COSEL

TEST DATA OF DBS200B05

(280V   INPUT)

Regulated DC Power Supply

Date : Apr. 16. 1999

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コーセル株式会社

COSEL CO., LTD.

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CONTENTS

(Final Page　22)

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Model	DBS200B05
Item	Line Regulation 静的入力変動
Object	+5.0V40A

Temperature　　25℃
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%
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

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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

△ —— Load 100%
□ ----- Load 50%
○ .... Load 0%

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
—	—	—	—
—	—	—	—
—	—	—	—

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

Temperature   25℃
Testing Circuitry   Figure A
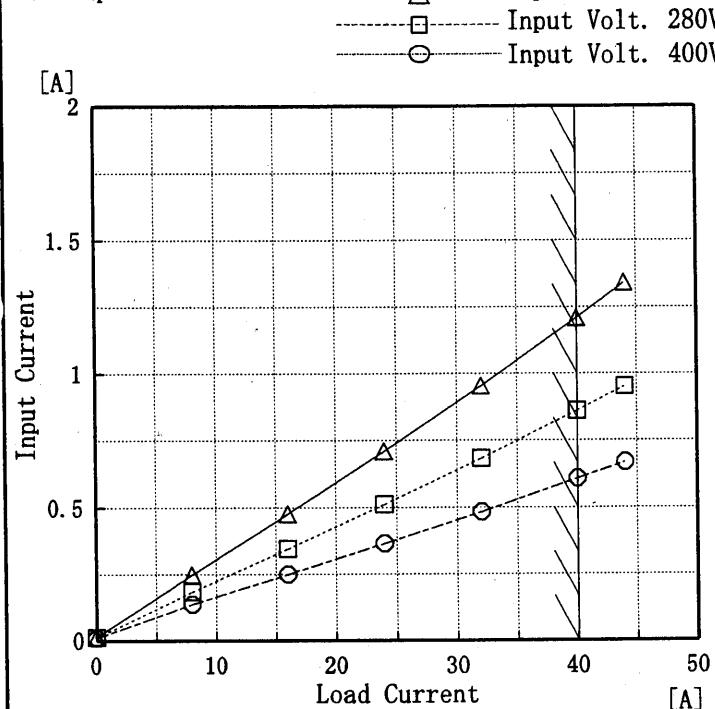
1. Graph

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

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	Input Current		[A]
	Input Volt.	Input Volt.	Input Volt.
[A]	200[V]	280[V]	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
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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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

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

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
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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

Temperature   25℃
Testing Circuitry   Figure A

1. Graph

- □ ------- Load 50%
- △ ———— Load 100%

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

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。

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Model	DBS200B05
Item	Efficiency (by Load Current) 効率（負荷特性）
Object	————————
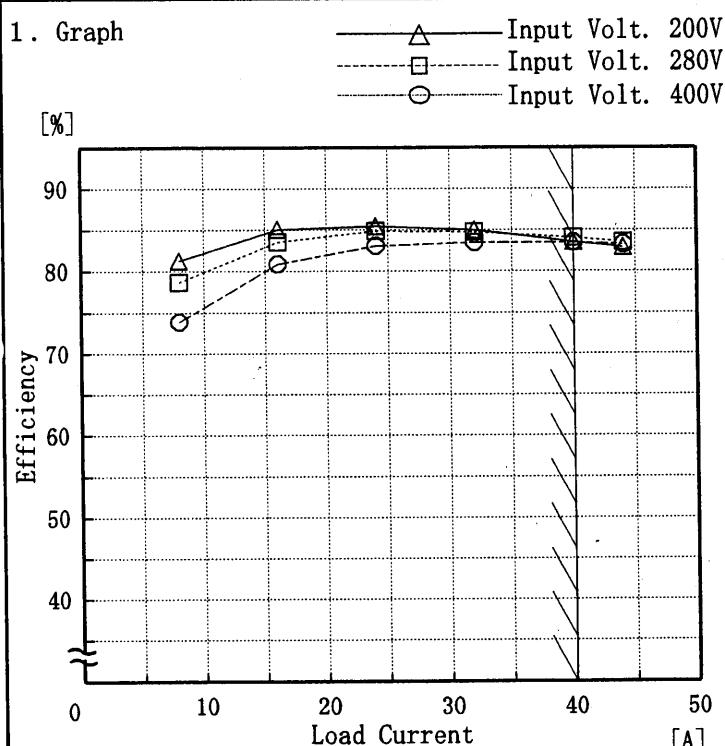
Temperature　　　25℃
Testing Circuitry　Figure A

