



## TEST DATA OF VAF1003 (100V INPUT)

Regulated DC Power Supply

Oct. 29, 1999

Approved by : M. Nakata  
Design Manager

Prepared by : T. Yamashina  
Design Engineer

コーセル株式会社  
**COSEL CO., LTD.**



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Model	VAF1003	Temperature	25°C																																
Item	Line Regulation 静的入力変動	Testing Circuitry	Figure A																																
Object	+3.3V2A																																		
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Note: Slanted line shows the range of the rated input voltage.

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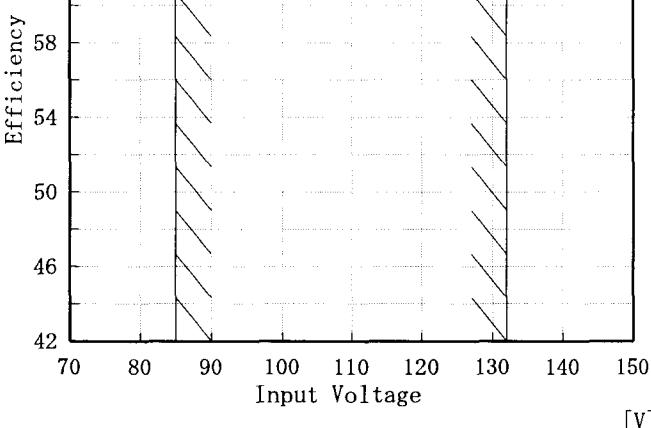
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Item	Efficiency (by Input Voltage) 効率(入力電圧特性)	Testing Circuitry	Figure A
Object	—		
1. Graph	—□— Load 50% —△— Load 100%		
	[%]	2. Values	
	Efficiency [%]	Input Voltage [V]	Efficiency [%]
	70	Load 50%	Load 100%
	66	75	64.7 65.6
	62	80	64.7 66.0
	58	85	64.5 66.3
	54	90	64.2 66.5
	50	100	64.1 66.9
	46	110	64.2 67.5
	42	120	63.4 67.6
		132	62.5 67.4
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1. Graph	<p>—△— Input Volt. 85V        -□- Input Volt. 100V        ○ Input Volt. 132V</p> <table border="1"> <caption>Data points estimated from Figure A graph</caption> <thead> <tr> <th>Load Current [A]</th> <th>Power Factor (85V)</th> <th>Power Factor (100V)</th> <th>Power Factor (132V)</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.38</td><td>0.36</td><td>0.33</td></tr> <tr><td>0.4</td><td>0.46</td><td>0.43</td><td>0.39</td></tr> <tr><td>0.8</td><td>0.50</td><td>0.47</td><td>0.43</td></tr> <tr><td>1.2</td><td>0.53</td><td>0.50</td><td>0.45</td></tr> <tr><td>1.6</td><td>0.56</td><td>0.52</td><td>0.48</td></tr> <tr><td>2.0</td><td>0.58</td><td>0.54</td><td>0.49</td></tr> <tr><td>2.2</td><td>0.59</td><td>0.55</td><td>0.50</td></tr> </tbody> </table>			Load Current [A]	Power Factor (85V)	Power Factor (100V)	Power Factor (132V)	0.0	0.38	0.36	0.33	0.4	0.46	0.43	0.39	0.8	0.50	0.47	0.43	1.2	0.53	0.50	0.45	1.6	0.56	0.52	0.48	2.0	0.58	0.54	0.49	2.2	0.59	0.55	0.50																							
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Note: Slanted line shows the range of the rated load current.

