

**COSEL**

TEST DATA OF VAF524  
(200V INPUT)

Regulated DC Power Supply

Date : Aug. 6. 1999

Approved by : Takahiro Yoneda  
Design Manager

Prepared by : Yuuji Hirose  
Design Engineer

コーセル株式会社  
**COSEL CO., LTD.**



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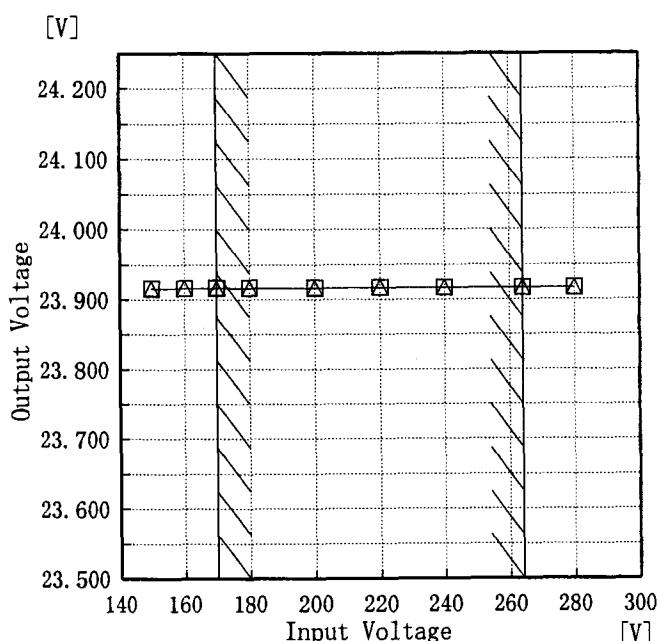
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Model	VAF524
Item	Line Regulation 静的入力変動
Object	+24.0V 0.22A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph

Load 50%  
Load 100%



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

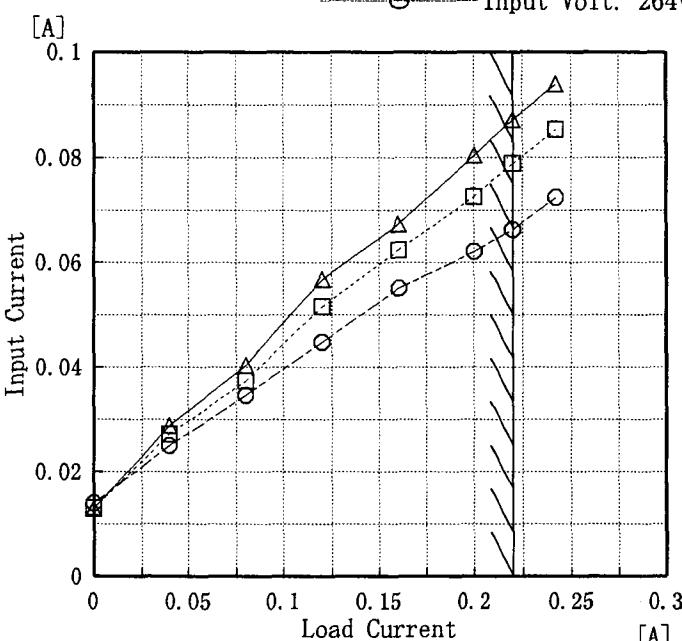
(注) 斜線は定格入力電圧範囲を示す。

## 2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
150	23.917	23.916
160	23.917	23.916
170	23.917	23.916
180	23.917	23.916
200	23.917	23.917
220	23.917	23.917
240	23.917	23.917
264	23.917	23.917
280	23.917	23.917