1. Graph

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

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	Efficiency	[%]	
	Input Volt.	Input Volt.	Input Volt.
[A]	200[V]	280[V]	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
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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

Temperature　　　25℃
Testing Circuitry　　Figure A

1. Graph

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

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
—	—	—	—
—	—	—	—
—	—	—	—

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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

————△———— Input Volt. 200V

--------□-------- Input Volt. 400V

[mV]

2. Values

Load Current	Ripple Output Volt. [mV]	
[A]	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
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

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。

Ripple [mVp-p]

図　リップル波形図

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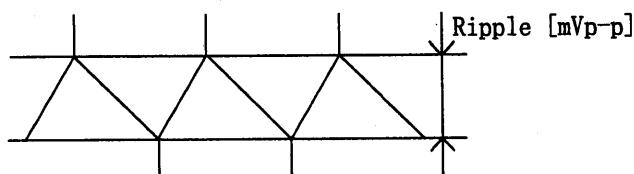
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Model	DBS200B05
Item	Ripple-Noise　リップルノイズ
Object	＋5.0Ｖ40Ａ

Temperature　　　25℃
Testing Circuitry　Figure A

1. Graph

[mV]

——△—— 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。

Ripple-Noise
[mVp-p]

図　リップルノイズ波形図
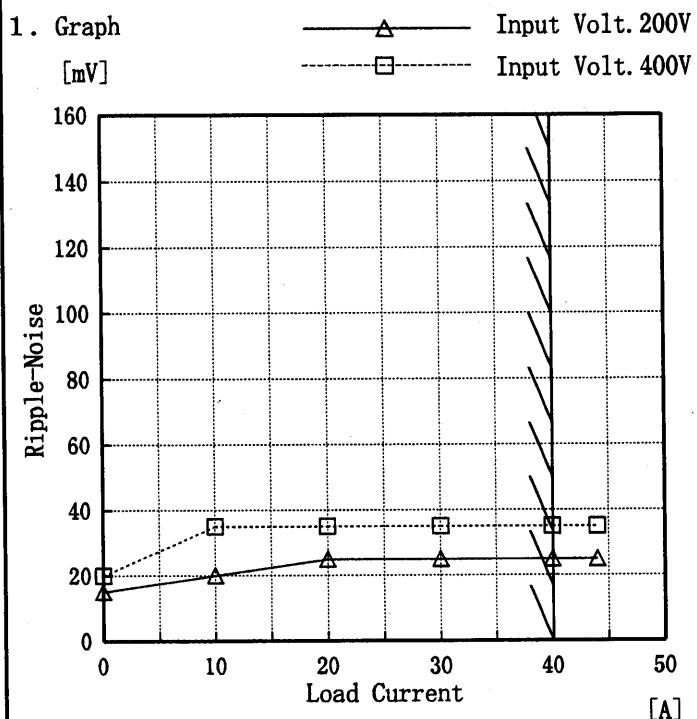
2. Values

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
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

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

Temperature   25℃
Testing Circuitry Figure A

1. Graph

▪▪▪▪▪▪▪	Input Volt. 200 V
———	Input Volt. 280 V
━━━	Input Volt. 400 V

[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]
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
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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

Testing Circuitry　　Figure A

1. Graph

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

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
—	—	—	—

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

Input Volt.   280 V
Cycle   1000 mS

Load Current
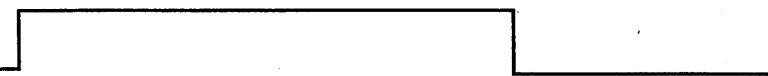
Min. Load (0.0A) ←→
Load 100% (40.0A)
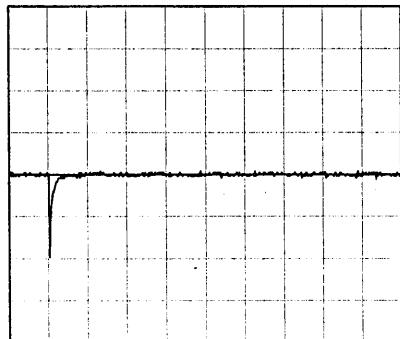
500 mV/div
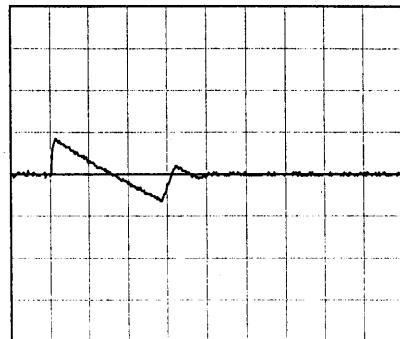
5 ms/div

