



TEST DATA OF YS1512A  
(100V INPUT)

Regulated DC Power Supply

Date : Mar. 25. 1999

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Design Manager

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COSEL CO., LTD.



# CONTENTS

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

(Final Page 28 )



<p>Model YS1512A</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																														
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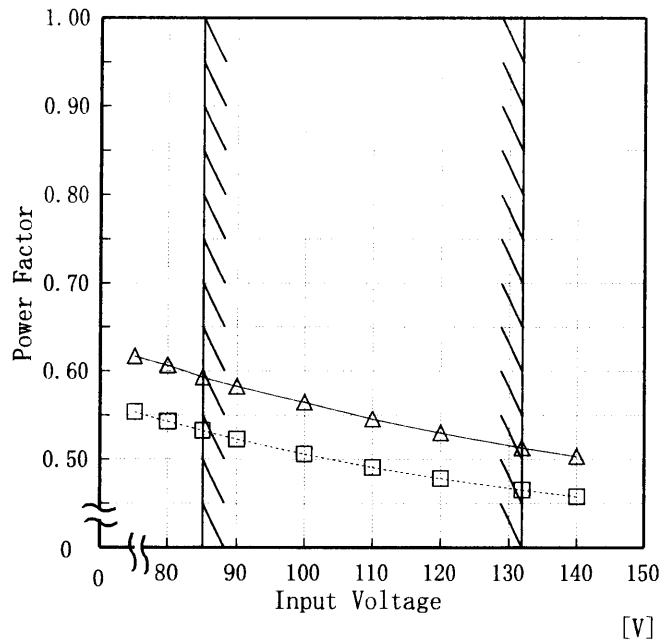


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Model	YS1512A	
Item	Power Factor (by Input Voltage) 力率 (入力電圧特性)	Temperature 25°C Testing Circuitry Figure A
Object	_____	

1. Graph □ load 50%  
—△— load 100%



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	0.55	0.62
80	0.54	0.61
85	0.53	0.59
90	0.52	0.58
100	0.51	0.56
110	0.49	0.55
120	0.48	0.53
132	0.47	0.51
140	0.46	0.50



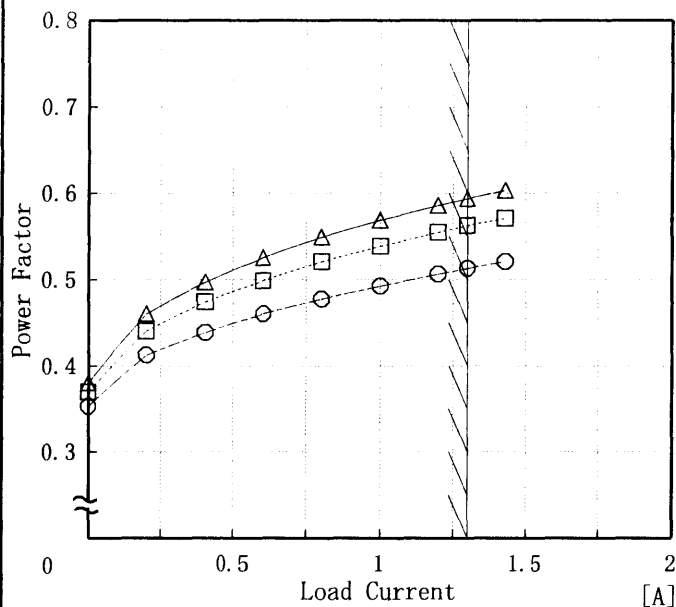


Model	YS1512A
Item	Power Factor (by Load Current) 力率 (負荷電流特性)
Output	—————

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。

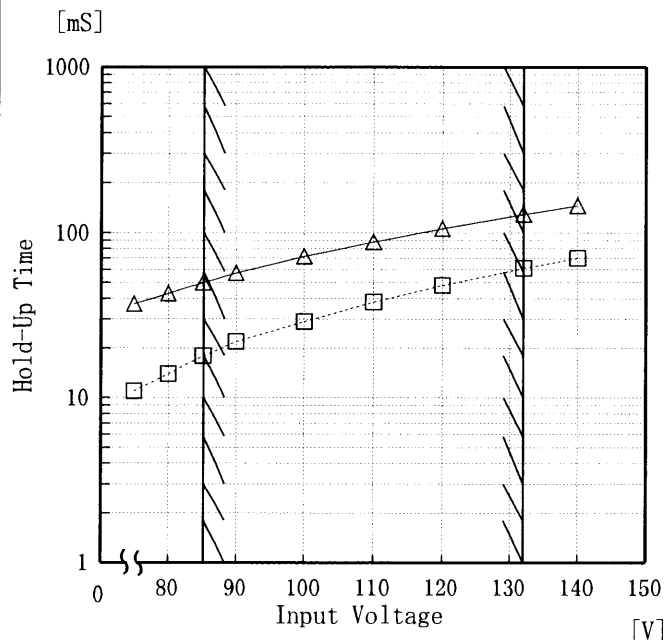
2. Values

Load Current [A]	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.38	0.37	0.35
0.20	0.46	0.44	0.41
0.40	0.50	0.47	0.44
0.60	0.53	0.50	0.46
0.80	0.55	0.52	0.48
1.00	0.57	0.54	0.49
1.20	0.59	0.55	0.51
1.30	0.59	0.56	0.51
1.43	0.60	0.57	0.52
—	—	—	—
—	—	—	—
—	—	—	—



Model	YS1512A	Temperature	25°C
Item	Hold-Up Time 出力保持時間	Testing Circuitry	Figure A
Object	+12.0V1.30A		

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]	Load 50%	Load 100%
	Hold-Up Time [mS]	Hold-Up Time [mS]
75	37	11
80	43	14
85	50	18
90	57	22
100	72	29
110	88	38
120	106	48
132	129	61
140	146	70