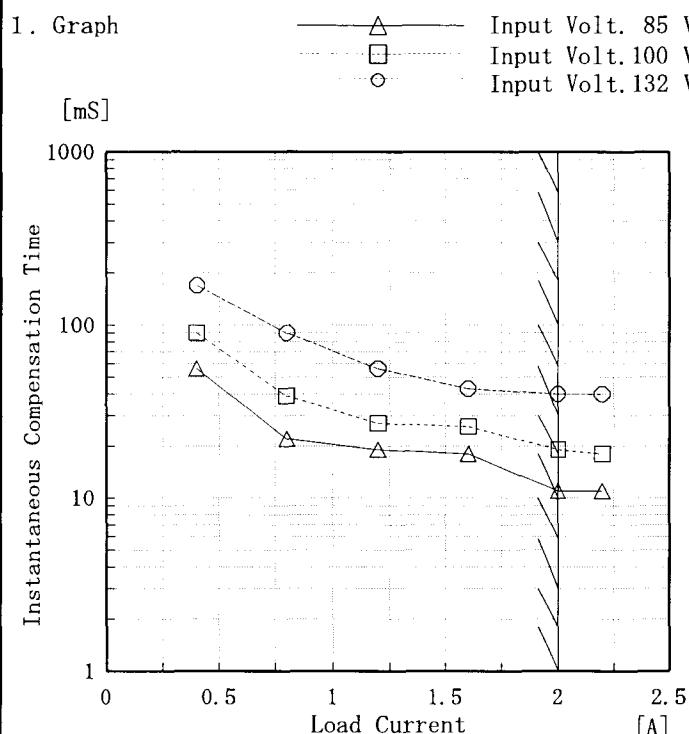
(注)斜線は定格負荷電流範囲を示す。

# COSEL

Model	VAF1003	Temperature Testing Circuitry	25°C Figure A																																
Item	Hold-Up Time 出力保持時間																																		
Object	+3.3V2A																																		
1. Graph			2. Values																																
			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Hold-Up Time [mS]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>75</td><td>25</td><td>10</td></tr> <tr><td>80</td><td>29</td><td>12</td></tr> <tr><td>85</td><td>34</td><td>15</td></tr> <tr><td>90</td><td>39</td><td>17</td></tr> <tr><td>100</td><td>51</td><td>23</td></tr> <tr><td>110</td><td>63</td><td>30</td></tr> <tr><td>120</td><td>77</td><td>37</td></tr> <tr><td>132</td><td>94</td><td>46</td></tr> <tr><td>140</td><td>107</td><td>53</td></tr> </tbody> </table>	Input Voltage [V]	Hold-Up Time [mS]		Load 50%	Load 100%	75	25	10	80	29	12	85	34	15	90	39	17	100	51	23	110	63	30	120	77	37	132	94	46	140	107	53
Input Voltage [V]	Hold-Up Time [mS]																																		
	Load 50%	Load 100%																																	
75	25	10																																	
80	29	12																																	
85	34	15																																	
90	39	17																																	
100	51	23																																	
110	63	30																																	
120	77	37																																	
132	94	46																																	
140	107	53																																	
<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>																																			

COSEL

Model	VAF1003
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+3.3V2A



Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

Load Current [A]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
0.4	56	90	169
0.8	22	39	90
1.2	19	27	56
1.6	18	26	43
2.0	11	19	40
2.2	11	18	40
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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。

**COSSEL**

Model	VAF1003	Temperature Testing Circuitry	25°C Figure A																																															
Item	Load Regulation 静的負荷変動																																																	
Object	+3.3V 2A																																																	
1. Graph	<p>—△— Input Volt. 85 V        —□— Input Volt. 100 V        —○— Input Volt. 132 V</p>																																																	
2. Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>3.319</td><td>3.319</td><td>3.319</td></tr> <tr><td>0.4</td><td>3.318</td><td>3.318</td><td>3.318</td></tr> <tr><td>0.8</td><td>3.317</td><td>3.317</td><td>3.317</td></tr> <tr><td>1.2</td><td>3.315</td><td>3.315</td><td>3.316</td></tr> <tr><td>1.6</td><td>3.314</td><td>3.314</td><td>3.314</td></tr> <tr><td>2.0</td><td>3.314</td><td>3.313</td><td>3.314</td></tr> <tr><td>2.2</td><td>3.314</td><td>3.313</td><td>3.313</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]	Output Voltage [V]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.0	3.319	3.319	3.319	0.4	3.318	3.318	3.318	0.8	3.317	3.317	3.317	1.2	3.315	3.315	3.316	1.6	3.314	3.314	3.314	2.0	3.314	3.313	3.314	2.2	3.314	3.313	3.313	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Output Voltage [V]																																																	
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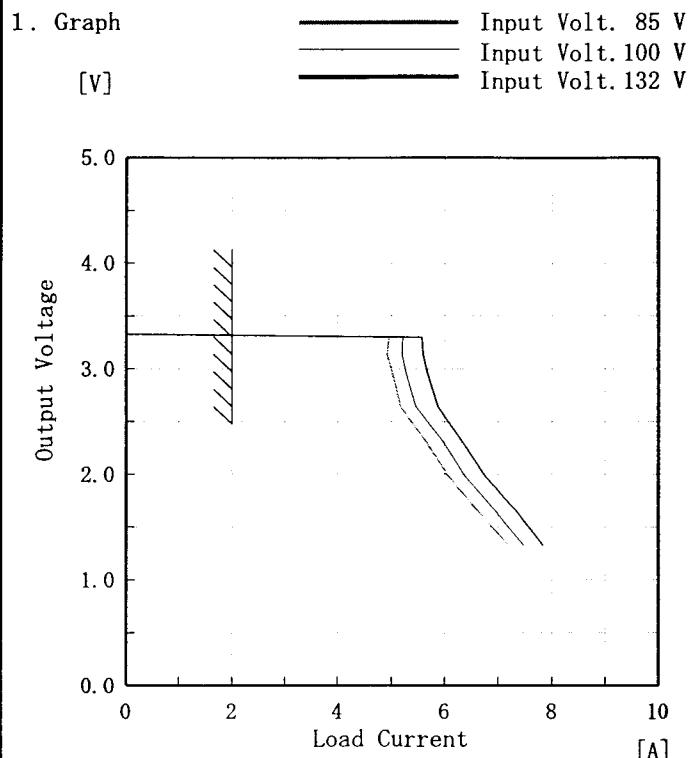
Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

