



TEST DATA OF R15A-5

(100V INPUT)

Regulated DC Power Supply

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COSEL CO., LTD.

CONTENTS

1. Line Regulation	1
静的入力変動	
2. Input Current (by Load Current)	2
入力電流 (負荷特性)	
3. Input Power (by Load Current)	3
入力電力 (負荷特性)	
4. Efficiency (by Input Voltage)	4
効率 (入力電圧特性)	
5. Efficiency (by Load Current)	5
効率 (負荷特性)	
6. Power Factor (by Input Voltage)	6
力率 (入力電圧特性)	
7. Power Factor (by Load Current)	7
力率 (負荷特性)	
8. Hold-Up Time	8
出力保持時間	
9. Instantaneous Interruption Compensation	9
瞬時停電保障	
10. Load Regulation	10
静的負荷変動	
11. Ripple Voltage (by Load Current)	11
リップル電圧 (負荷特性)	
12. Ripple-Noise	12
リップルノイズ	
13. Overcurrent Protection	13
過電流保護	
14. Inrush Current	14
突入電流	
15. Dynamic Load Responce	15
動的負荷変動	
16. Rise and Fall Time	16
立上り、立下がり時間	
17. Ambient Temperature Drift	17
周囲温度変動	
18. Minimum Input Voltage for Regulated Output Voltage	18
最低レギュレーション電圧	
19. Ripple Voltage (by Ambient Temperature)	19
リップル電圧 (周囲温度特性)	
20. Time Lapse Drift	20
経時ドリフト	
21. Output Voltage Accuracy	21
定電圧精度	
22. Oscillator Frequency	22
発振周波数	
23. Condensation	23
結露特性	
24. Leakage Current	24
漏洩電流	
25. Line Noise Tolerance	25
入力雑音耐量	
26. Conducted Emission	26
雑音端子電圧	
27. Figure of Testing Circuitry	27
測定回路図	

(Final Page 28)

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Model

R15A-5

Item

Line Regulation 静的入力変動

Object

+5V3A

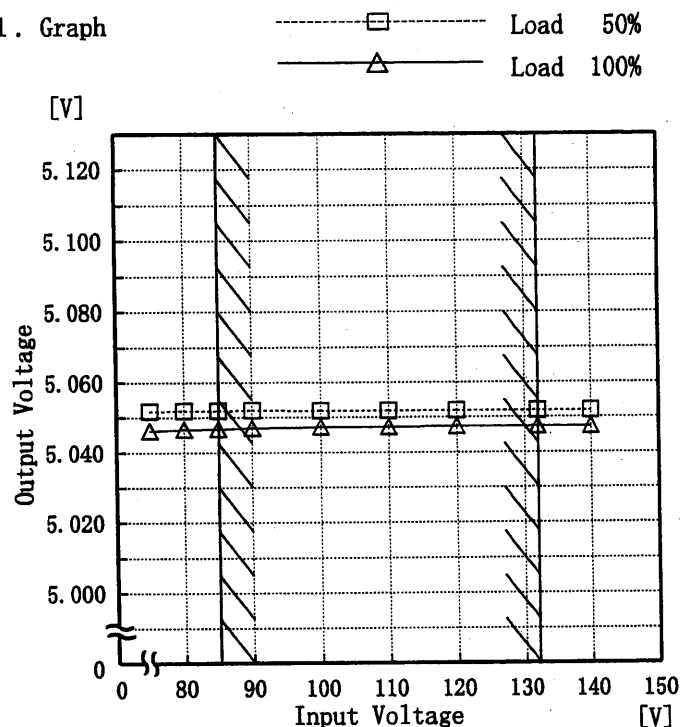
Temperature

25°C

Testing Circuitry

Figure A

1. Graph

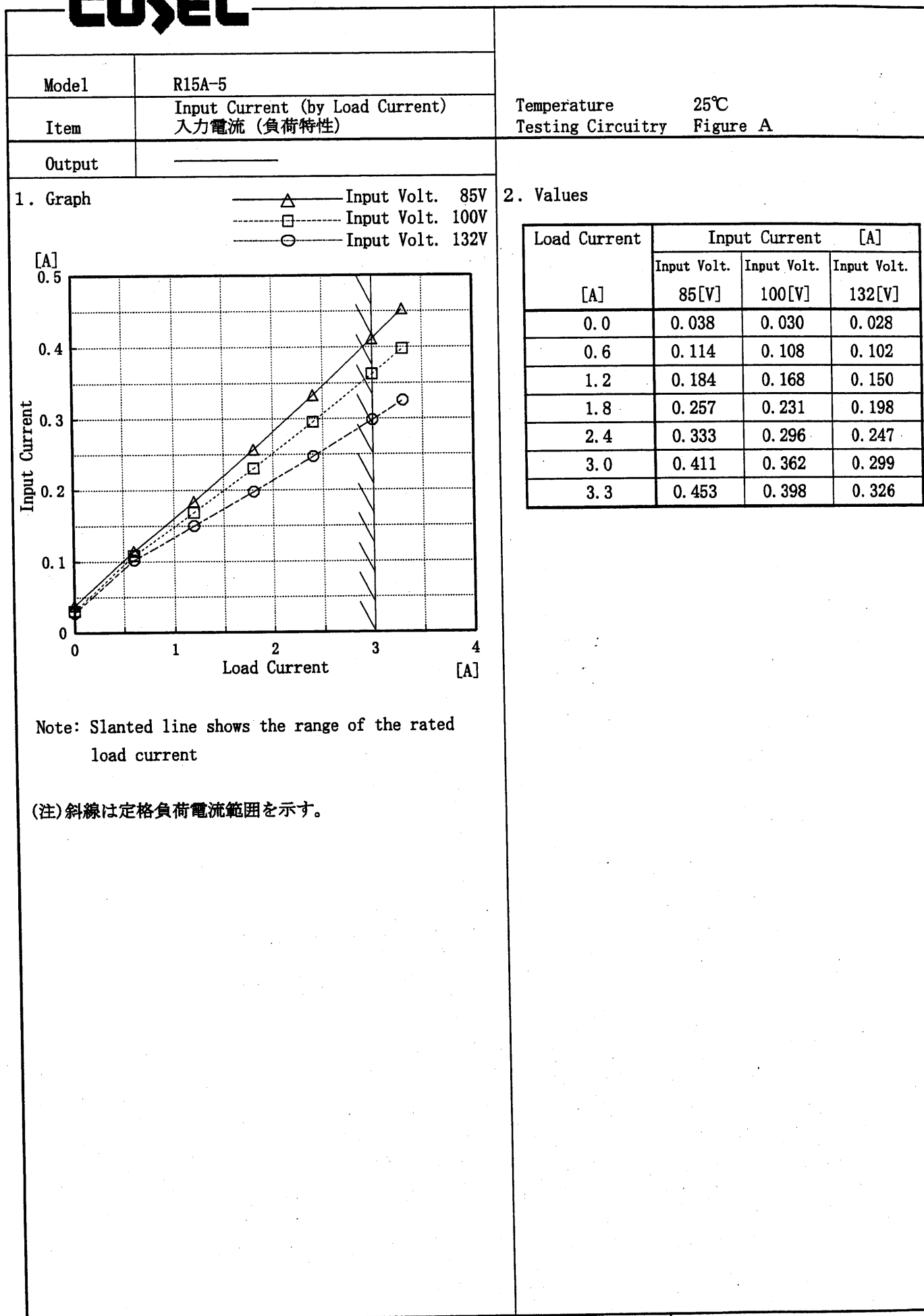


Note: Slanted line shows the range of the rated input voltage.

