



# TEST DATA OF DBS400B07

(280V INPUT)

Regulated DC Power Supply

Date : July 9. 1999

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コーセル株式会社

COSEL CO.,LTD.

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**COSEL**

Model

DBS400B07

Item

Line Regulation 静的入力変動

Object

+7.5V54A

Temperature

25°C

Testing Circuitry

Figure A

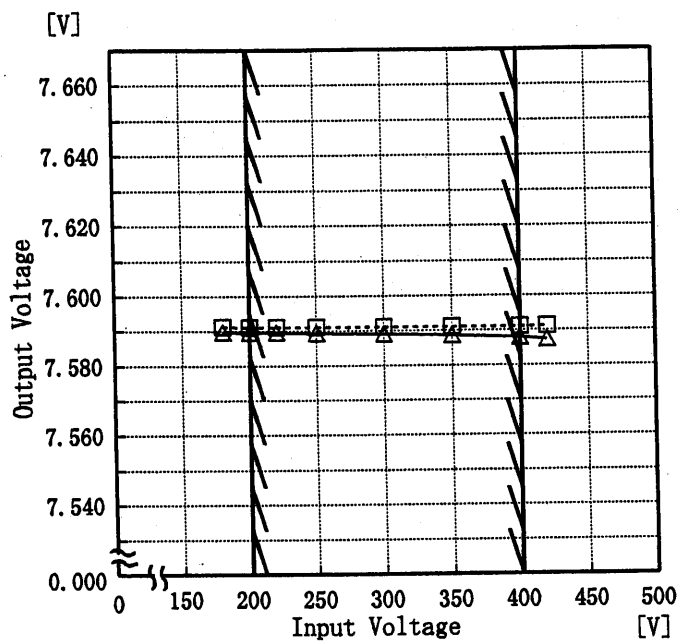
## 1. Graph

-----□-----

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%
180	7.591	7.590
200	7.591	7.590
220	7.591	7.590
250	7.591	7.589
300	7.591	7.589
350	7.591	7.589
400	7.591	7.588
420	7.591	7.588
—	—	—

**COSEL**

Model	DBS400B07	Temperature	25°C
Item	Input Current (by Input Voltage) 入力電流 (入力電圧特性)	Testing Circuitry	Figure A
Object			

1. Graph

—△— Load 100%

---□--- Load 50%

—○— Load 0%

[A]

4.00

3.00

2.00

1.00

0.00

Input Current

0

100

200

300

400

500

Input Voltage

[V]

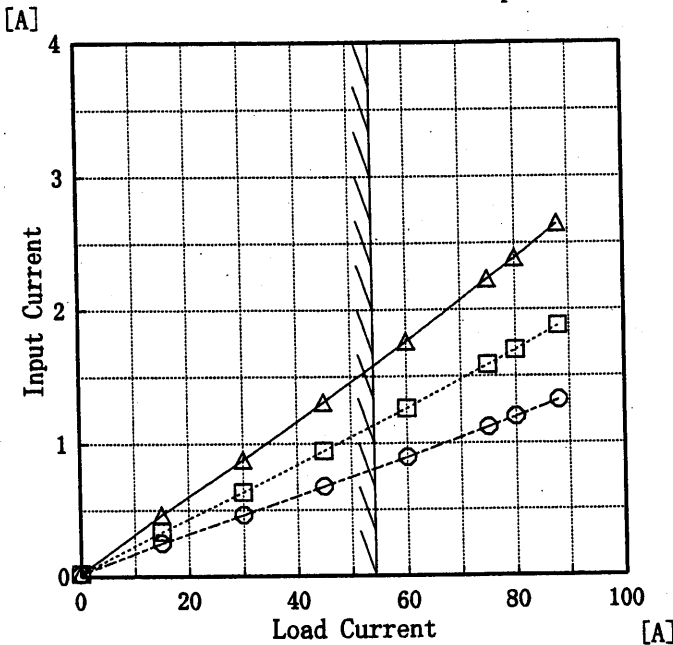
Note: Slanted line shows the range of the rated input voltage.

(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	0.026	1.456	2.731
170	0.026	1.404	2.811
180	0.025	1.314	2.641
200	0.024	1.169	2.359
250	0.022	0.933	1.882
300	0.020	0.784	1.569
350	0.020	0.679	1.350
400	0.020	0.601	1.187
420	0.019	0.576	1.134
—	—	—	—
—	—	—	—
—	—	—	—

**COSEL**

Model		DBS400B07		Temperature		25℃																																																								
Item		Input Current (by Load Current) 入力電流 (負荷特性)		Testing Circuitry		Figure A																																																								
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1. Graph				2. Values																																																										
<div><div>△</div> Input Volt. 200V</div> <div><div>□</div> Input Volt. 280V</div> <div><div>○</div> Input Volt. 400V</div> <div></div>				<table><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><tr><td>0</td><td>0.02</td><td>0.02</td><td>0.02</td></tr><tr><td>15</td><td>0.46</td><td>0.33</td><td>0.25</td></tr><tr><td>30</td><td>0.88</td><td>0.63</td><td>0.46</td></tr><tr><td>45</td><td>1.31</td><td>0.94</td><td>0.68</td></tr><tr><td>60</td><td>1.76</td><td>1.26</td><td>0.90</td></tr><tr><td>75</td><td>2.23</td><td>1.59</td><td>1.12</td></tr><tr><td>80</td><td>2.39</td><td>1.70</td><td>1.20</td></tr><tr><td>88</td><td>2.65</td><td>1.88</td><td>1.32</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><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>				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	15	0.46	0.33	0.25	30	0.88	0.63	0.46	45	1.31	0.94	0.68	60	1.76	1.26	0.90	75	2.23	1.59	1.12	80	2.39	1.70	1.20	88	2.65	1.88	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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(注) 斜線は定格負荷電流範囲を示す。																																																														

**COSEL**

Model		DBS400B07		Temperature	25℃
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

Input Power

[W]

800

600

400

200

0

0

20

40

60

80

Load Current

[A]

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 Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	5	6	8
8	76	75	80
16	141	140	146
24	207	207	213
32	275	275	281
40	344	345	350
48	416	416	420
54	471	470	473
59	523	520	522
—	—	—	—
—	—	—	—
—	—	—	—