**COSEL**

Model	VAF1003
Item	Overcurrent Protection 過電流保護
Object	+3.3V2A

Temperature 25°C  
Testing Circuitry Figure A



## 2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
3.30	4.96	5.22	5.58
3.13	4.92	5.21	5.60
2.97	5.01	5.28	5.68
2.64	5.18	5.47	5.88
2.31	5.66	5.97	6.33
1.98	6.07	6.38	6.76
1.65	6.62	6.96	7.35
1.32	7.22	7.50	7.84
0.99	—	—	—
0.66	—	—	—
0.33	—	—	—
0.00	—	—	—

Note1: Slanted line shows the range of the rated load current.

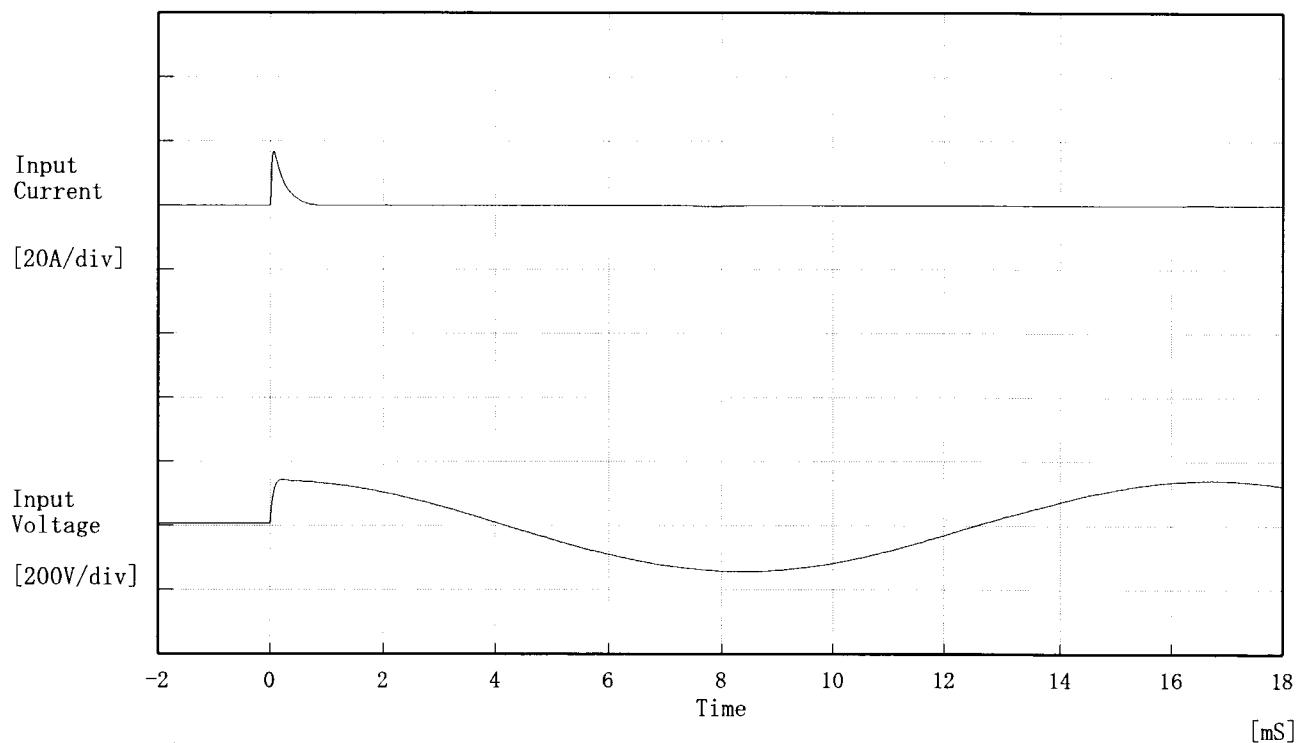
Note2: The lines shows peak current of intermittent operation of power supply when output voltage drops less than rated voltage value at overcurrent.

