COSEL

参考資料

TEST DATA OF SNDBS400B12

Regulated DC Power Supply
July 9, 2012

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COSEL CO.,LTD.

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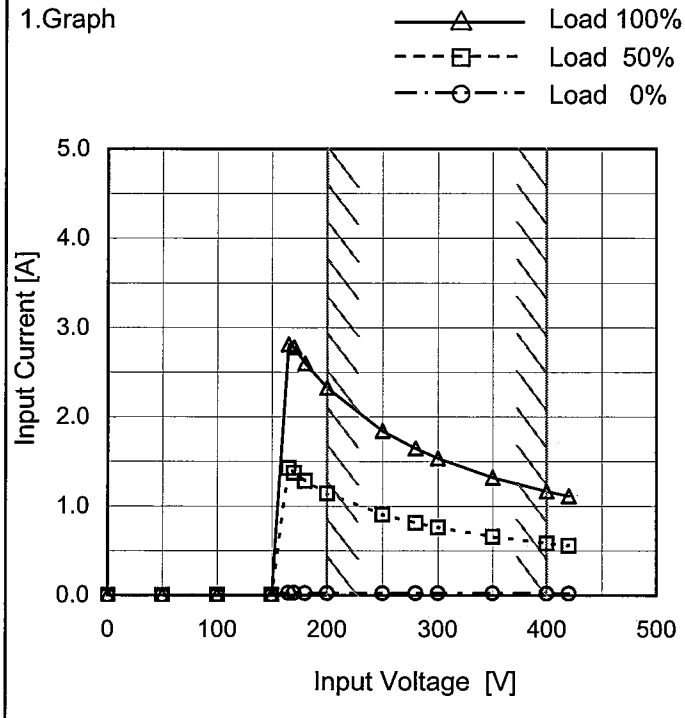
CONTENTS

COSEL

Model	SNDBS400B12
Item	Input Current (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

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	0.003	0.003	0.003
150	0.004	0.004	0.004
165	0.028	1.425	2.812
170	0.027	1.372	2.781
180	0.027	1.282	2.602
200	0.026	1.141	2.326
250	0.024	0.906	1.844
280	0.024	0.812	1.650
300	0.024	0.761	1.537
350	0.023	0.659	1.323
400	0.023	0.583	1.166
420	0.023	0.558	1.113
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

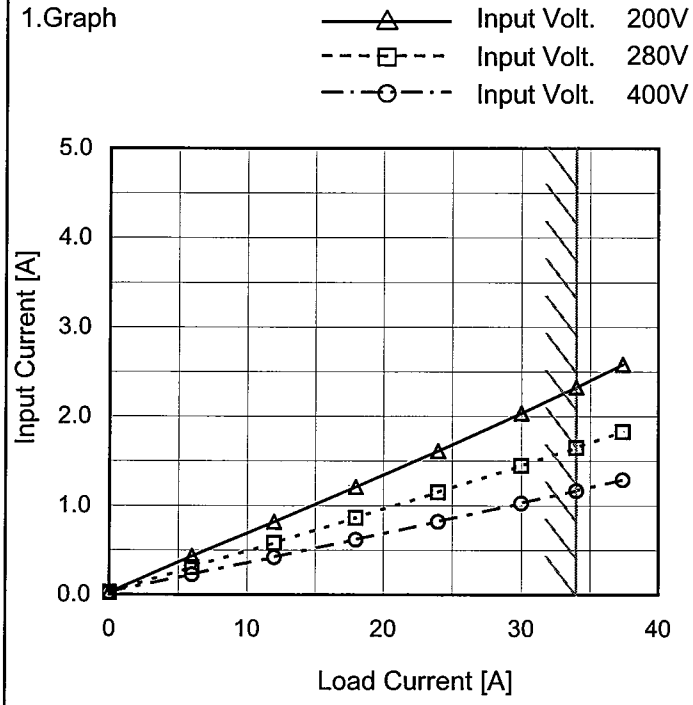
BC-10652

COSEL

Model	SNDBS400B12
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	0.026	0.024	0.023
6.0	0.434	0.304	0.225
12.0	0.818	0.580	0.420
18.0	1.210	0.862	0.618
24.0	1.614	1.150	0.819
30.0	2.036	1.446	1.026
34.0	2.326	1.650	1.166
37.4	2.582	1.827	1.289
--	-	-	-
--	-	-	-
--	-	-	-