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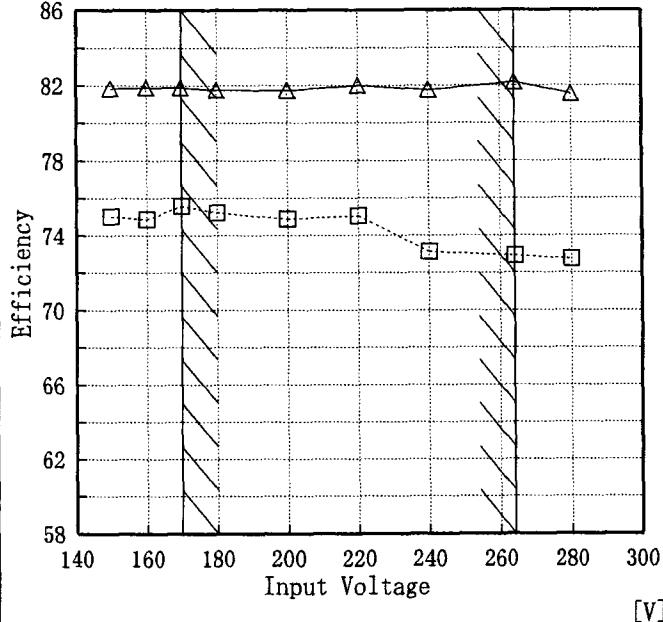
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1. Graph	<p>—▲— Input Volt. 170V        —□— Input Volt. 200V        —○— Input Volt. 264V</p> <table border="1"> <caption>Data points estimated from Figure A graph</caption> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 170V</th> <th>Input Volt. 200V</th> <th>Input Volt. 264V</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>0.27</td><td>0.27</td><td>0.24</td></tr> <tr><td>0.040</td><td>0.35</td><td>0.31</td><td>0.29</td></tr> <tr><td>0.080</td><td>0.36</td><td>0.35</td><td>0.32</td></tr> <tr><td>0.120</td><td>0.39</td><td>0.38</td><td>0.34</td></tr> <tr><td>0.160</td><td>0.41</td><td>0.38</td><td>0.35</td></tr> <tr><td>0.200</td><td>0.42</td><td>0.40</td><td>0.36</td></tr> <tr><td>0.220</td><td>0.43</td><td>0.41</td><td>0.36</td></tr> <tr><td>0.242</td><td>0.44</td><td>0.42</td><td>0.38</td></tr> </tbody> </table>			Load Current [A]	Input Volt. 170V	Input Volt. 200V	Input Volt. 264V	0.000	0.27	0.27	0.24	0.040	0.35	0.31	0.29	0.080	0.36	0.35	0.32	0.120	0.39	0.38	0.34	0.160	0.41	0.38	0.35	0.200	0.42	0.40	0.36	0.220	0.43	0.41	0.36	0.242	0.44	0.42	0.38																			
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Note: Slanted line shows the range of the rated load current.

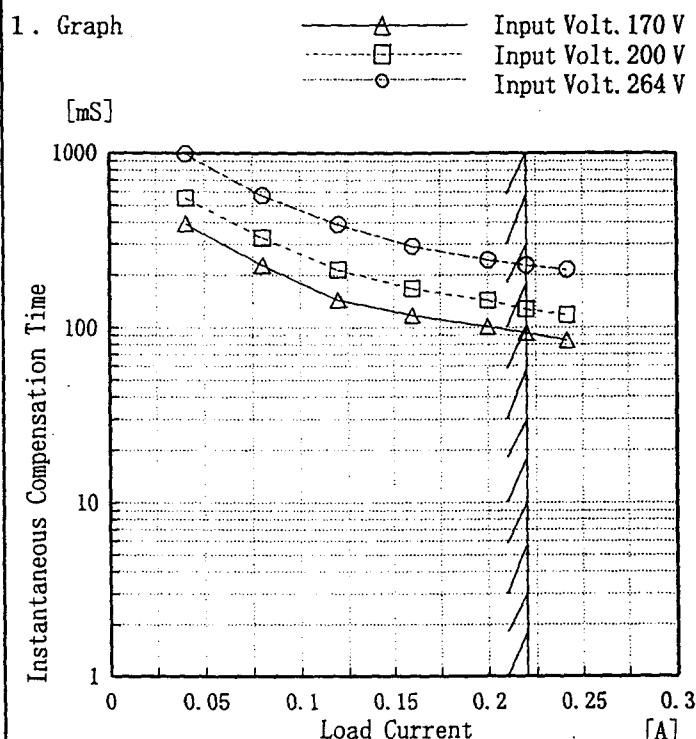
(注)斜線は定格負荷電流範囲を示す。

**COSEL**

Model	VAF524	Temperature Testing Circuitry 25°C Figure A																																
Item	Hold-Up Time 出力保持時間																																	
Object	+24.0V 0.22A																																	
1. Graph	<p style="text-align: center;">-----□----- Load 50% -----△----- Load 100%</p> <table border="1"> <caption>Data points estimated from Figure A graph</caption> <thead> <tr> <th>Input Voltage [V]</th> <th>Hold-Up Time [mS] (Load 50%)</th> <th>Hold-Up Time [mS] (Load 100%)</th> </tr> </thead> <tbody> <tr><td>150</td><td>~140</td><td>~80</td></tr> <tr><td>160</td><td>~160</td><td>~100</td></tr> <tr><td>180</td><td>~200</td><td>~150</td></tr> <tr><td>200</td><td>~250</td><td>~200</td></tr> <tr><td>220</td><td>~300</td><td>~250</td></tr> <tr><td>240</td><td>~350</td><td>~300</td></tr> <tr><td>260</td><td>~400</td><td>~350</td></tr> <tr><td>280</td><td>~450</td><td>~400</td></tr> </tbody> </table>	Input Voltage [V]	Hold-Up Time [mS] (Load 50%)	Hold-Up Time [mS] (Load 100%)	150	~140	~80	160	~160	~100	180	~200	~150	200	~250	~200	220	~300	~250	240	~350	~300	260	~400	~350	280	~450	~400	2. Values					
Input Voltage [V]	Hold-Up Time [mS] (Load 50%)	Hold-Up Time [mS] (Load 100%)																																
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180	~200	~150																																
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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。 (注)斜線は定格入力電圧範囲を示す。</p>																																

