



# TEST DATA OF DBS400B03

(280V INPUT)

Regulated DC Power Supply

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コーセル株式会社

COSEL CO., LTD.

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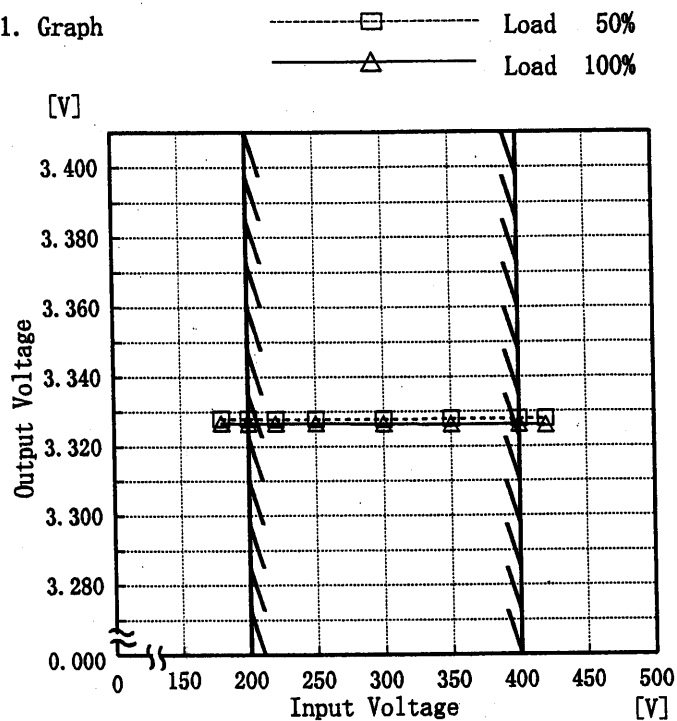
Model DBS400B03

Item Line Regulation 静的入力変動

Object +3.3V80A

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]	Output Voltage [V]	
	Load 50%	Load 100%
180	3.328	3.327
200	3.328	3.327
220	3.328	3.327
250	3.328	3.327
300	3.328	3.327
350	3.328	3.326
400	3.328	3.326
420	3.328	3.326
—	—	—

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Model	DBS400B03	Temperature	25°C
Item	Input Current (by Input Voltage) 入力電流 (入力電圧特性)	Testing Circuitry	Figure A
Object			

1. Graph

—△— Load 100%

---□--- Load 50%

—○— Load 0%

[A]

4.00

3.00

2.00

1.00

0.00

Input Current

0

100

200

300

400

500

Input Voltage

[V]

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 Volt. [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
50	0.000	0.000	0.000
100	0.002	0.002	0.002
150	0.003	0.003	0.003
165	0.027	1.001	1.962
170	0.026	0.966	1.933
180	0.026	0.907	1.820
200	0.025	0.810	1.636
250	0.023	0.651	1.307
300	0.022	0.549	1.091
350	0.021	0.477	0.939
400	0.021	0.423	0.827
420	0.021	0.406	0.790
—	—	—	—
—	—	—	—
—	—	—	—

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Model

DBS400B03

Item

Input Current (by Load Current)  
入力電流 (負荷特性)

Object

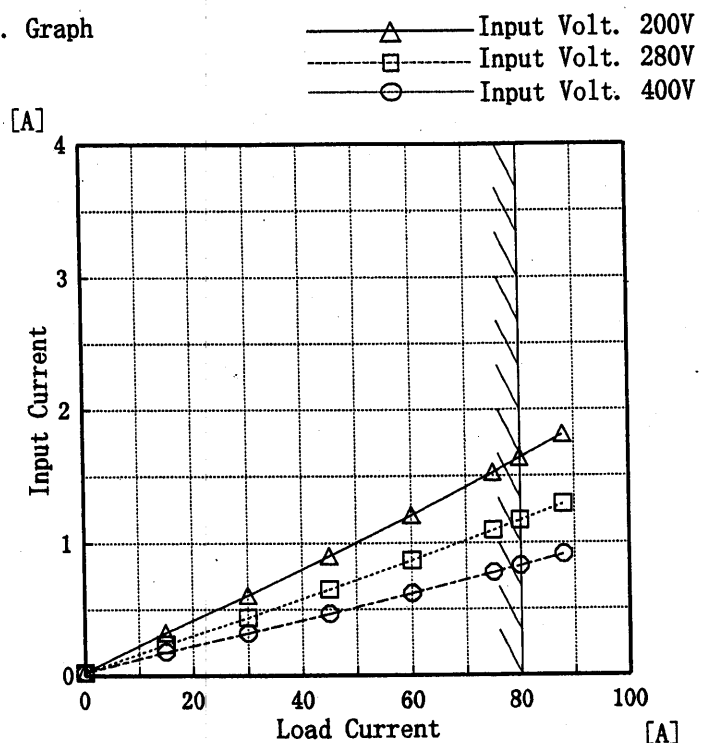
Temperature

25°C

Testing Circuitry

Figure A

## 1. Graph



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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	0.03	0.02	0.02
15	0.32	0.23	0.18
30	0.61	0.44	0.32
45	0.90	0.65	0.47
60	1.21	0.87	0.62
75	1.53	1.09	0.78
80	1.64	1.17	0.83
88	1.81	1.29	0.91
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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Model

DBS400B03

Item

Input Power (by Load Current)  
入力電力 (負荷特性)

