COSEL

参考資料

TEST DATA OF CHS7004812H

Regulated DC Power Supply
March 27, 2018

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Sho Saito Design Engineer

COSEL CO.,LTD.

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Object	————————

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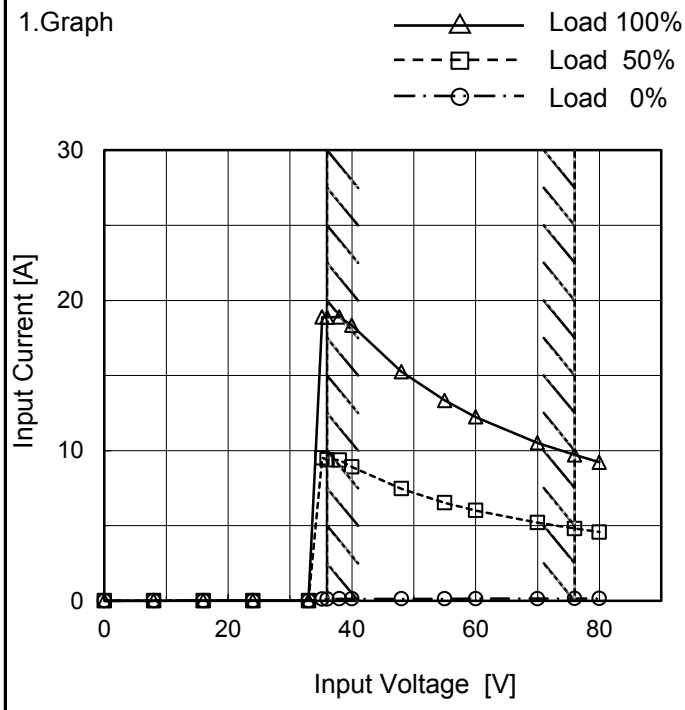

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.007	0.008	0.007
16.0	0.009	0.008	0.009
24.0	0.009	0.009	0.012
33.0	0.007	0.008	0.009
35.2	0.112	9.524	18.883
36.0	0.115	9.376	18.875
38.0	0.128	9.374	18.888
40.0	0.125	8.908	18.329
48.0	0.128	7.459	15.252
55.0	0.133	6.529	13.333
60.0	0.138	6.015	12.242
70.0	0.145	5.200	10.514
76.0	0.149	4.807	9.709
80.0	0.151	4.574	9.218
--	-	-	-
--	-	-	-
--	-	-	-

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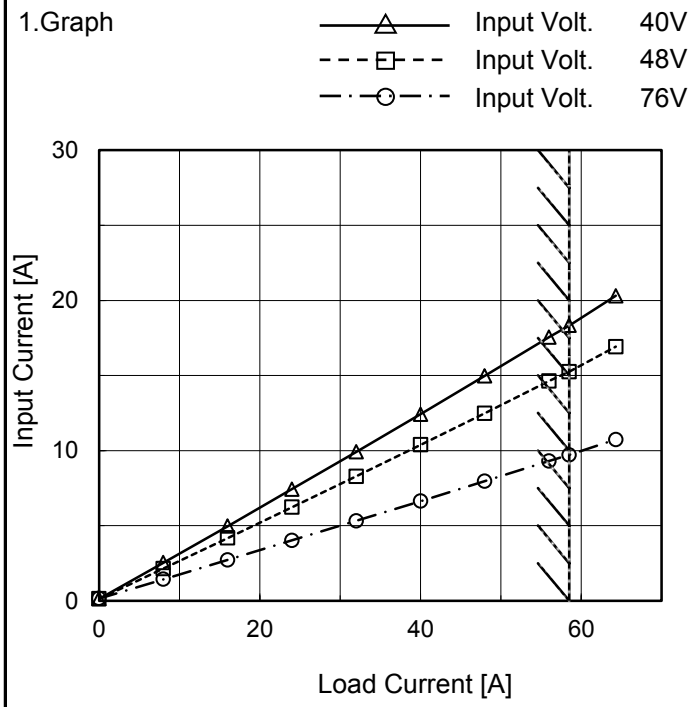
Model	CHS7004812H
Item	Input Current (by Load Current)
Object	———————

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. 40[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.125	0.128	0.149
8.0	2.534	2.144	1.426
16.0	4.967	4.175	2.721
24.0	7.431	6.224	4.019
32.0	9.914	8.283	5.321
40.0	12.417	10.378	6.636
48.0	14.971	12.482	7.961
56.0	17.559	14.632	9.306
58.5	18.329	15.252	9.709
64.3	20.310	16.911	10.735
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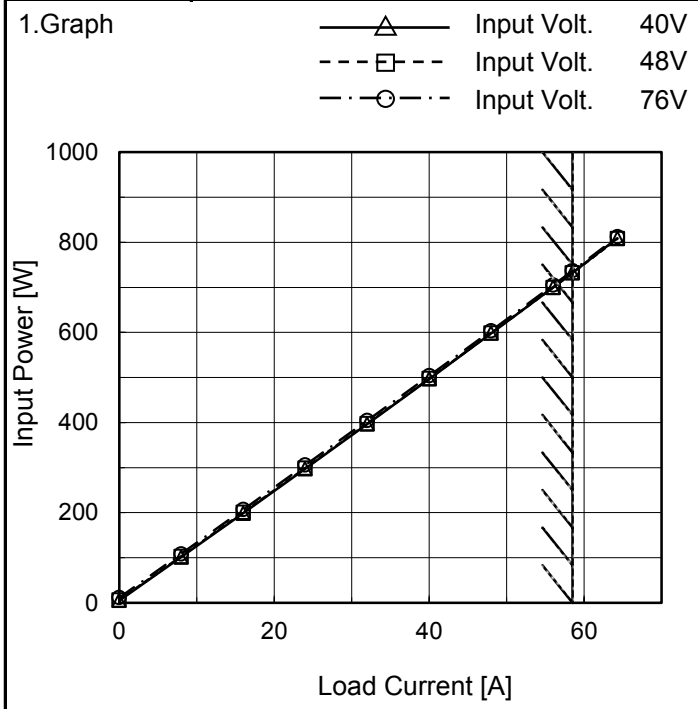
Model	CHS7004812H
Item	Input Power (by Load Current)
Object	————————

