参考資料

COSEL

TEST DATA OF MODULE C

(RB series)

Regulated DC Power Supply
November 25, 2019

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COSEL CO.,LTD.

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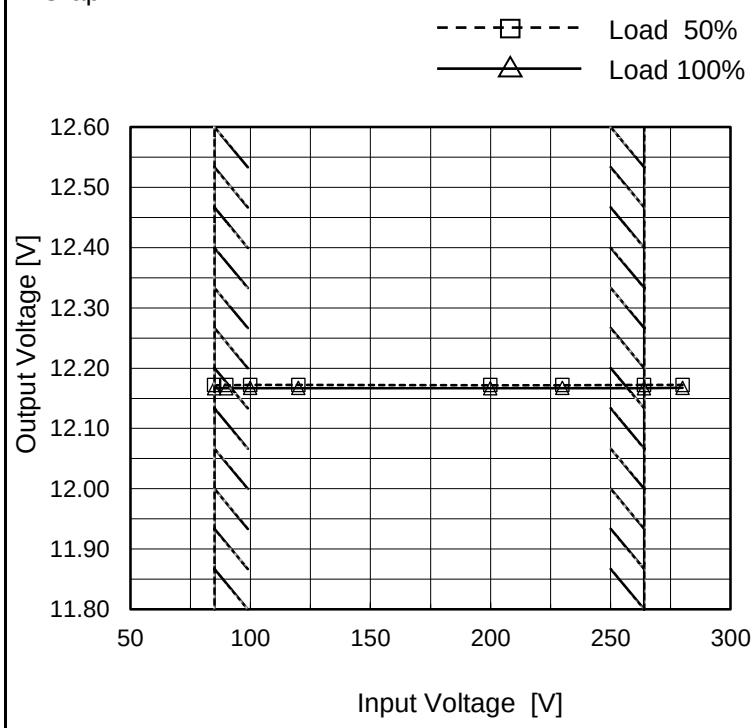

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	12.172	12.167
90	12.172	12.167
100	12.172	12.167
120	12.172	12.167
200	12.172	12.167
230	12.172	12.167
264	12.172	12.167
280	12.172	12.167
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BC-11444

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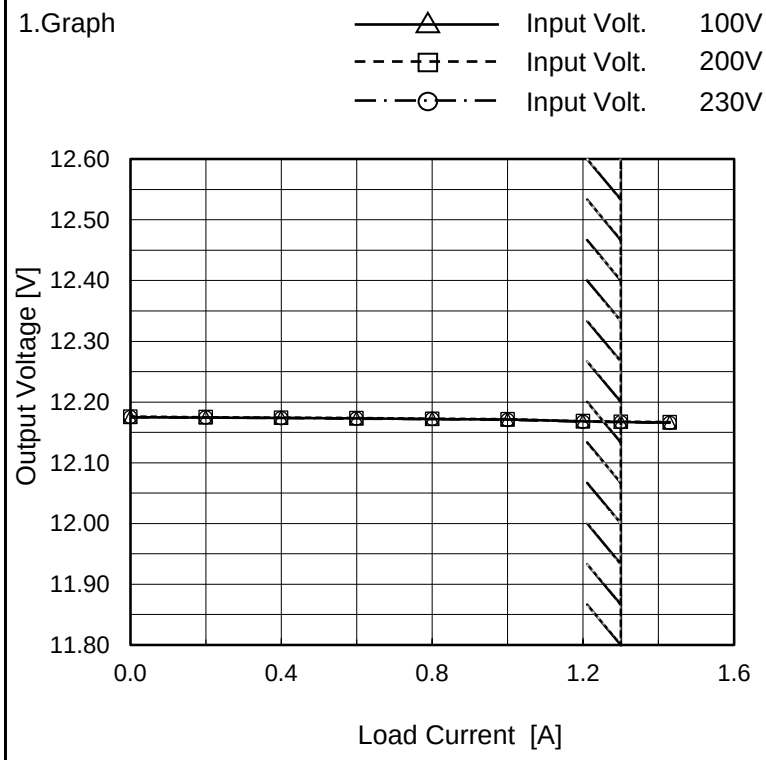
Model	MODULE C
Item	Load Regulation
Object	+12V1.3A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	12.175	12.176	12.175
0.20	12.175	12.175	12.175
0.40	12.174	12.174	12.174
0.60	12.173	12.174	12.173
0.80	12.172	12.172	12.172
1.00	12.171	12.172	12.171
1.20	12.168	12.168	12.168
1.30	12.167	12.167	12.167
1.43	12.166	12.167	12.166
--	-	-	-
--	-	-	-

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Model	MODULE C
Item	Dynamic Load Response
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure A

