参考資料

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TEST DATA OF CHS4002412

Regulated DC Powew Supply
June 22,2018

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COSEL CO.,LTD.

参考資料

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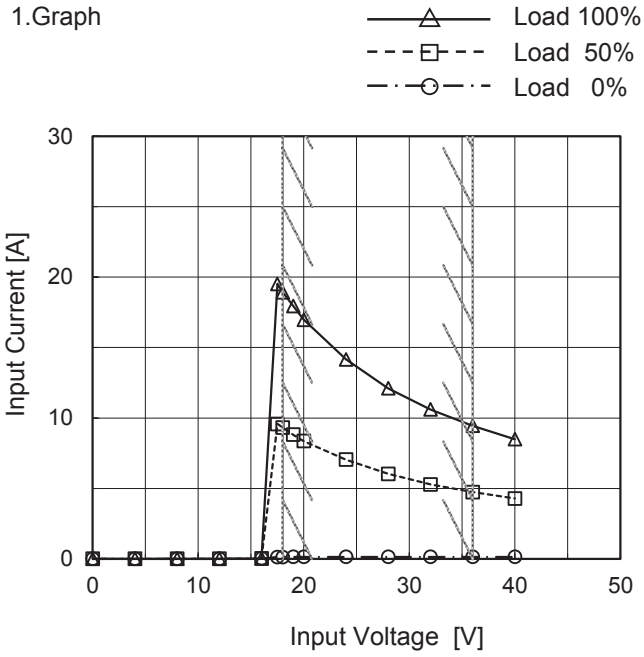
COSEL

Model	CHS4002412
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	0.000	0.000	0.000
4.0	0.000	0.000	0.000
8.0	0.003	0.003	0.003
12.0	0.006	0.006	0.006
16.0	0.020	0.020	0.020
17.5	0.129	9.577	19.528
18.0	0.132	9.323	18.935
19.0	0.133	8.810	17.954
20.0	0.134	8.360	16.975
24.0	0.134	7.037	14.158
28.0	0.136	6.033	12.105
32.0	0.135	5.287	10.604
36.0	0.135	4.739	9.450
40.0	0.133	4.278	8.497
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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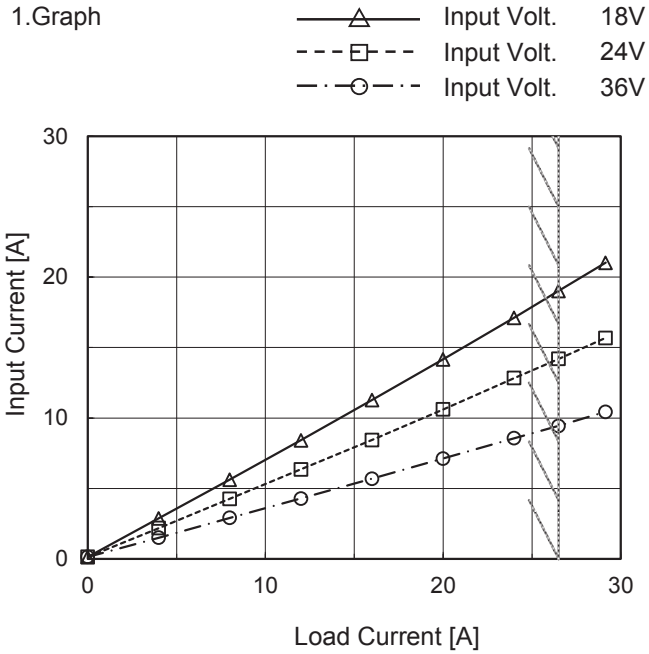
COSEL

Model	CHS4002412
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.132	0.134	0.135
4.00	2.879	2.182	1.505
8.00	5.618	4.262	2.903
12.00	8.418	6.353	4.285
16.00	11.273	8.438	5.685
20.00	14.167	10.607	7.127
24.00	17.110	12.830	8.560
26.50	18.935	14.158	9.450
29.15	21.019	15.682	10.442
--	-	-	-
--	-	-	-

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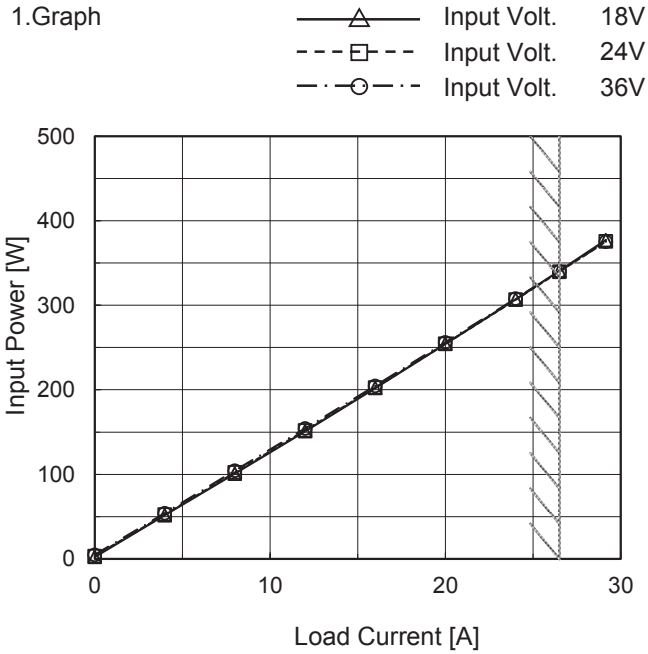
Model	CHS4002412
Item	Input Power (by Load Current)
Object	———————

