参考資料

COSEL

TEST DATA OF DBS400B12

(280V INPUT)

Regulated DC Power Supply

Date : July 9. 1999

Approved by : J. Yasuda
Design Manager

Prepared by : T. Fukuda
Design Engineer

コーセル株式会社

COSEL CO.,LTD.

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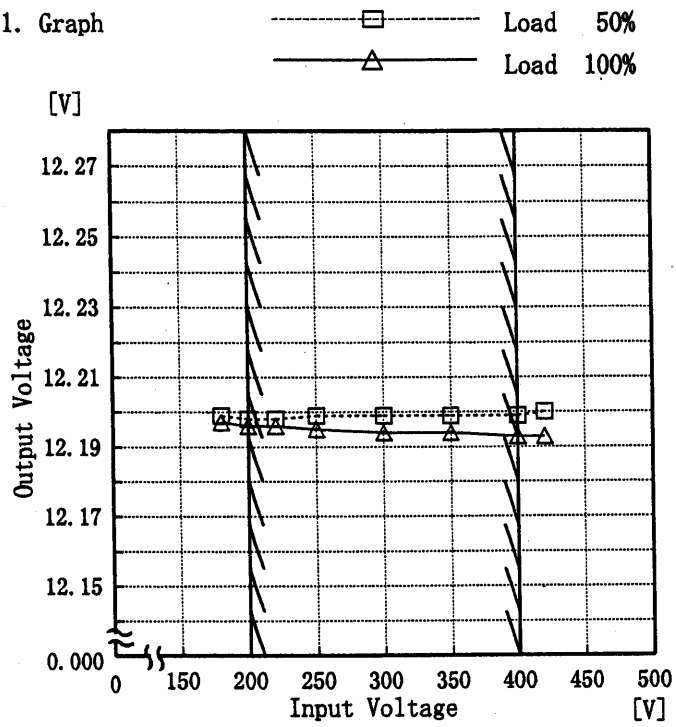


Note: Slanted line shows the range of the rated input voltage.

(注)斜線は定格入力電圧範囲を示す。

2. Values

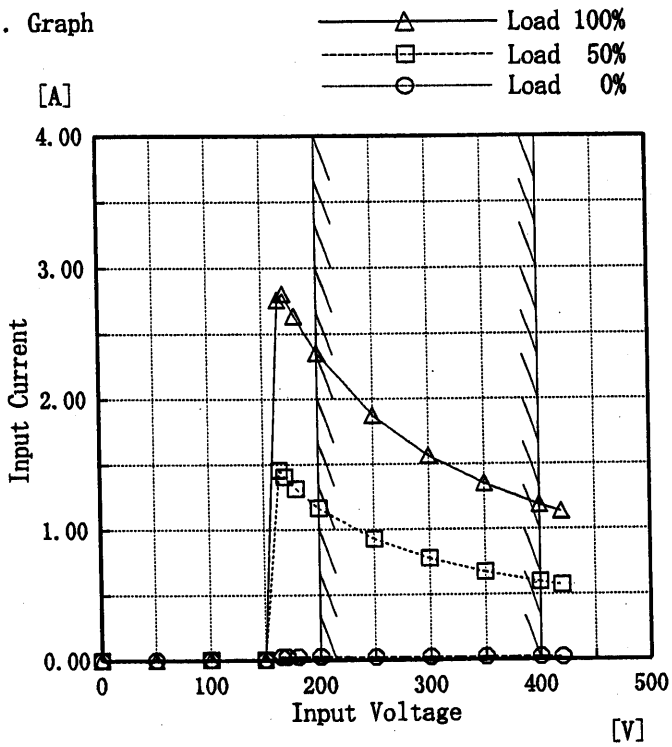
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
180	12.199	12.197
200	12.198	12.196
220	12.198	12.196
250	12.199	12.195
300	12.199	12.194
350	12.199	12.194
400	12.199	12.193
420	12.200	12.193
—	—	—

COSEL

Model	DBS400B12
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

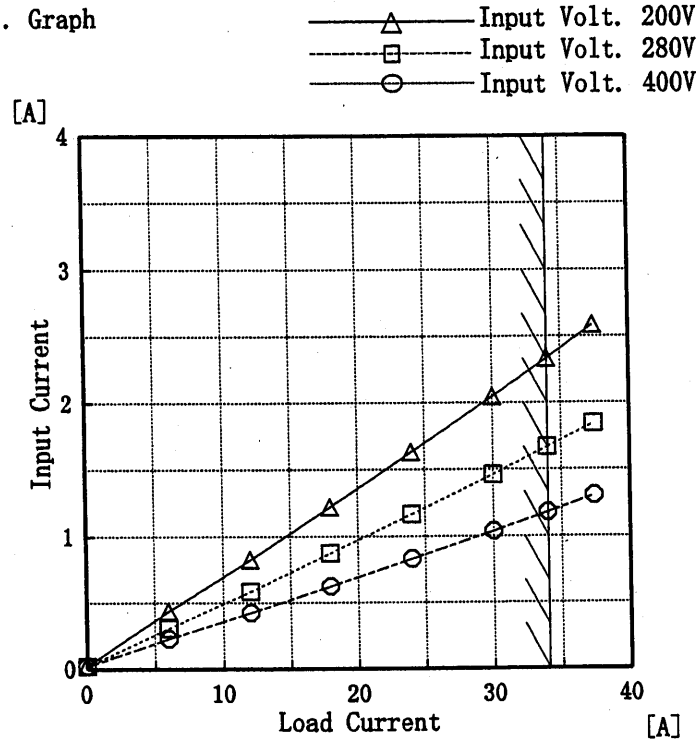
Input Volt. [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
50	0.000	0.000	0.000
100	0.002	0.002	0.002
150	0.003	0.003	0.003
165	0.025	1.458	2.756
170	0.025	1.405	2.805
180	0.024	1.313	2.631
200	0.023	1.166	2.348
250	0.021	0.928	1.874
300	0.020	0.780	1.566
350	0.020	0.676	1.349
400	0.019	0.598	1.187
420	0.019	0.572	1.135
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS400B12
Item	Input Current (by Load Current) 入力電流（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