Model		YS1512A		Temperature		25°C																																																				
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<p>—△— Input Volt. 85 V                  - - -□- - - Input Volt. 100 V                  - - -○- - - Input Volt. 132 V</p> <p>Instantaneous Compensation Time [mS]</p> <p>Load Current [A]</p>				<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">Time [mS]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>0.20</td><td>154</td><td>207</td><td>334</td></tr> <tr><td>0.40</td><td>82</td><td>115</td><td>198</td></tr> <tr><td>0.60</td><td>53</td><td>77</td><td>138</td></tr> <tr><td>0.80</td><td>38</td><td>56</td><td>105</td></tr> <tr><td>1.00</td><td>27</td><td>42</td><td>82</td></tr> <tr><td>1.20</td><td>18</td><td>32</td><td>66</td></tr> <tr><td>1.30</td><td>16</td><td>27</td><td>58</td></tr> <tr><td>1.43</td><td>14</td><td>25</td><td>55</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]	Time [mS]			0.00	—	—	—	0.20	154	207	334	0.40	82	115	198	0.60	53	77	138	0.80	38	56	105	1.00	27	42	82	1.20	18	32	66	1.30	16	27	58	1.43	14	25	55	—	—	—	—	—	—	—	—
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<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 load current.</p>																																																										
<p>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。</p> <p>(注)斜線は定格負荷電流範囲を示す。</p>																																																										

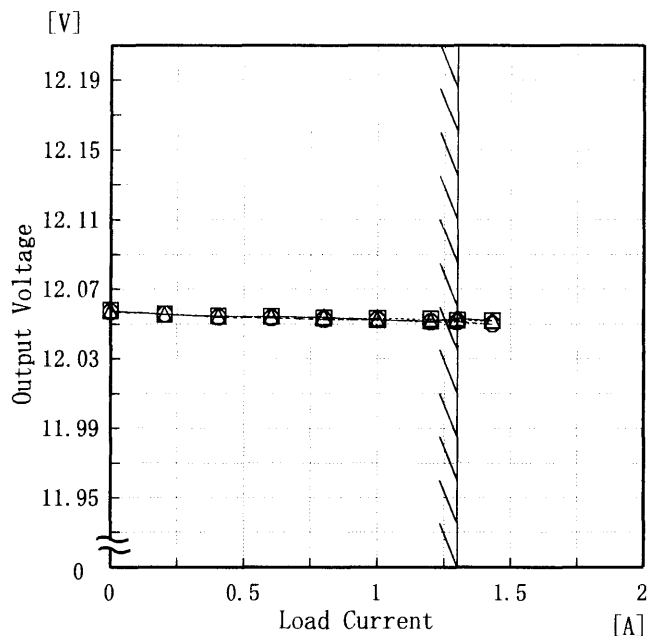


Model	YS1512A
Item	Load Regulation 静的負荷変動
Object	+12.0V1.30A

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]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]
0.00	12.058	12.058	12.057
0.20	12.056	12.056	12.056
0.40	12.055	12.055	12.054
0.60	12.054	12.054	12.054
0.80	12.054	12.054	12.053
1.00	12.053	12.053	12.053
1.20	12.052	12.053	12.051
1.30	12.053	12.052	12.051
1.43	12.052	12.052	12.050
—	—	—	—

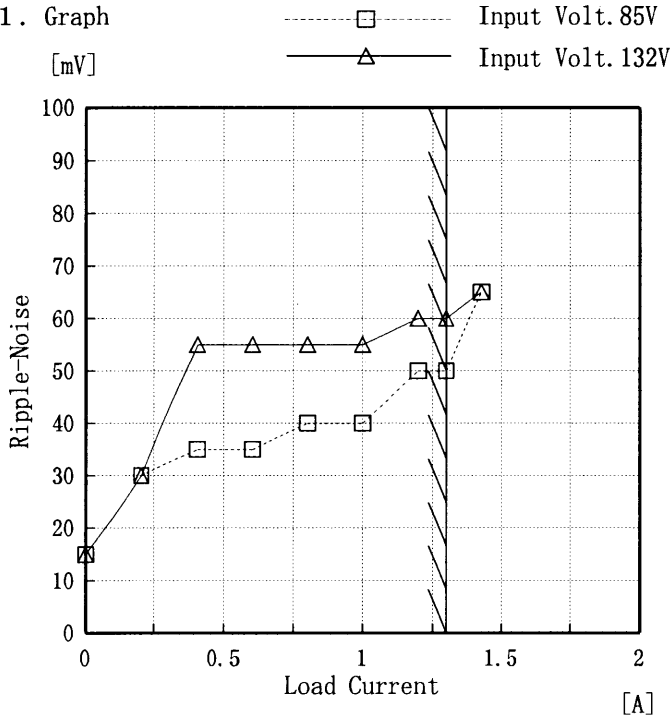


Model		YS1512A		Temperature		25°C																																							
Item		Ripple Voltage (by Load Current) リップル電圧(負荷電流特性)		Testing Circuitry		Figure A																																							
Object		+12.0V 1.30A																																											
<p>1. Graph</p> <p>[mV]</p> <p>-----□----- Input Volt. 85V</p> <p>-----△----- Input Volt. 132V</p>				<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th>Input Volt. 85 [V]</th> <th>Input Volt. 132 [V]</th> </tr> <tr> <th>Ripple Output Volt. [mV]</th> <th>Ripple Output Volt. [mV]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>10</td><td>10</td></tr> <tr><td>0.20</td><td>10</td><td>10</td></tr> <tr><td>0.40</td><td>10</td><td>10</td></tr> <tr><td>0.60</td><td>15</td><td>10</td></tr> <tr><td>0.80</td><td>15</td><td>10</td></tr> <tr><td>1.00</td><td>20</td><td>10</td></tr> <tr><td>1.20</td><td>25</td><td>10</td></tr> <tr><td>1.30</td><td>25</td><td>15</td></tr> <tr><td>1.43</td><td>40</td><td>30</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>				Load Current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]	0.00	10	10	0.20	10	10	0.40	10	10	0.60	15	10	0.80	15	10	1.00	20	10	1.20	25	10	1.30	25	15	1.43	40	30	—	—	—	—	—	—
Load Current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]																																											
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<p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>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。</p> <p>T1: Due to AC Input Line 入力商用周期</p> <p>T2: Due to Switching スイッチング周期</p>																																													
<p>Fig. Complex Ripple Wave Form</p> <p>図 リップル波形詳細図</p>																																													