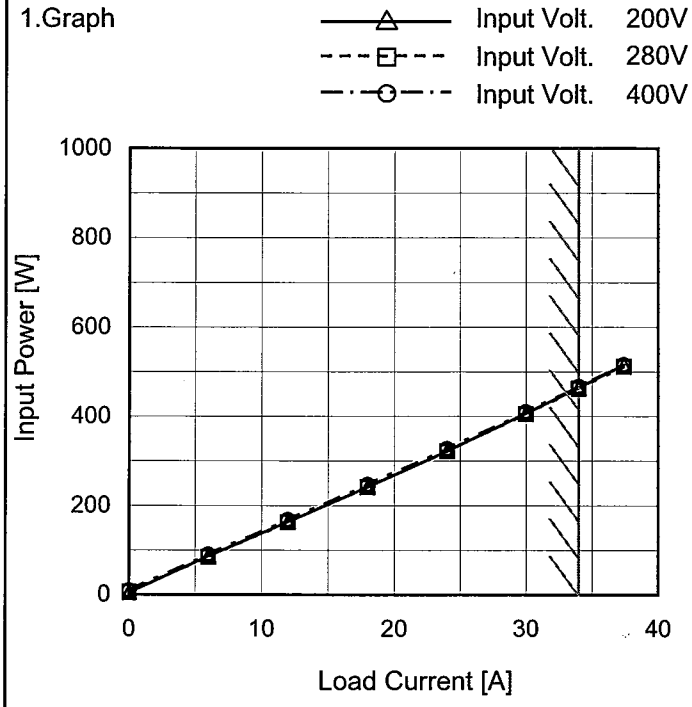
BC-10652

COSEL

Model	SNDBS400B12
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	5.2	6.7	9.4
6.0	86.8	85.1	90.2
12.0	163.5	162.5	168.1
18.0	241.9	241.3	247.2
24.0	322.8	322.1	327.8
30.0	407.0	405.1	410.0
34.0	465.0	462.0	467.0
37.4	516.0	511.7	516.0
--	-	-	-
--	-	-	-
--	-	-	-

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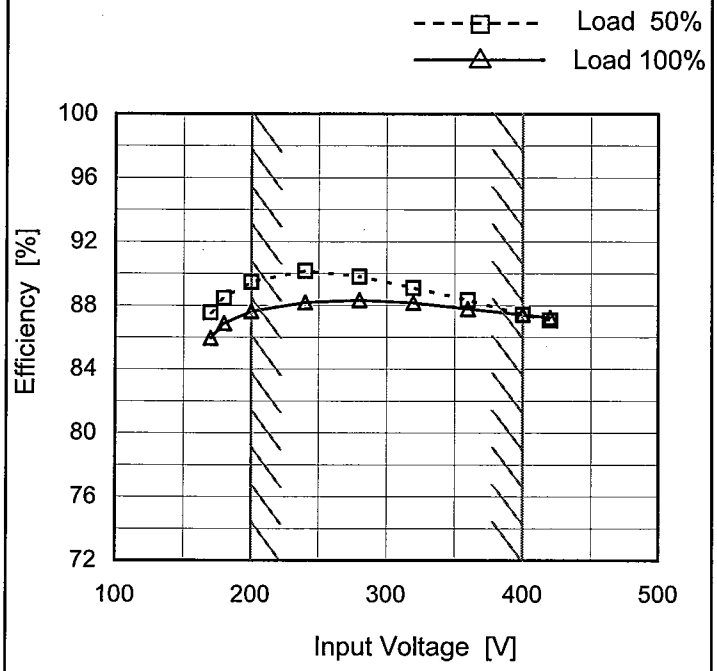
Model	SNDBS400B12
Item	Efficiency (by Input Voltage)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
170	87.5	86.0
180	88.4	86.9
200	89.5	87.6
240	90.2	88.2
280	89.8	88.3
320	89.1	88.2
360	88.3	87.8
400	87.4	87.4
420	87.1	87.2

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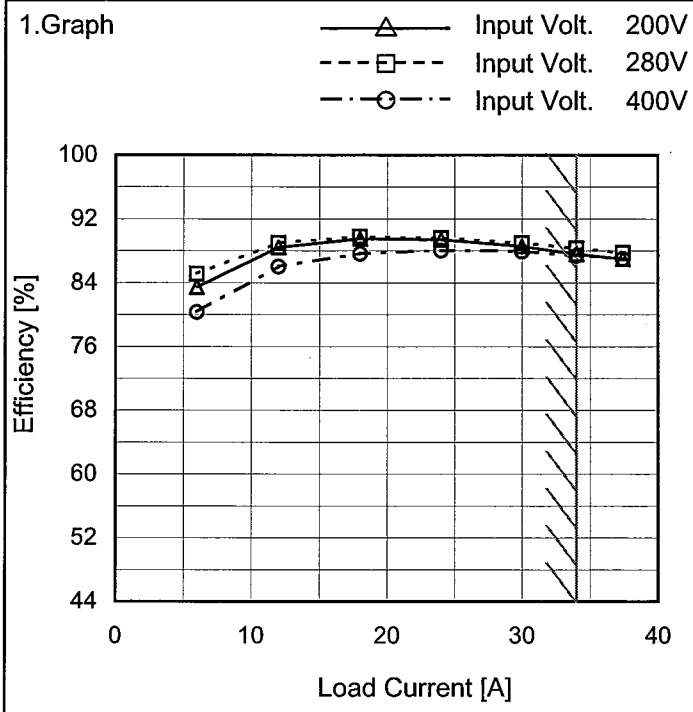
Model	SNDBS400B12
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	-	-	-
6.0	83.5	85.1	80.3
12.0	88.5	89.0	86.0
18.0	89.6	89.8	87.6
24.0	89.4	89.6	88.0
30.0	88.6	89.0	87.9
34.0	87.6	88.3	87.4
37.4	87.0	87.7	87.0
--	-	-	-
--	-	-	-
--	-	-	-

