



TEST DATA OF DBS200B03

(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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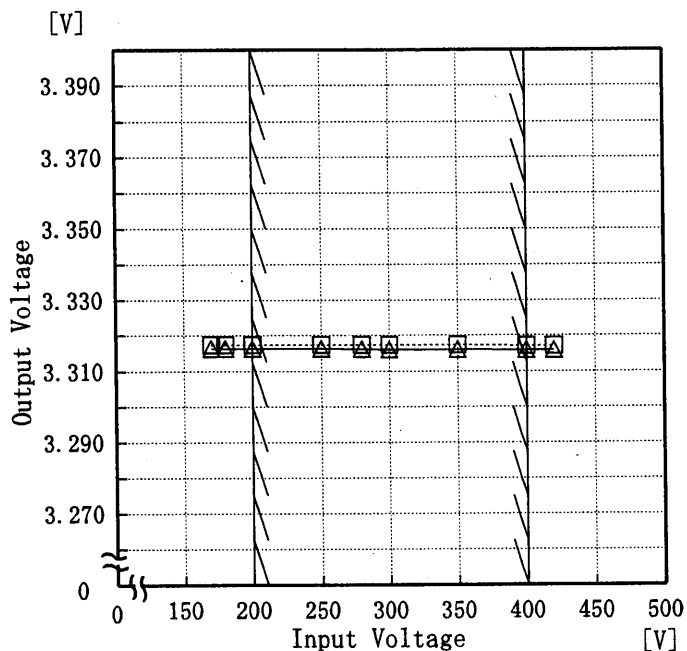
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Model	DBS200B03
Item	Line Regulation 静的入力変動
Object	+3.3V50A

Temperature 25°C
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

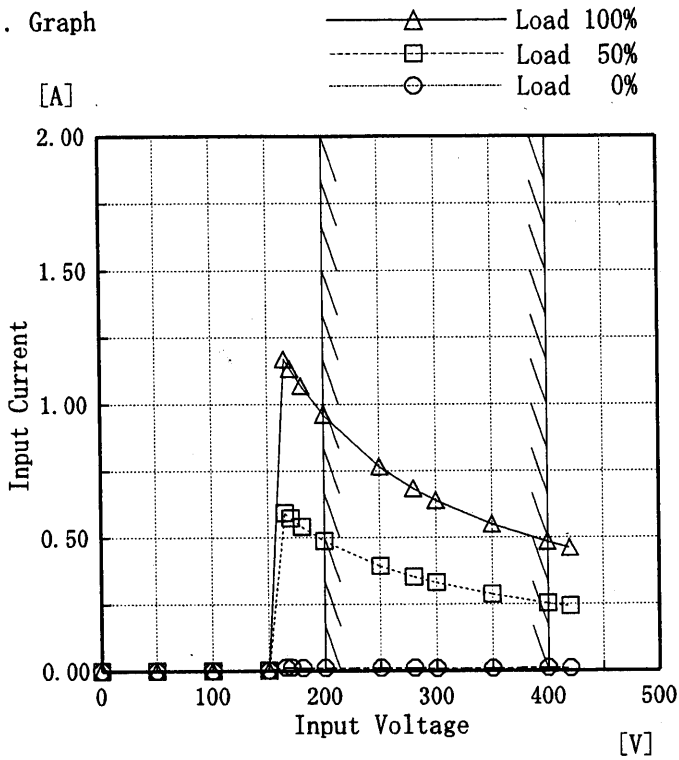
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	3.317	3.316
180	3.317	3.316
200	3.317	3.316
250	3.317	3.316
280	3.317	3.316
300	3.317	3.316
350	3.317	3.316
400	3.317	3.316
420	3.317	3.316



Model	DBS200B03
Item	Input Current (by Input Voltage) 入力電流 (入力電圧特性)
Object	_____

Temperature	25°C
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	0.003	0.002
165	0.013	0.593	1.168
170	0.012	0.574	1.133
180	0.012	0.542	1.069
200	0.011	0.488	0.960
250	0.011	0.394	0.766
280	0.010	0.354	0.684
300	0.010	0.331	0.639
350	0.010	0.288	0.550
400	0.010	0.254	0.484
420	0.010	0.244	0.462
—	—	—	—
—	—	—	—



Model		DBS200B03		Temperature 25°C Testing Circuitry Figure A																																																								
Item		Input Current (by Load Current) 入力電流 (負荷特性)																																																										
Object		_____		2. Values <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 200[V]</th> <th>Input Volt. 280[V]</th> <th>Input Volt. 400[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.01</td><td>0.01</td><td>0.01</td></tr> <tr><td>8</td><td>0.17</td><td>0.13</td><td>0.10</td></tr> <tr><td>16</td><td>0.33</td><td>0.24</td><td>0.17</td></tr> <tr><td>24</td><td>0.49</td><td>0.35</td><td>0.25</td></tr> <tr><td>32</td><td>0.65</td><td>0.47</td><td>0.33</td></tr> <tr><td>40</td><td>0.82</td><td>0.59</td><td>0.42</td></tr> <tr><td>48</td><td>1.00</td><td>0.71</td><td>0.50</td></tr> <tr><td>50</td><td>1.05</td><td>0.75</td><td>0.53</td></tr> <tr><td>55</td><td>1.16</td><td>0.83</td><td>0.58</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>		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	0.17	0.13	0.10	16	0.33	0.24	0.17	24	0.49	0.35	0.25	32	0.65	0.47	0.33	40	0.82	0.59	0.42	48	1.00	0.71	0.50	50	1.05	0.75	0.53	55	1.16	0.83	0.58	—	—	—	—	—	—	—	—	—	—	—	—
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Model		DBS200B03	Temperature	25°C
Item		Input Power (by Load Current) 入力電力 (負荷特性)	Humidity	40%RH
Object			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。

