参考資料

COSEL

TEST DATA OF DHS250B12

Regulated DC Power Supply
November 17, 2009

Approved by : Tatsuya Mano
Tatsuya Mano — Design Manager

Prepared by : Noriaki Nakase
Noriaki Nakase — Design Engineer

COSEL CO.,LTD.

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CONTENTS

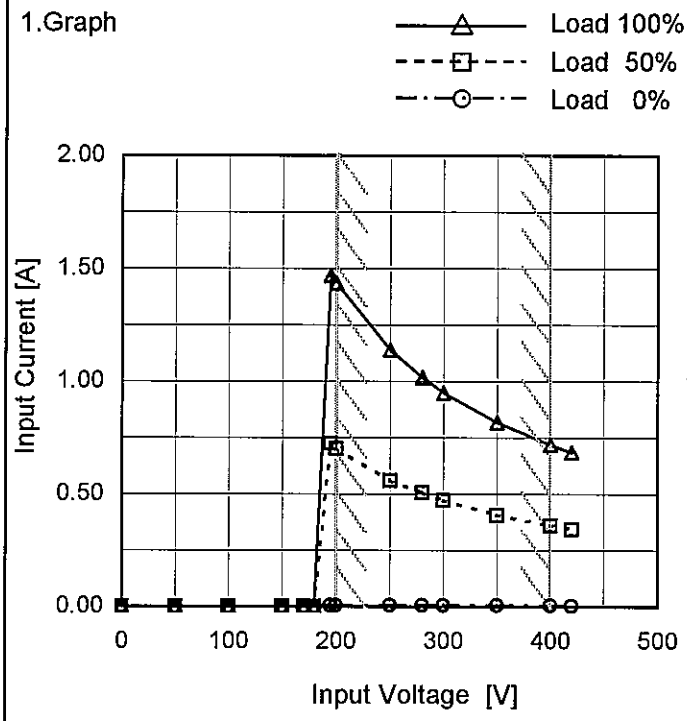
1.Input Current (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 1
2.Input Current (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 2
3.Input Power (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 3
4.Efficiency (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 4
5.Efficiency (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 5
6.Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 6
7.Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 7
8.Dynamic Load Response ・・・・・・・・・・・・・・・・・・・・・・・・・・ 8
9.Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・ 9
10.Ripple-Noise ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 10
11.Ripple Voltage (by Ambient Temperature) ・・・・・・・・・・・・・・・・・ 11
12.Ambient Temperature Drift ・・・・・・・・・・・・・・・・・・・・・・・・ 12
13.Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・・・・・・・・ 13
14.Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 14
15.Rise and Fall Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 15
16.Minimum Input Voltage for Regulated Output Voltage ・・・・・・・・・・・ 16
17.Overcurrent Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・ 17
18.Overvoltage Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・ 18
19.Figure of Testing Circuitry ・・・・・・・・・・・・・・・・・・・・・・・・ 19
(Final Page 19)

COSEL

Model	DHS250B12
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

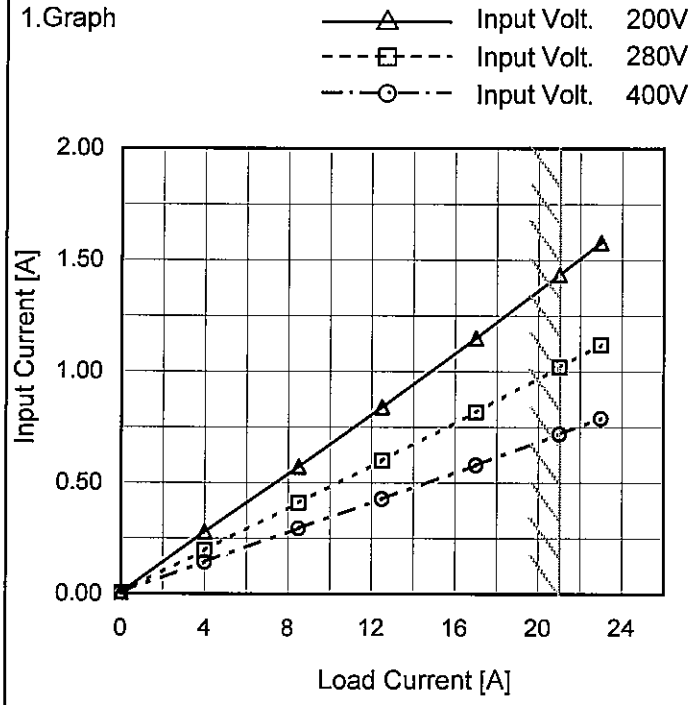
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
50	0.000	0.000	0.000
100	0.000	0.000	0.000
150	0.000	0.000	0.000
170	0.000	0.000	0.000
180	0.000	0.000	0.000
195	0.005	0.724	1.470
200	0.005	0.703	1.434
250	0.005	0.561	1.138
280	0.005	0.507	1.018
300	0.005	0.471	0.950
350	0.006	0.407	0.817
400	0.006	0.360	0.719
420	0.003	0.344	0.686
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS250B12
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	0.005	0.005	0.006
4.0	0.278	0.196	0.143
8.5	0.572	0.409	0.294
12.5	0.839	0.599	0.426
17.0	1.149	0.818	0.579
21.0	1.434	1.018	0.719
23.1	1.578	1.119	0.789
--	-	-	-
--	-	-	-
--	-	-	-
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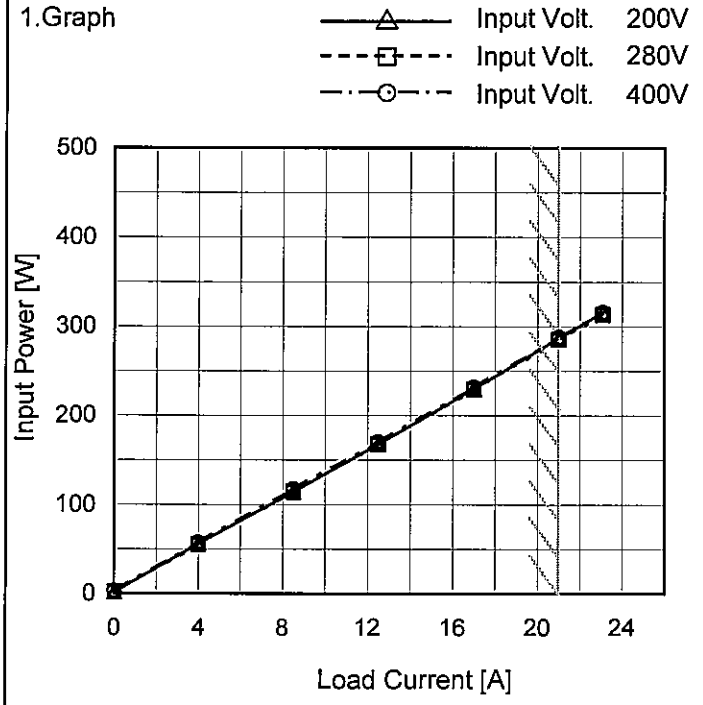
COSEL