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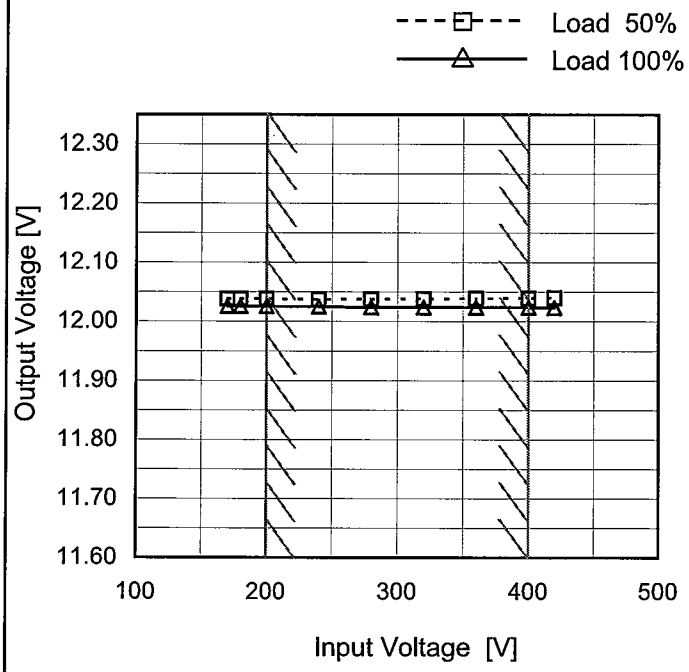
Model	SNDBS400B12
Item	Line Regulation
Object	+12V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

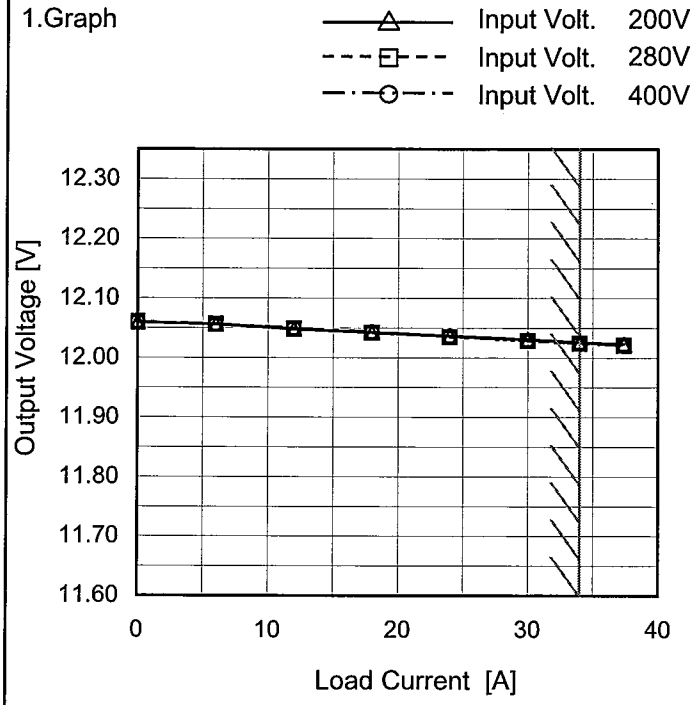
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	12.038	12.026
180	12.039	12.026
200	12.038	12.026
240	12.037	12.025
280	12.038	12.024
320	12.039	12.024
360	12.039	12.024
400	12.040	12.024
420	12.040	12.024

COSEL

Model	SNDBS400B12
Item	Load Regulation
Object	+12V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	12.060	12.060	12.060
6.0	12.056	12.056	12.056
12.0	12.049	12.049	12.049
18.0	12.043	12.042	12.043
24.0	12.037	12.035	12.036
30.0	12.031	12.028	12.029
34.0	12.026	12.024	12.024
37.4	12.023	12.021	12.021
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SNDBS400B12
Item	Dynamic Load Response
Object	+12V34A

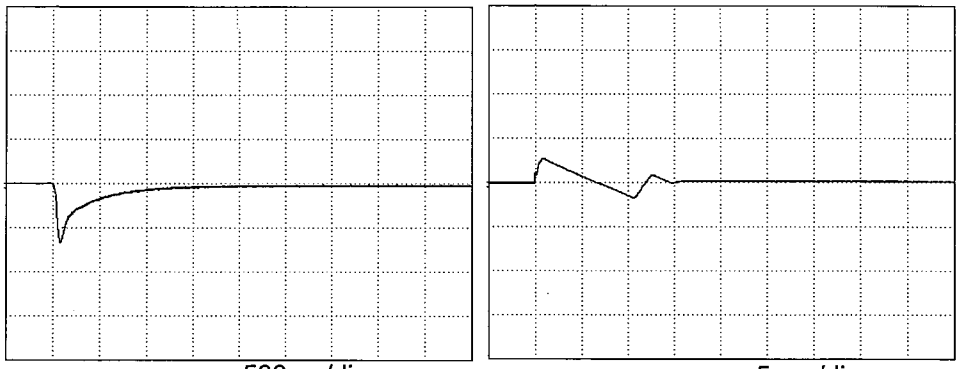
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 280 V
Cycle 1000 ms