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	2.3	3.3	4.8
4.00	51.6	52.2	54.0
8.00	101.0	102.2	104.4
12.00	151.1	152.0	154.2
16.00	202.2	202.6	204.5
20.00	254.5	254.4	256.1
24.00	307.0	306.7	307.9
26.50	340.8	339.8	340.2
29.15	377.2	375.5	375.4
--	-	-	-
--	-	-	-

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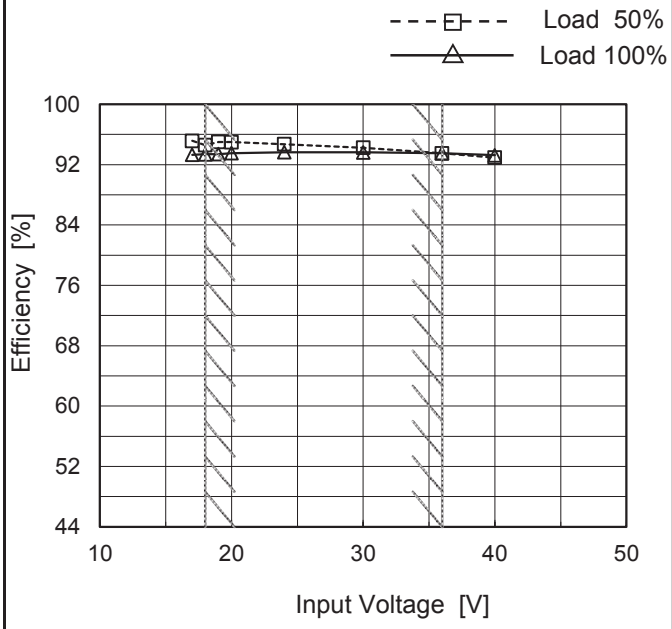
COSEL

Model	CHS4002412
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%
17	95.2	93.3
18	94.6	93.4
19	95.0	93.4
20	95.0	93.5
24	94.7	93.7
30	94.2	93.6
36	93.5	93.5
40	92.9	93.2
--	-	-

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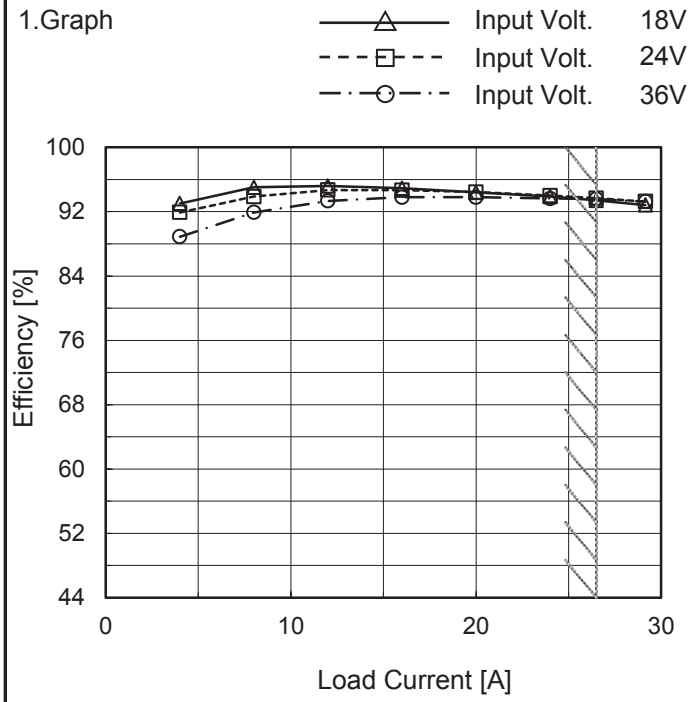
Model	CHS4002412
Item	Efficiency (by Load Current)
Object	————————

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	-	-	-
4.00	93.0	91.9	88.9
8.00	95.0	93.9	91.9
12.00	95.2	94.7	93.3
16.00	94.9	94.7	93.8
20.00	94.4	94.4	93.8
24.00	93.9	94.0	93.6
26.50	93.4	93.7	93.5
29.15	92.8	93.3	93.3
--	-	-	-
--	-	-	-

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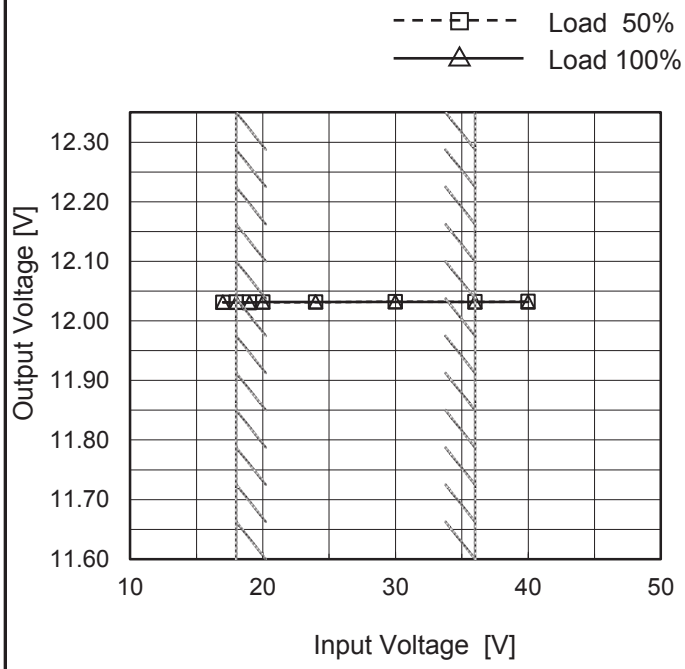
Model	CHS4002412
Item	Line Regulation
Object	+12V26.5A