**COSEL**

Model		DBS400B07	
Item		Efficiency (by Input Voltage) 効率 (入力電圧特性)	
Object			

1. Graph

□

Load 50%

△

Load 100%

Efficiency [%]

100

90

80

70

0

0

150

200

250

300

350

400

450

500

Input Voltage [V]

Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
180	86.6	85.4
200	87.4	86.1
220	87.8	86.3
250	87.6	86.3
300	87.0	86.3
350	85.9	86.1
400	85.2	85.9
420	84.8	85.5

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。

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
180	86.6	85.4
200	87.4	86.1
220	87.8	86.3
250	87.6	86.3
300	87.0	86.3
350	85.9	86.1
400	85.2	85.9
420	84.8	85.5
—	—	—

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 DBS400B07		Temperature 25°C Testing Circuitry Figure A
Item	Efficiency (by Load Current) 効率 (負荷特性)	
Object		

1. Graph

△

Input Volt. 200V

□

Input Volt. 280V

○

Input Volt. 400V

Efficiency [%]

100

90

80

70

60

50

40

0

0

20

40

60

80

Load Current [A]

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。

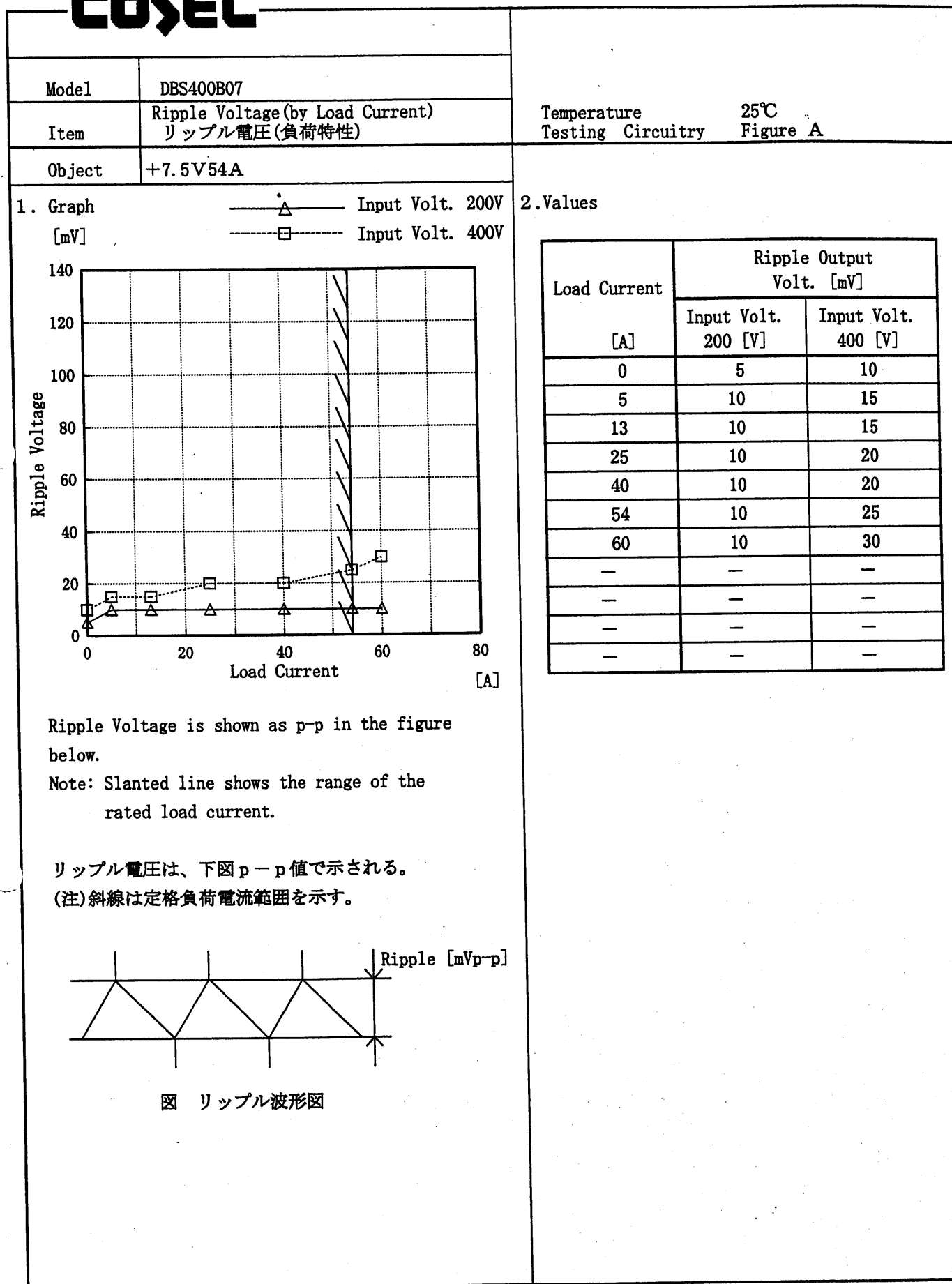
2. Values

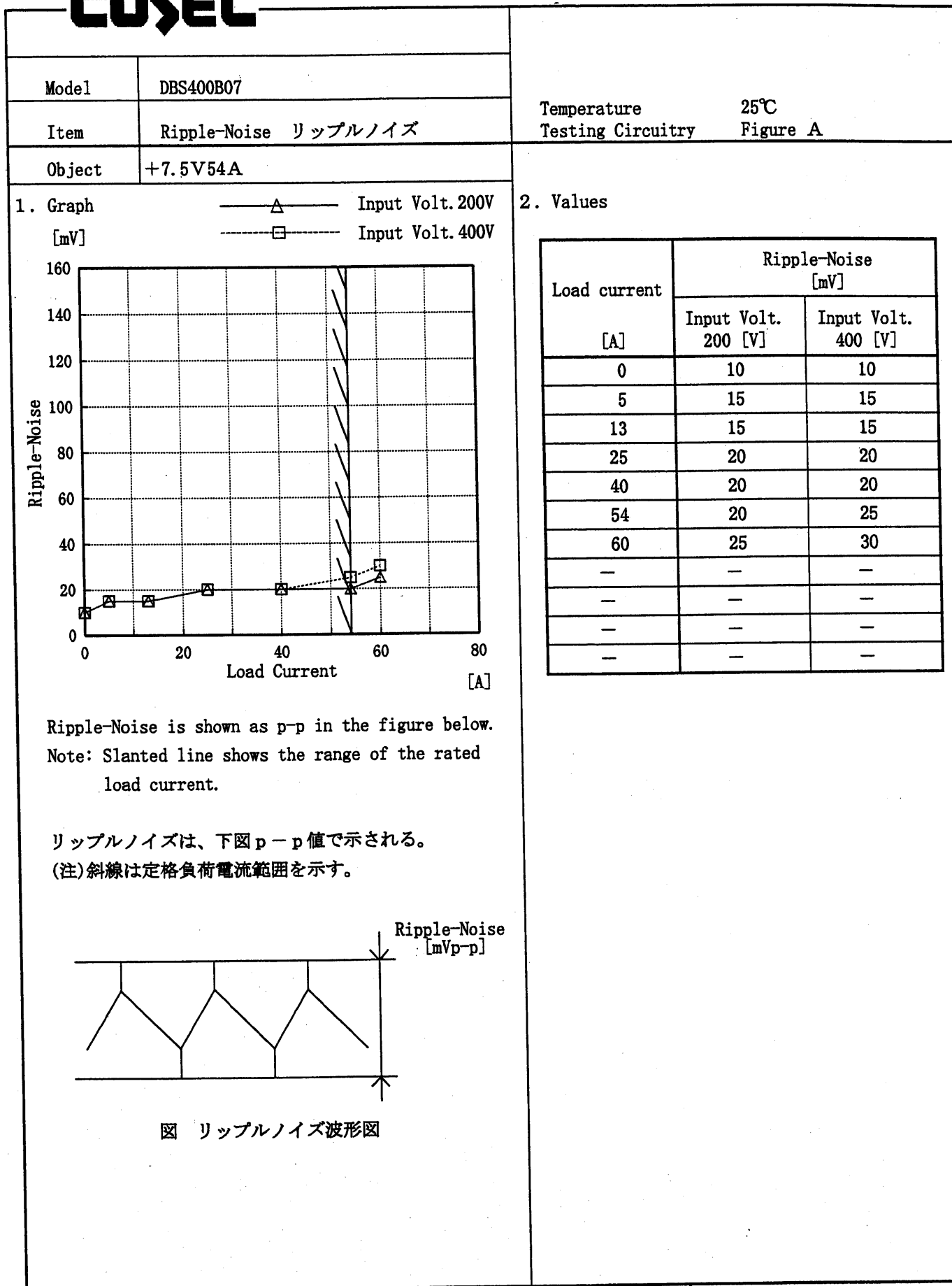
Load Current [A]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
8.0	78.9	80.2	74.5
16.0	85.2	85.5	82.0
24.0	87.0	87.0	84.5
32.0	87.5	87.4	85.5
40.0	87.3	87.2	85.8
48.0	86.7	86.8	85.9
54.0	86.1	86.3	85.8
59.4	85.3	85.9	85.5
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—



**COSEL**

Model		DBS400B07		Temperature		25℃																																																							
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<div><div><div>Output Voltage</div><div>[V]</div><div><div>7.660</div><div>7.640</div><div>7.620</div><div>7.600</div><div>7.580</div><div>7.560</div><div>7.540</div><div>0.000</div></div></div><div><div>0</div><div>20</div><div>40</div><div>60</div><div>80</div></div><div><div>Load Current</div><div>[A]</div></div></div>				<table><tr><td rowspan="3">Load Current</td><td colspan="3">Output Voltage</td></tr><tr><td colspan="3">[V]</td></tr><tr><td>Input Volt.