Min. Load (0.0A) ←→
Load 50% (20.0A)
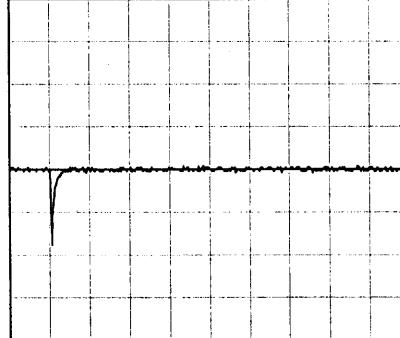
500 mV/div
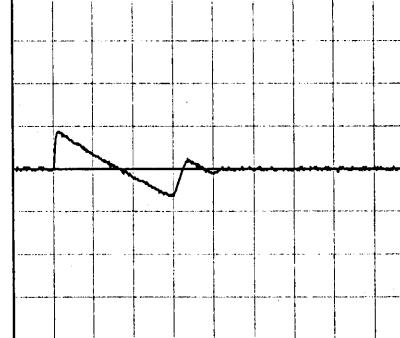
5 ms/div

Load 10% (4.0A) ←→
Load 100% (40.0A)

500 mV/div

5 ms/div

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Model	DBS200B05
Item	Rise and Fall Time 立上り、立下り時間
Object	＋5.0V40A

Temperature	25℃
Testing Circuitry	Figure A

1. Graph

Input Volt. 200 V

Load 50%

Output Voltage [1V/div]

Load 100%

Output Voltage [1V/div]

Input Voltage

[50V/DIV]

Time [50mS/div]

