参考資料

COSEL

TEST DATA OF DBS400B15

(280V　INPUT)

Regulated DC Power Supply

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Approved by : Makoto Takashima
Design Manager

Prepared by : Satoshi Kinoshita
Design Engineer

コーセル株式会社

COSEL CO., LTD.

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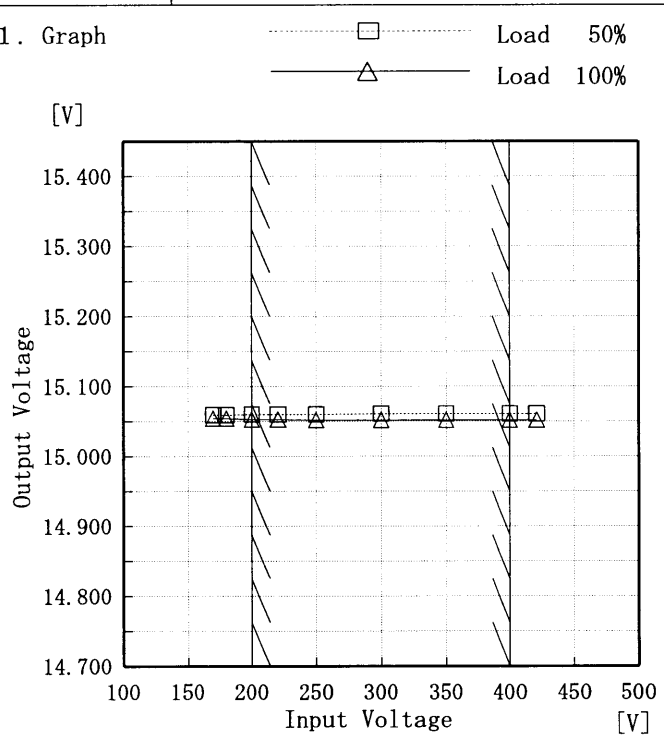


Note: Slanted line shows the range of the rated input voltage.

(注)斜線は定格入力電圧範囲を示す。

2. Values

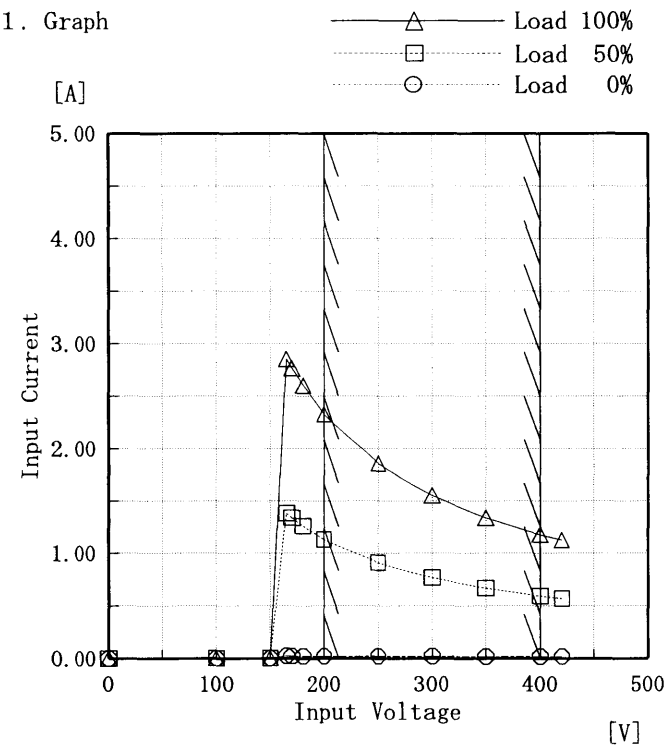
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	15.059	15.054
180	15.059	15.054
200	15.060	15.053
220	15.060	15.053
250	15.060	15.052
300	15.061	15.052
350	15.061	15.052
400	15.061	15.052
420	15.061	15.052

COSEL

Model	DBS400B15
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



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。

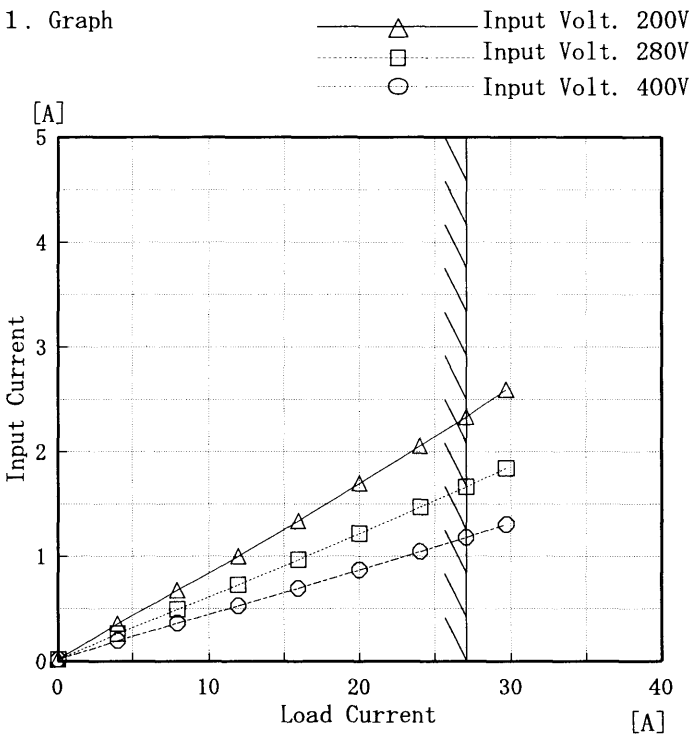
2. Values

Input Voltage [V]	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	0.002	0.002
165	0.022	1.380	2.849
170	0.021	1.338	2.762
180	0.021	1.261	2.600
200	0.020	1.133	2.326
250	0.019	0.913	1.856
300	0.019	0.769	1.551
350	0.018	0.668	1.337
400	0.017	0.592	1.177
420	0.018	0.567	1.125
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS400B15		
Item	Input Current (by Load Current) 入力電流 (負荷特性)	Temperature Testing Circuitry	25℃ 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