</td><td>Input Volt.</td><td>Input Volt.</td></tr><tr><td>[A]</td><td>200[V]</td><td>280[V]</td><td>400[V]</td></tr><tr><td>0</td><td>7.595</td><td>7.595</td><td>7.595</td></tr><tr><td>8</td><td>7.594</td><td>7.594</td><td>7.594</td></tr><tr><td>16</td><td>7.593</td><td>7.593</td><td>7.593</td></tr><tr><td>24</td><td>7.593</td><td>7.592</td><td>7.592</td></tr><tr><td>32</td><td>7.592</td><td>7.592</td><td>7.591</td></tr><tr><td>40</td><td>7.592</td><td>7.591</td><td>7.590</td></tr><tr><td>48</td><td>7.591</td><td>7.591</td><td>7.589</td></tr><tr><td>54</td><td>7.591</td><td>7.590</td><td>7.589</td></tr><tr><td>59</td><td>7.590</td><td>7.590</td><td>7.588</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>				Load Current	Output Voltage			[V]			Input Volt.	Input Volt.	Input Volt.	[A]	200[V]	280[V]	400[V]	0	7.595	7.595	7.595	8	7.594	7.594	7.594	16	7.593	7.593	7.593	24	7.593	7.592	7.592	32	7.592	7.592	7.591	40	7.592	7.591	7.590	48	7.591	7.591	7.589	54	7.591	7.590	7.589	59	7.590	7.590	7.588	—	—	—	—
Load Current	Output Voltage																																																												
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<div>Note: Slanted line shows the range of the rated load current.</div> <div>(注)斜線は定格負荷電流範囲を示す。</div>																																																													

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Model		DBS400B07	
Item		Overcurrent Protection 過電流保護	
Object		+7.5V54A	

1. Graph

[V]

Input Volt. 200 V

Input Volt. 280 V

Input Volt. 400 V

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
7.50	63.71	64.18	65.05
7.13	63.67	64.18	65.00
6.75	63.83	64.12	65.08
6.00	63.74	64.02	65.34
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