Model	DHS250B12
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

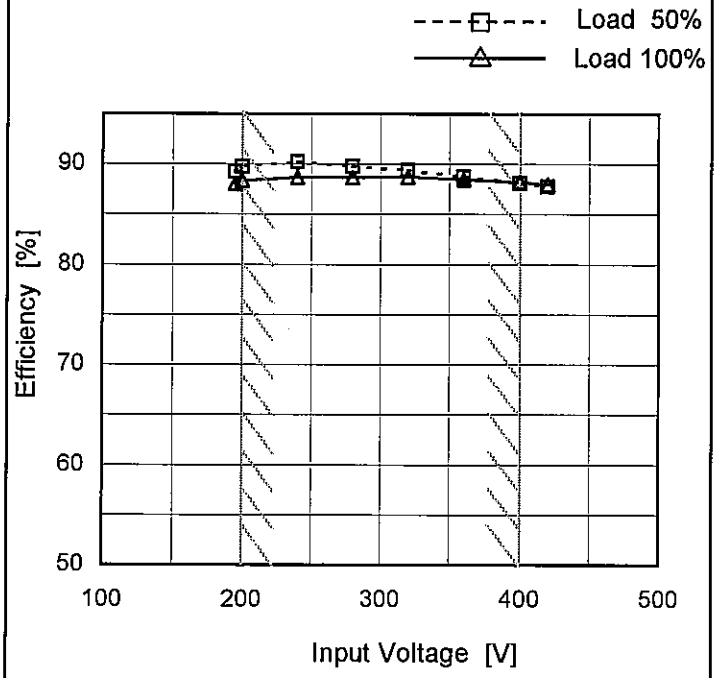
Load Current [A]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	1.0	1.4	2.4
4.0	55.6	54.9	57.2
8.5	114.4	114.5	117.6
12.5	167.8	167.7	170.4
17.0	229.8	229.0	231.6
21.0	286.8	285.0	287.6
23.1	315.6	313.3	315.6
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS250B12
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

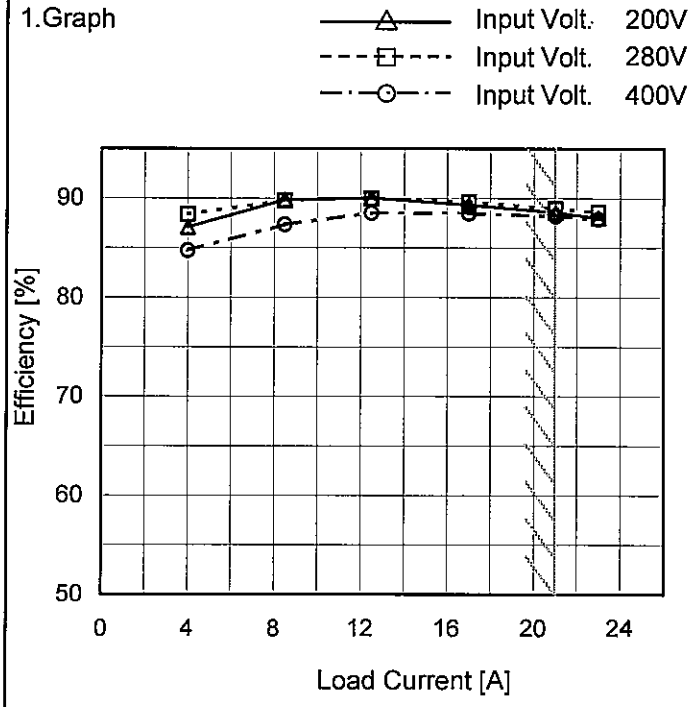
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
195	89.3	88.0
200	89.8	88.6
240	90.2	88.7
280	89.8	88.9
320	89.4	88.7
360	88.7	88.5
400	88.1	88.2
420	87.8	88.0
--	-	-