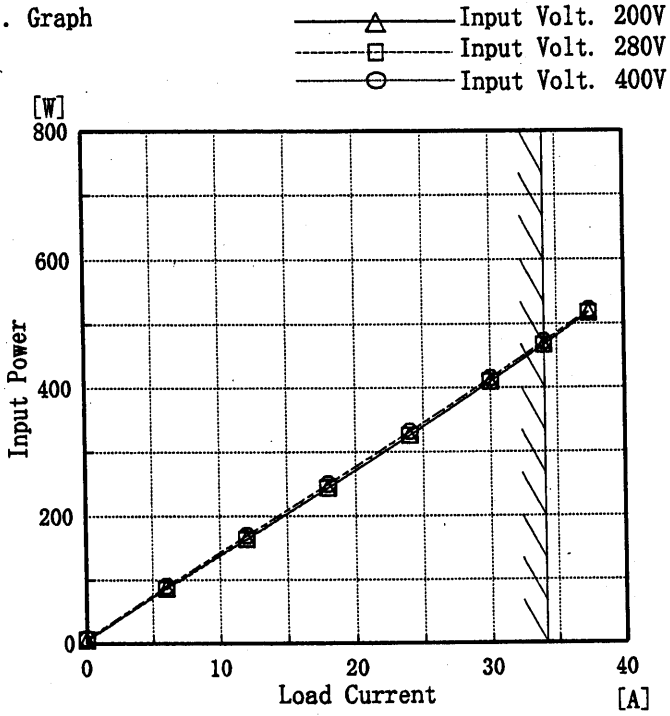
Load Current [A]	Input Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	0.02	0.02	0.02
6	0.44	0.31	0.23
12	0.82	0.59	0.42
18	1.22	0.87	0.63
24	1.63	1.16	0.83
30	2.05	1.46	1.04
34	2.33	1.67	1.18
37	2.59	1.84	1.30
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS400B12
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

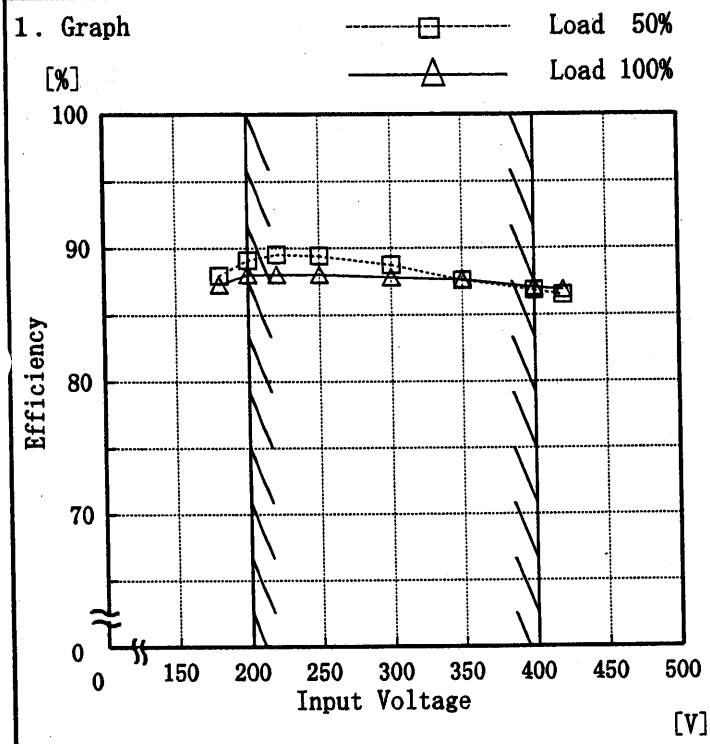
Load Current [A]	Input Power [W] Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	5	6	8
6	87	86	91
12	165	164	170
18	244	244	250
24	326	326	332
30	410	410	415
34	467	467	472
37	518	517	521
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	DBS400B12
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

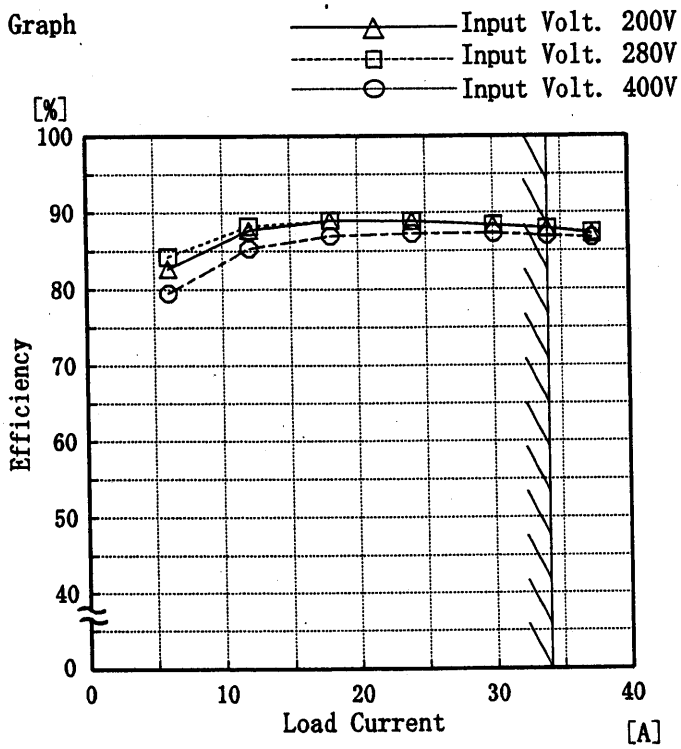
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
180	88.0	87.3
200	89.1	88.1
220	89.5	88.1
250	89.4	88.0
300	88.8	87.8
350	87.6	87.6
400	86.9	87.1
420	86.5	86.9
—	—	—

