参考資料

COSEL

TEST DATA OF DPF1000

(100V INPUT)

AC-DC Front End Module

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コーセル株式会社

COSEL CO.,LTD.

COSEL

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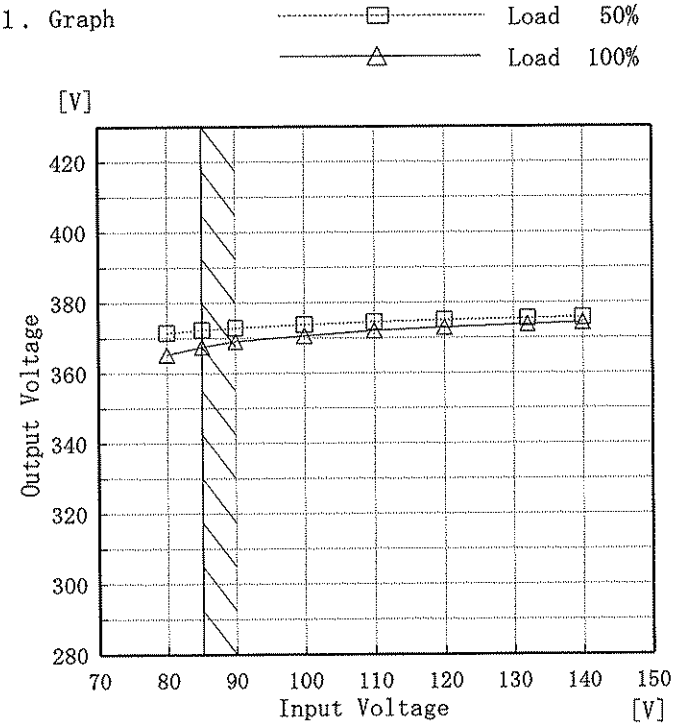
COSEL

Model	DPF1000
Item	Output Voltage (by Input Voltage) 出力電圧（入力電圧特性）
Object	+360V 1000W

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%
80	371.5	365.3
85	372.3	367.5
90	372.9	369.0
100	373.8	370.6
110	374.5	372.0
120	375.0	373.0
132	375.5	373.8
140	375.8	374.3
—	—	—

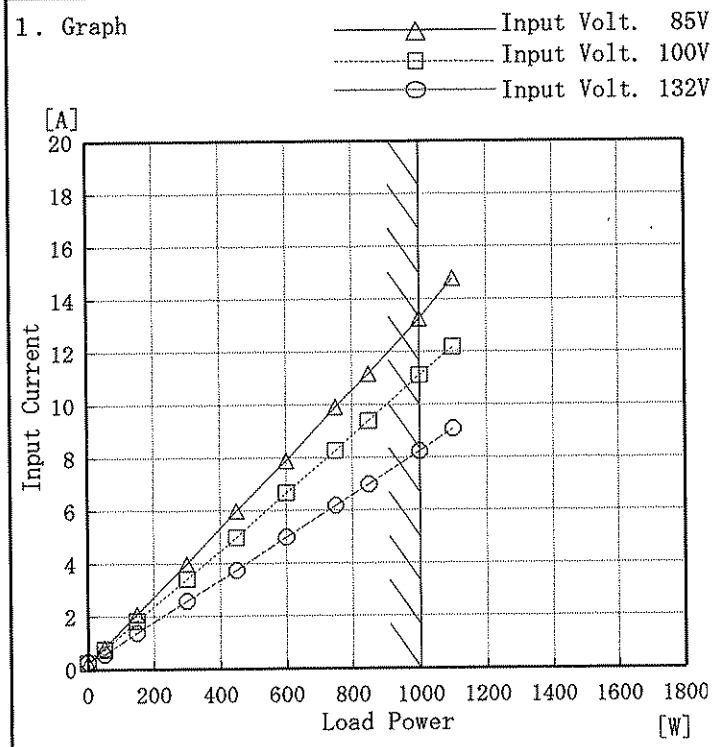
BC−10001

COSEL

Model	DPF1000
Item	Input Current (by Load Power) 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 power.

(注)斜線は定格負荷電力範囲を示す。

2. Values

Load Power [W]	Input Current [A] Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	0.24	0.25	0.29
50	0.82	0.75	0.57
150	2.09	1.83	1.38
300	3.99	3.41	2.59
450	5.99	4.98	3.74
600	7.89	6.67	5.00
750	9.91	8.26	6.19
850	11.16	9.39	6.99
1000	13.25	11.11	8.24
1100	14.79	12.19	9.09
—	—	—	—
—	—	—	—

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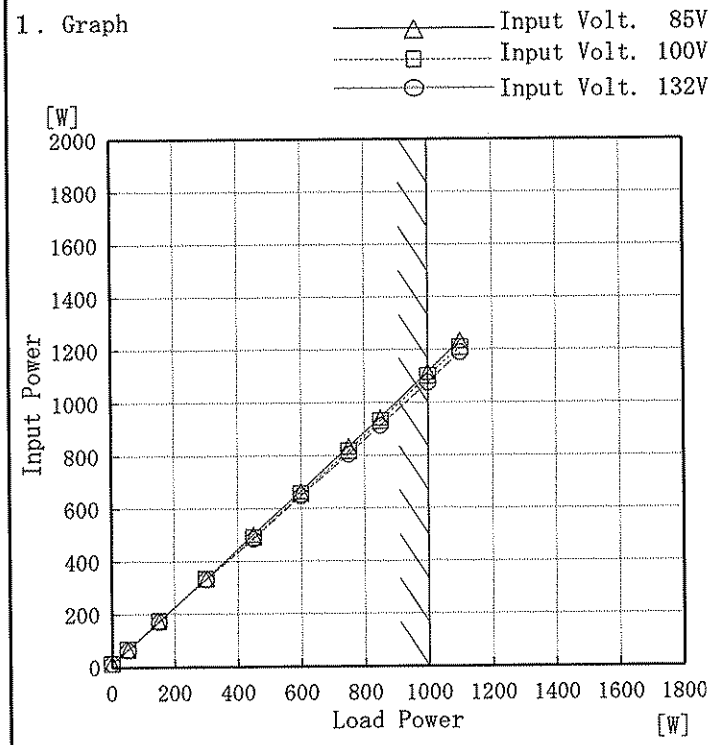
COSEL

Model	DPF1000
Item	Input Power (by Load Power) 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 power.

(注)斜線は定格負荷電力範囲を示す。

2. Values

Load Power [W]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	14	13	14
50	67	68	64
150	174	175	171
300	334	334	331
450	502	491	484
600	665	656	649
750	835	818	806
850	942	932	913
1000	1116	1102	1077
1100	1236	1210	1191
—	—	—	—
—	—	—	—

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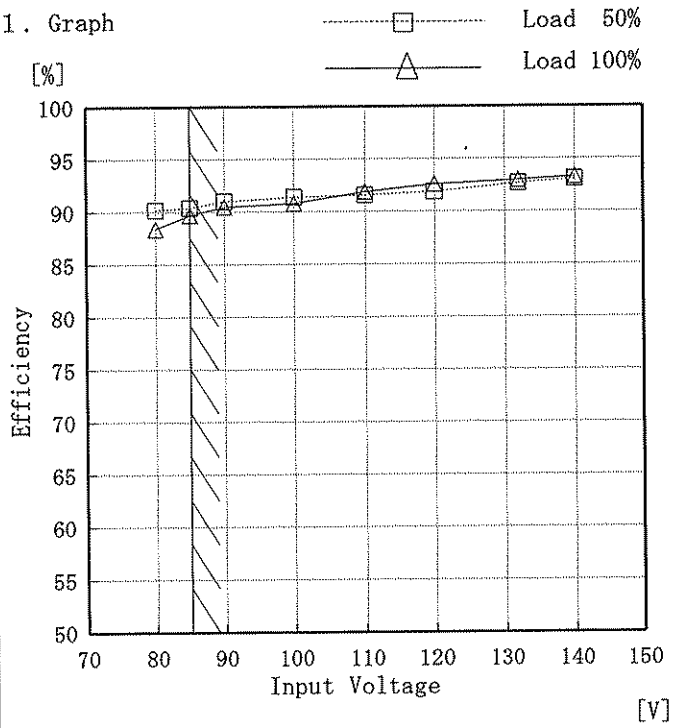
COSEL