COSEL

Model	VAF524
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+24.0V 0.22A



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。

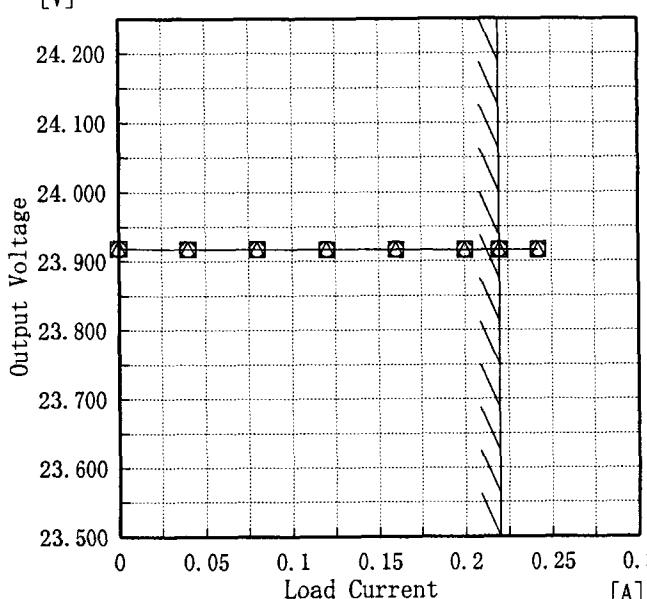
(注) 斜線は定格負荷電流範囲を示す。

Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

Load Current [A]	Time [mS]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.000	—	—	—
0.040	393	552	991
0.080	227	326	569
0.120	144	215	390
0.160	118	168	293
0.200	101	143	244
0.220	93	127	227
0.242	84	118	215
—	—	—	—
—	—	—	—
—	—	—	—

**COSEL**

Model	VAF524	Temperature	25°C	
Item	Load Regulation 静的負荷変動	Testing Circuitry	Figure A	
Object	+24.0V 0.22A			
1. Graph	<p>—△— Input Volt. 170 V        —□— Input Volt. 200 V        —○— Input Volt. 264 V</p> 			
2. Values	Load Current [A]	Output Voltage [V]		
		Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.000		23.919	23.919	23.918
0.040		23.918	23.918	23.918
0.080		23.917	23.918	23.918
0.120		23.917	23.917	23.917
0.160		23.917	23.917	23.917
0.200		23.916	23.917	23.917
0.220		23.916	23.916	23.917
0.242		23.916	23.916	23.917
—		—	—	—
—		—	—	—

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。

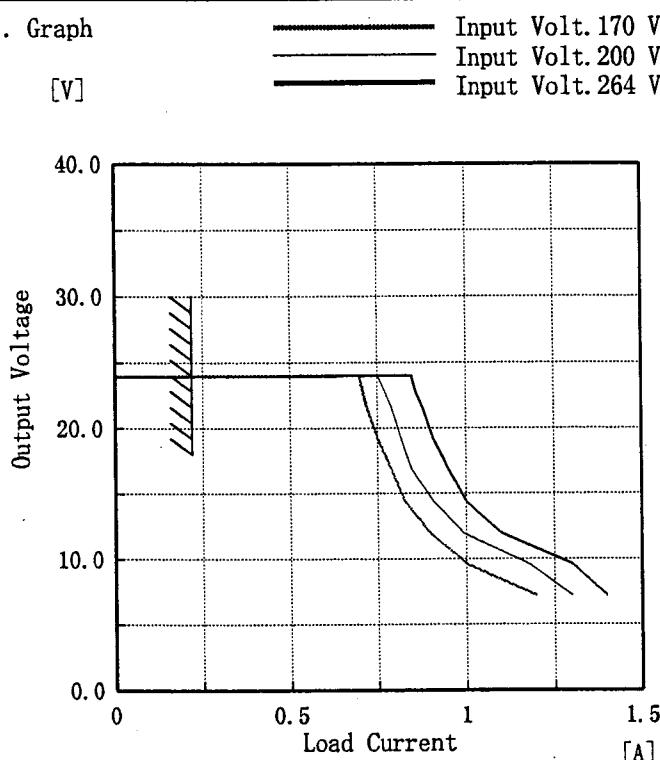
**COSSEL**

Model VAF524

Item Overcurrent Protection  
過電流保護

Object +24.0V 0.22A

## 1. Graph



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.