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。

**COSEL**

Model

DBS400B07

Item

Overvoltage Protection  
過電圧保護

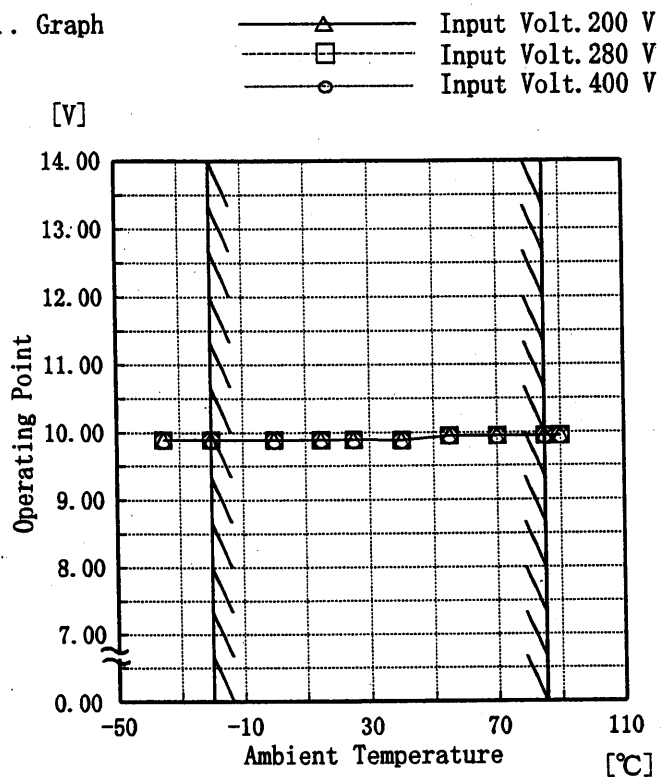
Object

+7.5V54A

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. [°C]	Operating Point [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	9.89	9.89	9.89
-20	9.89	9.89	9.89
0	9.89	9.89	9.89
15	9.89	9.89	9.89
25	9.89	9.89	9.89
40	9.88	9.88	9.88
55	9.95	9.95	9.95
70	9.95	9.95	9.95
85	9.95	9.95	9.95
90	9.95	9.95	9.95
—	—	—	—

**COSEL**

Model	DBS400B07
Item	Dynamic Load Response 動的負荷変動
Object	+7.5V54A

Temperature 25°C  
Testing Circuitry Figure A

Input Volt. 280 V

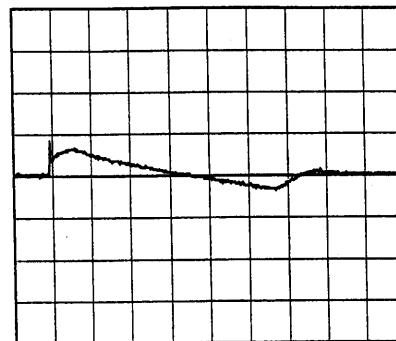
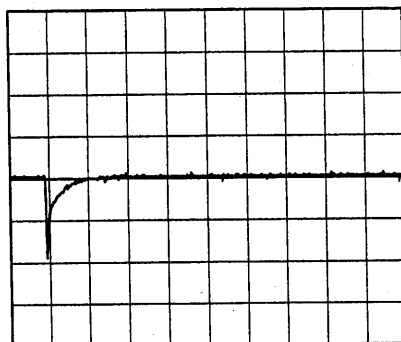
Cycle 1000 mS

Load Current

Min. Load (0.0A) ↔

Load 100% (54.0A)

500 mV/div

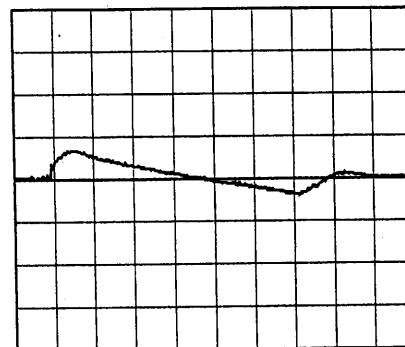
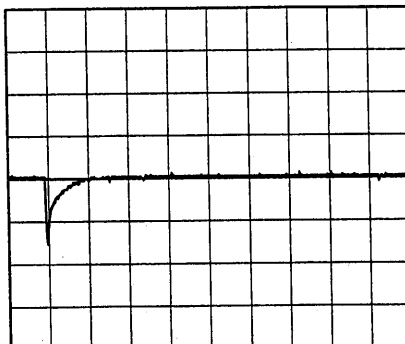


2 ms/div

Min. Load (0.0A) ↔

Load 50% (27.0A)

500 mV/div

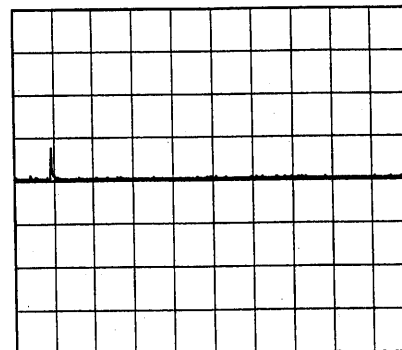
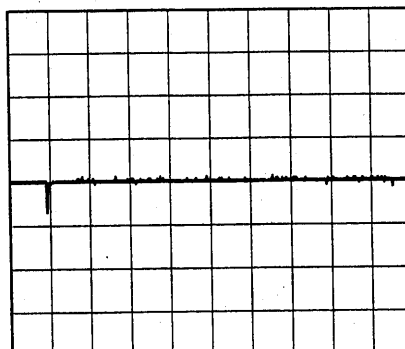


2 ms/div

Load 10% (5.4A) ↔

Load 100% (54.0A)