(注) 斜線は定格入力電圧範囲を示す。

2. Values

Input Voltage [V]	Load 50%	Load 100%
	Output Volt. [V]	Output Volt. [V]
75	5.052	5.046
80	5.052	5.047
85	5.052	5.047
90	5.052	5.047
100	5.052	5.047
110	5.052	5.047
120	5.052	5.047
132	5.052	5.047
140	5.052	5.048

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Model

R15A-5

Item

Input Power (by Load Current)
入力電力 (負荷特性)

Output

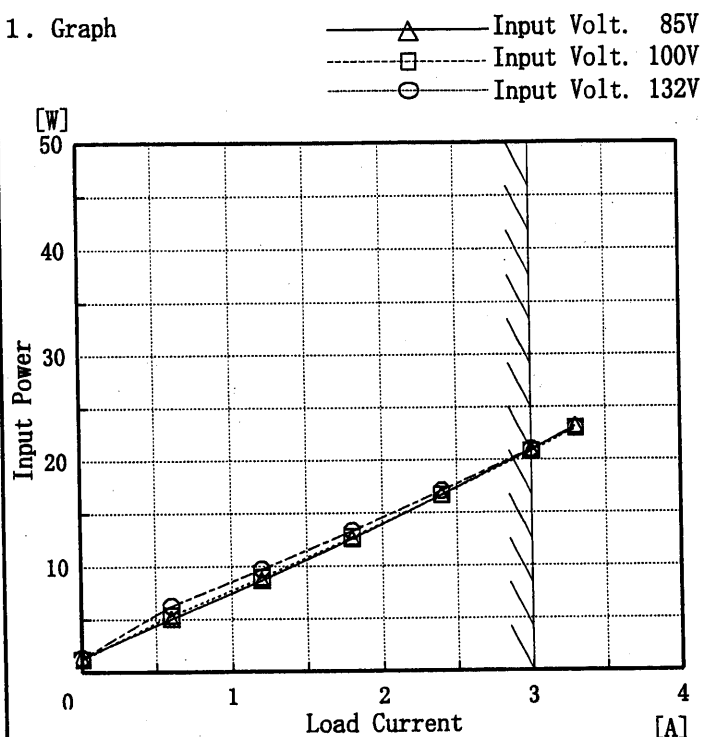
Temperature

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

Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	1.32	1.15	1.29
0.6	5.02	5.35	6.25
1.2	8.68	8.93	9.73
1.8	12.58	12.71	13.33
2.4	16.69	16.69	17.08
3.0	20.97	20.82	21.00
3.3	23.22	22.98	23.05

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Model

R15A-5

Item

Efficiency 効率

Object

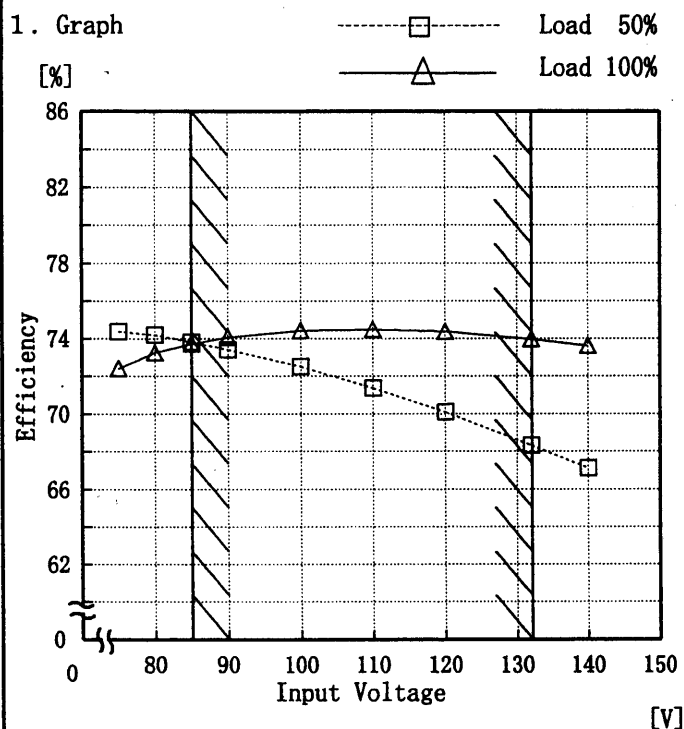
Temperature

25°C

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]	Load 50%	Load 100%
	Efficiency [%]	Efficiency [%]
75	74.4	72.4
80	74.2	73.3
85	73.8	73.7
90	73.4	74.1
100	72.5	74.4
110	71.4	74.5
120	70.1	74.4
132	68.3	74.0
140	67.1	73.6

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Model		R15A-5		Temperature		25℃	
Item		Efficiency (by Load Current) 効率 (負荷電流特性)		Testing Circuitry		Figure A	
Output							

1. Graph

—△— Input Volt. 85V

- - □ - - Input Volt. 100V

—○— Input Volt. 132V

Efficiency [%]

Load Current [A]	85V Efficiency [%]	100V Efficiency [%]	132V Efficiency [%]
0.6	63.3	59.7	51.7
1.2	72.0	70.4	64.9
1.8	74.1	73.7	70.5
2.4	74.2	74.4	73.0
3.0	73.4	74.2	73.8
3.3	73.0	73.9	73.9

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Load Current [A]

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]
0.6	63.3	59.7	51.7
1.2	72.0	70.4	64.9
1.8	74.1	73.7	70.5
2.4	74.2	74.4	73.0
3.0	73.4	74.2	73.8
3.3	73.0	73.9	73.9
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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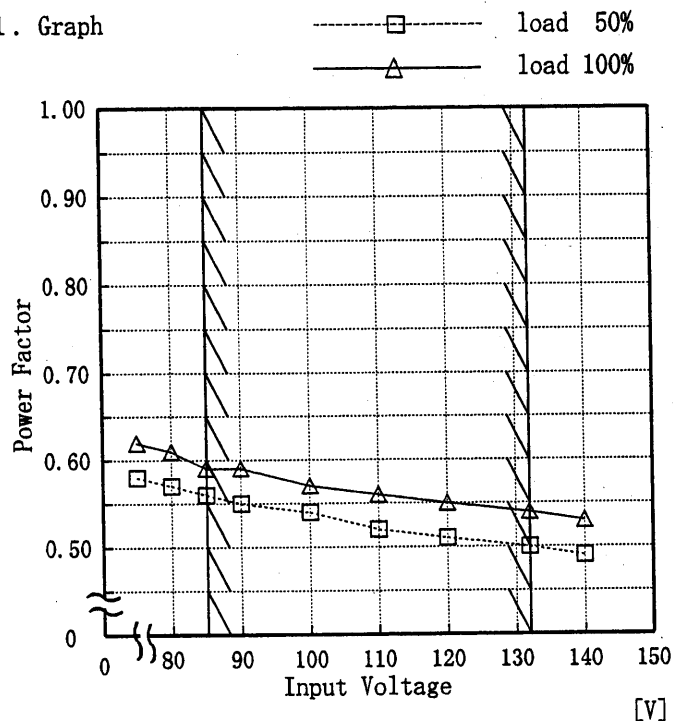
Model R15A-5

Item Power Factor (by Input Voltage)
力率 (入力電圧特性)

Object

Temperature 25°C
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]	load 50%	load 100%
	Power Factor	Power Factor
75	0.58	0.62
80	0.57	0.61
85	0.56	0.59
90	0.55	0.59
100	0.54	0.57
110	0.52	0.56
120	0.51	0.55
132	0.50	0.54
140	0.49	0.53

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Model

R15A-5

Item

Power Factor (by Load Current)
力率 (負荷電流特性)

