



TEST DATA OF R25A-15

(100V INPUT)

Regulated DC Power Supply

Date : Nov. 4. 1998

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コーセル株式会社
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. Overvoltage Protection	14
過電圧保護	
15. Inrush Current	15
突入電流	
16. Dynamic Load Responce	16
動的負荷変動	
17. Rise and Fall Time	17
立上り、立下がり時間	
18. Ambient Temperature Drift	18
周囲温度変動	
19. Minimum Input Voltage for Regulated Output Voltage	19
最低レギュレーション電圧	
20. Ripple Voltage (by Ambient Temperature)	20
リップル電圧 (周囲温度特性)	
21. Time Lapse Drift	21
経時ドリフト	
22. Output Voltage Accuracy	22
定電圧精度	
23. Oscillator Frequency	23
発振周波数	
24. Condensation	24
結露特性	
25. Leakage Current	25
漏洩電流	
26. Line Noise Tolerance	26
入力雑音耐量	
27. Conducted Emission	27
雑音端子電圧	
28. Figure of Testing Circuitry	28
測定回路図	

(Final Page 29)

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Model		R25A-15																															
Item		Line Regulation 静的入力変動																															
Object		+15.0V1.70A																															
1. Graph		2. Values																															
<div><div><div>-----□-----</div><div>Load 50%</div></div><div><div>-----△-----</div><div>Load 100%</div></div></div> <div><div>Output Voltage [V]</div><div><div>15.11</div><div>15.09</div><div>15.07</div><div>15.05</div><div>15.03</div><div>15.01</div><div>14.99</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> <div><div>Note: Slanted line shows the range of the rated input voltage.</div><div>(注)斜線は定格入力電圧範囲を示す。</div></div>		<div>Temperature 25℃</div> <div>Testing Circuitry Figure A</div>																															
		<table><tr><th>Input Voltage [V]</th><th>Load 50% Output Volt. [V]</th><th>Load 100% Output Volt. [V]</th></tr><tr><td>75</td><td>15.038</td><td>15.034</td></tr><tr><td>80</td><td>15.038</td><td>15.034</td></tr><tr><td>85</td><td>15.038</td><td>15.034</td></tr><tr><td>90</td><td>15.038</td><td>15.034</td></tr><tr><td>100</td><td>15.037</td><td>15.034</td></tr><tr><td>110</td><td>15.037</td><td>15.034</td></tr><tr><td>120</td><td>15.037</td><td>15.034</td></tr><tr><td>132</td><td>15.037</td><td>15.034</td></tr><tr><td>140</td><td>15.037</td><td>15.034</td></tr></table>		Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]	75	15.038	15.034	80	15.038	15.034	85	15.038	15.034	90	15.038	15.034	100	15.037	15.034	110	15.037	15.034	120	15.037	15.034	132	15.037	15.034	140	15.037	15.034
Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]																															
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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。

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Model		R25A-15		Temperature		25℃	
Item		Input Current (by Load Current) 入力電流 (負荷特性)		Testing Circuitry		Figure A	
Output		_____					

1. Graph

—△— Input Volt. 85V

- - □ - - Input Volt. 100V

- - ○ - - Input Volt. 132V

[A]

1

0.8

0.6

0.4

0.2

0

0

0.5

1

1.5

2

Input Current

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]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.057	0.059	0.053
0.30	0.164	0.154	0.144
0.60	0.264	0.241	0.211
0.90	0.363	0.328	0.280
1.20	0.460	0.410	0.345
1.50	0.558	0.495	0.410
1.70	0.627	0.553	0.456
1.87	0.684	0.602	0.494
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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Model R25A-15		Temperature 25°C	
Item	Input Power (by Load Current) 入力電力 (負荷特性)	Testing Circuitry Figure A	
Output	—		

1. Graph

—△— Input Volt. 85V

---□--- Input Volt. 100V

---○--- Input Volt. 132V

Input Power [W]

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]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	2.19	2.61	2.85
0.30	7.47	7.86	9.09
0.60	12.73	13.08	14.06
0.90	18.13	18.38	19.32
1.20	23.41	23.52	24.29
1.50	28.91	28.86	29.40
1.70	32.75	32.60	33.00
1.87	35.99	35.73	36.00
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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Model R25A-15		Temperature 25°C Testing Circuitry Figure A																														
Item	Efficiency (by Input Voltage) 効率 (入力電圧特性)																															
Object																																
1. Graph <div style="display: flex; justify-content: flex-end; align-items: center;"> □ Load 50% △ Load 100% </div> <p>Efficiency [%]</p> <p>Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p> <p>(注) 斜線は定格入力電圧範囲を示す。</p>		2. Values																														
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Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]																														
75	75.1	77.4																														
80	75.1	78.1																														
85	74.8	78.3																														
90	74.4	78.5																														
100	73.5	78.8																														
110	72.4	78.6																														
120	71.1	78.3																														
132	69.5	77.8																														
140	68.5	77.4																														

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Model

R25A-15

Item

Efficiency (by Load Current)
効率 (負荷電流特性)

Output

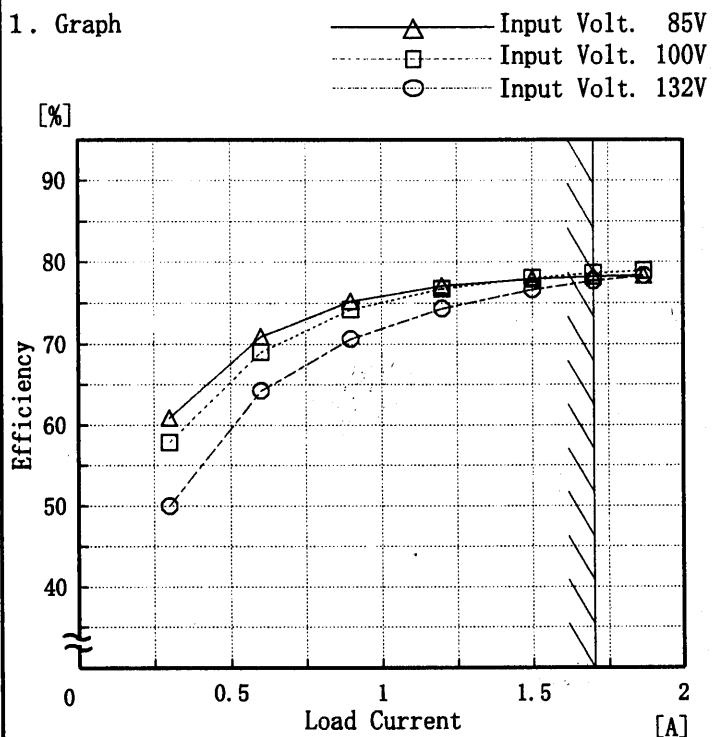
Temperature

25°C

Testing Circuitry

Figure A

1. Graph



2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.30	60.8	57.8	49.9
0.60	70.9	69.0	64.2
0.90	75.2	74.2	70.6
1.20	77.1	76.7	74.3
1.50	78.0	78.1	76.6
1.70	78.2	78.6	77.7
1.87	78.4	78.9	78.3
—	—	—	—
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—	—	—	—
—	—	—	—