500 mV/div



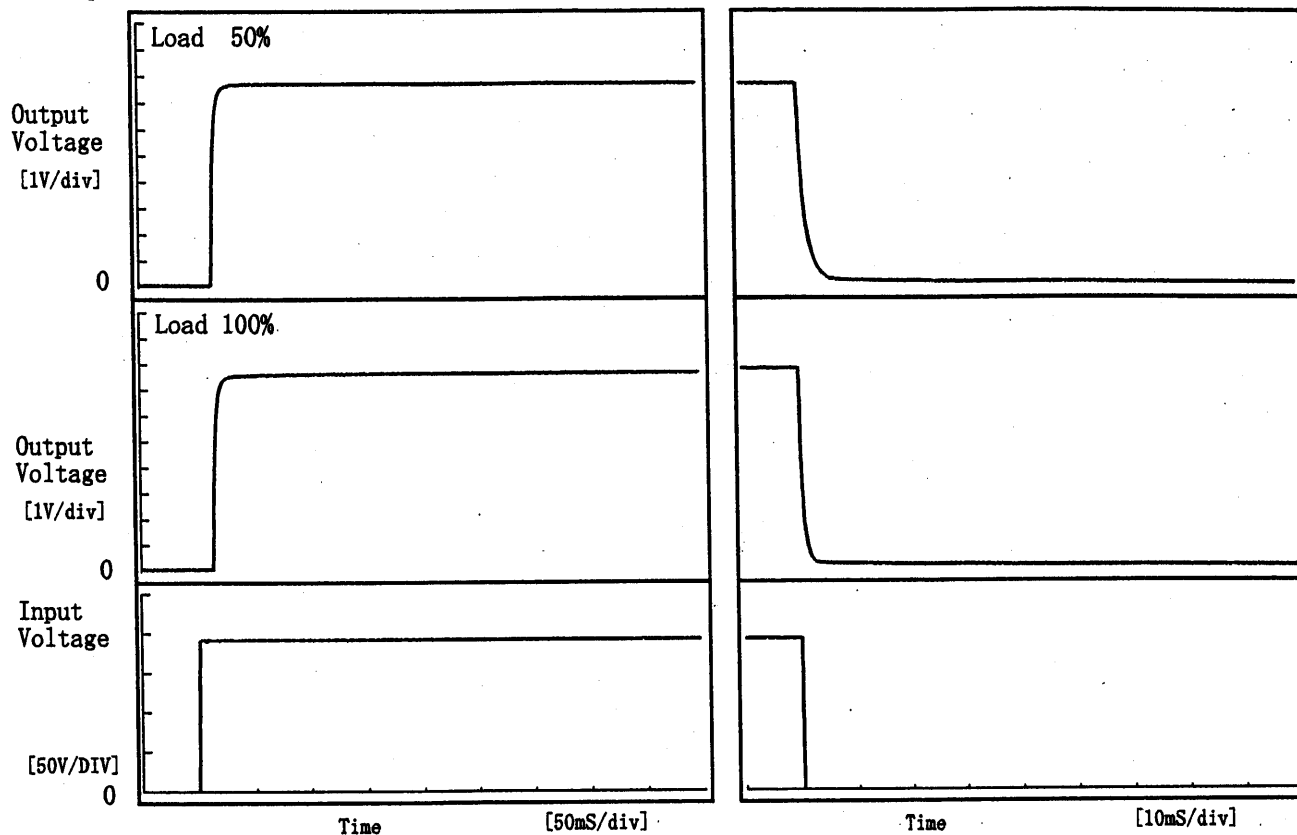
2 ms/div

**COSEL**

Model	DBS400B07	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+7.5V54A		

## 1. Graph

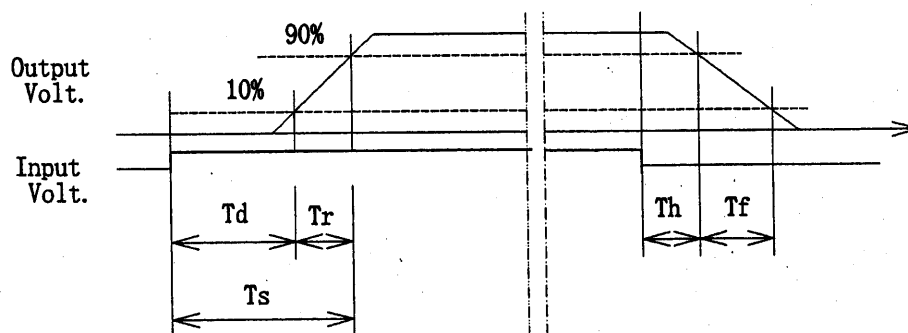
Input Volt. 200 V



## 2. Values

[mS]

Load	Time	T d	T r	T s	T h	T f
50 %		14.00	5.25	19.25	0.1	3.35
100 %		14.25	5.50	19.75	0.1	1.65