Model	DPF1000
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%
80	90.2	88.4
85	90.4	89.7
90	91.0	90.5
100	91.4	90.8
110	91.6	91.9
120	91.9	92.6
132	92.7	93.0
140	93.1	93.3
—	—	—

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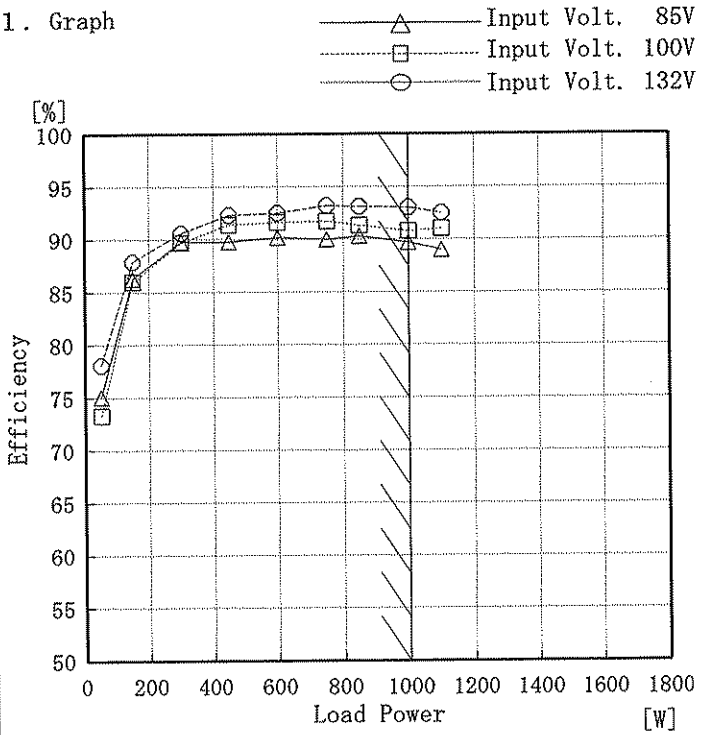
COSEL

Model	DPF1000
Item	Efficiency (by Load Power) 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 power.

(注)斜線は定格負荷電力範囲を示す。

2. Values

Load Power [W]	Efficiency [%] Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
50	75.1	73.3	78.1
150	86.3	86.0	87.9
300	89.8	89.7	90.6
450	89.8	91.4	92.3
600	90.2	91.6	92.5
750	90.0	91.7	93.2
850	90.3	91.3	93.1
1000	89.7	90.8	93.0
1100	89.0	91.0	92.5
—	—	—	—
—	—	—	—
—	—	—	—

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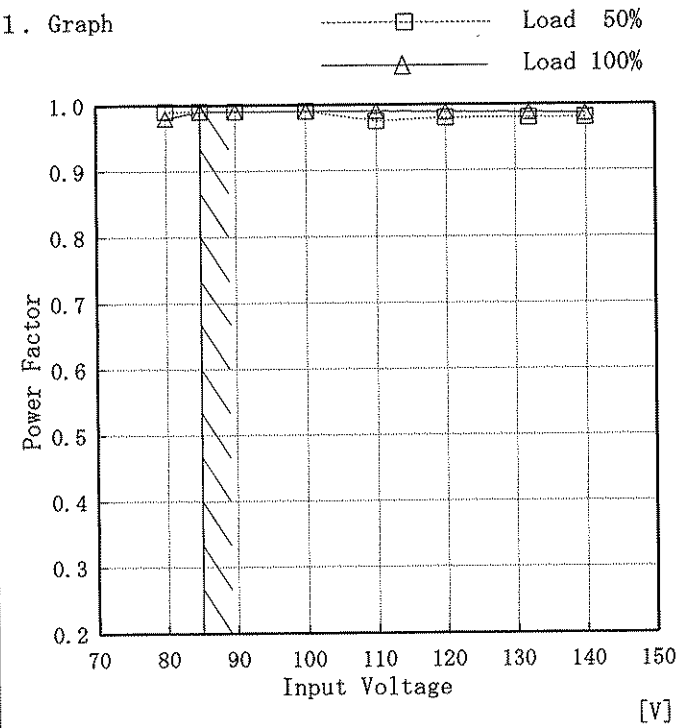
COSEL

Model	DPF1000
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 power factor correction range.

(注)斜線は力率改善入力電圧範囲を示す。

2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
80	0.99	0.98
85	0.99	0.99
90	0.99	0.99
100	0.99	0.99
110	0.98	0.99
120	0.98	0.99
132	0.98	0.99
140	0.98	0.99
—	—	—

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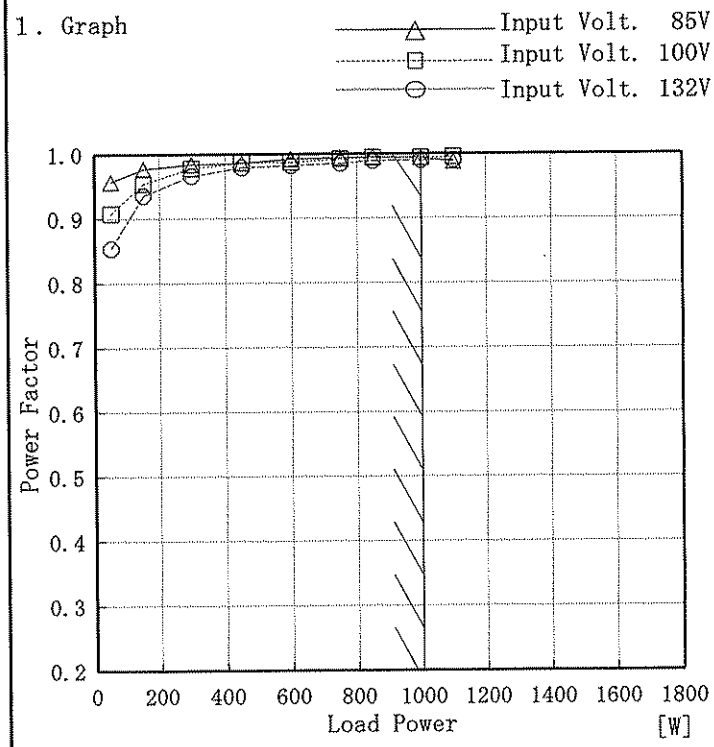
COSEL

Model	DPF1000
Item	Power Factor (by Load Power) 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 power.

(注)斜線は定格負荷電力範囲を示す。

2. Values

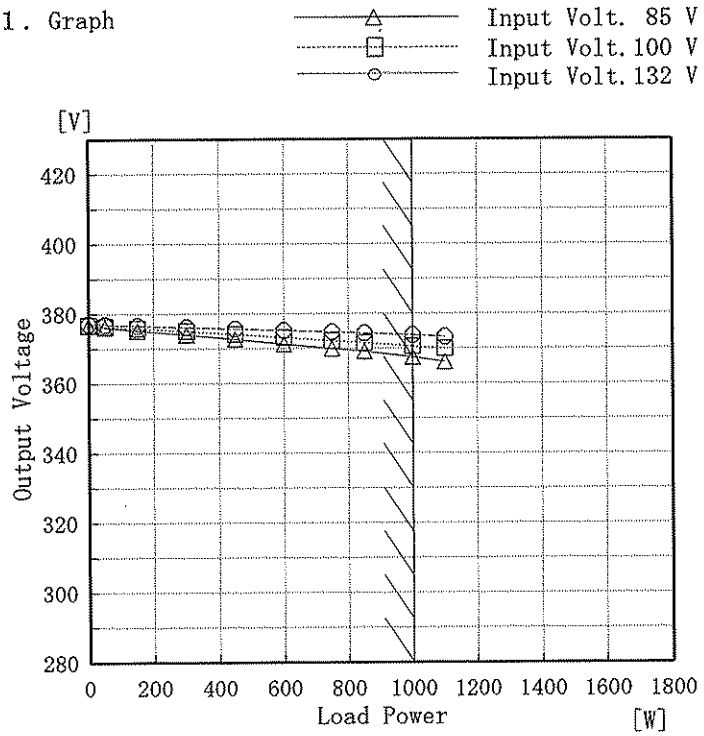
Load Power [W]	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
50	0.96	0.91	0.85
150	0.98	0.95	0.94
300	0.98	0.98	0.97
450	0.99	0.99	0.98
600	0.99	0.99	0.98
750	0.99	0.99	0.99
850	0.99	0.99	0.99
1000	0.99	0.99	0.99
1100	0.99	0.99	0.99
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DPF1000
Item	Load Regulation 静的負荷変動
Object	+360V1000W

