参考資料

COSEL

TEST DATA OF DBS200B05

(280V INPUT)

Regulated DC Power Supply

Date : Apr.16. 1999

Approved by : K. Shimano
Design Manager

Prepared by : K. Mizui
Design Engineer

コーセル株式会社

COSEL CO.,LTD.

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Object	+5.0V40A

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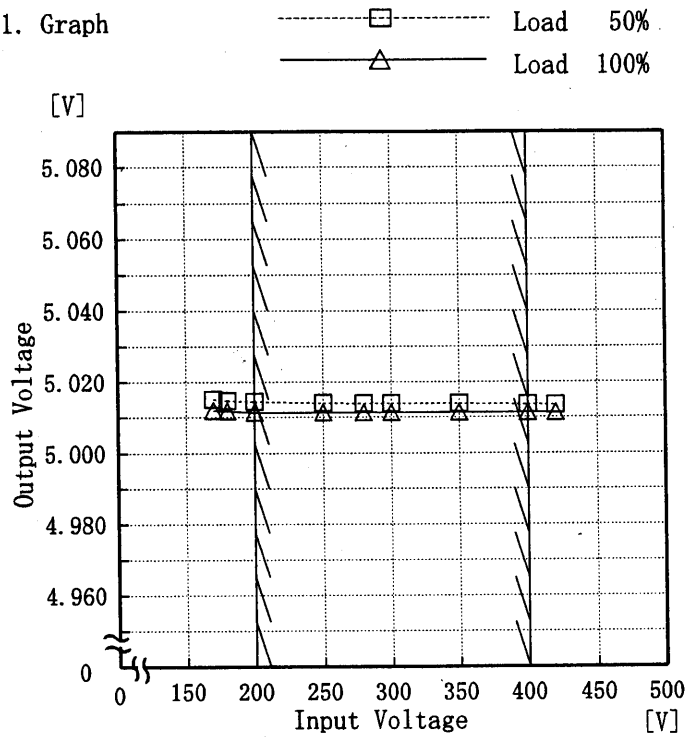
1. Graph



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

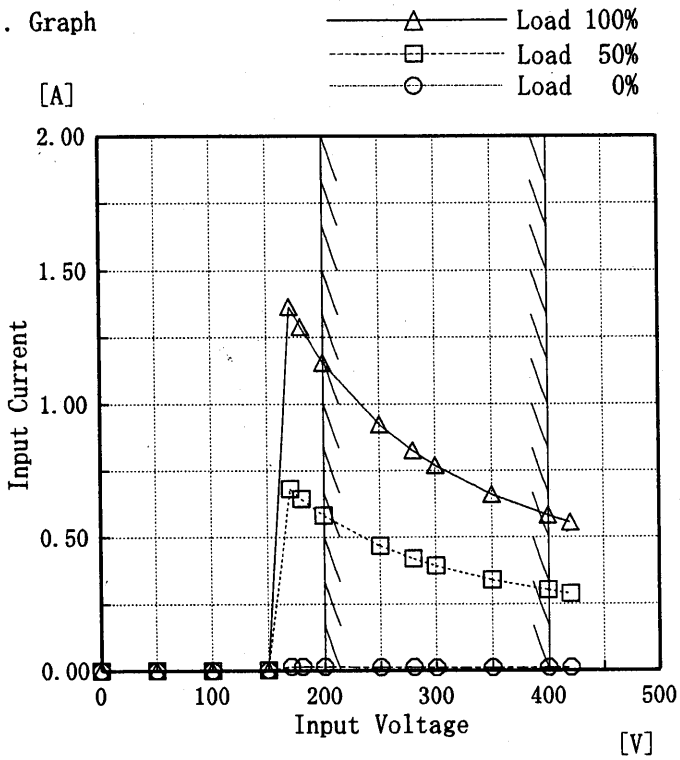
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	5.015	5.012
180	5.015	5.012
200	5.015	5.011
250	5.014	5.011
280	5.014	5.011
300	5.014	5.011
350	5.014	5.011
400	5.014	5.011
420	5.014	5.011

COSEL

Model	DBS200B05
Item	Input Current (by Input Voltage) 入力電流（入力電圧特性）
Object	————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



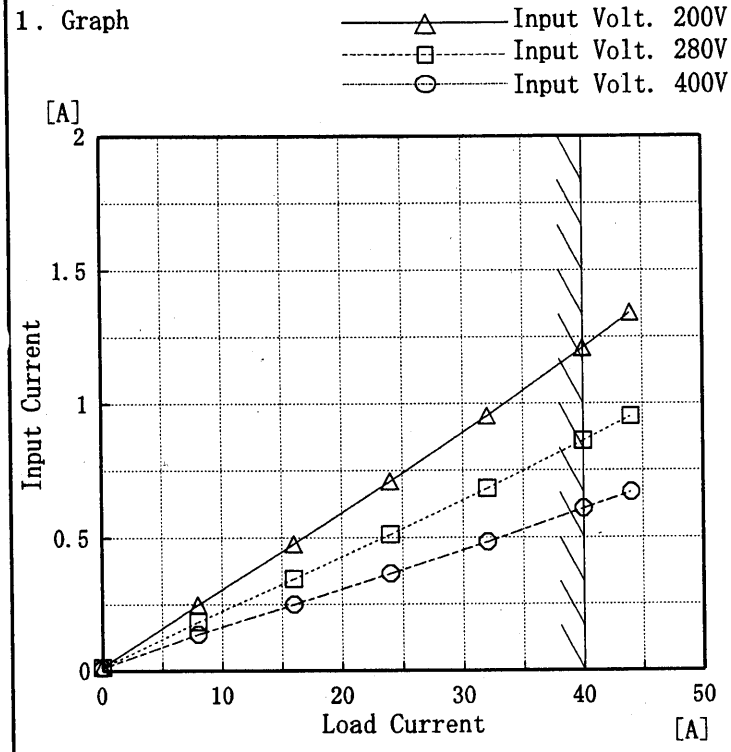
2. Values

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	0.000	0.000	0.000
150	0.003	0.002	0.002
170	0.015	0.682	1.365
180	0.015	0.646	1.289
200	0.014	0.582	1.155
250	0.013	0.468	0.922
280	0.012	0.421	0.824
300	0.012	0.394	0.769
350	0.011	0.341	0.662
400	0.011	0.303	0.582
420	0.011	0.290	0.556
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS200B05	
Item	Input Current (by Load Current) 入力電流（負荷特性）	Temperature 25℃ Testing Circuitry Figure A
Object	————	