**COSEL**

Model

DBS400B07

Item

Rise and Fall Time 立上り、立下り時間

Temperature

25°C

Testing Circuitry

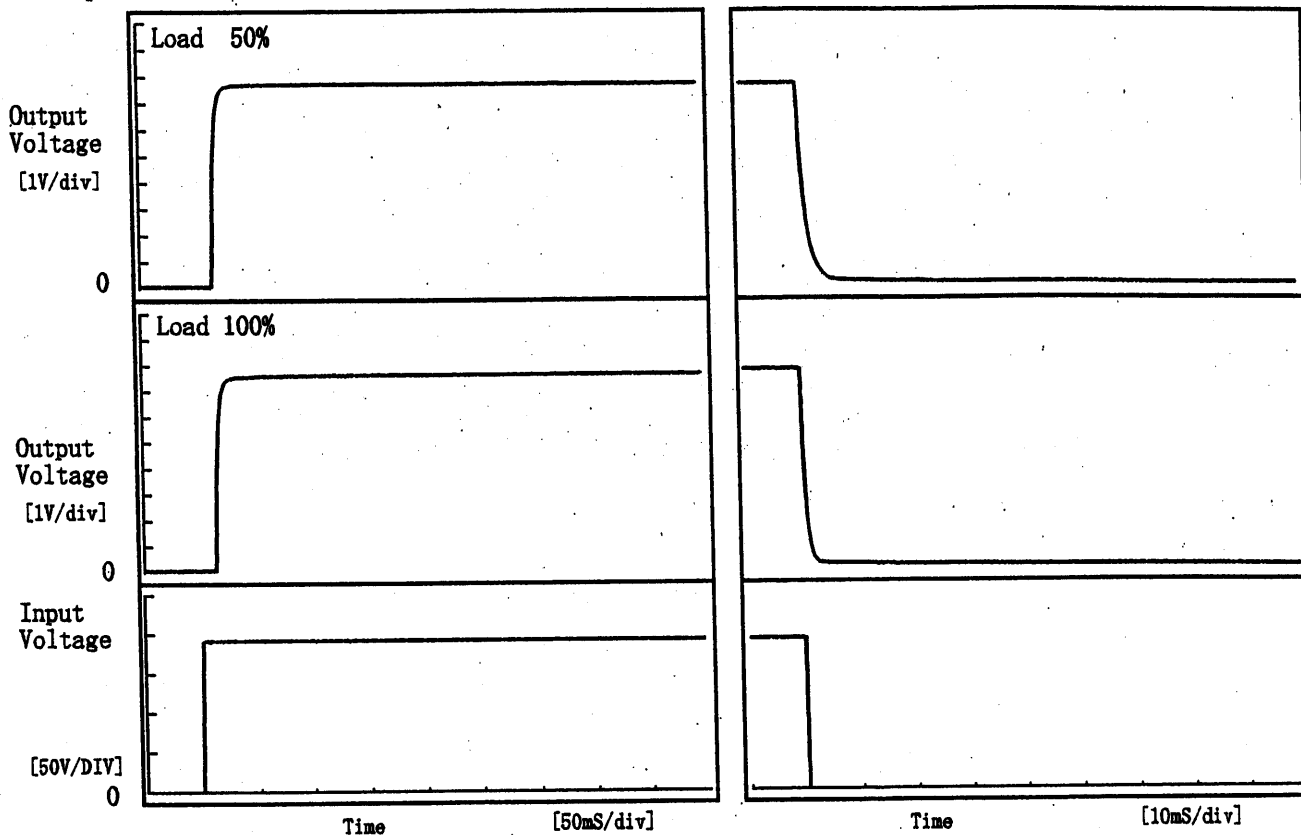
Figure A

Object

+7.5V54A

## 1. Graph

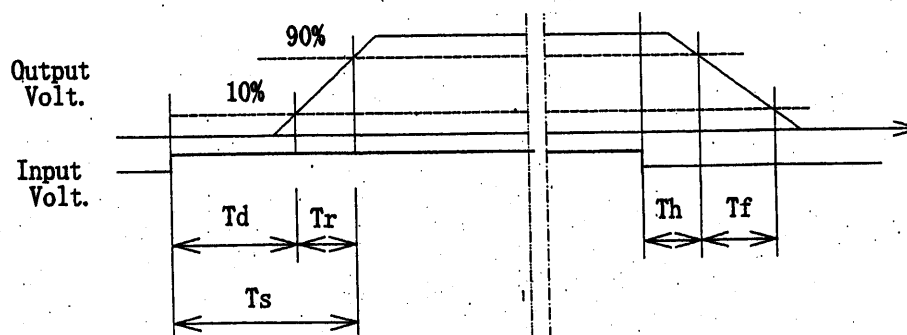
Input Volt. 200 V



## 2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	14.00	5.25	19.25	0.1	3.35
100 %	14.25	5.50	19.75	0.0	1.65



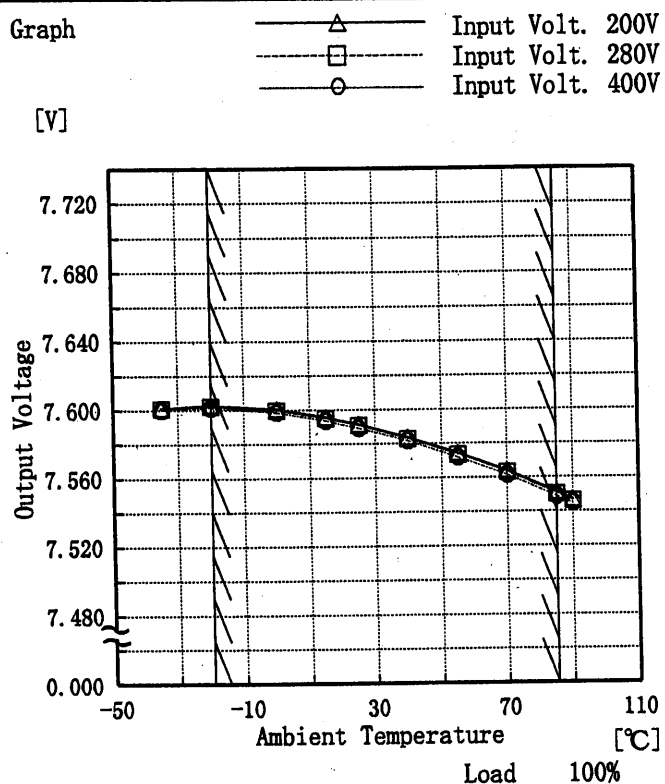


**COSEL**

Model	DBS400B07
Item	Ambient Temperature Drift 周囲温度変動
Object	+7.5V54A

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

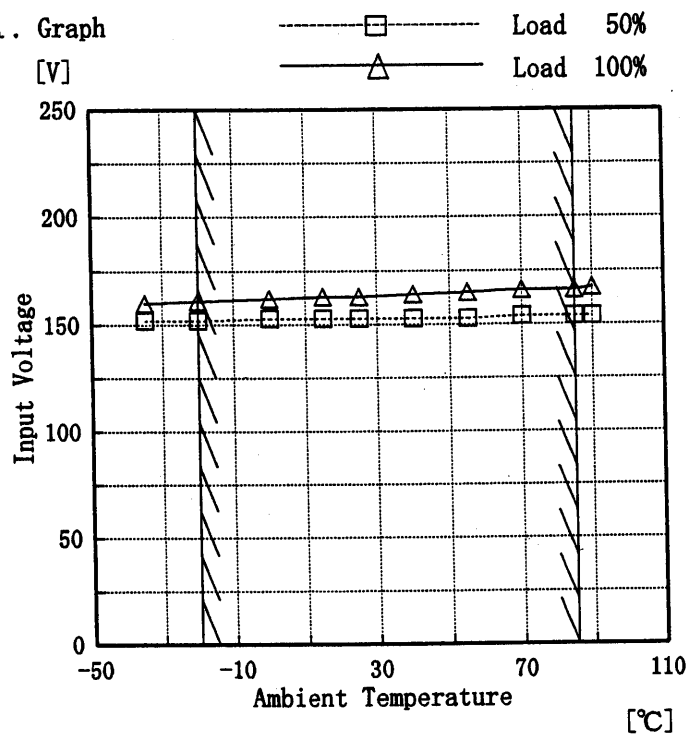
Temperature [°C]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-35	7.601	7.601	7.600
-20	7.603	7.602	7.601
0	7.601	7.600	7.599
15	7.596	7.595	7.594
25	7.591	7.591	7.589
40	7.584	7.583	7.582
55	7.574	7.574	7.572
70	7.564	7.563	7.561
85	7.551	7.550	7.549
90	7.547	7.546	7.545
—	—	—	—

