



TEST DATA OF VAF503 (200V INPUT)

Regulated DC Power Supply

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Design Manager

Prepared by : T. Yamashina
Design Engineer

コーワセル株式会社
COSEL CO., LTD.



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Model	VAF503	Temperature	25°C																																
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Note: Slanted line shows the range of the rated input voltage.

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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	VAF503	Temperature	25°C																																
Item	Power Factor (by Input Voltage) 力率(入力電圧特性)	Testing Circuitry	Figure A																																
Object																																			
1. Graph	□ Load 50% —△— Load 100%																																		
2. Values	<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Power Factor</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>150</td><td>0.39</td><td>0.42</td></tr> <tr><td>160</td><td>0.38</td><td>0.42</td></tr> <tr><td>170</td><td>0.36</td><td>0.41</td></tr> <tr><td>180</td><td>0.36</td><td>0.40</td></tr> <tr><td>200</td><td>0.35</td><td>0.39</td></tr> <tr><td>220</td><td>0.35</td><td>0.38</td></tr> <tr><td>240</td><td>0.33</td><td>0.37</td></tr> <tr><td>264</td><td>0.32</td><td>0.35</td></tr> <tr><td>280</td><td>0.31</td><td>0.35</td></tr> </tbody> </table>			Input Voltage [V]	Power Factor		Load 50%	Load 100%	150	0.39	0.42	160	0.38	0.42	170	0.36	0.41	180	0.36	0.40	200	0.35	0.39	220	0.35	0.38	240	0.33	0.37	264	0.32	0.35	280	0.31	0.35
Input Voltage [V]	Power Factor																																		
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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。

COSEL

Model	VAF503	Temperature	25°C																																																							
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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

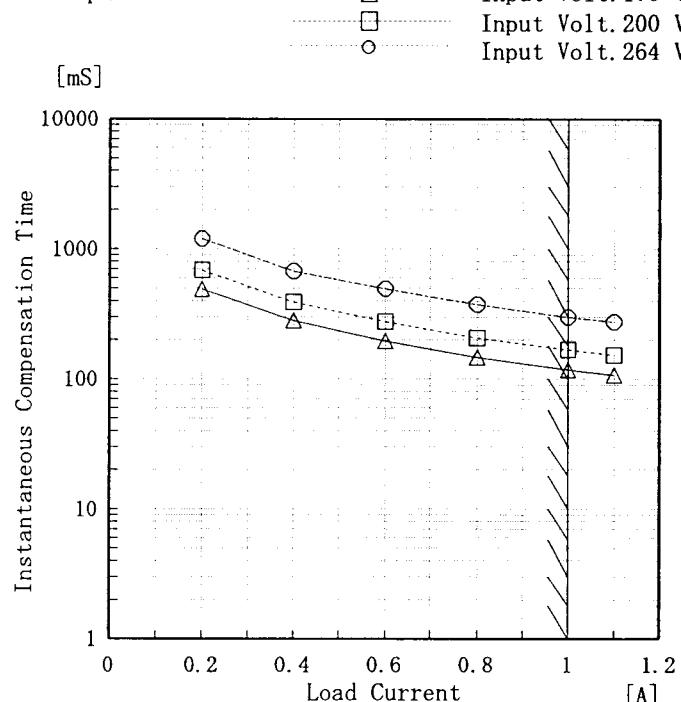
Model	VAF503	Temperature	25°C																																
Item	Hold-Up Time 出力保持時間	Testing Circuitry	Figure A																																
Object	+3.3V1A																																		
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Input Voltage [V]	Hold-Up Time [ms]																																		
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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 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	VAF503
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+3.3V1A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load Current [A]	Time [mS]		
	Input Volt. 170 [V]	Input Volt. 200 [V]	Input Volt. 264 [V]
0.0	—	—	—
0.2	490	685	1199
0.4	281	390	676
0.6	196	277	493
0.8	147	207	375
1.0	118	168	299
1.1	107	153	275
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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。