Output

Temperature

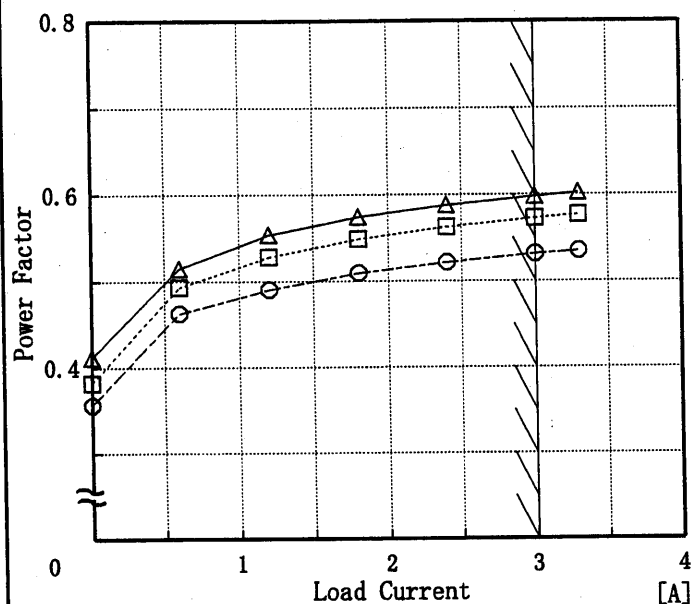
25°C

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]	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
—	0.41	0.38	0.36
0.6	0.52	0.49	0.46
1.2	0.55	0.53	0.49
1.8	0.57	0.55	0.51
2.4	0.59	0.56	0.52
3.0	0.60	0.57	0.53
3.3	0.60	0.58	0.54

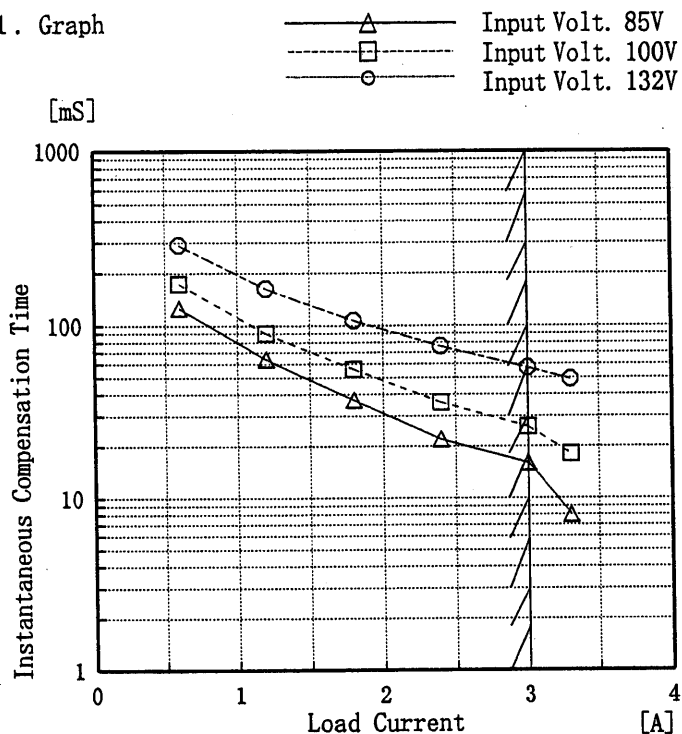
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Model R15A-5		Temperature 25°C Testing Circuitry Figure A																																
Item	Hold-Up Time 出力保持時間																																	
Object	+5V3A																																	
1. Graph <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 20px;"> —△— Load 50% - - -□- - Load 100% </div> </div>		2. Values																																
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p> <p>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。</p> <p>(注) 斜線は定格入力電圧範囲を示す。</p>		<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th><th>Load 50%</th><th>Load 100%</th></tr> <tr> <th>Hold-Up Time [mS]</th><th>Hold-Up Time [mS]</th></tr> </thead> <tbody> <tr><td>75</td><td>40</td><td>11</td></tr> <tr><td>80</td><td>47</td><td>14</td></tr> <tr><td>85</td><td>54</td><td>17</td></tr> <tr><td>90</td><td>61</td><td>21</td></tr> <tr><td>100</td><td>76</td><td>29</td></tr> <tr><td>110</td><td>94</td><td>38</td></tr> <tr><td>120</td><td>113</td><td>48</td></tr> <tr><td>132</td><td>137</td><td>61</td></tr> <tr><td>140</td><td>155</td><td>70</td></tr> </tbody> </table>	Input Voltage [V]	Load 50%	Load 100%	Hold-Up Time [mS]	Hold-Up Time [mS]	75	40	11	80	47	14	85	54	17	90	61	21	100	76	29	110	94	38	120	113	48	132	137	61	140	155	70
Input Voltage [V]	Load 50%	Load 100%																																
	Hold-Up Time [mS]	Hold-Up Time [mS]																																
75	40	11																																
80	47	14																																
85	54	17																																
90	61	21																																
100	76	29																																
110	94	38																																
120	113	48																																
132	137	61																																
140	155	70																																

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Model	R15A-5
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+5V3A

1. Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to its 95% of the rated.

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

瞬時停電保障時間とは、出力電圧が定格値の95%になる時の瞬時停電時間をいう。

(注) 斜線は定格負荷電流範囲を示す。

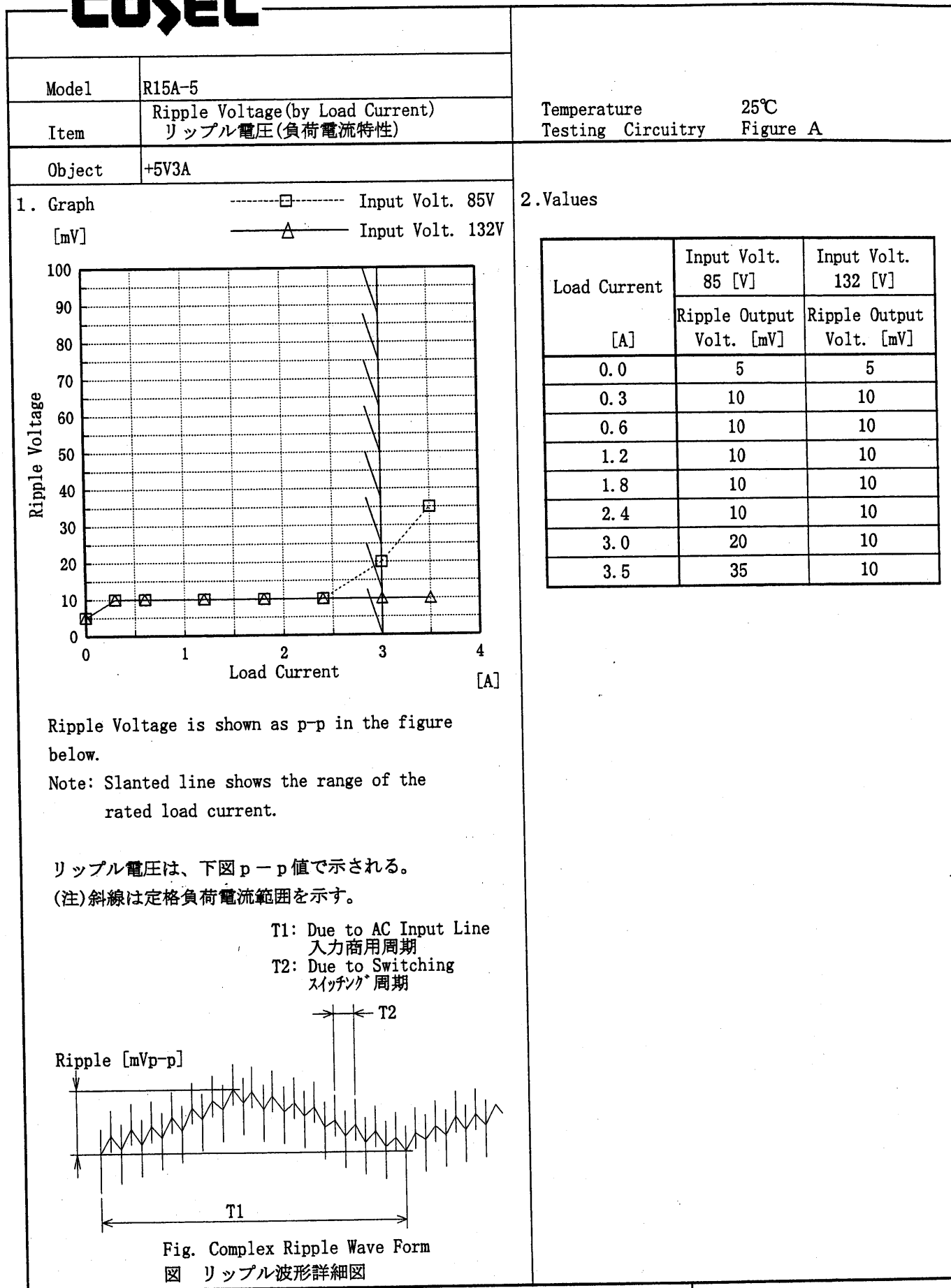
Testing Circuitry Figure A

2. Values

Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.0	-	-	-
0.6	126	174	292
1.2	64	90	164
1.8	37	56	107
2.4	22	36	76
3.0	16	26	57
3.3	8	18	49