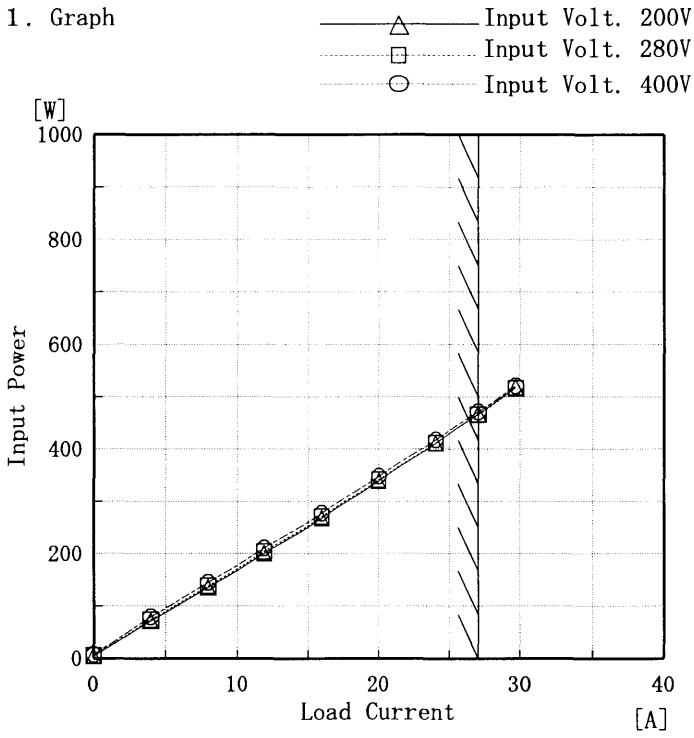
Load Current [A]	Input Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	0.020	0.019	0.018
4.0	0.356	0.265	0.198
8.0	0.675	0.495	0.363
12.0	1.002	0.728	0.527
16.0	1.339	0.967	0.694
20.0	1.696	1.218	0.870
24.0	2.056	1.471	1.046
27.0	2.333	1.665	1.179
29.7	2.592	1.843	1.304
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS400B15
Item	Input Power (by Load Current) 入力電力（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]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	4.10	5.30	7.10
4.0	71.30	74.10	79.20
8.0	135.10	138.60	145.20
12.0	200.50	203.80	210.60
16.0	267.80	270.60	277.40
20.0	339.00	341.10	348.00
24.0	411.00	411.80	418.00
27.0	467.00	466.00	471.00
29.7	518.00	516.00	521.00
—	—	—	—
—	—	—	—
—	—	—	—

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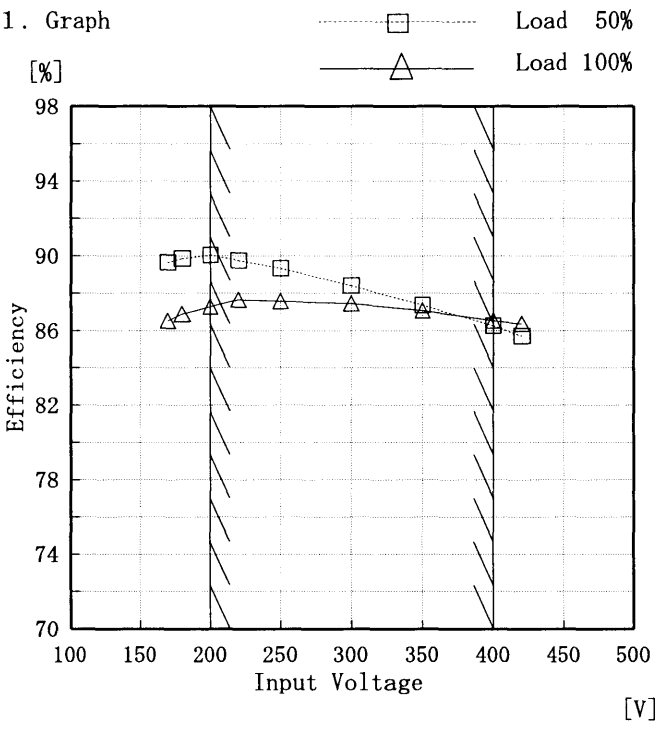
Model	DBS400B15
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	

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	89.6	86.5
180	89.9	86.9
200	90.0	87.3
220	89.8	87.6
250	89.3	87.6
300	88.4	87.5
350	87.4	87.1
400	86.3	86.5
420	85.7	86.4

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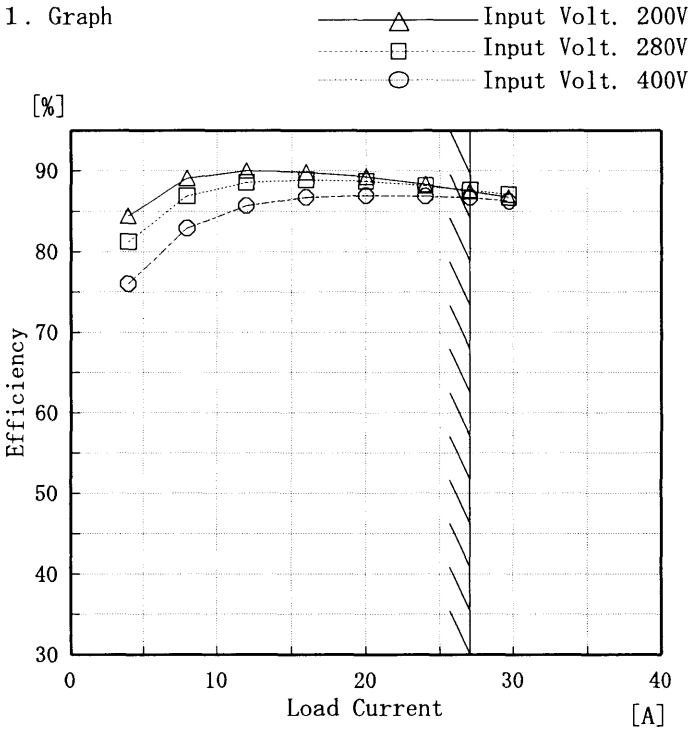
Model	DBS400B15		
Item	Efficiency (by Load Current) 効率（負荷特性）	Temperature Testing Circuitry	25℃ Figure A
Object	————		