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

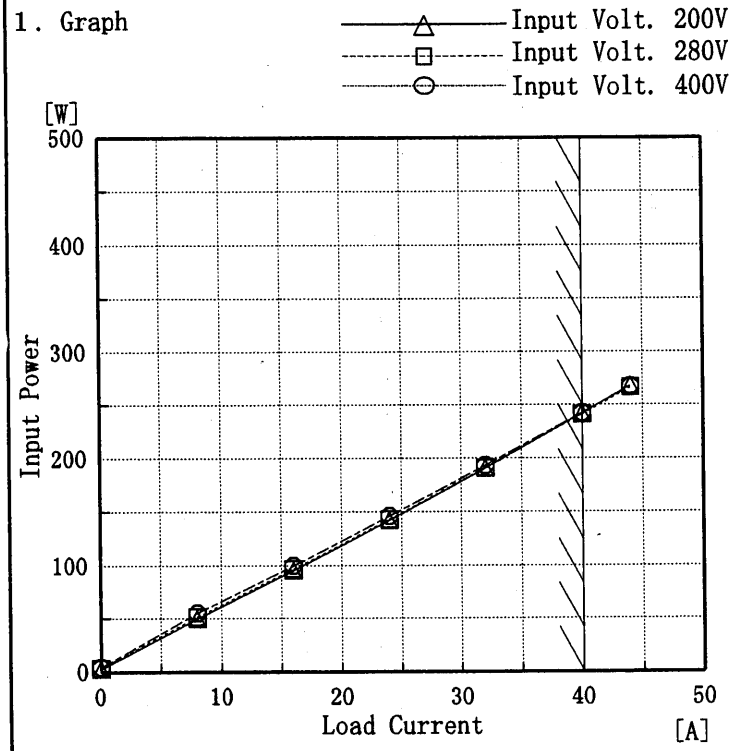
Load Current [A]	Input Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	0.01	0.01	0.01
8	0.25	0.18	0.14
16	0.48	0.35	0.25
24	0.71	0.51	0.37
32	0.95	0.68	0.48
40	1.21	0.86	0.61
44	1.34	0.95	0.67
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS200B05
Item	Input Power (by Load Current) 入力電力（負荷特性）
Object	————

Temperature 25℃
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

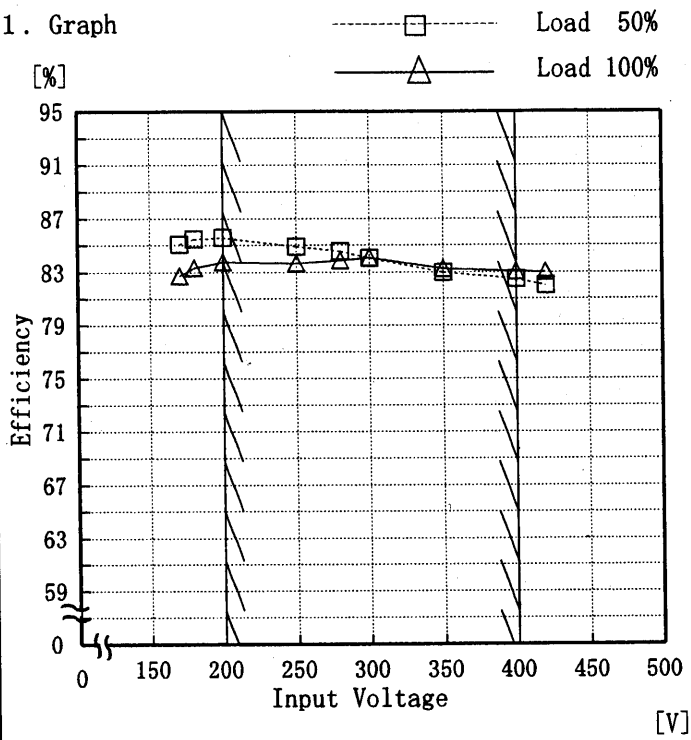
Load Current [A]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	3	3	4
8	50	52	55
16	95	97	100
24	142	143	146
32	191	191	193
40	242	241	243
44	268	267	268
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS200B05
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	———————————

Temperature 25℃
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

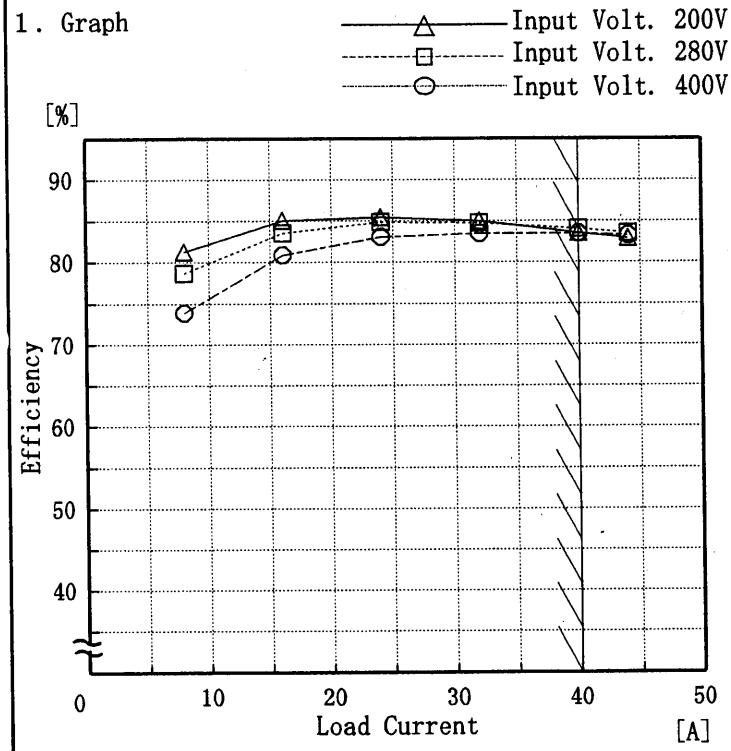
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
170	85.1	82.7
180	85.5	83.3
200	85.6	83.8
250	84.9	83.7
280	84.5	83.9
300	84.1	84.1
350	83.0	83.3
400	82.5	83.1
420	82.0	83.0