COSEL

Model	DBS400B12
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]
6.0	82.7	84.2	79.5
12.0	87.7	88.2	85.3
18.0	89.0	89.0	86.9
24.0	88.9	88.9	87.3
30.0	88.3	88.4	87.2
34.0	87.9	87.9	86.9
37.4	87.2	87.4	86.6
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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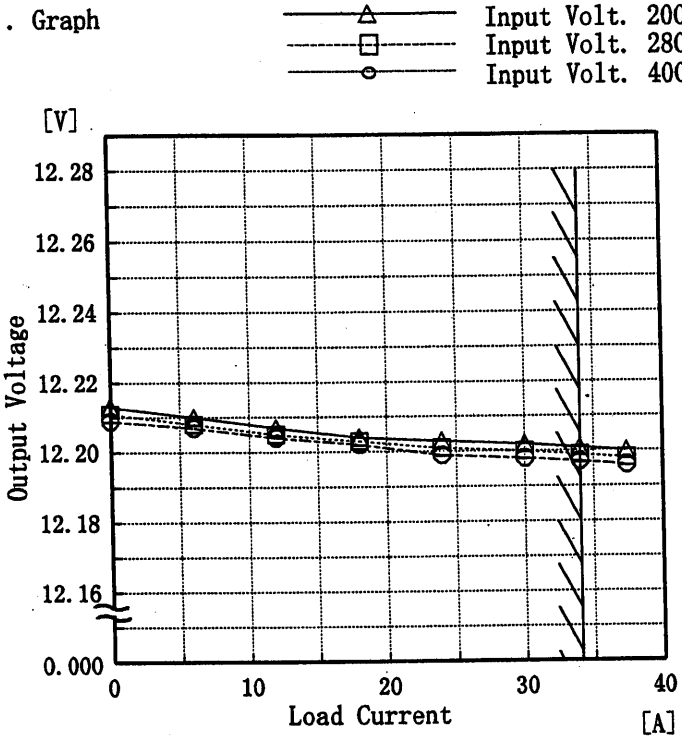
Model	DBS400B12
Item	Load Regulation 静的負荷変動
Object	+12.0V34A

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

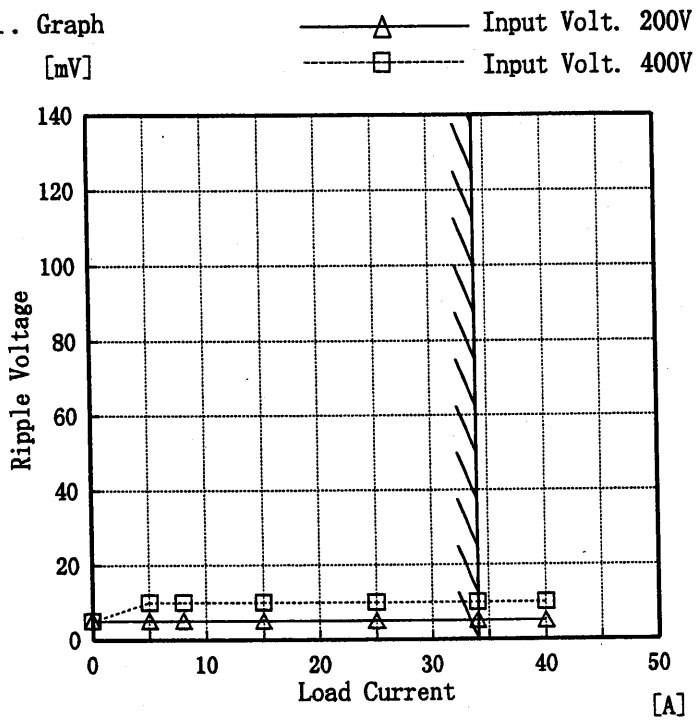
Load Current [A]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	12.213	12.211	12.209
6	12.210	12.208	12.207
12	12.207	12.205	12.204
18	12.204	12.203	12.202
24	12.203	12.201	12.199
30	12.202	12.200	12.198
34	12.201	12.199	12.197
37	12.200	12.198	12.196
—	—	—	—
—	—	—	—

COSEL

Model	DBS400B12
Item	Ripple Voltage(by Load Current) リップル電圧(負荷特性)
Object	+12.0V34A

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。

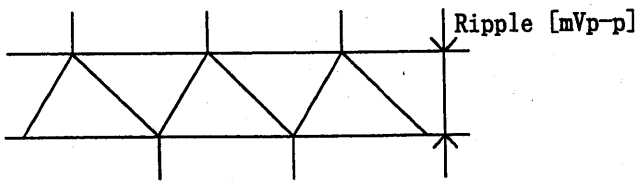


図　リップル波形図

2. Values

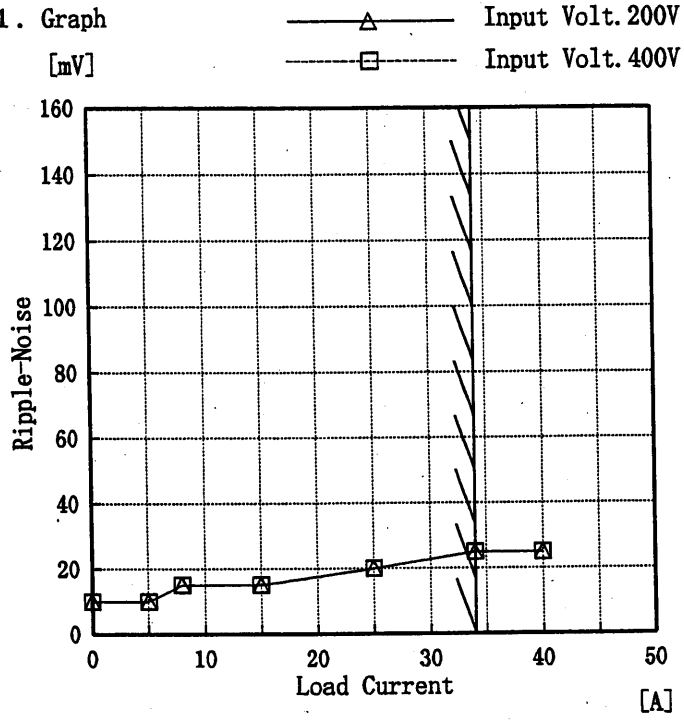
Load Current [A]	Ripple Output Volt. [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	5	5
5	5	10
8	5	10
15	5	10
25	5	10
34	5	10
40	5	10
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS400B12
Item	Ripple-Noise リップルノイズ
Object	+12.0V34A