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%
17	12.031	12.031
18	12.031	12.031
19	12.031	12.031
20	12.031	12.032
24	12.031	12.032
30	12.032	12.032
36	12.032	12.032
40	12.032	12.032
--	-	-

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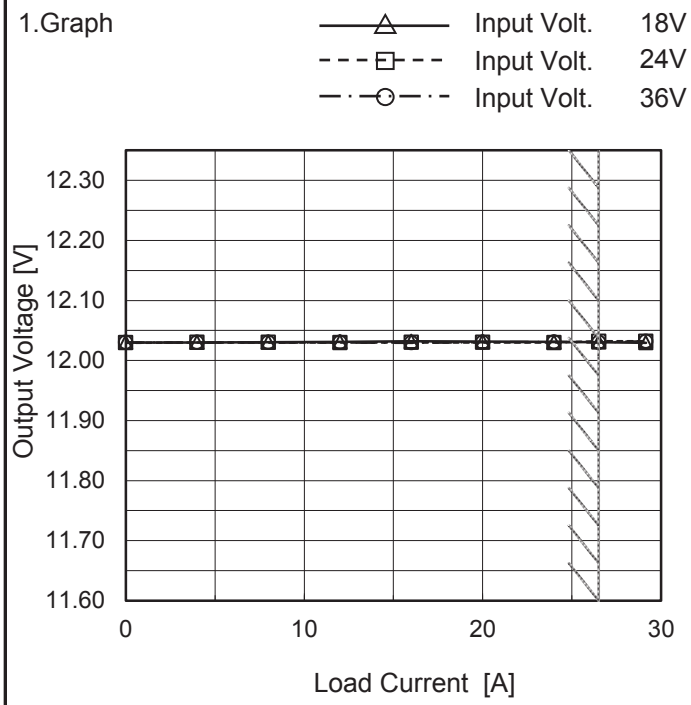
Model	CHS4002412
Item	Load Regulation
Object	+12V26.5A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	12.030	12.030	12.030
4.00	12.030	12.030	12.031
8.00	12.031	12.031	12.031
12.00	12.031	12.031	12.031
16.00	12.031	12.031	12.032
20.00	12.031	12.031	12.032
24.00	12.031	12.031	12.032
26.50	12.031	12.032	12.032
29.15	12.031	12.032	12.032
--	-	-	-
--	-	-	-

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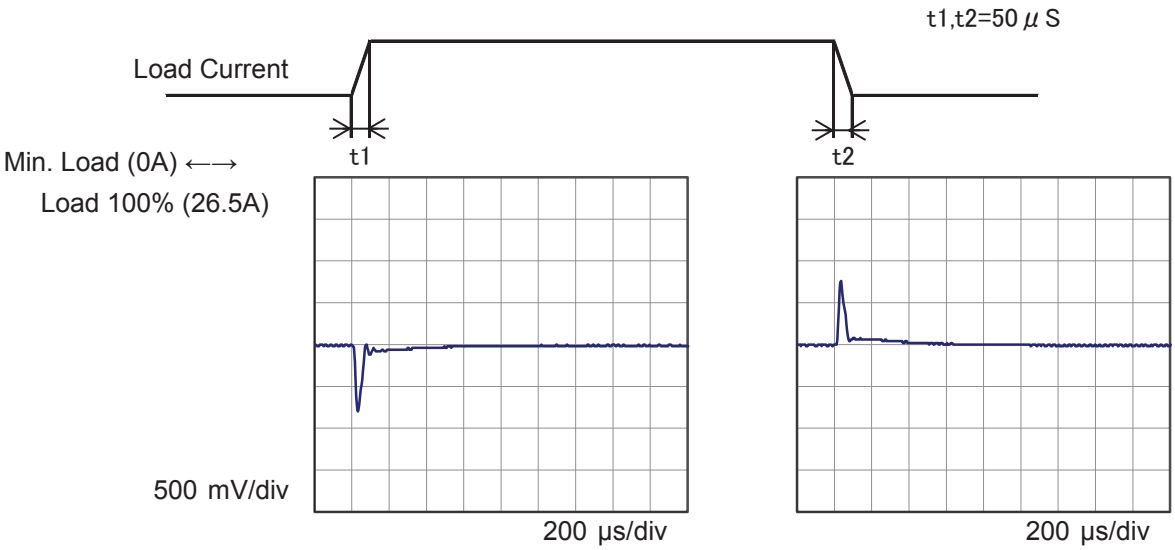
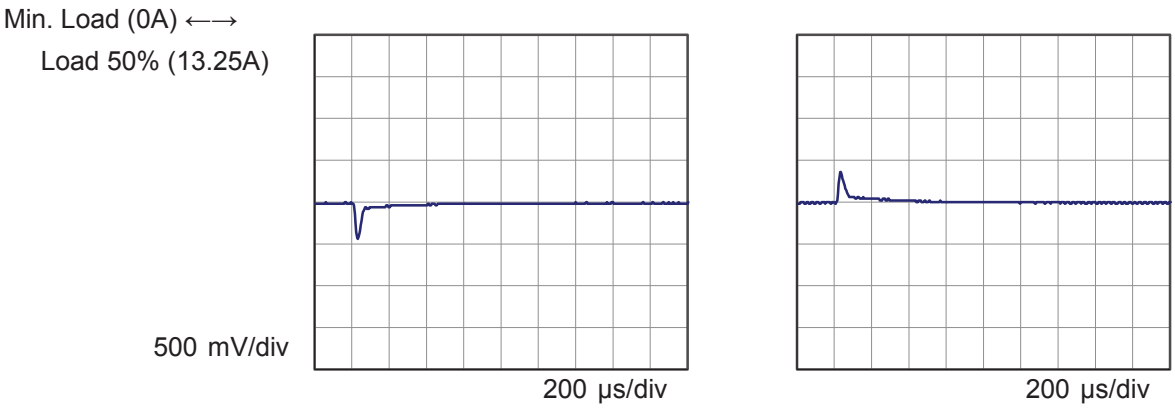
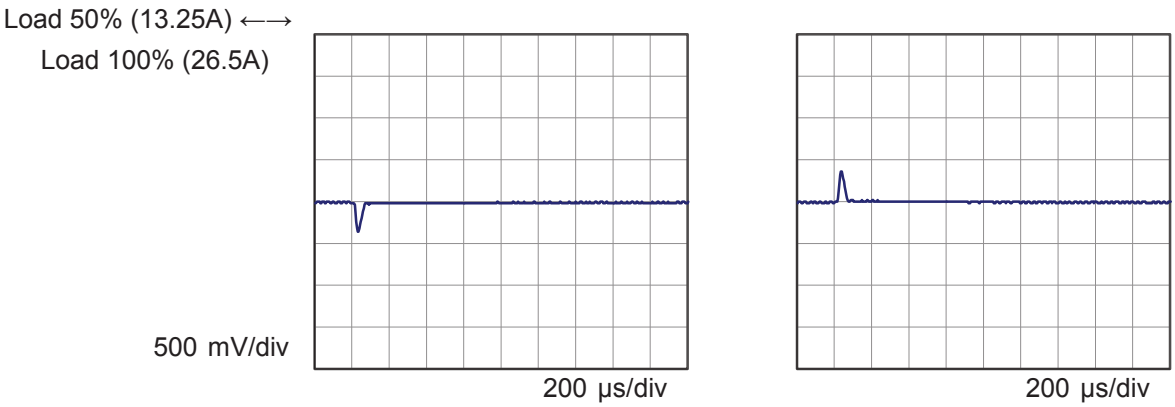
Model	CHS4002412		
Item	Dynamic Load Response	Temperature	25℃
		Testing Circuitry	Figure A
Object	+12V26.5A		