Object

Temperature

25°C

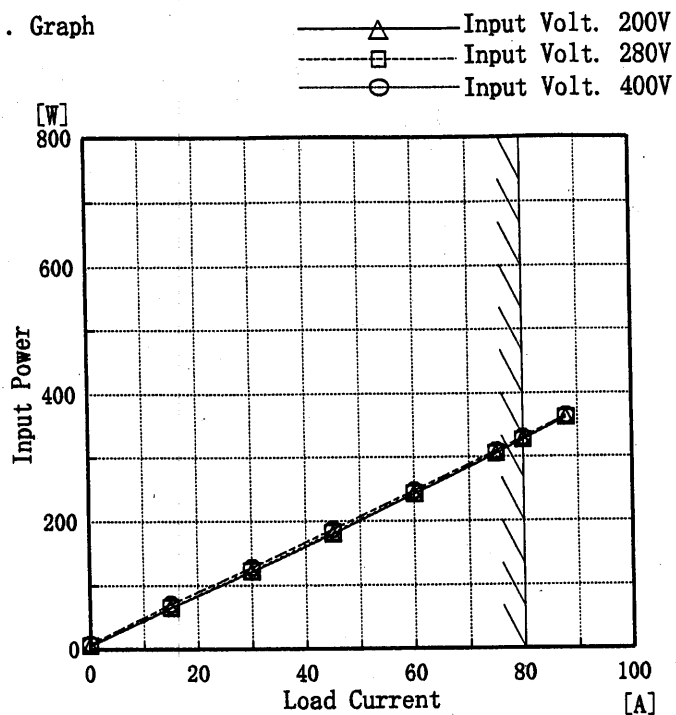
Humidity

40%RH

Testing Circuitry

Figure A

## 1. Graph



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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	5	6	8
15	65	65	71
30	121	123	128
45	180	182	187
60	242	243	248
75	306	306	310
80	328	327	331
88	362	362	365
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

**COSEL**

Model

DBS400B03

Item

Efficiency (by Input Voltage)  
効率 (入力電圧特性)

Object

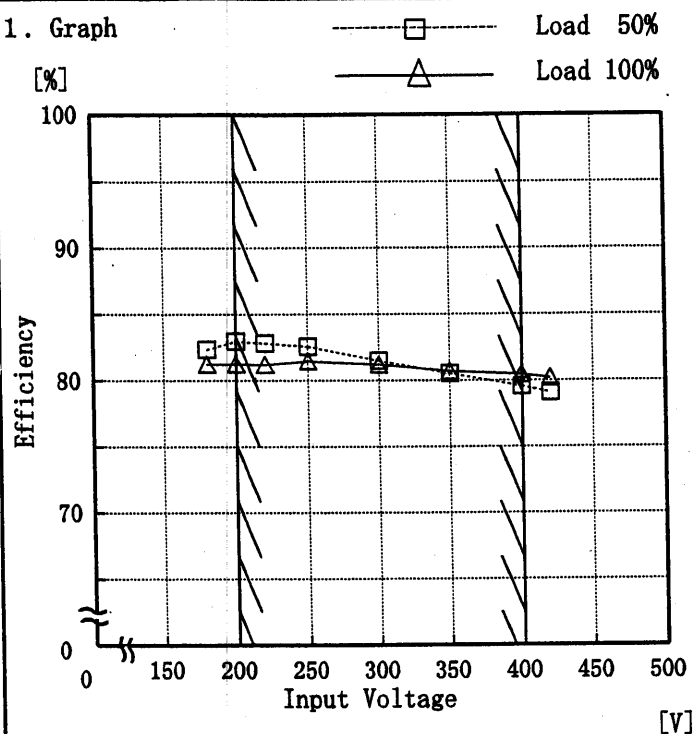
Temperature

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]	Efficiency [%]	
	Load 50%	Load 100%
180	82.4	81.3
200	83.0	81.2
220	82.8	81.2
250	82.6	81.5
300	81.5	81.2
350	80.5	80.7
400	79.6	80.5
420	79.1	80.2
—	—	—

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Model	DBS400B03	Temperature	25°C
Item	Efficiency (by Load Current) 効率 (負荷特性)	Testing Circuitry	Figure A
Object			

1. Graph

—△— Input Volt. 200V  
 - - -□- - - Input Volt. 280V  
 —○— Input Volt. 400V

Efficiency [%]

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]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
15	76.8	76.3	70.3
30	82.2	81.2	77.8
45	83.0	82.0	79.9
60	82.4	82.0	80.5
75	81.5	81.4	80.4
80	81.2	81.2	80.3
88	80.7	80.8	80.1
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—



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COSEL			
Model DBS400B03		Temperature 25℃	
Item Load Regulation 静的負荷変動		Testing Circuitry Figure A	
Object +3.3V80A			
1. Graph		2. Values	
<div><div>△</div> Input Volt. 200V</div> <div><div>□</div> Input Volt. 280V</div> <div><div>○</div> Input Volt. 400V</div> <div><div><div>Output Voltage [V]</div><div><div><div>3.400</div><div>3.380</div><div>3.360</div><div>3.340</div><div>3.320</div><div>3.300</div><div>3.280</div><div>0.000</div></div><div><div>0</div><div>20</div><div>40</div><div>60</div><div>80</div><div>100</div></div></div><div><div>Load Current [A]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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**COSEL**