Model	YS1512A	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A
Object	+12.0V 1.30A		

1. Graph



2. Values

Load current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]
	Ripple-Noise [mV]	Ripple-Noise [mV]
0.00	15	15
0.20	30	30
0.40	35	55
0.60	35	55
0.80	40	55
1.00	40	55
1.20	50	60
1.30	50	60
1.43	65	65
—	—	—
—	—	—

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

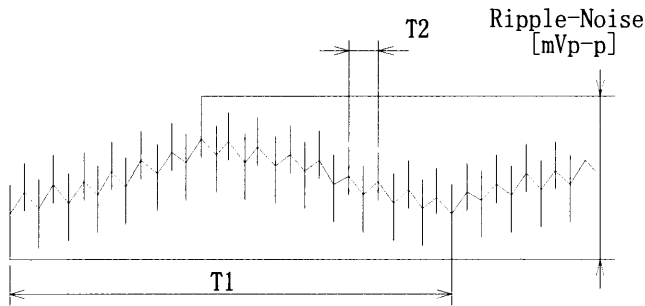


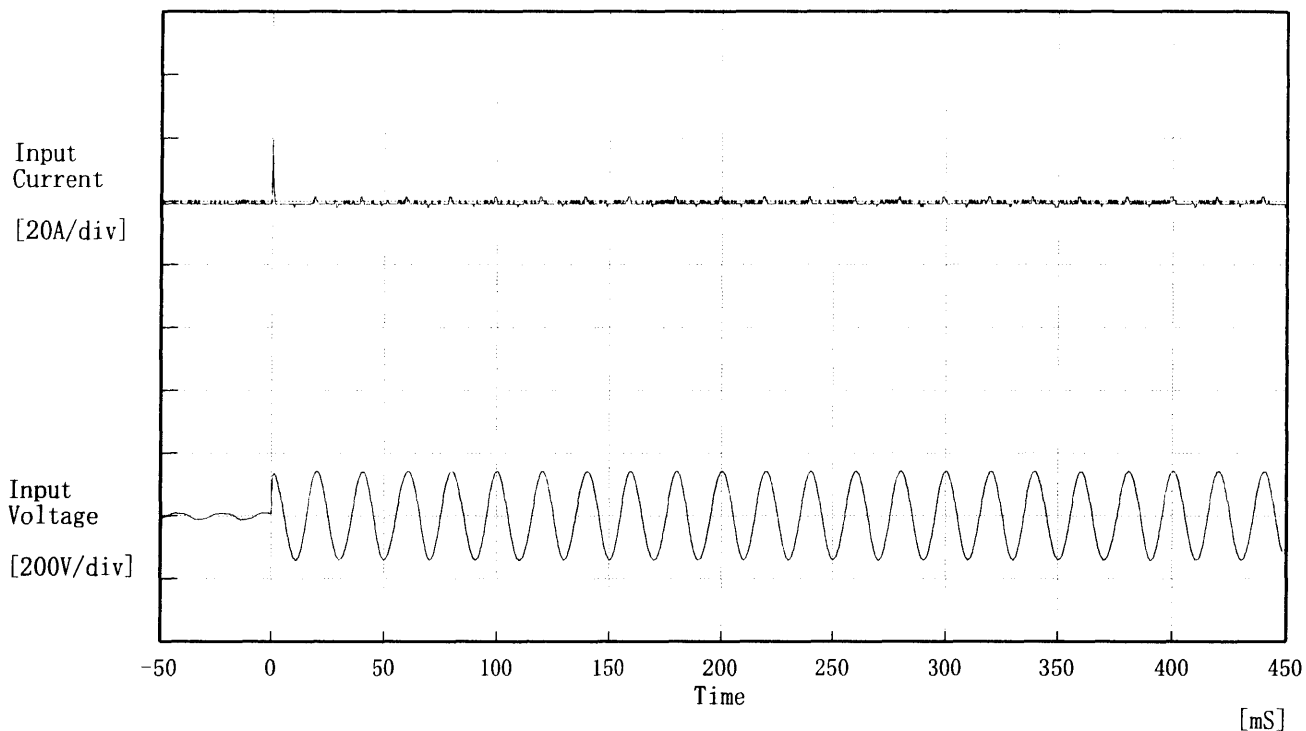
Fig. Complex Ripple Wave Form  
 図 リップル波形詳細図



