



TEST DATA OF LDA30F-24 (100V INPUT)

Regulated DC Power Supply

Date : Aug. 17. 1999

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Design Manager

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コーセル株式会社
COSEL CO., LTD.

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Model		LDA30F-24		Temperature		25℃																																	
Item		Line Regulation 静的入力変動		Testing Circuitry		Figure A																																	
Object		+24.0V1.3A																																					
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<div><div>□</div>Load 50%</div> <div><div>—△—</div>Load 100%</div> <div><div>Output Voltage [V]</div><div><div>24.05</div><div>24.03</div><div>24.01</div><div>23.99</div><div>23.97</div><div>23.95</div><div>23.93</div><div>0</div></div><div><div>0</div><div>80</div><div>90</div><div>100</div><div>110</div><div>120</div><div>130</div><div>140</div><div>150</div></div><div>Input Voltage [V]</div></div>				<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>23.979</td><td>23.979</td></tr><tr><td>80</td><td>23.979</td><td>23.979</td></tr><tr><td>85</td><td>23.980</td><td>23.979</td></tr><tr><td>90</td><td>23.979</td><td>23.979</td></tr><tr><td>100</td><td>23.979</td><td>23.979</td></tr><tr><td>110</td><td>23.980</td><td>23.979</td></tr><tr><td>120</td><td>23.980</td><td>23.979</td></tr><tr><td>132</td><td>23.980</td><td>23.979</td></tr><tr><td>140</td><td>23.980</td><td>23.979</td></tr></table>				Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	75	23.979	23.979	80	23.979	23.979	85	23.980	23.979	90	23.979	23.979	100	23.979	23.979	110	23.980	23.979	120	23.980	23.979	132	23.980	23.979	140	23.980	23.979
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BC-4072