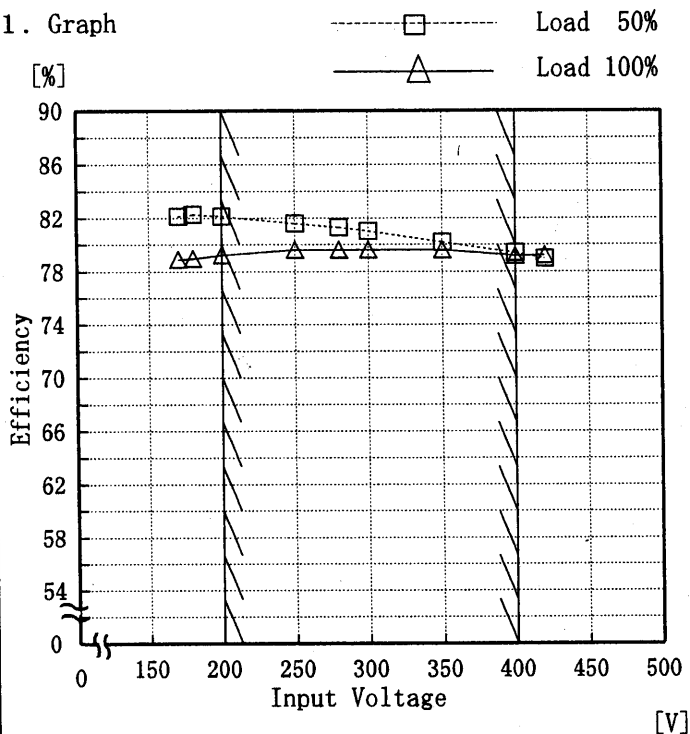
2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	2	3	4
8	34	36	39
16	65	67	70
24	97	98	101
32	131	131	134
40	165	165	167
48	200	200	201
50	210	209	210
55	233	231	232
—	—	—	—
—	—	—	—
—	—	—	—



Model	DBS200B03	
Item	Efficiency (by Input Voltage) 効率 (入力電圧特性)	Temperature 25°C Testing Circuitry Figure A
Object		

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	82.1	78.9
180	82.3	79.0
200	82.1	79.2
250	81.6	79.6
280	81.3	79.6
300	81.0	79.6
350	80.2	79.6
400	79.4	79.2
420	79.0	79.2



Model		DBS200B03		Temperature		25°C																																																								
Item		Efficiency (by Load Current) 効率 (負荷特性)		Testing Circuitry		Figure A																																																								
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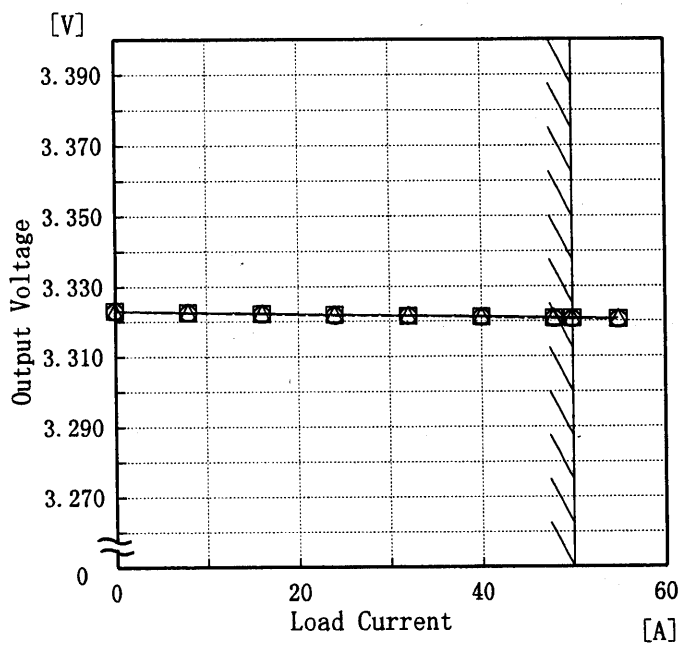


Model	DBS200B03
Item	Load Regulation 静的負荷変動
Object	+3.3V50A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

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



2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	3.323	3.323	3.323
8	3.323	3.323	3.322
16	3.322	3.322	3.322
24	3.322	3.322	3.322
32	3.322	3.322	3.322
40	3.322	3.321	3.321
48	3.321	3.321	3.321
50	3.321	3.321	3.321
55	3.321	3.321	3.320
—	—	—	—