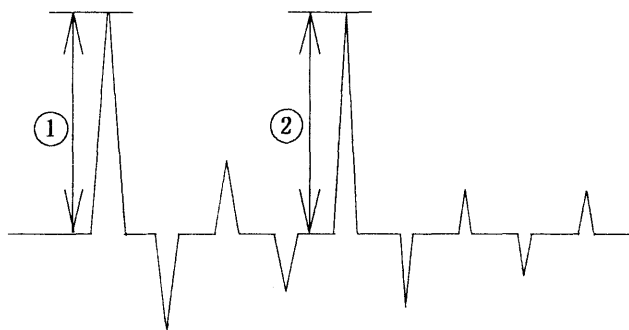
<p>Model YS1512A</p> <p>Item Overcurrent Protection 過電流保護</p> <p>Object +12.0V1.30A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																																				
<p>1. Graph</p> <p>[V]</p> <p>----- Input Volt. 85 V</p> <p>————— Input Volt. 100 V</p> <p>————— Input Volt. 132 V</p> <p>Output Voltage</p> <p>Load Current [A]</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th>Output Voltage [V]</th> <th>Input Volt. 85[V] Load Current [A]</th> <th>Input Volt. 100[V] Load Current [A]</th> <th>Input Volt. 132[V] Load Current [A]</th> </tr> </thead> <tbody> <tr><td>12.00</td><td>1.85</td><td>1.96</td><td>1.73</td></tr> <tr><td>11.40</td><td>1.86</td><td>1.95</td><td>1.72</td></tr> <tr><td>10.80</td><td>1.84</td><td>1.93</td><td>1.71</td></tr> <tr><td>9.60</td><td>1.82</td><td>1.89</td><td>1.66</td></tr> <tr><td>8.40</td><td>1.78</td><td>1.84</td><td>1.60</td></tr> <tr><td>7.20</td><td>1.72</td><td>1.77</td><td>1.54</td></tr> <tr><td>6.00</td><td>1.64</td><td>1.68</td><td>1.47</td></tr> <tr><td>4.80</td><td>1.53</td><td>1.58</td><td>1.39</td></tr> <tr><td>3.60</td><td>1.40</td><td>1.44</td><td>1.29</td></tr> <tr><td>2.40</td><td>1.24</td><td>1.28</td><td>1.17</td></tr> <tr><td>1.20</td><td>1.07</td><td>1.11</td><td>1.05</td></tr> <tr><td>0.00</td><td>0.99</td><td>1.03</td><td>1.04</td></tr> </tbody> </table>	Output Voltage [V]	Input Volt. 85[V] Load Current [A]	Input Volt. 100[V] Load Current [A]	Input Volt. 132[V] Load Current [A]	12.00	1.85	1.96	1.73	11.40	1.86	1.95	1.72	10.80	1.84	1.93	1.71	9.60	1.82	1.89	1.66	8.40	1.78	1.84	1.60	7.20	1.72	1.77	1.54	6.00	1.64	1.68	1.47	4.80	1.53	1.58	1.39	3.60	1.40	1.44	1.29	2.40	1.24	1.28	1.17	1.20	1.07	1.11	1.05	0.00	0.99	1.03	1.04
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Model	YS1512A	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



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





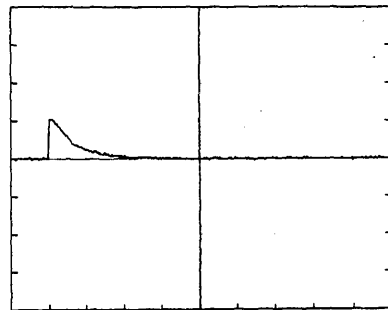
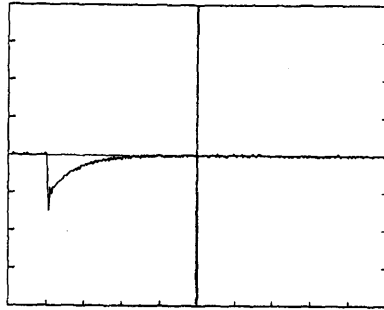
# COSEL

Model	YS1512A	Temperature	25°C
Item	Dynamic Load Responce 動的負荷変動	Testing Circuitry	Figure A
Object	+12.0V 1.30A		

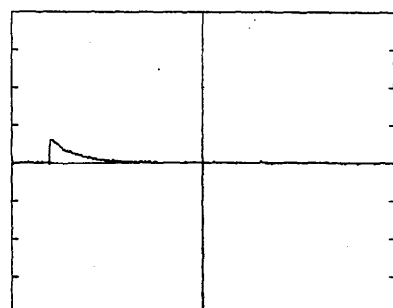
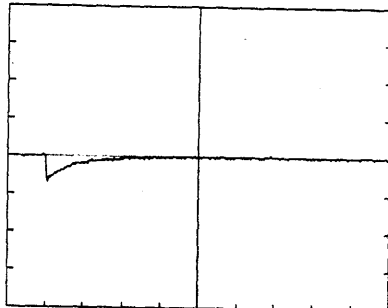
Input Volt. 100 V  
Cycle 200 mS