COSEL

Model	VAF503	Temperature	25°C																																															
Item	Load Regulation 静的負荷変動	Testing Circuitry	Figure A																																															
Object	+3.3V1A																																																	
1. Graph	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <ul style="list-style-type: none"> — △ — Input Volt. 170 V — □ — Input Volt. 200 V — ○ — Input Volt. 264 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。

COSSEL

Model	VAF503	Temperature Testing Circuitry	25°C Figure A																																																								
Item	Overcurrent Protection 過電流保護																																																										
Object	+3.3V1A																																																										
1. Graph	<p>[V]</p> <p>Output Voltage [V]</p> <p>Load Current [A]</p>	<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 170[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 264[V]</th> </tr> </thead> <tbody> <tr><td>3.30</td><td>4.60</td><td>4.80</td><td>5.07</td></tr> <tr><td>3.13</td><td>4.60</td><td>4.81</td><td>5.08</td></tr> <tr><td>2.97</td><td>4.61</td><td>4.82</td><td>5.08</td></tr> <tr><td>2.64</td><td>4.69</td><td>4.90</td><td>5.15</td></tr> <tr><td>2.31</td><td>4.75</td><td>4.95</td><td>5.20</td></tr> <tr><td>1.98</td><td>4.95</td><td>5.14</td><td>5.38</td></tr> <tr><td>1.65</td><td>5.15</td><td>5.35</td><td>5.61</td></tr> <tr><td>1.32</td><td>5.40</td><td>5.67</td><td>5.80</td></tr> <tr><td>0.99</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>0.66</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>0.33</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>0.00</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>			Output Voltage [V]	Load Current [A]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	3.30	4.60	4.80	5.07	3.13	4.60	4.81	5.08	2.97	4.61	4.82	5.08	2.64	4.69	4.90	5.15	2.31	4.75	4.95	5.20	1.98	4.95	5.14	5.38	1.65	5.15	5.35	5.61	1.32	5.40	5.67	5.80	0.99	—	—	—	0.66	—	—	—	0.33	—	—	—	0.00	—	—	—
Output Voltage [V]	Load Current [A]																																																										
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Note1: Slanted line shows the range of the rated load current.