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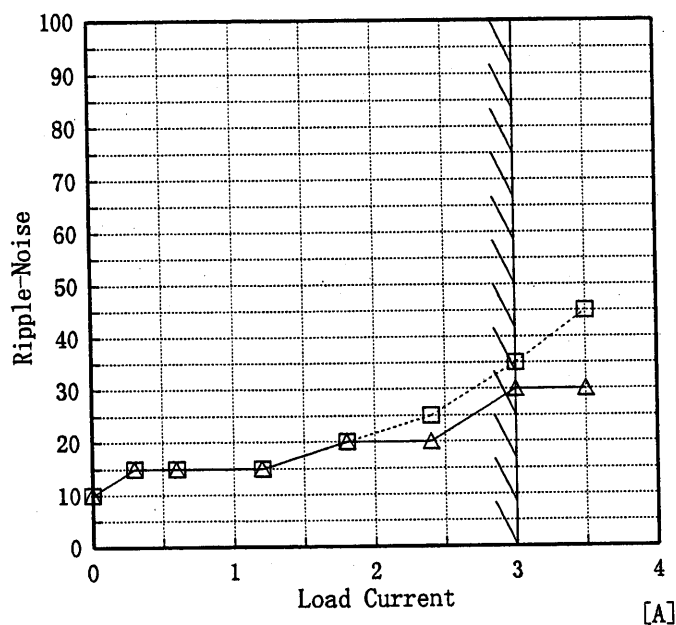
Model R15A-5

Item Ripple-Noise リップルノイズ

Object +5V3A

Temperature 25°C
Testing Circuitry Figure A

1. Graph
- [mV]
- Input Volt. 85V
 -----△----- Input Volt. 132V



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
 スイッチング周期

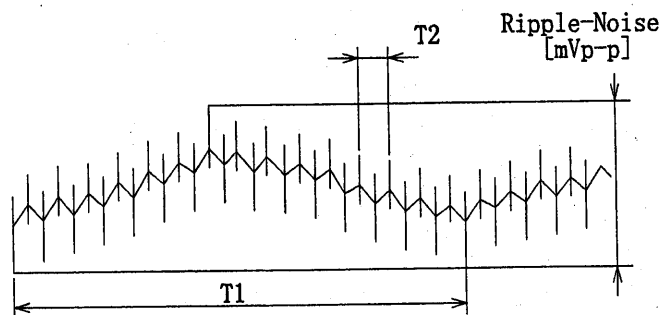


Fig. Complex Ripple Wave Form
 図 リップル波形詳細図

2. Values

Load current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]
	Ripple-Noise [mV]	Ripple-Noise [mV]
0.0	10	10
0.3	15	15
0.6	15	15
1.2	15	15
1.8	20	20
2.4	25	20
3.0	35	30
3.5	45	30

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Model		R15A-5	
Item		Overcurrent Protection 過電流保護	
Object		+5V3A	

1. Graph

Input Volt. 85 V

Input Volt. 100 V

Input Volt. 132 V

[V]

8.0

6.0

4.0

2.0

0.0

Output Voltage

[V]

0

1

2

3

4

5

Load Current

[A]

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。

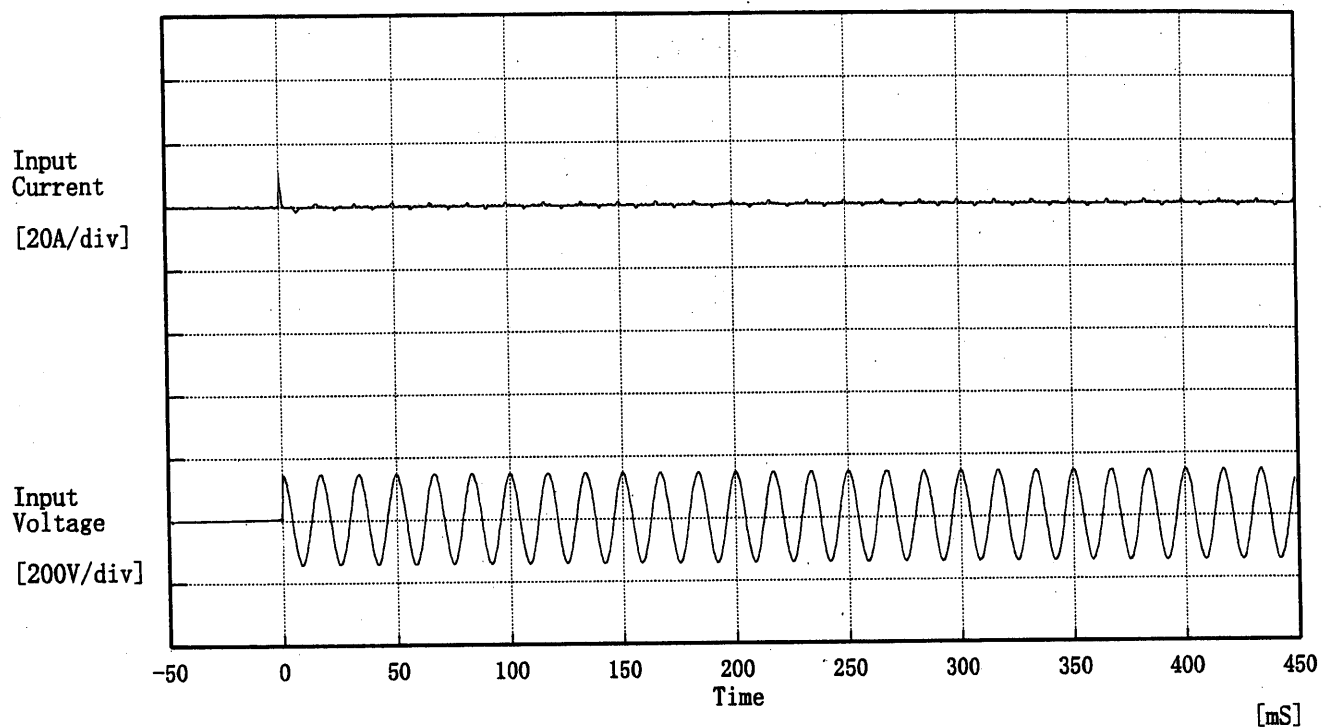
Temperature		25℃	
Testing Circuitry		Figure A	

2. Values

Output Voltage [V]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Load Current [A]	Load Current [A]	Load Current [A]
5.00	3.49	3.86	3.84
4.75	3.51	3.85	3.82
4.50	3.51	3.84	3.80
4.00	3.51	3.80	3.75
3.50	3.48	3.74	3.68
3.00	3.43	3.66	3.58
2.50	3.34	3.54	3.48
2.00	3.22	3.40	3.34
1.50	3.03	3.18	3.14
1.00	2.78	2.90	2.89
0.50	2.46	2.55	2.59
0.00	2.35	2.42	2.47

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Model	R15A-5	Temperature 25°C Testing Circuitry Figure A
Item	Inrush Current 突入電流	
Object	_____	