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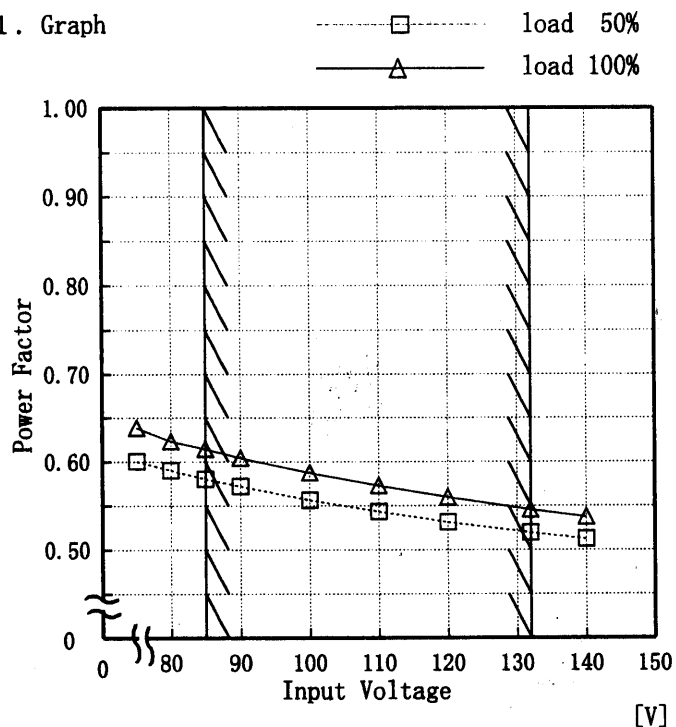
Model R25A-15

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	0.60	0.64
80	0.59	0.62
85	0.58	0.61
90	0.57	0.60
100	0.56	0.59
110	0.54	0.57
120	0.53	0.56
132	0.52	0.55
140	0.51	0.54

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Model		R25A-15		Temperature		25℃	
Item		Power Factor (by Load Current) 力率（負荷電流特性）		Testing Circuitry		Figure A	
Output		_____					

1. Graph

—△—

Input Volt. 85V

—□—

Input Volt. 100V

—○—

Input Volt. 132V

Power Factor

1.0

0.9

0.8

0.7

0.6

0.5

0.4

0.3

0.2

0.1

0

0

0.5

1

1.5

2

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	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.45	0.44	0.41
0.30	0.53	0.51	0.48
0.60	0.57	0.54	0.51
0.90	0.59	0.56	0.52
1.20	0.60	0.57	0.53
1.50	0.61	0.58	0.54
1.70	0.61	0.59	0.55
1.87	0.62	0.59	0.55
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

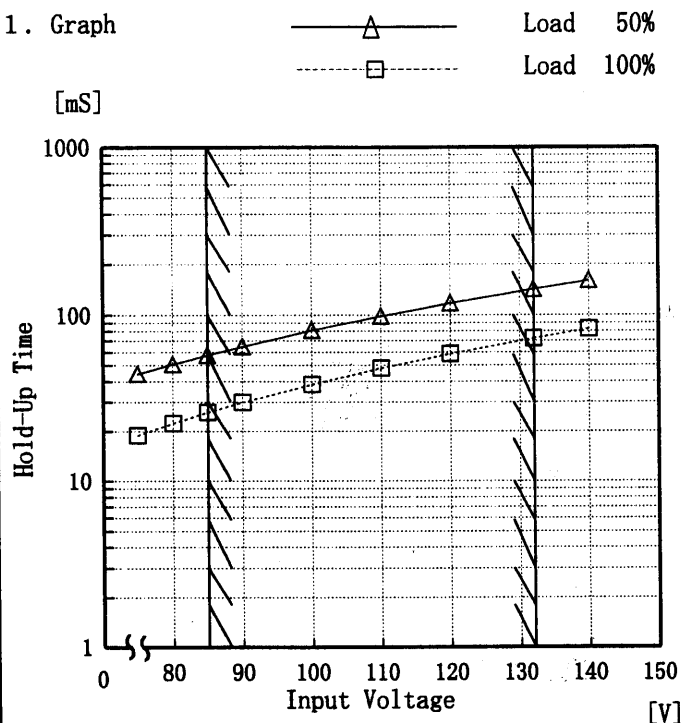
Model R25A-15

Item Hold-Up Time 出力保持時間

Object +15.0V1.70A

Temperature 25°C
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]	Load 50%	Load 100%
	Hold-Up Time [mS]	Hold-Up Time [mS]
75	44	19
80	51	22
85	58	26
90	65	30
100	81	38
110	98	48
120	118	59
132	143	73
140	161	83

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Model		R25A-15
Item	Instantaneous Interruption Compensation 瞬時停電保障	
Object	+15.0V 1.70A	

1. Graph

—△—

Input Volt. 85 V

- -□- -

Input Volt. 100 V

- -○- -

Input Volt. 132 V

[mS]

1000

100

10

1

Instantaneous Compensation Time

0

0.5

1

1.5

2

[A]