COSEL

Model	DHS250B12
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

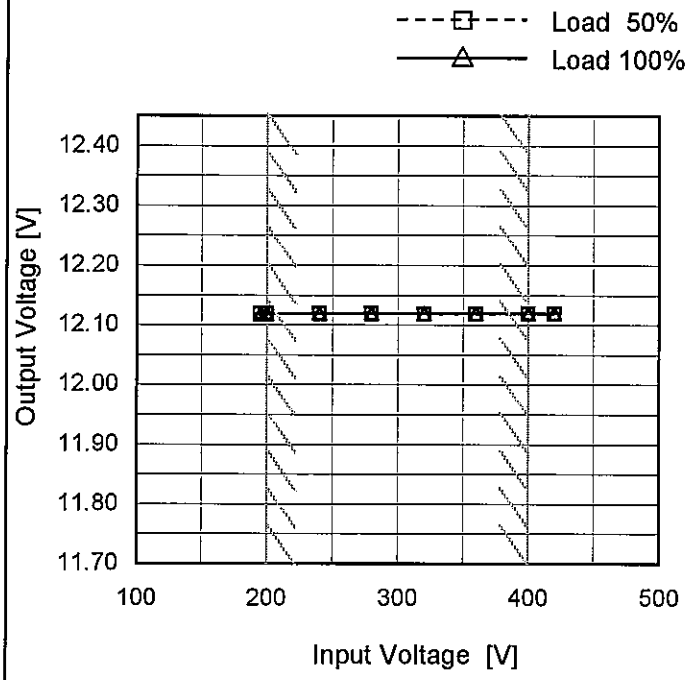
Load Current [A]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	-	-	-
4.0	87.1	88.4	84.7
8.5	89.8	89.8	87.3
12.5	90.0	90.0	88.5
17.0	89.3	89.6	88.5
21.0	88.6	88.9	88.2
23.1	88.0	88.6	87.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS250B12
Item	Line Regulation
Object	+12V21A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

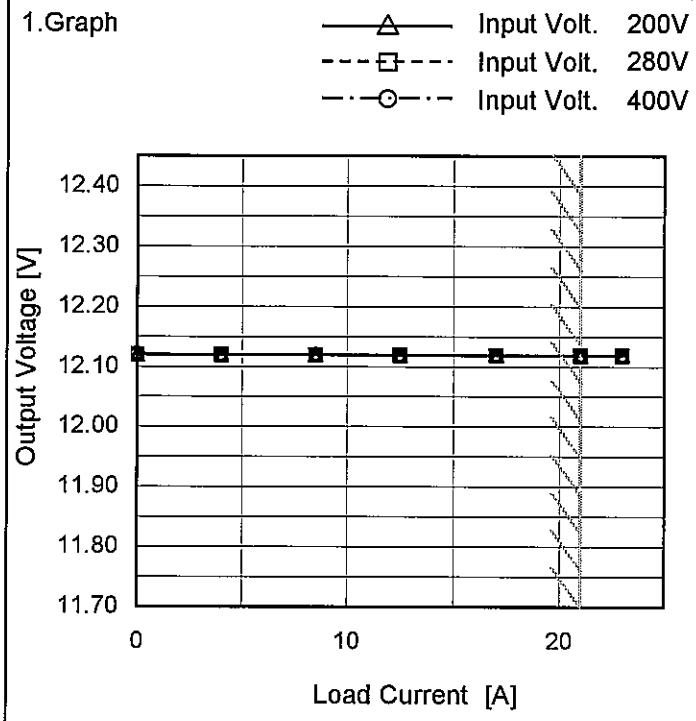
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
195	12.119	12.118
200	12.119	12.119
240	12.119	12.119
280	12.119	12.119
320	12.119	12.119
360	12.119	12.119
400	12.119	12.119
420	12.119	12.119
--	-	-

COSEL

Model	DHS250B12
Item	Load Regulation
Object	+12V21A

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	12.120	12.120	12.120
4.0	12.120	12.119	12.120
8.5	12.119	12.119	12.119
12.5	12.119	12.119	12.119
17.0	12.119	12.119	12.119
21.0	12.119	12.119	12.119
23.0	12.118	12.119	12.119
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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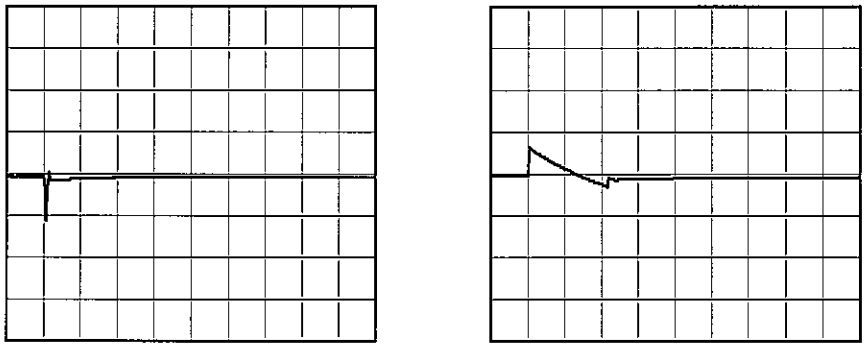
Model	DHS250B12
Item	Dynamic Load Response
Object	+12V21A