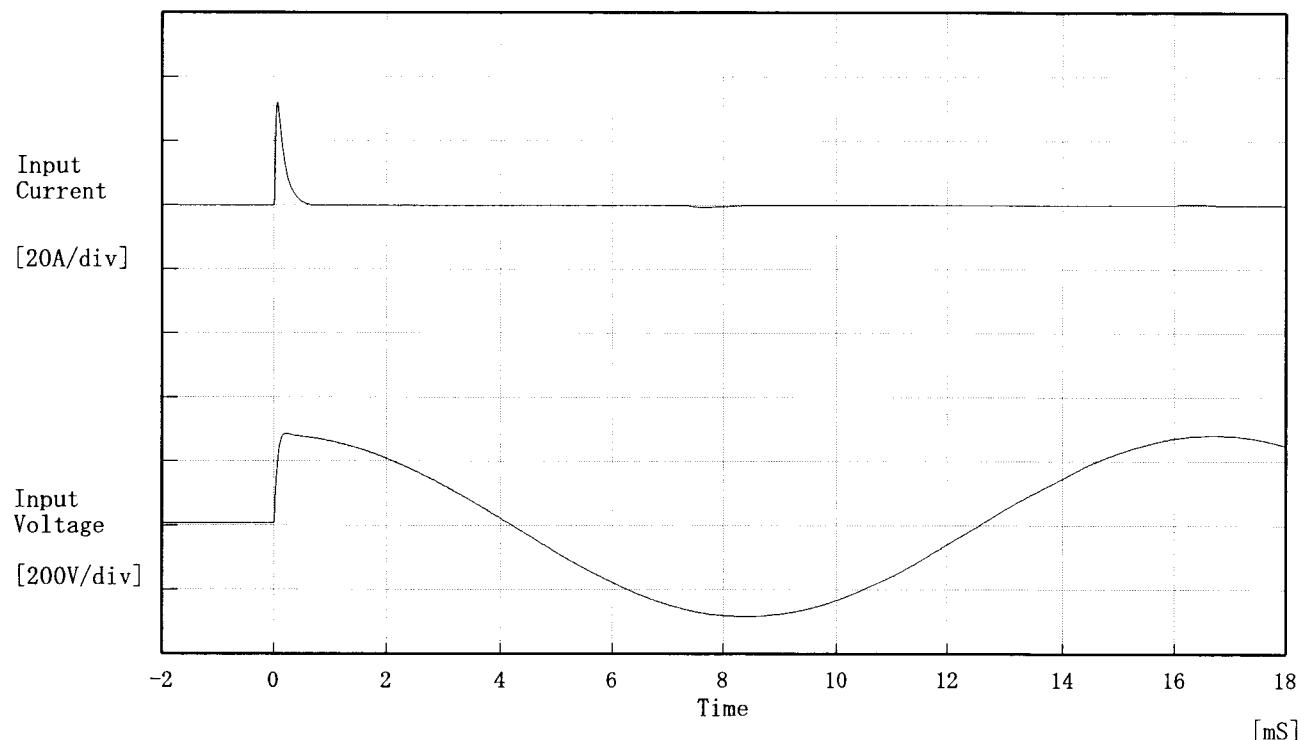
Note2: The lines shows peak current of intermittent operation of power supply when output voltage drops less than rated voltage value at overcurrent.

(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。

COSEL

Model	VAF503	Temperature Testing Circuitry	25°C Figure A
Item	Inrush Current 突入電流		
Object	—		



Input Voltage 200 V

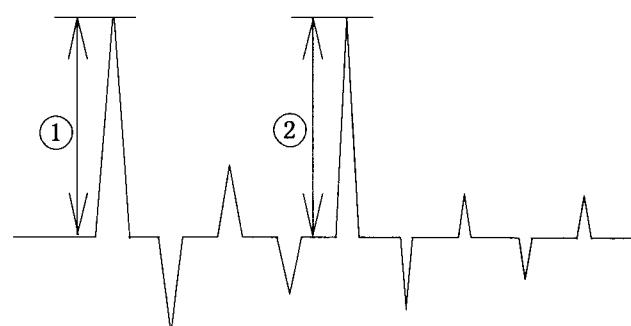
Frequency 60 Hz

Load 100 %

Inrush Current

① 31.84 [A]