Model

DBS400B03

Item

Ripple Voltage (by Load Current)  
リップル電圧 (負荷特性)

Object

+3.3V 80A

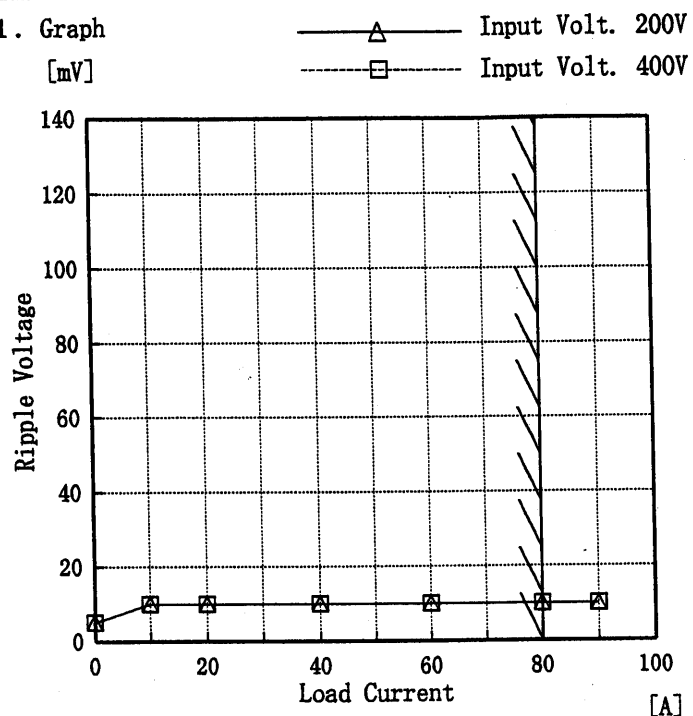
Temperature

25°C

Testing Circuitry

Figure A

## 1. Graph



Ripple Voltage is shown as p-p in the figure below.

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

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。

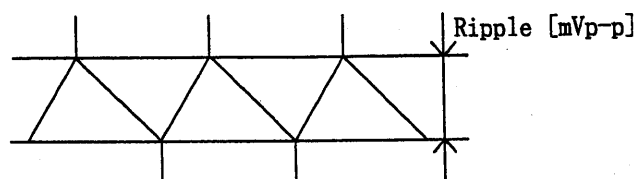


図 リップル波形図

## 2. Values

Load Current [A]	Ripple Output Volt. [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	5	5
10	10	10
20	10	10
40	10	10
60	10	10
80	10	10
90	10	10
—	—	—
—	—	—
—	—	—
—	—	—

# COSEL

Model	DBS400B03	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A
Object	+3.3V80A		

1. Graph

—△— Input Volt. 200V

- - -□- - - Input Volt. 400V

[mV]

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。

図 リップルノイズ波形図

2. Values

Load current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	10	10
10	20	20
20	20	20
40	20	20
60	20	20
80	25	25
90	25	25
—	—	—
—	—	—
—	—	—
—	—	—

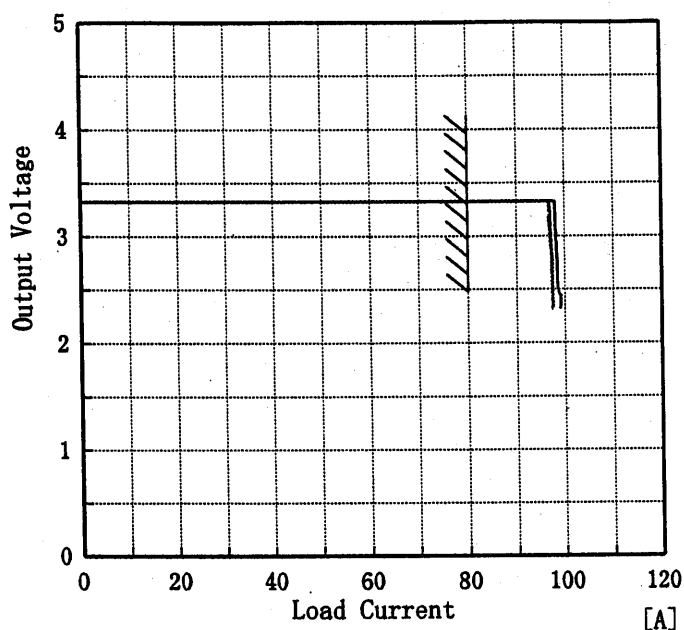
**COSEL**

Model	DBS400B03
Item	Overcurrent Protection 過電流保護
Object	+3.3V80A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph

[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

Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
3.30	96.64	96.89	97.94
3.13	96.68	97.02	97.96
2.97	97.00	97.12	98.17
2.64	97.26	97.17	98.33
2.31	97.30	97.24	98.89
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

# COSEL

Model		DBS400B03	
Item		Overvoltage Protection 過電圧保護	
Object		+3.3V80A	

1. Graph

—△—

Input Volt. 200 V

- - -□- -

Input Volt. 280 V

—○—

Input Volt. 400 V

Operating Point [V]

9.00

8.00

7.00

6.00

5.00

4.00

3.00

2.00

0.00

-50

-10

30

70

110

Ambient Temperature [°C]