Temperature 25°C
Testing Circuitry Figure A

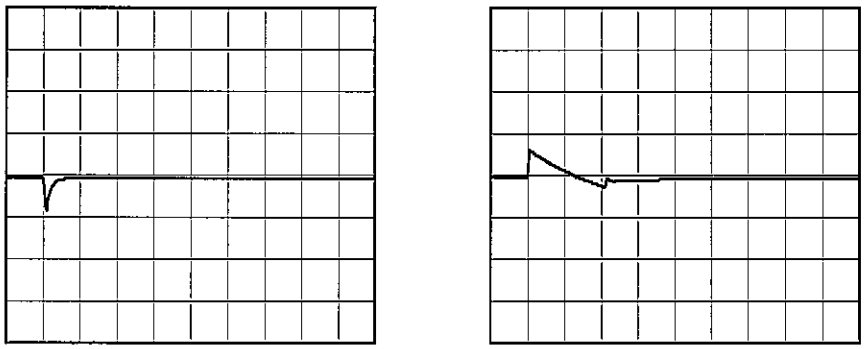
Input Volt. 280 V
Cycle 1000 mS

Load Current
21.0A/50 μs

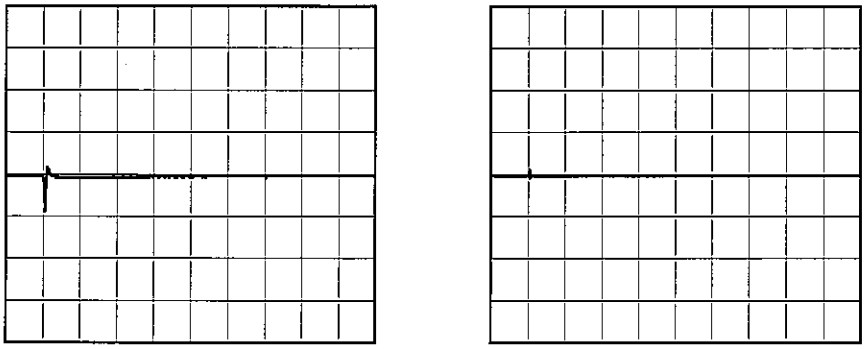
Min. Load (0A) ⟷
Load 100% (21A)



Min. Load (0A) ⟷
Load 50% (10.5A)



Load 10% (2.1A) ⟷
Load 100% (21A)



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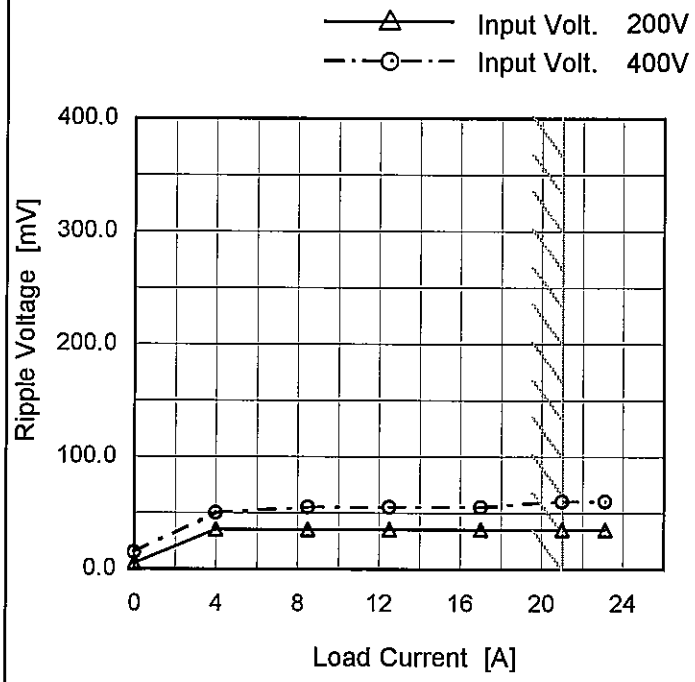
Model	DHS250B12
Item	Ripple Voltage (by Load Current)
Object	+12V21A

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]

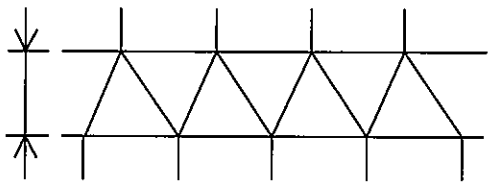


Fig.Complex Ripple Wave Form

2.Values

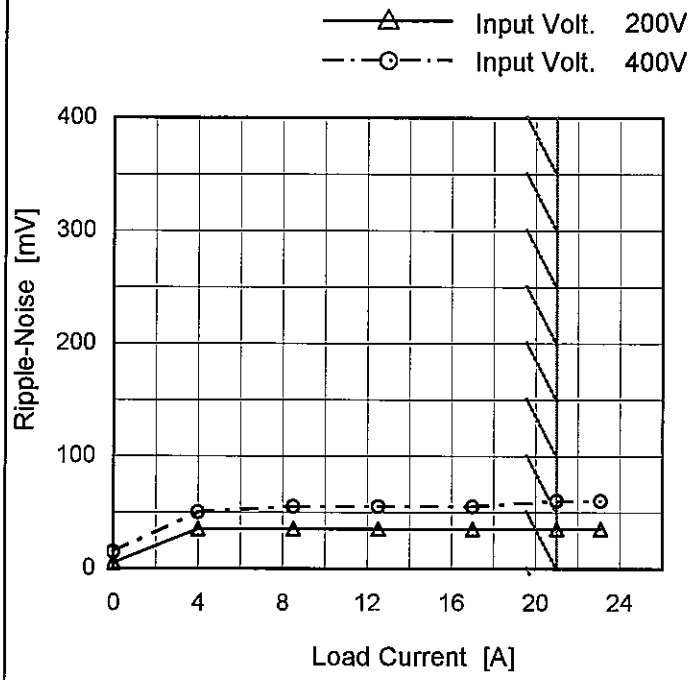
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	5	15
4.0	35	50
8.5	35	55
12.5	35	55
17.0	35	55
21.0	35	60
23.1	35	60
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	DHS250B12
Item	Ripple-Noise
Object	+12V21A

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.