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格負荷電力範囲を示す。

2. Values

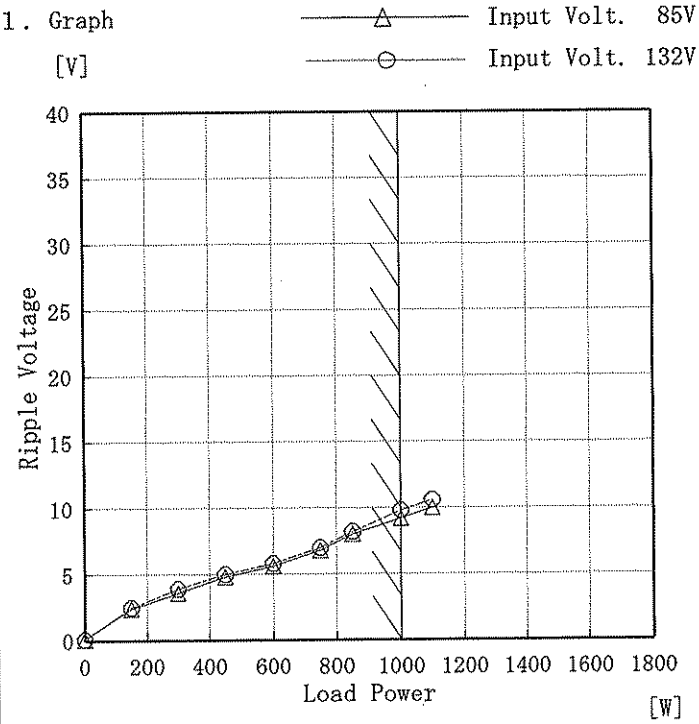
Load Power [W]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	376.6	376.8	377.1
50	376.1	376.4	376.9
150	375.2	375.9	376.6
300	374.0	375.0	376.1
450	372.7	374.1	375.7
600	371.3	373.2	375.2
750	370.0	372.2	374.7
850	369.1	371.6	374.4
1000	367.5	370.6	373.8
1100	366.1	370.0	373.4

COSEL

Model	DPF1000
Item	Ripple Voltage(by Load Power) リップル電圧(負荷特性)
Object	+360V1000W

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 power.

リップル電圧は、下図ｐ－ｐ値で示される。

(注)斜線は定格負荷電力範囲を示す。

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

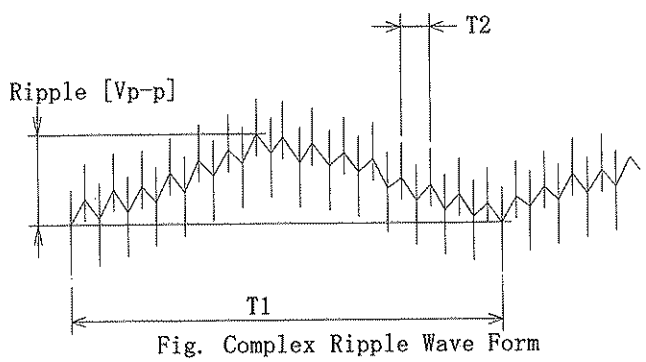


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

2. Values

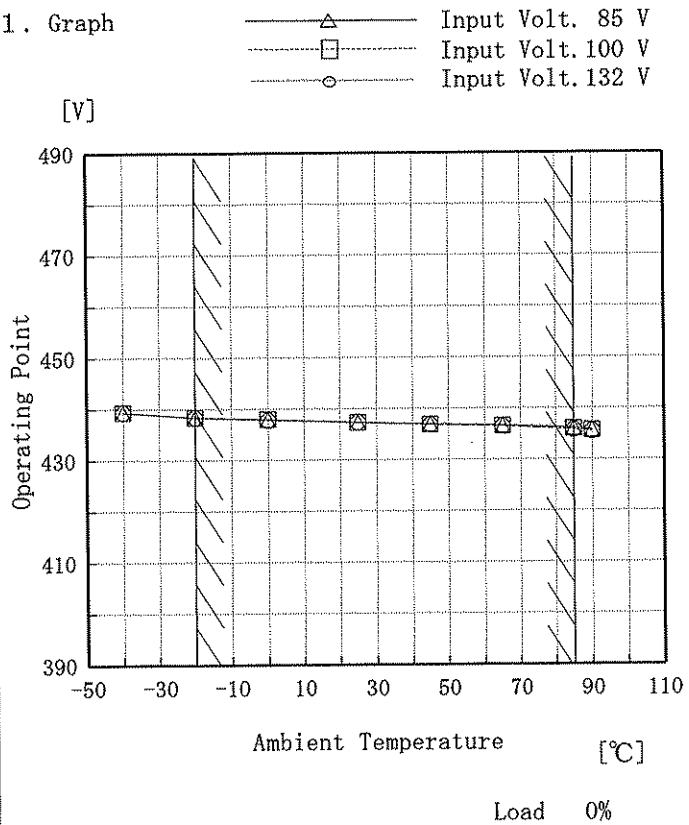
Load Power [W]	Ripple Output Voltage [V]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0	0.1	0.1
150	2.4	2.5
300	3.6	3.9
450	4.8	5.0
600	5.6	5.8
750	6.8	7.0
850	8.0	8.2
1000	9.2	9.8
1100	10.0	10.6
—	—	—
—	—	—