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。

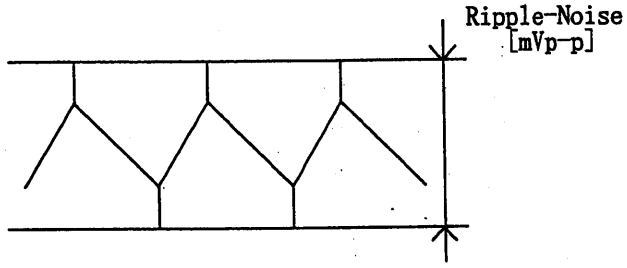


図　リップルノイズ波形図

2. Values

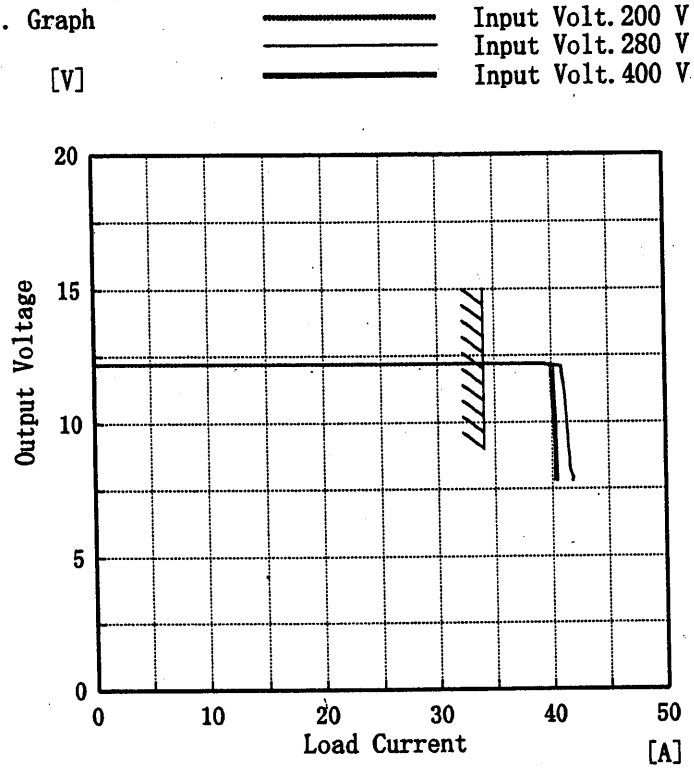
Load current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	10	10
5	10	10
8	15	15
15	15	15
25	20	20
34	25	25
40	25	25
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS400B12
Item	Overcurrent Protection 過電流保護
Object	+12.0V34A

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

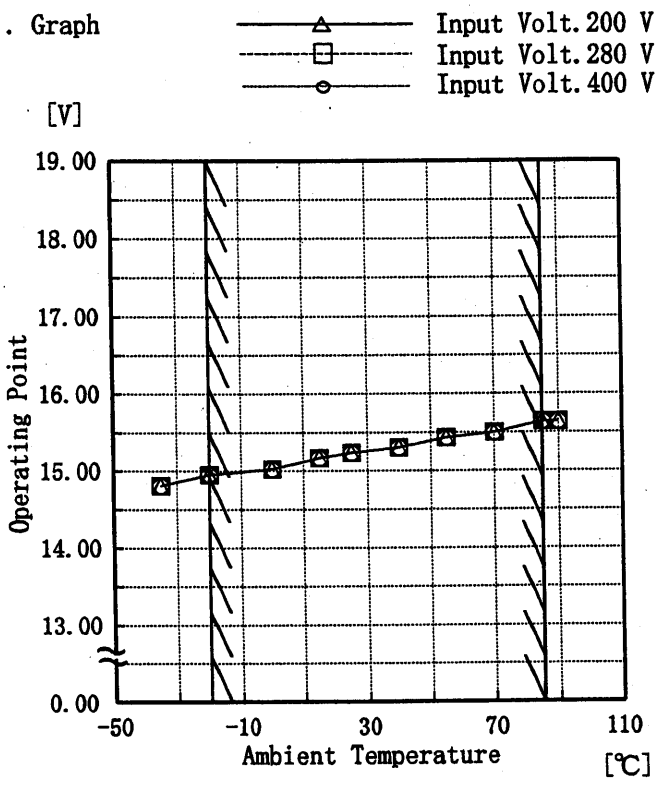
Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
12.00	39.95	40.20	40.87
11.40	39.96	40.22	41.03
10.80	40.04	40.28	41.19
9.60	40.19	40.41	41.38
8.40	40.26	40.47	41.57
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–

COSEL

Model	DBS400B12
Item	Overvoltage Protection 過電圧保護
Object	+12.0V34A

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	14.81	14.81	14.81
-20	14.95	14.95	14.95
0	15.02	15.02	15.02
15	15.16	15.16	15.16
25	15.23	15.23	15.23
40	15.30	15.30	15.30
55	15.43	15.43	15.43
70	15.50	15.50	15.50
85	15.64	15.64	15.64
90	15.64	15.64	15.64
—	—	—	—