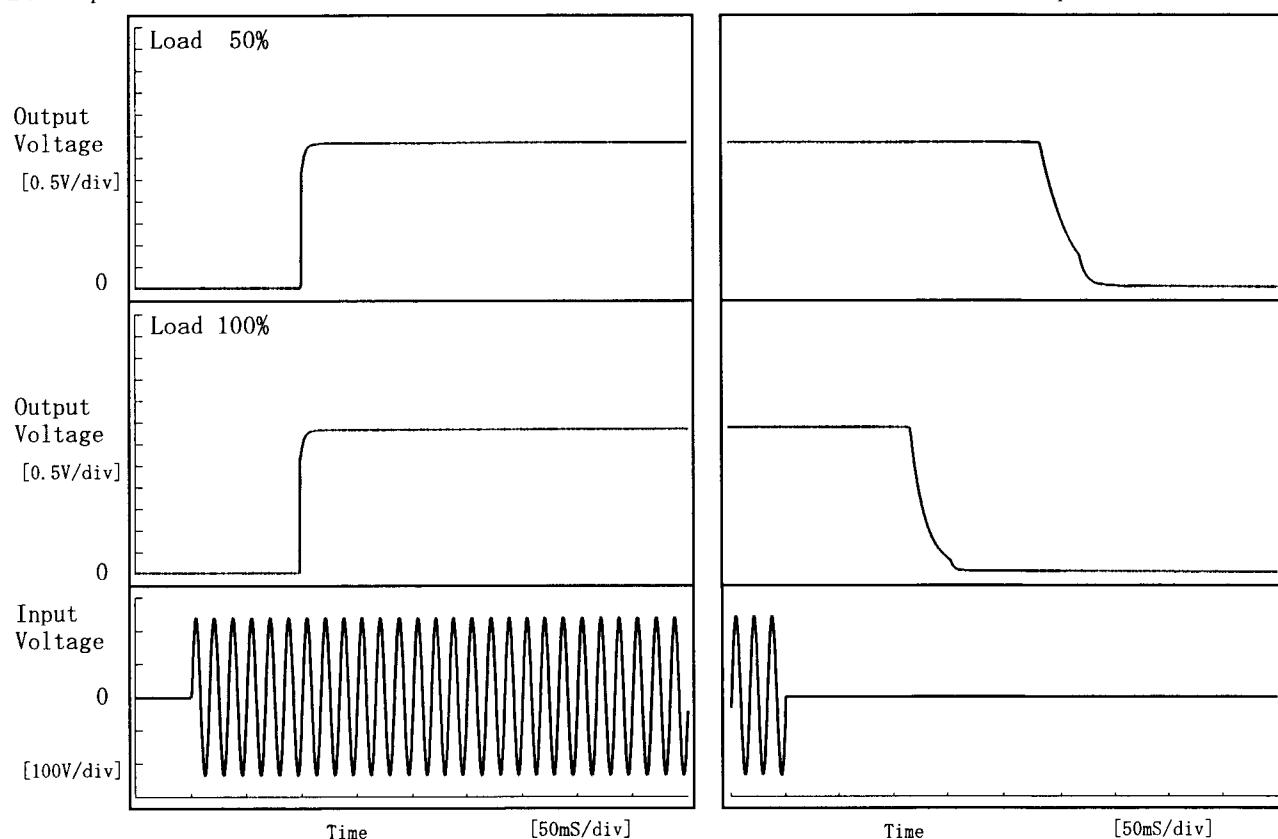
② 0.68 [A]



COSEL

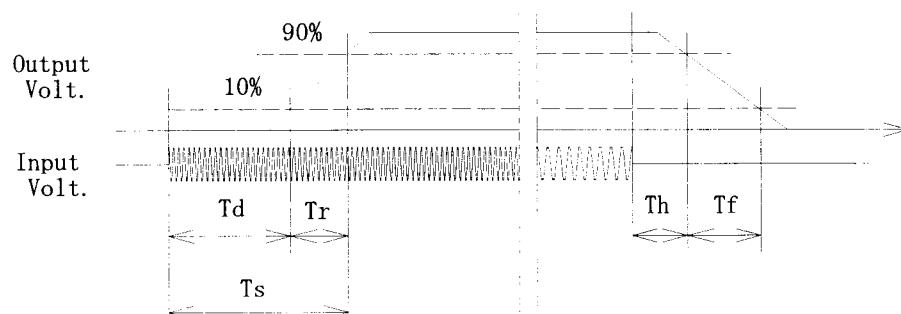
Model	VAF503	Temperature	25°C
Item	Rise and Fall Time 立ち上り、立下り時間	Testing Circuitry	Figure A
Object	+3.3V1A		