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]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
4.0	84.4	81.2	76.0
8.0	89.1	86.9	82.9
12.0	90.0	88.6	85.7
16.0	89.8	88.9	86.7
20.0	89.3	88.7	87.0
24.0	88.4	88.2	86.9
27.0	87.5	87.7	86.7
29.7	86.7	87.1	86.2
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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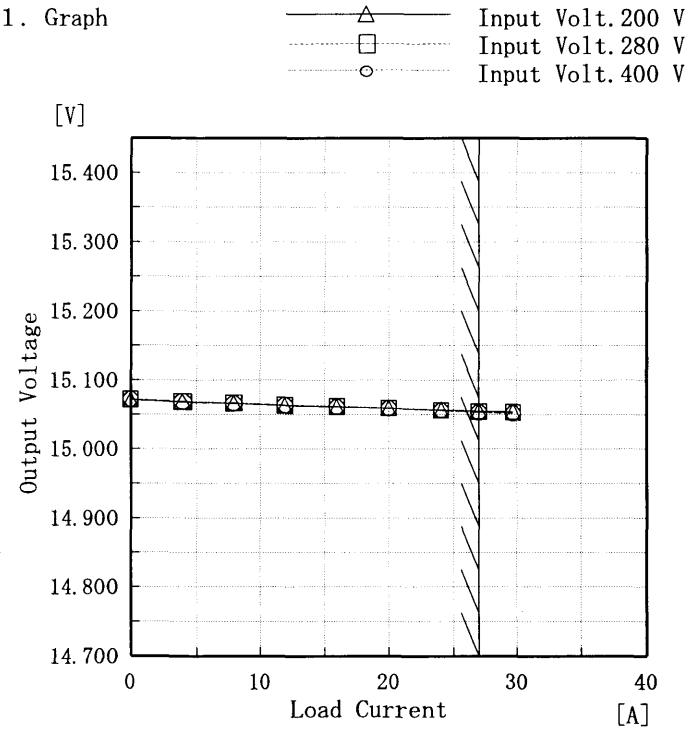
Model	DBS400B15
Item	Load Regulation 静的負荷変動
Object	+15.0V27A

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

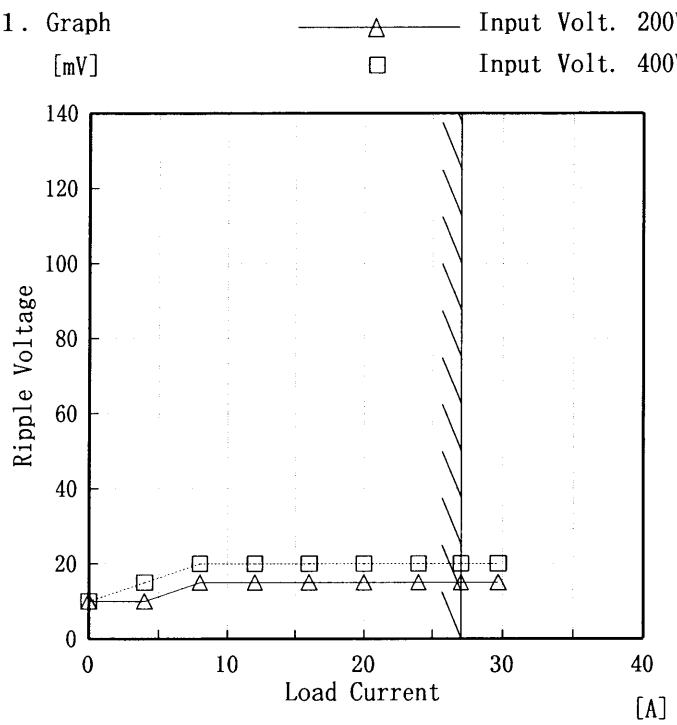
Load Current [A]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	15.071	15.072	15.072
4.0	15.068	15.069	15.069
8.0	15.066	15.067	15.066
12.0	15.063	15.064	15.064
16.0	15.061	15.062	15.061
20.0	15.059	15.059	15.059
24.0	15.057	15.056	15.056
27.0	15.055	15.054	15.053
29.7	15.054	15.053	15.052
—	—	—	—

COSEL

Model	DBS400B15
Item	Ripple Voltage(by Load Current) リップル電圧(負荷特性)
Object	+15V27A

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。

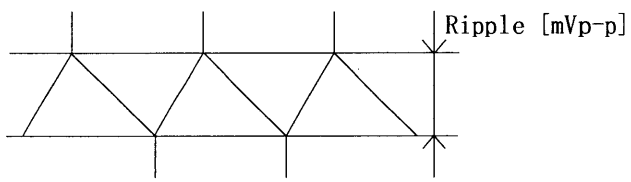


図　リップル波形図

2. Values

Load Current [A]	Ripple Output Volt. [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	10	10
4.0	10	15
8.0	15	20
12.0	15	20
16.0	15	20
20.0	15	20
24.0	15	20
27.0	15	20
29.7	15	20
—	—	—
—	—	—