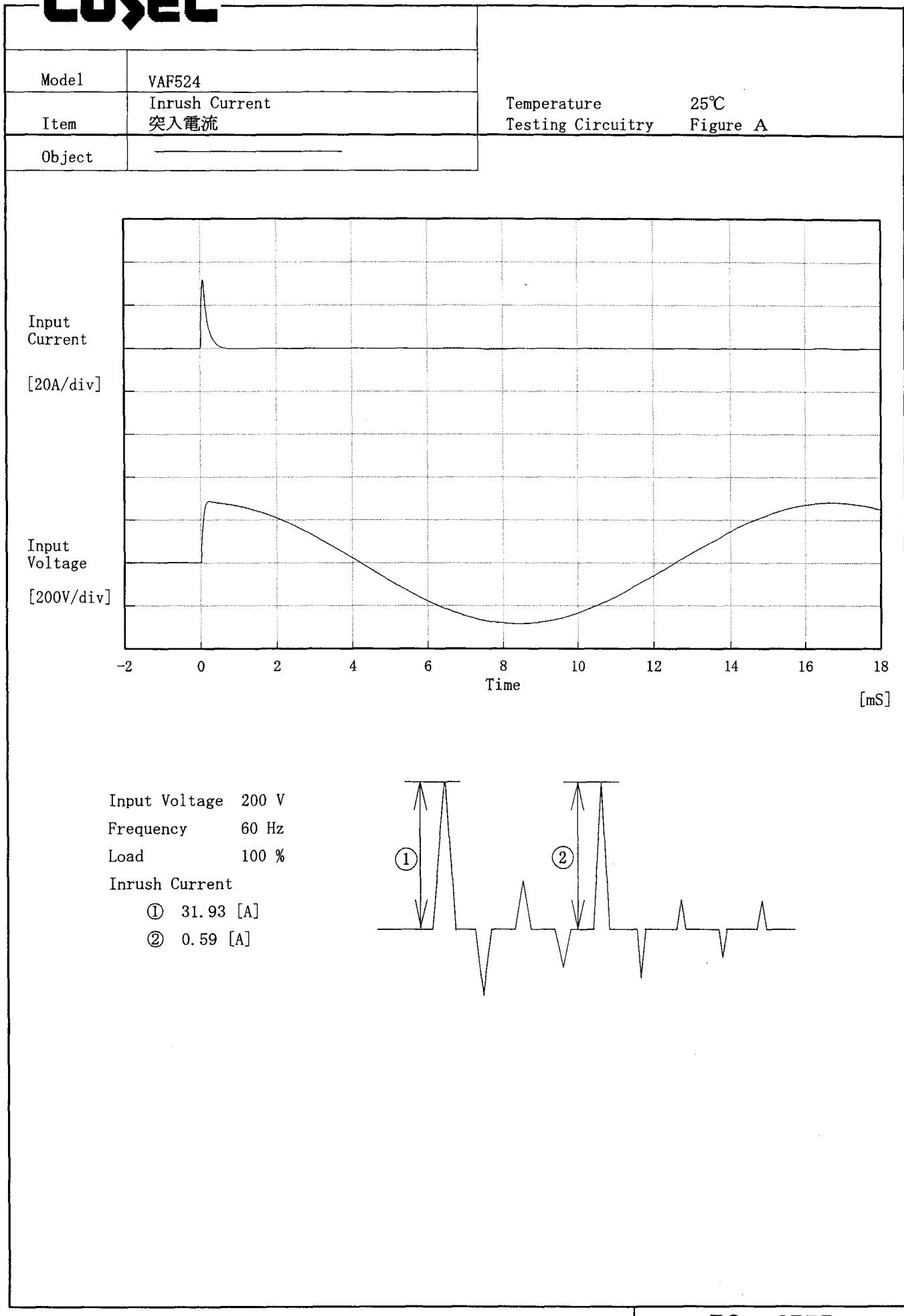
(注1)斜線は定格負荷電流範囲を示す。

(注2)垂下部分は間欠モード時のピーク電流を示す。

Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

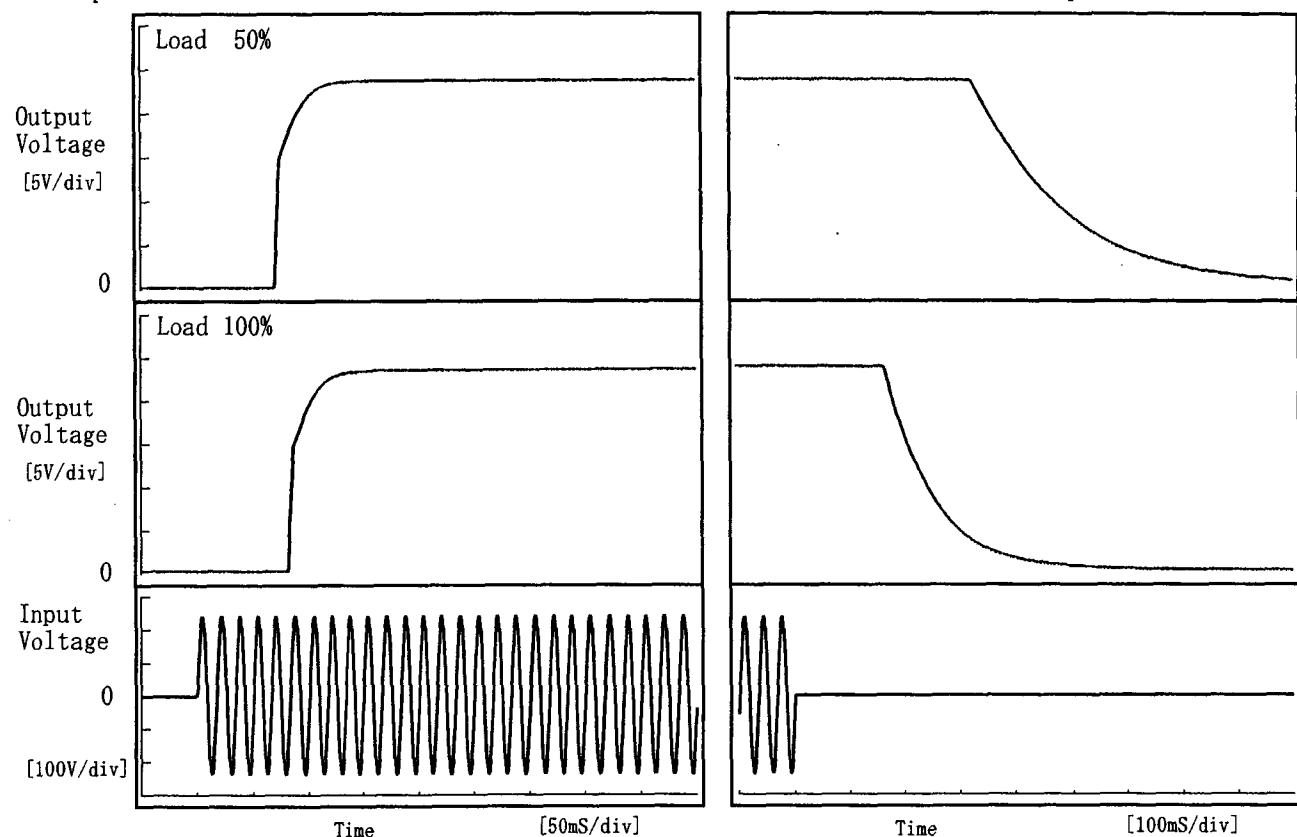
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
24.00	0.701	0.750	0.850
22.80	0.710	0.770	0.862
21.60	0.721	0.791	0.879
19.20	0.753	0.819	0.912