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. 40[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	5.0	6.1	11.3
8.0	101.3	102.9	108.4
16.0	198.7	200.4	206.8
24.0	297.2	298.7	305.4
32.0	396.5	397.6	404.4
40.0	496.7	497.5	503.8
48.0	598.2	598.5	603.7
56.0	700.1	699.5	704.8
58.5	732.6	732.1	737.1
64.3	808.9	808.1	812.3
--	-	-	-

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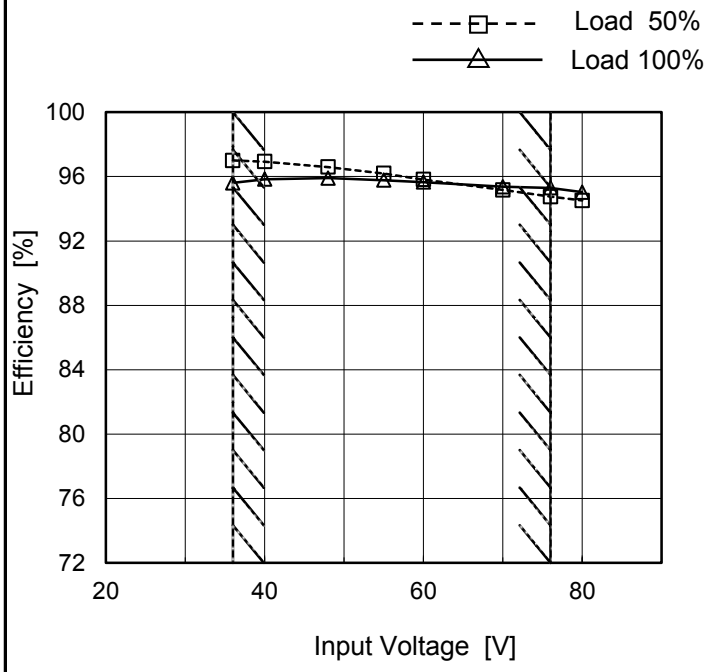
Model	CHS7004812H
Item	Efficiency (by Input Voltage)
Object	————————

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%
34	-	-
36	97.0	95.6
40	96.9	95.8
48	96.6	95.9
55	96.2	95.8
60	95.8	95.7
70	95.2	95.4
76	94.8	95.3
80	94.5	95.0

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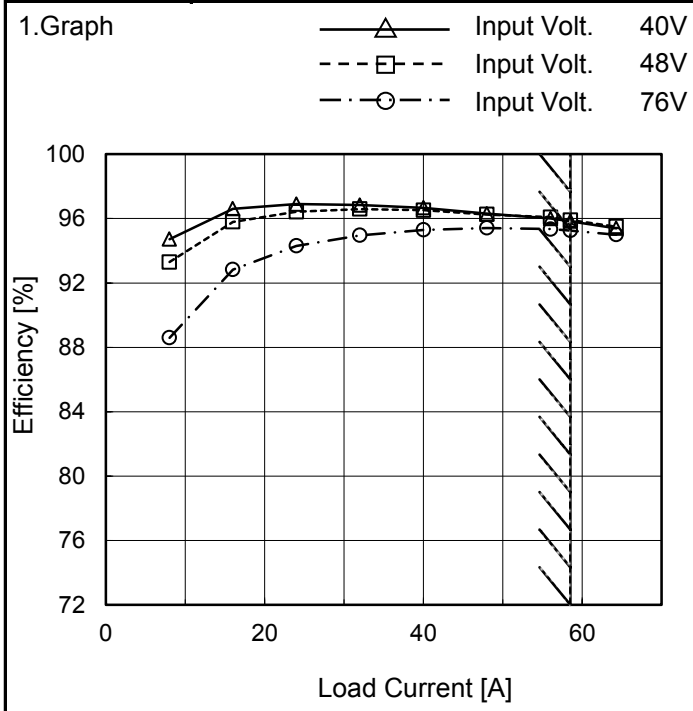
Model	CHS7004812H
Item	Efficiency (by Load Current)
Object	————————

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. 40[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	-	-	-
8.0	94.7	93.3	88.6
16.0	96.6	95.8	92.8
24.0	96.9	96.4	94.3
32.0	96.8	96.6	95.0
40.0	96.7	96.5	95.3
48.0	96.3	96.3	95.4
56.0	96.0	96.1	95.3
58.5	95.8	95.9	95.3
64.3	95.4	95.5	95.0
--	-	-	-