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。

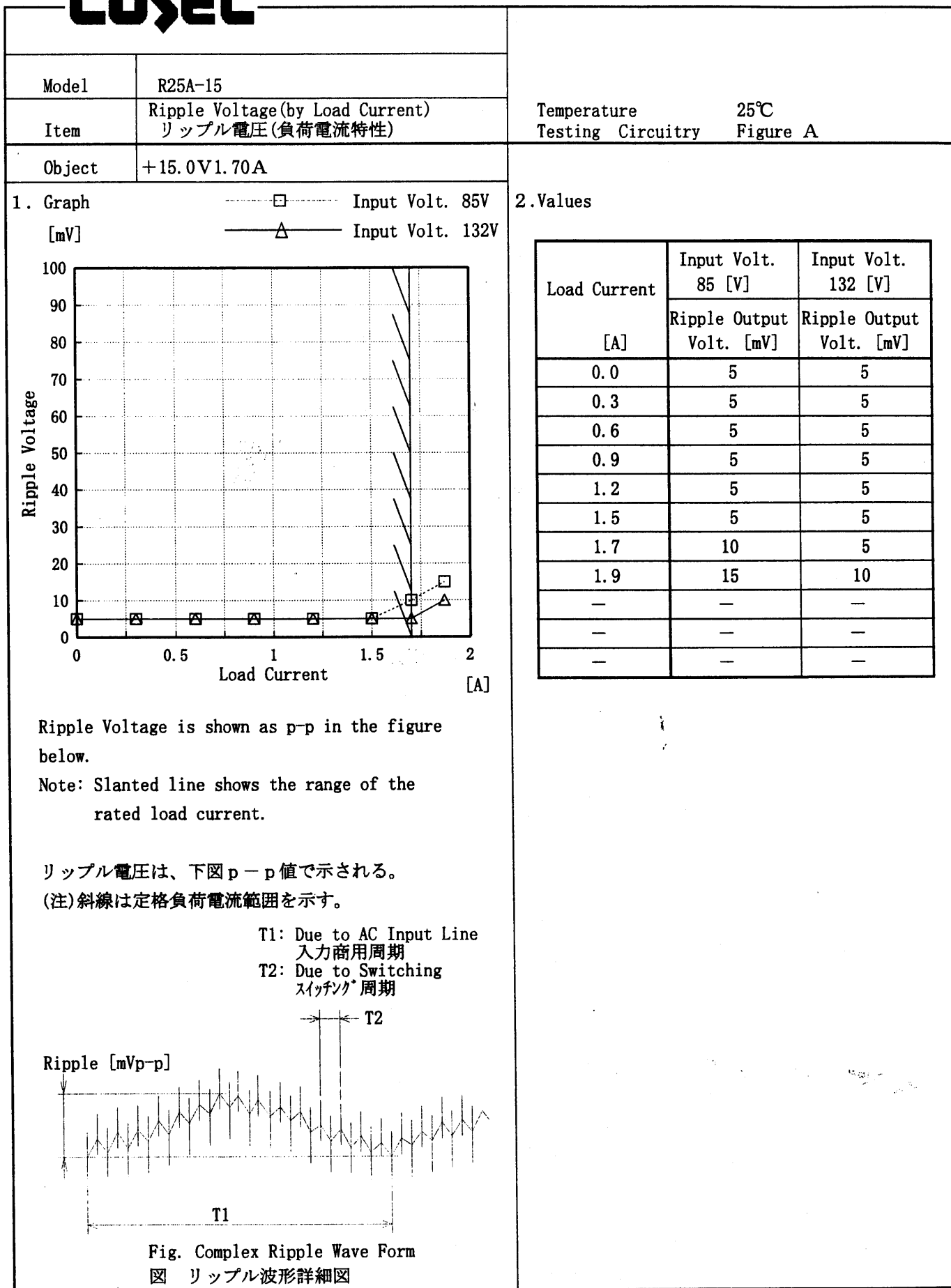
(注)斜線は定格負荷電流範囲を示す。

2. Values

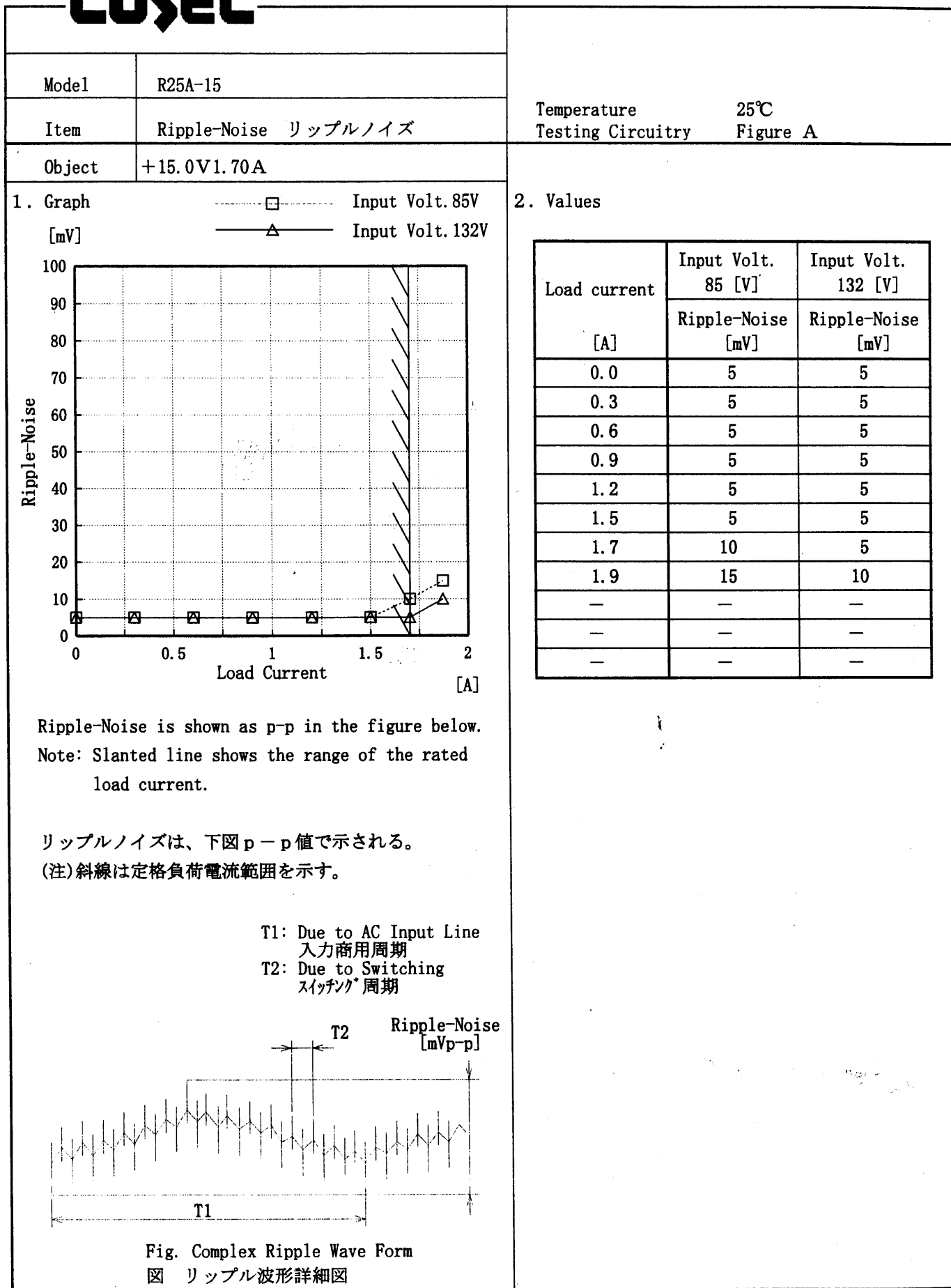
Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.00	—	—	—
0.30	143	198	337
0.60	76	107	191
0.90	48	71	131
1.20	31	51	98
1.50	24	37	73
1.70	21	30	64
1.87	19	25	55
—	—	—	—
—	—	—	—
—	—	—	—

