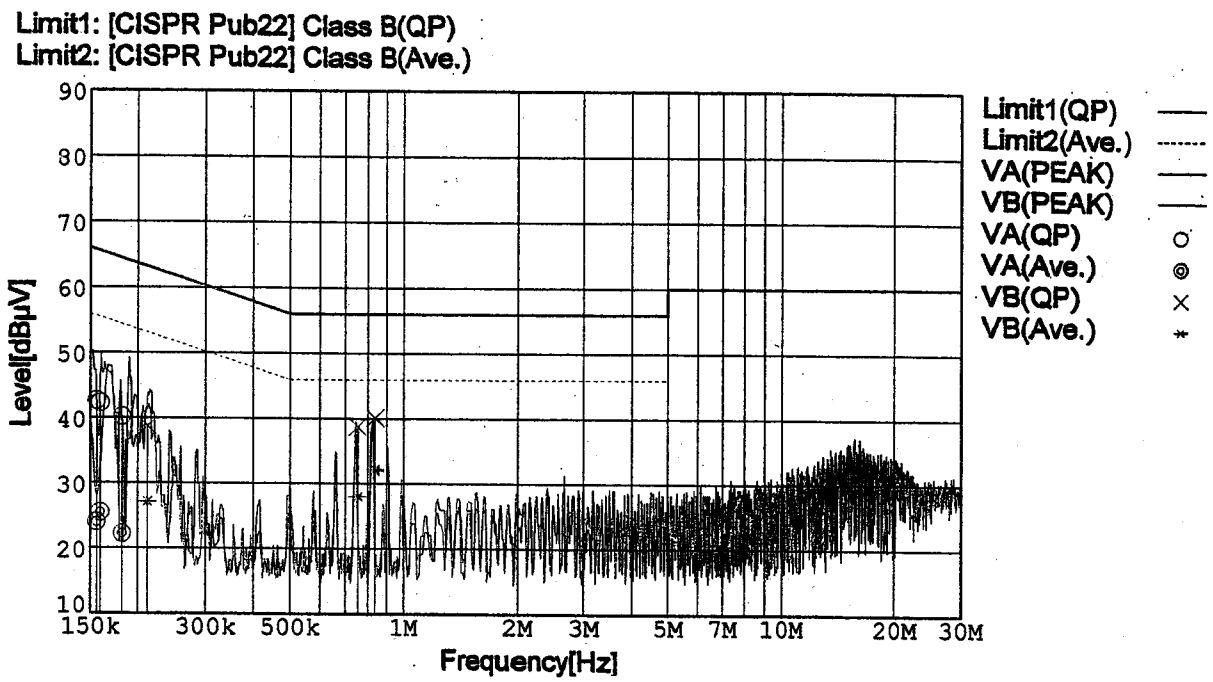
Model	LEA100F-18 ･･		
Item	Conducted Emission 雑音端子電圧	Temperature Testing Circuitry	25℃ Figure D
Object	――――――――――		

1. Graph

Remarks

Input Volt. 230V (CISPR Pub22 Class B)