COSEL

Model	DPF1000
Item	Overvoltage Protection 過電圧保護
Object	+360V 1000W

Testing Circuitry Figure A

1. Graph



Load 0%

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

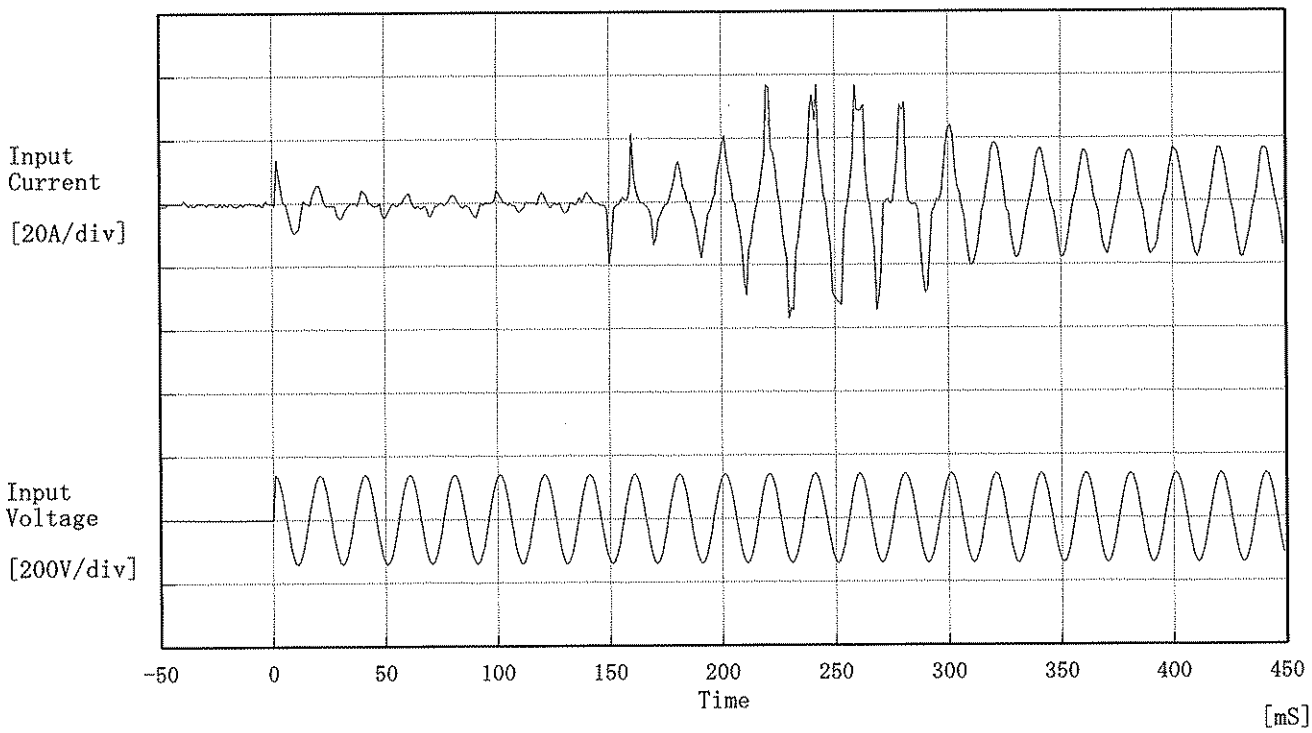
(注)斜線は定格周囲温度範囲を示す。

2. Values

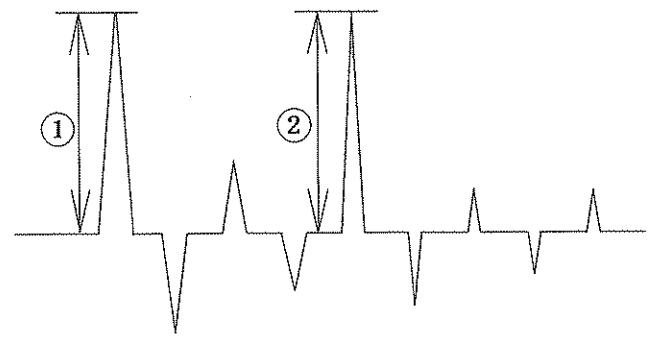
Ambient Temperature [℃]	Operating Point [V] Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-40	439.4	439.4	439.4
-20	438.4	438.4	438.4
0	438.0	438.0	437.8
25	437.3	437.3	437.4
45	437.0	436.9	436.9
65	436.7	436.6	436.5
85	436.2	436.0	435.8
90	435.8	435.7	435.5
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DPF1000		
Item	Inrush Current 突入電流	Temperature Testing Circuitry	25℃ Figure A
Object	———————		



Input Voltage 100 V
Frequency 50 Hz
Load 100 %
Inrush Current
① 13.60 [A]
② 36.80 [A]



BC－10001

COSEL

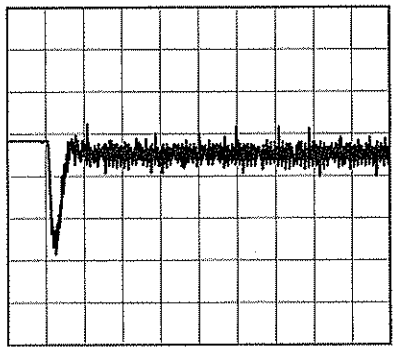
Model	DPF1000		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+360V1000W		

Input Volt. 100 V

Cycle 10 S

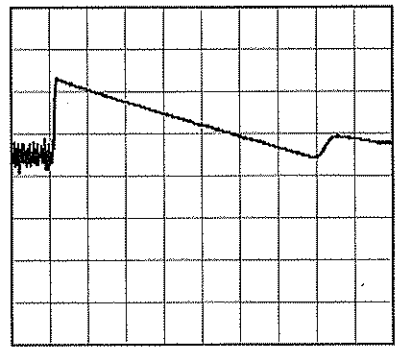
Load Current

Min. Load (0W) ⟷
Load 100% (1000W)



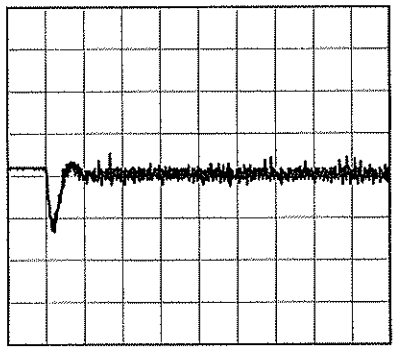
20 V/div

200 ms/div



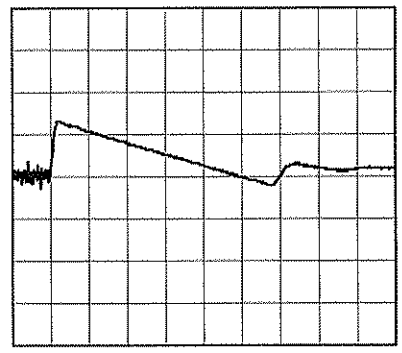
200 ms/div

Min. Load (0W) ⟷
Load 50% (500W)