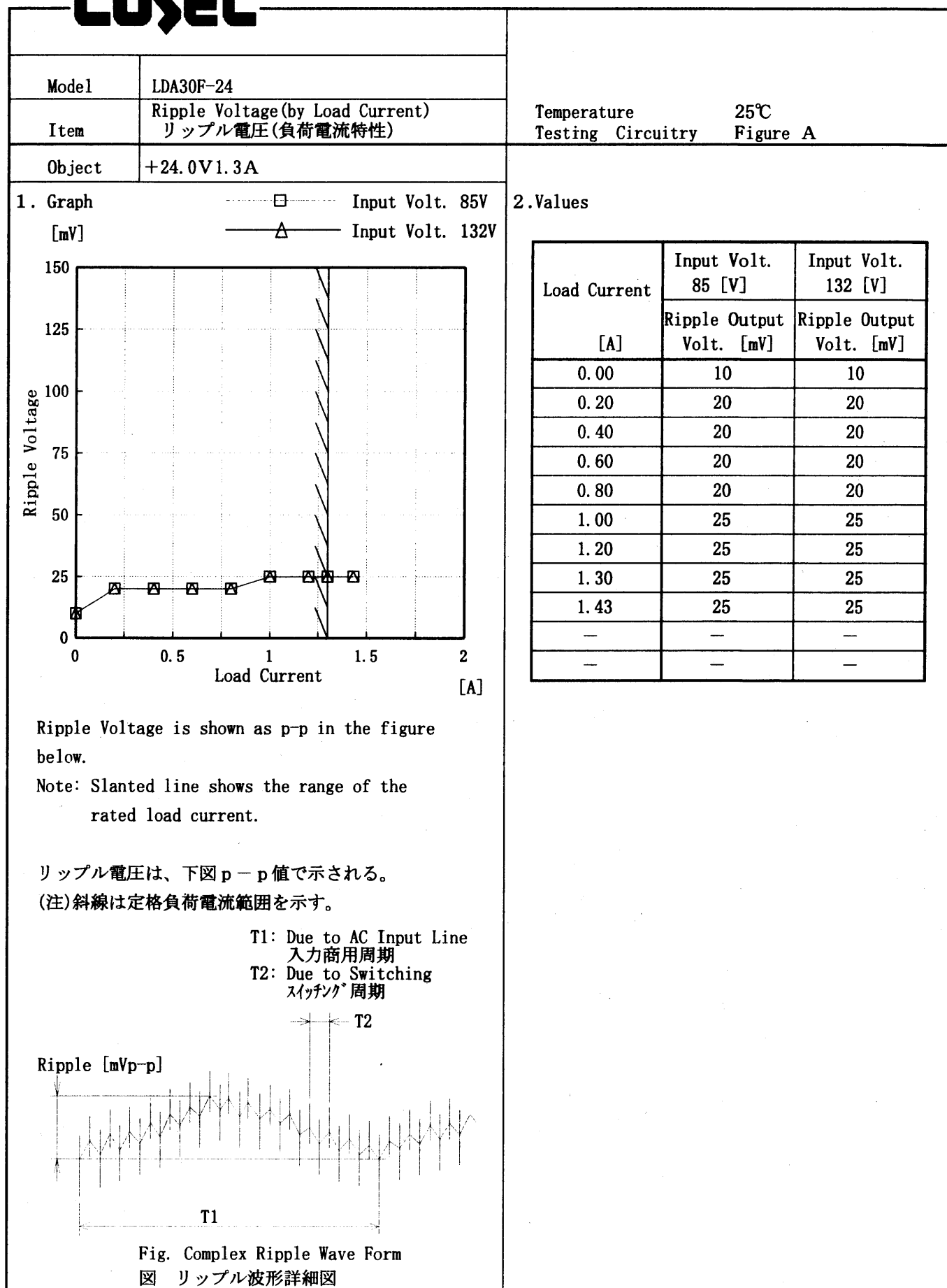
BC-4072

COSEL

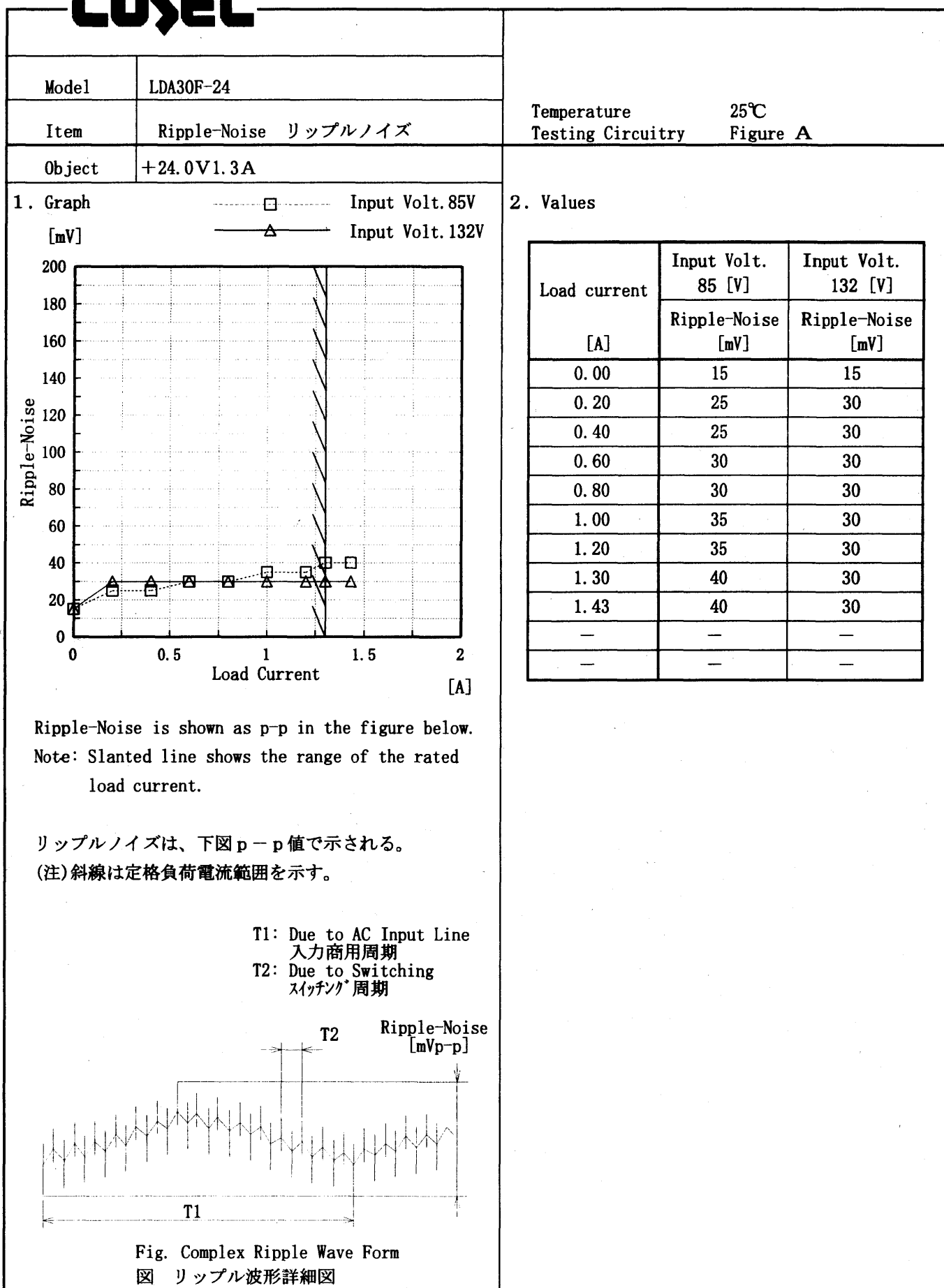
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Model

LDA30F-24

Item

Overcurrent Protection
過電流保護

Object

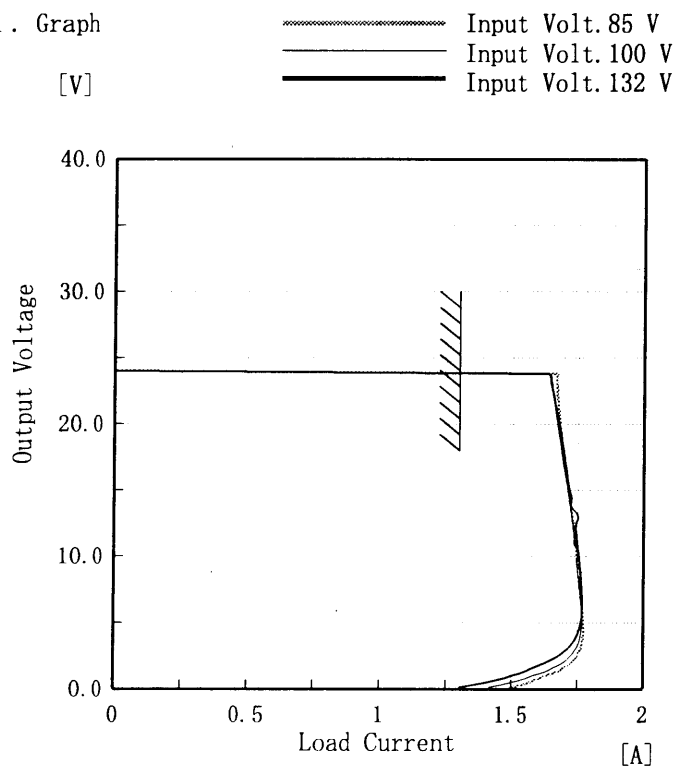
+24.0V1.3A

Temperature

25°C

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

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	1.66	1.64	1.64
22.80	1.67	1.65	1.65
21.60	1.67	1.66	1.66
19.20	1.68	1.67	1.68
16.80	1.70	1.69	1.70
14.40	1.72	1.72	1.72
12.00	1.74	1.73	1.74
9.60	1.75	1.75	1.76
7.20	1.76	1.76	1.77
4.80	1.77	1.77	1.76
2.40	1.75	1.72	1.67
0.00	1.50	1.42	1.30