Input Volt. 24 V
Cycle 5 ms







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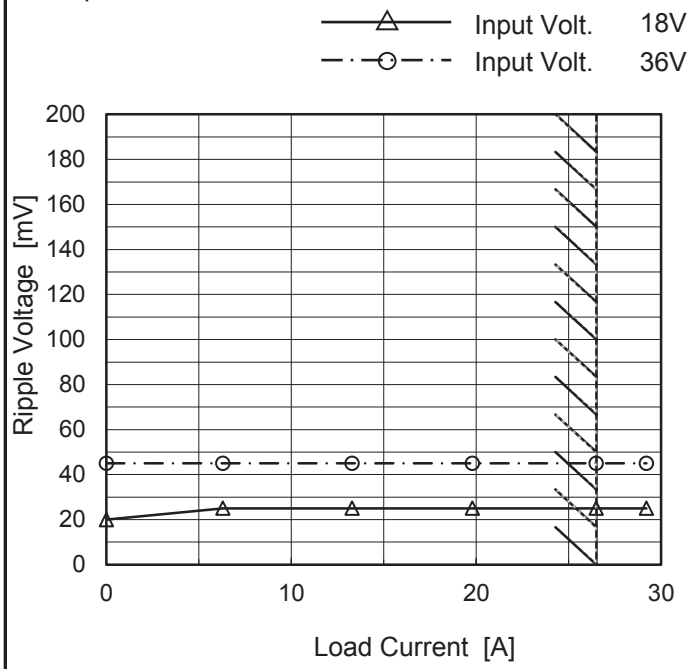
Model	CHS4002412
Item	Ripple Voltage (by Load Current)
Object	+12V26.5A

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]

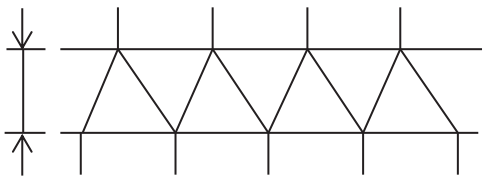


Fig.Complex Ripple Wave Form

2.Values

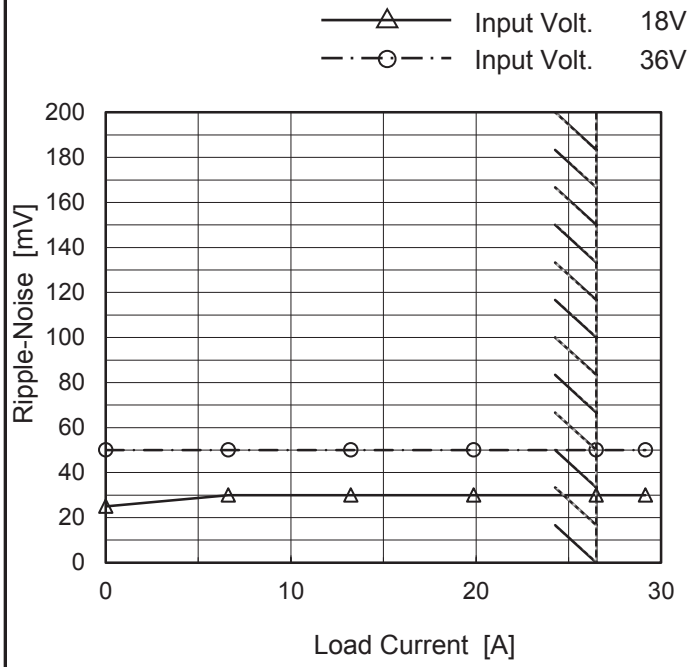
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	20	45
6.3	25	45
13.3	25	45
19.8	25	45
26.5	25	45
29.2	25	45
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CHS4002412
Item	Ripple-Noise
Object	+12V26.5A

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.