16.80	0.788	0.850	0.952
14.40	0.831	0.909	1.002
12.00	0.904	0.992	1.103
9.60	1.004	1.180	1.304
7.20	1.202	1.300	1.403
4.80	—	—	—
2.40	—	—	—
0.00	—	—	—

**COSSEL**

**COSEL**

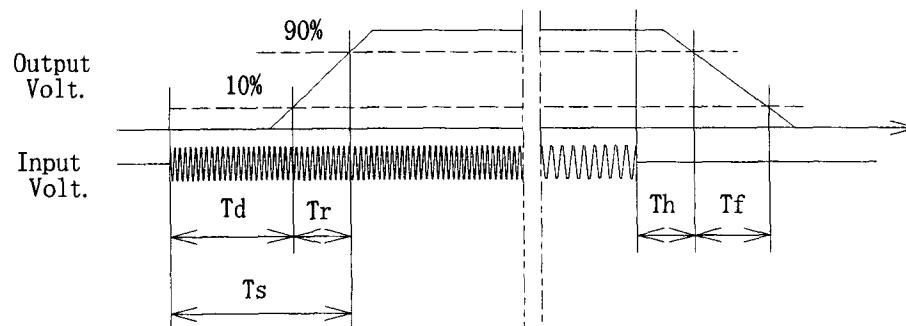
Model	VAF524	Temperature	25°C
Item	Rise and Fall Time 立ち上り、立下り時間	Testing Circuitry	Figure A
Object	+24.0V 0.22A		