COSEL

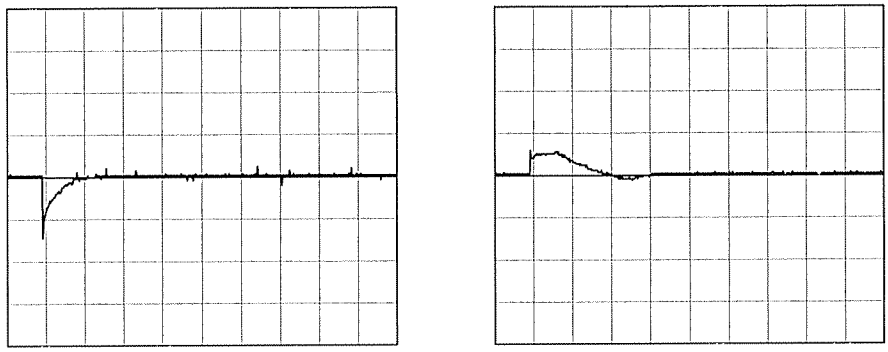
Model	DBS400B12		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+12.0V34A		

Input Volt. 280 V

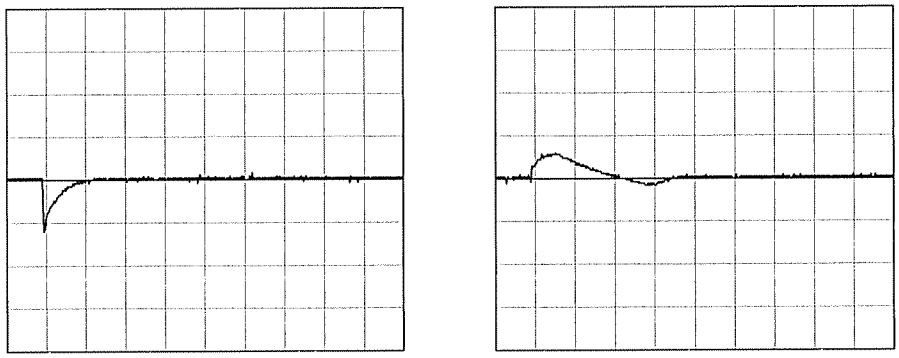
Cycle 1000 mS

Load Current

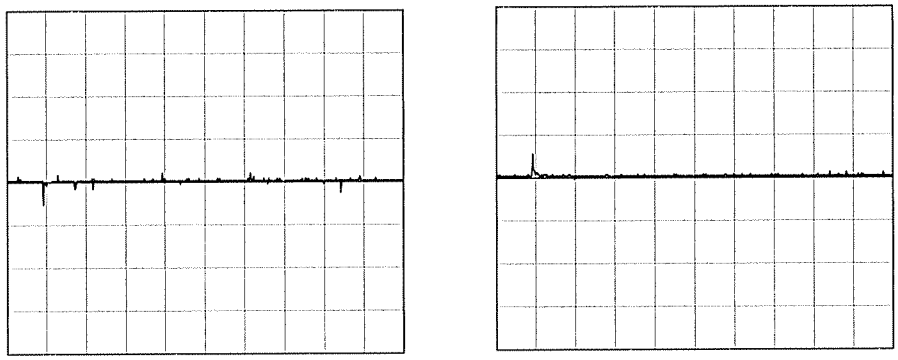
Min. Load (0.0A) ⟷
Load 100% (34.0A)



Min. Load (0.0A) ⟷
Load 50% (17.0A)



Load 10% (3.4A) ⟷
Load 100% (34.0A)



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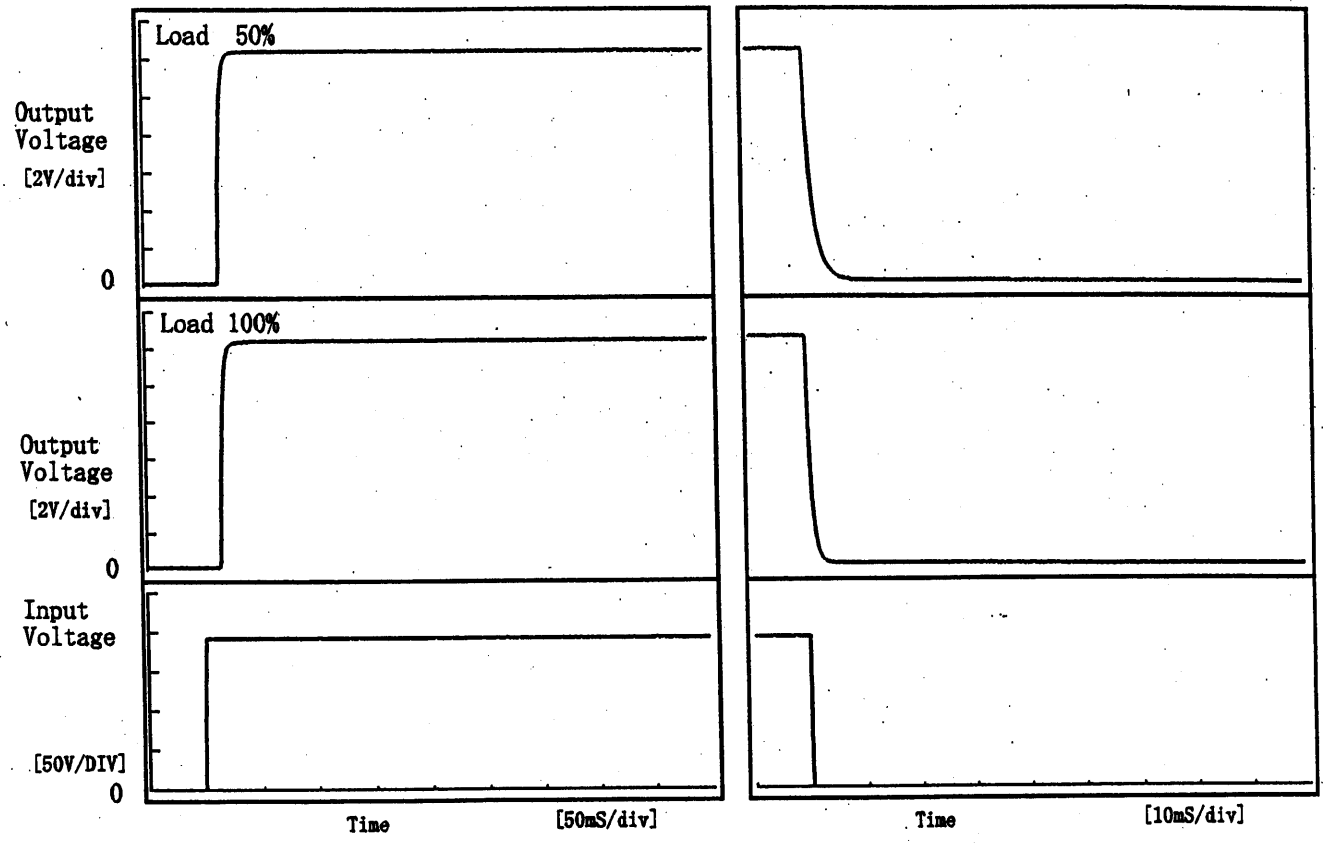
Model	DBS400B12		
Item	Rise and Fall Time 立上り、立下り時間	Temperature	25℃
		Testing Circuitry	Figure A
Object	+12.0V34A		