(注1)斜線は定格負荷電流範囲を示す。

(注2)垂下部分は間欠モード時のピーク電流を示す。

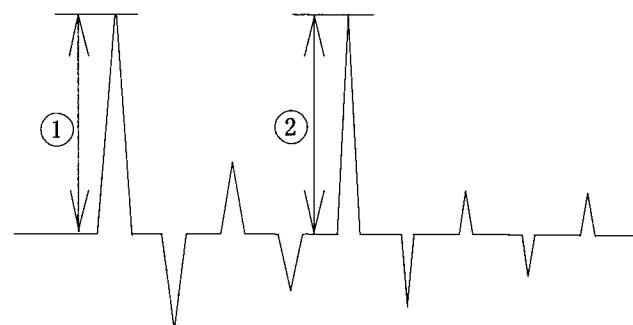
**COSSEL**

Model	VAF1003	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	—		

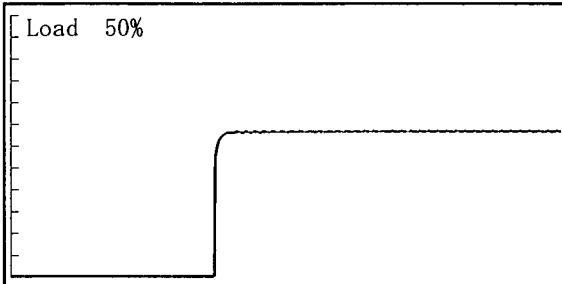
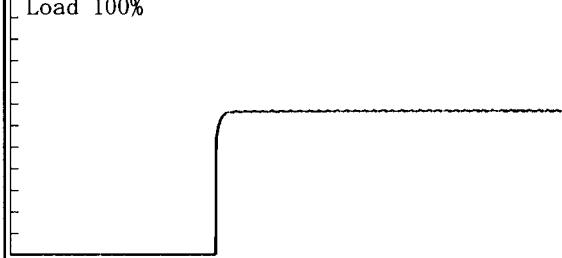
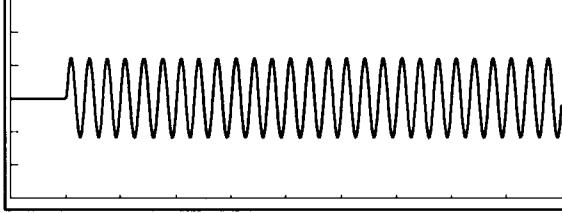
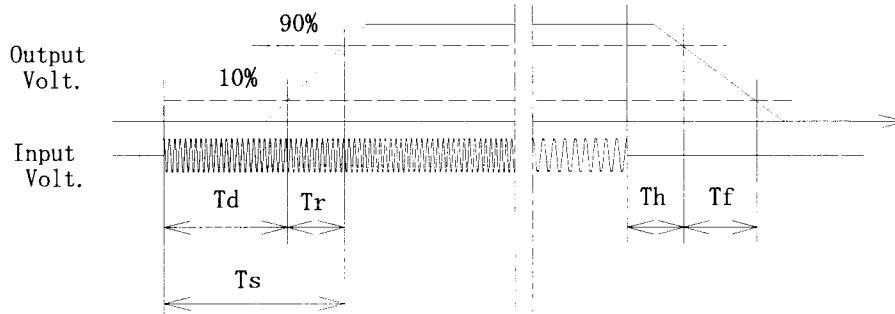