COSEL

Model	DBS200B05
Item	Efficiency (by Load Current) 効率 (負荷特性)
Object	————

Temperature 25℃
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

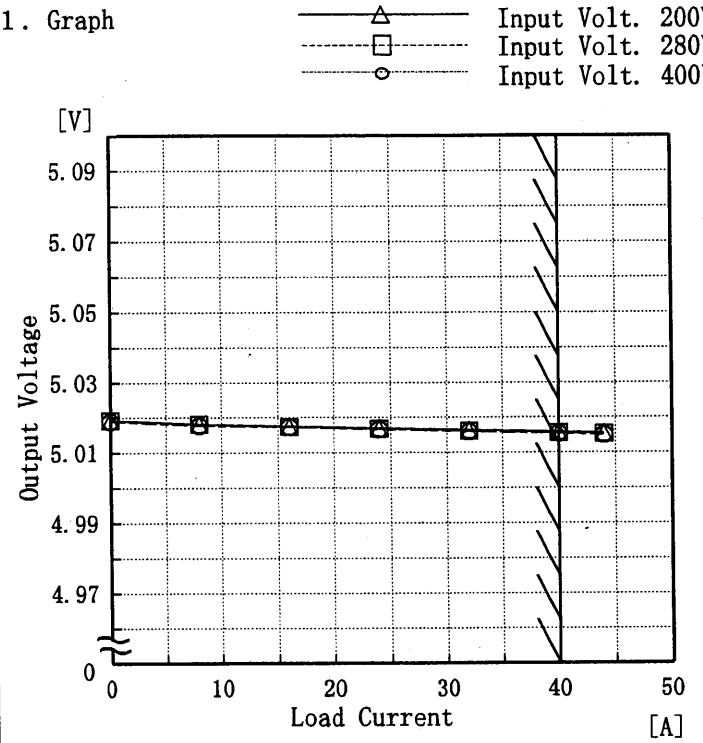
Load Current [A]	Efficiency [%] Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
8	81.3	78.7	73.9
16	85.1	83.6	80.9
24	85.5	84.9	83.1
32	85.0	84.8	83.5
40	83.6	84.1	83.5
44	82.9	83.6	83.3
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS200B05
Item	Load Regulation 静的負荷変動
Object	+5.0V40A

Temperature 25℃
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

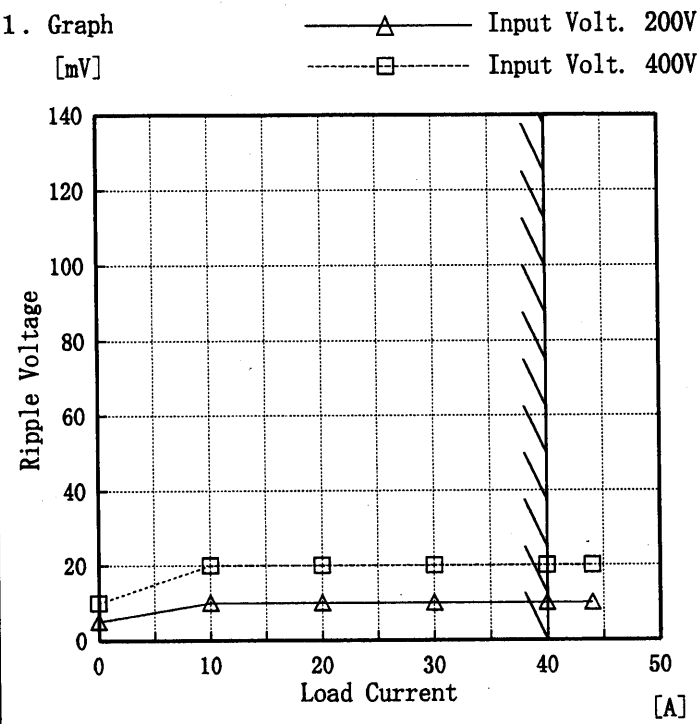
Load Current [A]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	5.019	5.019	5.019
8	5.018	5.018	5.018
16	5.018	5.017	5.017
24	5.017	5.017	5.017
32	5.016	5.016	5.016
40	5.016	5.016	5.015
44	5.015	5.015	5.015
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS200B05
Item	Ripple Voltage(by Load Current) リップル電圧(負荷特性)
Object	+5.0V40A