Load 0% ↔  
Load 100 %



Load 0% ↔  
Load 50 %



500 mV/div

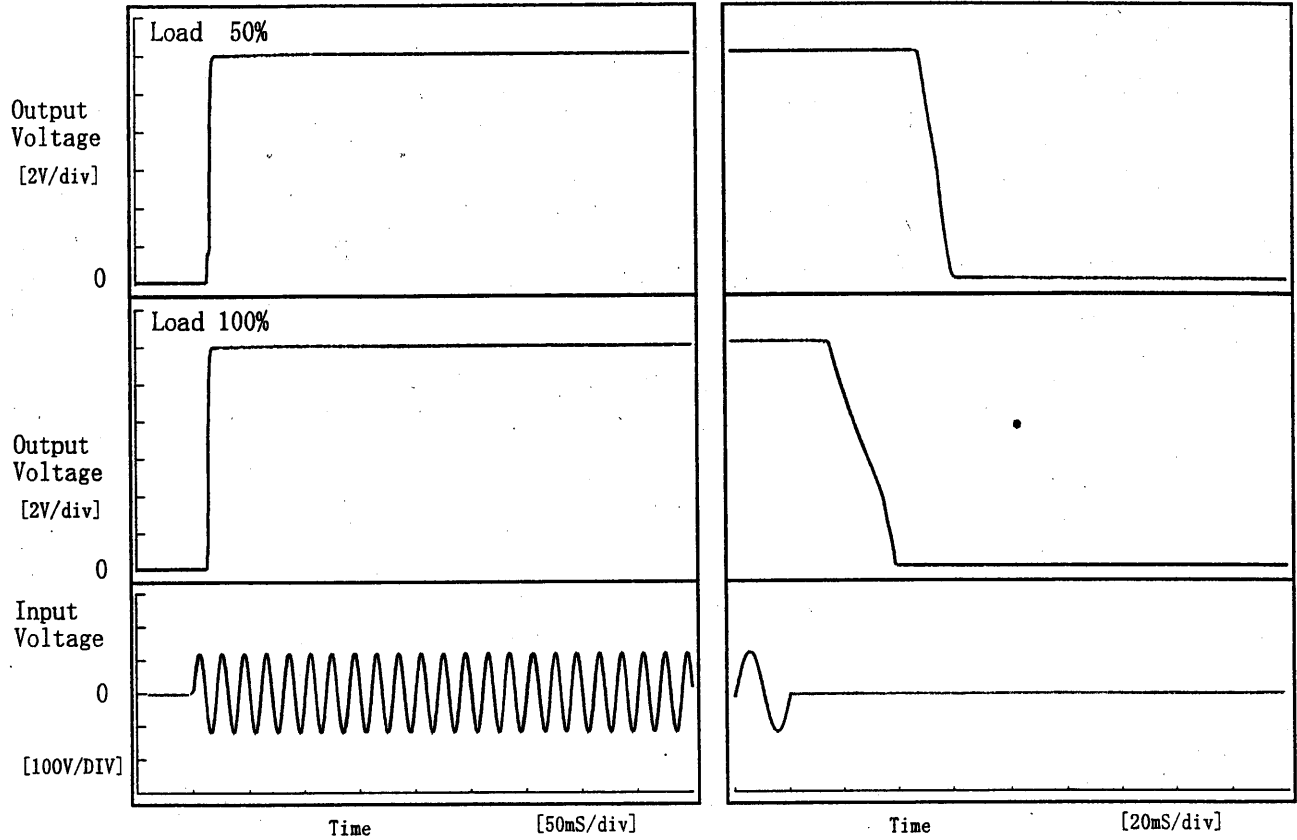
1 mS/div



Model	YS1512A	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+12.0V1.30A		

1. Graph

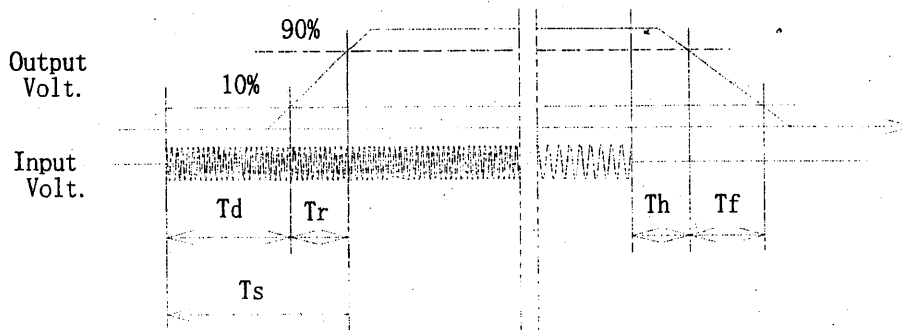
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	12.8	4.0	16.8	49.7	9.8
100 %	12.8	2.3	15.0	18.0	20.6





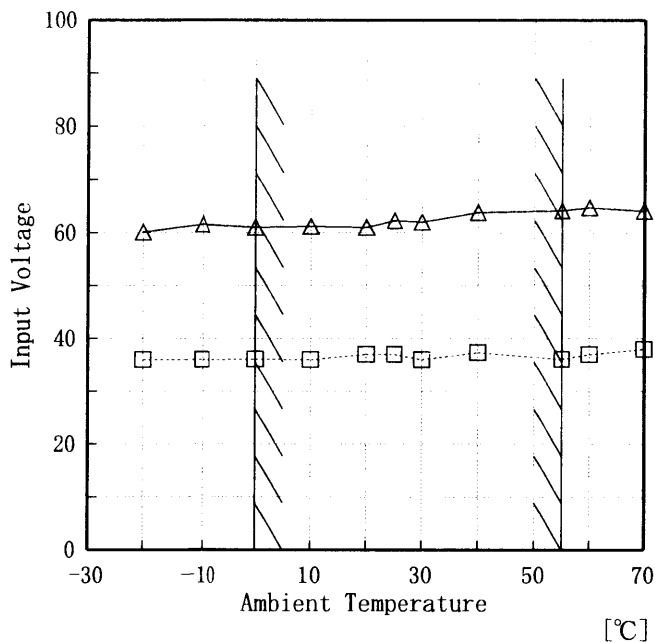
Model		YS1512A		Testing Circuitry Figure A																																																	
Item		Ambient Temperature Drift 周囲温度変動																																																			
Object		+12.0V 1.30A		2. Values																																																	
1. Graph		<p> <input type="checkbox"/> △ Input Volt. 85V  <input type="checkbox"/> □ Input Volt. 100V  <input type="checkbox"/> ○ Input Volt. 132V                 </p> <p style="text-align: right;">Load 100%</p>																																																			
Note: Slanted line shows the range of the rated ambient temperature.				<table border="1"> <thead> <tr> <th>Temperature [°C]</th> <th>Input Volt. 85[V] Output Volt. [V]</th> <th>Input Volt. 100[V] Output Volt. [V]</th> <th>Input Volt. 132[V] Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>12.077</td><td>12.076</td><td>12.075</td></tr> <tr><td>-10</td><td>12.071</td><td>12.071</td><td>12.069</td></tr> <tr><td>0</td><td>12.065</td><td>12.065</td><td>12.063</td></tr> <tr><td>10</td><td>12.059</td><td>12.058</td><td>12.057</td></tr> <tr><td>20</td><td>12.054</td><td>12.053</td><td>12.052</td></tr> <tr><td>25</td><td>12.050</td><td>12.051</td><td>12.049</td></tr> <tr><td>30</td><td>12.048</td><td>12.049</td><td>12.048</td></tr> <tr><td>40</td><td>12.041</td><td>12.042</td><td>12.041</td></tr> <tr><td>55</td><td>12.030</td><td>12.029</td><td>12.028</td></tr> <tr><td>60</td><td>12.022</td><td>12.024</td><td>12.023</td></tr> <tr><td>70</td><td>12.011</td><td>12.012</td><td>12.011</td></tr> </tbody> </table>		Temperature [°C]	Input Volt. 85[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]	-20	12.077	12.076	12.075	-10	12.071	12.071	12.069	0	12.065	12.065	12.063	10	12.059	12.058	12.057	20	12.054	12.053	12.052	25	12.050	12.051	12.049	30	12.048	12.049	12.048	40	12.041	12.042	12.041	55	12.030	12.029	12.028	60	12.022	12.024	12.023	70	12.011	12.012	12.011
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Model	YS1512A
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+12.0V1.30A