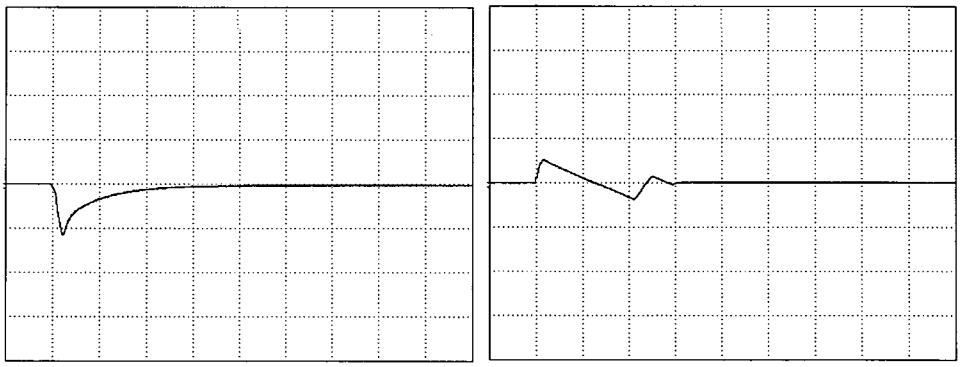
Load Current

34A/75μs

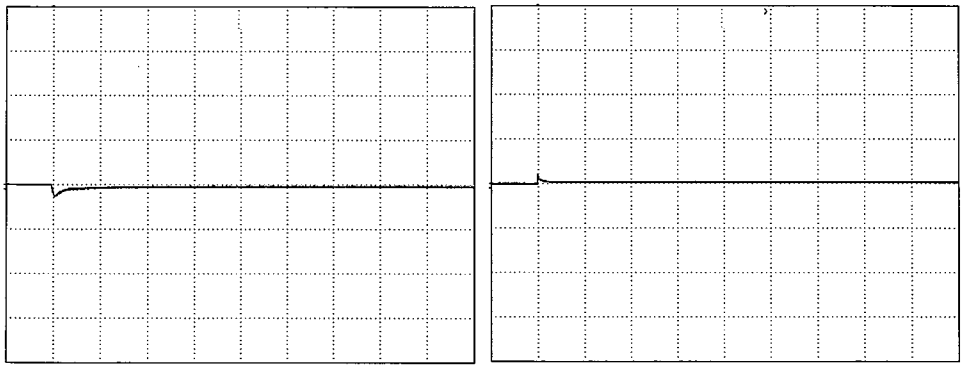
Min. Load (0A) ⟷
Load 100% (34A)



Min. Load (0A) ⟷
Load 50% (17A)



Load 10% (3.4A) ⟷
Load 100% (34A)



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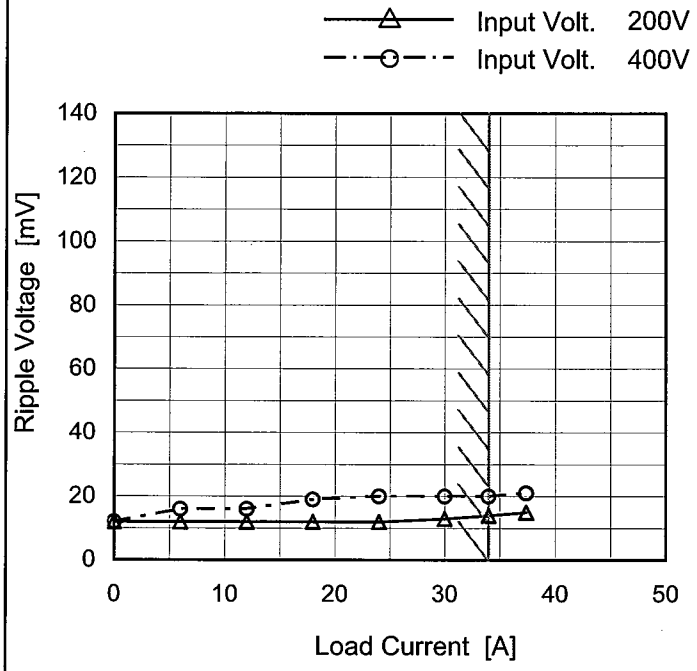
Model	SNDBS400B12
Item	Ripple Voltage (by Load Current)
Object	+12V34A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

Ripple [mVp-p]

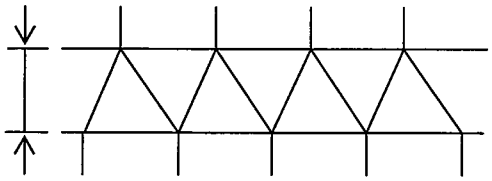


Fig.Complex Ripple Wave Form

2.Values

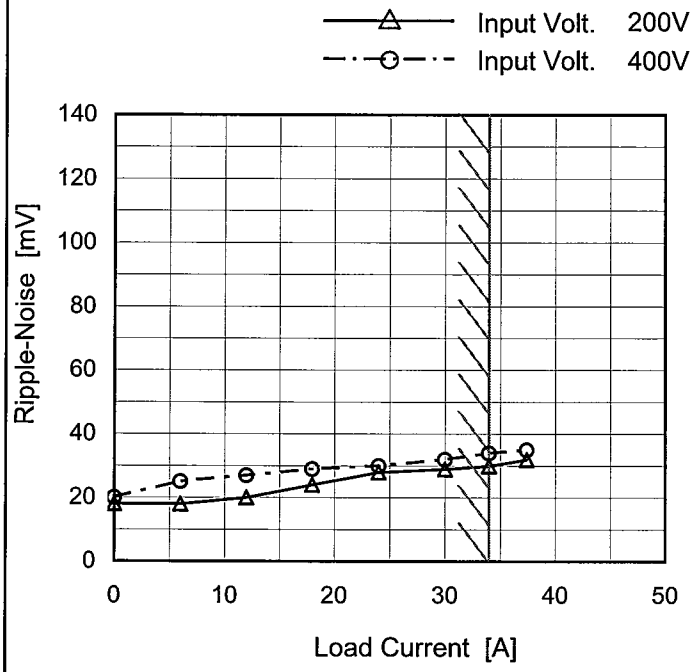
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	12	12
6.0	12	16
12.0	12	16
18.0	12	19
24.0	12	20
30.0	13	20
34.0	14	20
37.4	15	21
--	-	-
--	-	-
--	-	-

COSEL

Model	SNDBS400B12
Item	Ripple-Noise
Object	+12V34A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