Input Voltage 100 V

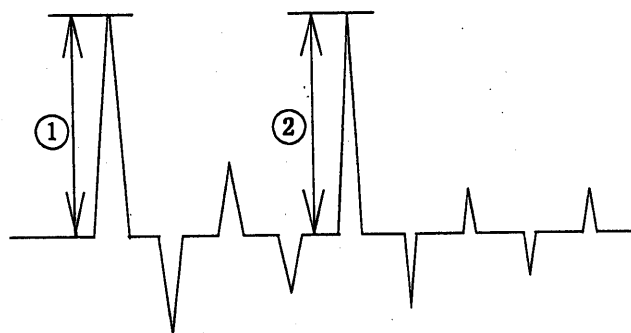
Frequency 60 Hz

Load 100 %

Inrush Current

① 10.79 [A]

② 1.21 [A]



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Model	R15A-5	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Responce 動的負荷変動	
Object	+5V3A	

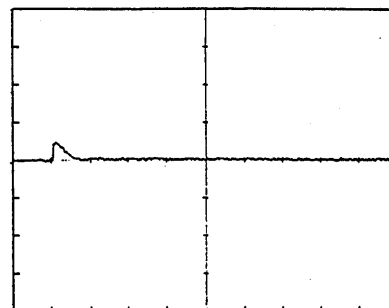
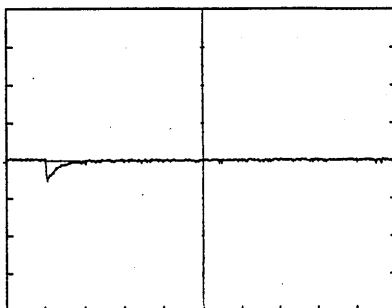
Input Volt. 100 V

Cycle 1000 mS

Load Current

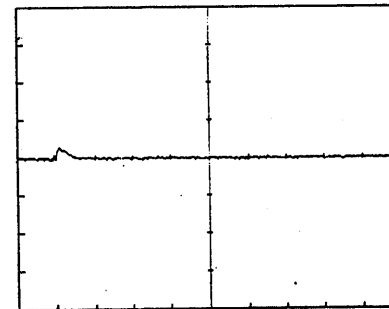
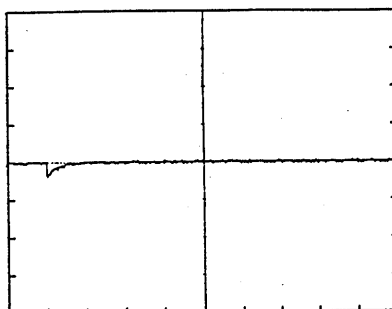
Load 0% ↔

Load 100 %



Load 0% ↔

Load 50 %



200 mV/div

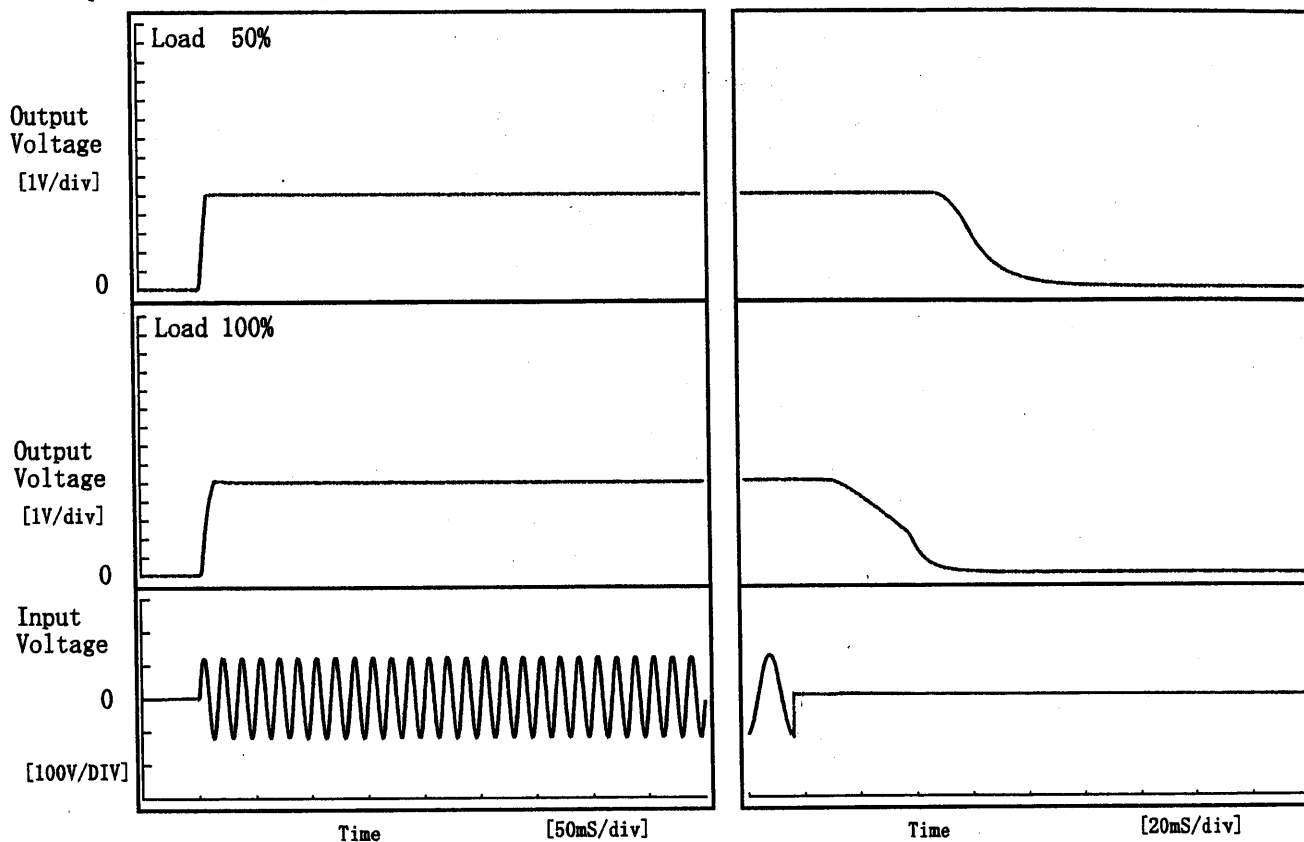
20 mS/div

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Model	R15A-5	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+5V3A		

1. Graph

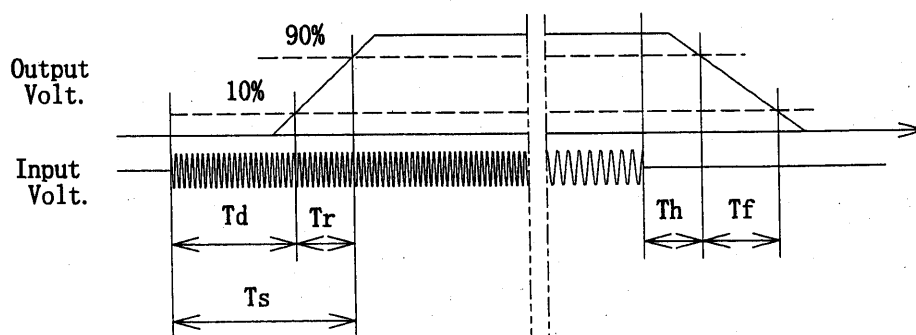
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	3.3	5.5	8.8	53.6	27.8
100 %	3.3	9.0	12.3	17.9	28.8