Load 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。

2. Values

Ambient Temp. [°C]	Operating Point [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	5.12	5.12	5.12
-20	5.05	5.05	5.05
0	4.91	4.91	4.91
15	4.84	4.84	4.84
25	4.84	4.84	4.84
40	4.70	4.70	4.70
55	4.63	4.63	4.63
70	4.56	4.56	4.56
85	4.48	4.48	4.48
90	4.48	4.48	4.48
—	—	—	—

**COSEL**

Model	DBS400B03
Item	Dynamic Load Responce 動的負荷変動
Object	+3.3V80A

Temperature 25°C  
Testing Circuitry Figure A

Input Volt. 280 V

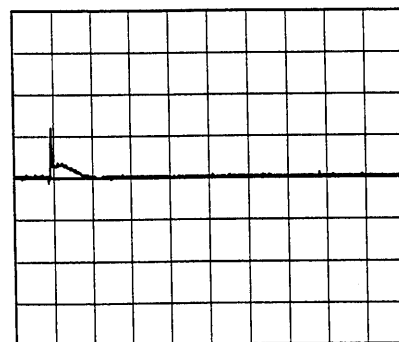
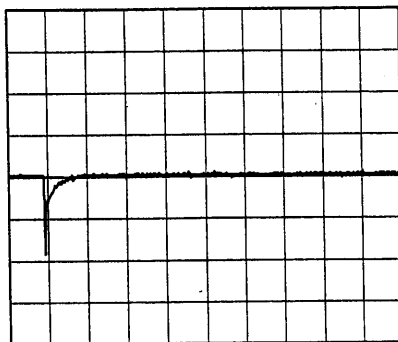
Cycle 1000 mS

Load Current

Min. Load (0.0A) ↔

Load 100% (80.0A)

500 mV/div

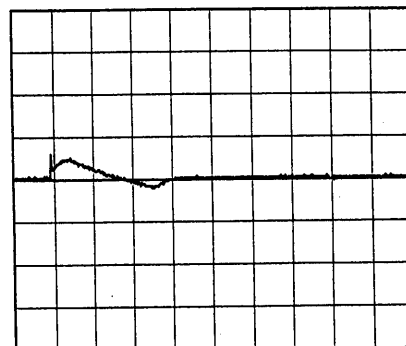
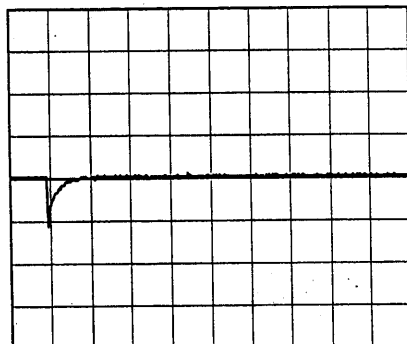


2 ms/div

Min. Load (0.0A) ↔

Load 50% (40.0A)

500 mV/div

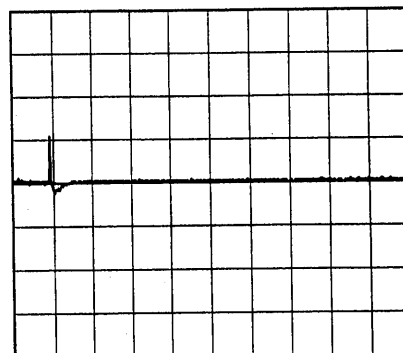
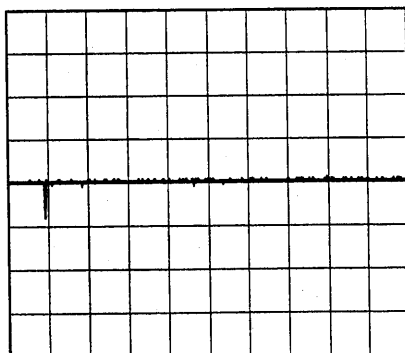


2 ms/div

Load 10% (8.0A) ↔

Load 100% (80.0A)