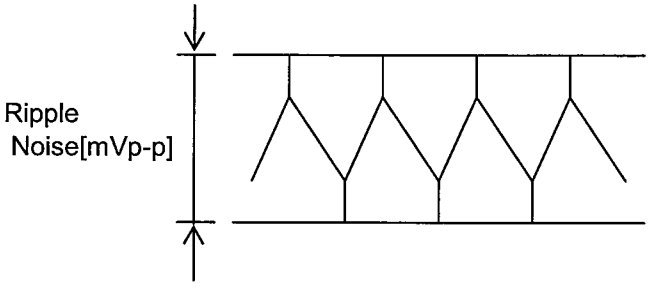


Fig.Complex Ripple Noise Wave Form

2.Values

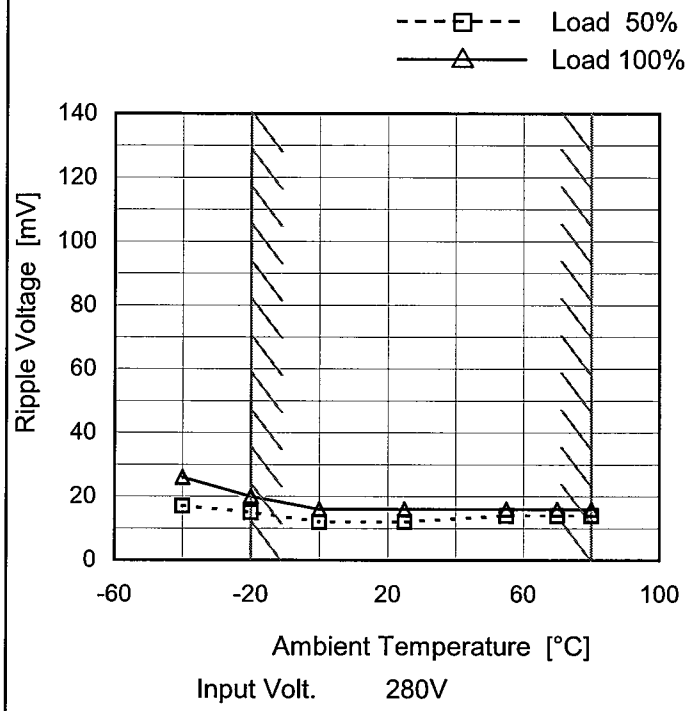
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	18	20
6.0	18	25
12.0	20	27
18.0	24	29
24.0	28	30
30.0	29	32
34.0	30	34
37.4	32	35
--	-	-
--	-	-
--	-	-

COSEL

Model	SNDBS400B12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V34A

Testing Circuitry Figure B

1.Graph



Input Volt. 280V

Measured by 100 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

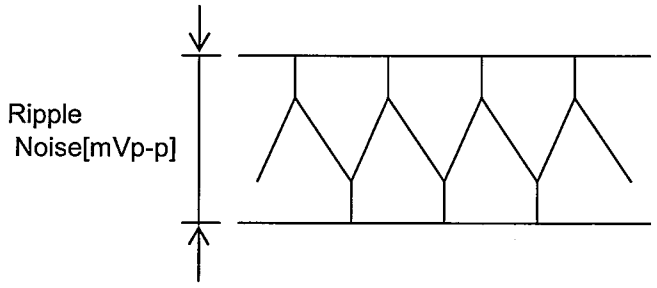


Fig.Complex Ripple Noise Wave Form

2.Values

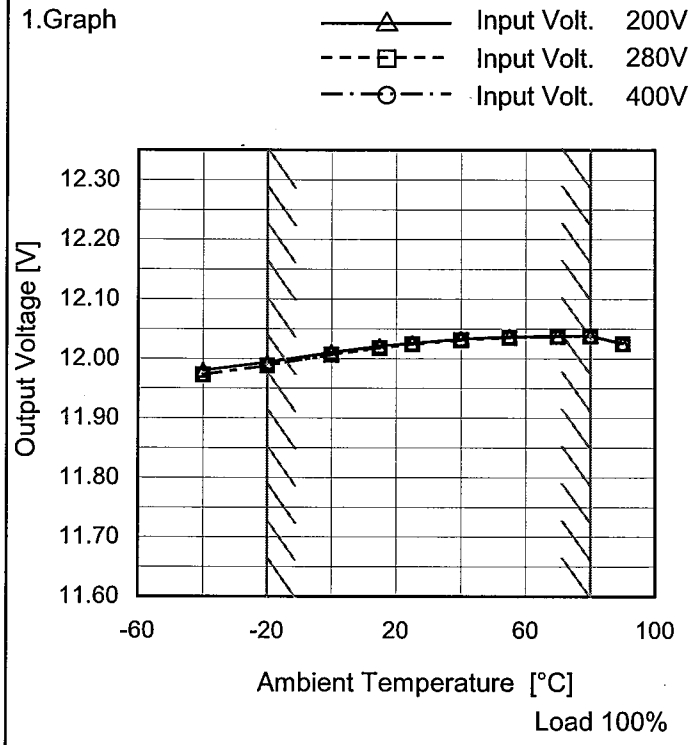
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	17	26
-20	15	20
0	12	16
25	12	16
55	14	16
70	14	16
80	14	16
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SNDBS400B12
Item	Ambient Temperature Drift
Object	+12V34A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-40	11.981	11.973	11.973
-20	11.994	11.988	11.988
0	12.011	12.006	12.007
15	12.021	12.018	12.018
25	12.026	12.024	12.024
40	12.033	12.031	12.031
55	12.037	12.035	12.035
70	12.038	12.037	12.037
80	12.038	12.038	12.038
90	12.025	12.025	12.025
--	-	-	-