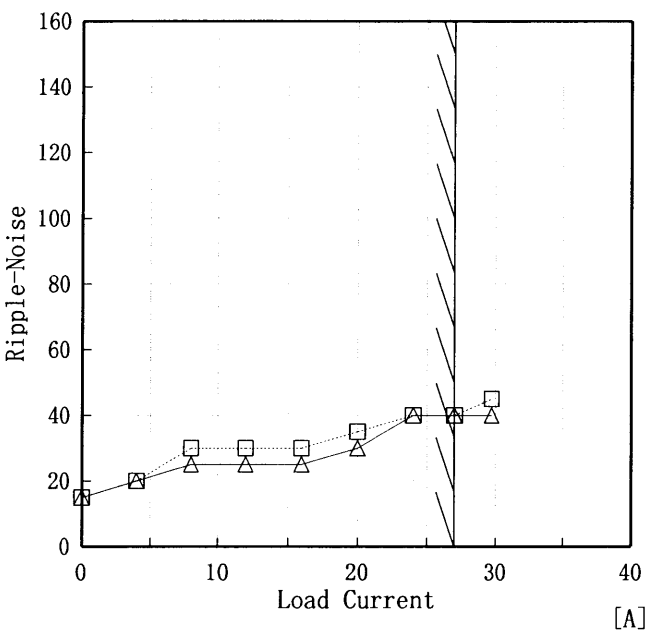
COSEL

Model	DBS400B15
Item	Ripple-Noise　リップルノイズ
Object	+15V27A

Temperature　25℃
Testing Circuitry　Figure A

1. Graph

△ Input Volt.200V
□ Input Volt.400V



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。

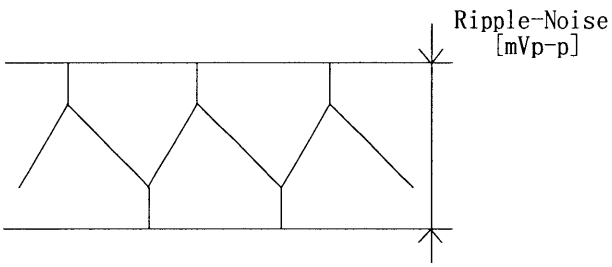


図　リップルノイズ波形図

2. Values

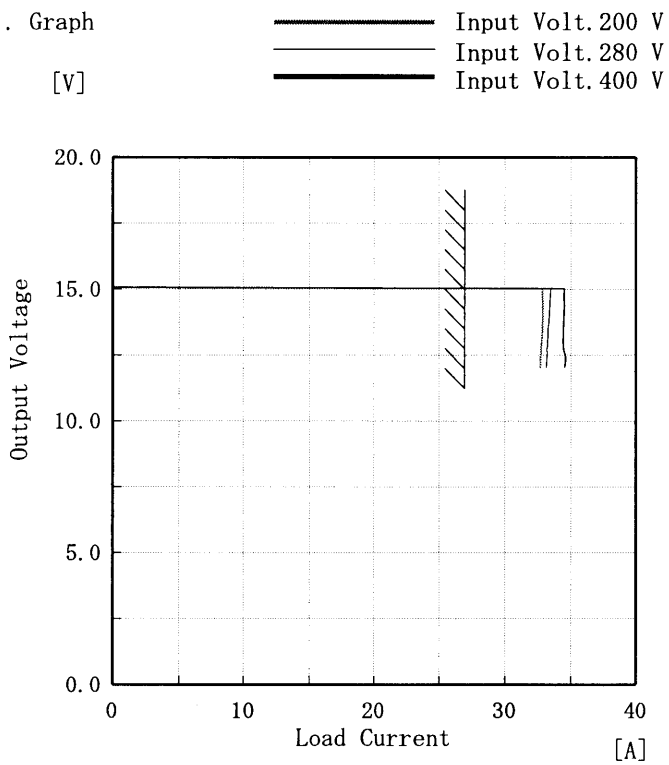
Load current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	15	15
4.0	20	20
8.0	25	30
12.0	25	30
16.0	25	30
20.0	30	35
24.0	40	40
27.0	40	40
29.7	40	45
—	—	—
—	—	—

COSEL

Model	DBS400B15
Item	Overcurrent Protection 過電流保護
Object	+15.0V27A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated load current.
Intermittent operation occurs when the output voltage is from 12V to 0V.

(注)斜線は定格負荷電流範囲を示す。
12V～0V間は、間欠モードとなる。

2. Values

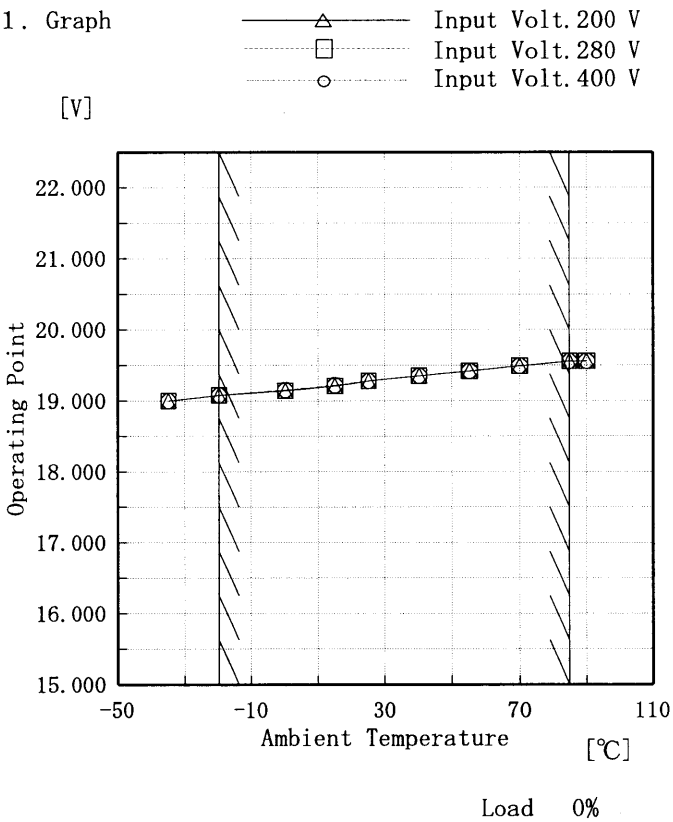
Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
15.00	32.92	33.49	34.48
14.25	32.93	33.41	34.48
13.50	32.90	33.30	34.42
12.00	32.73	33.18	34.51
10.50	—	—	—
9.00	—	—	—
7.50	—	—	—
6.00	—	—	—
4.50	—	—	—
3.00	—	—	—
1.50	—	—	—
0.00	—	—	—

COSEL

Model	DBS400B15
Item	Overvoltage Protection 過電圧保護
Object	+15.0V27A

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 Temperature [℃]	Operating Point [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	19.00	19.00	19.00
-20	19.08	19.08	19.08
0	19.14	19.14	19.15
15	19.21	19.21	19.22
25	19.28	19.28	19.28
40	19.35	19.35	19.35
55	19.42	19.42	19.42
70	19.49	19.49	19.49
85	19.56	19.56	19.56
90	19.56	19.56	19.56
—	—	—	—