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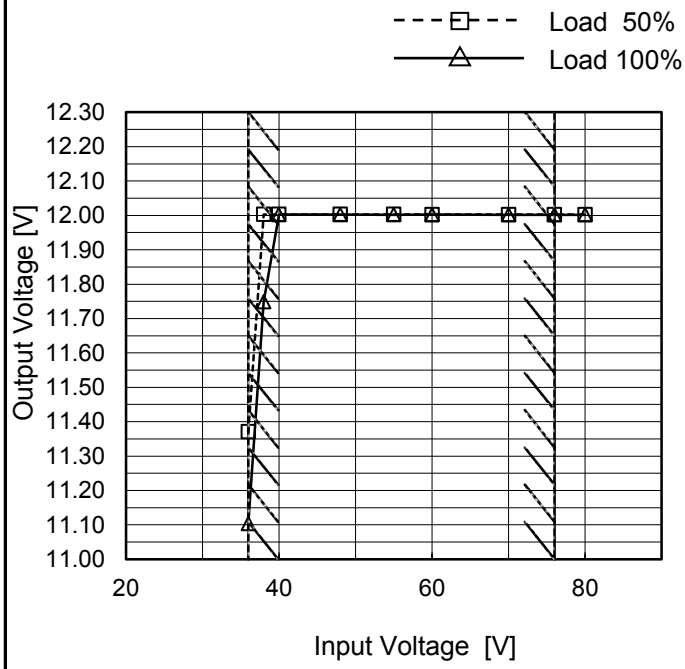
Model	CHS7004812H
Item	Line Regulation
Object	+12V58.5A

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%
36	11.371	11.104
38	12.003	11.749
40	12.003	12.002
48	12.003	12.002
55	12.003	12.002
60	12.002	12.002
70	12.002	12.002
76	12.002	12.002
80	12.002	12.002

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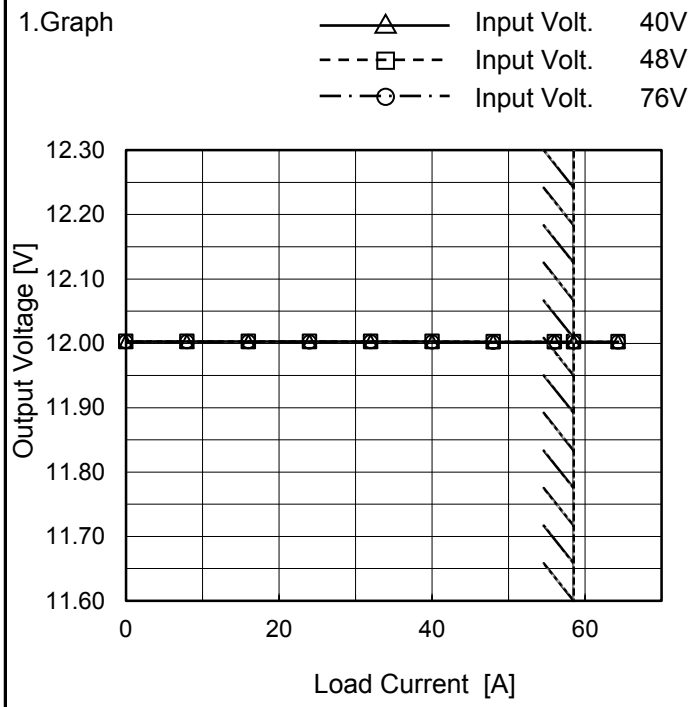
Model	CHS7004812H
Item	Load Regulation
Object	+12V58.5A

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. 40[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	12.003	12.003	12.002
8.0	12.003	12.003	12.002
16.0	12.003	12.003	12.002
24.0	12.003	12.003	12.002
32.0	12.003	12.003	12.002
40.0	12.003	12.003	12.002
48.0	12.003	12.002	12.002
56.0	12.003	12.002	12.002
58.5	12.002	12.002	12.002
64.3	12.002	12.002	12.002
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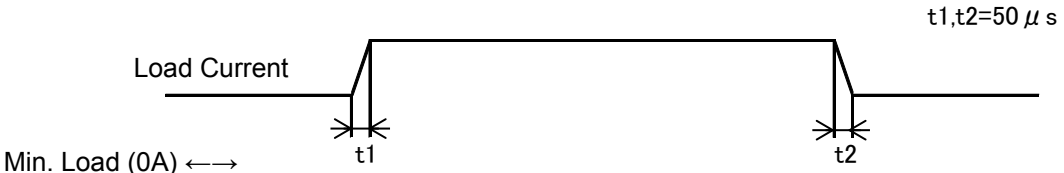
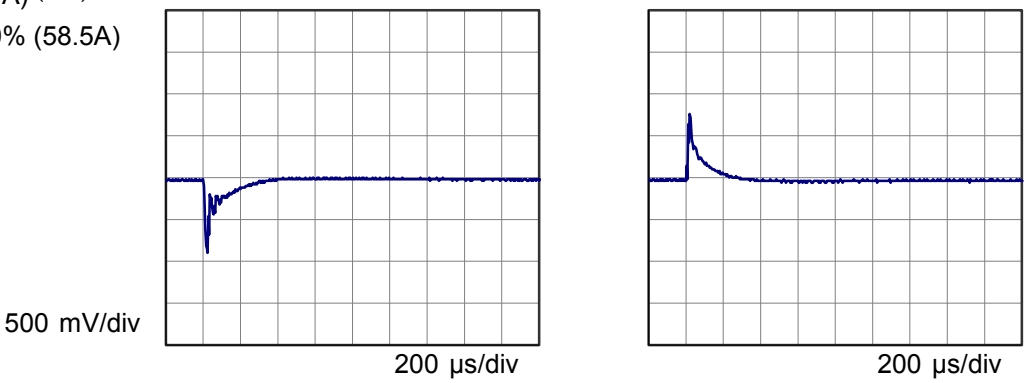
Model	CHS7004812H		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+12V58.5A		