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Model		LDA30F-24
Item		Overvoltage Protection 過電圧保護
Object		+24.0V1.3A

1. Graph

△

Input Volt. 85 V

□

Input Volt.100 V

○

Input Volt.132 V

[V]

33.85

32.85

31.85

30.85

29.85

28.85

27.85

0

Operating Point

-30

-10

10

30

50

70

Ambient Temperature

[°C]

Load 0%

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

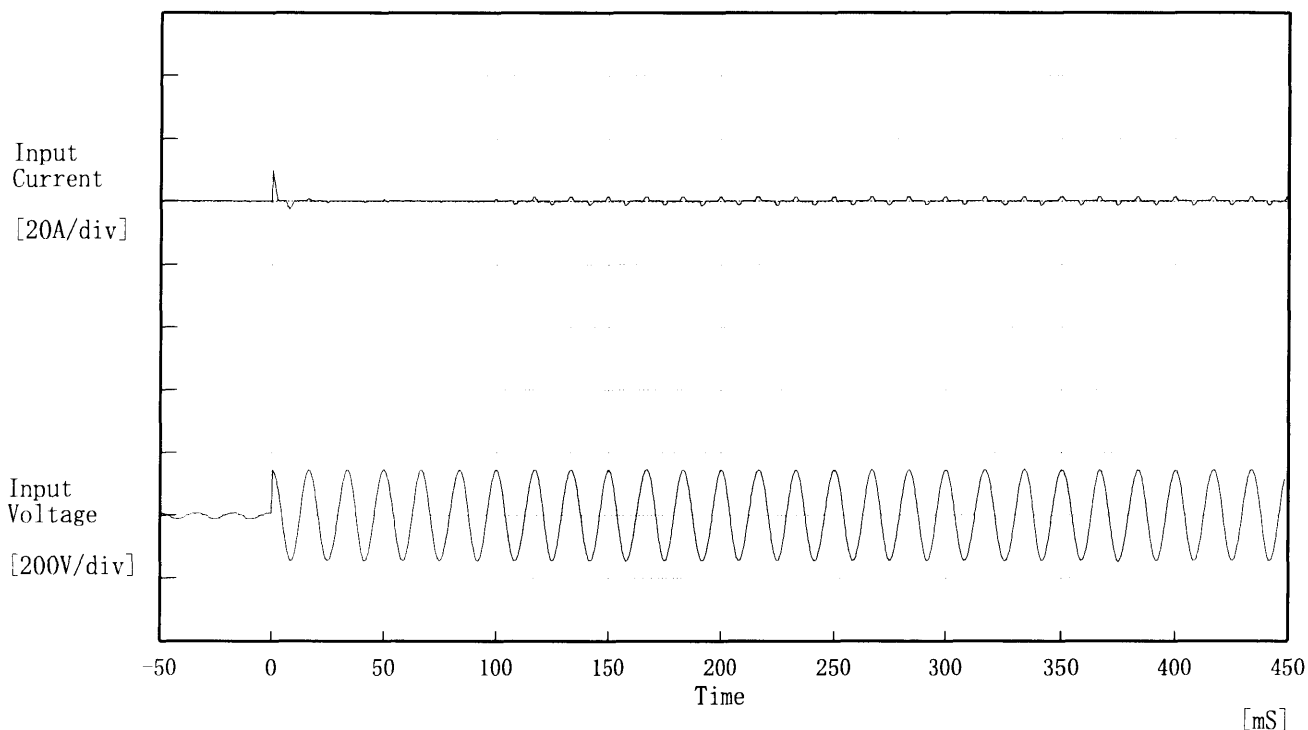
(注)斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
-20	29.49	29.49	29.49
-10	29.72	29.67	29.67
0	29.90	29.91	29.91
10	30.15	30.09	30.09
20	30.33	30.33	30.33
25	30.50	30.44	30.44
30	30.56	30.56	30.56
40	30.79	30.74	30.74
50	30.97	30.98	30.98
60	31.21	31.16	31.16
—	—	—	—

COSEL

Model	LDA30F-24	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



Input Voltage 100 V

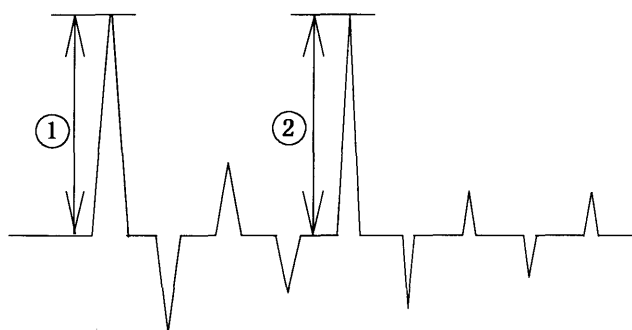
Frequency 60 Hz

Load 100 %

Inrush Current

① 9.80 [A]

② 1.40 [A]



COSEL

Model	LDA30F-24	Temperature 25℃ Testing Circuitry Figure A
Item	Dynamic Load Responce 動的負荷変動	
Object	+24.0V 1.3A	

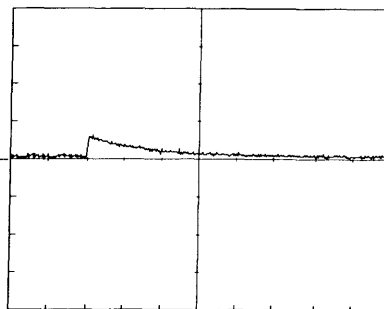
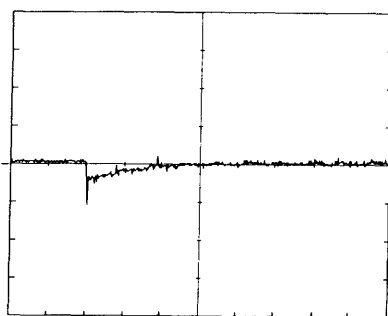
Input Volt. 100 V