Testing Circuitry Figure A

1. Graph □ Load 50%  
—△— Load 100%



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	36	60
-10	36	62
0	36	61
10	36	61
20	37	61
25	37	62
30	36	62
40	37	64
55	36	64
60	37	65
70	38	64



Model		YS1512A	Testing Circuitry Figure A																																				
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																																					
Object		+12.0V1.30A																																					
1. Graph		<p>-----□----- Load 50%</p> <p>-----△----- Load 100%</p> <p>Input Volt. 100 V</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p> <p>(注)斜線は定格周囲温度範囲を示す。</p>	2. Values																																				
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70	10	20																																					



Model		YS1512A	Temperature 25 °C Testing Circuitry Figure A																						
Item		Time Lapse Drift 経時ドリフト																							
Object		+12.0V1.30A																							
1. Graph		2. Values																							
<p>[V]</p> <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 100V Load 100%</p>		<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>12.056</td></tr> <tr><td>0.5</td><td>12.051</td></tr> <tr><td>1.0</td><td>12.050</td></tr> <tr><td>2.0</td><td>12.051</td></tr> <tr><td>3.0</td><td>12.051</td></tr> <tr><td>4.0</td><td>12.051</td></tr> <tr><td>5.0</td><td>12.051</td></tr> <tr><td>6.0</td><td>12.051</td></tr> <tr><td>7.0</td><td>12.051</td></tr> <tr><td>8.0</td><td>12.050</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	12.056	0.5	12.051	1.0	12.050	2.0	12.051	3.0	12.051	4.0	12.051	5.0	12.051	6.0	12.051	7.0	12.051	8.0	12.050
Time since start [H]	Output Voltage [V]																								
0.0	12.056																								
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6.0	12.051																								
7.0	12.051																								
8.0	12.050																								



Model		YS1512A	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度		
Object	+12.0V 1.30A		

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 : 0~55 °C

Input Voltage : 85~132 V

Load Current : 0.00~1.30 A

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

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

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 0~55 °C

入力電圧 85~132 V

負荷電流 0.00~1.30 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	0	132	0.00	12.072	±23	±0.2
Minimum Voltage	55	132	1.30	12.027		

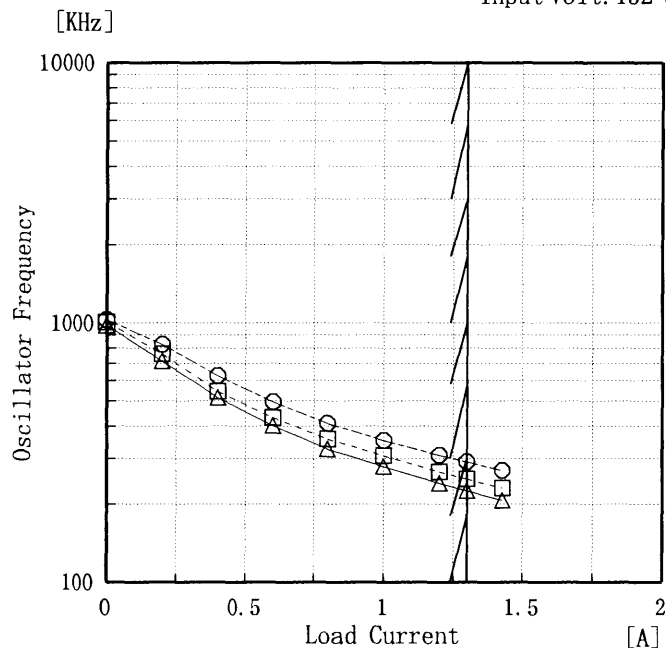


Model	YS1512A
Item	Oscillator Frequency 発振周波数
Object	+12.0V1.30A

Temperature 25°C  
Testing Circuitry Figure A

1. Graph

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



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]		
0.00	980	1010	1030
0.20	714	761	827
0.40	516	545	625
0.60	402	433	496
0.80	327	358	411
1.00	280	308	352
1.20	241	267	309
1.30	225	250	291
1.43	207	231	270
—	—	—	—
—	—	—	—





<b>COSEL</b>		
Model	YS1512A	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+12.0V/1.30A	

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℃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]	12.052	Input Volt. : 100V, Load Current:1.30A
Line Regulation [mV]	1	Input Volt. : 85~132V, Load Current:1.30A
Load Regulation [mV]	6	Input Volt. : 100V, Load Current:0.0~1.30A



Model		YS1512A	Temperature	25°C
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	0.11	0.13	0.18
(B) IEC60950	0.11	0.13	0.17

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。



Model		YS1512A	Temperature 25°C Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+12.0V1.30A	

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 fluctuation
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation

Conditions

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

# COSEL

Model		YS1512A	Testing Circuitry	Figure D
Item		Conducted Emission 雑音端子電圧		
Object		_____		