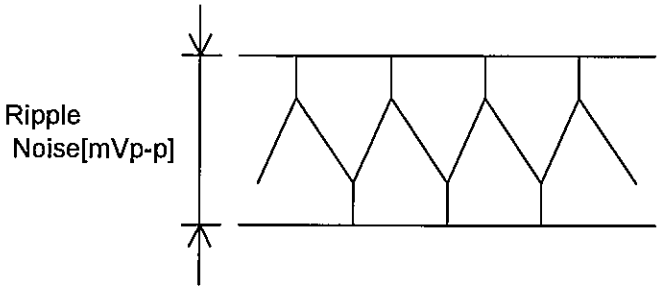


Fig.Complex Ripple Noise Wave Form

2.Values

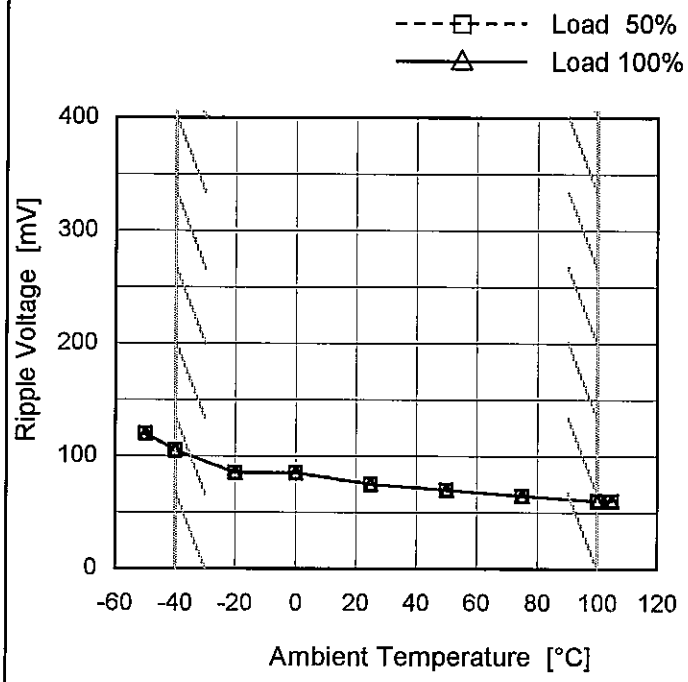
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	5	15
4.0	35	50
8.5	35	55
12.5	35	55
17.0	35	55
21.0	35	60
23.1	35	60
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	DHS250B12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V21A

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.

2.Values

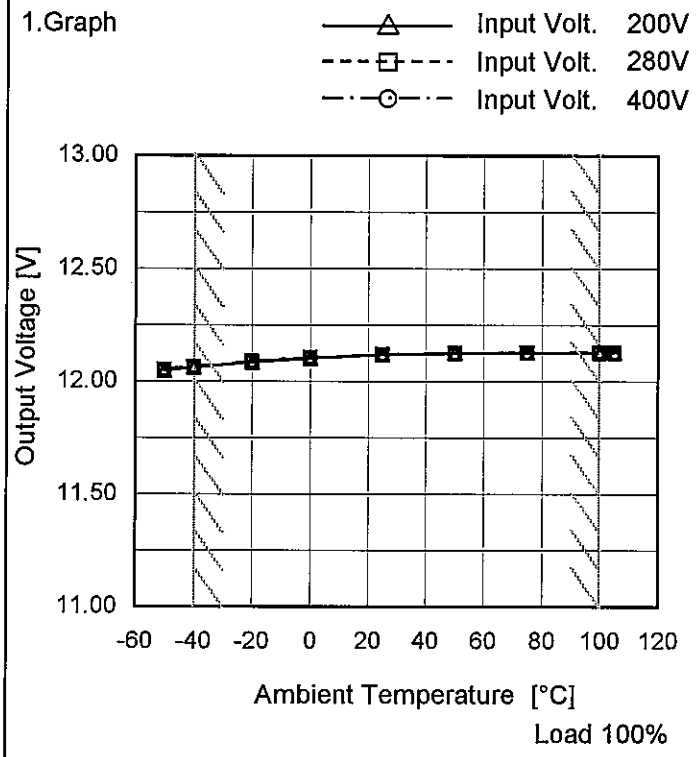
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	120	120
-40	105	105
-20	85	85
0	85	85
25	75	75
50	70	70
75	65	65
100	60	60
105	60	60
--	-	-
--	-	-

COSEL

Model	DHS250B12
Item	Ambient Temperature Drift
Object	+12V21A

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]
-50	12.049	12.050	12.051
-40	12.063	12.064	12.065
-20	12.086	12.087	12.088
0	12.104	12.105	12.105
25	12.118	12.119	12.119
50	12.125	12.125	12.125
75	12.127	12.127	12.127
100	12.129	12.129	12.130
105	12.129	12.129	12.129
--	-	-	-
--	-	-	-

COSEL

Model	DHS250B12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V21A	

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 : -40 - 100°C
Input Voltage : 200 - 400V
Load Current : 0 - 21A

* 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

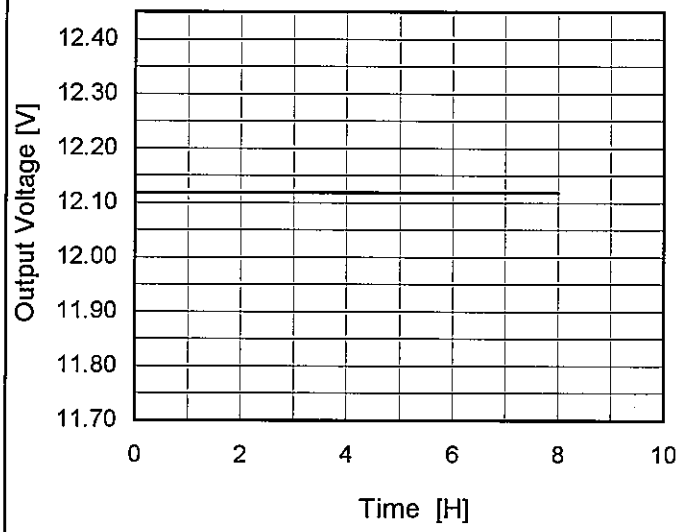
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	100	200	0	12.131	±34	±0.3
Minimum Voltage	-40	200	21	12.063		