COSEL

Model	SNDBS400B12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V34A	

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 - 80°C
Input Voltage : 200 - 400V
Load Current : 0 - 34A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

2.Values

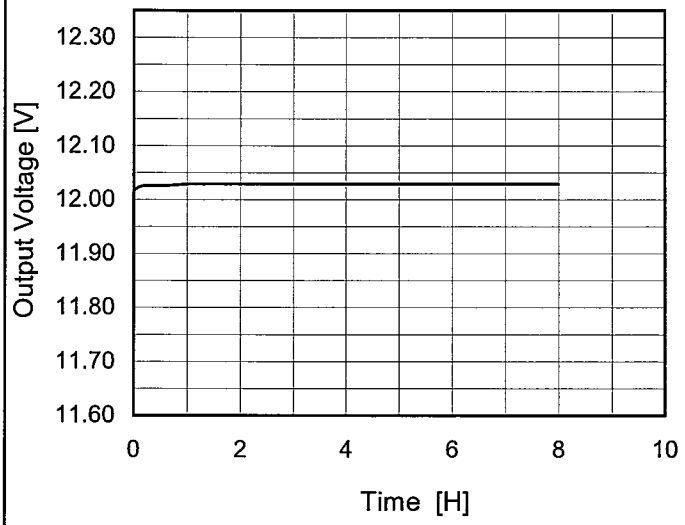
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	80	400	0	12.094	±45	±0.4
Minimum Voltage	-20	280	34	12.005		

COSEL

Model	SNDBS400B12
Item	Time Lapse Drift
Object	+12V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 280V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.018
0.5	12.026
1.0	12.029
2.0	12.029
3.0	12.029
4.0	12.029
5.0	12.029
6.0	12.029
7.0	12.029
8.0	12.029

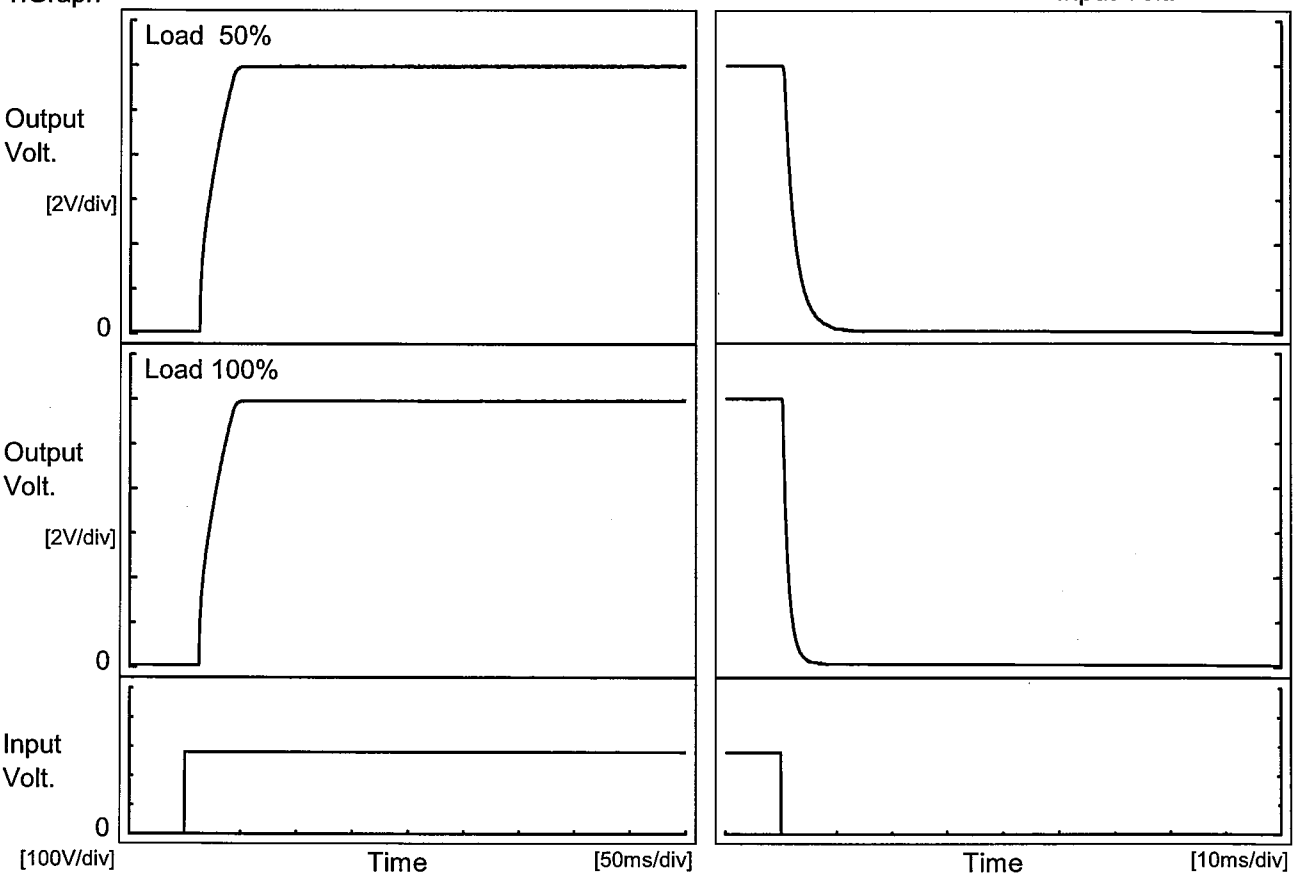
COSEL

Model	SNDBS400B12
Item	Rise and Fall Time
Object	+12V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