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Model

R15A-5

Item

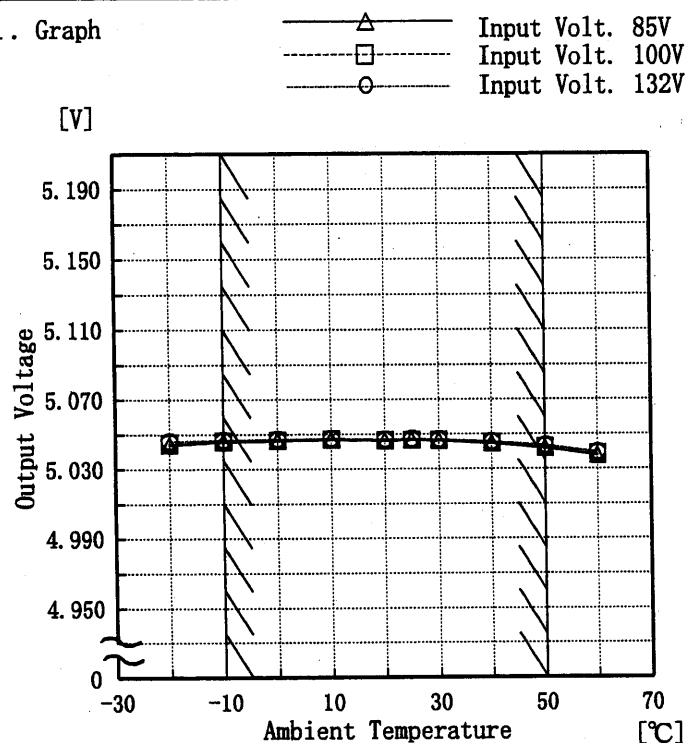
Ambient Temperature Drift
周囲温度変動

Object

+5V3A

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]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]
-20	5.044	5.045	5.046
-10	5.046	5.046	5.047
0	5.046	5.047	5.047
10	5.047	5.047	5.048
20	5.046	5.047	5.047
25	5.046	5.047	5.047
30	5.046	5.047	5.047
40	5.045	5.045	5.046
50	5.042	5.043	5.043
60	5.038	5.039	5.040
—	—	—	—

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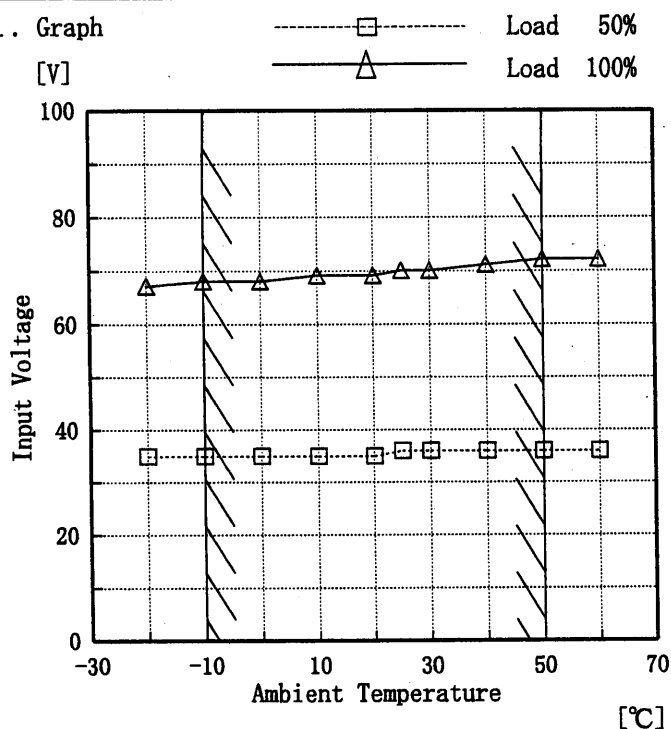
Model R15A-5

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

Object +5V3A

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 Temp. [°C]	Load 50%	Load 100%
	Input Volt. [V]	Input Volt. [V]
-20	35	67
-10	35	68
0	35	68
10	35	69
20	35	69
25	36	70
30	36	70
40	36	71
50	36	72
60	36	72

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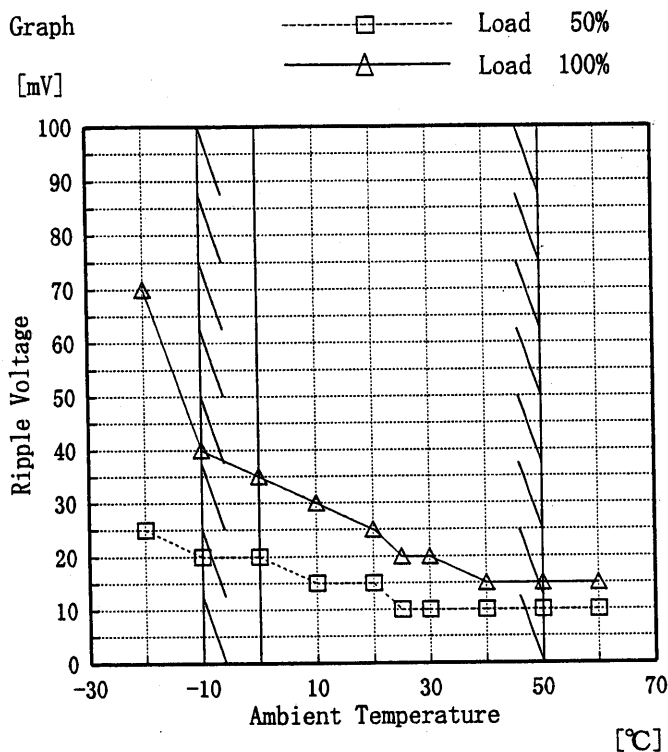
Model R15A-5

Item Ripple Voltage (by Ambient Temp.)
リップル電圧 (周囲温度特性)

Object +5V3A

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 Temp. [°C]	Load 50%	Load 100%
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]
-20	25	70
-10	20	40
0	20	35
10	15	30
20	15	25
25	10	20
30	10	20
40	10	15
50	10	15
60	10	15

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Model

R15A-5

Item

Time Lapse Drift 経時ドリフト

Object

+5V3A

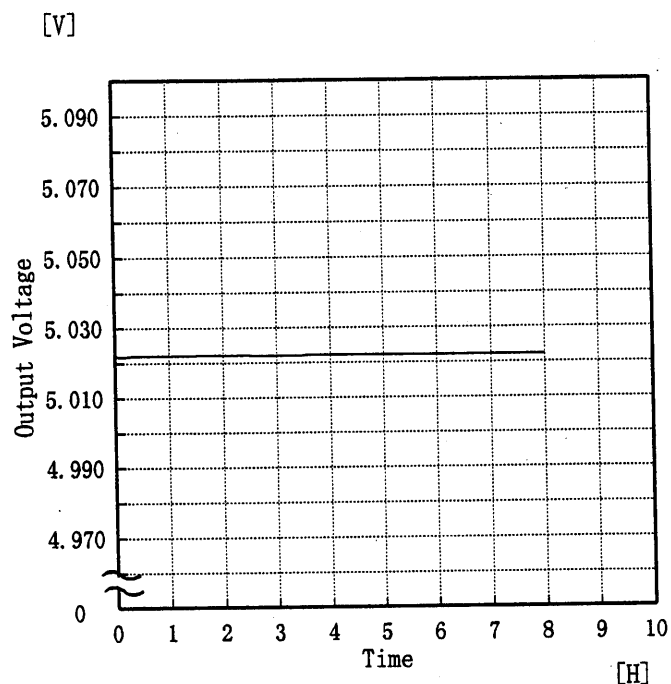
Temperature

25 °C

Testing Circuitry

Figure A

1. Graph



Input Volt. 100V

Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	5.023
0.5	5.022
1.0	5.022
2.0	5.022
3.0	5.022
4.0	5.022
5.0	5.022
6.0	5.022
7.0	5.022
8.0	5.022

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Model		R15A-5	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+5V3A	

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 : 0.00~3.00 A

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

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

定電圧精度

周囲温度、入力電圧、負荷を下記仕様内で、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 0.00~3.00 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) = $\frac{\text{変動値}}{\text{定格出力電圧}} \times 100$