COSEL

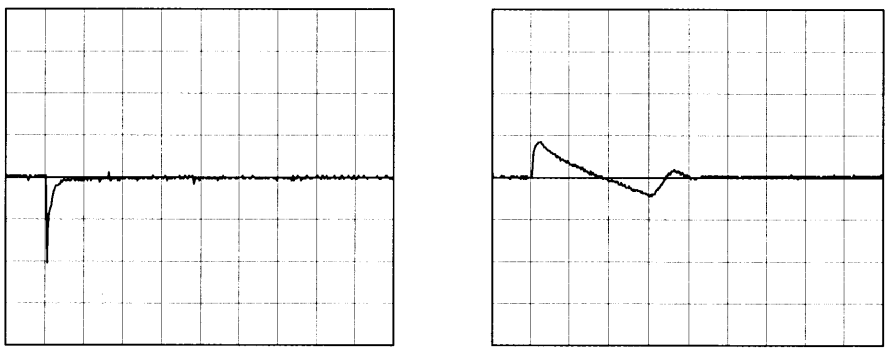
Model	DBS400B15		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+15V27A		

Input Volt. 280 V

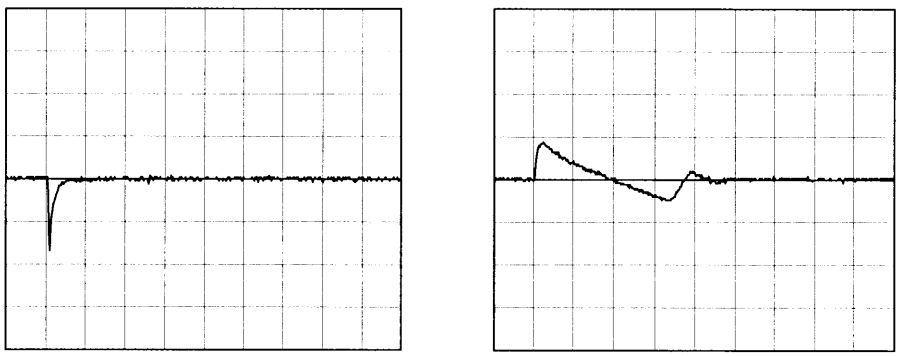
Cycle 1000 mS

Load Current

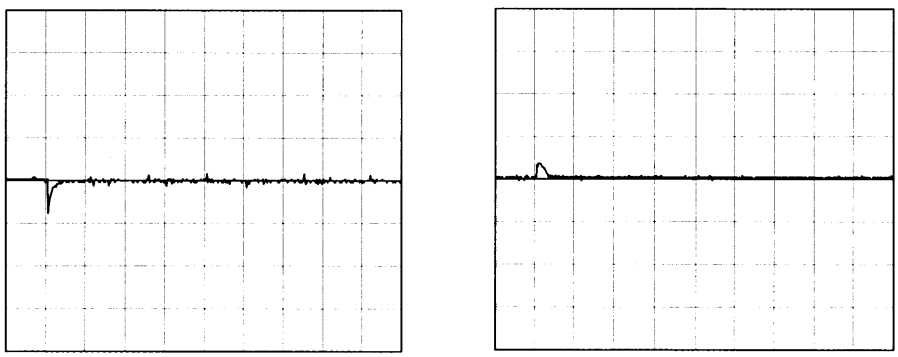
Min. Load (0.0A) ⟷
Load 100% (27.0A)



Min. Load (0.0A) ⟷
Load 50% (13.5A)



Load 10% (2.7A) ⟷
Load 100% (27.0A)