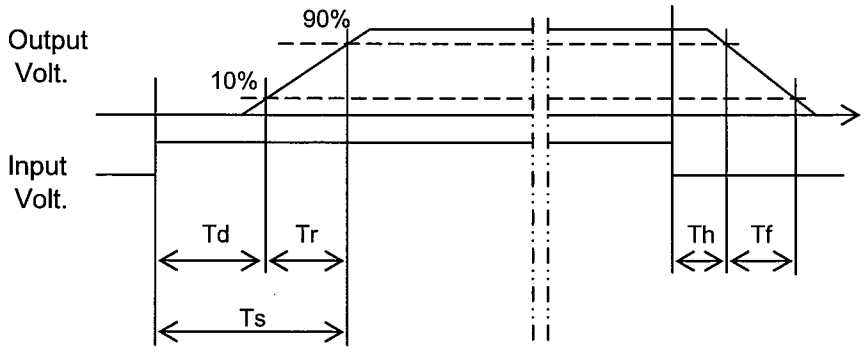
Input Volt. 280 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	13.5	26.5	40.0	0.6	4.5
100 %	13.3	27.0	40.3	0.4	2.2

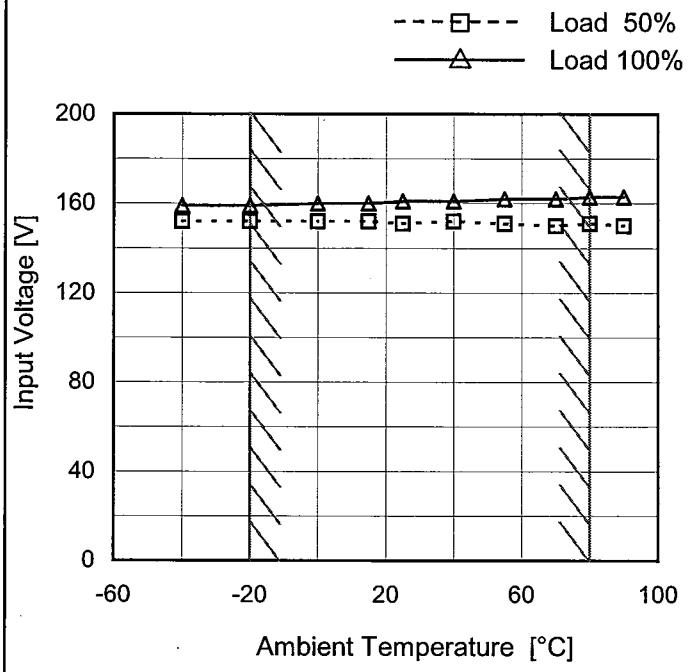


COSEL

Model	SNDBS400B12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V34A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

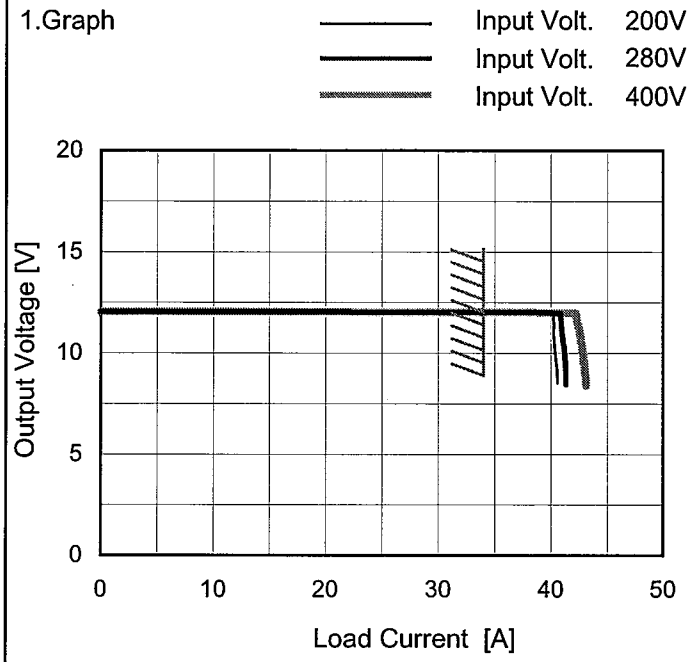
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	152	159
-20	152	159
0	152	160
15	152	160
25	151	161
40	152	161
55	151	162
70	150	162
80	151	163
90	150	163
--	-	-

COSEL

Model	SNDBS400B12
Item	Overcurrent Protection
Object	+12V34A

Temperature 25°C
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 8.4V to 0V.