## 1. Graph



## 2. Values

Load	Time	T <sub>d</sub>	T <sub>r</sub>	T <sub>s</sub>	T <sub>h</sub>	T <sub>f</sub>	[mS]
50 %		71.3	28.5	99.8	171.0	184.5	
100 %		82.8	28.8	111.5	87.0	95.0	



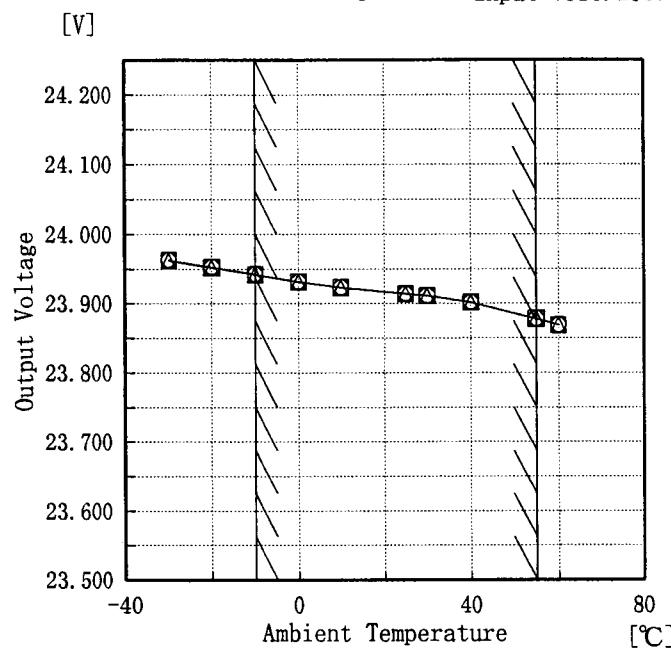
**COSEL**

Model	VAF524
Item	Ambient Temperature Drift 周囲温度変動
Object	+24.0V 0.22A

Testing Circuitry Figure A

## 1. Graph

—△— Input Volt. 170V  
 -□- Input Volt. 200V  
 -○- Input Volt. 264V



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 Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-30	23.962	23.963	23.963
-20	23.952	23.952	23.953
-10	23.941	23.942	23.942
0	23.931	23.932	23.932
10	23.923	23.923	23.924
25	23.914	23.914	23.915
30	23.911	23.911	23.912
40	23.901	23.901	23.902
55	23.878	23.878	23.878
60	23.869	23.869	23.869
—	—	—	—

**COSSEL**

Model	VAF524																																								
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧	Testing Circuitry Figure A																																							
Object	+24.0V 0.22A																																								
1. Graph																																									
[V]			Load 50%      Load 100%																																						
Note: Slanted line shows the range of the rated ambient temperature.																																									
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**COSSEL**

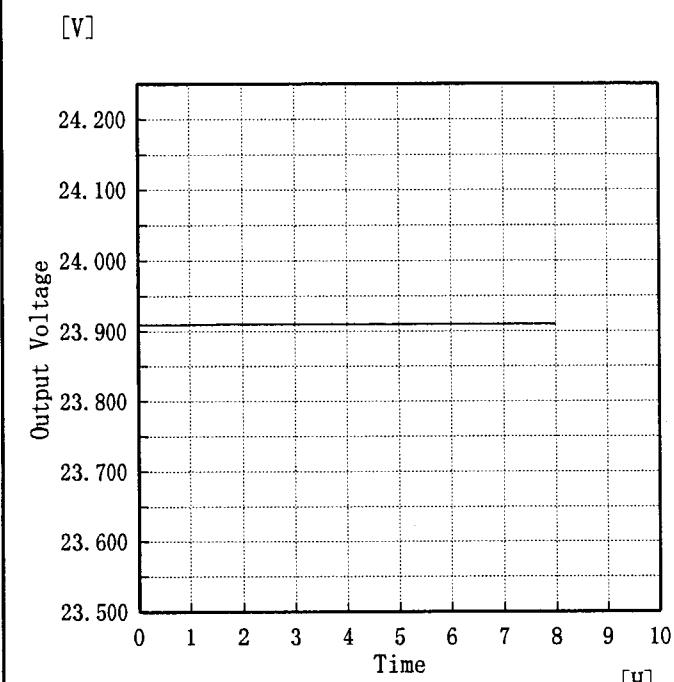
Model VAF524

Item Time Lapse Drift  
経時ドリフト

Object +24.0V 0.22A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



Input Volt. 200V

Load 100%

## 2. Values

Time since start [H]	Output Voltage [V]
0.0	23.913
0.5	23.909
1.0	23.909
2.0	23.910
3.0	23.910
4.0	23.910
5.0	23.910
6.0	23.910
7.0	23.910
8.0	23.910