1. Graph

Remarks

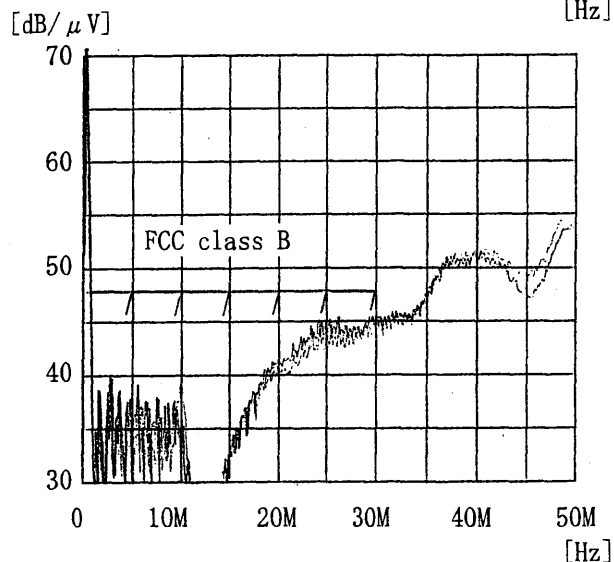
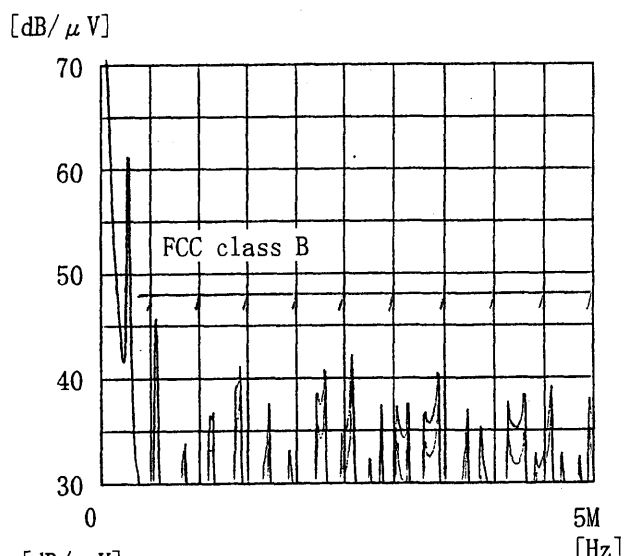
Input Volt. 120 V

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 class A		0.15~0.5	79
			0.5~30	73
4	VCCI class 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



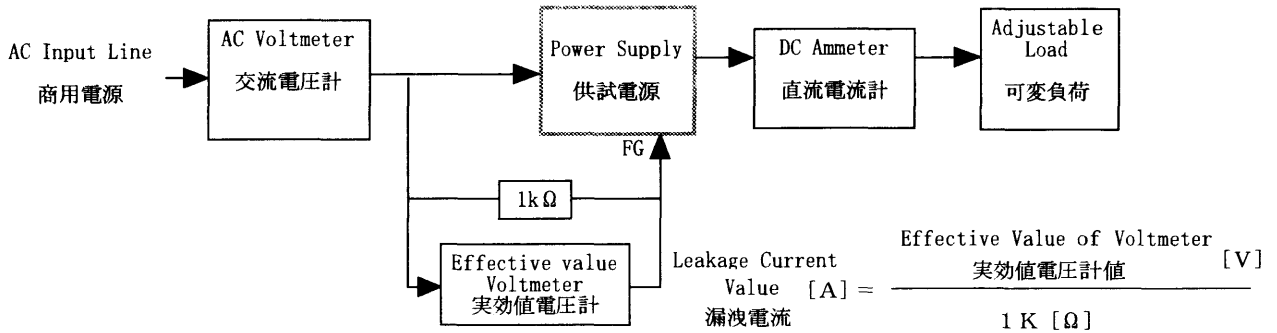
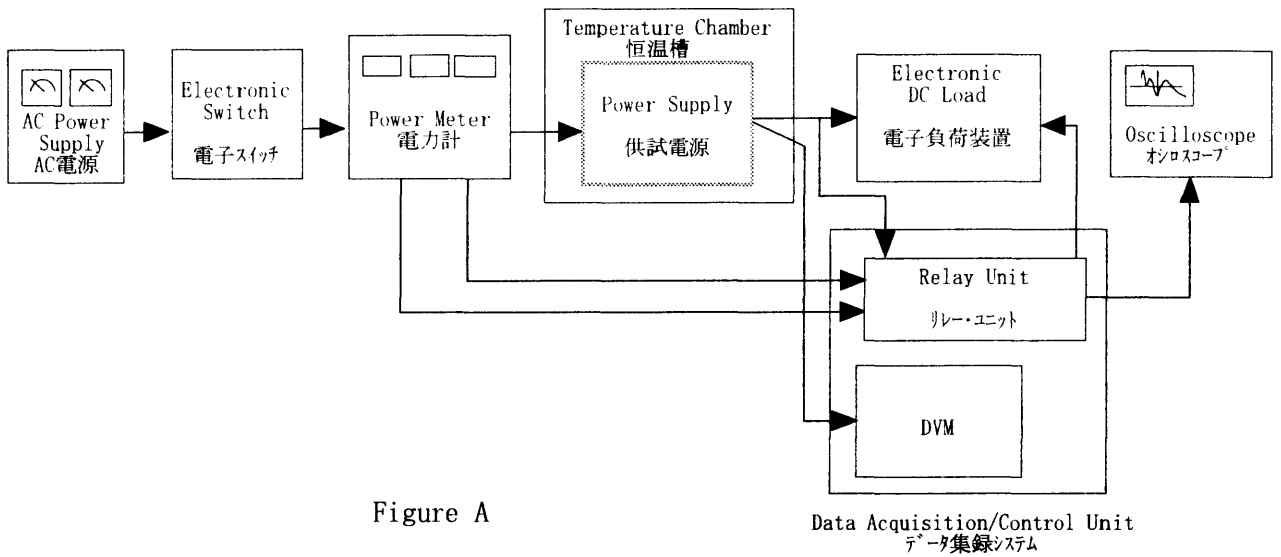