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Model R25A-15		Temperature 25°C																																																
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Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																															
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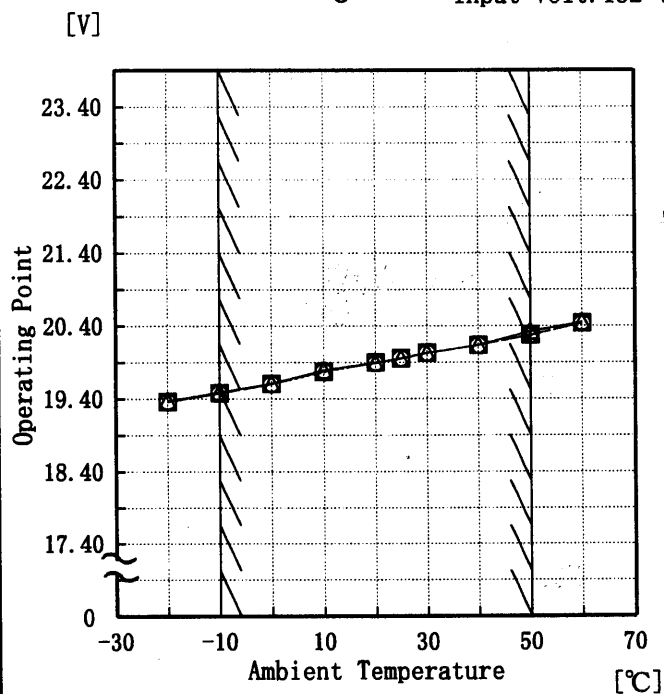
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Output Voltage [V]	Input Volt. 85[V] Load Current [A]	Input Volt. 100[V] Load Current [A]	Input Volt. 132[V] Load Current [A]																																																				
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7.50	2.21	2.25	2.34																																																				
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COSEL

Model	R25A-15
Item	Overvoltage Protection 過電圧保護
Object	+15.0V1.70A

1. Graph

—△— Input Volt. 85 V
 - - -□- - - Input Volt. 100 V
 - - -○- - - Input Volt. 132 V



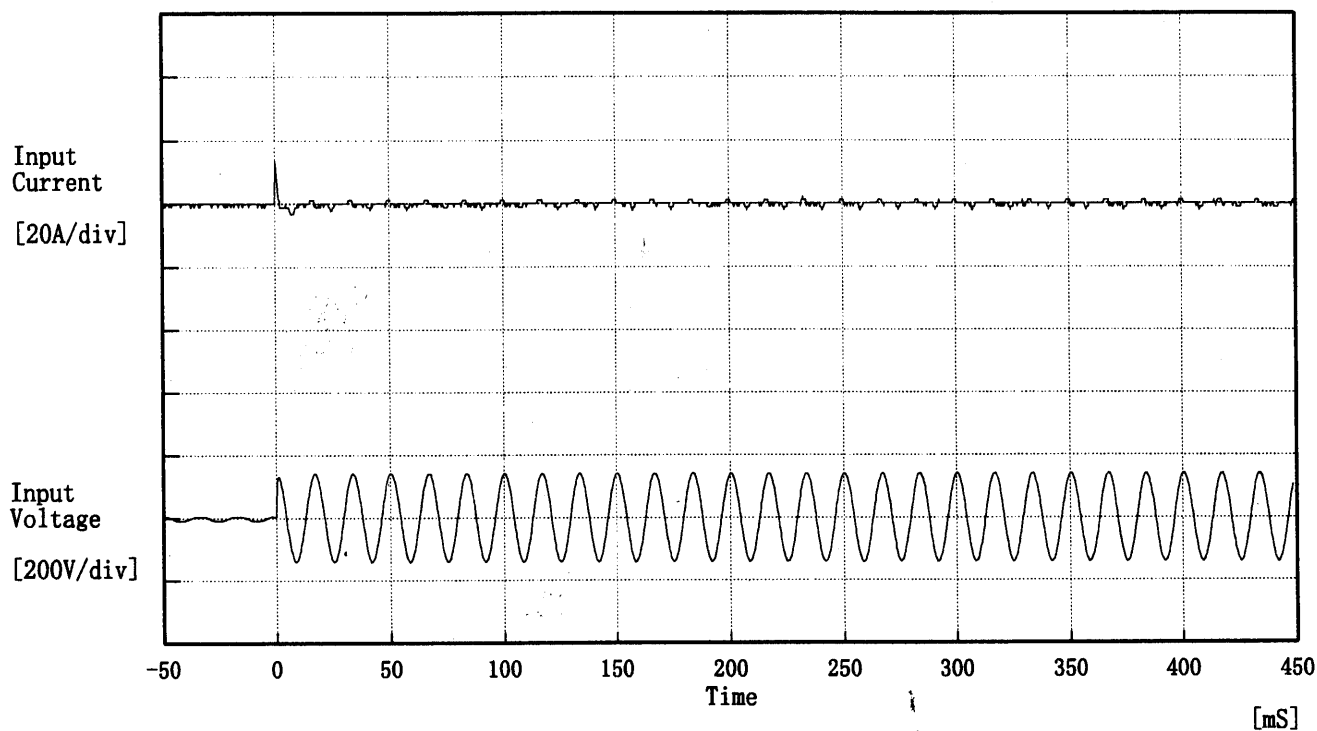
Testing Circuitry Figure A

2. Values

Ambient Temp.	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
[°C]	Operating Point [V]		
-20	19.4	19.4	19.4
-10	19.5	19.5	19.5
0	19.6	19.6	19.6
10	19.8	19.8	19.8
20	19.9	19.9	19.9
25	20.0	20.0	20.0
30	20.0	20.0	20.0
40	20.1	20.1	20.1
50	20.3	20.3	20.3
60	20.5	20.4	20.4
—	—	—	—

COSEL

Model	R25A-15	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



Input Voltage 100 V

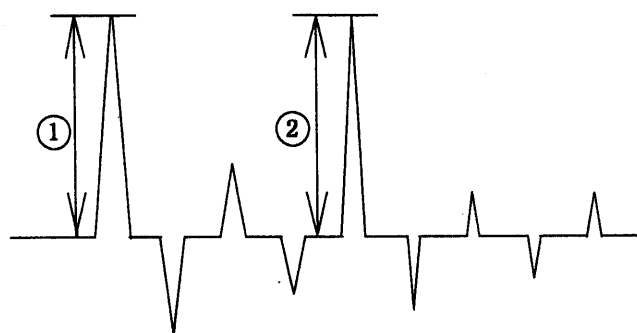
Frequency 60 Hz

Load 100 %

Inrush Current

① 13.48 [A]

② 2.27 [A]



COSEL

Model	R25A-15	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response 動的負荷変動	
Object	+15.0V1.70A	