Temperature 25℃
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。

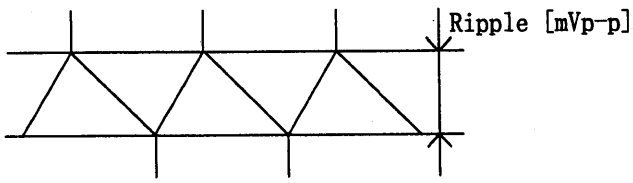


図　リップル波形図

2. Values

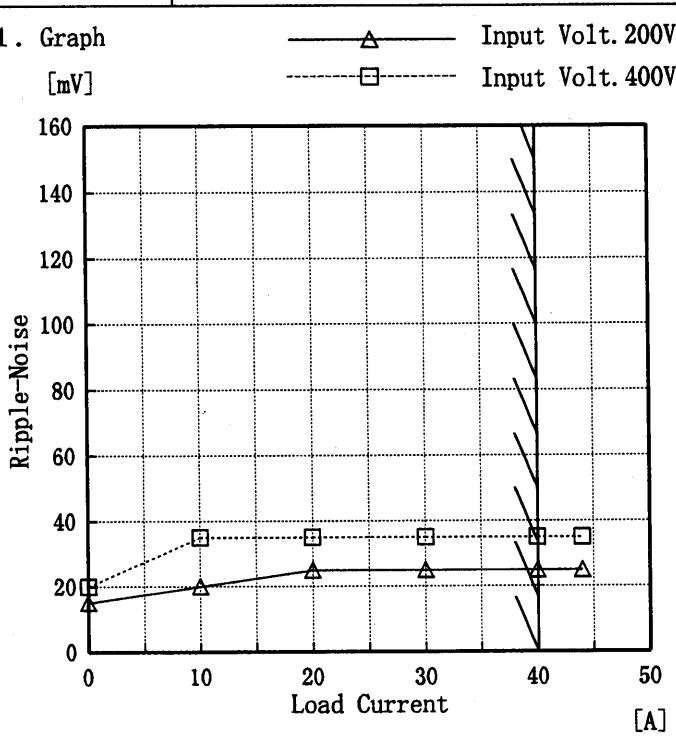
Load Current [A]	Ripple Output Volt. [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	5	10
10	10	20
20	10	20
30	10	20
40	10	20
44	10	20
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS200B05
Item	Ripple-Noise　リップルノイズ
Object	+5.0V40A

Temperature　25℃
Testing Circuitry　Figure A

1. Graph



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。

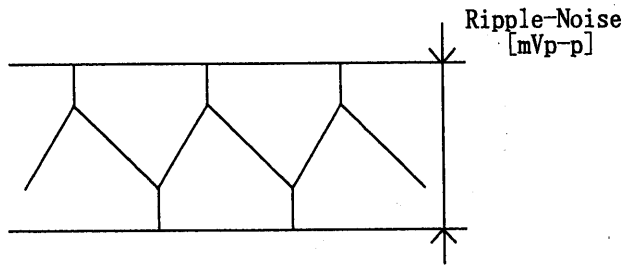


図　リップルノイズ波形図

2. Values

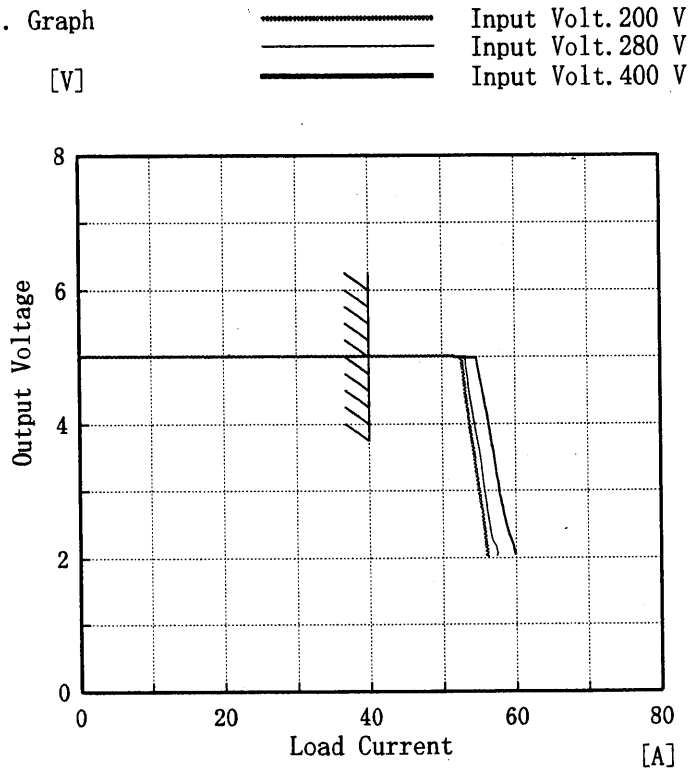
Load current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	15	20
10	20	35
20	25	35
30	25	35
40	25	35
44	25	35
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS200B05
Item	Overcurrent Protection 過電流保護
Object	+5.0V40A

Temperature 25℃
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

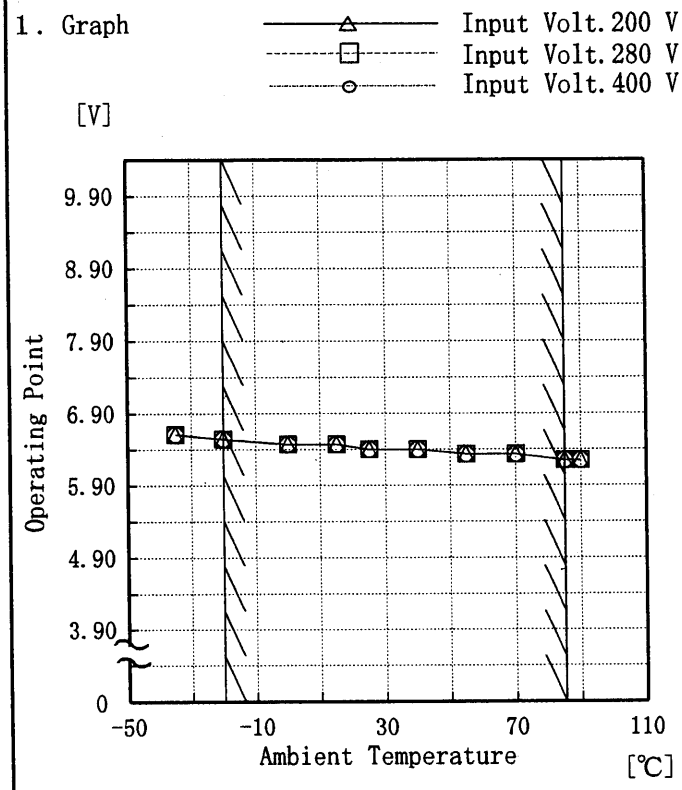
Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
5.00	51.40	50.85	54.60
4.75	52.85	53.40	55.02
4.50	53.11	53.68	55.47
4.00	53.70	54.35	56.28
3.50	54.31	55.13	56.99
3.00	54.95	55.74	57.69
2.50	55.61	56.35	58.66
2.00	56.08	57.38	59.96
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS200B05
Item	Overvoltage Protection 過電圧保護
Object	+5.0V40A

Testing Circuitry Figure A

1. Graph



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. [℃]	Operating Point [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	6.61	6.61	6.61
-20	6.54	6.54	6.54
0	6.47	6.47	6.47
15	6.47	6.47	6.47
25	6.40	6.40	6.40
40	6.40	6.40	6.40
55	6.33	6.33	6.33
70	6.33	6.33	6.33
85	6.25	6.25	6.25
90	6.25	6.25	6.25
—	—	—	—