20 V/div

200 ms/div



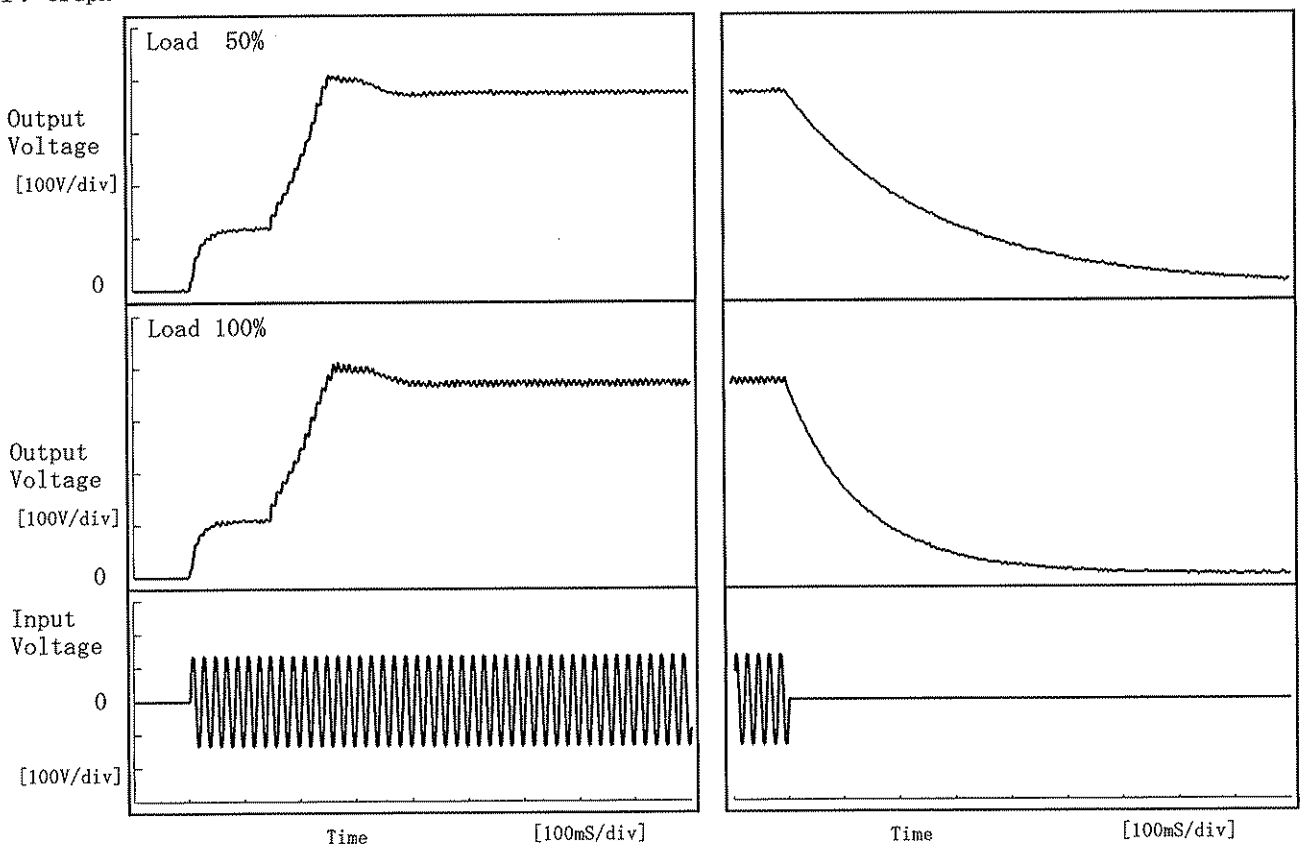
200 ms/div

COSEL

Model	DPF1000		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+360V1000W		

1. Graph

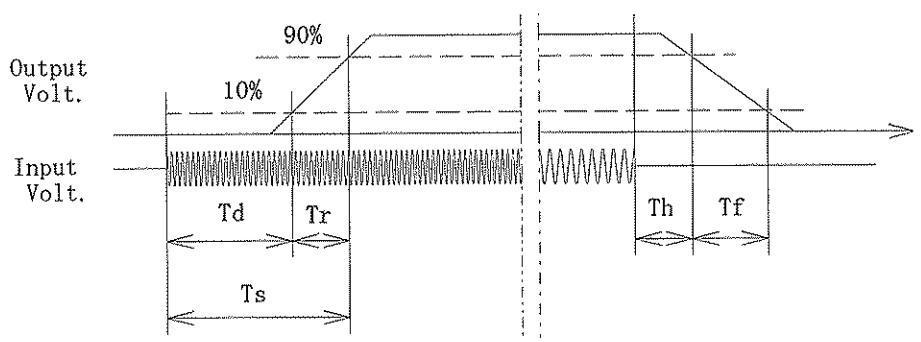
Input Volt. 100 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	4.0	226.0	230.0	38.0	596.0
100 %	4.0	232.0	236.0	18.0	306.0



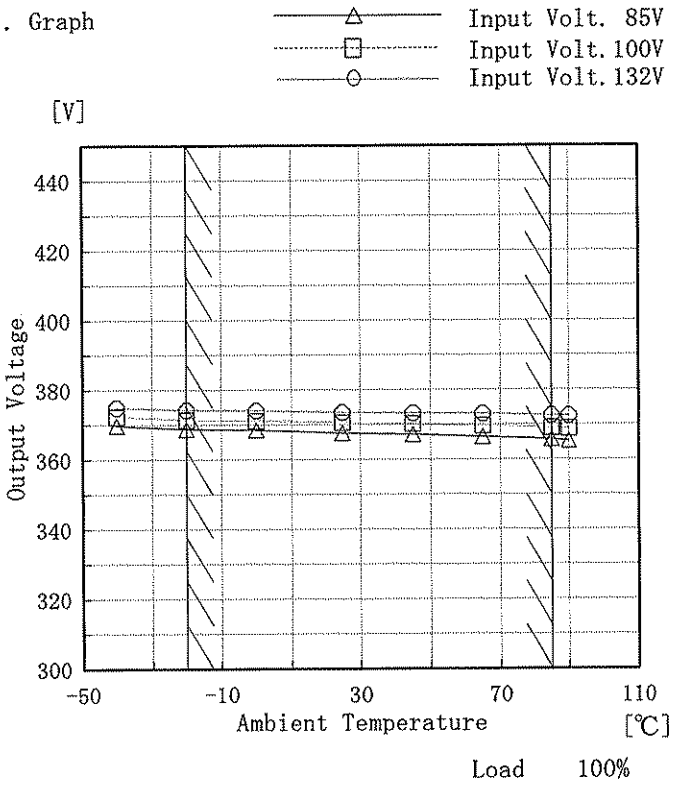
BC−10001

COSEL

Model	DPF1000
Item	Ambient Temperature Drift 周囲温度変動
Object	+360V 1000W

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

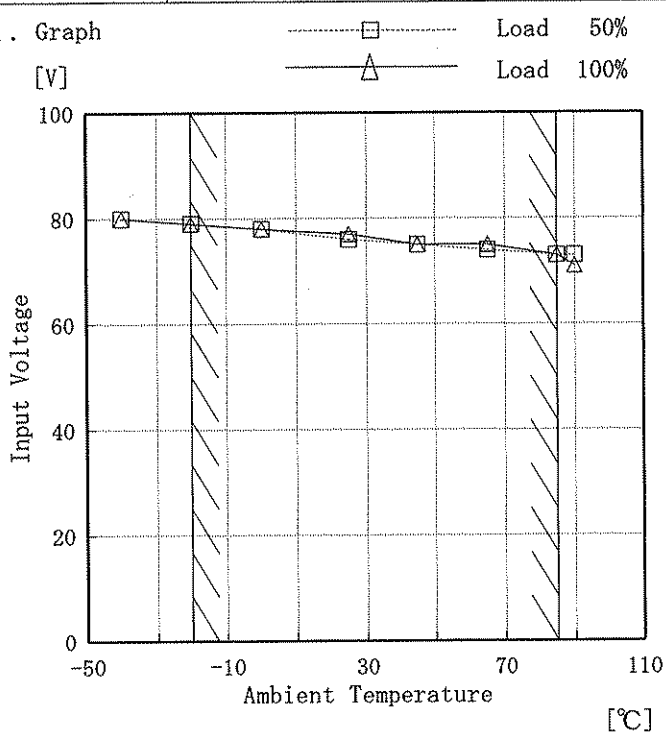
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-40	369.8	372.3	375.0
-20	368.8	371.4	374.2
0	368.5	371.1	374.0
25	367.6	370.5	373.5
45	367.3	370.2	373.3
65	366.5	369.6	373.1
85	365.8	369.0	372.6
90	365.3	368.8	372.5
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DPF1000
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+360V 1000W

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

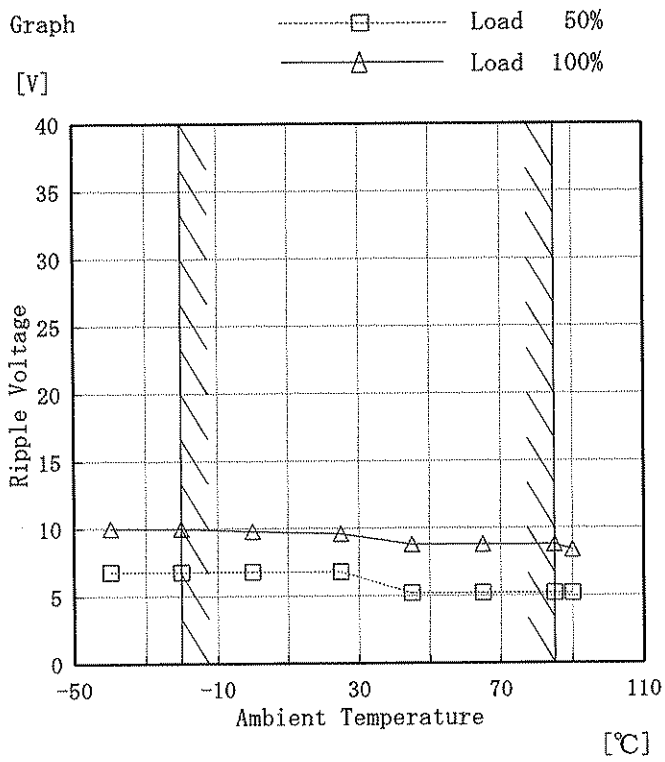
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-40	80	80
-20	79	79
0	78	78
25	76	77
45	75	75
65	74	75
85	73	73
90	73	71
—	—	—
—	—	—
—	—	—