500 mV/div



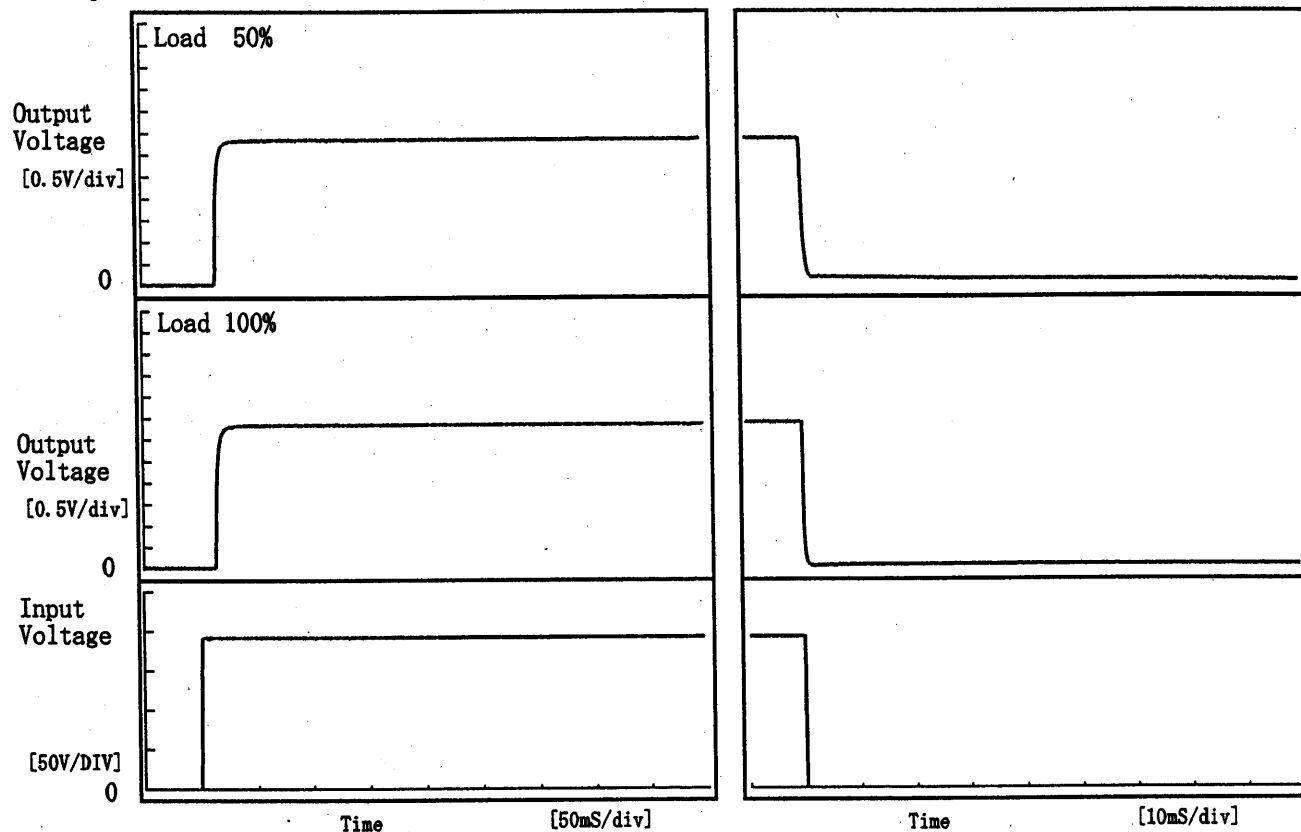
2 ms/div

**COSEL**

Model	DBS400B03	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+3.3V80A		

## 1. Graph

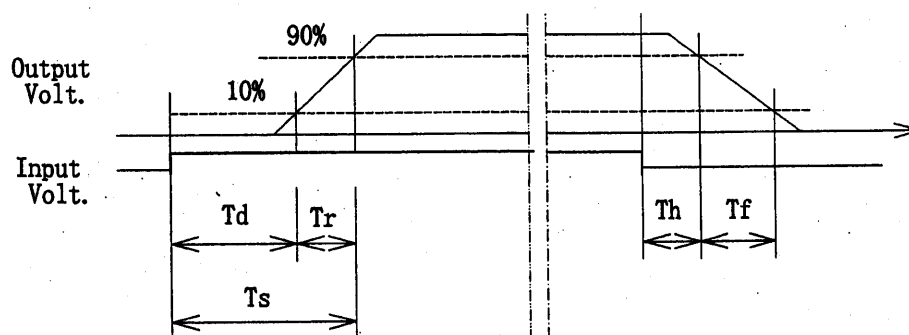
Input Volt. 200 V



## 2. Values

[mS]

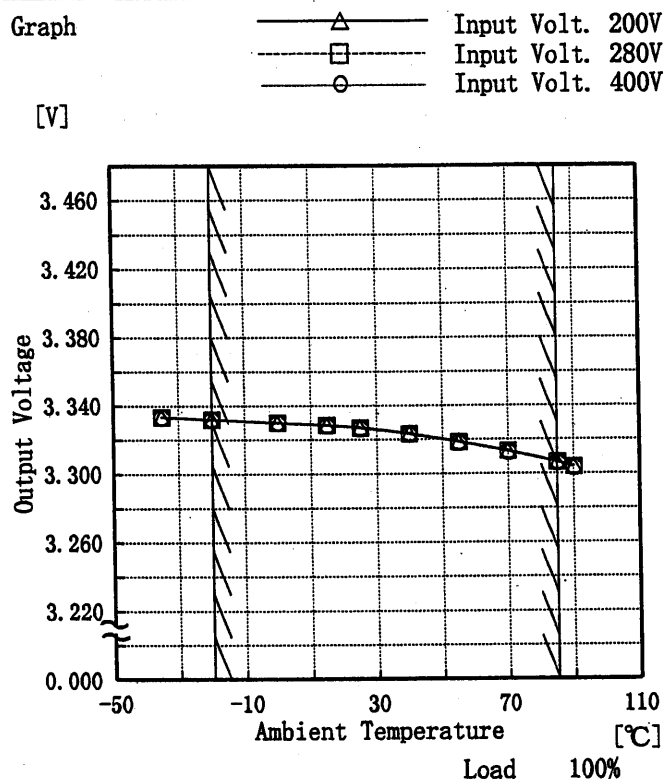
Load \ Time	T d	T r	T s	T h	T f
50 %	15.00	4.50	18.75	0.1	1.25
100 %	14.25	4.50	19.50	0.1	0.50



COSEL

Model	DBS400B03
Item	Ambient Temperature Drift 周囲温度変動
Object	+3.3V80A

## 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。

## Testing Circuitry Figure A

## 2. Values

Temperature [°C]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	3.333	3.333	3.333
-20	3.332	3.332	3.332
0	3.330	3.330	3.330
15	3.329	3.329	3.329
25	3.327	3.327	3.327
40	3.324	3.323	3.323
55	3.319	3.319	3.318
70	3.313	3.313	3.313
85	3.307	3.307	3.306
90	3.304	3.304	3.304
—	—	—	—