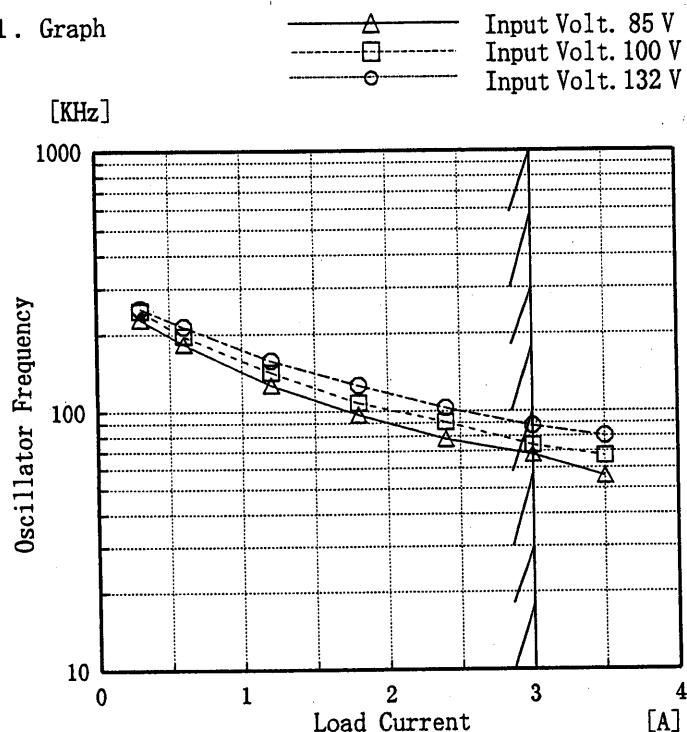
Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ratio) [%]
Maximum Voltage	25	85	0.00	5.056	±10	±0.2
Minimum Voltage	50	132	0.00	5.037		

COSEL

Model	R15A-5
Item	Oscillator Frequency 発振周波数
Object	+5V3A

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

Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Oscillator Frequency [KHz]		
0.3	228	246	251
0.6	183	197	214
1.2	127	142	158
1.8	97	108	126
2.4	78	91	103
3.0	68	74	88
3.5	56	67	80

COSEL

Model	R15A-5	Testing Circuitry Figure A
Item	Condensation 結露特性	
Object	+5V3A	

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.
- ④ Repeating ①, ② and ③ three times.

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3度行い、異常のないことを確認する。

2. Values

	Times	Output Voltage [V]	Ripple Voltage [mV]	Ripple Noise [mV]
Load 50 %	1	5.010	15	15
	2	5.020	15	20
	3	5.020	15	20
Load 100 %	1	5.010	15	30
	2	5.020	15	35
	3	5.020	15	35

Input Volt. 100 V

COSEL

Model	R15A-5	Testing Circuitry Figure B
Item	Leakage Current 漏洩電流	
Object	_____	

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.12	0.20	0.24
(B) U L	0.12	0.20	0.24
(C) C S A	0.12	0.20	0.24

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 220 [V]	Input Volt. 264 [V]
(D) V D E	—	—	—

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		R15A-5	Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+5V3A	

1. Results

Pulse Width [n S]	MODE	Operating Point of Overvoltage Protection [V] 過電圧保護動作値	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	-	no regulation
	NORMAL	-	no regulation
1000	COMMON	-	no regulation
	NORMAL	-	no regulation

Conditions

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

COSEL

Model	R15A-5	Testing Circuitry Figure D
Item	Conducted Emission 雑音端子電圧	
Object		

1. Graph

Remarks

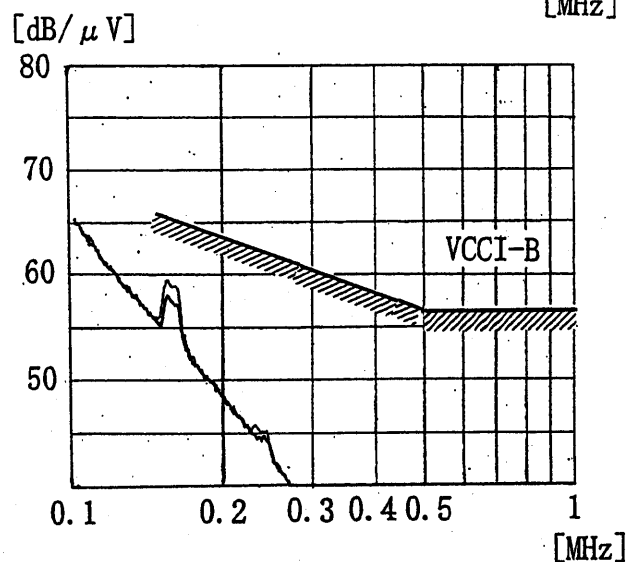
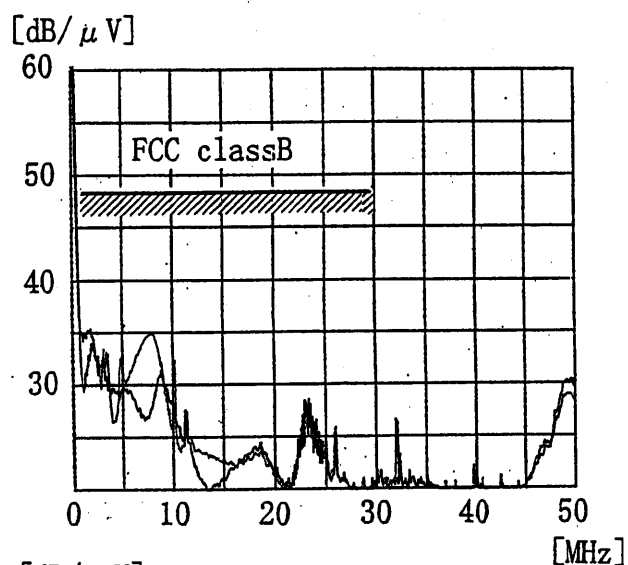
Input Volt. 100V (VCCI -B)
 120V (FCC classB)

Load 100 %

Note: Slanted line shows the range of Tolerance.

(注) 斜線は許容値を示す。

NO	Standards	Standards Complied	Frequency [MHz]	Tolerance [dB/μV]
1	FCC class A		0.45~1.6	60
			1.6~30	69.5
2	FCC class B	○	0.45~30	48
3	VCCI -A		0.15~0.5	79
			0.5~30	73
4	VCCI -B	○	0.15~0.5	66~56
			0.5~5	56
			5~30	60
5	CISPR Pub. 22 class A (EN55022)		0.15~0.5	79
			0.5~30	73
6	CISPR Pub. 22 class B (EN55022)		0.15~0.5	66~56
			0.5~5	56
			5~30	60