Figure B (DENTORI)

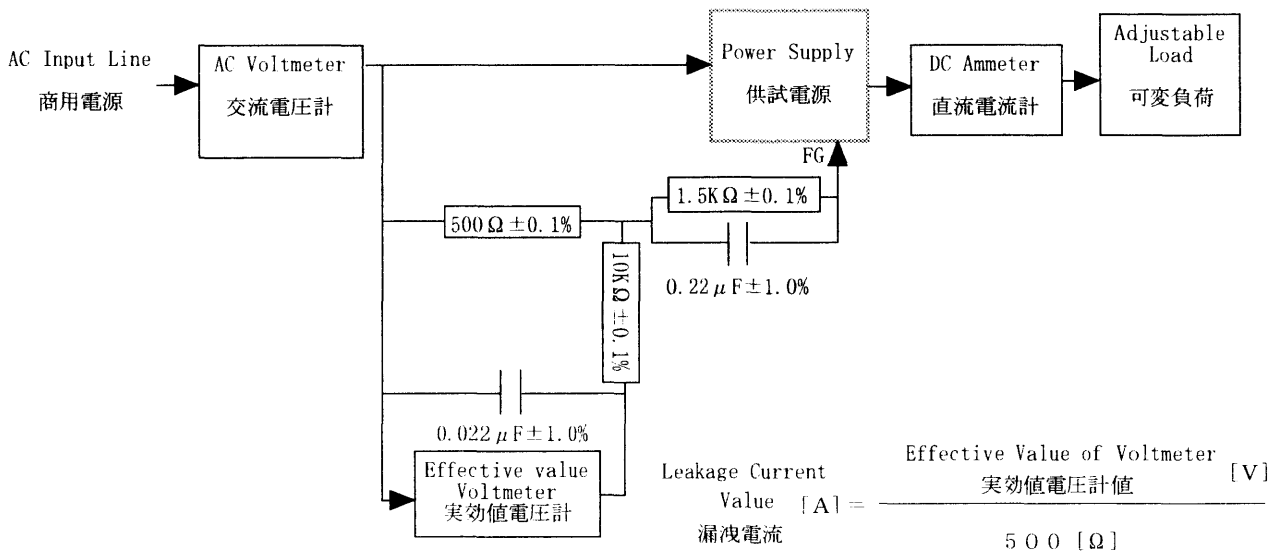


Figure B (IEC 60950)

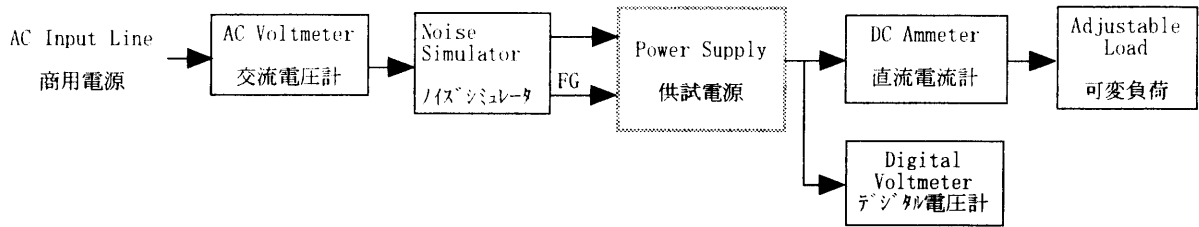


Figure C

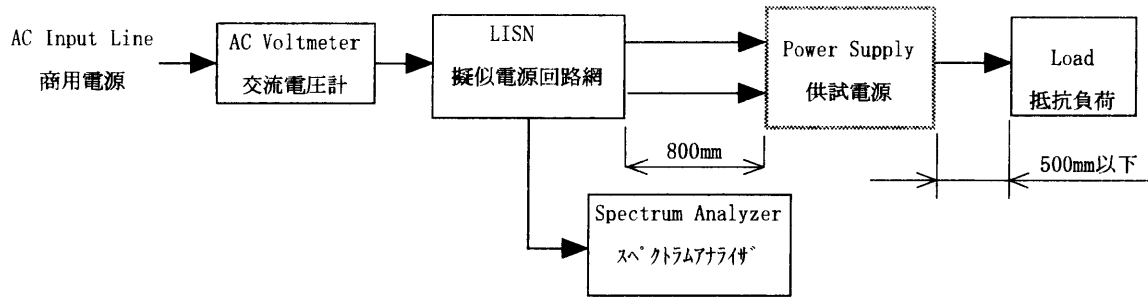


Figure D

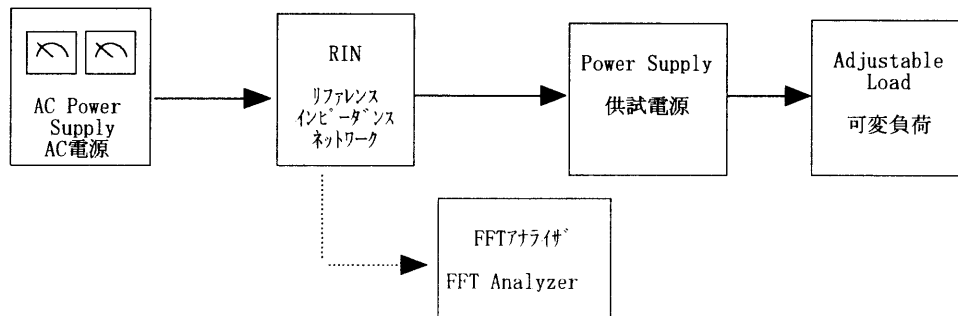


Figure E