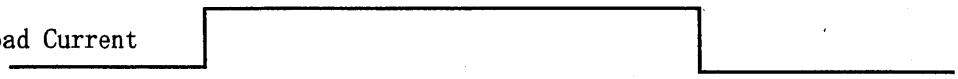
COSEL

Model	DBS200B05		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+5V40A		

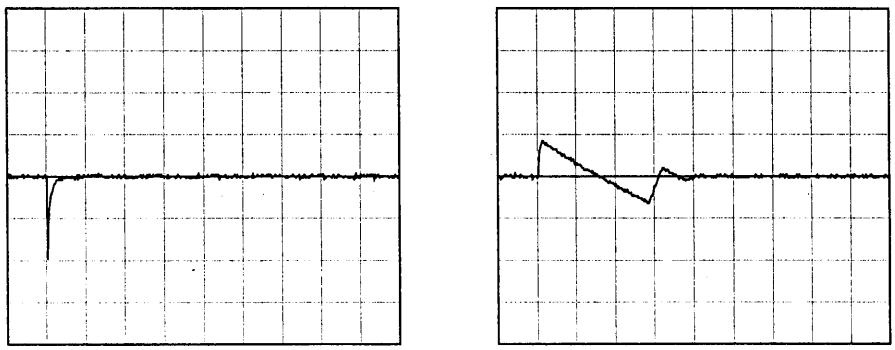
Input Volt. 280 V

Cycle 1000 mS

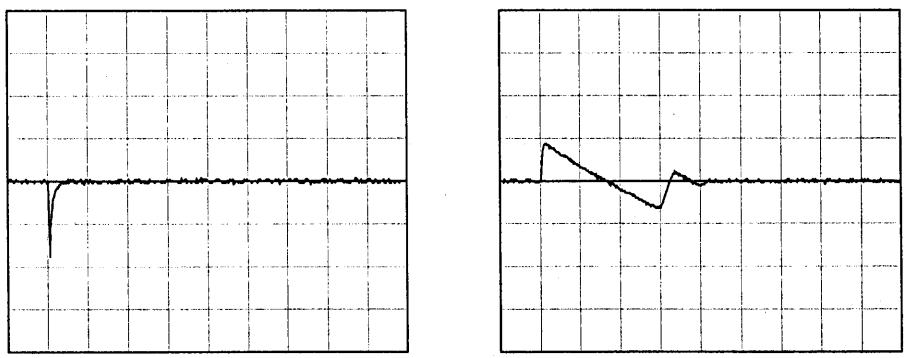
Load Current



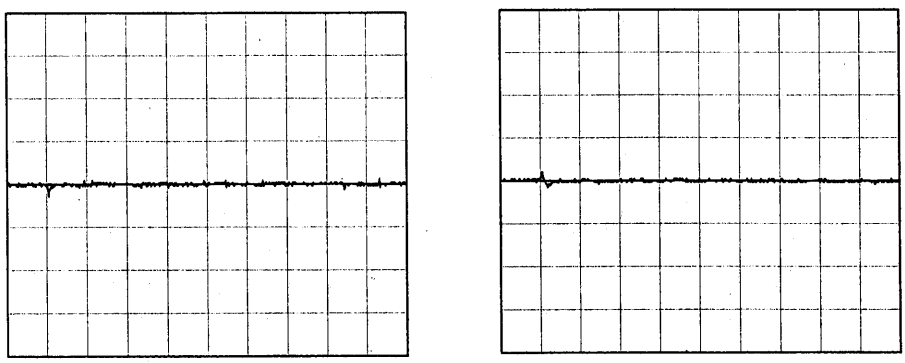
Min. Load (0.0A) ⟷
Load 100% (40.0A)



Min. Load (0.0A) ⟷
Load 50% (20.0A)



Load 10% (4.0A) ⟷
Load 100% (40.0A)



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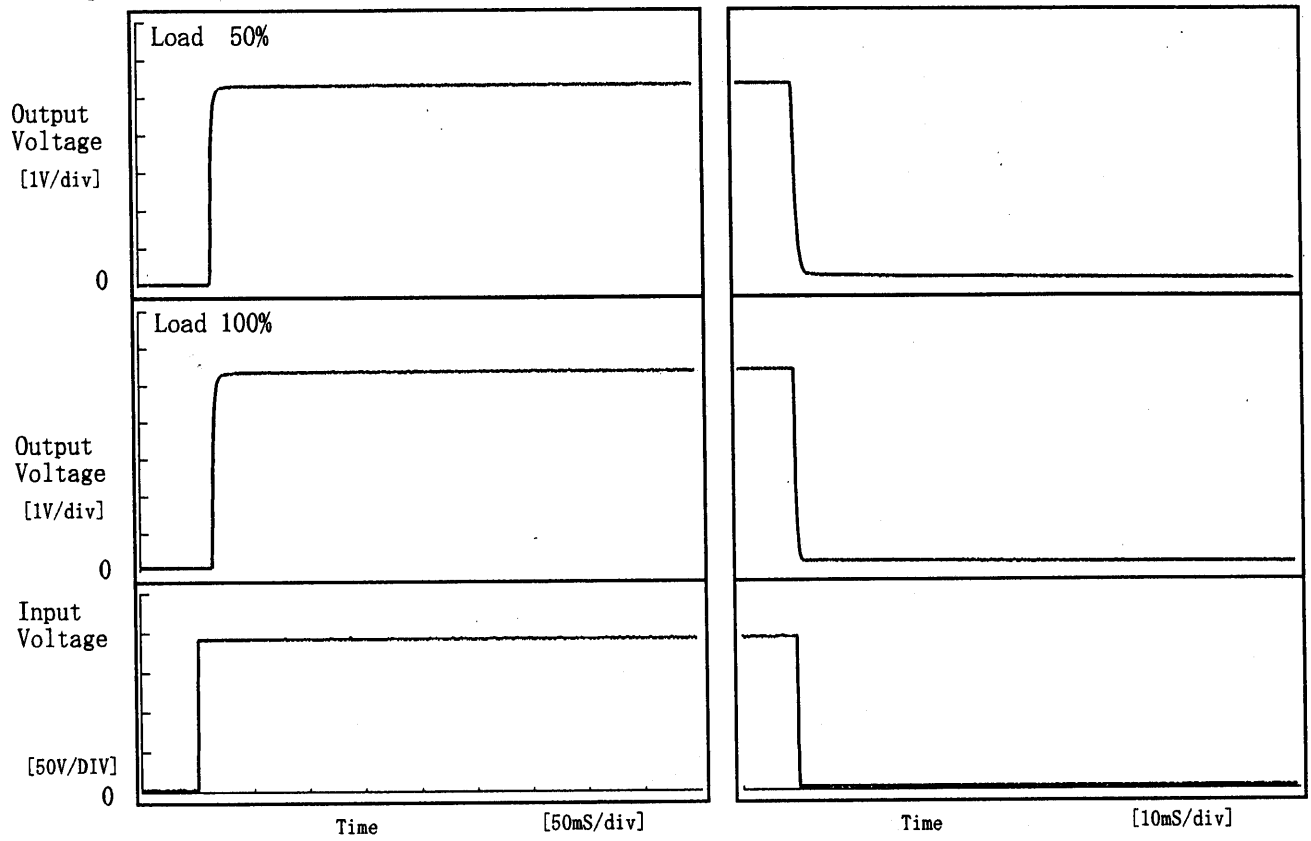
Model	DBS200B05		
Item	Rise and Fall Time 立上り、立下り時間	Temperature	25℃
		Testing Circuitry	Figure A
Object	+5.0V40A		