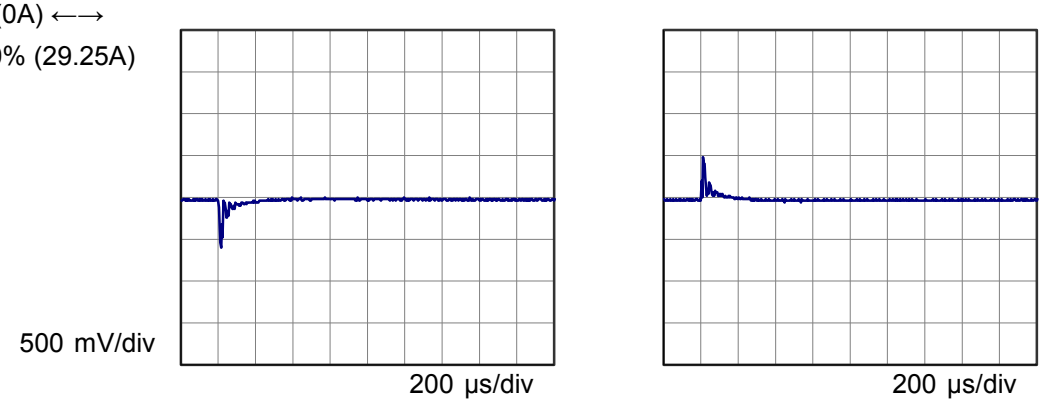
Input Volt. 48 V
Cycle 5 ms



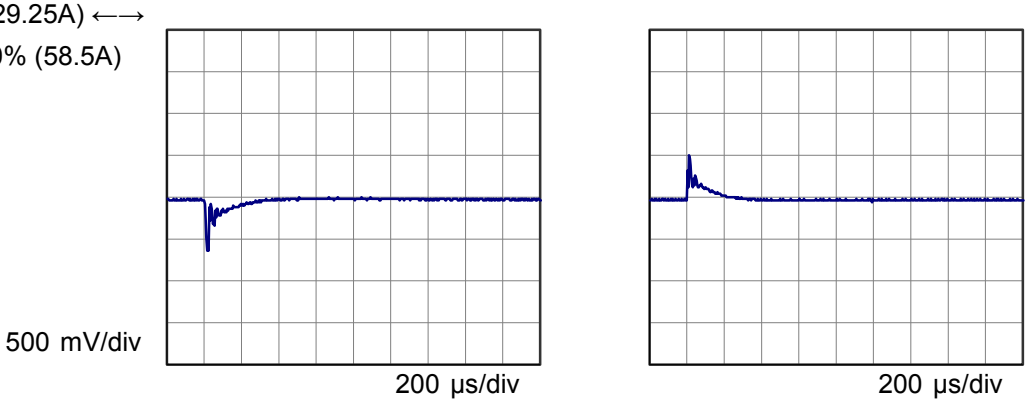
Min. Load (0A) ←→
Load 100% (58.5A)



Min. Load (0A) ←→
Load 50% (29.25A)



Load 50% (29.25A) ←→
Load 100% (58.5A)



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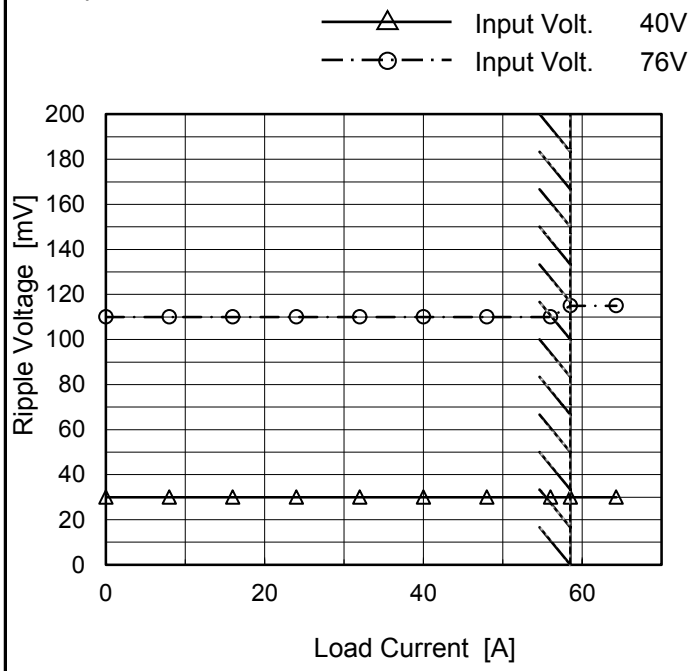
Model	CHS7004812H
Item	Ripple Voltage (by Load Current)
Object	+12V58.5A

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]

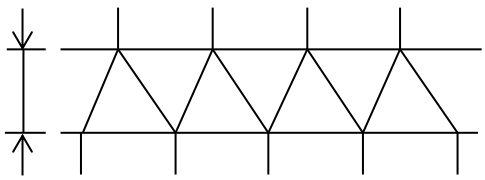


Fig.Complex Ripple Wave Form

2.Values

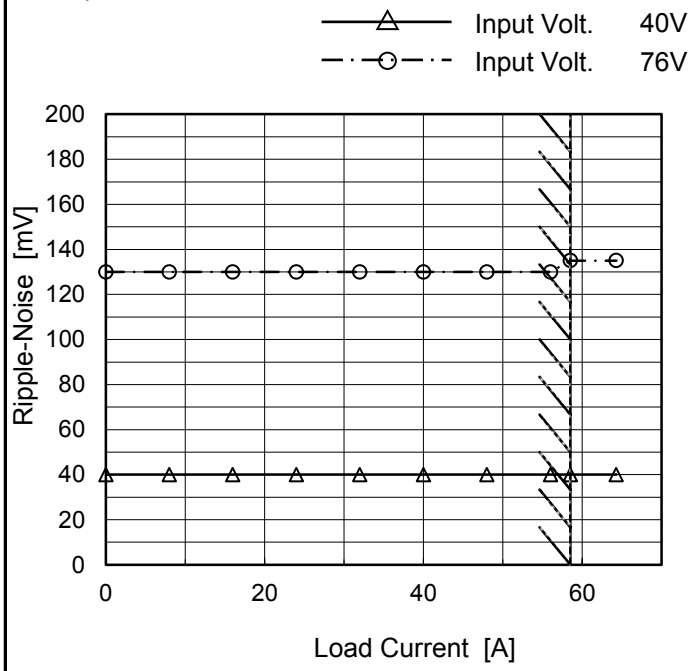
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 40 [V]	Input Volt. 76 [V]
0.0	30	110
8.0	30	110
16.0	30	110
24.0	30	110
32.0	30	110
40.0	30	110
48.0	30	110
56.0	30	110
58.5	30	115
64.3	30	115
--	-	-