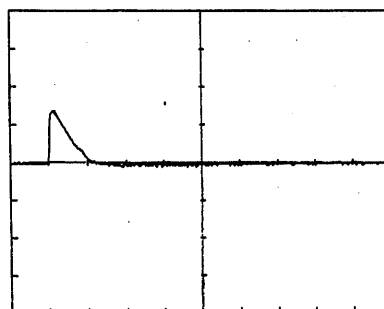
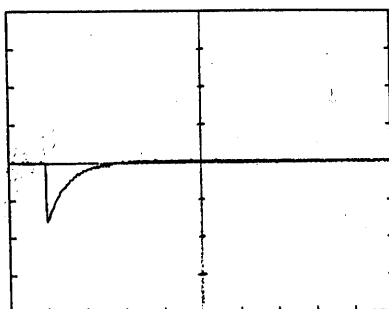
Input Volt. 100 V

Cycle 1000 mS

Load Current

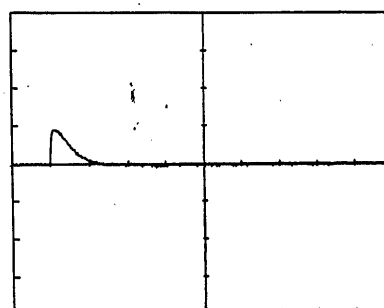
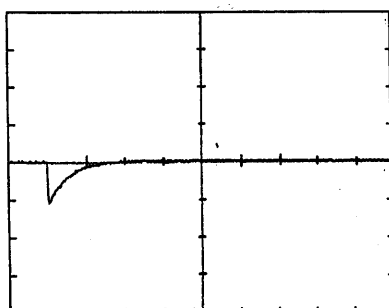
Load 0% ↔

Load 100 %



Load 0% ↔

Load 50 %



200 mV/div

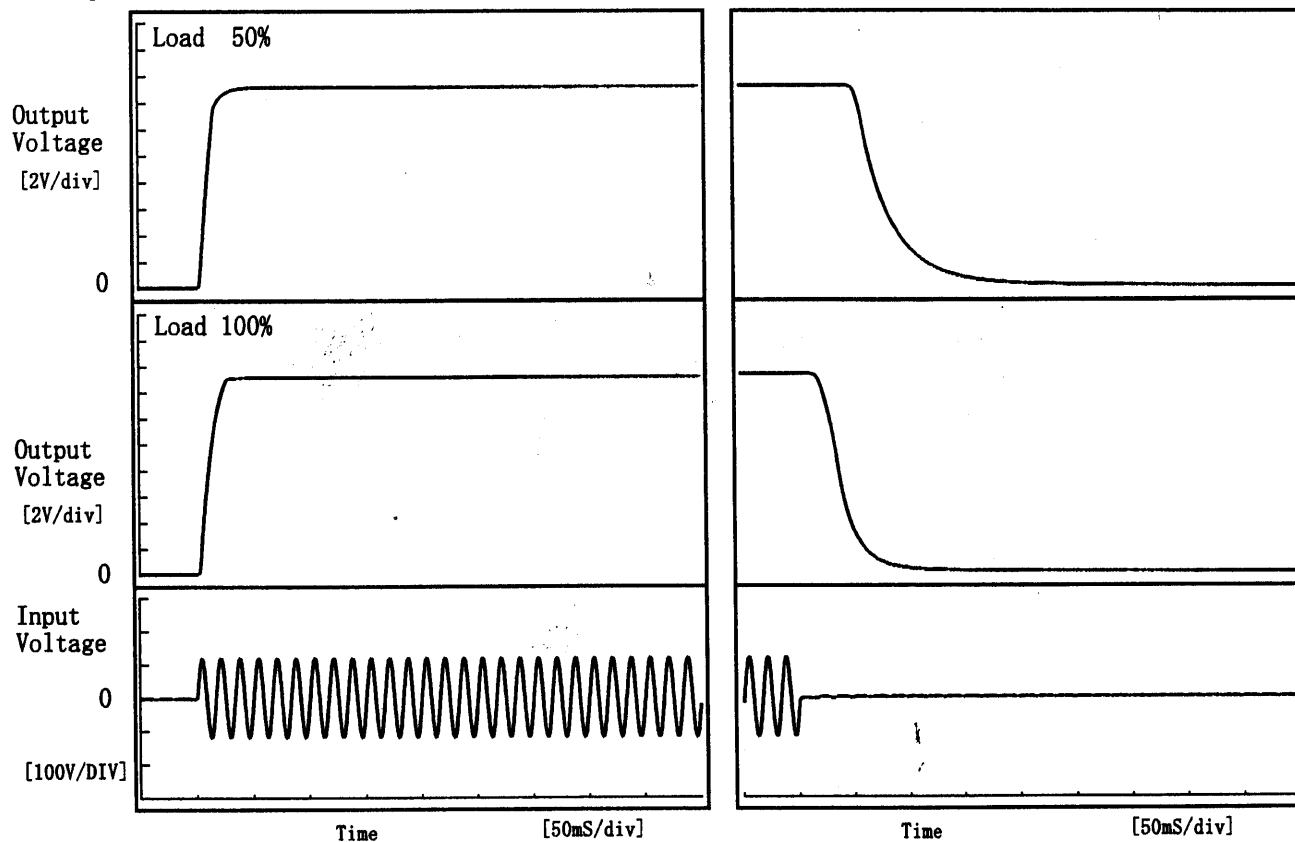
20 mS/div

COSEL

Model	R25A-15	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+15.0V 1.70A		

1. Graph

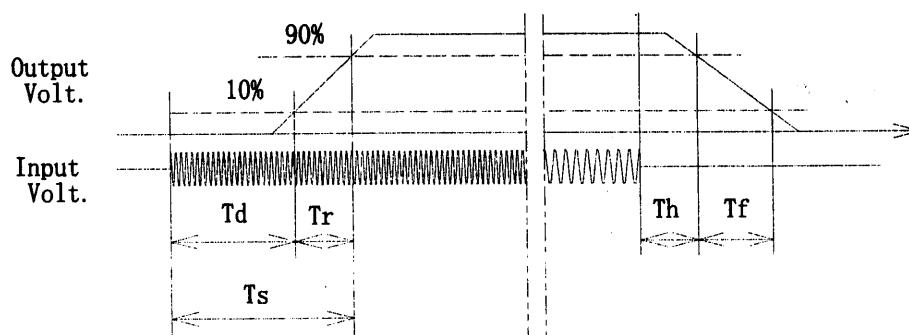
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	4.8	12.0	16.8	57.5	69.3
100 %	4.8	17.3	22.0	25.0	41.3