**COSEL**

Model

DBS400B03

Item

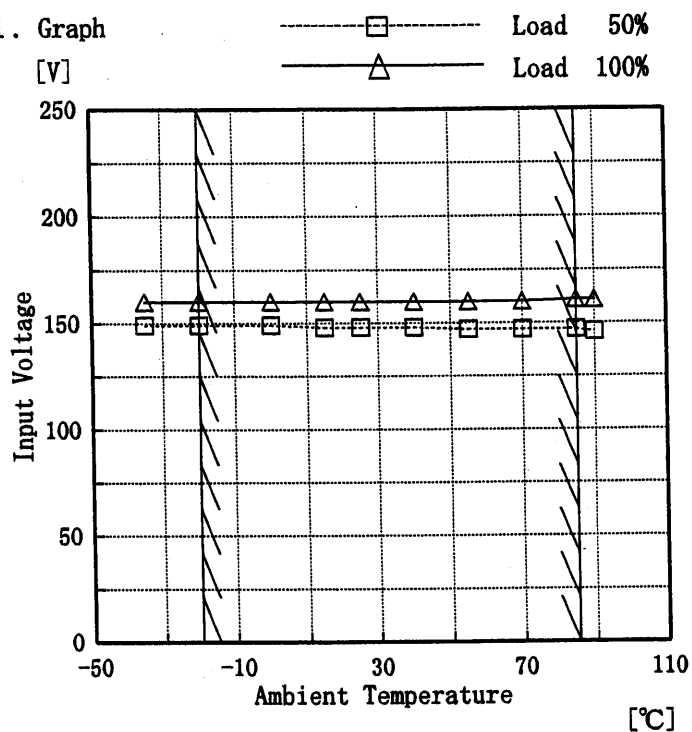
Minimum Input Voltage for Regulated Output Voltage  
最低レギュレーション電圧

Object

+3.3V80A

Testing Circuitry Figure A

## 1. Graph



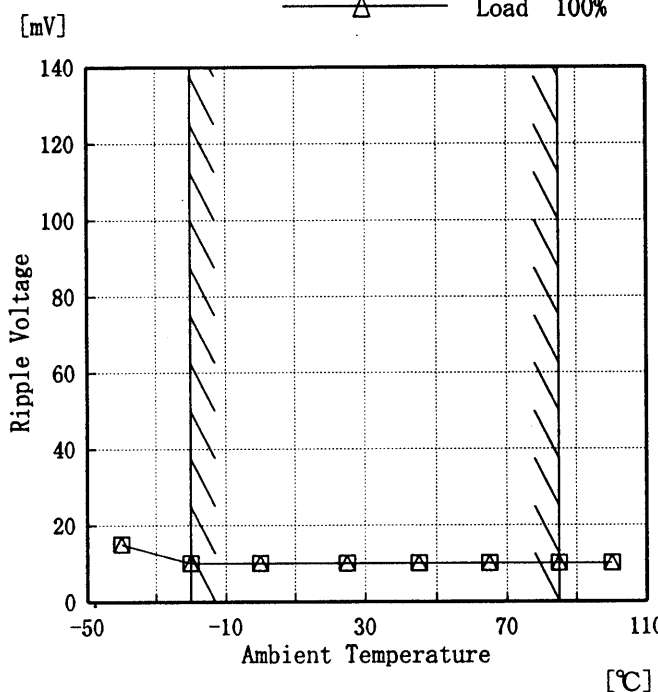
Note: Slanted line shows the range of the rated ambient temperature.

(注) 斜線は定格周囲温度範囲を示す。

## 2. Values

Ambient Temp. [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-35	149	160
-20	149	160
0	149	160
15	148	160
25	148	160
40	148	160
55	147	160
70	147	160
85	147	161
90	146	161
—	—	—

# COSEL

Model DBS400B03		Testing Circuitry      Figure A																																						
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																																							
Object	+3.3V80A																																							
1. Graph <div style="display: flex; justify-content: flex-end; align-items: center; margin-top: 10px;"> <div style="margin-right: 20px;"> <div style="border-bottom: 1px dashed black; width: 20px; display: inline-block;"></div> Load 50% </div> <div> <div style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></div> Load 100% </div> </div>  <p style="text-align: center;">Input Volt. 280 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 <table border="1" style="margin-top: 20px; width: 100%;"> <thead> <tr> <th rowspan="2">Ambient Temp. [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr> <tr> <th>Load 50%</th><th>Load 100%</th></tr> </thead> <tbody> <tr><td>-40</td><td>15</td><td>15</td></tr> <tr><td>-20</td><td>10</td><td>10</td></tr> <tr><td>0</td><td>10</td><td>10</td></tr> <tr><td>25</td><td>10</td><td>10</td></tr> <tr><td>45</td><td>10</td><td>10</td></tr> <tr><td>65</td><td>10</td><td>10</td></tr> <tr><td>85</td><td>10</td><td>10</td></tr> <tr><td>100</td><td>10</td><td>10</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Ambient Temp. [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-40	15	15	-20	10	10	0	10	10	25	10	10	45	10	10	65	10	10	85	10	10	100	10	10	—	—	—	—	—	—	—	—	—
Ambient Temp. [°C]	Ripple Voltage [mV]																																							
	Load 50%	Load 100%																																						
-40	15	15																																						
-20	10	10																																						
0	10	10																																						
25	10	10																																						
45	10	10																																						
65	10	10																																						
85	10	10																																						
100	10	10																																						
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**COSEL**