COSEL

Model	DHS250B12
Item	Time Lapse Drift
Object	+12V21A

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	12.117
0.5	12.119
1.0	12.119
2.0	12.119
3.0	12.119
4.0	12.119
5.0	12.119
6.0	12.119
7.0	12.119
8.0	12.119

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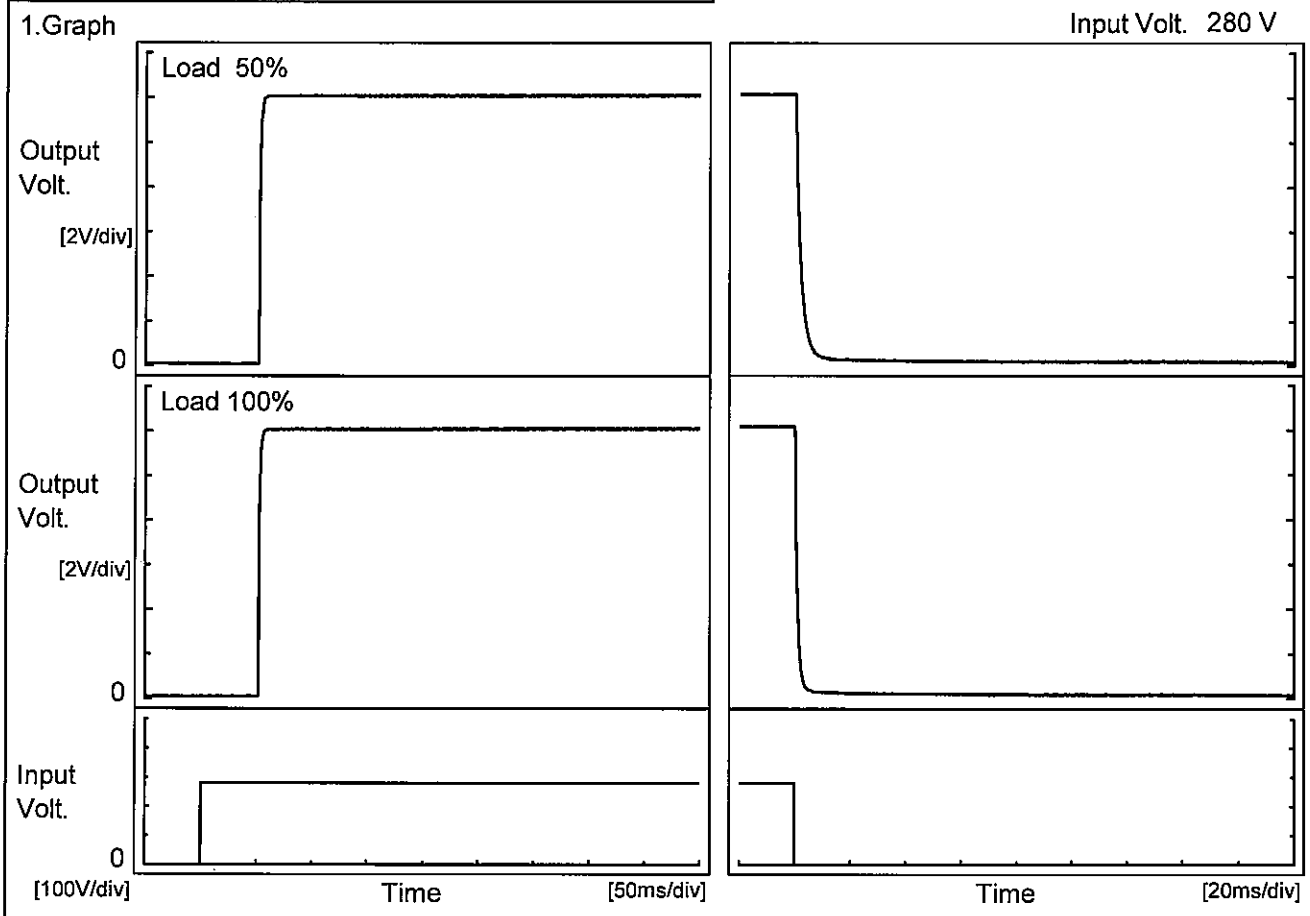
Model	DHS250B12
Item	Rise and Fall Time
Object	+12V21A

Temperature 25°C
Testing Circuitry Figure A

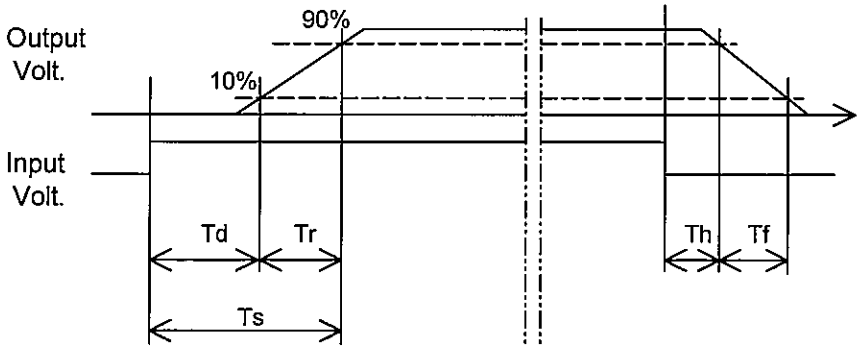
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	52.0	1.8	53.8	0.3	4.3
100 %	51.8	2.3	54.1	0.2	2.1