1. Graph

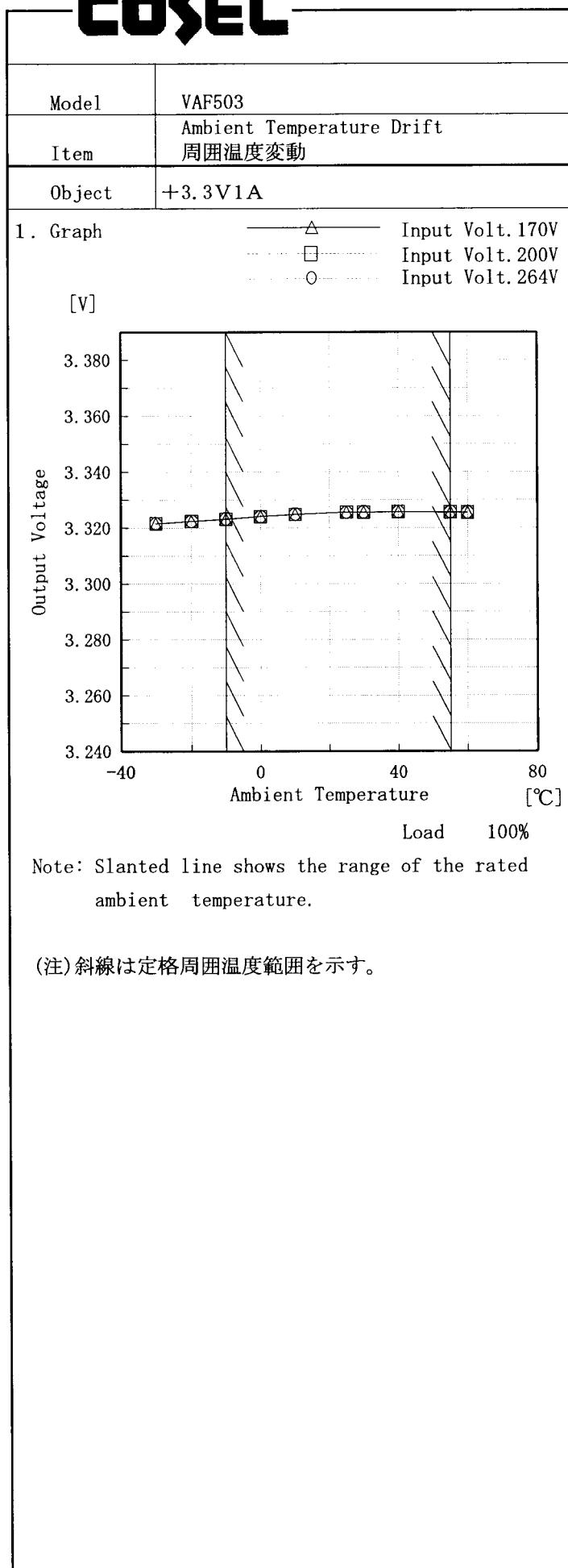


2. Values

Load \ Time	T d	T r	T s	T h	T f
50 %	99.0	2.8	101.8	235.0	39.5
100 %	97.8	3.0	100.8	119.0	33.3



COSEL

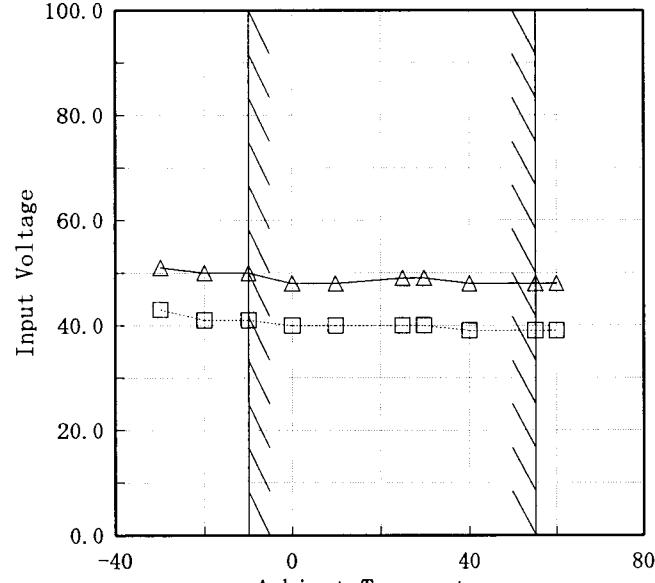


Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-30	3.322	3.322	3.322
-20	3.322	3.322	3.322
-10	3.323	3.323	3.323
0	3.324	3.324	3.324
10	3.325	3.325	3.325
25	3.326	3.326	3.326
30	3.325	3.326	3.326
40	3.326	3.326	3.326
55	3.325	3.326	3.326
60	3.325	3.325	3.326
—	—	—	—