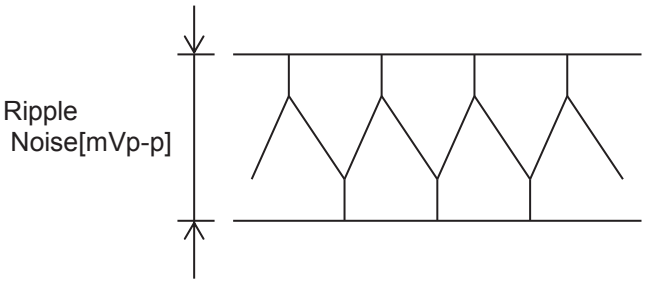


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	25	50
6.6	30	50
13.3	30	50
19.9	30	50
26.5	30	50
29.2	30	50
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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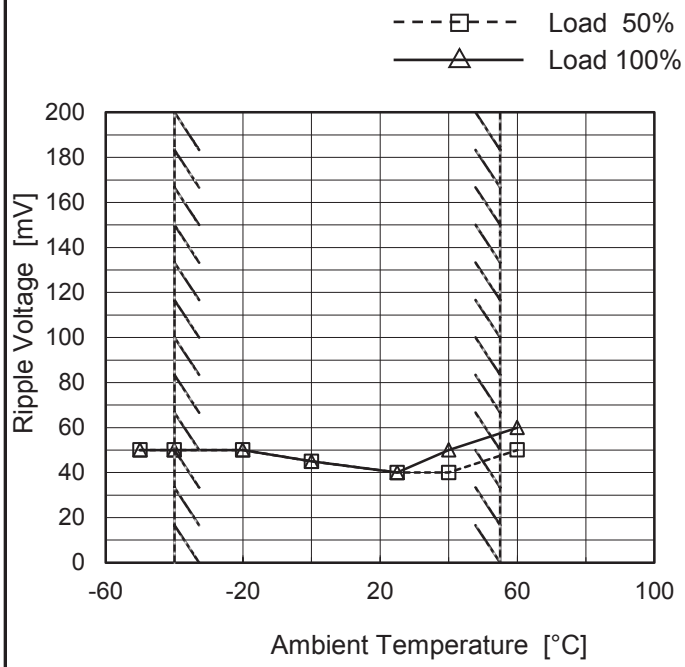
Model	CHS4002412
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V26.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 24 V

Measured by 100 MHz Oscilloscope.

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

Ripple [mVp-p]

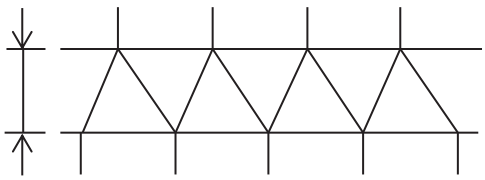


Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	50	50
-40	50	50
-20	50	50
0	45	45
25	40	40
40	40	50
60	50	60
--	-	-
--	-	-
--	-	-
--	-	-

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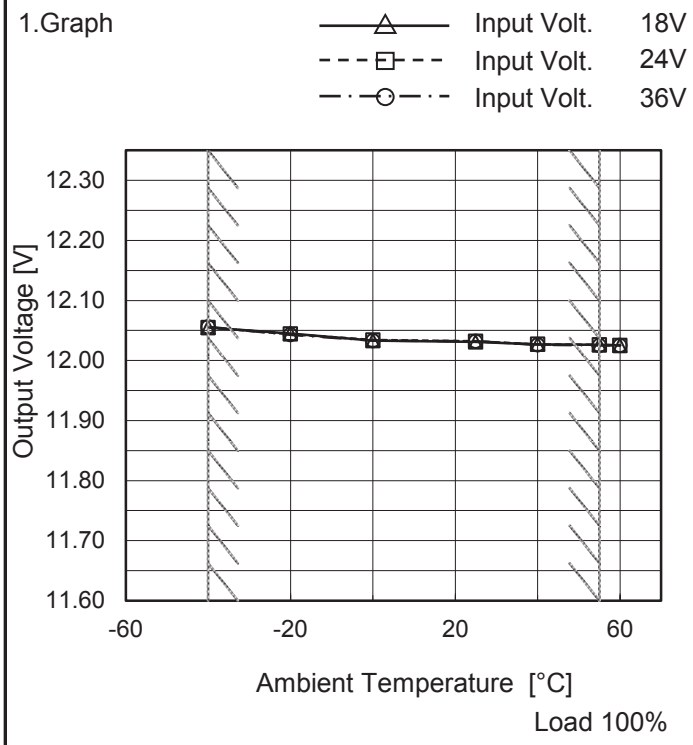
Model	CHS4002412
Item	Ambient Temperature Drift
Object	+12V26.5A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-40	12.055	12.055	12.056
-20	12.045	12.044	12.043
0	12.033	12.034	12.033
25	12.031	12.032	12.032
40	12.027	12.027	12.026
55	12.026	12.026	12.025
60	12.025	12.025	12.025
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS4002412	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V26.5A	