1. Graph

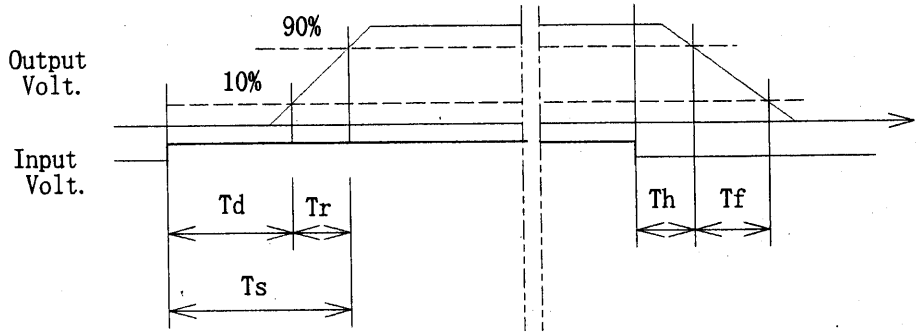
Input Volt. 200 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	14.25	3.00	17.25	0.0	1.60
100 %	14.75	3.00	17.75	0.0	0.80



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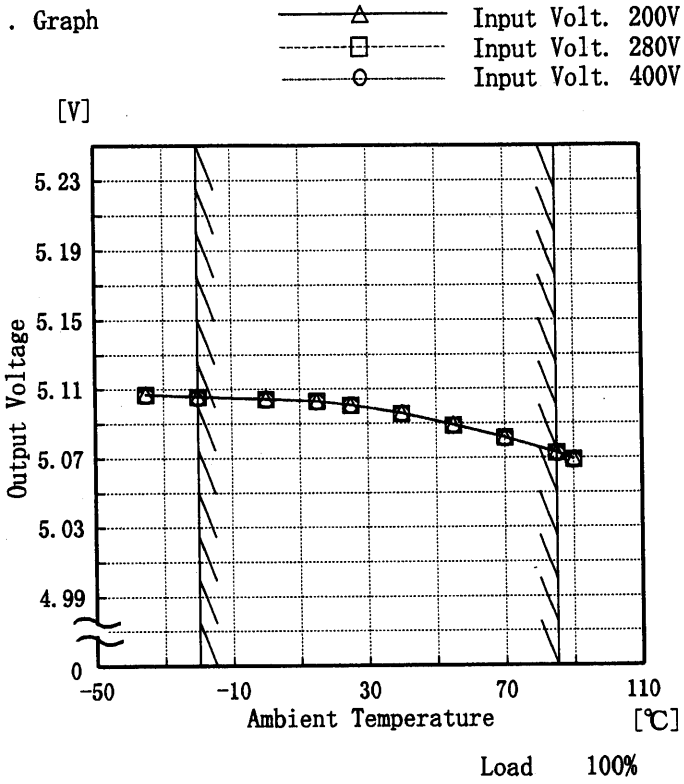
COSEL

Model	DBS200B05
Item	Ambient Temperature Drift 周囲温度変動
Object	+5.0V40A

Testing Circuitry Figure A

1. Graph



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

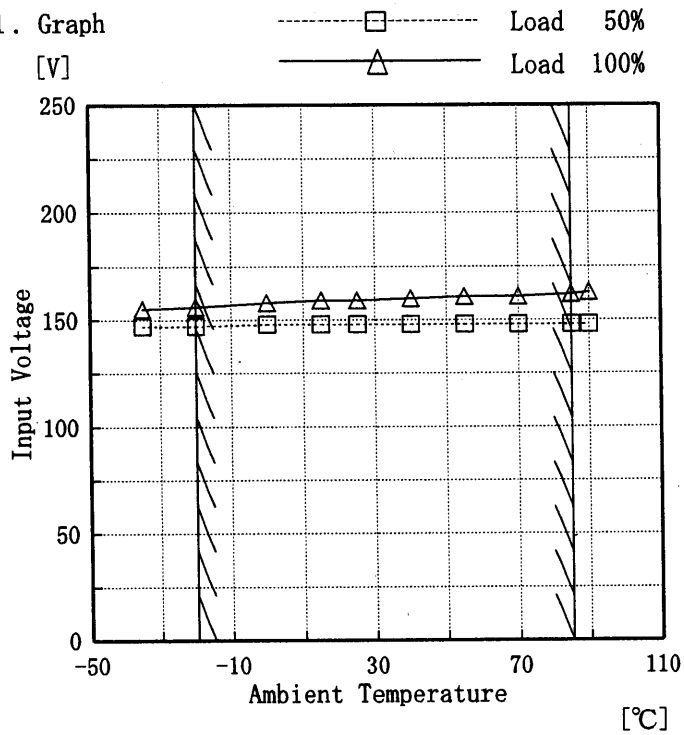
Temperature [℃]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	5.107	5.107	5.107
-20	5.106	5.105	5.105
0	5.104	5.104	5.104
15	5.103	5.103	5.103
25	5.101	5.101	5.100
40	5.096	5.096	5.096
55	5.089	5.089	5.089
70	5.082	5.082	5.081
85	5.073	5.073	5.072
90	5.069	5.069	5.069
—	—	—	—