**COSEL**

Model	DBS400B07
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+7.5V54A

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

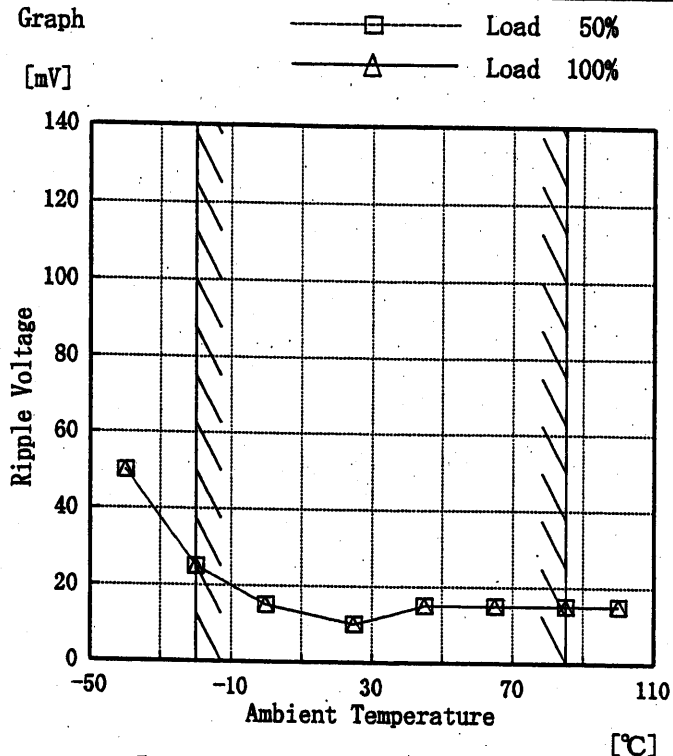
Ambient Temp. [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-35	152	160
-20	152	161
0	153	162
15	153	163
25	153	163
40	153	164
55	153	165
70	154	166
85	154	166
90	154	167
—	—	—

**COSEL**

Model	DBS400B07
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+7.5V54A

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

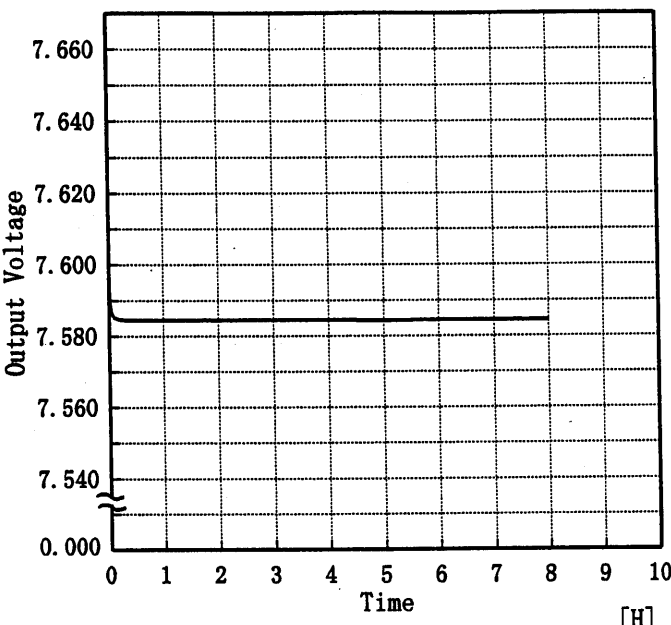
Ambient Temp. [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	50	50
-20	25	25
0	15	15
25	10	10
45	15	15
65	15	15
85	15	15
100	15	15
—	—	—
—	—	—
—	—	—

**COSEL**

COSEL	
Model	DBS400B07
Item	Time Lapse Drift 経時ドリフト
Object	+7.5V54A

1. Graph

[V]



Input Volt.280V

Load100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	7.594
0.5	7.584
1.0	7.584
2.0	7.584
3.0	7.584
4.0	7.584
5.0	7.584
6.0	7.585
7.0	7.584
8.0	7.584

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BC-3250

**COSEL**

Model		DBS400B07	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度		
Object	+7.5V54A		

**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 : 0.00~54.00 A

$$* \text{ Output Voltage Accuracy} = \pm (\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$$

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

**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 0.00~54.00 A

$$* \text{ 定電圧精度(変動値)} = \pm (\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$$

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

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ratio) [%]
Maximum Voltage	-20	400	0.00	7.608	±30	±0.4
Minimum Voltage	85	400	54.00	7.549		

# COSEL

Model		DBS400B07	Testing Circuitry      Figure A
Item		Condensation 結露特性	
Object		+7.5V54A	

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]	7.602	Input Volt.: 280V, Load Current:54A
Line Regulation [mV]	1	Input Volt.: 200~400V, Load Current:54A
Load Regulation [mV]	5	Input Volt.: 280V, Load Current:0~54A

**COSEL**

<b>Model</b>		<b>DBS400B07</b>	
<b>Item</b>		<b>Line Noise Tolerance</b> <b>入力雑音耐量</b>	
<b>Object</b>		<b>+7.5V54A</b>	