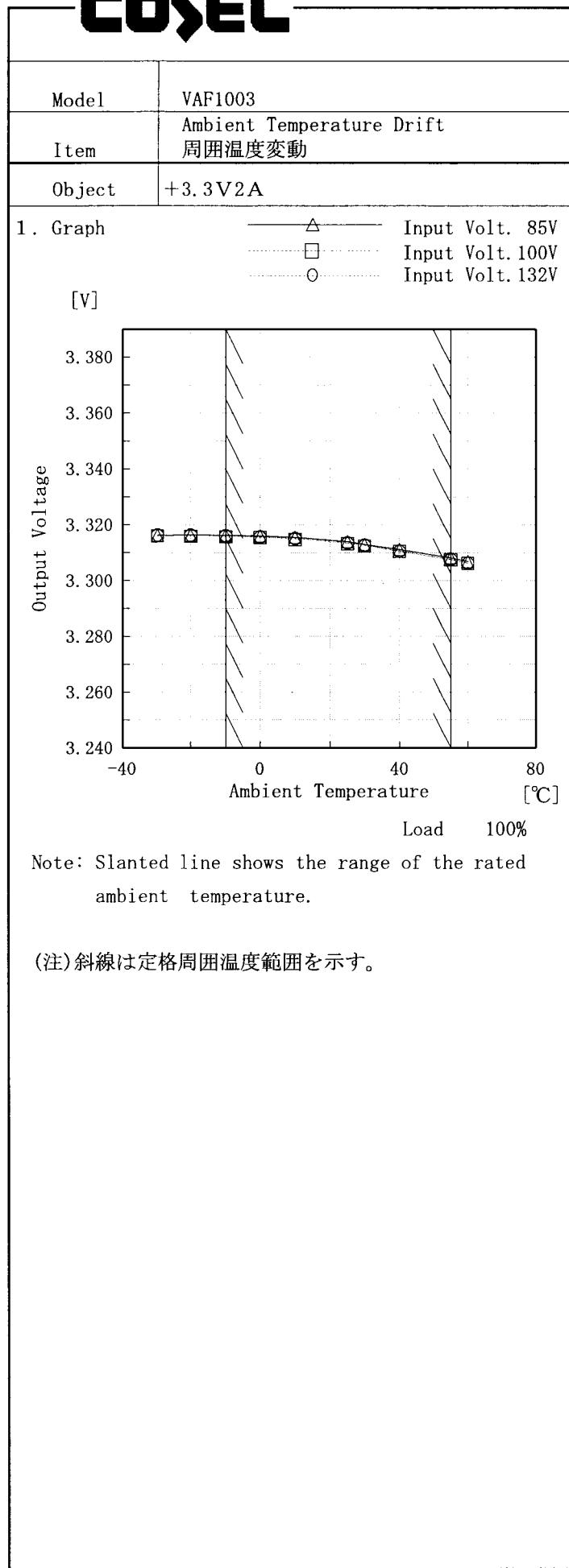
Input Voltage 100 V  
 Frequency 60 Hz  
 Load 100 %  
 Inrush Current

- ① 16.70 [A]
- ② 0.39 [A]



**COSEL**

Model	VAF1003	Temperature	25°C																							
Item	Rise and Fall Time 立ち上り、立下り時間	Testing Circuitry	Figure A																							
Object	+3.3V2A																									
1. Graph																										
 <p>Output Voltage [0.5V/div]</p> <p>Load 50%</p>			Input Volt. 85 V																							
 <p>Output Voltage [0.5V/div]</p> <p>Load 100%</p>			[50mS/div]																							
 <p>Input Voltage [100V/div]</p> <p>Time [50mS/div]</p>			[50mS/div]																							
2. Values [mS]																										
<table border="1"> <thead> <tr> <th>Load</th> <th>Time</th> <th>T d</th> <th>T r</th> <th>T s</th> <th>T h</th> <th>T f</th> </tr> </thead> <tbody> <tr> <td>50 %</td> <td></td> <td>135.3</td> <td>2.5</td> <td>137.8</td> <td>34.8</td> <td>33.0</td> </tr> <tr> <td>100 %</td> <td></td> <td>136.3</td> <td>2.8</td> <td>139.0</td> <td>14.8</td> <td>20.5</td> </tr> </tbody> </table>						Load	Time	T d	T r	T s	T h	T f	50 %		135.3	2.5	137.8	34.8	33.0	100 %		136.3	2.8	139.0	14.8	20.5
Load	Time	T d	T r	T s	T h	T f																				
50 %		135.3	2.5	137.8	34.8	33.0																				
100 %		136.3	2.8	139.0	14.8	20.5																				
 <p>Output Volt.</p> <p>Input Volt.</p> <p>90%</p> <p>10%</p> <p>Td Tr Ts Th Tf</p>																										