COSEL

Model	DPF1000
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+360V1000W

Testing Circuitry Figure A

1. Graph



Input Volt. 100 V

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

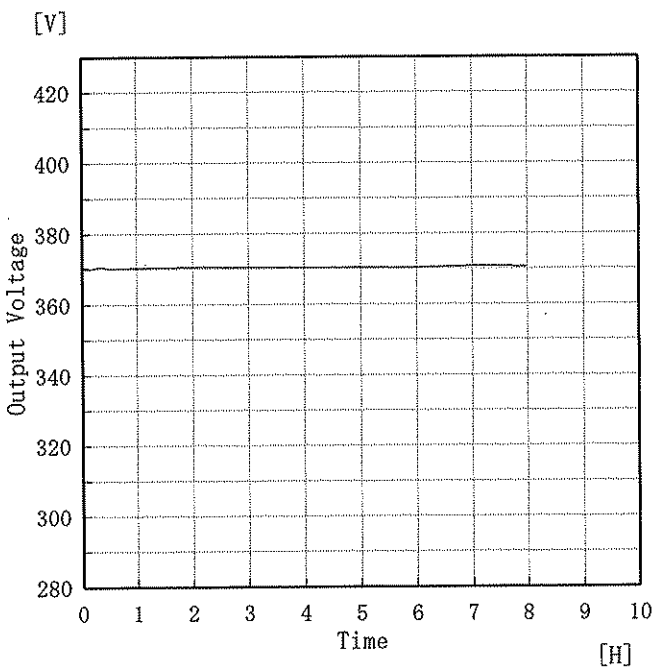
Ambient Temperature [℃]	Ripple Output Voltage [V]	
	Load 50%	Load 100%
-40	6.8	10.0
-20	6.8	10.0
0	6.8	9.8
25	6.8	9.6
45	5.2	8.8
65	5.2	8.8
85	5.2	8.8
90	5.2	8.4
—	—	—
—	—	—
—	—	—

COSEL

Model	DPF1000
Item	Time Lapse Drift 経時ドリフト
Object	+360V1000W

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Input Volt. 100V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	370.60
0.5	370.24
1.0	370.38
2.0	370.55
3.0	370.49
4.0	370.41
5.0	370.39
6.0	370.33
7.0	370.76
8.0	370.60

COSEL

Model	DPF1000	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+360V1000W	

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 : -20～85 ℃
Input Voltage : 85～132 V
Load Power : 0～1000 W

* 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、負荷電力を下記仕様内で、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 -20～85 ℃
入力電圧 85～132 V
負荷電力 0～1000 W

* 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 Power [W]	Output Voltage [V]	Output Voltage Accuracy [V]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	-20	132	0.0	377.18	±6	±1.7
Minimum Voltage	85	85	1000.0	365.30		

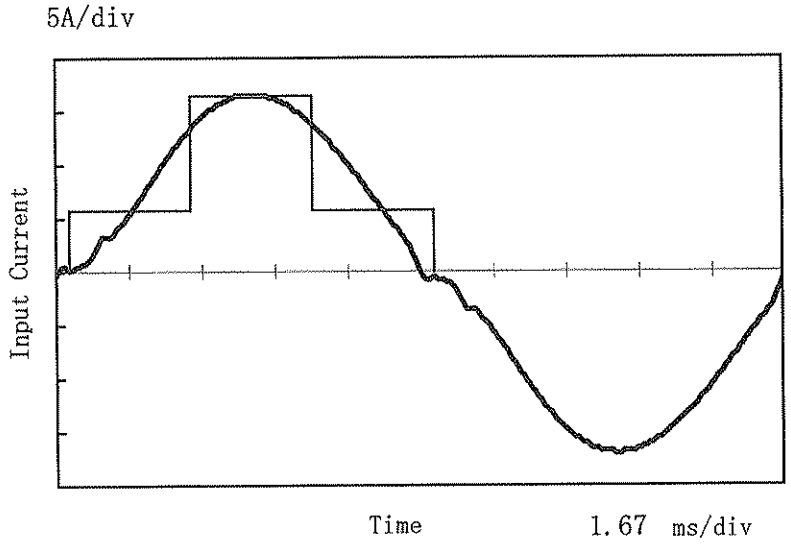
COSEL

Model	DPF1000		
Item	Hamonic Current 高調波電流	Temperature Testing Circuitry	25℃ Figure E
Object	————		

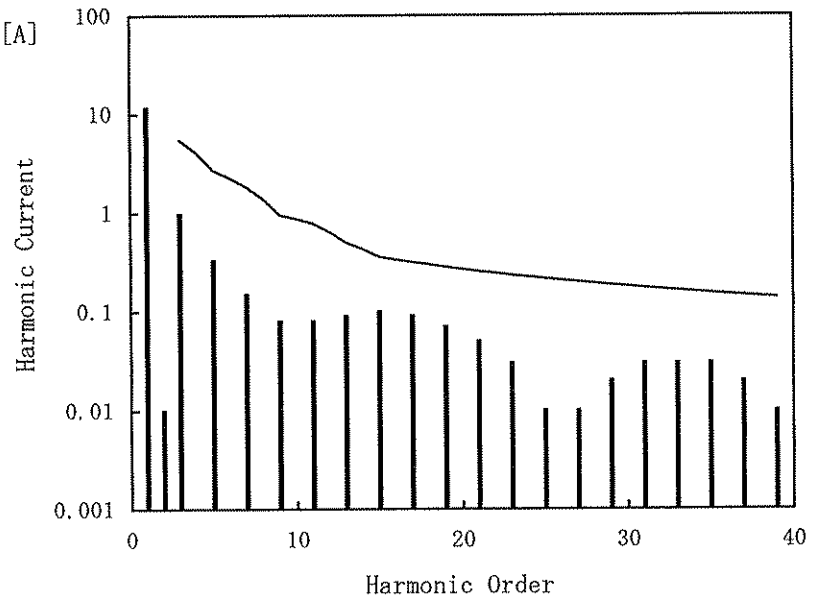
1. Input Current Waveform

——— Input Current
Envelope of the input current to
———— Classify equipment as ClassD
クラスDの機器を決定する為の入力電流包絡線

Conditions	Values
Input Voltage 〔V〕	95.7
Input Current 〔A〕	11.720
Active Power 〔W〕	1115.5
Apparent Power 〔VA〕	1121.3
Frequency 〔Hz〕	60
Power Factor	0.995
Output Power 〔W〕	1004.9



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 oeder 高調波次数	Limits 限度値 〔A〕	Values 測定値 〔A〕
1	–	11.67000
2	–	0.01000
3	5.52769	0.98000
4	–	0.00000
5	2.73981	0.33000
6	–	0.00000
7	1.85057	0.15000
8	–	0.00000
9	0.96134	0.08000
10	–	0.00000
11	0.79310	0.08000
12	–	0.00000
13	0.50470	0.09000
14	–	0.00000
15	0.36050	0.10000
16	–	0.00000
17	0.31809	0.09000
18	–	0.00000
19	0.28461	0.07000
20	–	0.00000
21	0.25750	0.05000
22	–	0.00000
23	0.23511	0.03000
24	–	0.00000
25	0.21630	0.01000
26	–	0.00000
27	0.20028	0.01000
28	–	0.00000
29	0.18647	0.02000
30	–	0.00000
31	0.17444	0.03000
32	–	0.00000
33	0.16386	0.03000
34	–	0.00000
35	0.15450	0.03000
36	–	0.00000
37	0.14615	0.02000
38	–	0.00000
39	0.13865	0.01000
40	–	0.00000

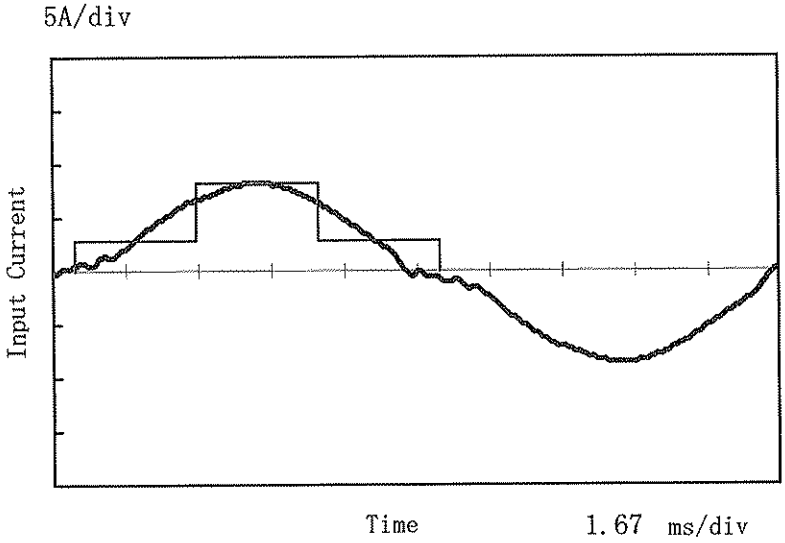
COSEL

Model	DPF1000		
Item	Hamonic Current 高調波電流	Temperature Testing Circuitry	25℃ Figure E
Object	———		