Temperature      25℃  
 Testing Circuitry      Figure C

## 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 %

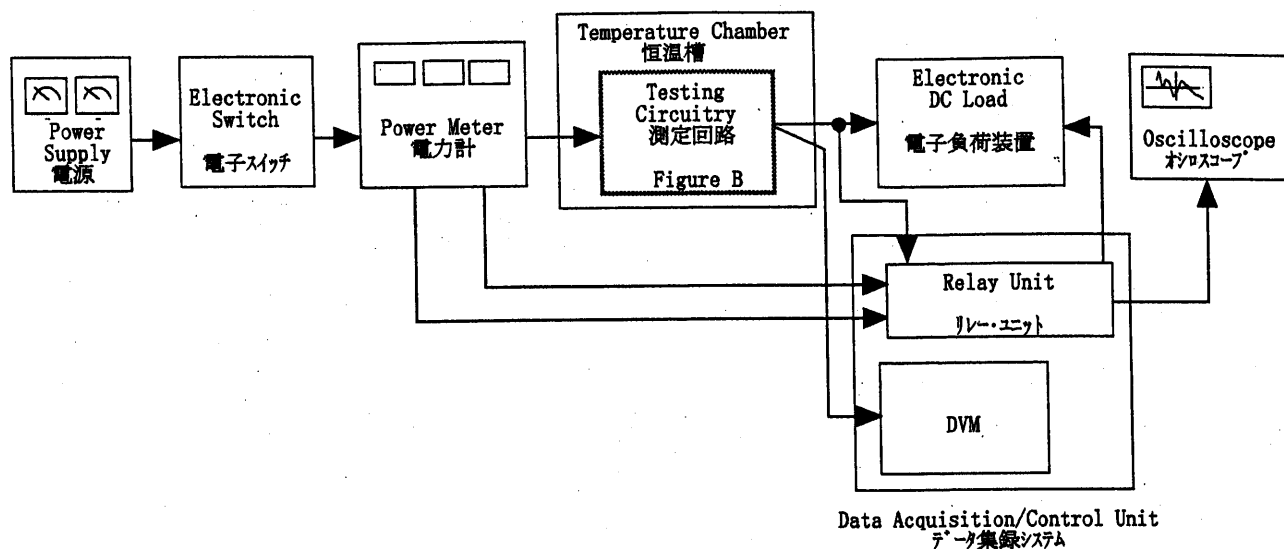


Figure A

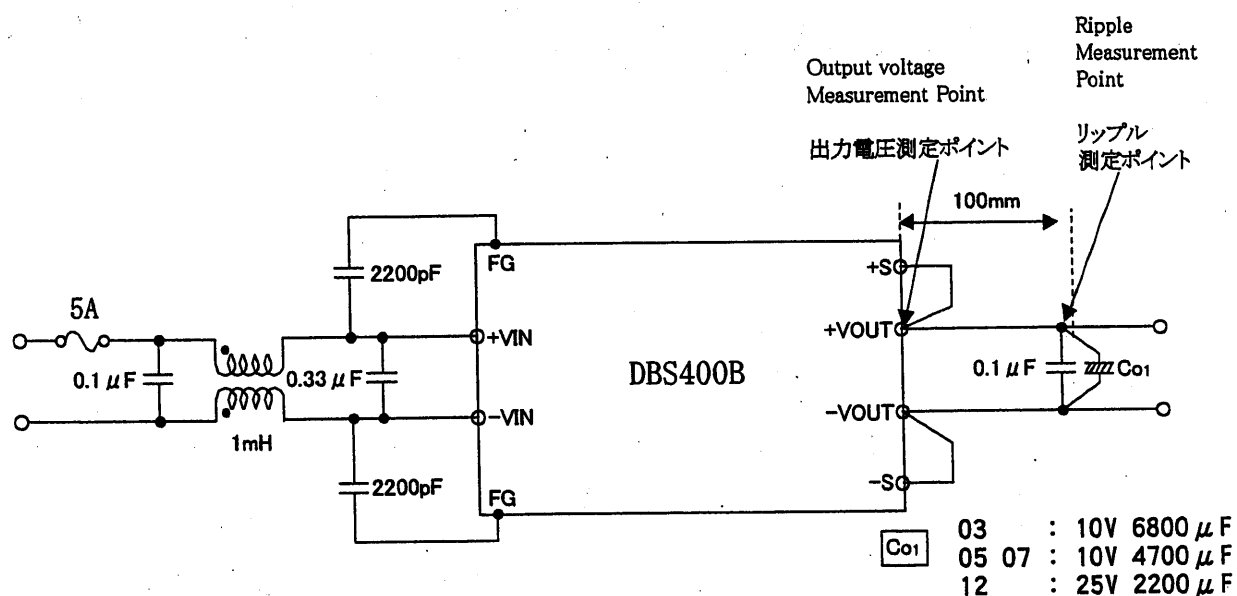


Figure B (General Electric Characteristic)  
一般電気特性



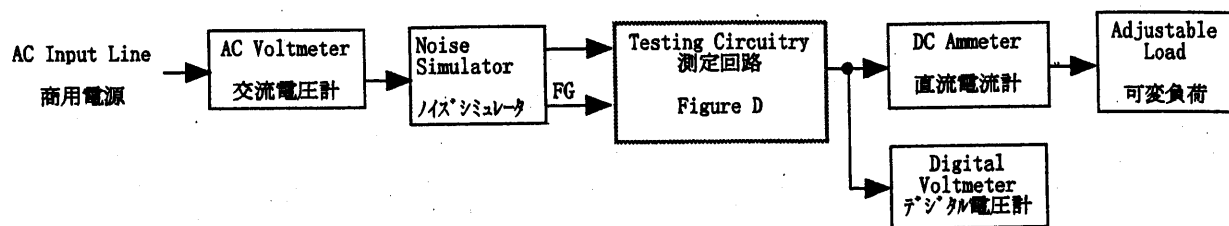


Figure C

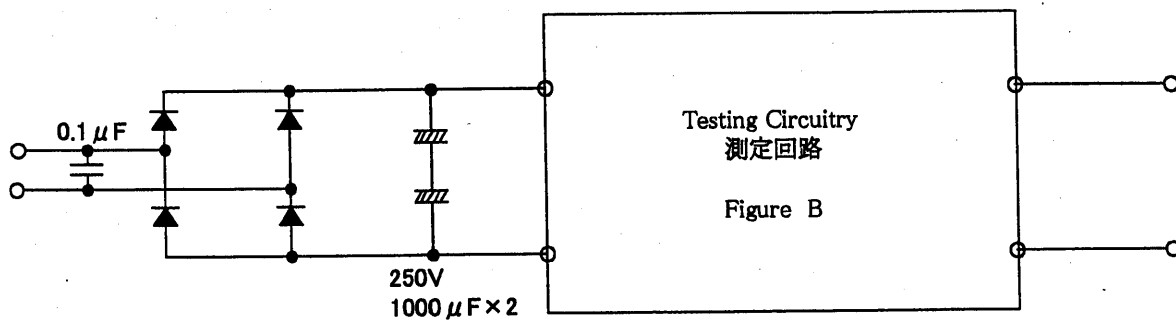


Figure D (Line Noise Tolerance)  
入力雑音耐量