COSEL

Model	VAF503					
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧					
Object	+3.3V1A					
1. Graph						
[V]	 Load 50% Load 100%					
Input Voltage [V]						
Ambient Temperature [°C]						
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	43	51				
-20	41	50				
-10	41	50				
0	40	48				
10	40	48				
25	40	49				
30	40	49				
40	39	48				
55	39	48				
60	39	48				
—	—	—				

COSSEL

Model	VAF503	Temperature Testing Circuitry 25°C Figure A																						
Item	Time Lapse Drift 経時ドリフト																							
Object	+3.3V1A																							
1. Graph		2. Values																						
<p>[V]</p> <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 200V 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>3.325</td></tr> <tr><td>0.5</td><td>3.325</td></tr> <tr><td>1.0</td><td>3.325</td></tr> <tr><td>2.0</td><td>3.325</td></tr> <tr><td>3.0</td><td>3.325</td></tr> <tr><td>4.0</td><td>3.325</td></tr> <tr><td>5.0</td><td>3.325</td></tr> <tr><td>6.0</td><td>3.325</td></tr> <tr><td>7.0</td><td>3.325</td></tr> <tr><td>8.0</td><td>3.325</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	3.325	0.5	3.325	1.0	3.325	2.0	3.325	3.0	3.325	4.0	3.325	5.0	3.325	6.0	3.325	7.0	3.325	8.0	3.325
Time since start [H]	Output Voltage [V]																							
0.0	3.325																							
0.5	3.325																							
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4.0	3.325																							
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6.0	3.325																							
7.0	3.325																							
8.0	3.325																							



Model	VAF503		
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry	Figure A
Object	+3.3V1A		

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 : 170~264 V

Load Current : 0~1 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 170~264 V

負荷電流 0~1 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	55	170	0	3.329		
Minimum Voltage	-10	170	1	3.323	±3	±0.1