COSEL

Model

R25A-15

Item

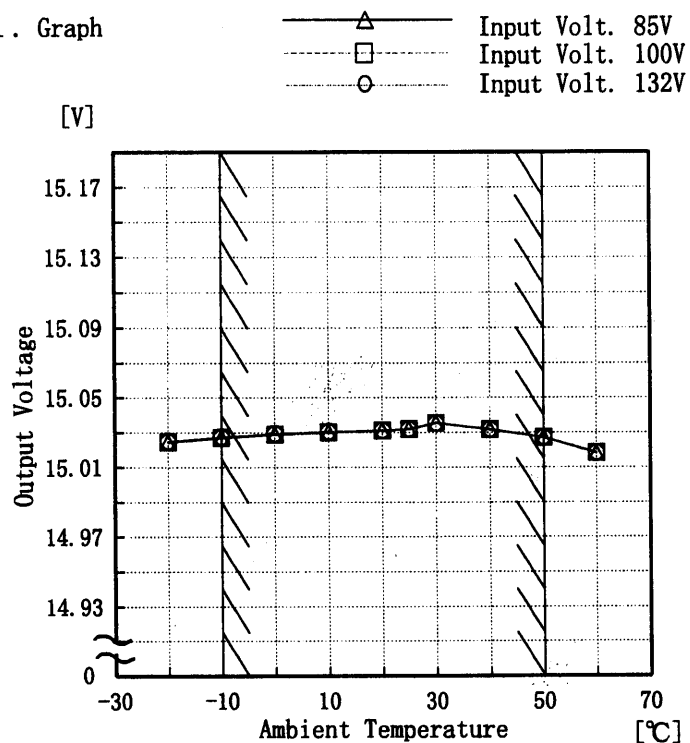
Ambient Temperature Drift
周囲温度変動

Object

+15.0V 1.70A

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	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
[°C]	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]
-20	15.024	15.025	15.025
-10	15.027	15.027	15.028
0	15.029	15.029	15.029
10	15.030	15.030	15.031
20	15.031	15.031	15.031
25	15.032	15.032	15.032
30	15.035	15.036	15.036
40	15.032	15.032	15.032
50	15.027	15.027	15.027
60	15.018	15.019	15.019
—	—	—	—

COSEL

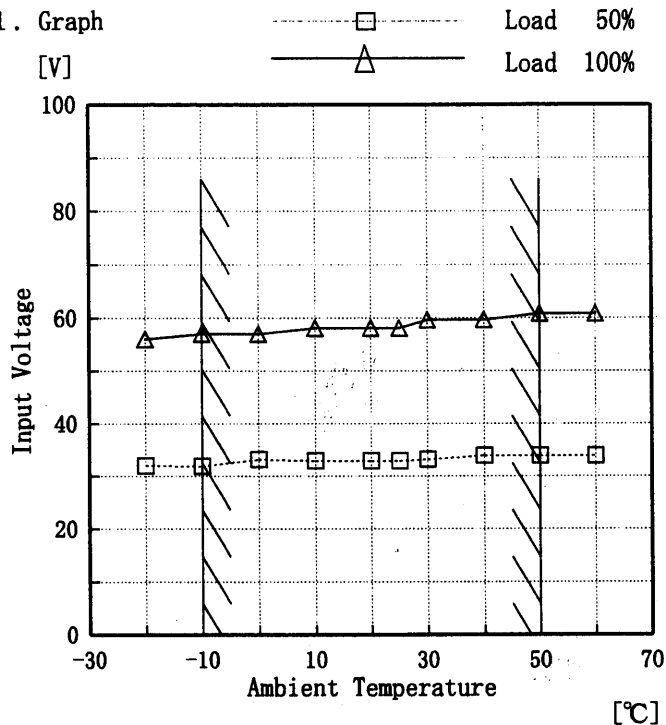
Model R25A-15

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

Object +15.0V 1.70A

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	32	56
-10	32	57
0	33	57
10	33	58
20	33	58
25	33	58
30	33	60
40	34	60
50	34	61
60	34	61
—	—	—

COSEL

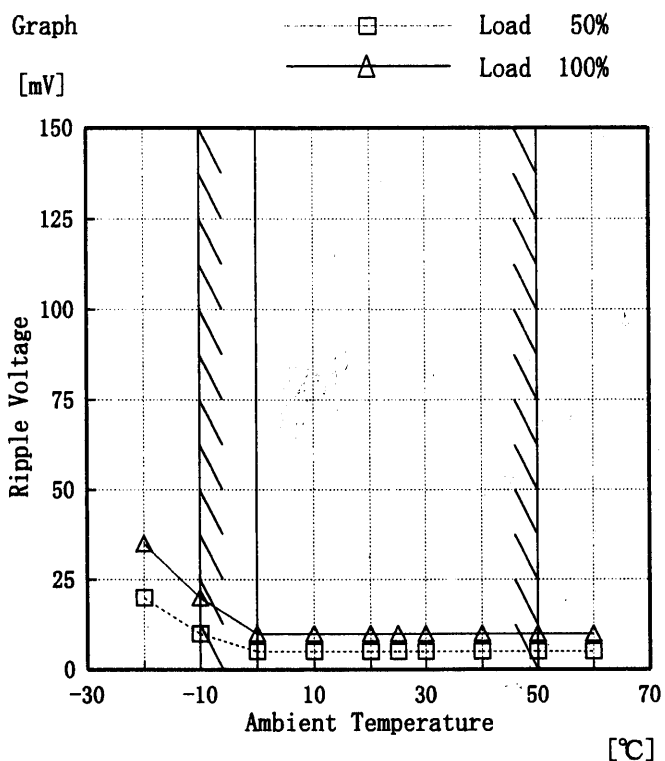
Model R25A-15

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

Object +15.0V1.70A

Testing Circuitry Figure A

1. Graph



Input Volt. 85 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 Temp. [°C]	Load 50%	Load 100%
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]
-20	20	35
-10	10	20
0	5	10
10	5	10
20	5	10
25	5	10
30	5	10
40	5	10
50	5	10
60	5	10
—	—	—

COSEL

COSEL

Model R25A-15

Item Time Lapse Drift 経時ドリフト

Object +15.0V1.70A

Temperature 25 °C
Testing Circuitry Figure A

1. Graph

[V]

Output Voltage

Time [H]

Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	15.032
0.5	15.026
1.0	15.026
2.0	15.026
3.0	15.026
4.0	15.026
5.0	15.026
6.0	15.026
7.0	15.026
8.0	15.026

COSEL

Model		R25A-15	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+15.0V1.70A	

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 : 0.00~1.70 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 : 0.00~1.70 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	132	0.00	15.041	±9	±0.1
Minimum Voltage	50	132	1.70	15.025		