Time [10mS/div]
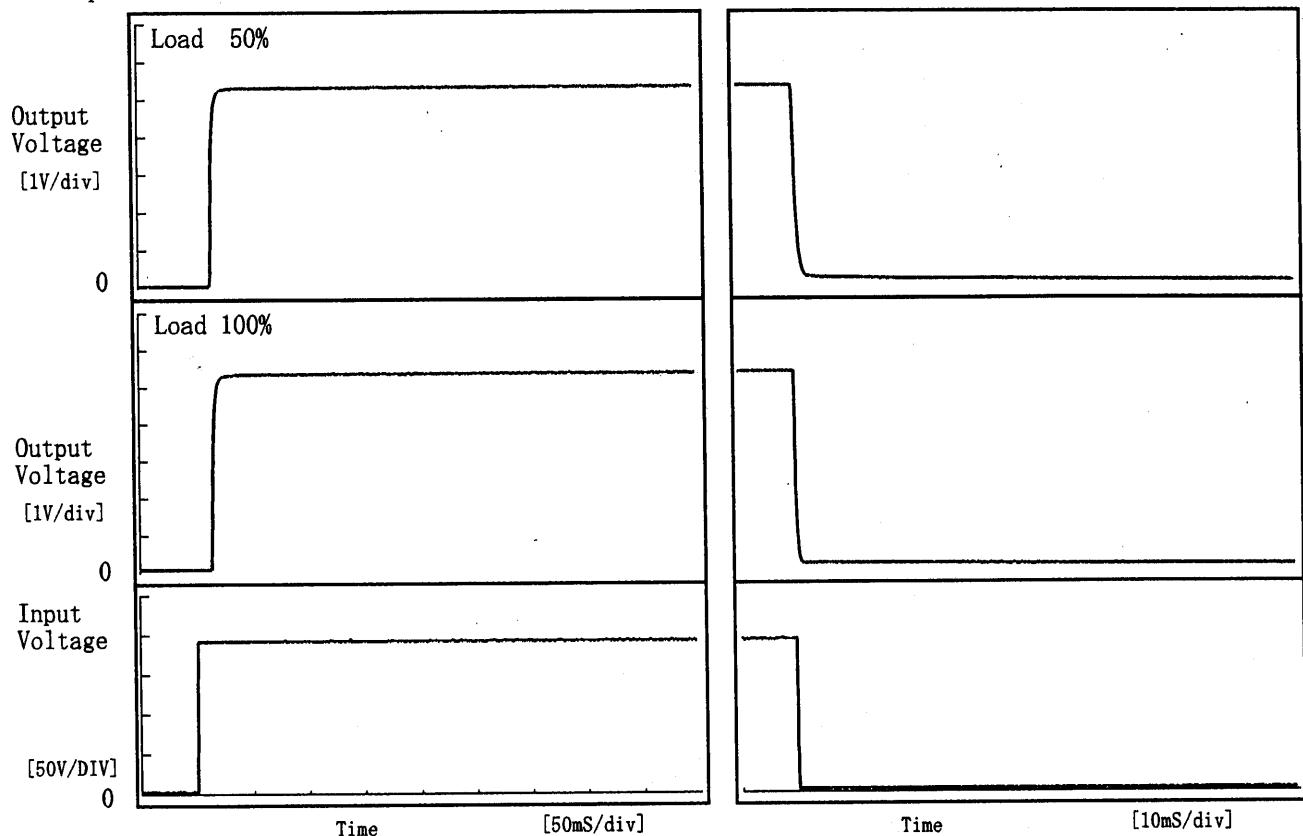
2. Values

[mS]

Load ＼ Time	T d	T r	T s	T h	T f
50 %	14.25	3.00	17.25	0.0	1.60
100 %	14.75	3.00	17.75	0.0	0.80

Output Volt.

90%

10%

Input Volt.

Td Tr

Ts

Th Tf

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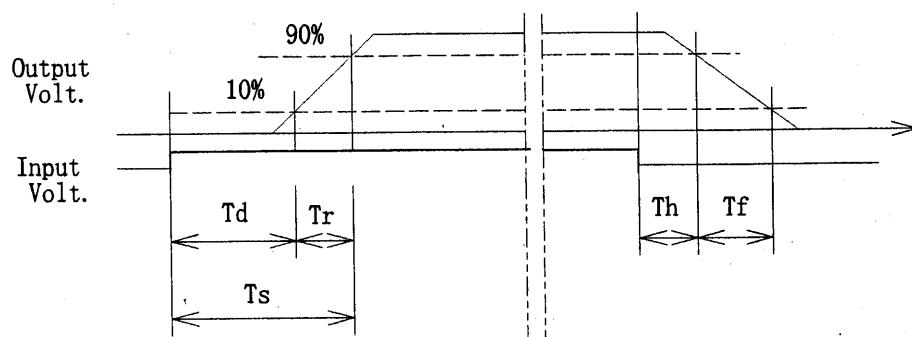
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Model	DBS200B05
Item	Ambient Temperature Drift 周囲温度変動
Object	＋5.0Ｖ40Ａ
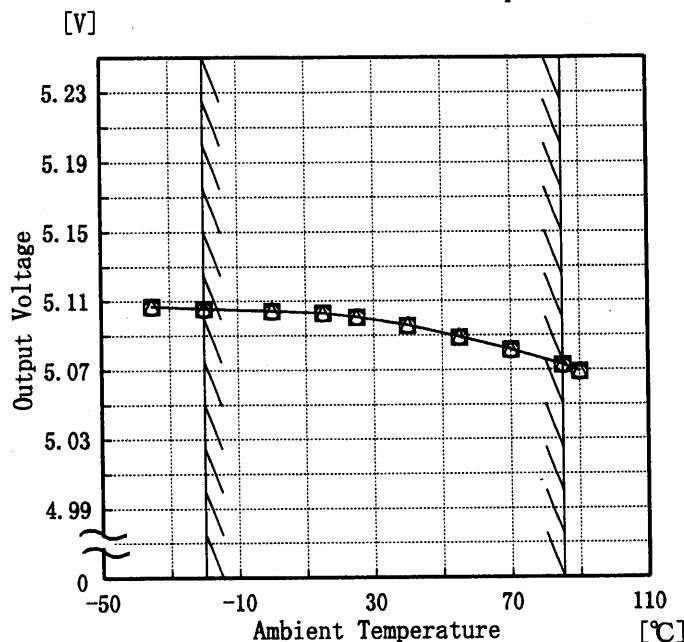
Testing Circuitry　　Figure A

1．Graph

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

[V]

Output Voltage

Ambient Temperature　　　[℃]