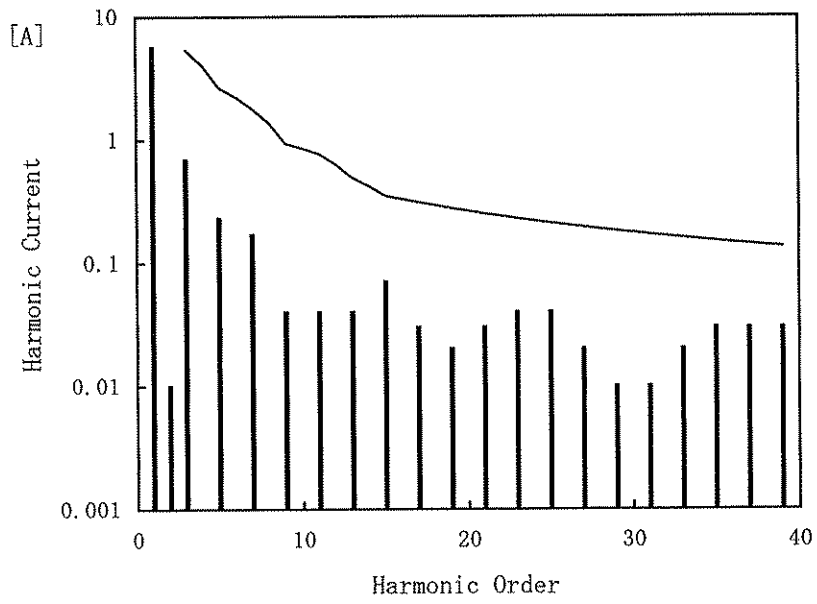
1. Input Current Waveform

——— Input Current
Envelope of the input current to
——— Classify equipment as ClassD
クラスDの機器を決定する為の入力電流包絡線

Conditions	Values
Input Voltage 〔V〕	98.2
Input Current 〔A〕	5.710
Active Power 〔W〕	555.3
Apparent Power 〔VA〕	560.6
Frequency 〔Hz〕	60
Power Factor	0.991
Output Power 〔W〕	504.56



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 oeder 高調波次数	Limits 限度値 〔A〕	Values 測定値 〔A〕
1	–	5.66000
2	–	0.01000
3	5.38697	0.69000
4	–	0.00000
5	2.67006	0.23000
6	–	0.00000
7	1.80346	0.17000
8	–	0.00000
9	0.93686	0.04000
10	–	0.00000
11	0.77291	0.04000
12	–	0.00000
13	0.49185	0.04000
14	–	0.00000
15	0.35132	0.07000
16	–	0.00000
17	0.30999	0.03000
18	–	0.00000
19	0.27736	0.02000
20	–	0.00000
21	0.25095	0.03000
22	–	0.00000
23	0.22912	0.04000
24	–	0.00000
25	0.21079	0.04000
26	–	0.00000
27	0.19518	0.02000
28	–	0.00000
29	0.18172	0.01000
30	–	0.00000
31	0.17000	0.01000
32	–	0.00000
33	0.15969	0.02000
34	–	0.00000
35	0.15057	0.03000
36	–	0.00000
37	0.14243	0.03000
38	–	0.00000
39	0.13512	0.03000
40	–	0.00000

COSEL

Model	DPF1000
Item	Condensation 結露特性
Object	+360V1000W

Testing Circuitry Figure A

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.

② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH.

③ Testing electrical characteristics of the unit to confirm there be no fault.

1．結露特性試験

入力を切った状態で、恒温槽で－１０℃に冷却しておき、約１時間後に恒温槽から取り出し、室温２５℃、湿度４０%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2．Values

Item	Data	Testing Conditions
Output Voltage [V]	370.2	Input Volt.: 100V, Load Power:1000W
Line Regulation [V]	6.5	Input Volt.: 85～132V, Load Power:1000W
Load Regulation [V]	6.3	Input Volt.: 100V, Load Power:0～1000W

COSEL

Model	DPF1000		
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	0.18	0.20	0.27
(B)IEC60950	0.17	0.20	0.26

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	DPF1000		
Item	Line Noise Tolerance 入力雑音耐量	Temperature Testing Circuitry	25℃ Figure C
Object	+360V1000W		

1. 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

2. Conditions

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

COSEL

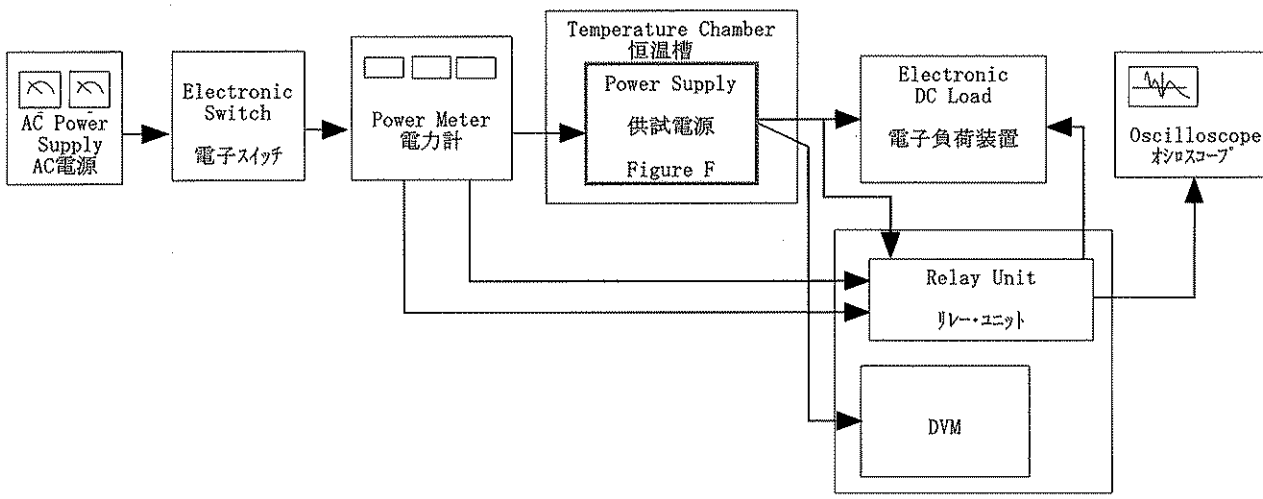


Figure A

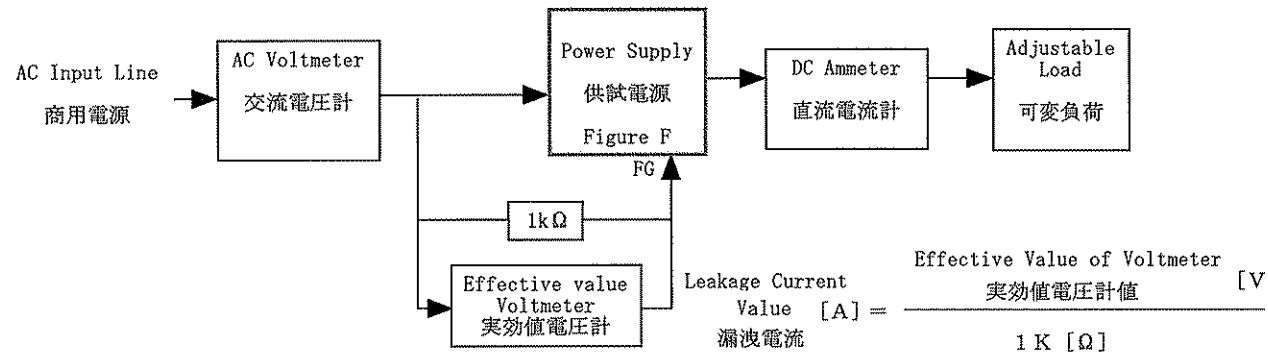


Figure B(DEN-AN)