COSEL

Model R25A-15		Temperature 25°C																																																				
Item	Oscillator Frequency 発振周波数	Testing Circuitry Figure A																																																				
Object	+15.0V1.70A																																																					
1. Graph <div> <div>△</div> Input Volt. 85 V <div>□</div> Input Volt. 100 V <div>○</div> Input Volt. 132 V </div> <p>Oscillator Frequency [KHz]</p> <p>Load Current [A]</p>		2. Values <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr> <tr> <th colspan="3">Oscillator Frequency [KHz]</th></tr> </thead> <tbody> <tr><td>0.30</td><td>250</td><td>270</td><td>290</td></tr> <tr><td>0.60</td><td>190</td><td>200</td><td>230</td></tr> <tr><td>0.90</td><td>150</td><td>170</td><td>190</td></tr> <tr><td>1.20</td><td>125</td><td>140</td><td>160</td></tr> <tr><td>1.50</td><td>105</td><td>120</td><td>140</td></tr> <tr><td>1.70</td><td>95</td><td>105</td><td>125</td></tr> <tr><td>1.87</td><td>90</td><td>100</td><td>120</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>		Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	Oscillator Frequency [KHz]			0.30	250	270	290	0.60	190	200	230	0.90	150	170	190	1.20	125	140	160	1.50	105	120	140	1.70	95	105	125	1.87	90	100	120	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																			
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1.70	95	105	125																																																			
1.87	90	100	120																																																			
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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。																																																						

COSEL

Model		R25A-15	Testing Circuitry Figure A
Item		Condensation 結露特性	
Object		+15.0V1.7A	

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]	15.252	Input Volt.: 100V, Load Current:1.7A
Line Regulation [mV]	3	Input Volt.: 85~132V, Load Current:1.7A
Load Regulation [mV]	3	Input Volt.: 100V, Load Current:0.0~1.7A

COSEL

Model	R25A-15	Testing Circuitry Figure A
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	0.32	0.40	0.44
(B) U L	0.28	0.32	0.36
(C) C S A	0.28	0.32	0.36

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

		Testing Circuitry Figure C
Model	R25A-15	
Item	Line Noise Tolerance 入力雑音耐量	
Object	+15.0V1.70A	

1. Results

Pulse Width [n S]	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 regulation
	NORMAL	OK	no regulation
1000	COMMON	OK	no regulation
	NORMAL	OK	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	R25A-15
Item	Conducted Emission 雑音端子電圧
Object	

Testing Circuitry Figure D

1. Graph

Remarks

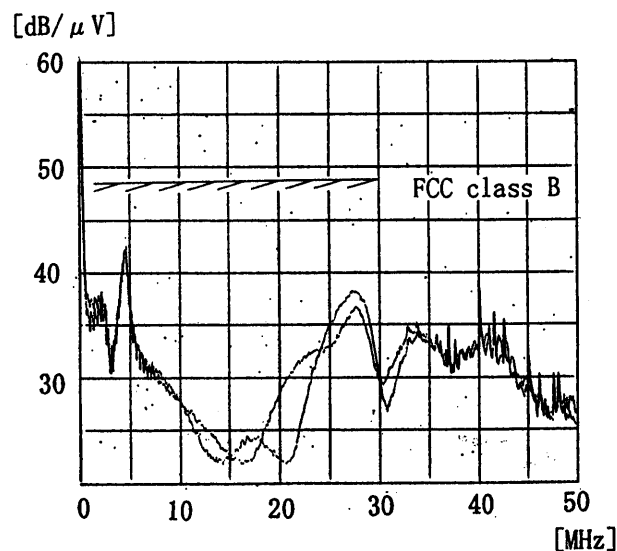
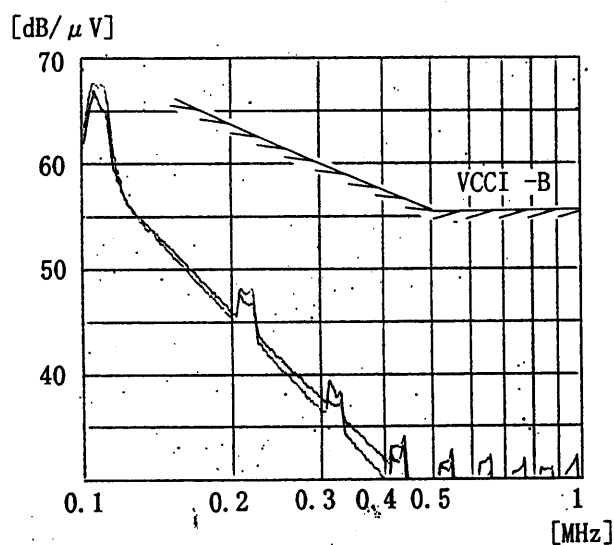
Input Volt. 100 V (VCCI -B)
120 V (FCC class B)

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



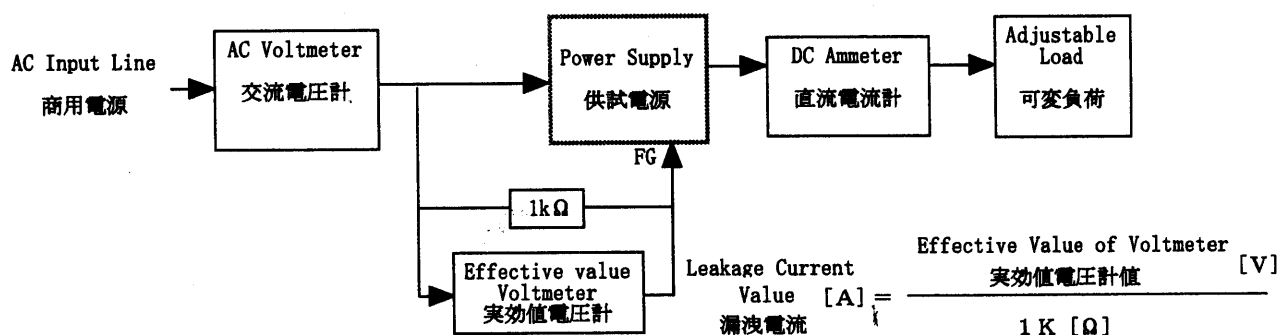
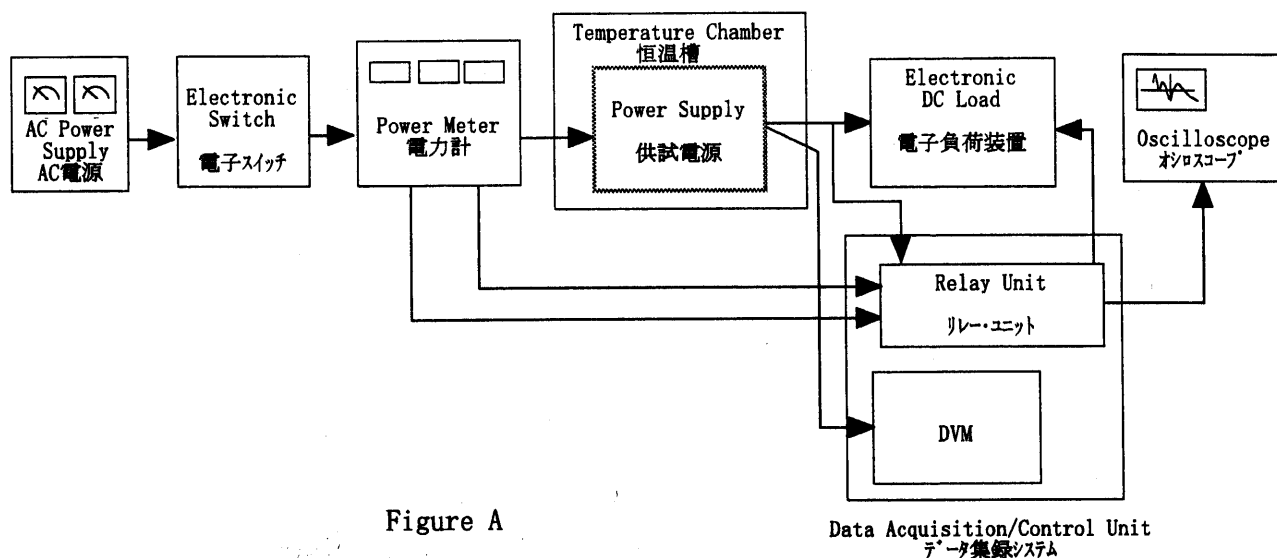