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
−	−	−	−

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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

Load 50% (dashed line with □)
Load 100% (solid line with △)

[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. [℃]	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
−	−	−

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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

-----□----- Load 50%
——△—— Load 100%

Input Volt.   280 V

Note: Slanted line shows the range of the rated
   ambient temperature.
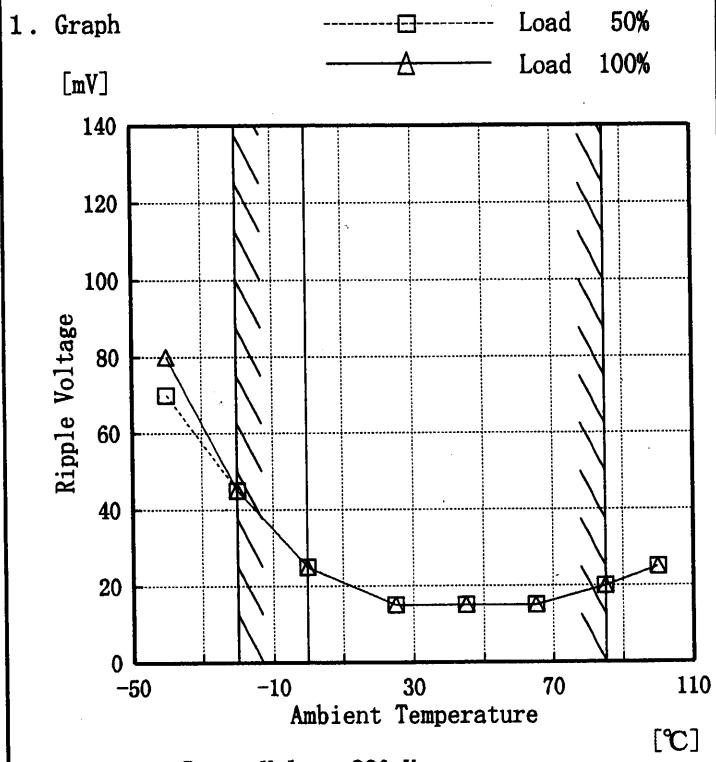
(注)斜線は定格周囲温度範囲を示す。

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
—	—	—
—	—	—
—	—	—

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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

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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

＊ Output Voltage Accuracy (Ration) ＝ $\dfrac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}}$ ×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

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

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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

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Model	DBS200B05		
Item	Line Noise Tolerance 入力雑音耐量	Temperature	25℃
		Testing Circuitry	Figure C
Object	＋5.0V40A		

1. Results

Pulse Width [nS]	MODE	No protection fai- lure 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 %