Cycle 1000 mS

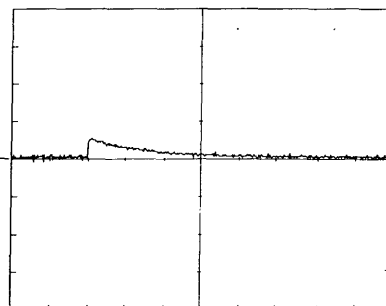
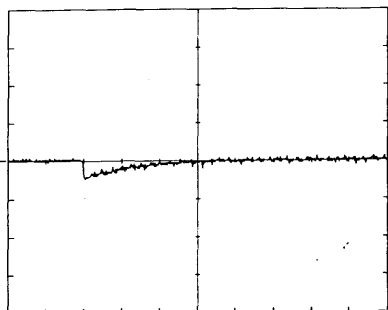
Load Current

Load 0% \longleftrightarrow

Load 100 %

Load 0% \longleftrightarrow

Load 50 %



100 mV/div

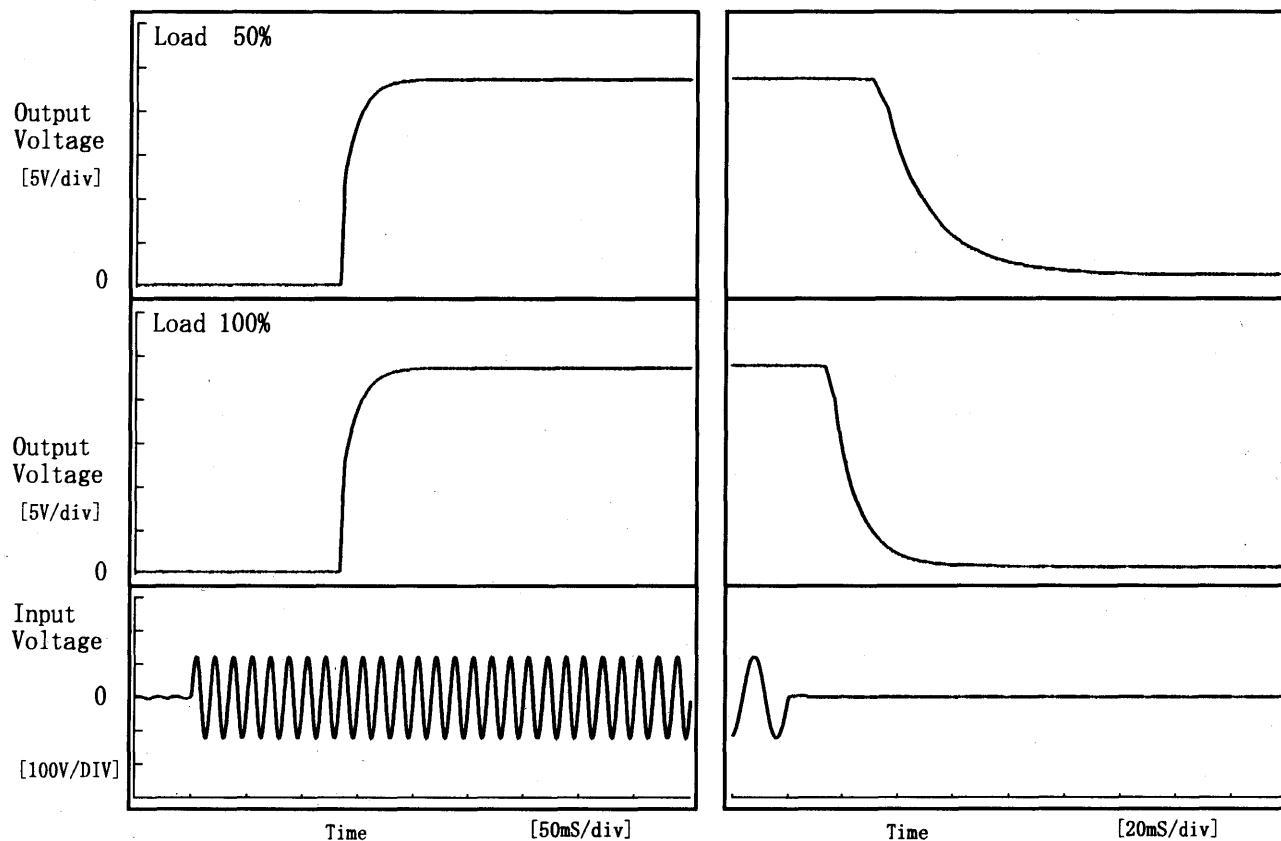
10 mS/div

COSEL

Model	LDA30F-24	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+24.0V1.3A		

1. Graph

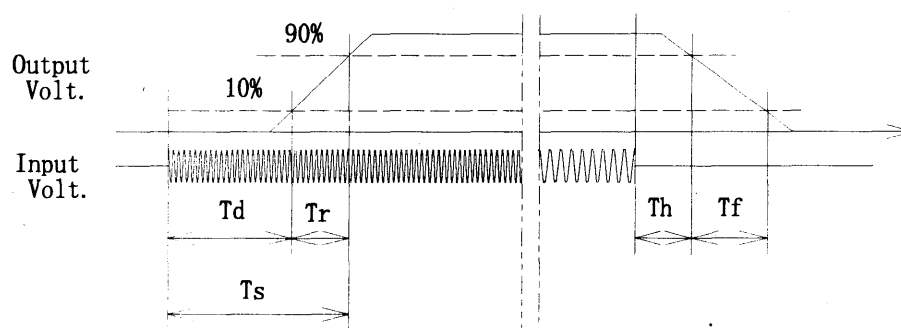
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	134.0	28.3	162.3	33.7	51.0
100 %	134.0	28.5	162.5	15.8	23.3