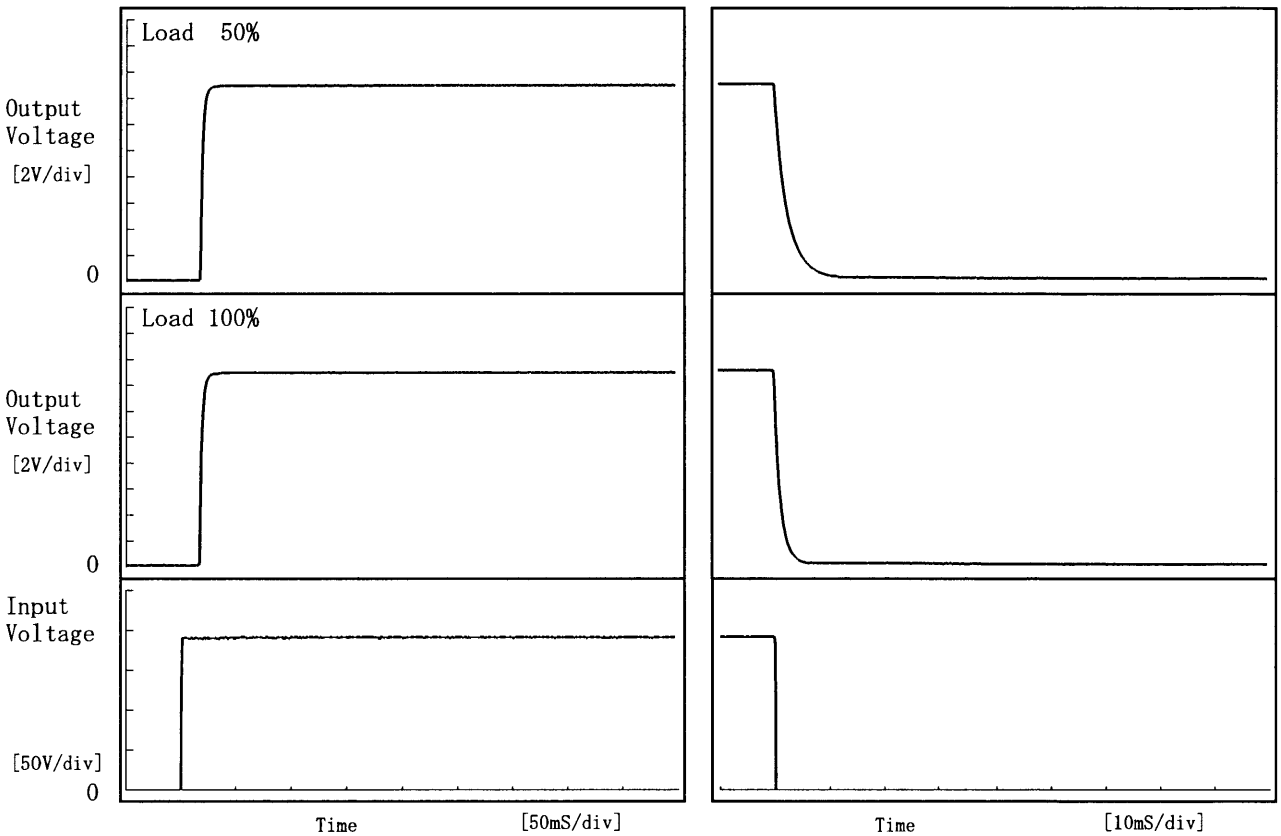


COSEL

Model	DBS400B15		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+15.0V27A		

1. Graph

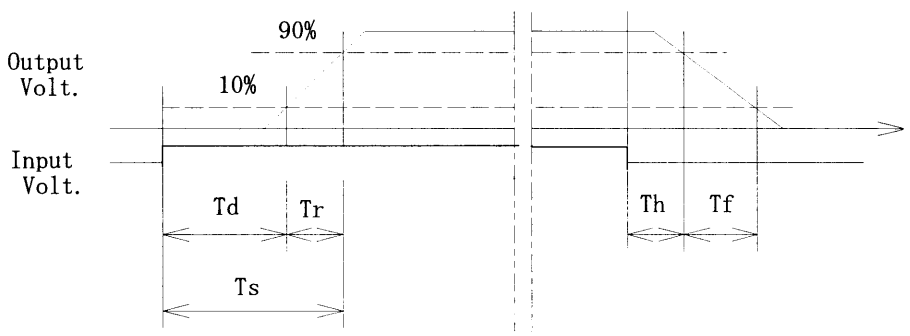
Input Volt. 200 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	17.50	4.50	22.00	0.20	5.55
100 %	17.50	4.50	22.00	0.10	2.70

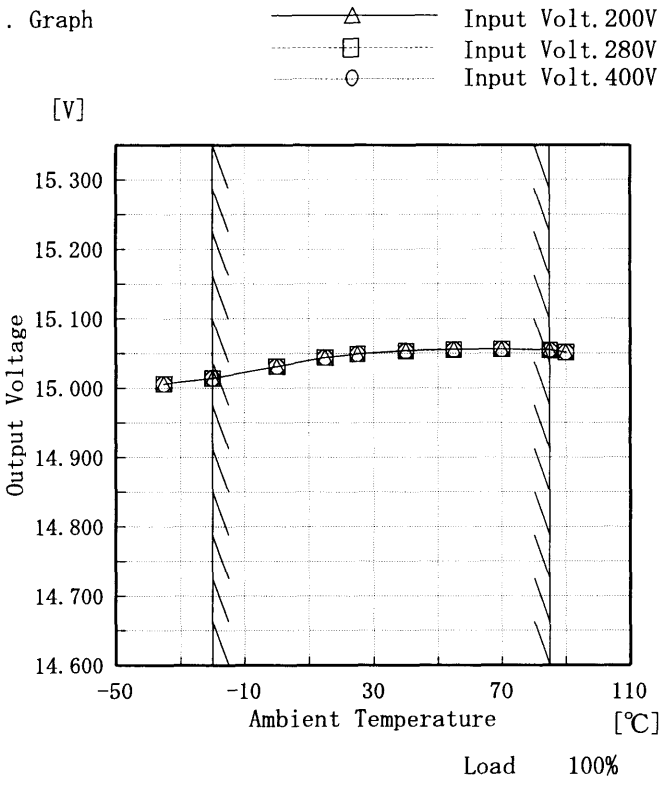


COSEL

Model	DBS400B15
Item	Ambient Temperature Drift 周囲温度変動
Object	+15.0V27A

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

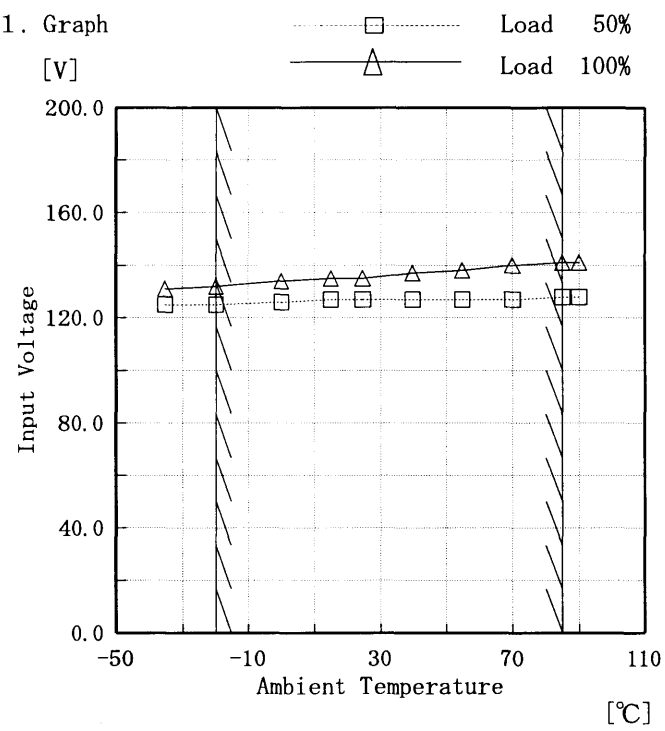
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	15.006	15.006	15.006
-20	15.014	15.014	15.014
0	15.031	15.031	15.031
15	15.044	15.044	15.044
25	15.049	15.049	15.049
40	15.054	15.053	15.053
55	15.056	15.055	15.055
70	15.056	15.056	15.056
85	15.055	15.054	15.054
90	15.051	15.051	15.051
—	—	—	—