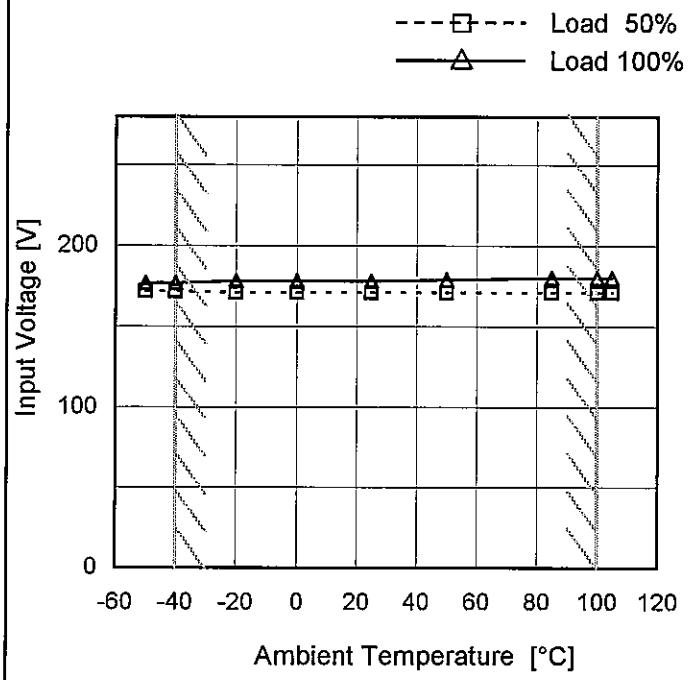


COSEL

Model	DHS250B12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V21A

Testing Circuitry Figure A

1.Graph



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

2.Values

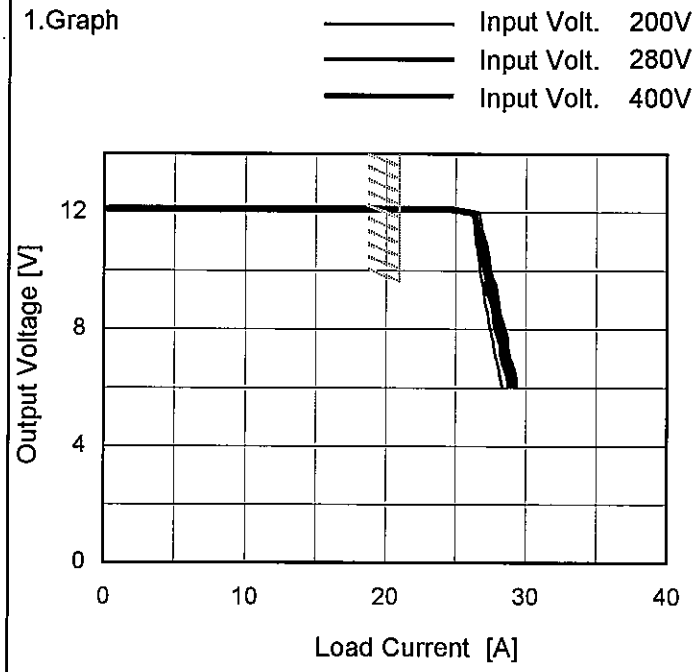
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	172	177
-40	172	177
-20	171	178
0	171	178
25	171	178
50	171	179
85	171	180
100	171	180
105	171	180
--	-	-
--	-	-

COSEL

Model	DHS250B12
Item	Overcurrent Protection
Object	+12V21A

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 6V to 0V.

2.Values

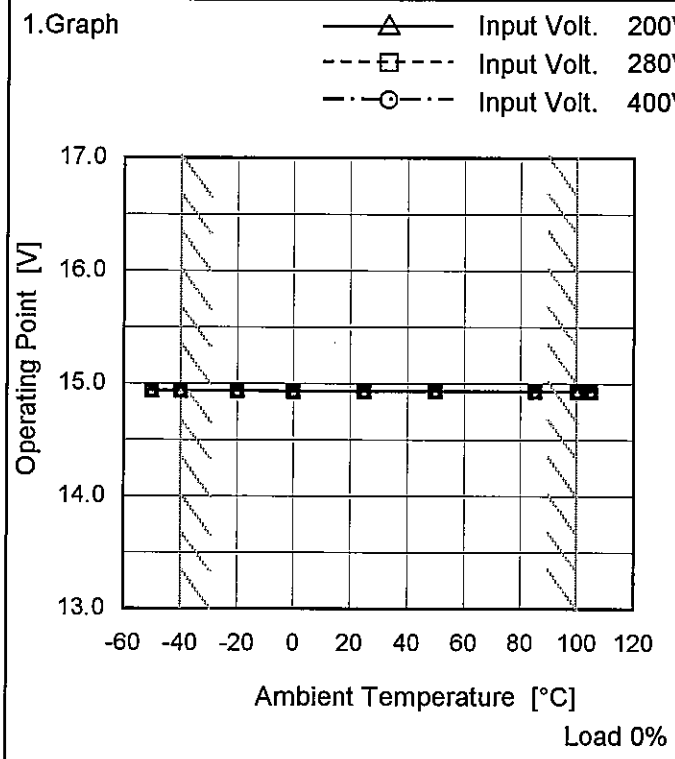
Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
12.0	21.09	21.10	21.10
11.4	26.36	26.52	26.73
10.8	26.50	26.71	27.07
9.6	26.87	27.21	27.57
8.4	27.31	27.71	28.08
7.2	27.78	28.25	28.63
6.0	28.29	28.81	29.23
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS250B12
Item	Overvoltage Protection
Object	+12V21A