COSEL

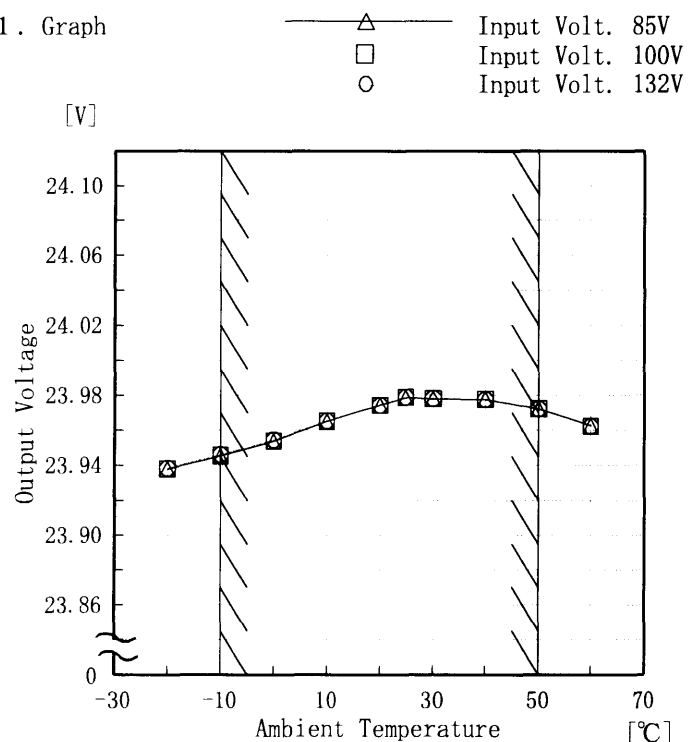
Model LDA30F-24

Item Ambient Temperature Drift
周囲温度変動

Object +24.0V1.3A

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

Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	23.938	23.938	23.938
-10	23.945	23.946	23.946
0	23.954	23.954	23.955
10	23.965	23.965	23.965
20	23.974	23.974	23.974
25	23.979	23.979	23.979
30	23.978	23.978	23.978
40	23.978	23.978	23.978
50	23.972	23.972	23.972
60	23.962	23.962	23.962
—	—	—	—

COSEL

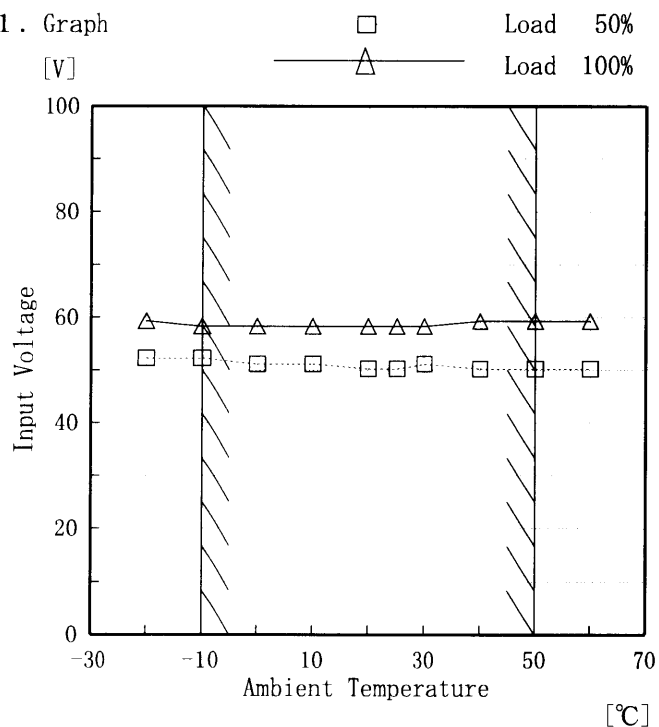
Model LDA30F-24

Item Minimum Input Voltage for Regulated Output Voltage
最低レギュレーション電圧

Object +24.0V1.3A

Testing Circuitry Figure A

1. Graph



(注)斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	52	59
-10	52	58
0	51	58
10	51	58
20	50	58
25	50	58
30	51	58
40	50	59
50	50	59
60	50	59
—	—	—

COSEL

Model		LDA30F-24																																								
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)	Testing Circuitry	Figure A																																						
Object		+24.0V1.3A																																								
1. Graph		<div><div>□ Load 50%</div><div>—△— Load 100%</div></div> <div><div>[mV]</div><div>150</div><div>125</div><div>100</div><div>75</div><div>50</div><div>25</div><div>0</div></div> <div><div>Ripple Voltage</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div><div>-30</div><div>-10</div><div>10</div><div>30</div><div>50</div><div>70</div></div><div><div>Ambient Temperature</div><div>[°C]</div></div></div> <div>Input Volt. 100 V</div> <div>Note: Slanted line shows the range of the rated ambient temperature.</div> <div>(注)斜線は定格周囲温度範囲を示す。</div>	2. Values																																							
		<table><tr><td rowspan="2">Ambient Temp. [°C]</td><td>Load 50%</td><td>Load 100%</td></tr><tr><td>Ripple Output Volt. [mV]</td><td>Ripple Output Volt. [mV]</td></tr><tr><td>-20</td><td>45</td><td>45</td></tr><tr><td>-10</td><td>35</td><td>40</td></tr><tr><td>0</td><td>30</td><td>35</td></tr><tr><td>10</td><td>30</td><td>30</td></tr><tr><td>20</td><td>25</td><td>30</td></tr><tr><td>25</td><td>25</td><td>25</td></tr><tr><td>30</td><td>20</td><td>20</td></tr><tr><td>40</td><td>20</td><td>20</td></tr><tr><td>50</td><td>20</td><td>20</td></tr><tr><td>60</td><td>15</td><td>20</td></tr><tr><td>—</td><td>—</td><td>—</td></tr></table>			Ambient Temp. [°C]	Load 50%	Load 100%	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]	-20	45	45	-10	35	40	0	30	35	10	30	30	20	25	30	25	25	25	30	20	20	40	20	20	50	20	20	60	15	20	—	—	—
Ambient Temp. [°C]	Load 50%	Load 100%																																								
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]																																								
-20	45	45																																								
-10	35	40																																								
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50	20	20																																								
60	15	20																																								
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COSEL