COSEL

Model	CHS7004812H
Item	Ripple-Noise
Object	+12V58.5A

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.

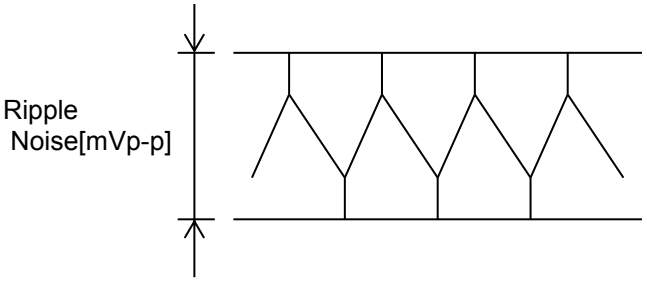


Fig.Complex Ripple Noise Wave Form

2.Values

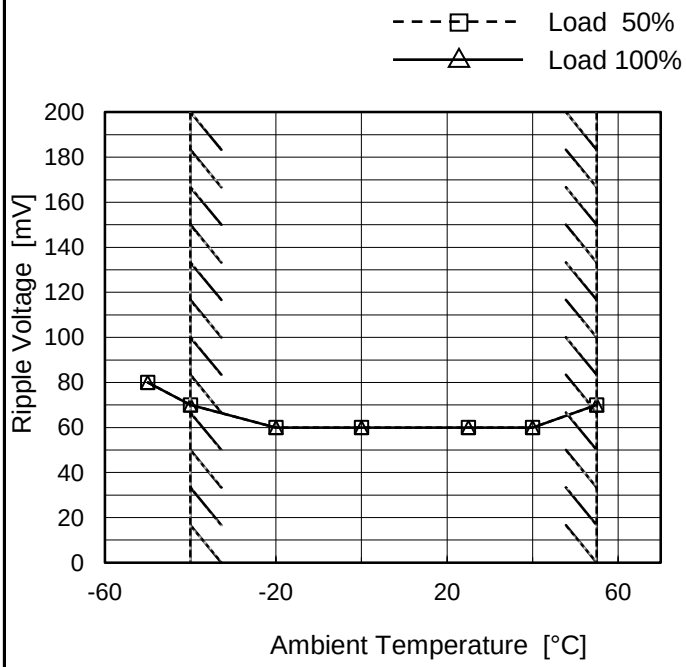
Load Current [A]	Ripple-Noise [mV] Input Volt. 40 [V]	Ripple-Noise [mV] Input Volt. 76 [V]
0.0	40	130
8.0	40	130
16.0	40	130
24.0	40	130
32.0	40	130
40.0	40	130
48.0	40	130
56.0	40	130
58.5	40	135
64.3	40	135
--	-	-

COSEL

Model	CHS7004812H
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V58.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

Measured by 100 MHz Oscilloscope.

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

Ripple [mVp-p]

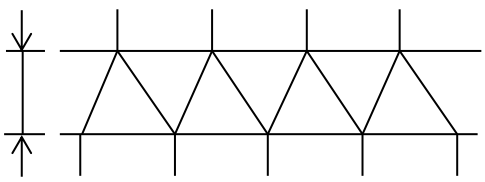


Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	80	80
-40	70	70
-20	60	60
0	60	60
25	60	60
40	60	60
55	70	70
--	-	-
--	-	-
--	-	-
--	-	-

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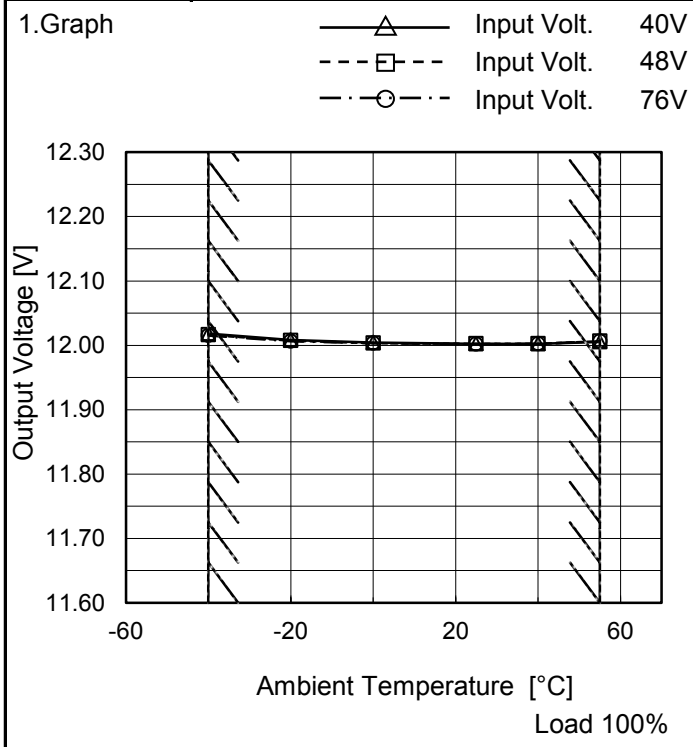
Model	CHS7004812H
Item	Ambient Temperature Drift
Object	+12V58.5A