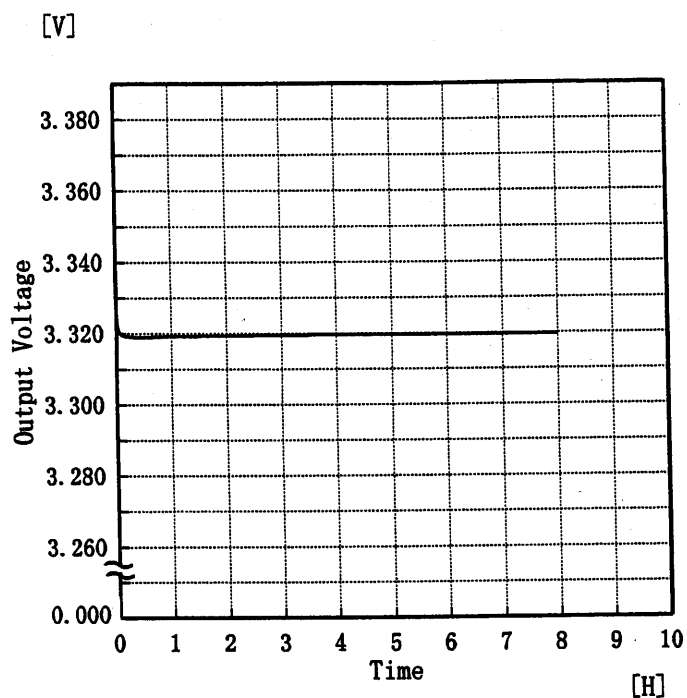
Model DBS400B03

Item Time Lapse Drift 経時ドリフト

Object +3.3V80A

Temperature 25 °C  
Testing Circuitry Figure A

## 1. Graph



Input Volt. 280V

Load 100%

## 2. Values

Time since start [H]	Output Voltage [V]
0.0	3.326
0.5	3.319
1.0	3.319
2.0	3.319
3.0	3.320
4.0	3.320
5.0	3.320
6.0	3.320
7.0	3.320
8.0	3.320

COSEL

Model		DBS400B03	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+3.3V80A	

## 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 : -20~85 °C

Input Voltage : 200~400 V

Load Current : 0.00~80.00 A

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

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

## 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 -20~85 °C

入力電圧 200~400 V

負荷電流 0.00~80.00 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	-20	400	0.00	3.335	±15	±0.5
Minimum Voltage	85	400	80.00	3.305		

**COSEL**

Model		DBS400B03	Testing Circuitry      Figure A
Item		Condensation 結露特性	
Object		+3.3V80A	

## 1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at  $-10^{\circ}\text{C}$  for an hour with the input off.
- ② Taking it out of the tank and dewing itself in a room where the temperature is  $25^{\circ}\text{C}$  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 $-10^{\circ}\text{C}$ に冷却しておき、約1時間後に恒温槽から取り出し、室温 $25^{\circ}\text{C}$ 、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]	3.329	Input Volt.: 280V, Load Current:80A
Line Regulation [mV]	1	Input Volt.: 200~400V, Load Current:80A
Load Regulation [mV]	2	Input Volt.: 280V, Load Current:0~80A

**COSEL**

Model	DBS400B03	Temperature Testing Circuitry	25°C Figure C
Item	Line Noise Tolerance 入力雑音耐量		
Object	+3.3V80A		

## 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 : 200 V  
 Pulse Voltage :  $\pm 2000$  V  
 Pulse Cycle : 10 mS  
 Pulse Input Duration: 1 min. or more  
 Load : 100 %