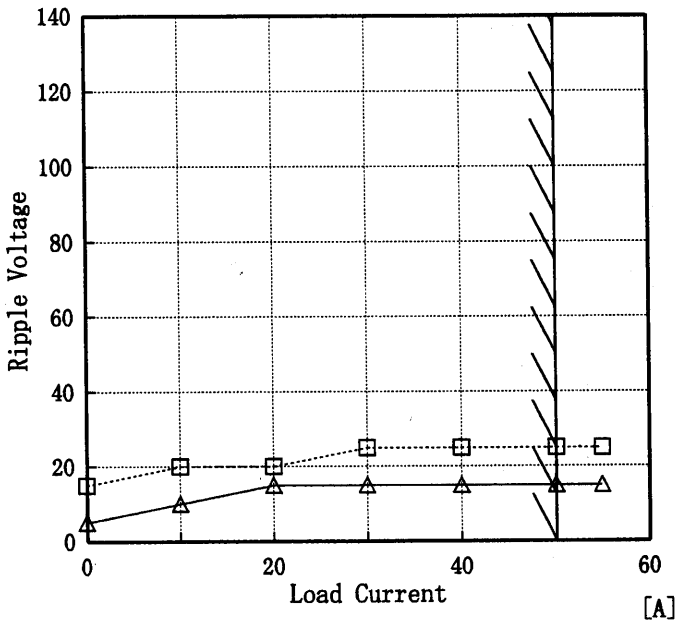
Note: Slanted line shows the range of the rated load current.

(注) 斜線は定格負荷電流範囲を示す。



Model	DBS200B03	Temperature	25°C
Item	Ripple Voltage (by Load Current) リップル電圧(負荷特性)	Testing Circuitry	Figure A
Object	+3.3V50A		

1. Graph
 [mV]
 —△— Input Volt. 200V
 - - -□- - - Input Volt. 400V



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。

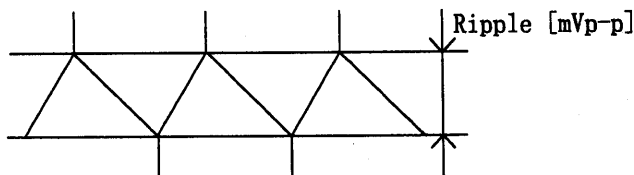


図 リップル波形図

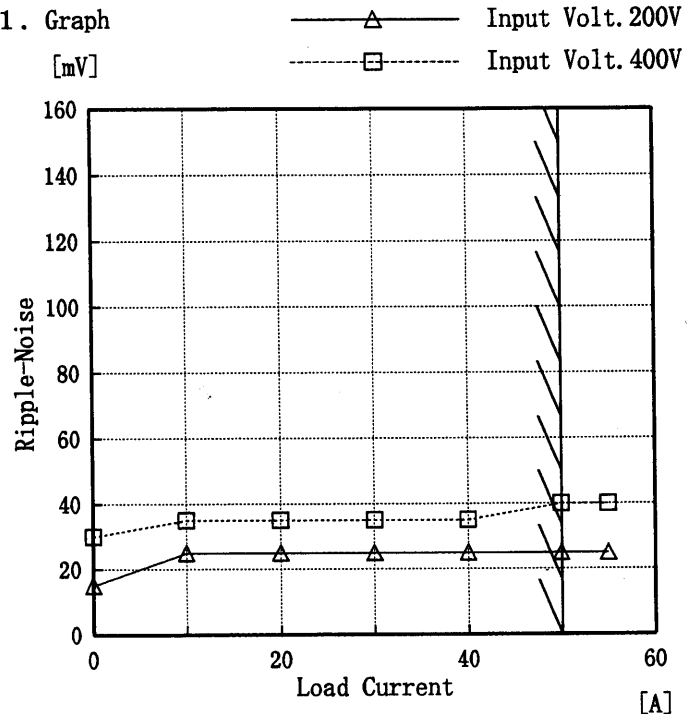
2. Values

Load Current [A]	Ripple Output Volt. [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	5	15
10	10	20
20	15	20
30	15	25
40	15	25
50	15	25
55	15	25
-	-	-
-	-	-
-	-	-
-	-	-



Model	DBS200B03	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A
Object	+3.3V50A		

1. Graph



2. Values

Load current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0	15	30
10	25	35
20	25	35
30	25	35
40	25	35
50	25	40
55	25	40
—	—	—
—	—	—
—	—	—
—	—	—