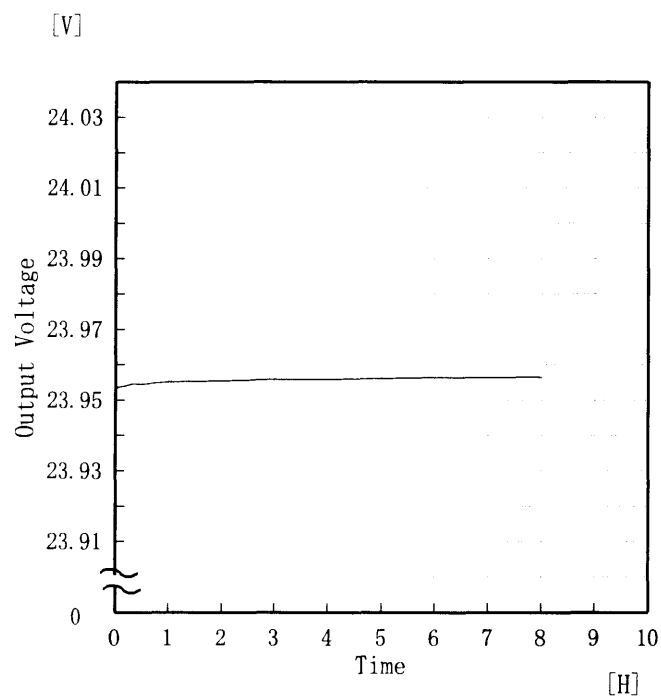
Model LDA30F-24

Item Time Lapse Drift 経時ドリフト

Object +24.0V1.3A

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	23.956
0.5	23.955
1.0	23.955
2.0	23.955
3.0	23.956
4.0	23.956
5.0	23.956
6.0	23.956
7.0	23.956
8.0	23.957

COSEL

Model		LDA30F-24	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+24.0V1.3A	

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 : 85~132 V

Load Current : 0~1.3 A

* Output Voltage Accuracy = $\pm (\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

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 °C

入力電圧 : 85~132 V

負荷電流 : 0~1.3 A

* 定電圧精度(変動値) = $\pm (\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

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

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	25	132	0.0	23.982	±18	±0.1
Minimum Voltage	-10	85	1.3	23.947		

COSEL

Model		LDA30F-24	Testing Circuitry Figure A
Item		Condensation 結露特性	
Object		+24.0V1.3A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C 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°C 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°C 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°C 、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]	23.977	Input Volt.: 100V, Load Current:1.3A
Line Regulation [mV]	2	Input Volt.: 85~132V, Load Current:1.3A
Load Regulation [mV]	5	Input Volt.: 100V, Load Current:0.0~1.3A

COSEL

Model	LDA30F-24	Temperature	25℃
Item	Leakage Current 漏洩電流	Testing Circuitry	Figure B
Object	_____		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.16	0.20	0.26
(B) IEC60950	0.16	0.21	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 of 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		LDA30F-24	Temperature 25°C Testing Circuitry Figure C	
Item		Line Noise Tolerance 入力雑音耐量		
Object		+24.0V1.3A		

1. Results

Pulse Width [nS]	MODE	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
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	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

Model	LDA30F-24	Temperature	25°C
Item	Conducted Emission 雑音端子電圧	Testing Circuitry	Figure D
Object			