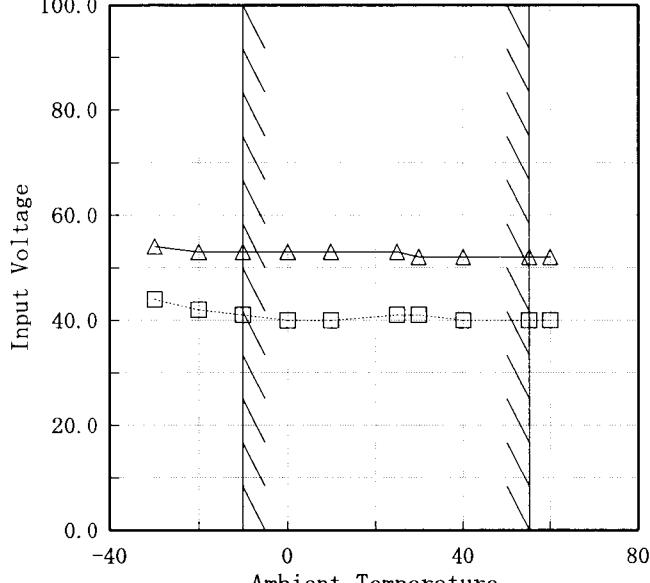
**COSEL**

Testing Circuitry Figure A

## 2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-30	3.316	3.316	3.316
-20	3.316	3.316	3.316
-10	3.316	3.316	3.316
0	3.316	3.315	3.316
10	3.315	3.315	3.315
25	3.314	3.313	3.313
30	3.313	3.312	3.313
40	3.311	3.310	3.311
55	3.308	3.307	3.308
60	3.307	3.306	3.306
—	—	—	—

**COSEL**

Model	VAF1003			
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧			
Object	+3.3V2A			
1. Graph				
[V]		Load 50% □ Load 100% △		
Input Voltage [V]				
-40 0 40 80	Ambient Temperature [°C]			
100.0 80.0 60.0 40.0 20.0 0.0				
				
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。				
Testing Circuitry Figure A		2. Values		
Ambient Temperature [°C]	Input Voltage [V]			
	Load 50%	Load 100%		
-30	44	54		
-20	42	53		
-10	41	53		
0	40	53		
10	40	53		
25	41	53		
30	41	52		
40	40	52		
55	40	52		
60	40	52		
—	—	—		

**COSEL**

Model	VAF1003	Temperature	25°C
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A
Object	+3.3V2A		
1. Graph			
[V]			
Output Voltage			
	0 1 2 3 4 5 6 7 8 9 10	Time [H]	
	3.380 3.360 3.340 3.320 3.300 3.280 3.260 3.240		
Input Volt.	100V	Output Voltage	
Load	100%	[V]	
2. Values			
Time since start [H]			
0.0	3.314		
0.5	3.312		
1.0	3.312		
2.0	3.313		
3.0	3.312		
4.0	3.312		
5.0	3.312		
6.0	3.313		
7.0	3.312		
8.0	3.312		



Model	VAF1003	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	+3.3V 2A	

### 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 : -10~55 °C

Input Voltage : 85~132 V

Load Current : 0~2 A

\* 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 -10~55 °C

入力電圧 85~132 V

負荷電流 0~2 A

\* 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 [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	100	0	3.321		
Minimum Voltage	55	132	2	3.307	±7	±0.3