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。

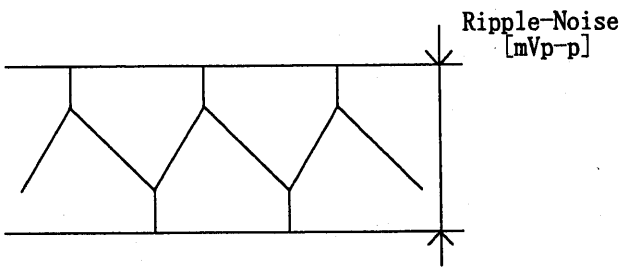
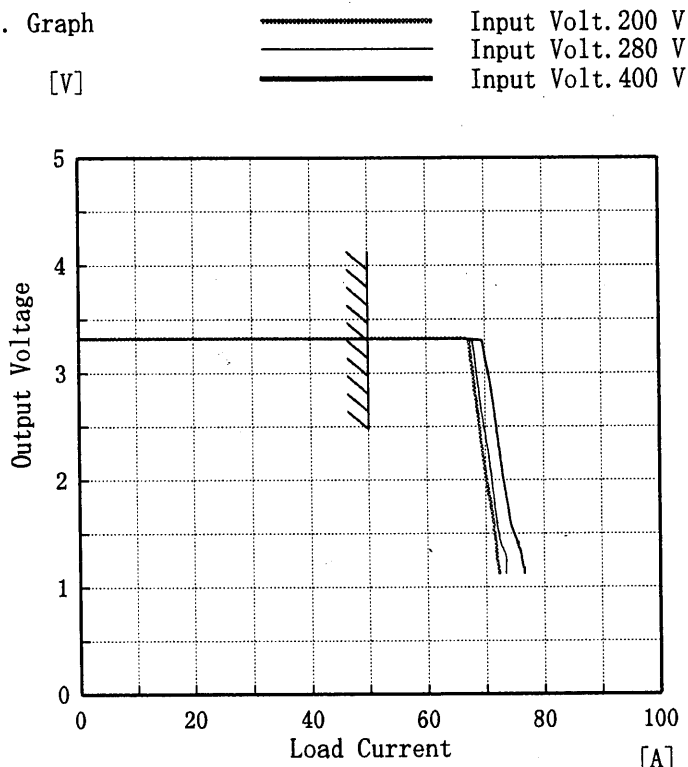


図 リップルノイズ波形図

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Model	DBS200B03	Temperature	25°C
Item	Overcurrent Protection 過電流保護	Testing Circuitry	Figure A
Object	+3.3V50A		

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]
3.30	66.72	67.88	69.52
3.13	67.52	68.17	69.96
2.97	67.82	68.47	70.58
2.64	68.55	69.30	71.50
2.31	69.34	70.27	72.21
1.98	70.19	71.02	73.03
1.65	71.14	71.78	74.06
1.32	71.78	73.26	75.89
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

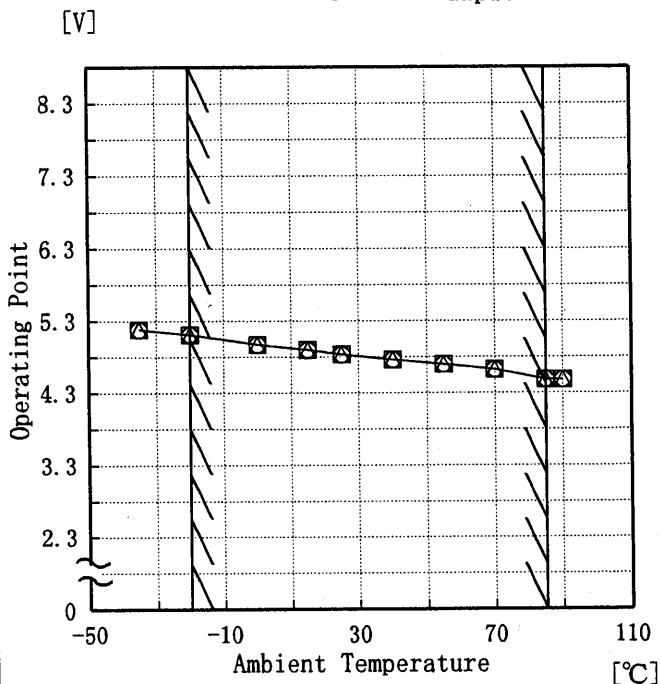
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Model	DBS200B03
Item	Overvoltage Protection 過電圧保護
Object	+3.3V50A

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。

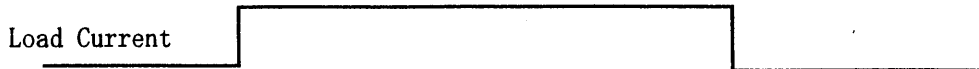
2. Values

Ambient Temp. [°C]	Operating Point [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	5.18	5.18	5.18
-20	5.11	5.11	5.11
0	4.97	4.97	4.97
15	4.90	4.90	4.90
25	4.83	4.83	4.83
40	4.76	4.76	4.76
55	4.69	4.69	4.69
70	4.62	4.62	4.62
85	4.48	4.48	4.48
90	4.48	4.48	4.48
—	—	—	—

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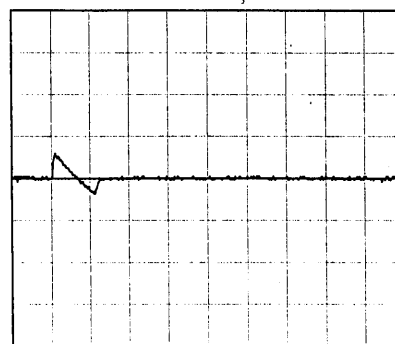
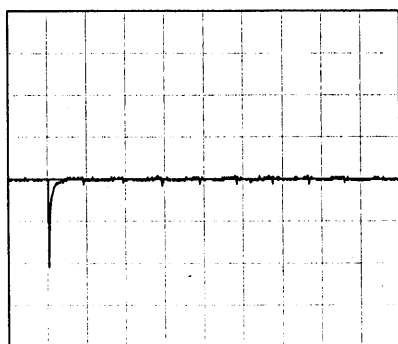
Model	DBS200B03	Temperature	25°C
Item	Dynamic Load Responce 動的負荷変動	Testing Circuitry	Figure A
Object	+3.3V50A		