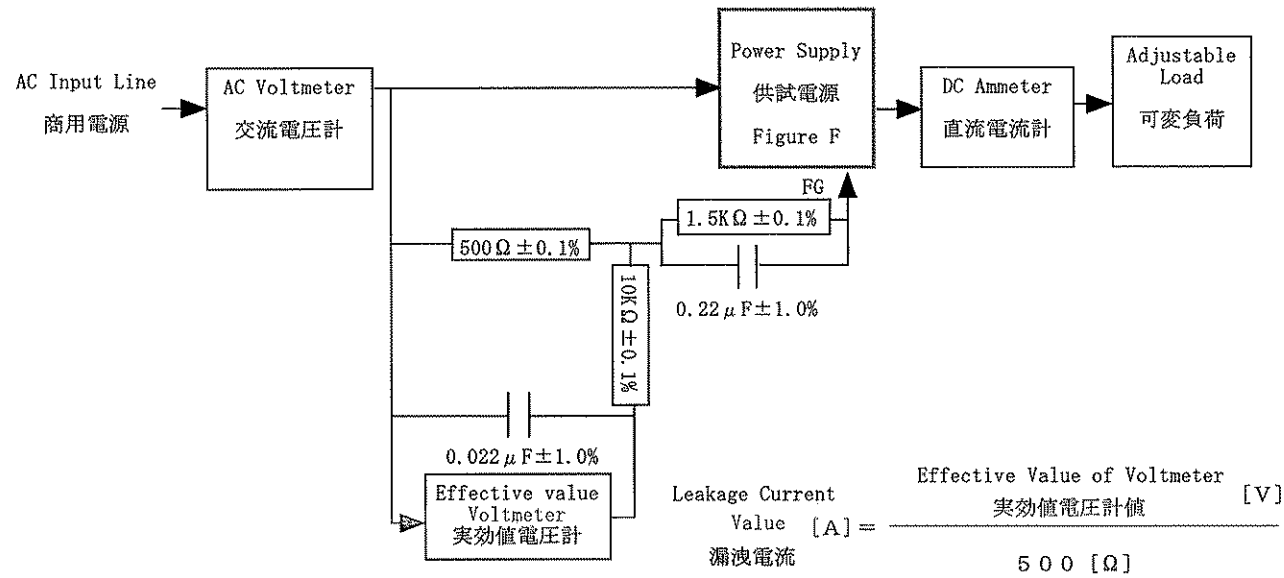


Figure B(IEC60950)

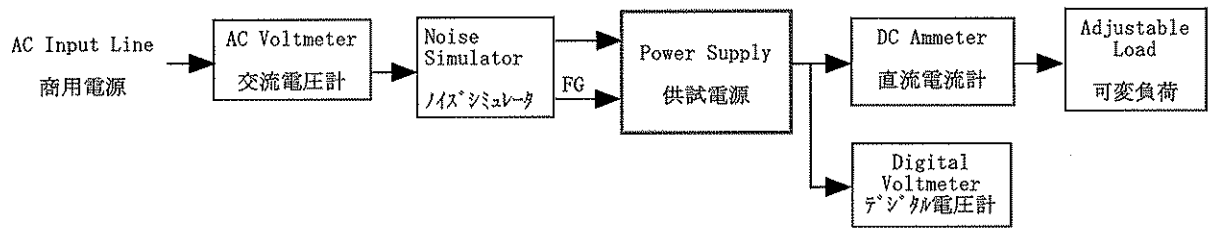


Figure C

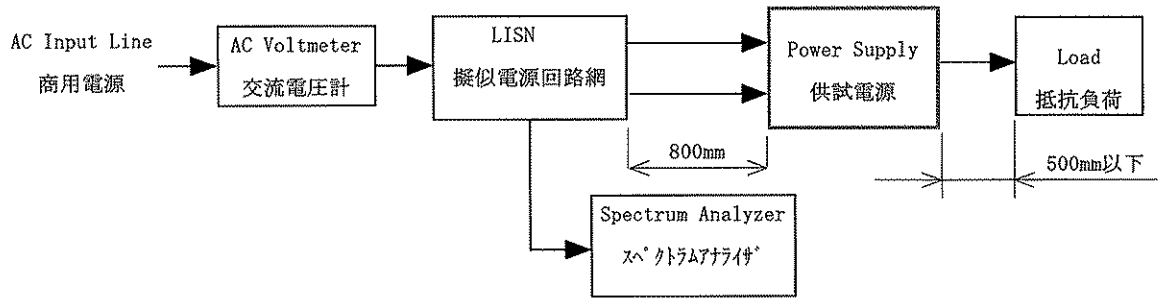


Figure D

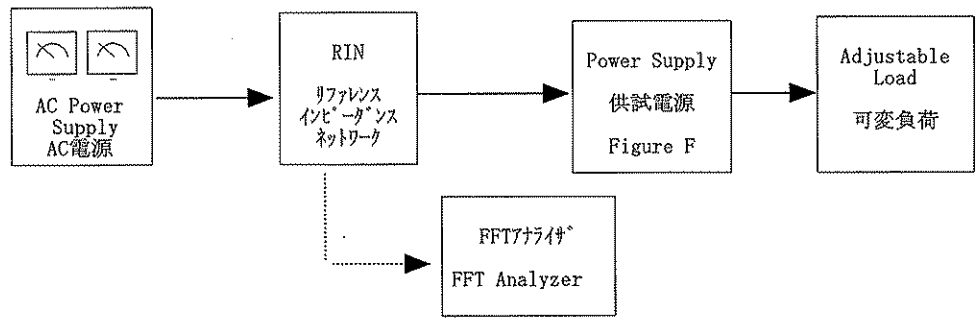


Figure E

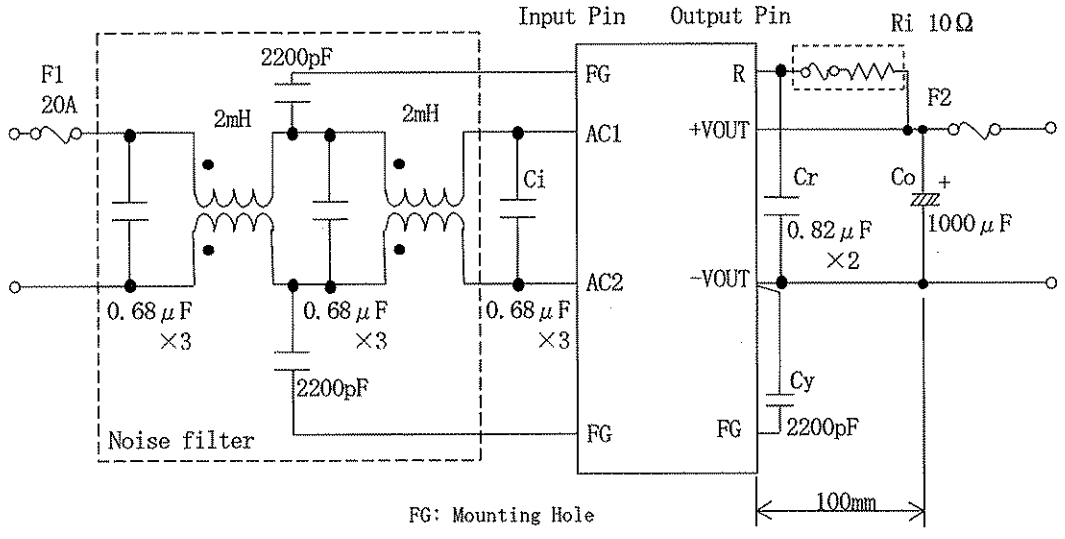


Figure F