1. Graph

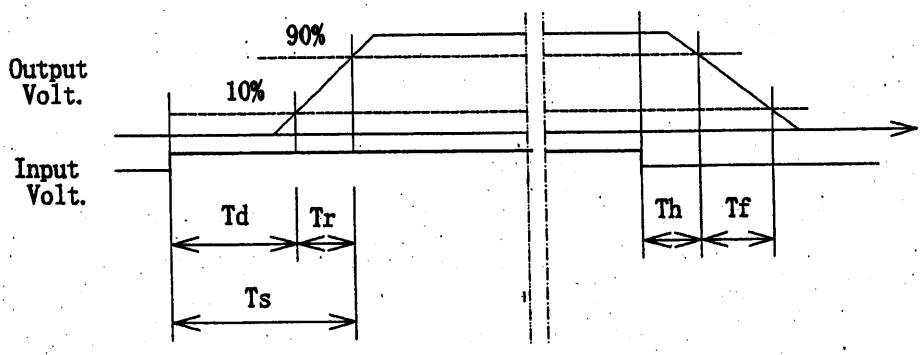
Input Volt. 200 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	15.00	4.25	19.25	0.2	3.55
100 %	15.00	4.50	19.50	0.1	1.75



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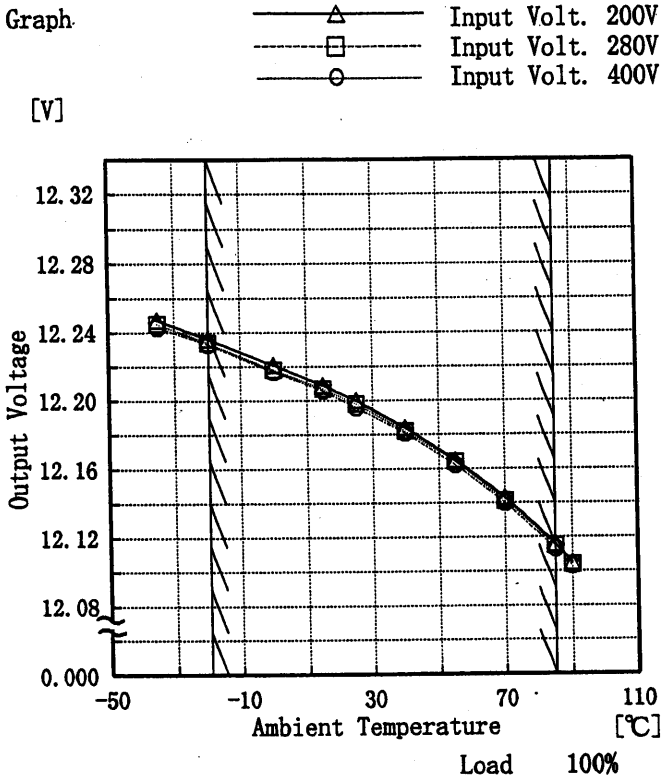
COSEL

Model	DBS400B12
Item	Ambient Temperature Drift 周囲温度変動
Object	+12.0V34A

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

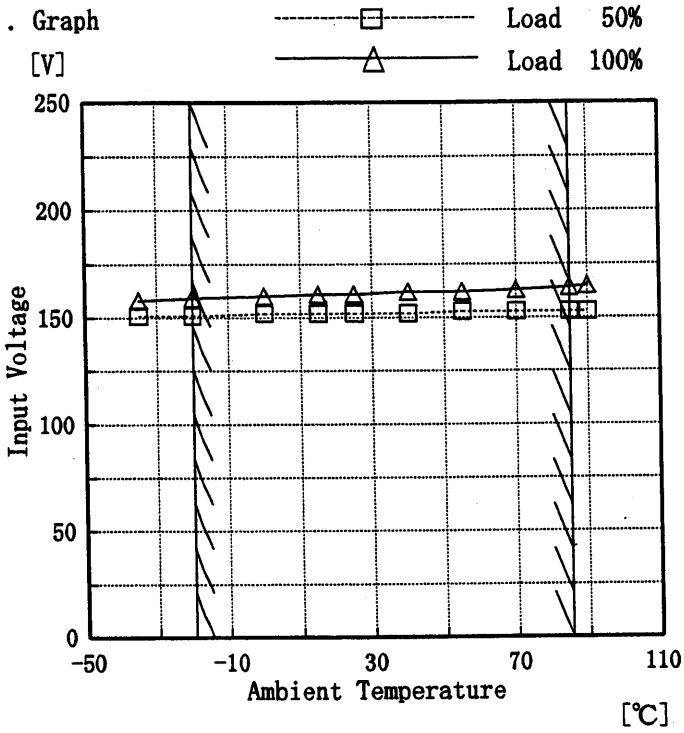
Temperature [℃]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	12.247	12.245	12.243
-20	12.236	12.234	12.233
0	12.221	12.218	12.217
15	12.209	12.207	12.206
25	12.200	12.198	12.196
40	12.184	12.182	12.181
55	12.165	12.164	12.162
70	12.143	12.141	12.140
85	12.116	12.115	12.113
90	12.105	12.104	12.103
—	—	—	—