COSEL

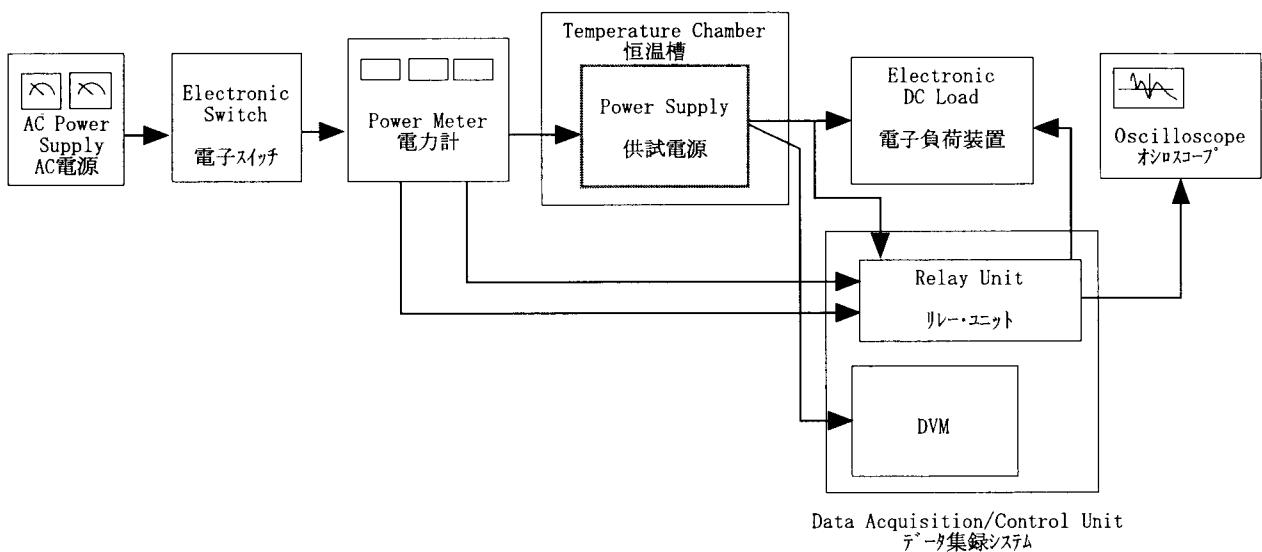


Figure A

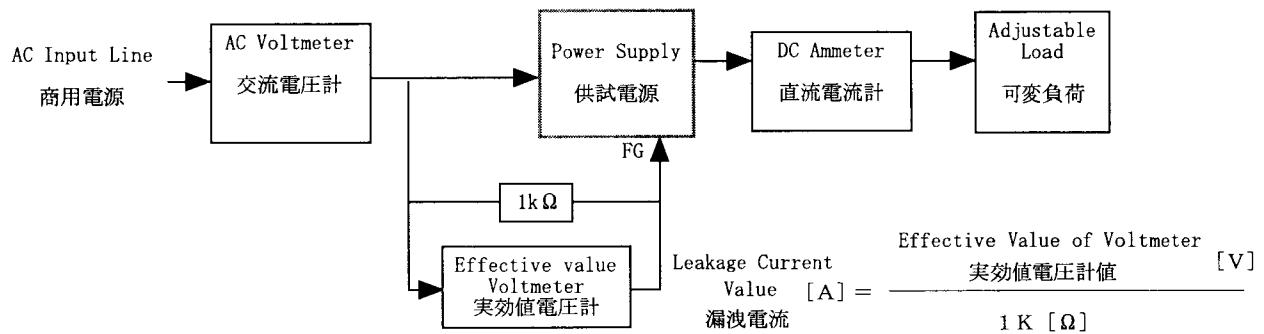


Figure B (DENTORI)