Input Volt. 280 V
Cycle 1000 mS



Min. Load (0.0A) ←→
Load 100% (50.0A)

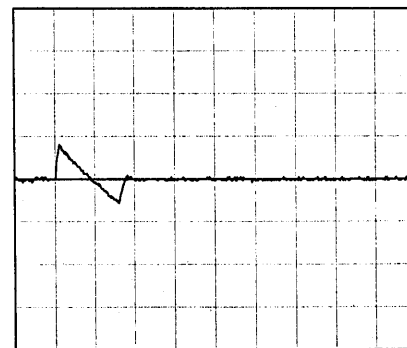
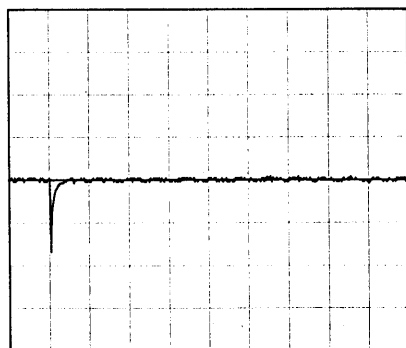
500 mV/div



5 ms/div

Min. Load (0.0A) ←→
Load 50% (25.0A)

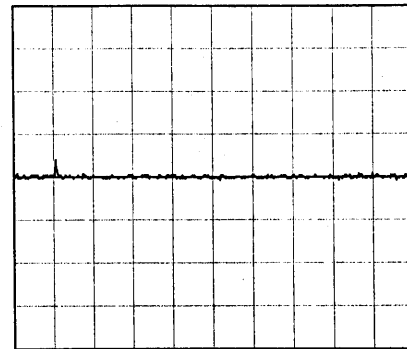
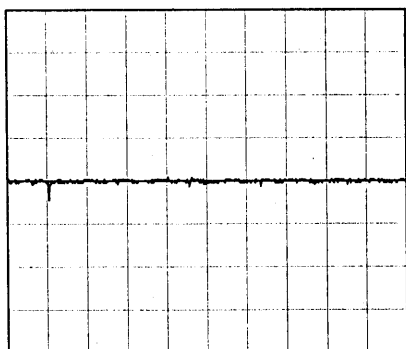
500 mV/div



5 ms/div

Load 10% (5.0A) ←→
Load 100% (50.0A)