2.Values

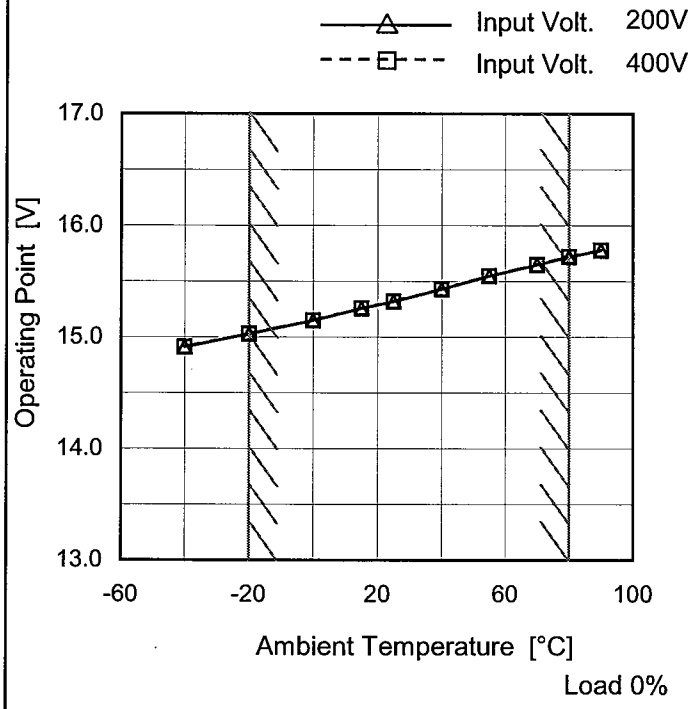
Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
11.4	40.27	40.94	42.40
10.8	38.97	38.81	38.75
9.6	40.45	41.26	42.85
8.4	40.60	41.34	43.13
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SNDBS400B12
Item	Overvoltage Protection
Object	+12V34A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 200[V]	Input Volt. 400[V]
-40	14.91	14.91
-20	15.03	15.03
0	15.15	15.15
15	15.26	15.26
25	15.32	15.32
40	15.43	15.43
55	15.55	15.55
70	15.65	15.65
80	15.72	15.72
90	15.78	15.78
--	-	-

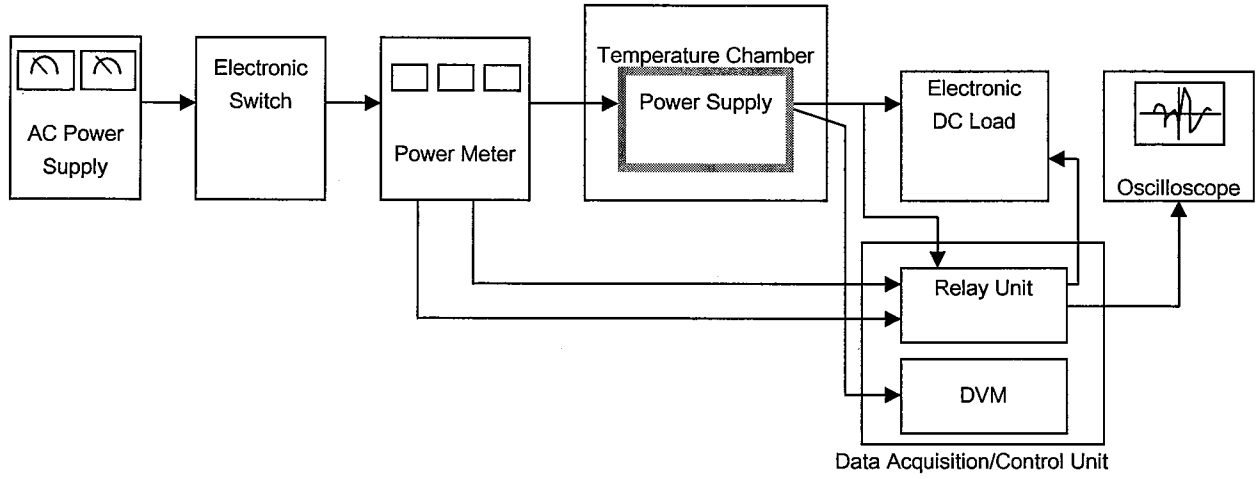


Figure A

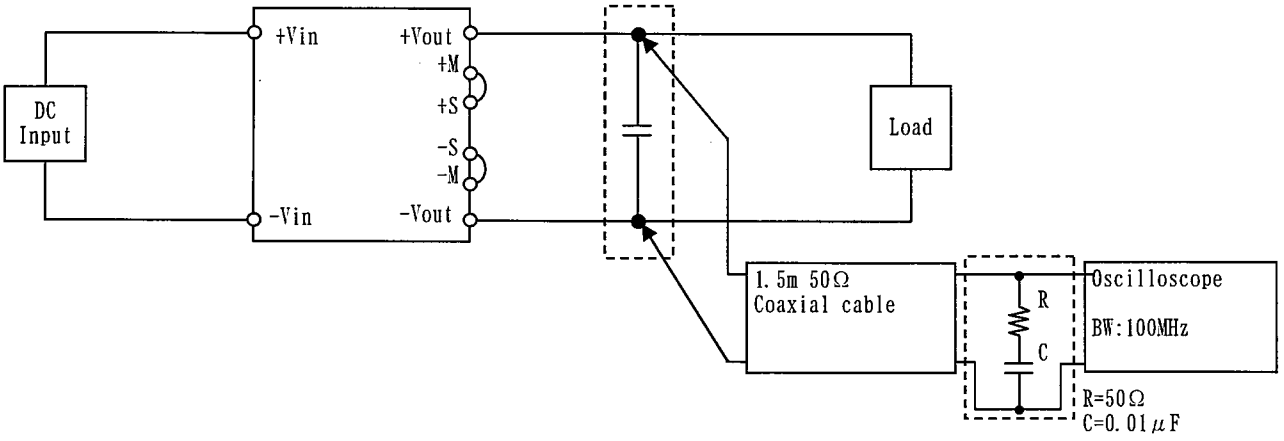


Figure B (Ripple and Ripple noise Characteristic)