COSEL

Model	DBS200B05
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+5.0V40A

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

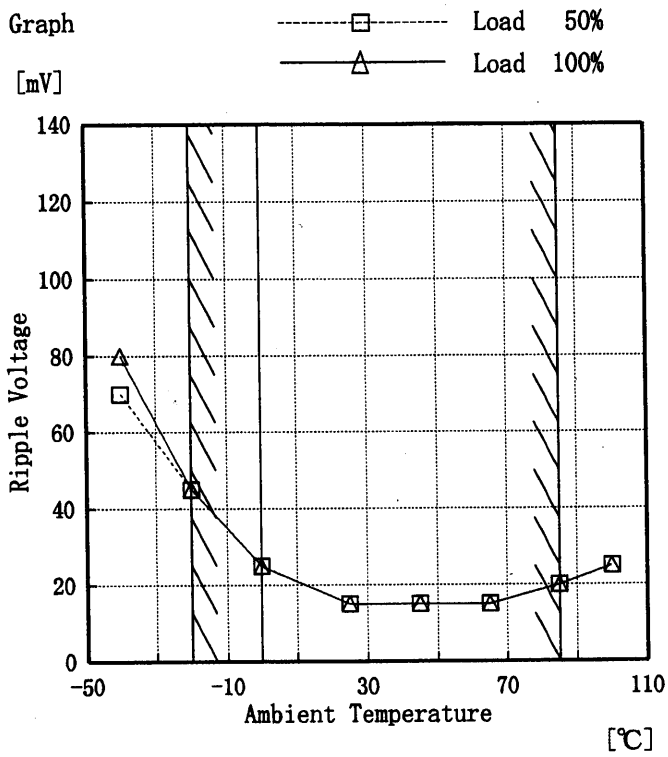
Ambient Temp. [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-35	147	155
-20	147	156
0	148	158
15	148	159
25	148	159
40	148	160
55	148	161
70	148	161
85	148	162
90	148	163
—	—	—

COSEL

Model	DBS200B05
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+5.0V40A

Testing Circuitry Figure A

1. Graph



Input Volt. 280 V

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

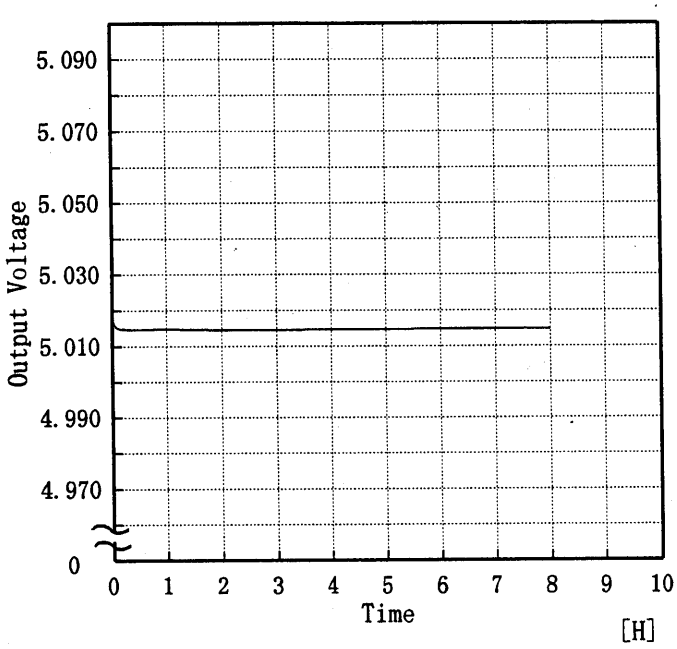
Ambient Temp. [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	70	80
-20	45	45
0	25	25
25	15	15
45	15	15
65	15	15
85	20	20
100	25	25
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS200B05
Item	Time Lapse Drift 経時ドリフト
Object	+5.0V40A

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph



Input Volt. 280V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	5.021
0.5	5.015
1.0	5.015
2.0	5.015
3.0	5.015
4.0	5.015
5.0	5.015
6.0	5.015
7.0	5.015
8.0	5.015

COSEL

Model	DBS200B05	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+5.0V40A	

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 ℃
Input Voltage : 200～400 V
Load Current : 0～40 A

* Output Voltage Accuracy = ±(Maximum of Output Voltage − Minimum of Output Voltage)／2

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

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 ℃
入力電圧 200～400 V
負荷電流 0～40 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

$$\text{* 定電圧精度(変動率)} = \frac{\text{変動値}}{\text{定格出力電圧}} \times 100$$

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	-20	200	0	5.108	±19	±0.4
Minimum Voltage	85	400	40	5.070		

COSEL

Model	DBS200B05
Item	Condensation 結露特性
Object	+5.0V40A

Testing Circuitry Figure A

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ 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℃ 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]	5.016	Input Volt.: 280V, Load Current:40A
Line Regulation [mV]	1	Input Volt.: 200～400V, Load Current:40A
Load Regulation [mV]	4	Input Volt.: 280V, Load Current:0～40A

COSEL

Model	DBS200B05
Item	Line Noise Tolerance 入力雑音耐量
Object	+5.0V40A

Temperature 25℃
Testing Circuitry Figure C

1. Results

Pulse Width [nS]	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 :±2000 V
Pulse Cycle :10 mS
Pulse Input Duration:1 min. or more
Load :100 %