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 : 18 - 36V
Load Current : 0 - 26.5A

* 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	-40	24	0	12.055	±14	±0.1
Minimum Voltage	55	18	0	12.027		

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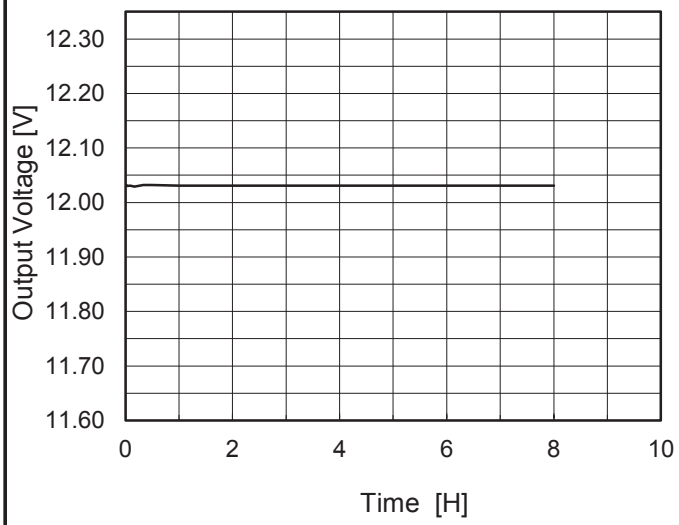
Model	CHS4002412
Item	Time Lapse Drift
Object	+12V26.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.032
0.5	12.032
1.0	12.031
2.0	12.031
3.0	12.031
4.0	12.031
5.0	12.031
6.0	12.031
7.0	12.031
8.0	12.031

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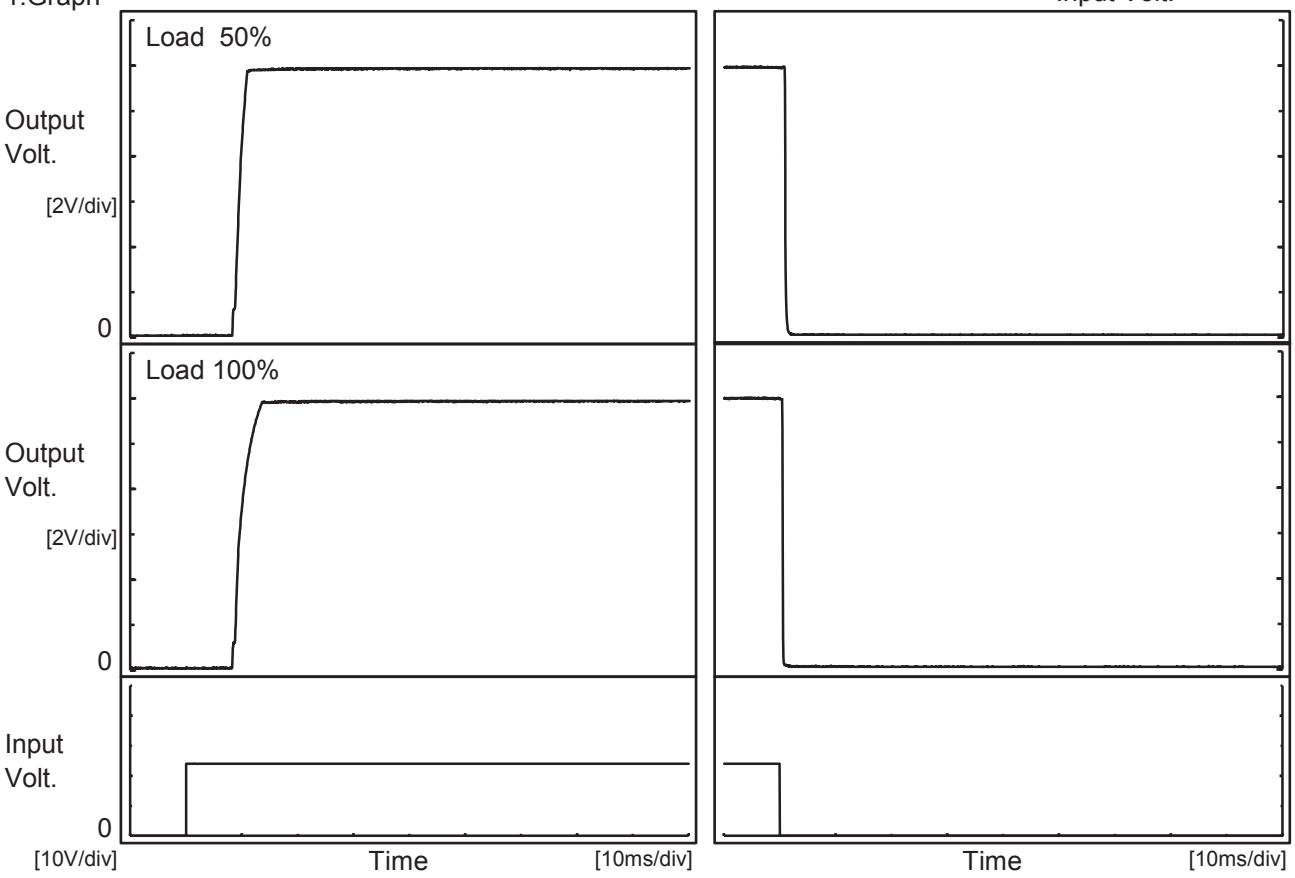
Model	CHS4002412
Item	Rise and Fall Time
Object	+12V26.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