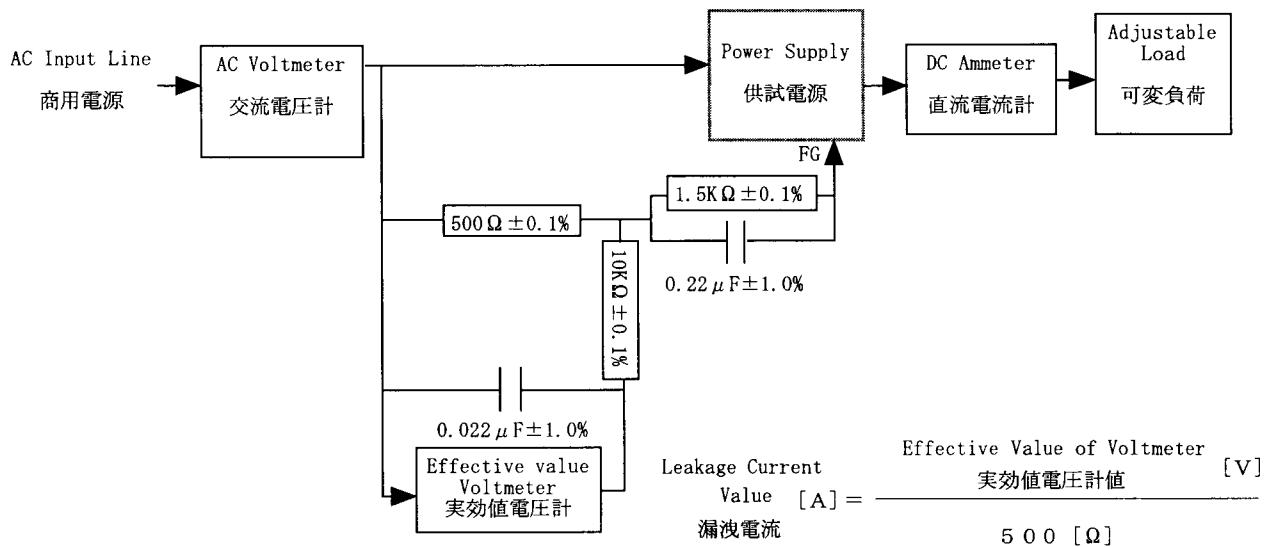


Figure B (IEC60950)

**COSEL**

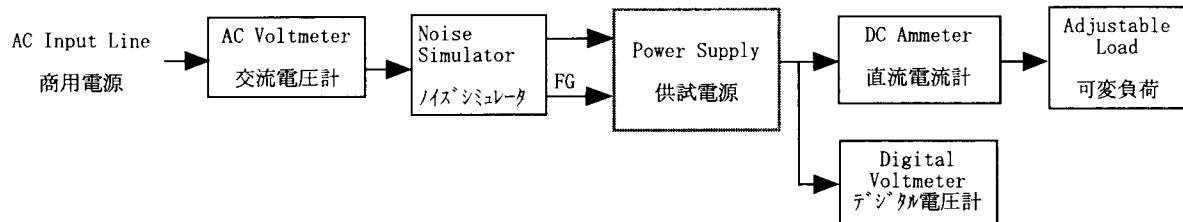


Figure C

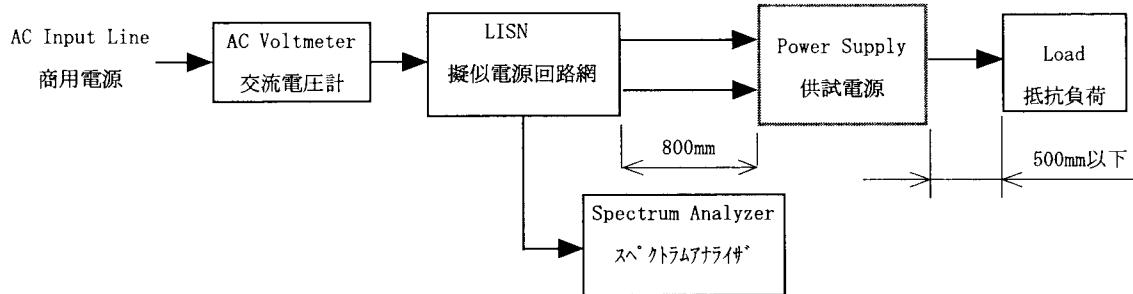


Figure D

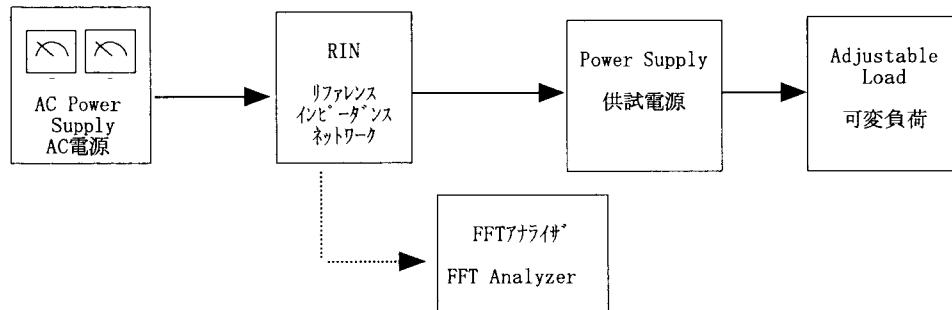


Figure E