COSEL

Model	DBS400B15
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+15.0V27A

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

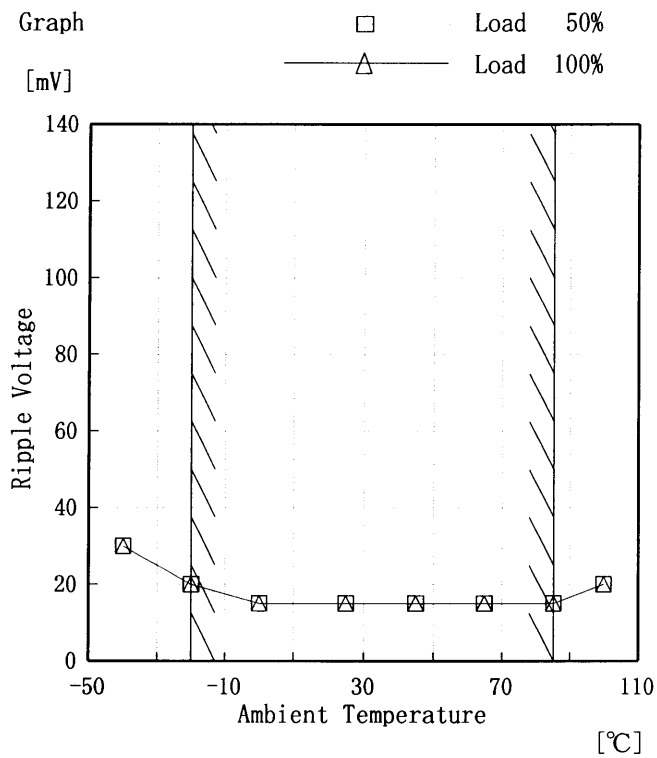
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-35	125	131
-20	125	132
0	126	134
15	127	135
25	127	135
40	127	137
55	127	138
70	127	140
85	128	141
90	128	141
—	—	—

COSEL

Model	DBS400B15
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+15V27A

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

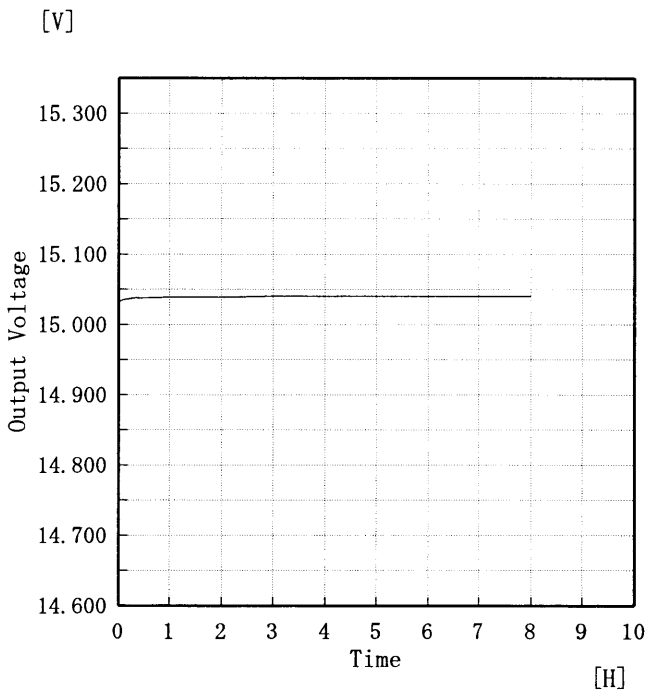
Ambient Temp. [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	30	30
-20	20	20
0	15	15
25	15	15
45	15	15
65	15	15
85	15	15
100	20	20
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS400B15
Item	Time Lapse Drift 経時ドリフト
Object	+15.0V27A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Input Volt. 280V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	15.038
0.5	15.038
1.0	15.039
2.0	15.039
3.0	15.040
4.0	15.040
5.0	15.040
6.0	15.040
7.0	15.040
8.0	15.040

COSEL

Model	DBS400B15	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+15.0V27A	

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 : -20～85 ℃
Input Voltage : 200～400 V
Load Current : 0～27 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 -20～85 ℃
入力電圧 200～400 V
負荷電流 0～27 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 [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	25	400	0	15.073	±28	±0.2
Minimum Voltage	-20	400	27	15.017		

COSEL

Model	DBS400B15	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+15V27A	

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]	15.061	Input Volt.: 280V, Load Current:27A
Line Regulation [mV]	1	Input Volt.: 200～400V, Load Current:27A
Load Regulation [mV]	19	Input Volt.: 280V, Load Current:0～27A

COSEL

Model	DBS400B15		
Item	Line Noise Tolerance 入力雑音耐量	Temperature Testing Circuitry	25℃ Figure C
Object	+15V27A		