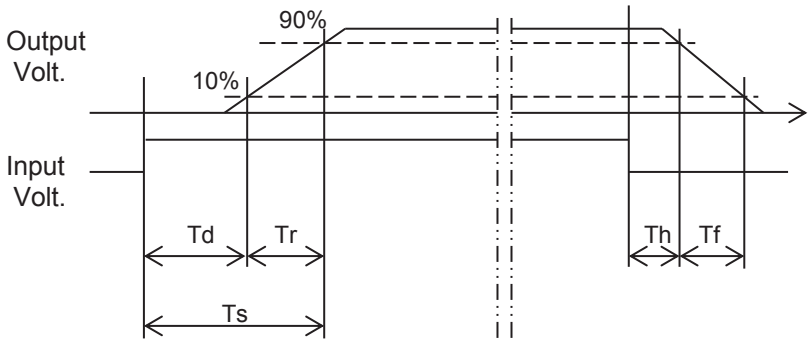
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	8.7	2.0	10.7	0.9	0.2
100 %	8.8	3.7	12.5	0.5	0.2



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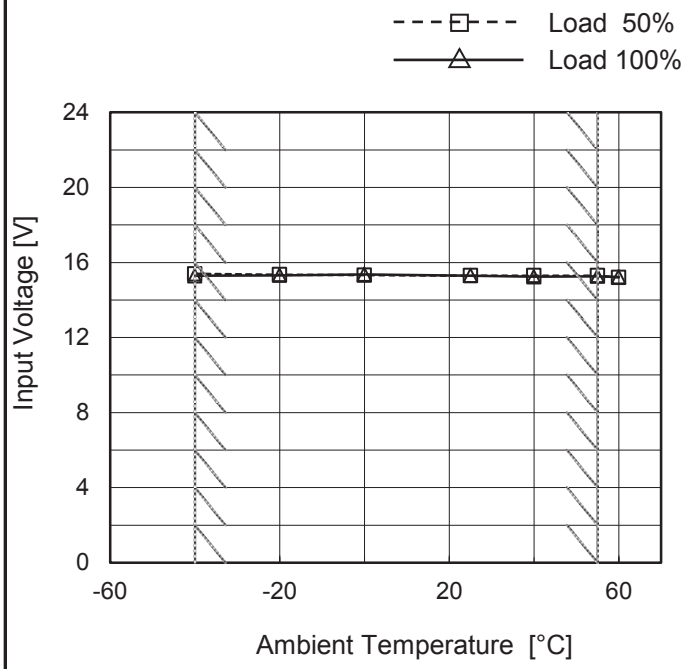
Model	CHS4002412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V26.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

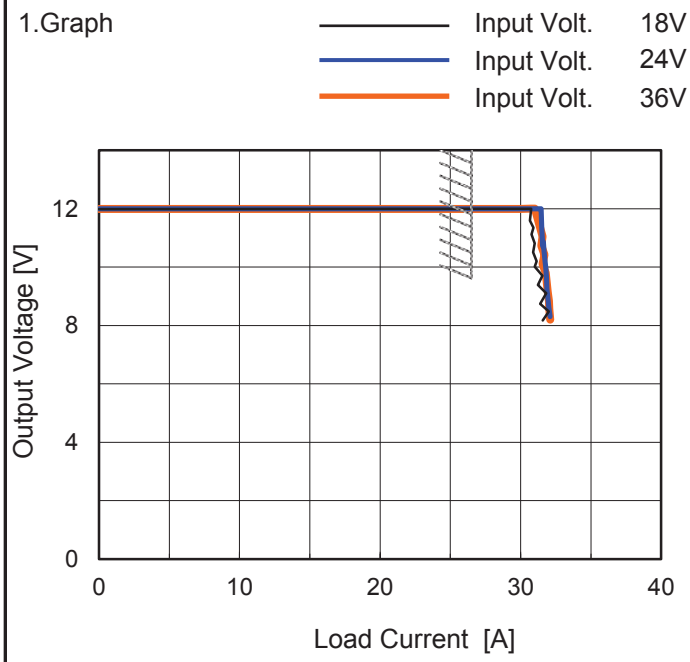
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.4	15.3
-20	15.4	15.4
0	15.4	15.4
25	15.3	15.3
40	15.3	15.3
55	15.3	15.3
60	15.2	15.3
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CHS4002412
Item	Overcurrent Protection
Object	+12V26.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