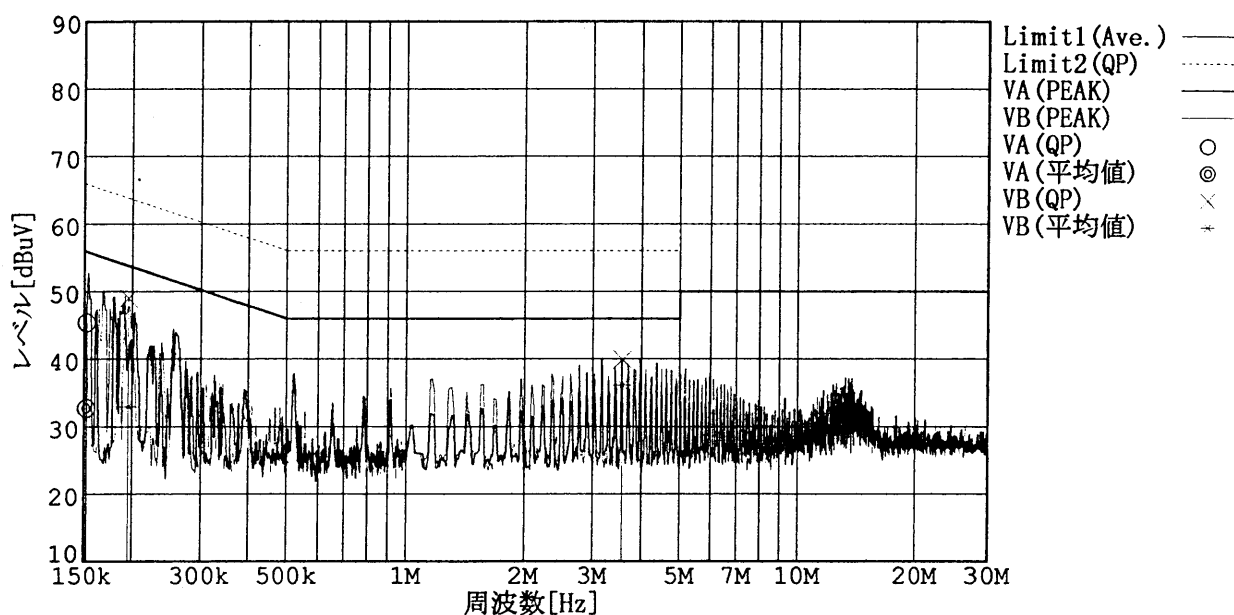
1. Graph

Remarks

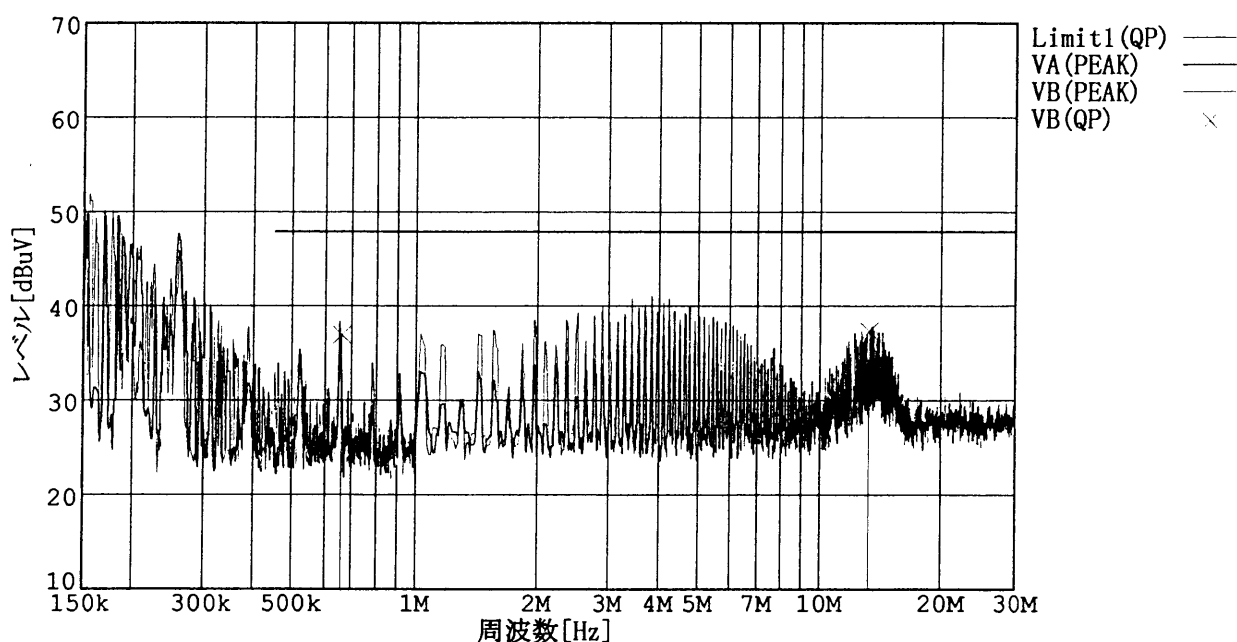
Input Volt. 100 V (VCCI Class B)
120 V (FCC Class B)
Load 100 %

規格 1: [VCCI] Class B(平均値)

規格 2: [VCCI] Class B(QP)



規格 1: [FCC Part15] Class B



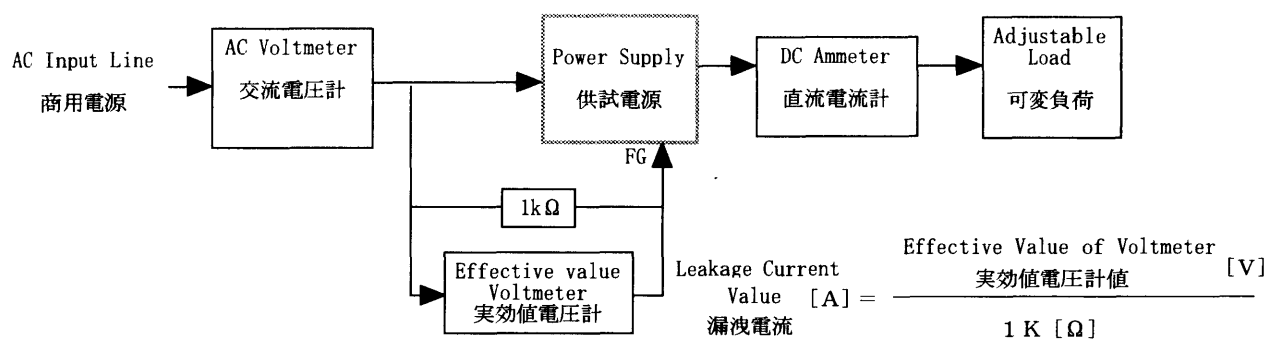
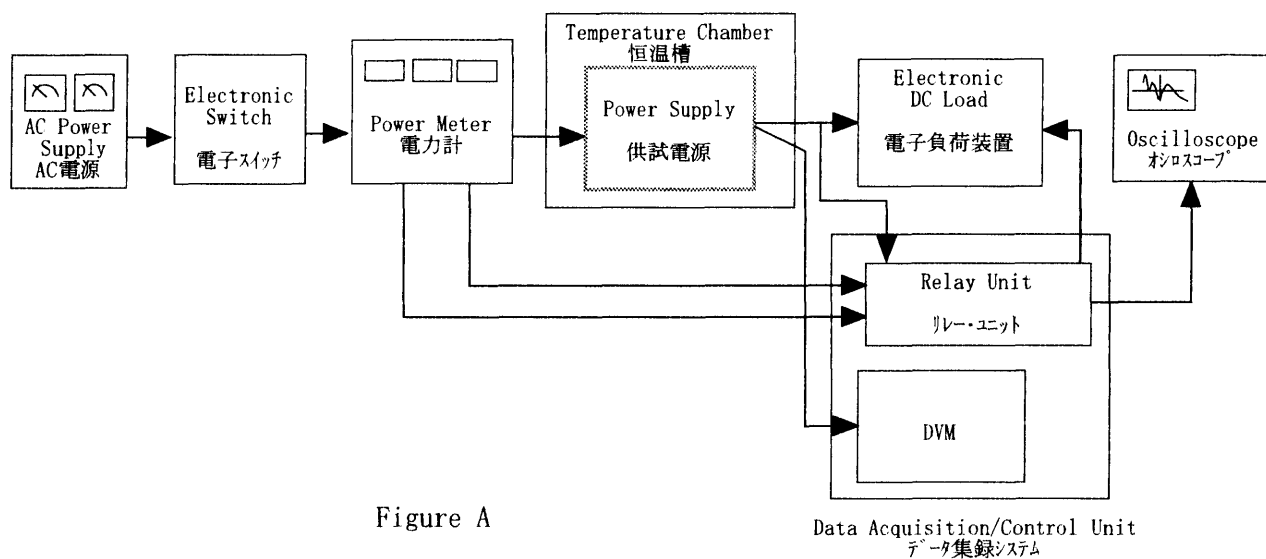