500 mV/div



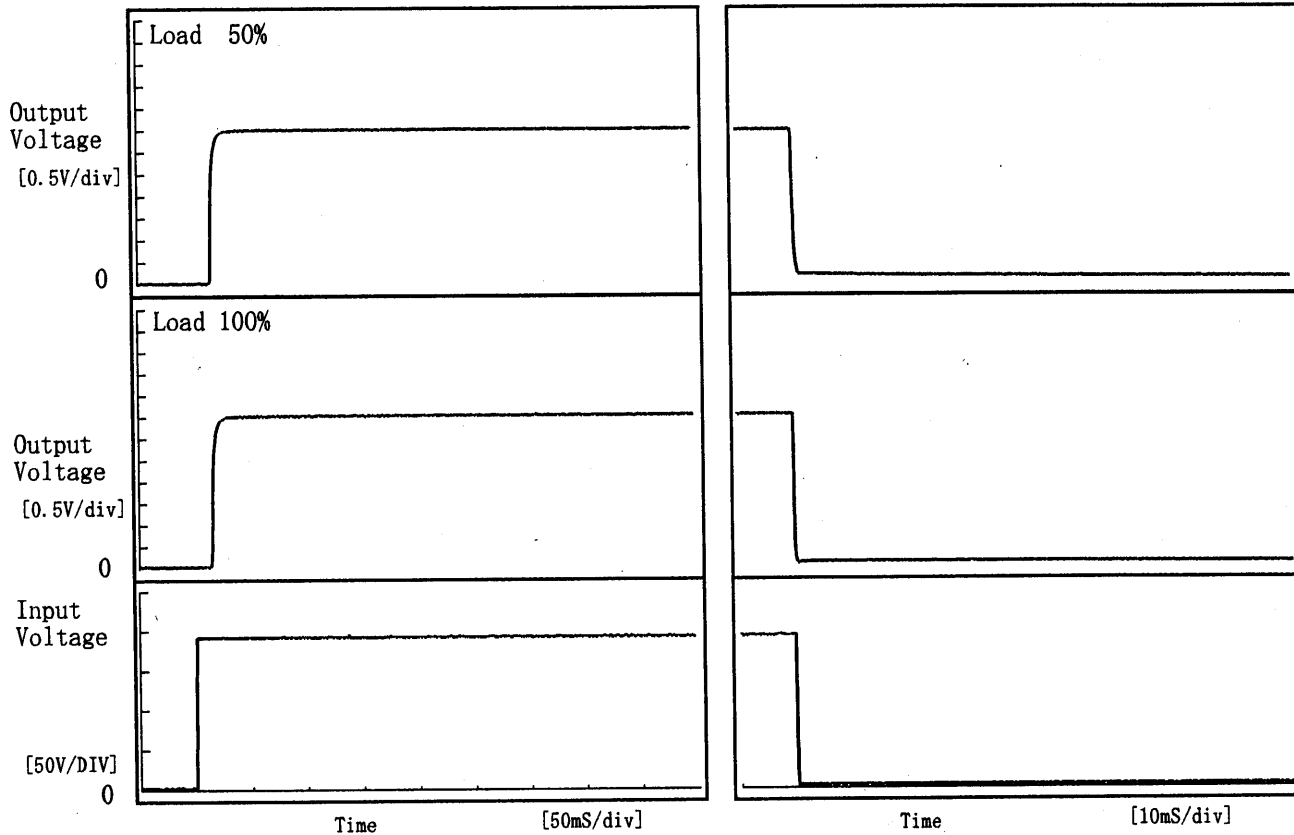
5 ms/div



Model		DBS200B03	Temperature	25°C
Item		Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object		+3.3V50A		

1. Graph

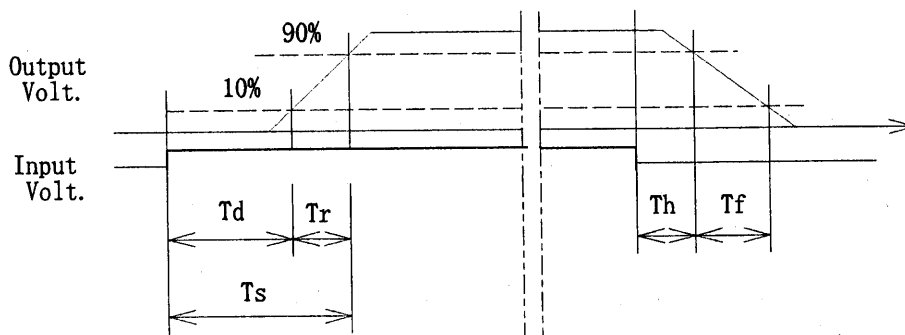
Input Volt. 200 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	15.25	3.25	18.50	0.0	0.80
100 %	15.50	3.50	19.00	0.0	0.35



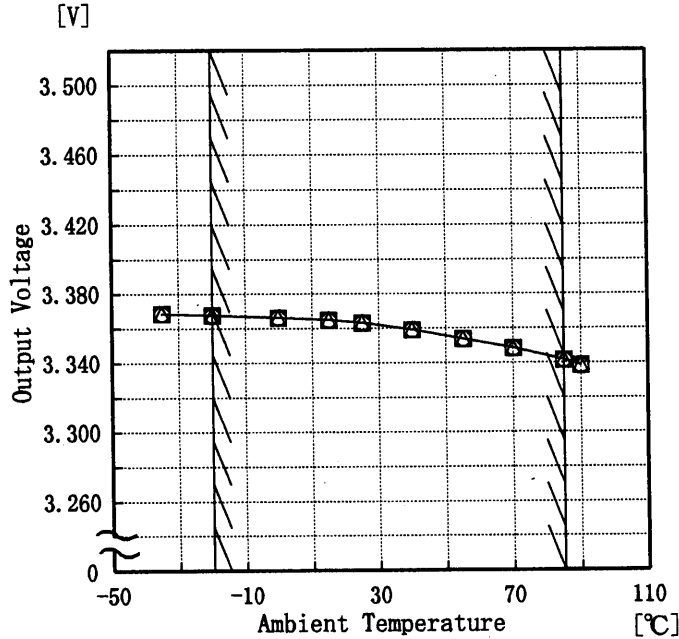
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Model	DBS200B03
Item	Ambient Temperature Drift 周囲温度変動
Object	+3.3V50A