Figure B (DENTORI)

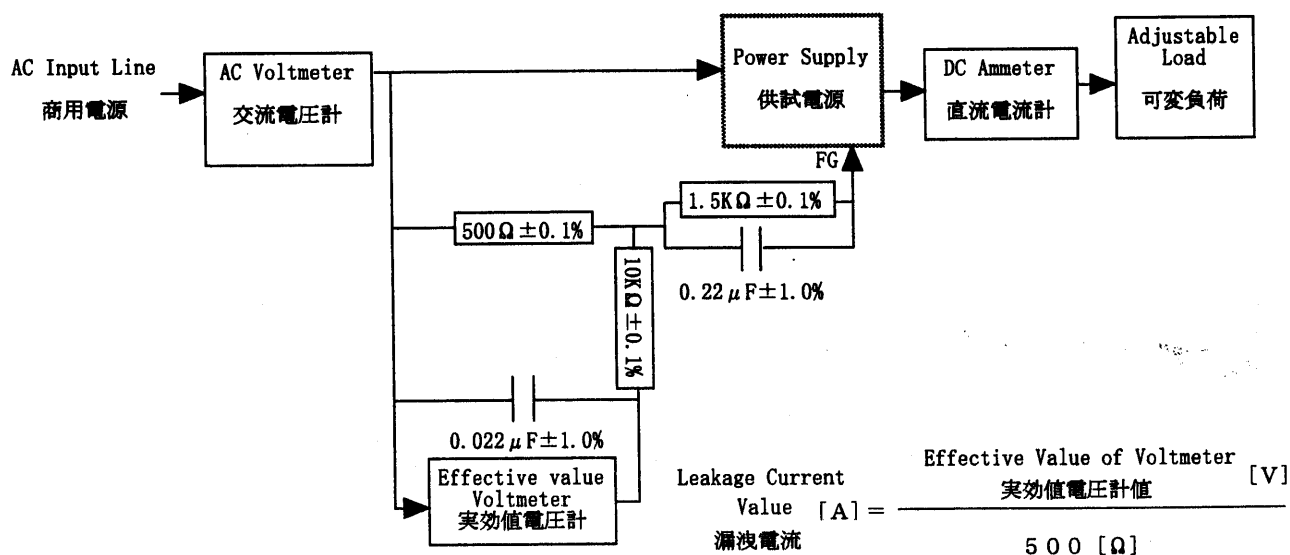


Figure B (UL, CSA, VDE)

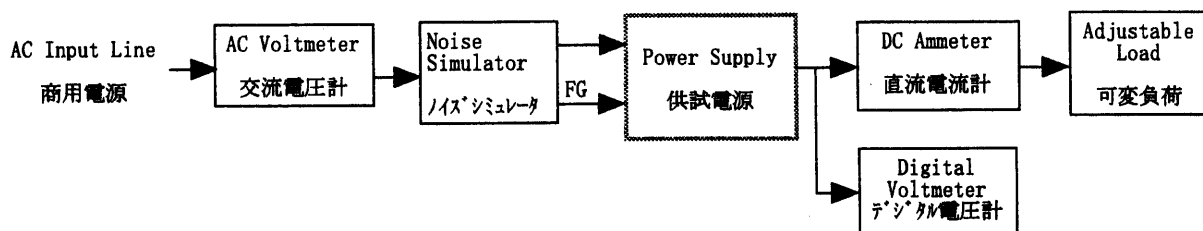


Figure C

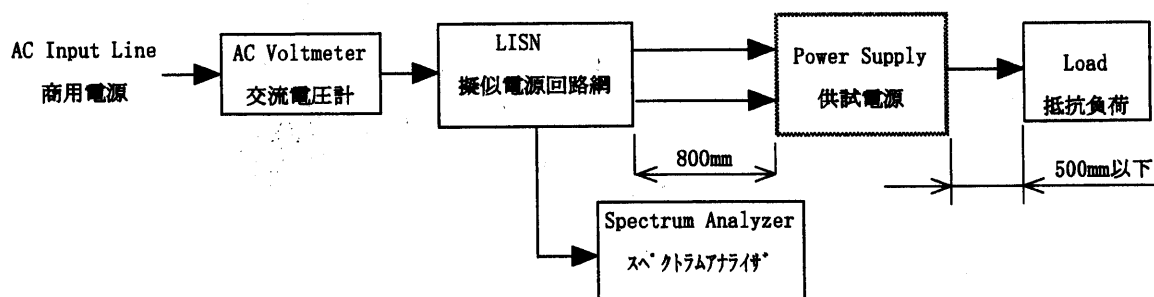


Figure D

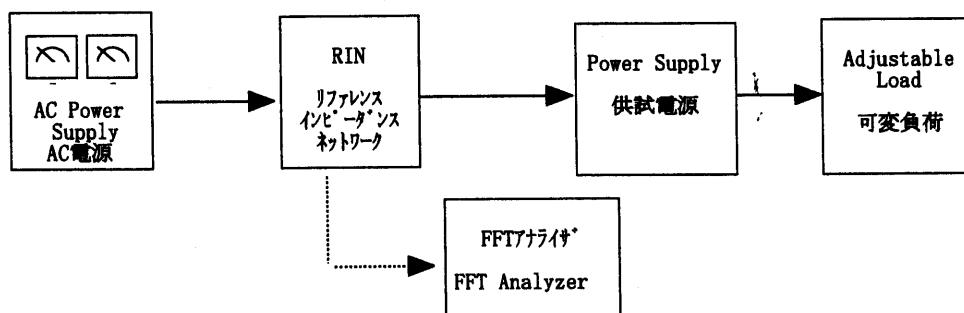


Figure E