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. 40[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	12.018	12.016	12.015
-20	12.008	12.007	12.006
0	12.004	12.003	12.003
25	12.002	12.002	12.002
40	12.002	12.002	12.002
55	12.005	12.006	12.006
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS7004812H	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V58.5A	

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 - 55°C
Input Voltage : 40 - 76V
Load Current : 0 - 58.5A

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

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	-40	40	0	12.020	±9	±0.1
Minimum Voltage	25	76	58.5	12.002		

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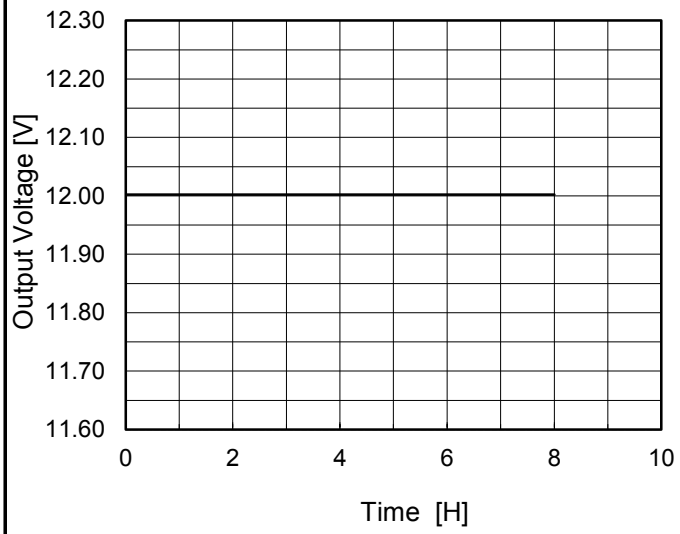
Model	CHS7004812H
Item	Time Lapse Drift
Object	+12V58.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.002
0.5	12.002
1.0	12.002
2.0	12.002
3.0	12.002
4.0	12.002
5.0	12.002
6.0	12.002
7.0	12.002
8.0	12.002

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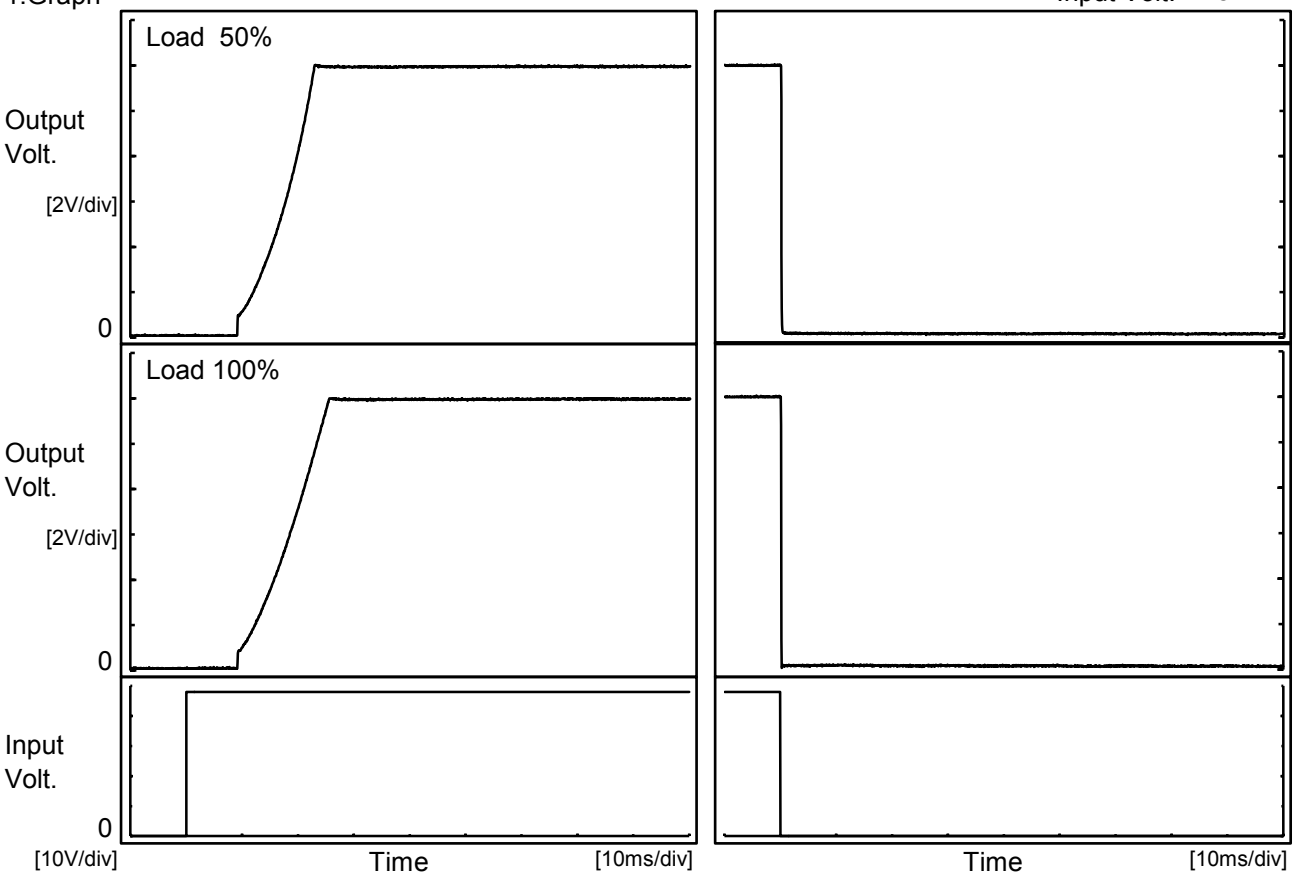
Model	CHS7004812H
Item	Rise and Fall Time
Object	+12V58.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