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

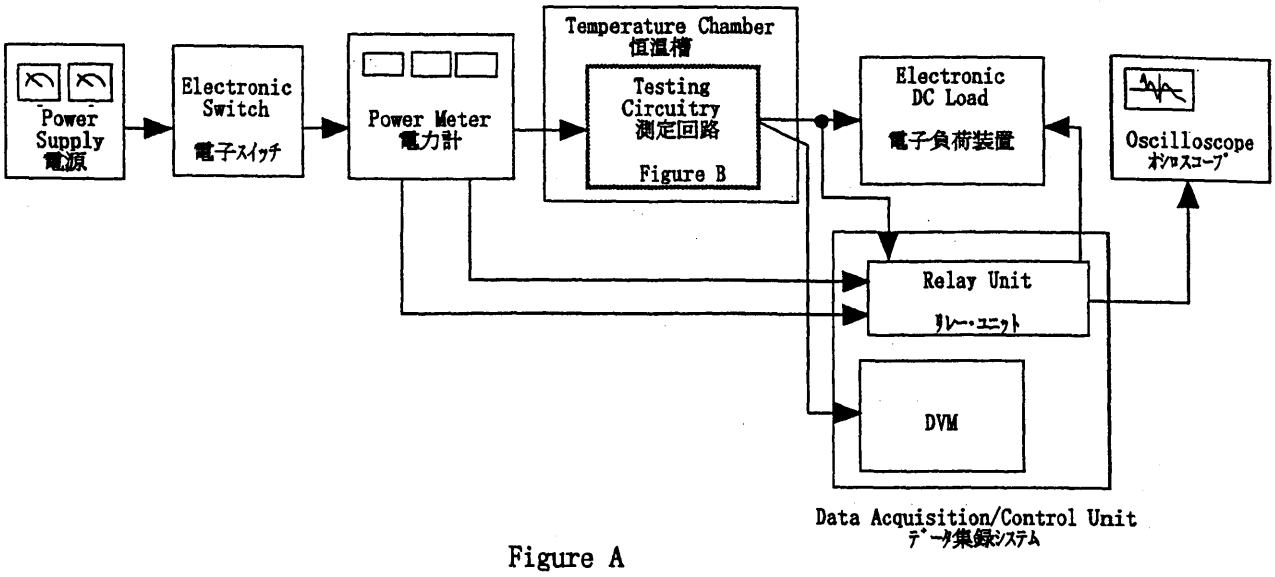


Figure A

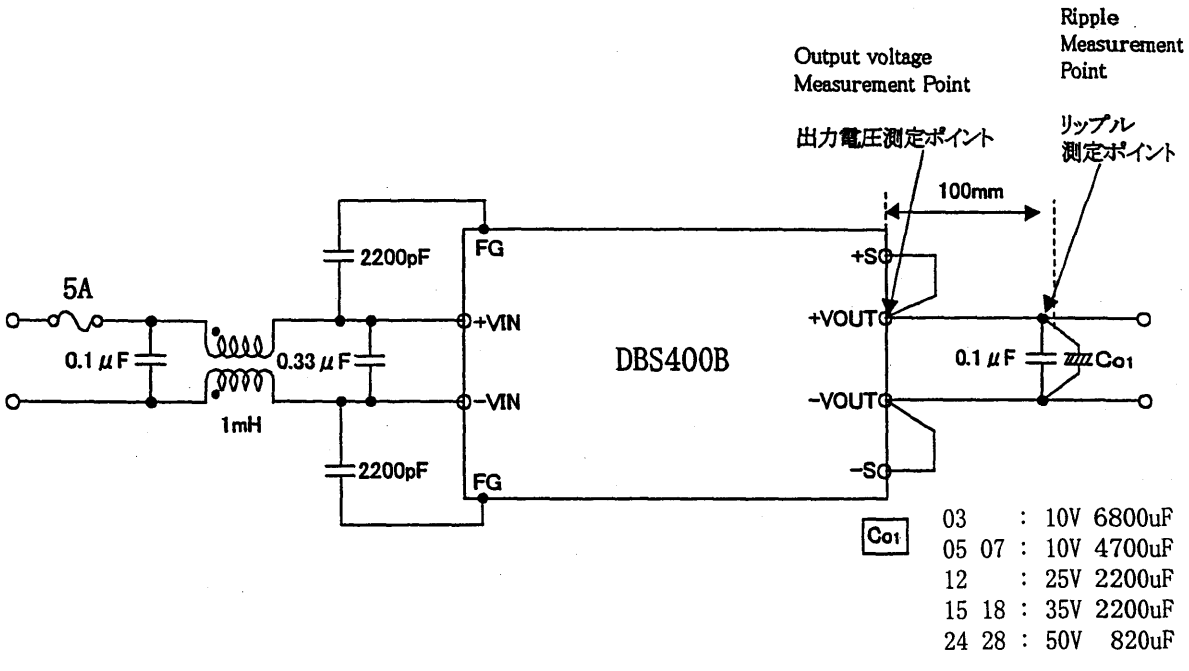


Figure B (General Electric Characteristic)
一般電気特性

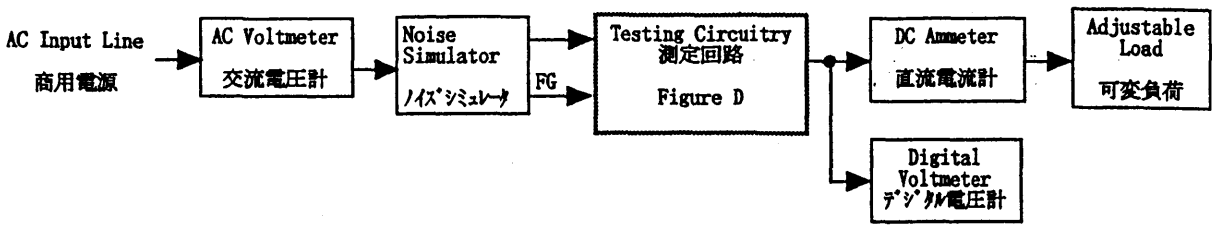


Figure C

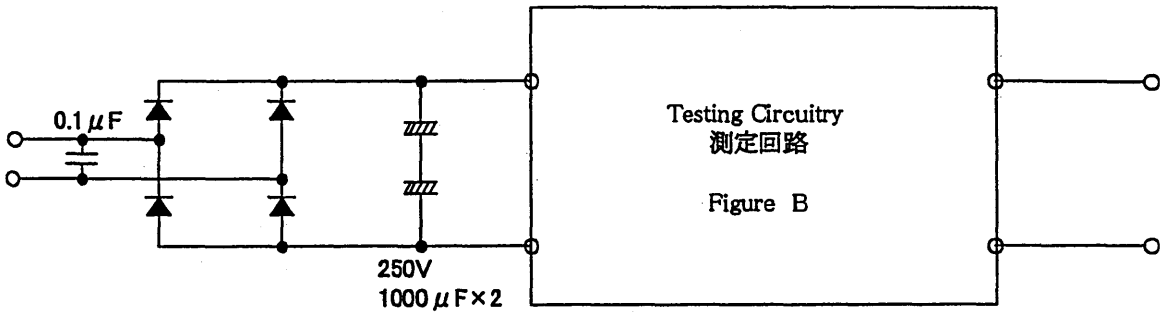


Figure D (Line Noise Tolerance)
入力雑音耐量