COSEL

Model	DBS400B12
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+12.0V34A

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

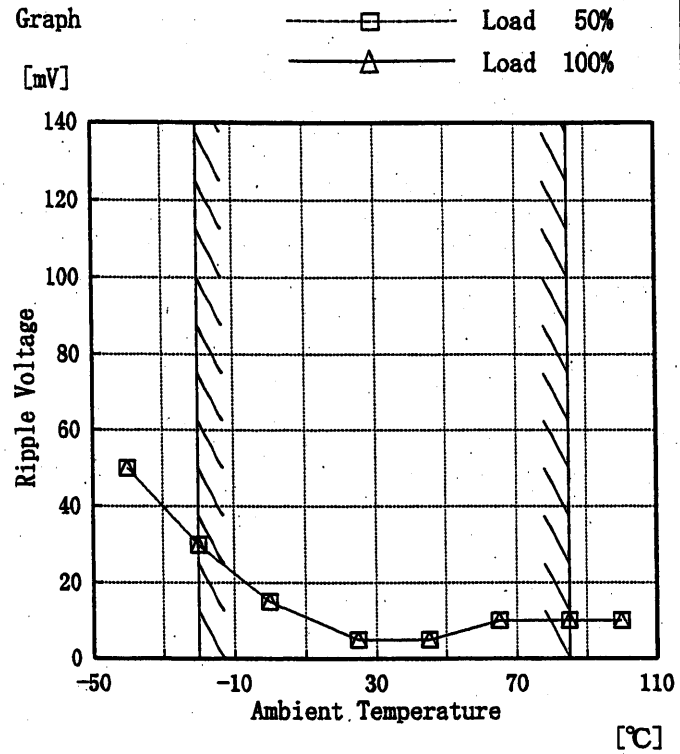
Ambient Temp. [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-35	151	158
-20	151	159
0	152	160
15	152	161
25	152	161
40	152	162
55	153	162
70	153	163
85	153	164
90	153	165
—	—	—

COSEL

Model	DBS400B12
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+12.0V34A

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

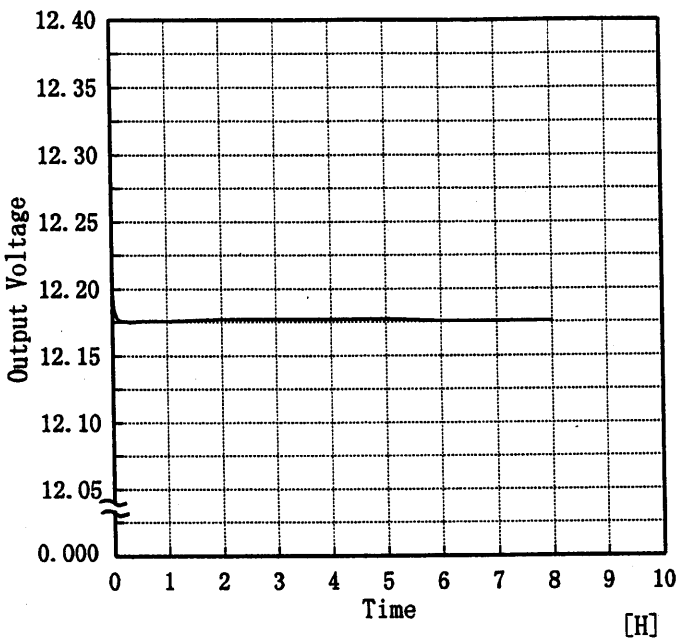
Ambient Temp. [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	50	50
-20	30	30
0	15	15
25	5	5
45	5	5
65	10	10
85	10	10
100	10	10
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS400B12
Item	Time Lapse Drift 経時ドリフト
Object	+12.0V34A

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph



Input Volt. 280V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	12.203
0.5	12.176
1.0	12.176
2.0	12.177
3.0	12.177
4.0	12.177
5.0	12.177
6.0	12.176
7.0	12.176
8.0	12.176

COSEL

Model	DBS400B12	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+12.0V34A	

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 : 0.00～34.00 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 0.00～34.00 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	400	0.00	12.249	±70	±0.6
Minimum Voltage	85	400	34.00	12.110		

COSEL

Model	DBS400B12	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+12.0V34A	

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]	12.271	Input Volt.: 280V, Load Current:34A
Line Regulation [mV]	3	Input Volt.: 200～400V, Load Current:34A
Load Regulation [mV]	8	Input Volt.: 280V, Load Current:0～34A

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Model	DBS400B12		
Item	Line Noise Tolerance 入力雑音耐量	Temperature Testing Circuitry	25℃ Figure C
Object	+12.0V34A		