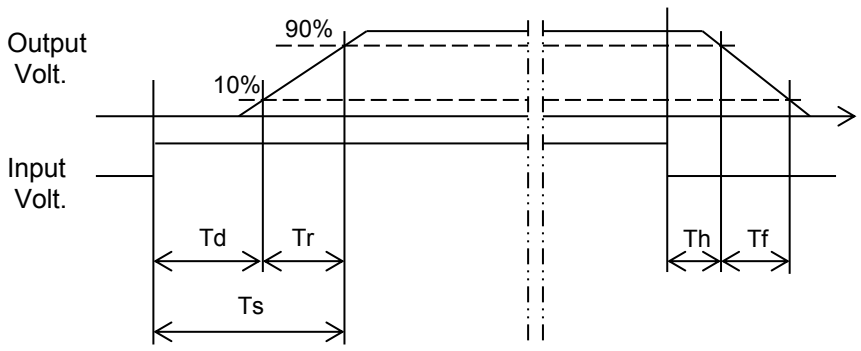
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	10.4	11.9	22.3	0.1	0.1
100 %	10.8	13.5	24.3	0.1	0.1

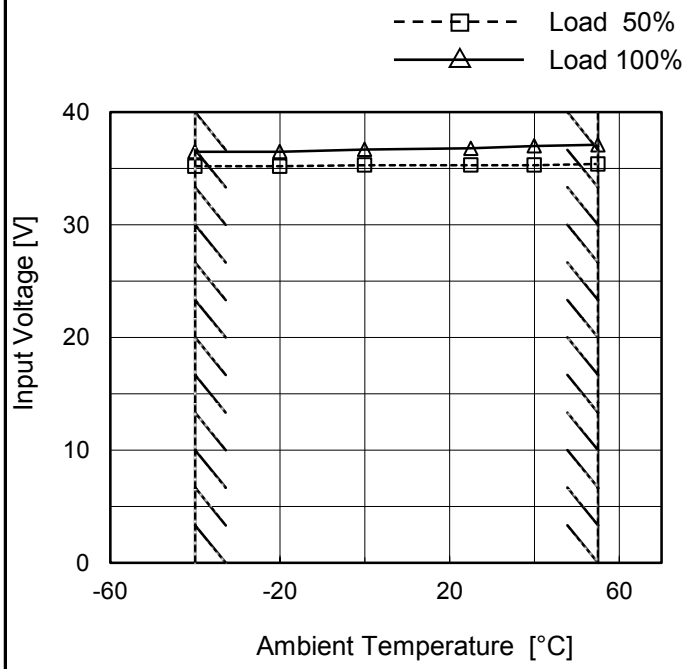


COSEL

Model	CHS7004812H
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V58.5A

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	35.20	36.50
-20	35.20	36.50
0	35.30	36.70
25	35.30	36.80
40	35.30	37.00
55	35.40	37.10
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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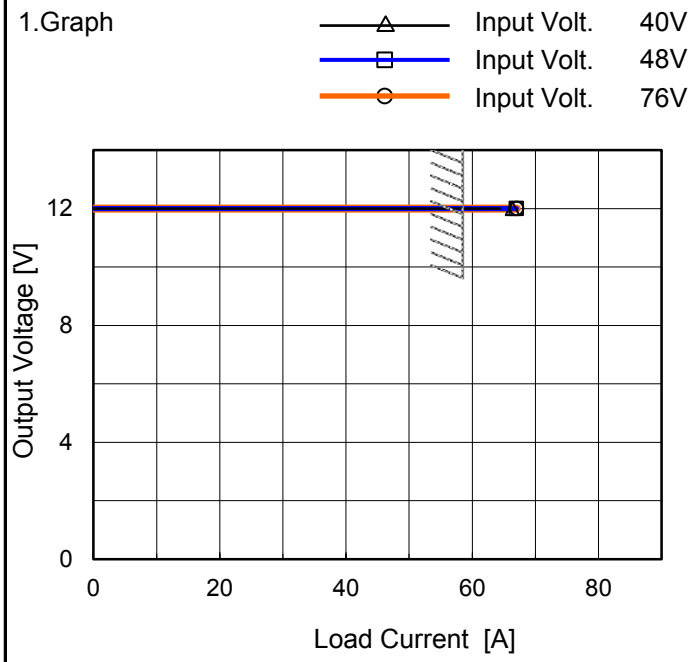
Model	CHS7004812H
Item	Overcurrent Protection
Object	+12V58.5A