COSEL

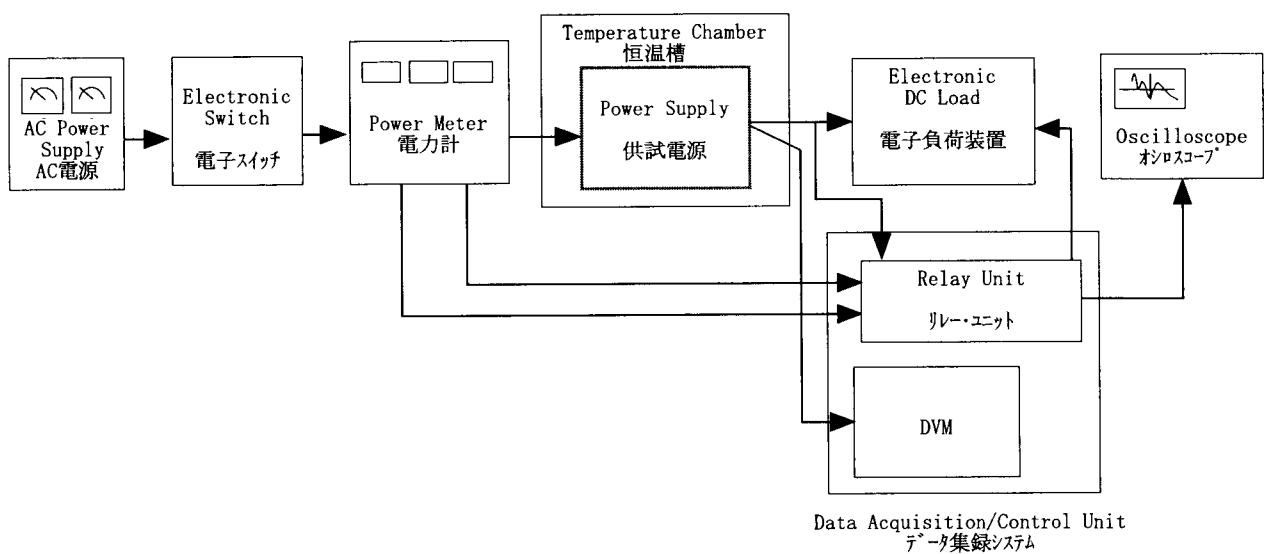


Figure A

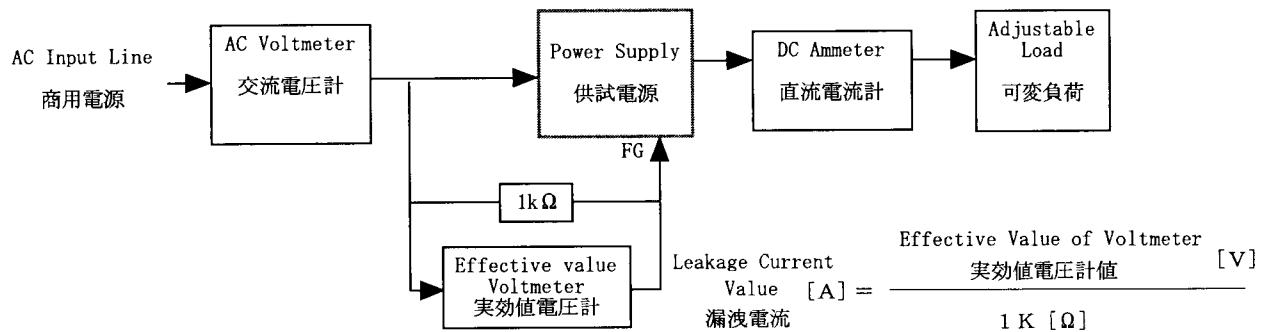


Figure B (DENTORI)