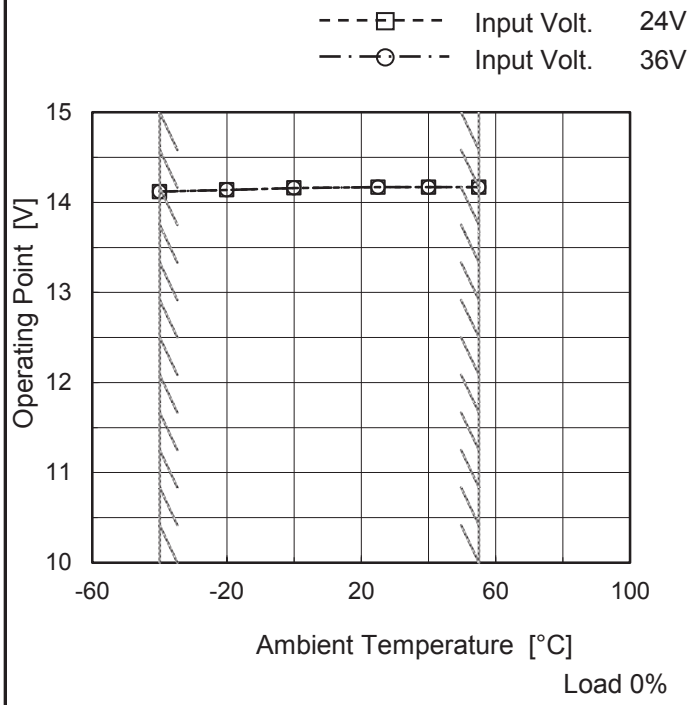
Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
11.4	31.18	30.95	30.40
10.8	31.28	31.02	30.58
9.6	31.42	31.39	30.91
8.4	31.86	31.84	31.22
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CHS4002412
Item	Overvoltage Protection
Object	+12V26.5A

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. 24[V]	Input Volt. 36[V]
-40	14.12	14.12
-20	14.14	14.14
0	14.16	14.16
25	14.17	14.17
40	14.17	14.17
55	14.17	14.17
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

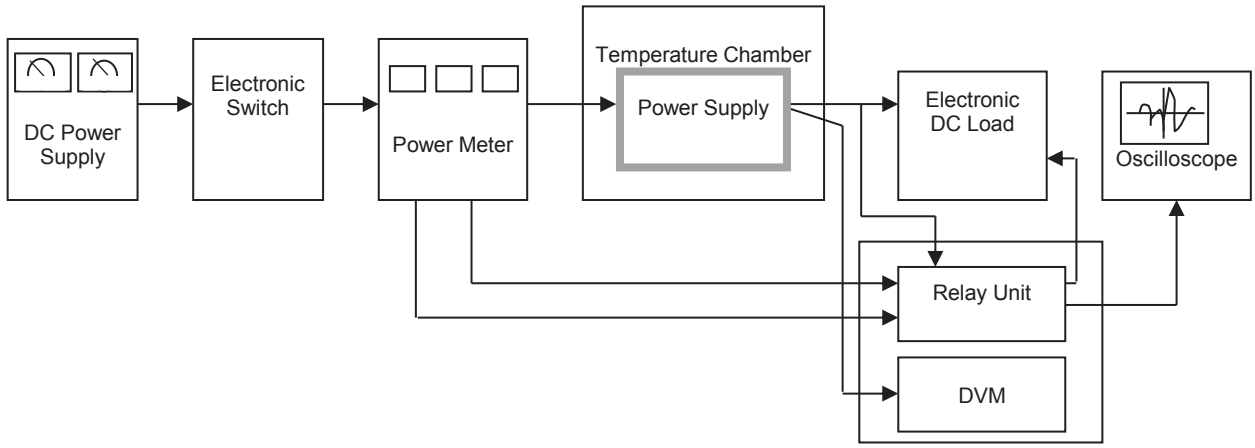


Figure A

Data Acquisition/Control Unit

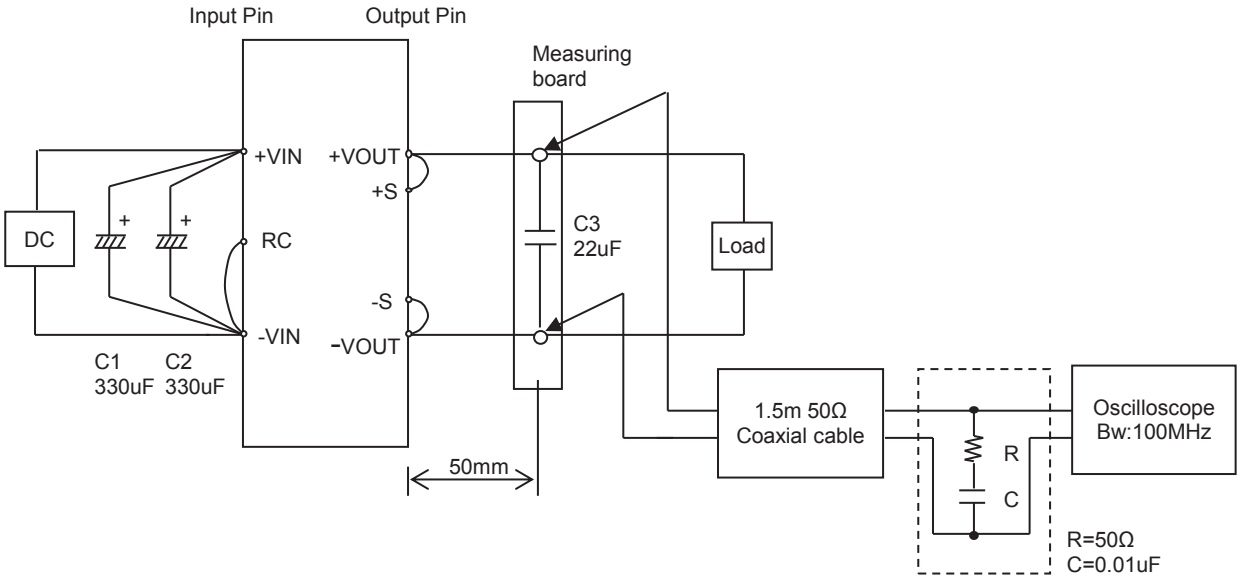


Figure B