Testing Circuitry Figure A

1. Graph

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



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

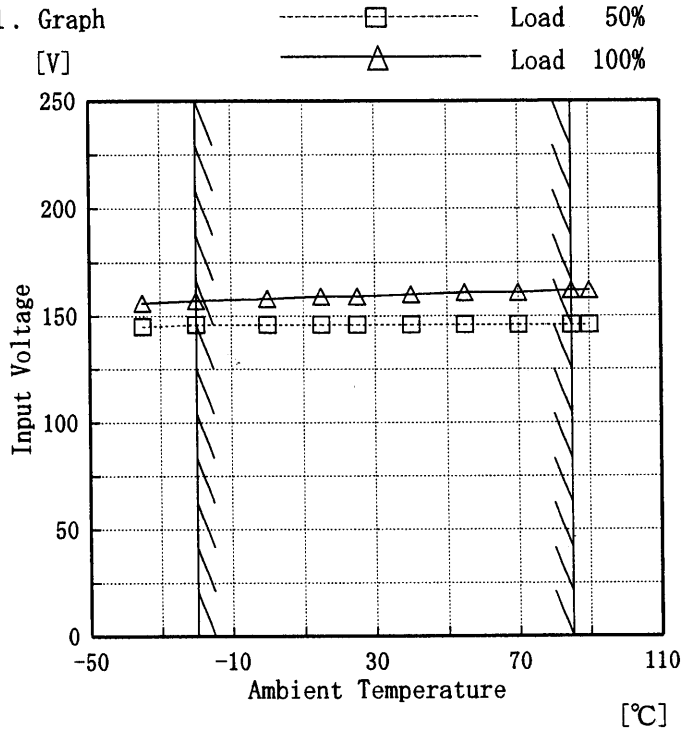
Temperature [°C]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	3.369	3.369	3.368
-20	3.368	3.368	3.368
0	3.366	3.366	3.366
15	3.365	3.365	3.365
25	3.363	3.363	3.363
40	3.359	3.359	3.359
55	3.354	3.354	3.354
70	3.348	3.348	3.348
85	3.342	3.341	3.341
90	3.339	3.338	3.338
—	—	—	—



Model	DBS200B03
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+3.3V50A

Testing Circuitry Figure A

1. Graph



2. Values

Ambient Temp. [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-35	145	156
-20	146	157
0	146	158
15	146	159
25	146	159
40	146	160
55	146	161
70	146	161
85	146	162
90	146	162
—	—	—

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。



Model		DBS200B03		Testing Circuitry Figure A																																							
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																																									
Object		+3.3V50A																																									
1. Graph			2. Values																																								
<p>-----□----- Load 50%</p> <p>———△——— Load 100%</p> <p>[mV]</p> <p>Ripple Voltage</p> <p>Ambient Temperature [°C]</p> <p>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>			<table border="1"> <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>50</td><td>50</td></tr> <tr><td>-20</td><td>35</td><td>35</td></tr> <tr><td>0</td><td>25</td><td>30</td></tr> <tr><td>25</td><td>20</td><td>20</td></tr> <tr><td>45</td><td>20</td><td>20</td></tr> <tr><td>65</td><td>20</td><td>20</td></tr> <tr><td>85</td><td>20</td><td>20</td></tr> <tr><td>100</td><td>25</td><td>25</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	50	50	-20	35	35	0	25	30	25	20	20	45	20	20	65	20	20	85	20	20	100	25	25	—	—	—	—	—	—	—	—	—
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100	25	25																																									
—	—	—																																									
—	—	—																																									
—	—	—																																									

COSEL

Model		DBS200B03		Temperature		25 °C																							
Item		Time Lapse Drift 経時ドリフト		Testing Circuitry		Figure A																							
Object		+3.3V50A																											
1. Graph				2. Values																									
<p>[V]</p> <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 280V Load 100%</p>				<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>3.324</td></tr> <tr><td>0.5</td><td>3.321</td></tr> <tr><td>1.0</td><td>3.321</td></tr> <tr><td>2.0</td><td>3.321</td></tr> <tr><td>3.0</td><td>3.321</td></tr> <tr><td>4.0</td><td>3.321</td></tr> <tr><td>5.0</td><td>3.321</td></tr> <tr><td>6.0</td><td>3.321</td></tr> <tr><td>7.0</td><td>3.321</td></tr> <tr><td>8.0</td><td>3.321</td></tr> </tbody> </table>				Time since start [H]	Output Voltage [V]	0.0	3.324	0.5	3.321	1.0	3.321	2.0	3.321	3.0	3.321	4.0	3.321	5.0	3.321	6.0	3.321	7.0	3.321	8.0	3.321
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Model		DBS200B03	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度		
Object	+3.3V50A		

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 : 0~50 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 0~50 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	200	0	3.372	±17	±0.6
Minimum Voltage	85	400	50	3.339		



COSEL		
Model	DBS200B03	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+3.3V50A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°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°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℃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]	3.316	Input Volt. : 280V, Load Current:50A
Line Regulation [mV]	1	Input Volt. : 200~400V, Load Current:50A
Load Regulation [mV]	3	Input Volt. : 280V, Load Current:0~50A



Model		DBS200B03	Temperature 25°C Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+3.3V50A	