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. 280[V]	Input Volt. 400[V]
-50	14.94	14.94	14.94
-40	14.94	14.94	14.94
-20	14.94	14.94	14.94
0	14.93	14.93	14.93
25	14.93	14.93	14.93
50	14.93	14.93	14.93
85	14.93	14.93	14.93
100	14.93	14.93	14.93
105	14.93	14.93	14.93
--	-	-	-
--	-	-	-

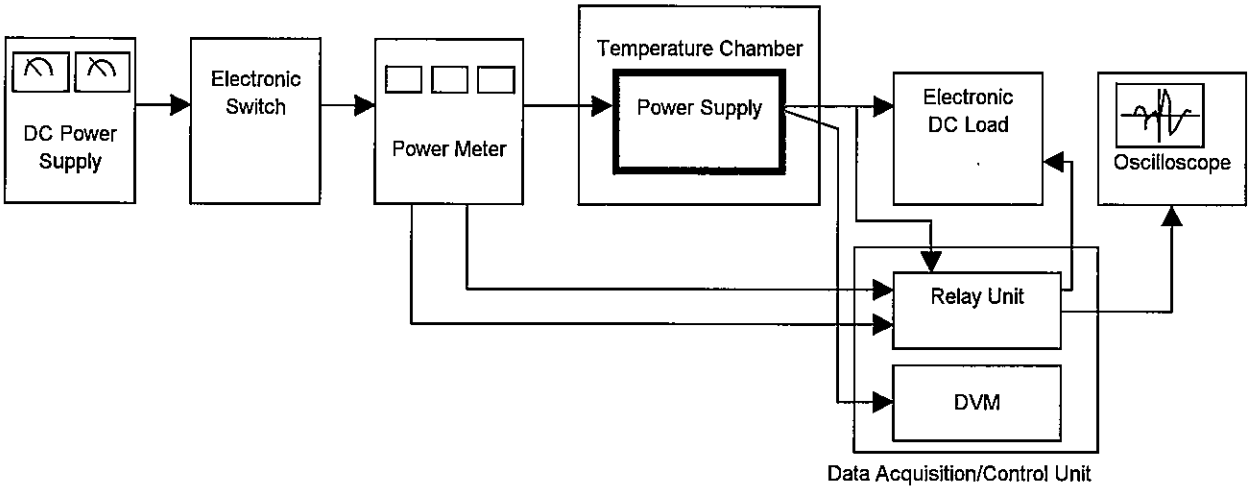
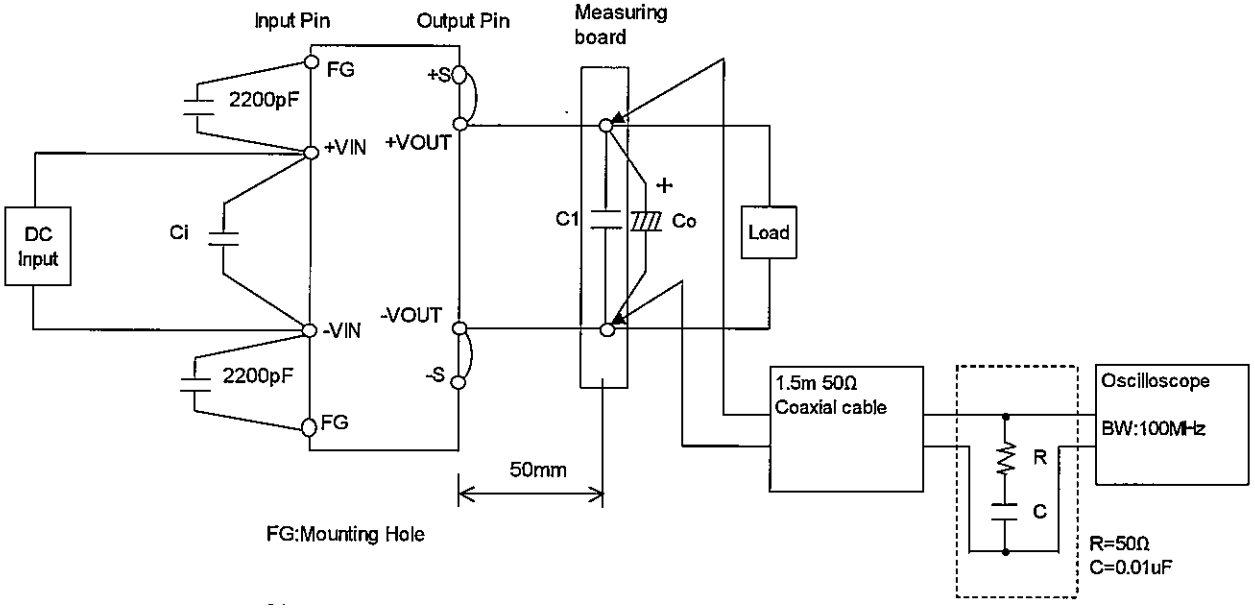


Figure A



C1	
DHS250B24	4.7μF
DHS250B28	4.7μF
DHS250B48	2.2μF
Others	10μF

Co	
DHS250B03	2200μF
DHS250B05	2200μF
DHS250B07	2200μF
DHS250B12	1000μF
DHS250B15	1000μF
DHS250B24	470μF
DHS250B28	470μF
DHS250B48	330μF

Figure B