Load 100%



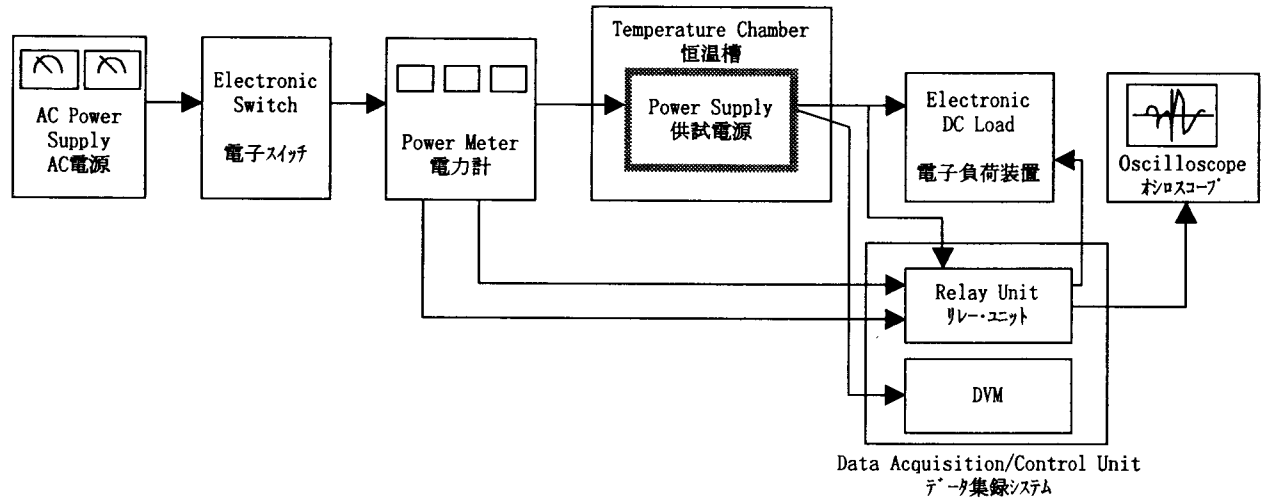


Figure A

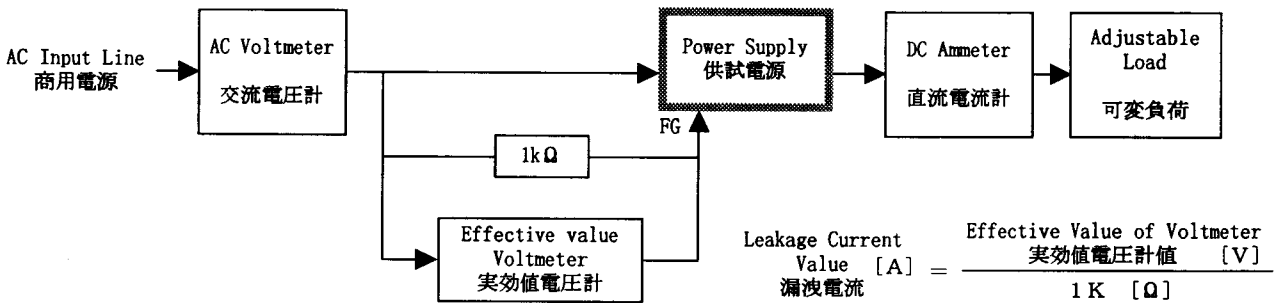


Figure B (DEN-AN)

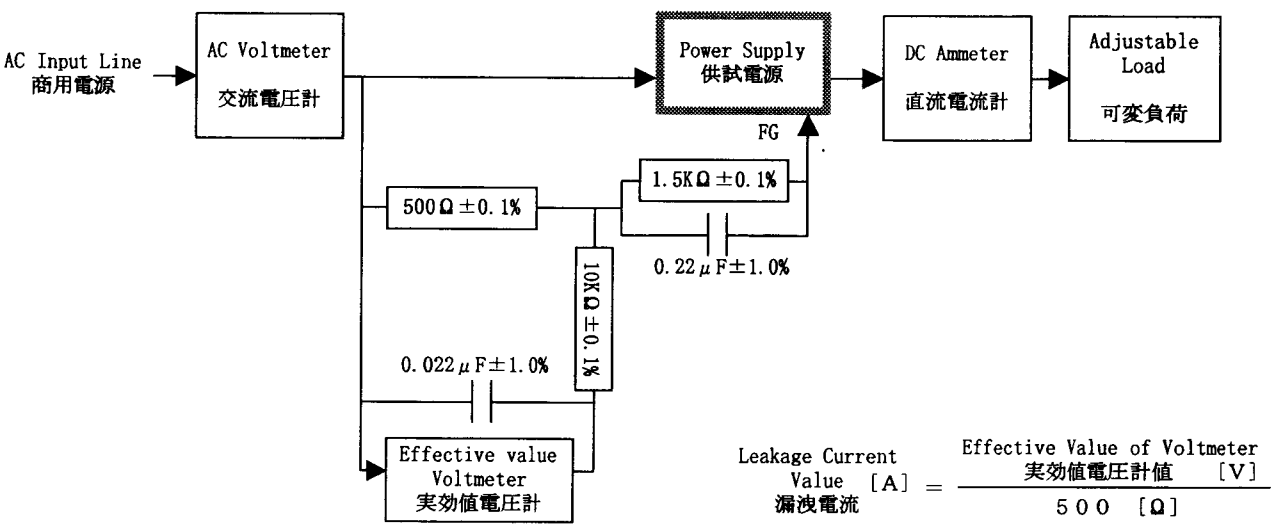


Figure B (IEC60950)