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

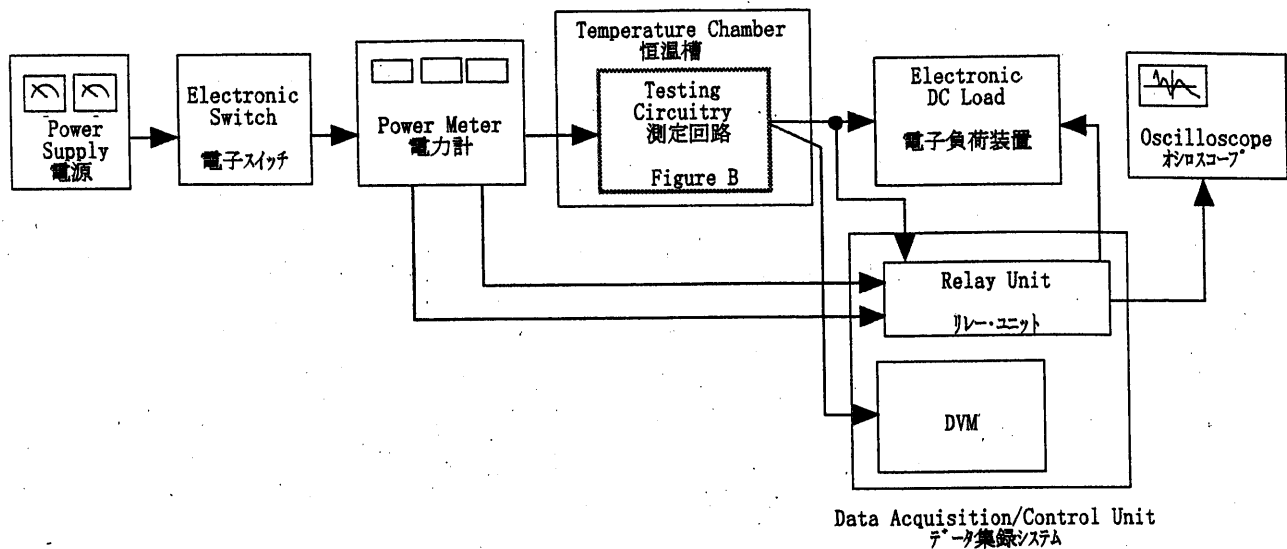


Figure A

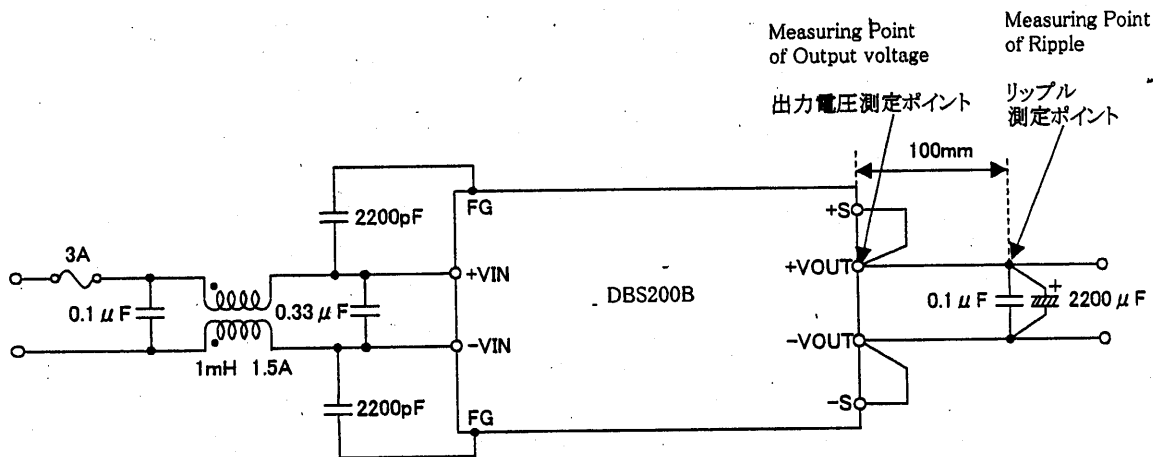


Figure B (General Electric Characteristic)
一般電気特性

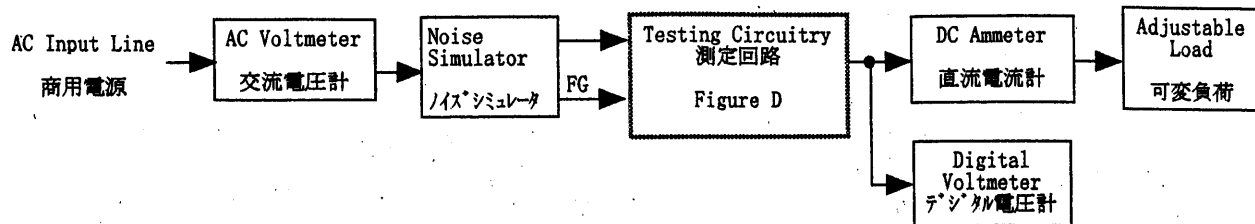


Figure C

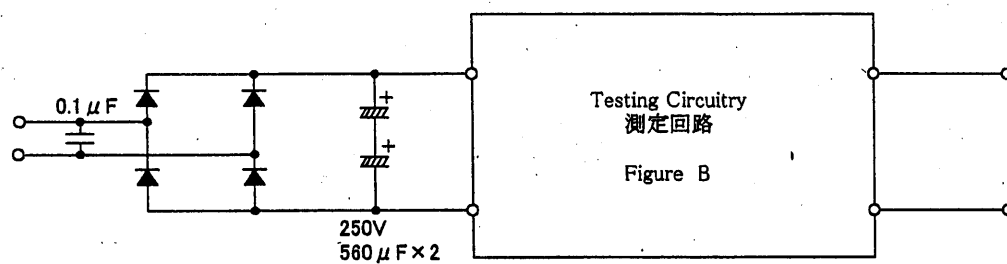


Figure D (Line Noise Tolerance)
入力雑音耐量