Model	VAF524	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	+24.0V 0.22A	

### 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 : 0~0.22 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 0~0.22 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	264	0.00	23.951	±42	±0.2
Minimum Voltage	55	264	0.22	23.868		

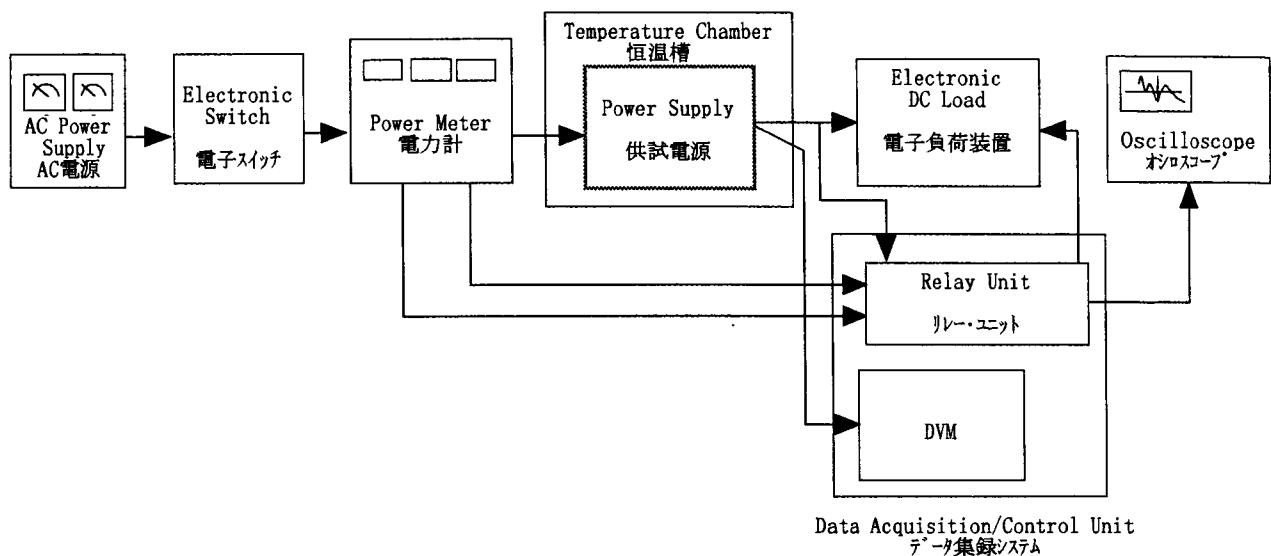


Figure A

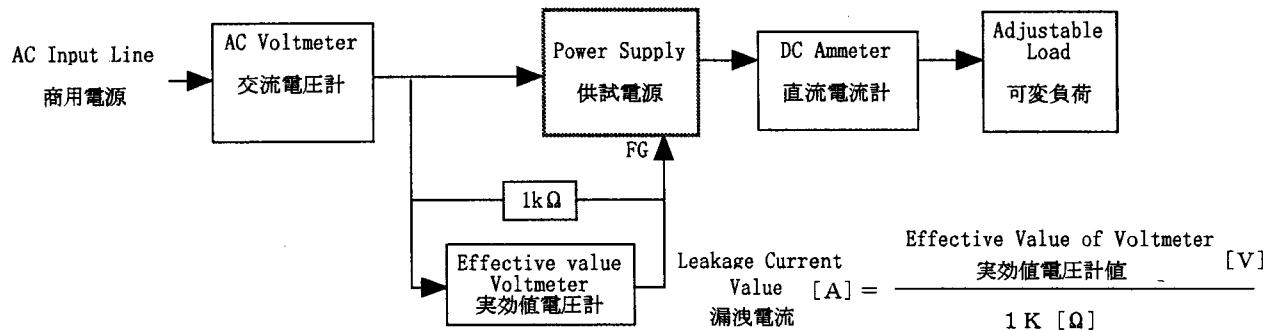


Figure B (DENTORI)