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Figure A

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

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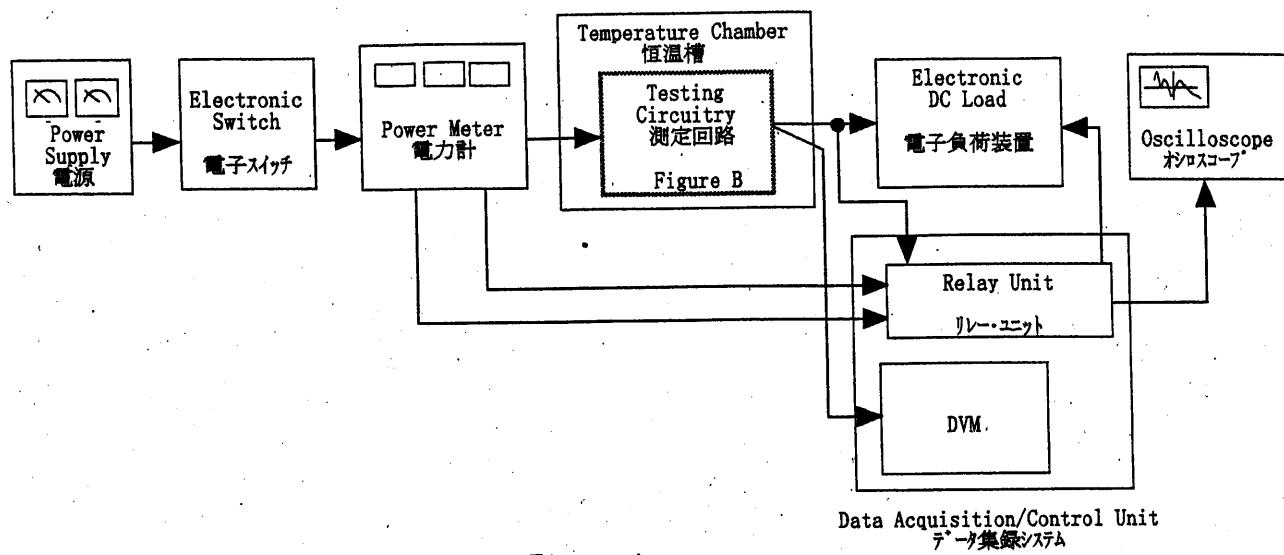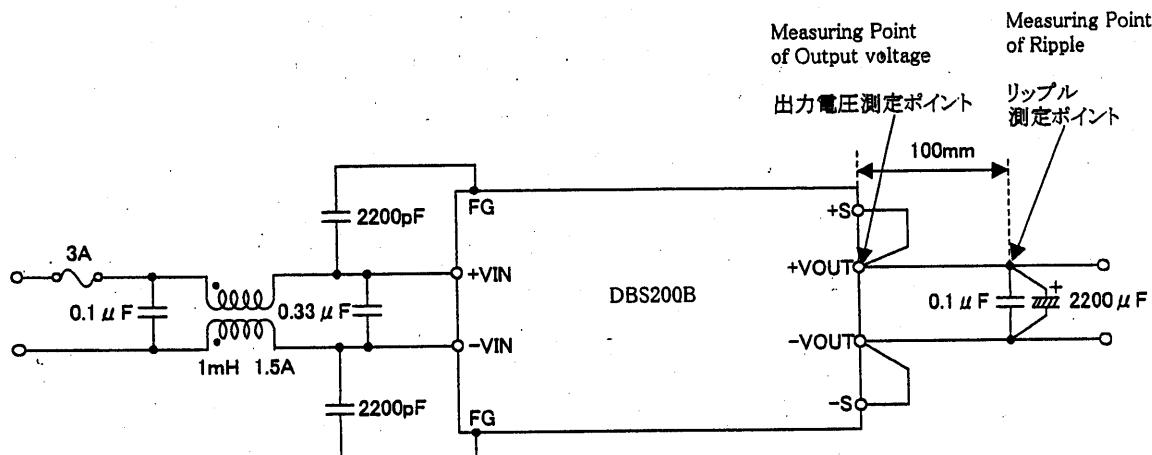
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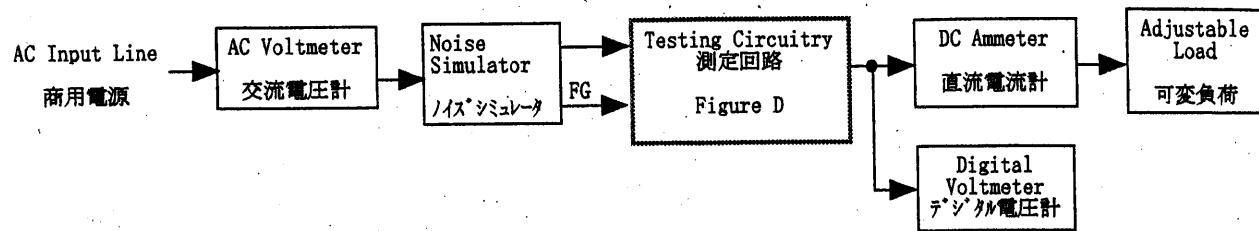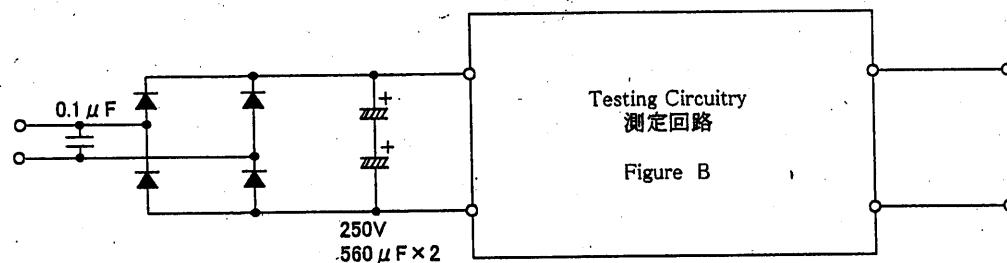
Figure C

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

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