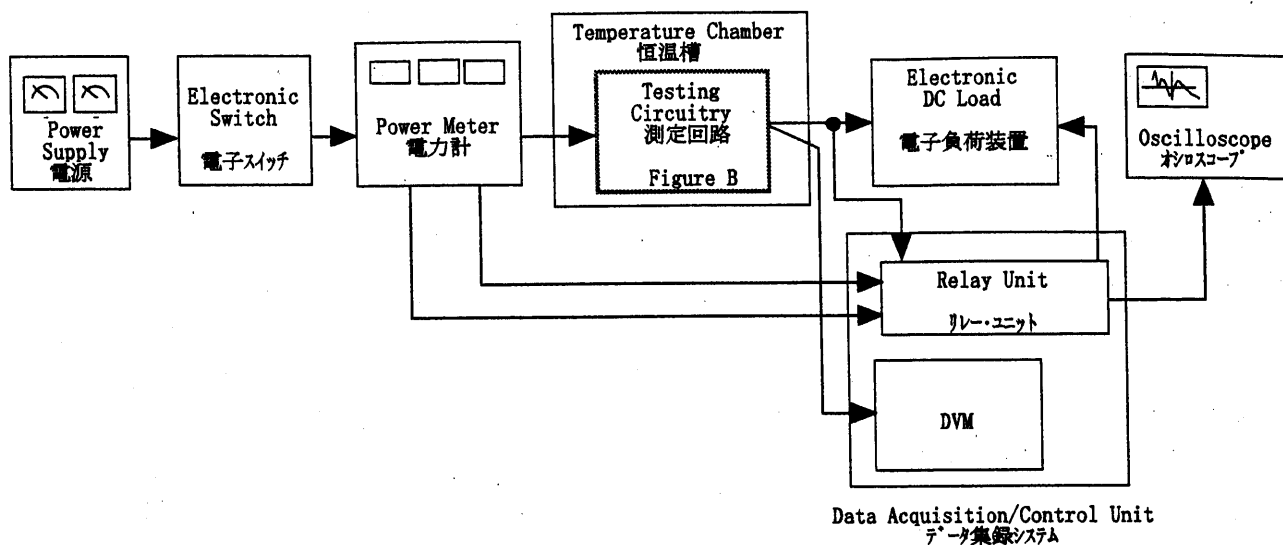


Figure A

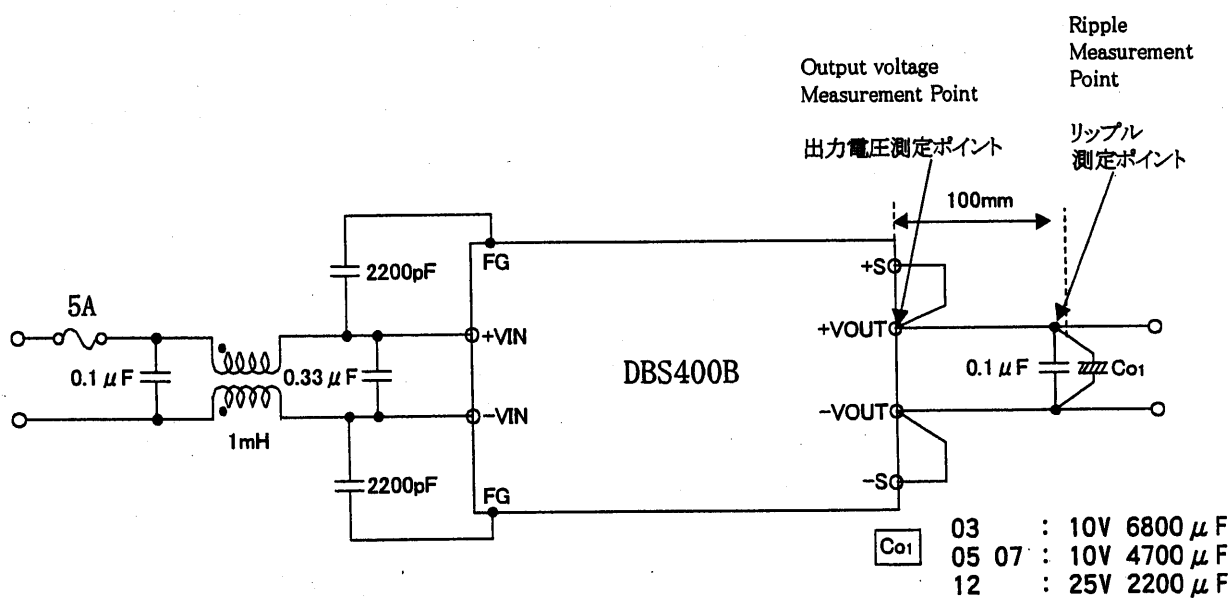


Figure B (General Electric Characteristic)  
一般電気特性

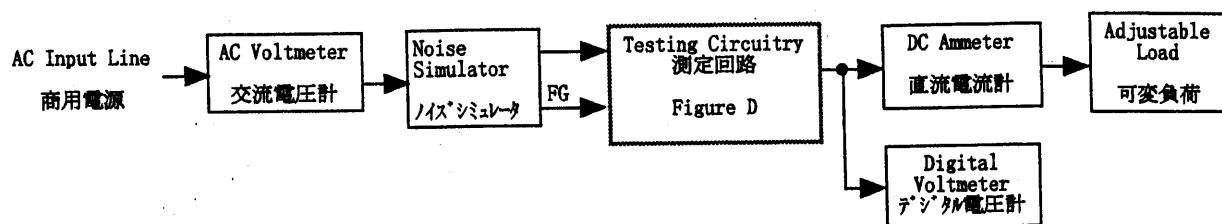


Figure C

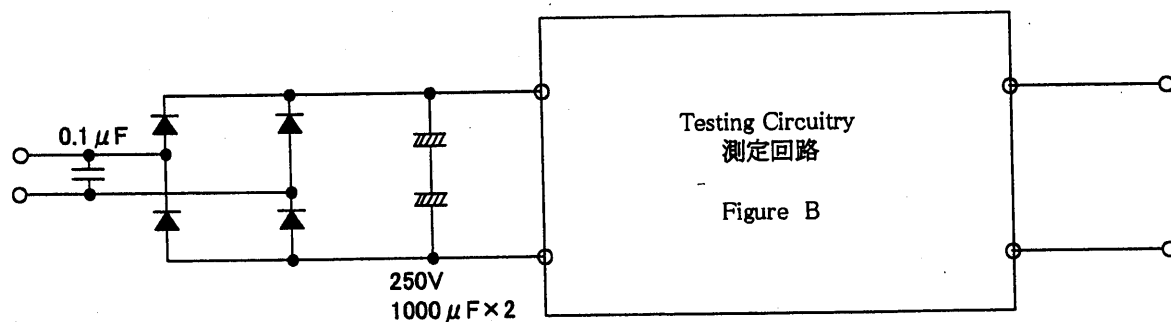


Figure D (Line Noise Tolerance)  
入力雑音耐量