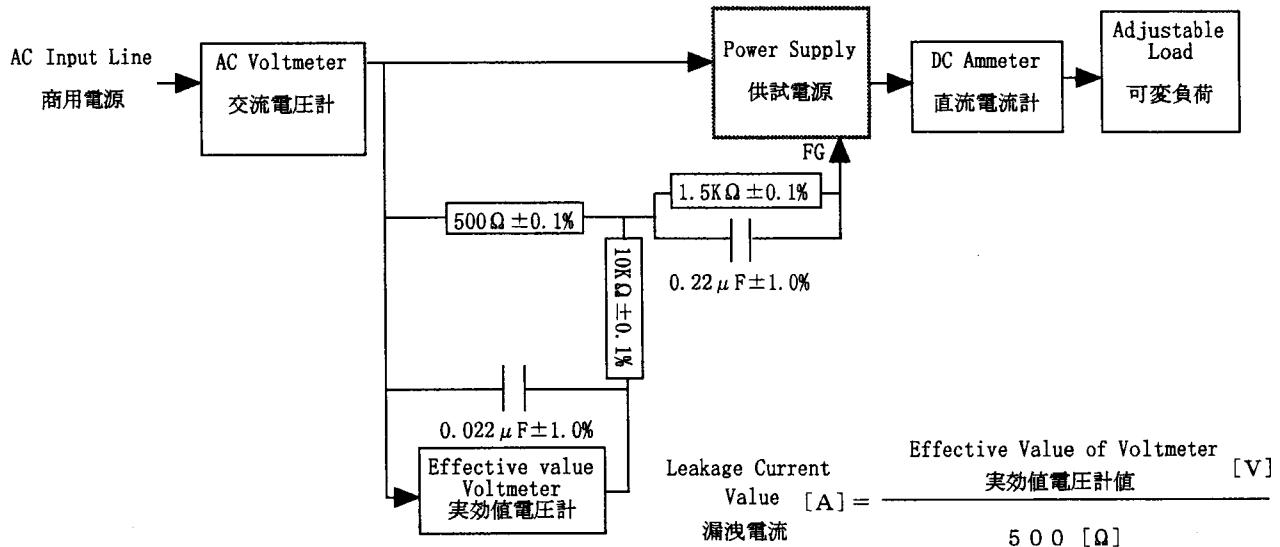


Figure B (IEC60950)

COSEL

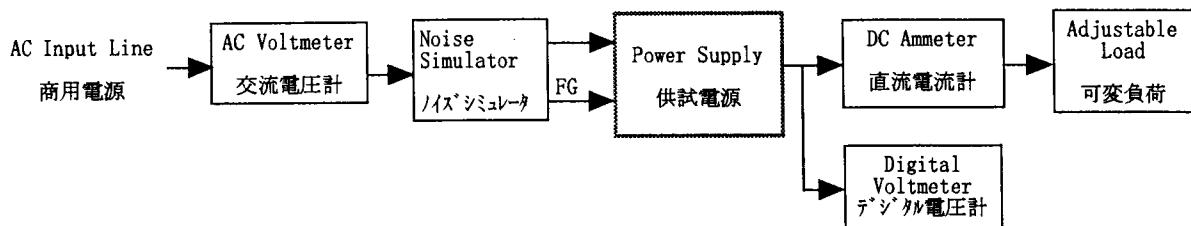


Figure C

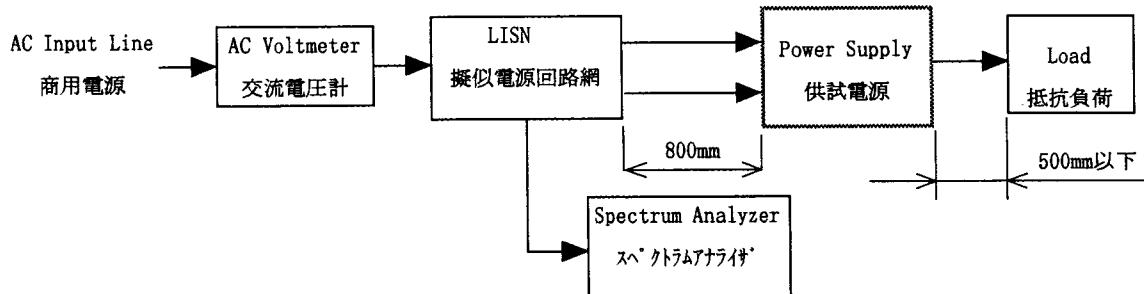


Figure D

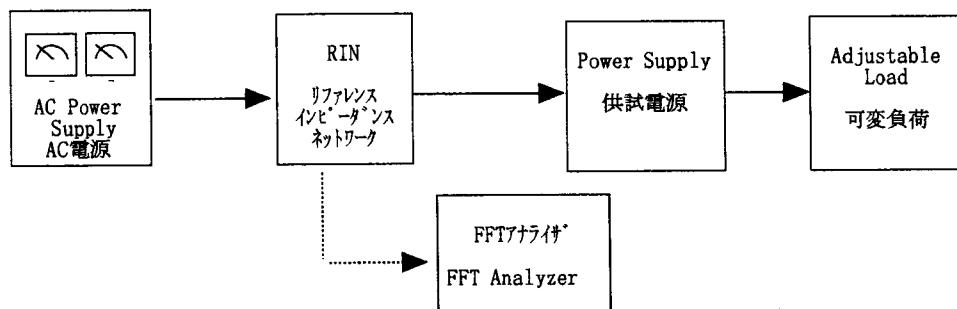


Figure E