Figure B (DENTORI)

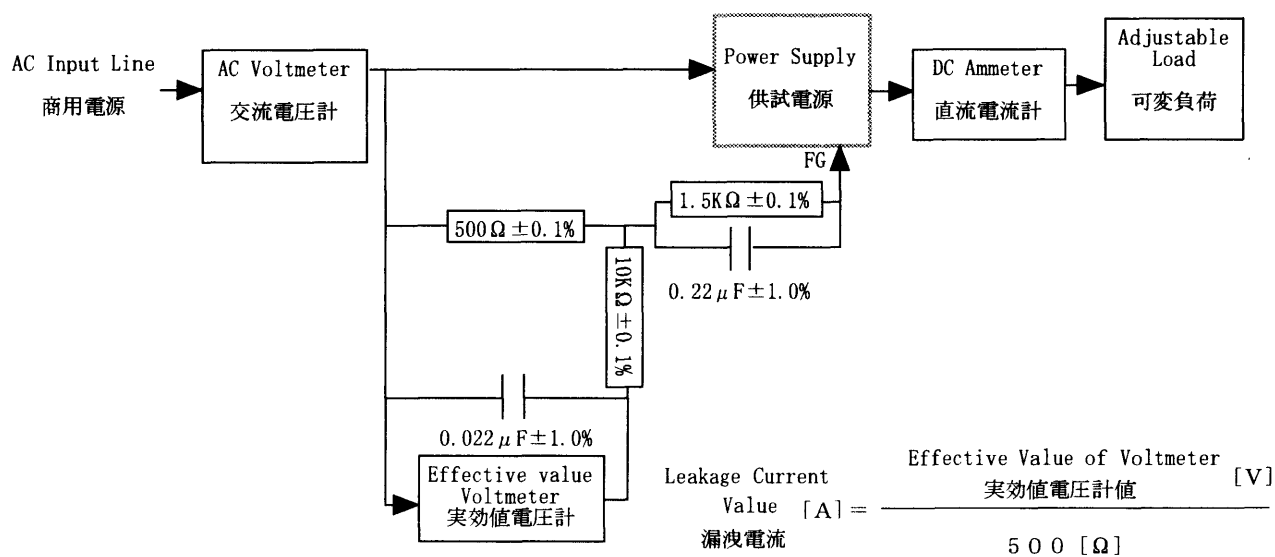


Figure B (IEC 60950)

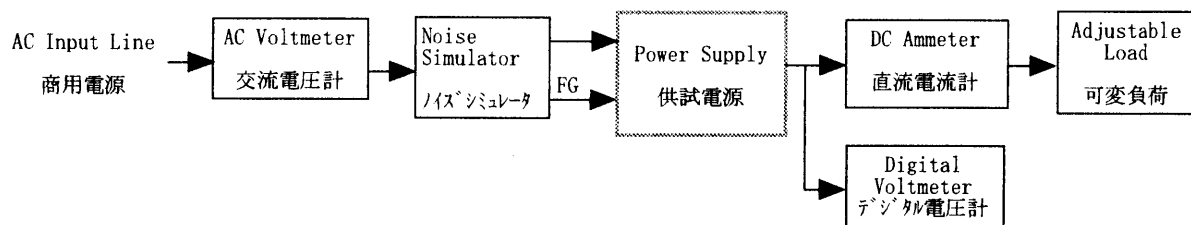


Figure C

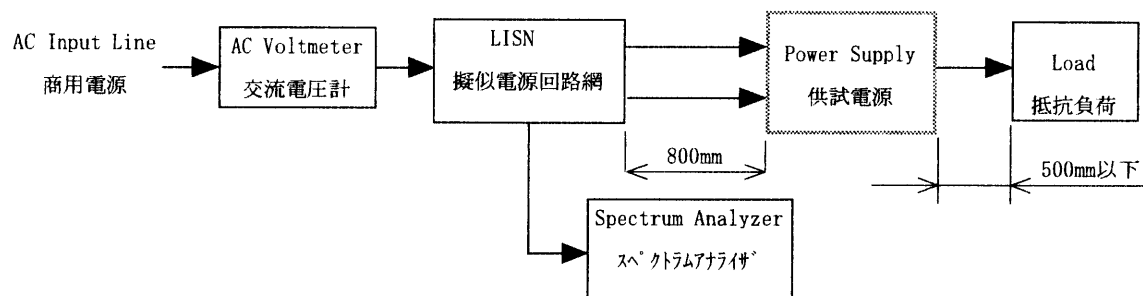


Figure D

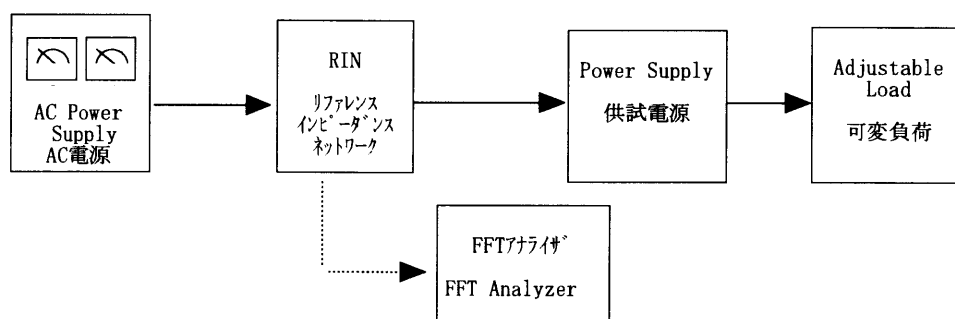


Figure E