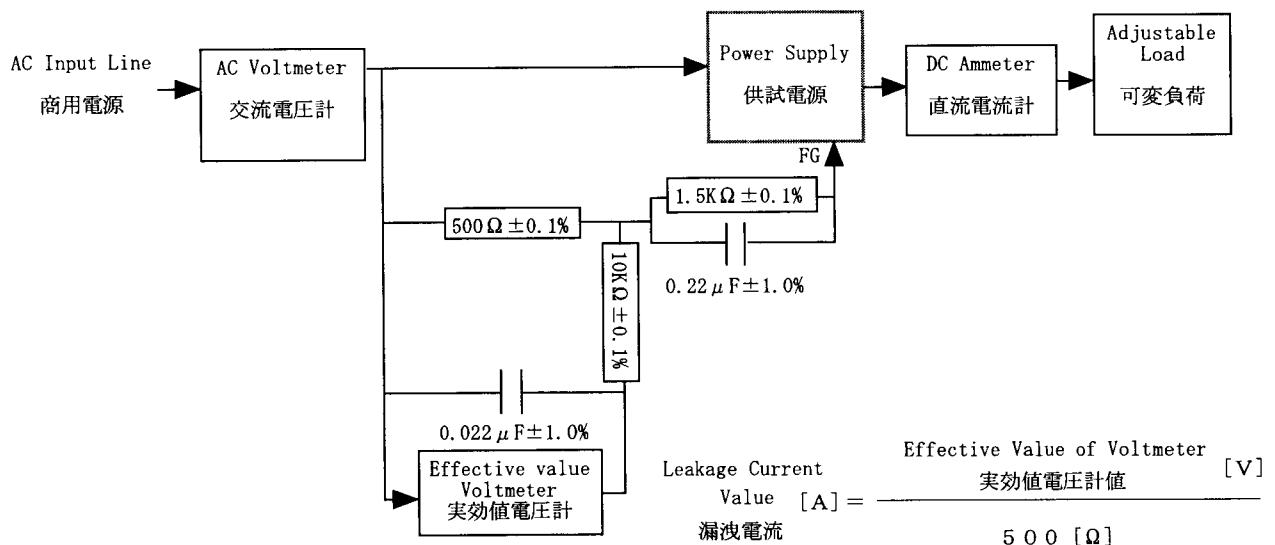


Figure B (IEC60950)

COSEL

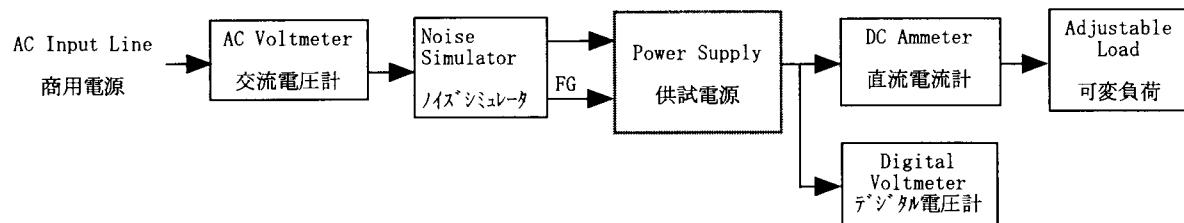


Figure C

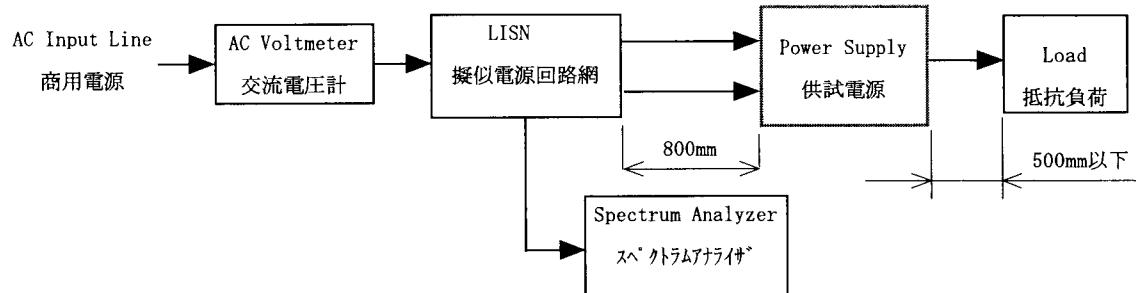


Figure D

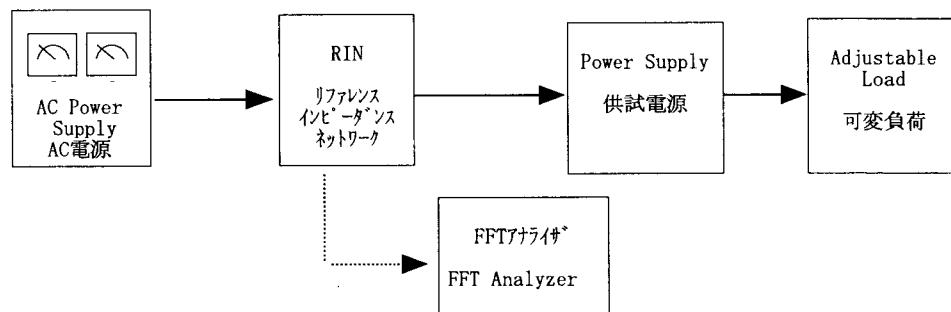


Figure E