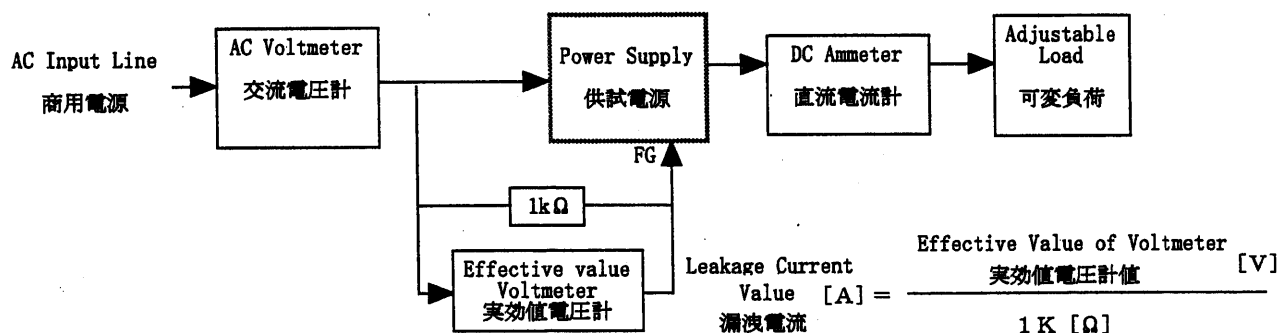
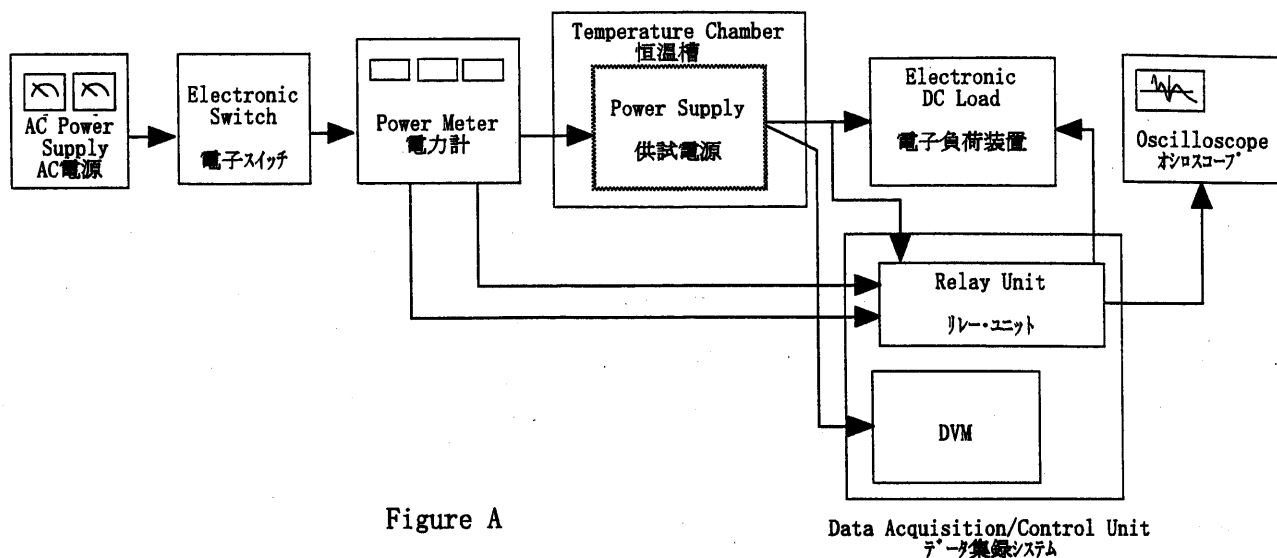


Figure B (DENTORI)

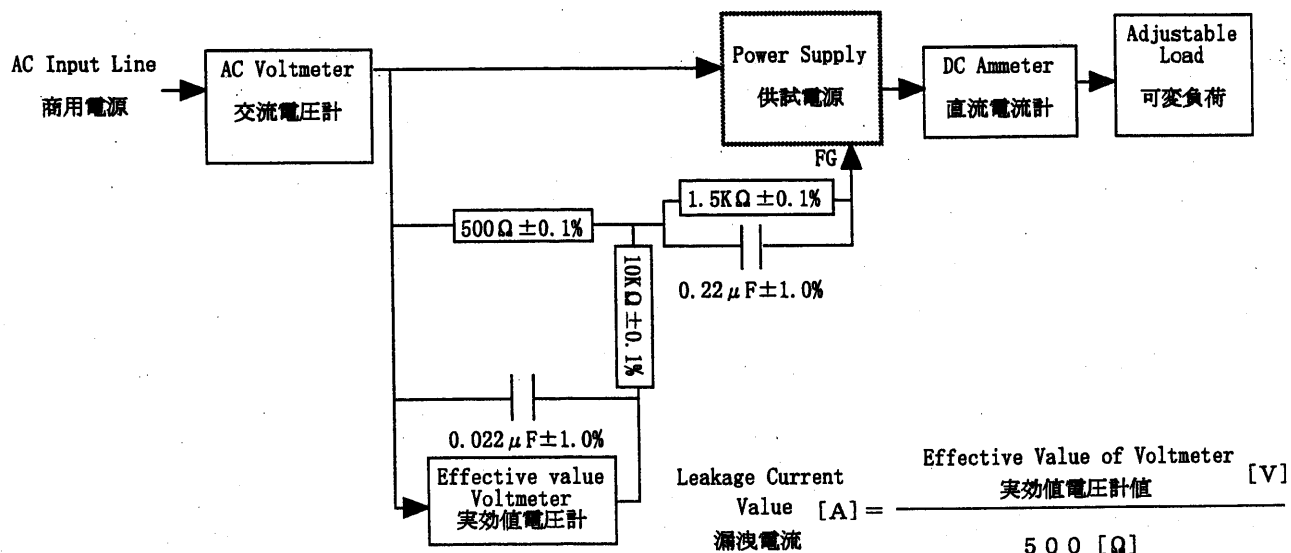


Figure B (UL, CSA, VDE)

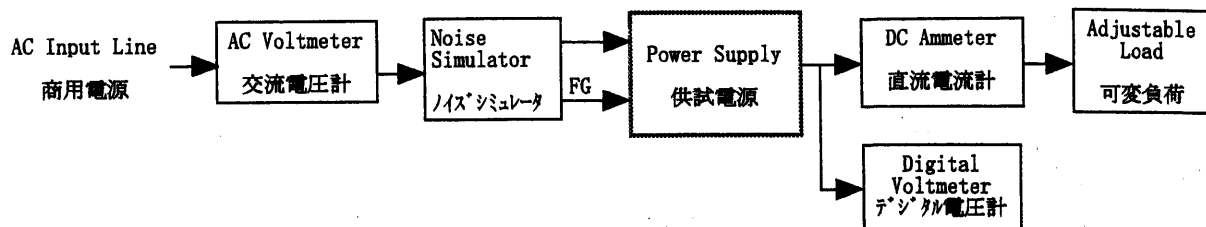


Figure C

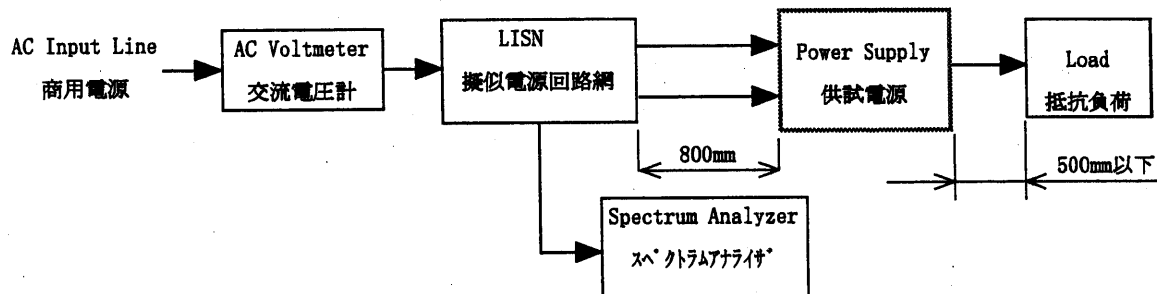


Figure D

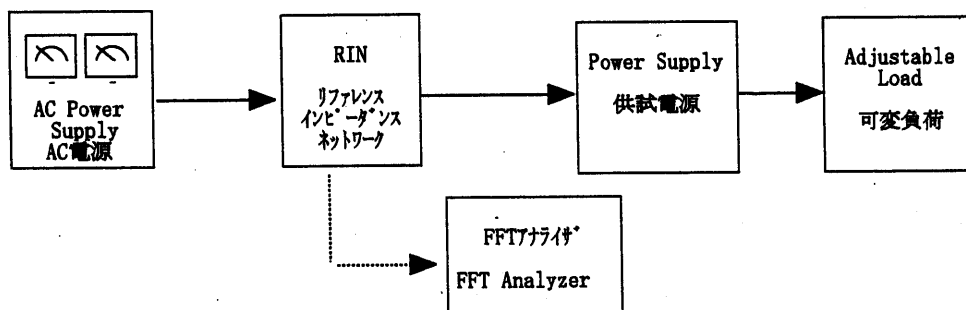


Figure E