COSEL

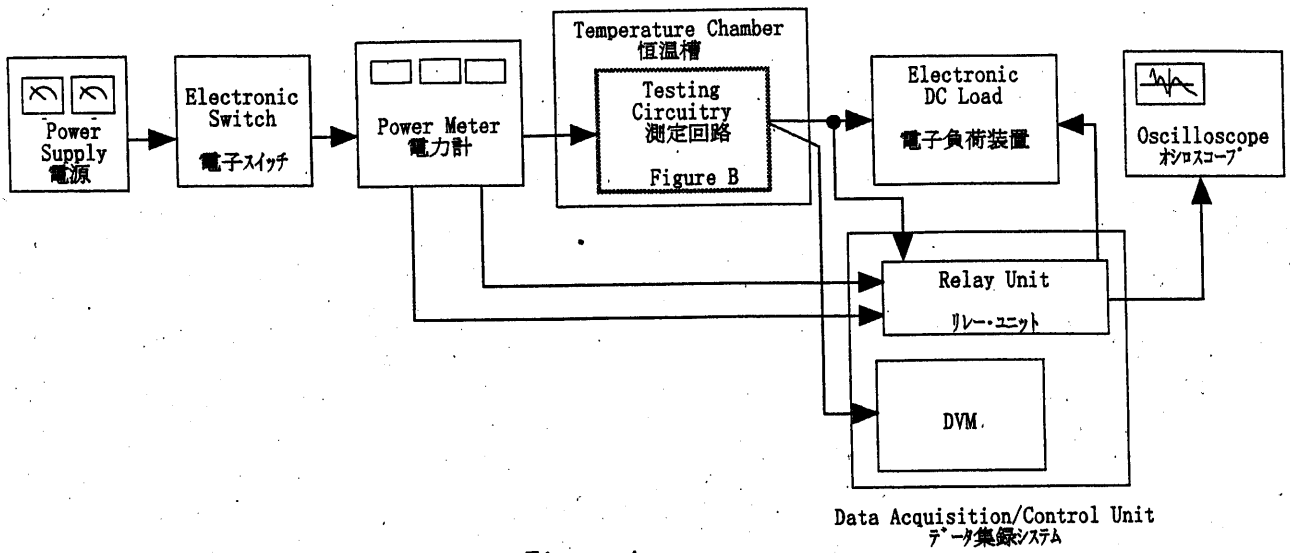


Figure A

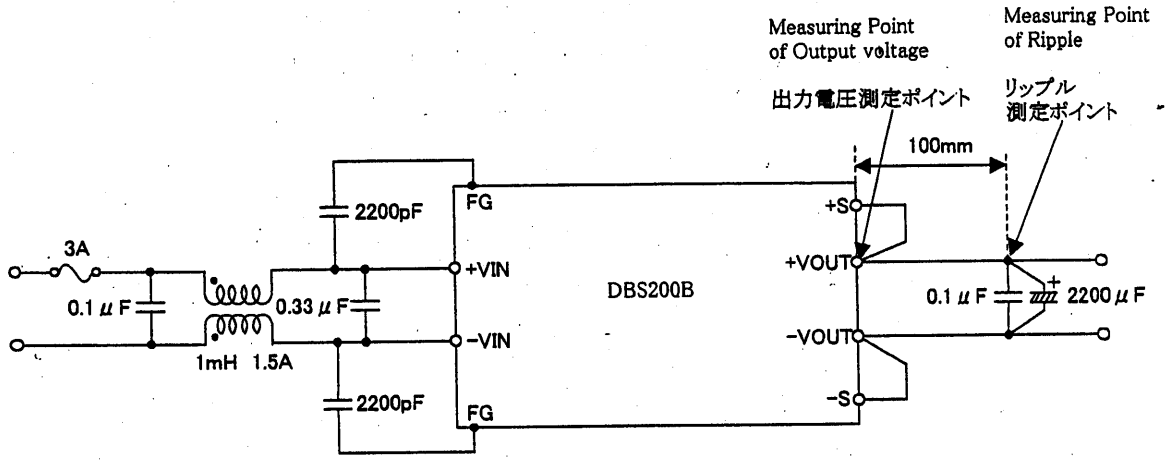


Figure B (General Electric Characteristic)
一般電気特性

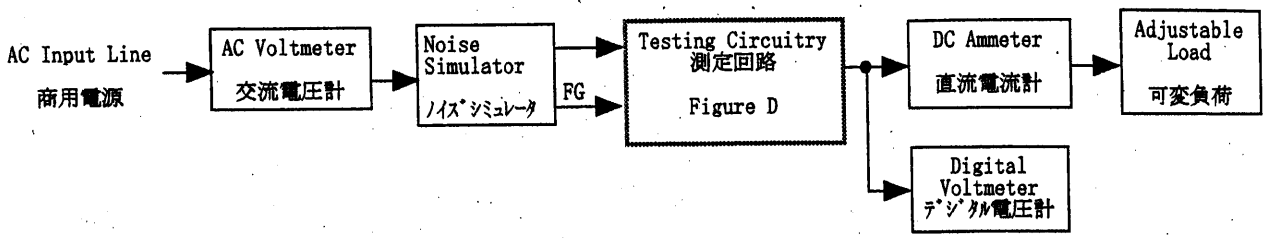


Figure C

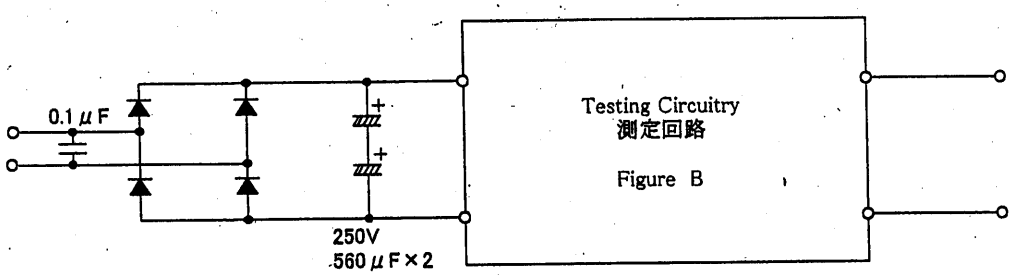


Figure D (Line Noise Tolerance)
入力雑音耐量