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 12V to 0V.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 40[V]	Input Volt. 48[V]	Input Volt. 76[V]
12.0	66.40	66.98	67.06
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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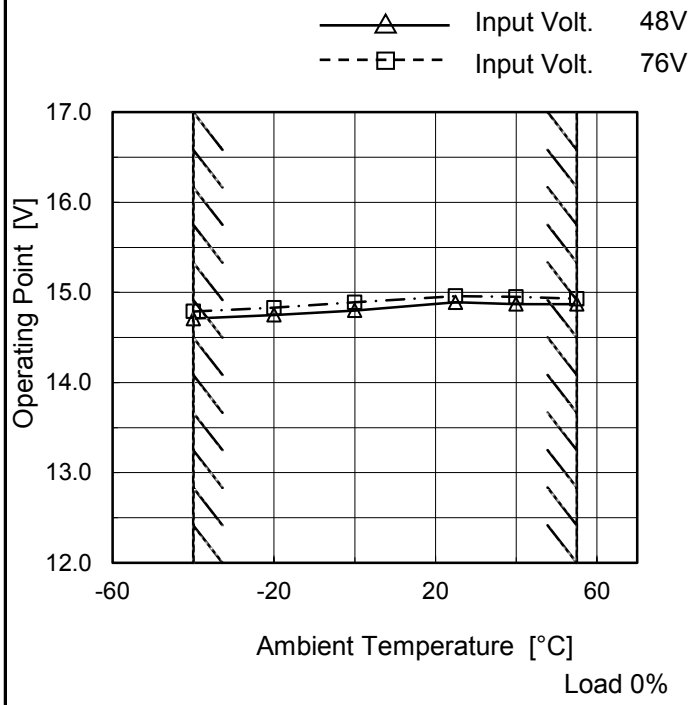
Model	CHS7004812H
Item	Overvoltage Protection
Object	+12V58.5A

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. 48[V]	Input Volt. 76[V]
-40	14.71	14.79
-20	14.75	14.83
0	14.80	14.89
25	14.89	14.96
40	14.87	14.95
55	14.87	14.93
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

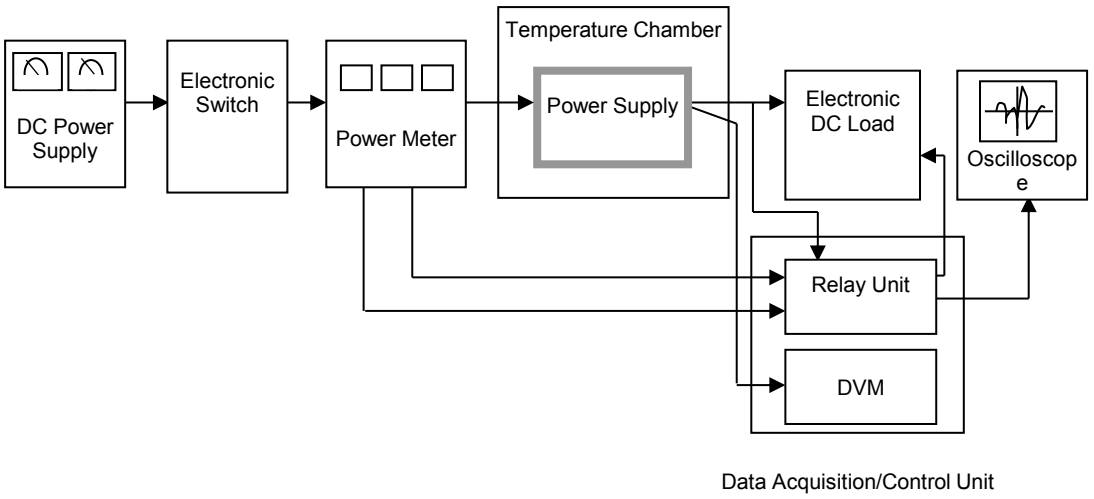


Figure A

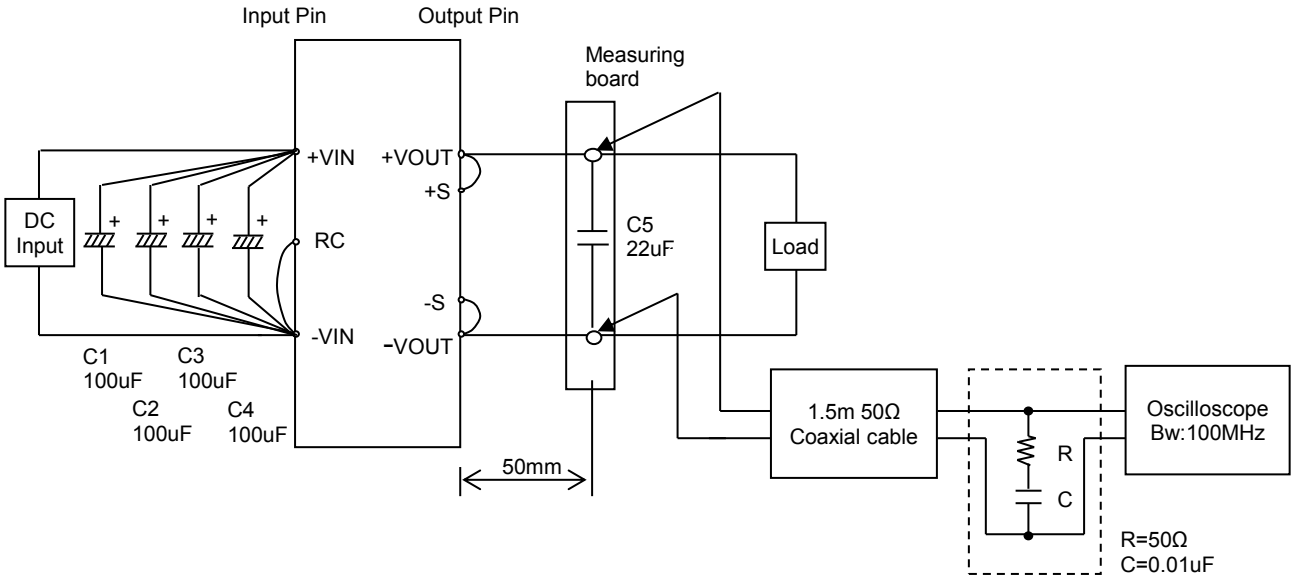


Figure B