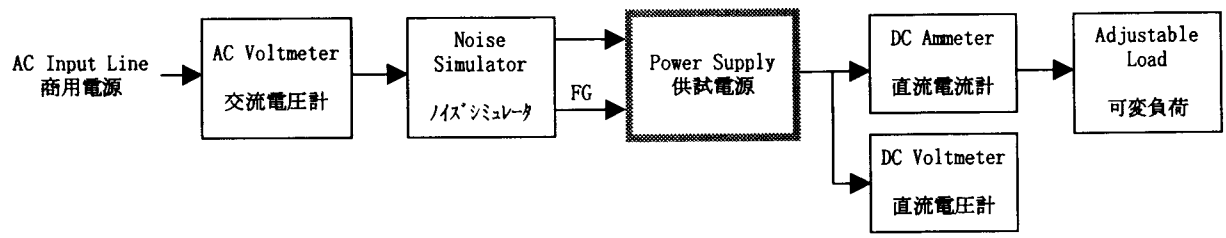


Figure C

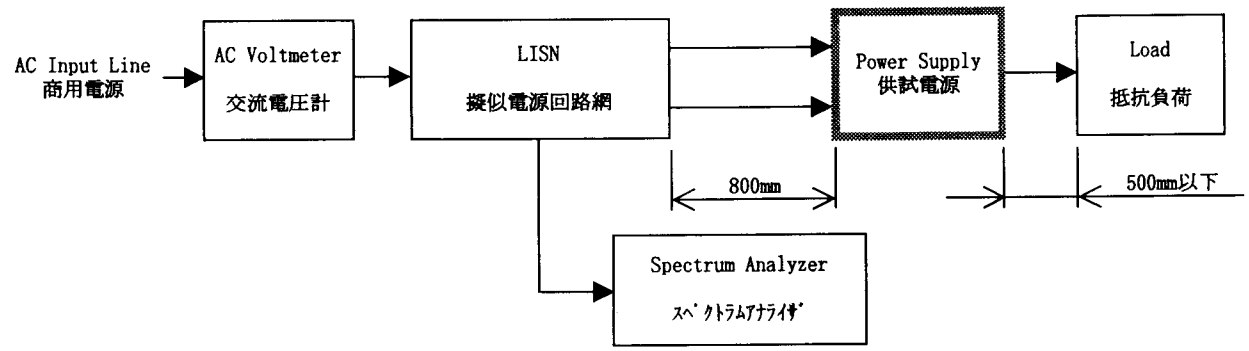


Figure D

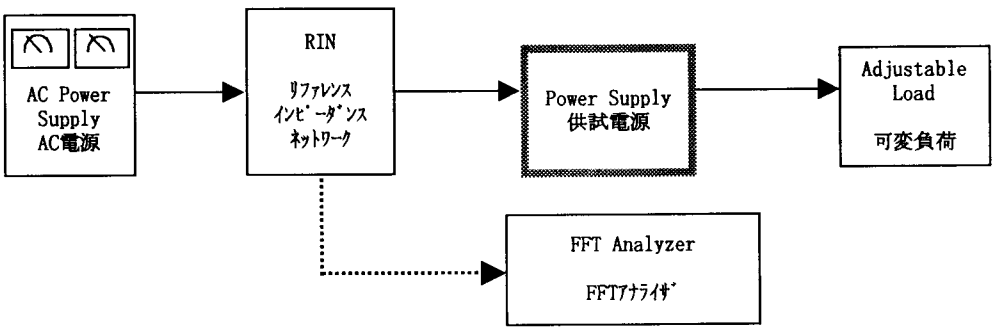


Figure E