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

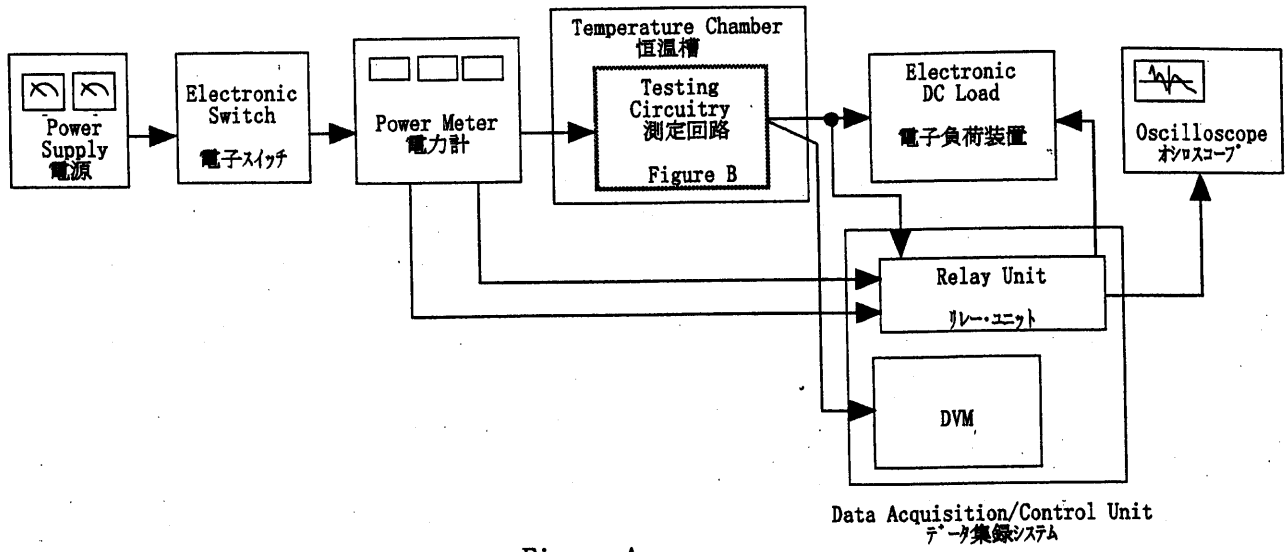

Figure A

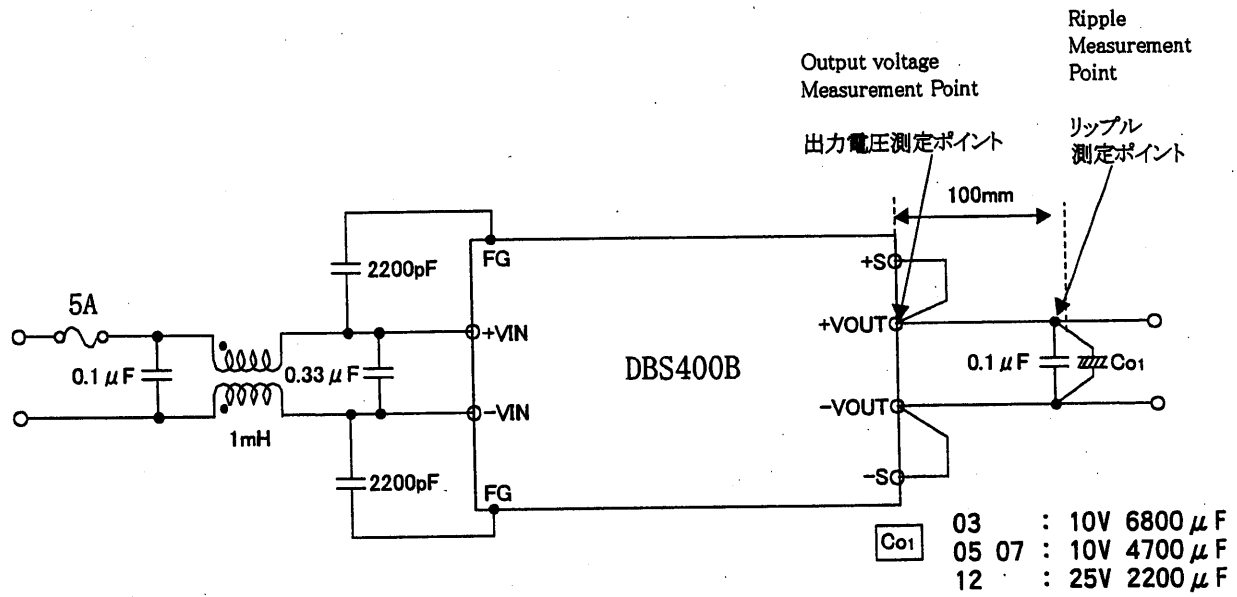

Figure B (General Electric Characteristic)
一般電気特性

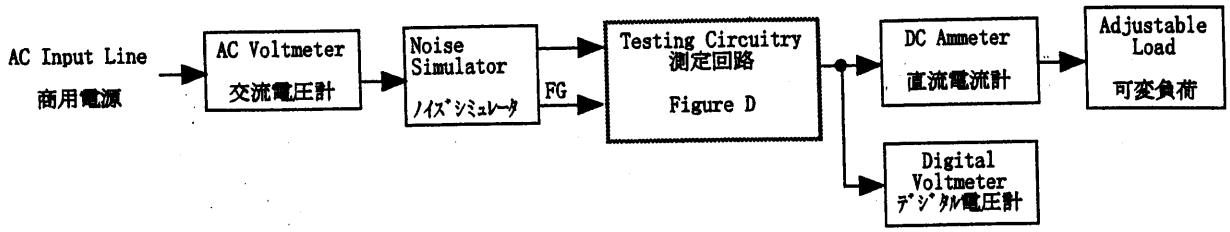

Figure C

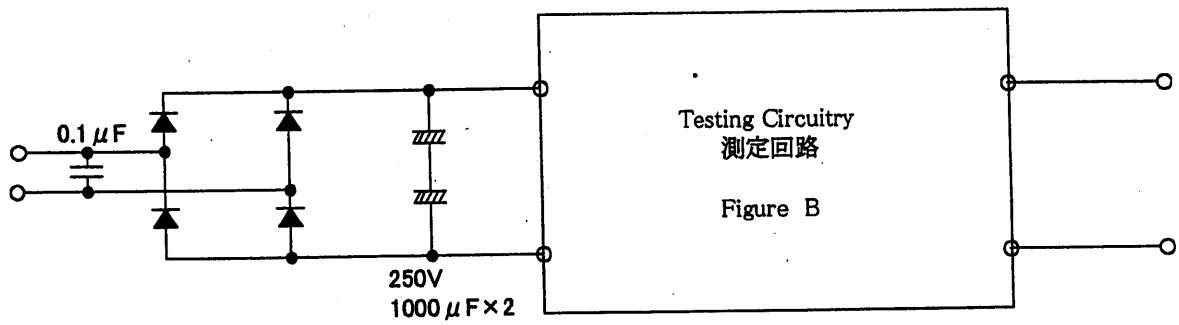

Figure D (Line Noise Tolerance)
入力雑音耐量