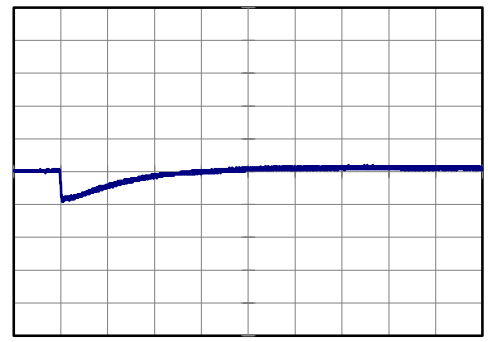
Input Volt. 100 V
Cycle 1000 ms

t1,t2 = 50 μsTyp

Load Current

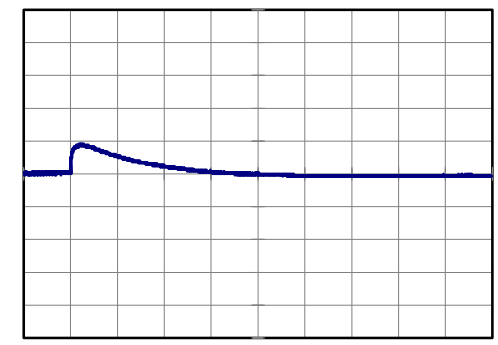
t1 t2

Min.Load (0A)←→
Load 100% (1.3A)



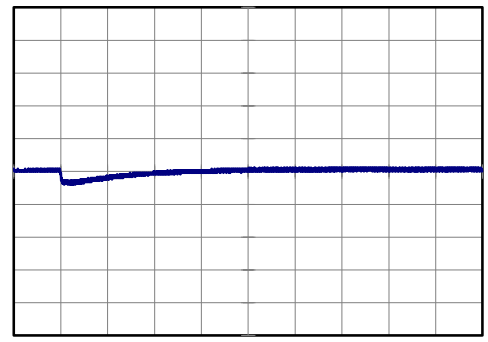
200 mV/div

4 ms/div



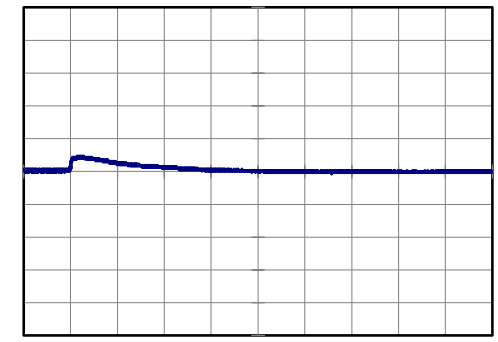
4 ms/div

Min.Load (0A)←→
Load 50% (0.65A)



200 mV/div

4 ms/div



4 ms/div

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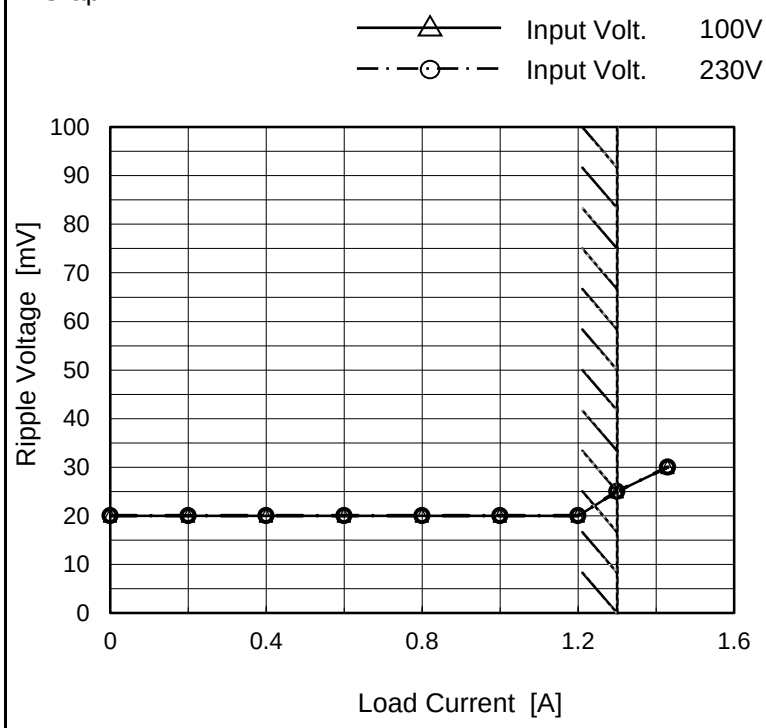
Model	MODULE C
Item	Ripple Voltage (by Load Current)
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

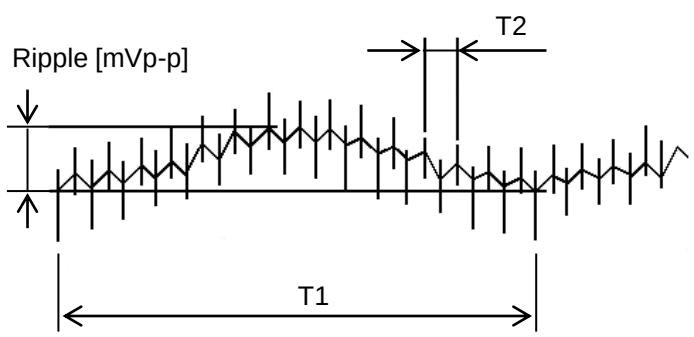


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
0.00	20	20
0.20	20	20
0.40	20	20
0.60	20	20
0.80	20	20
1.00	20	20
1.20	20	20
1.30	25	25
1.43	30	30
--	-	-
--	-	-

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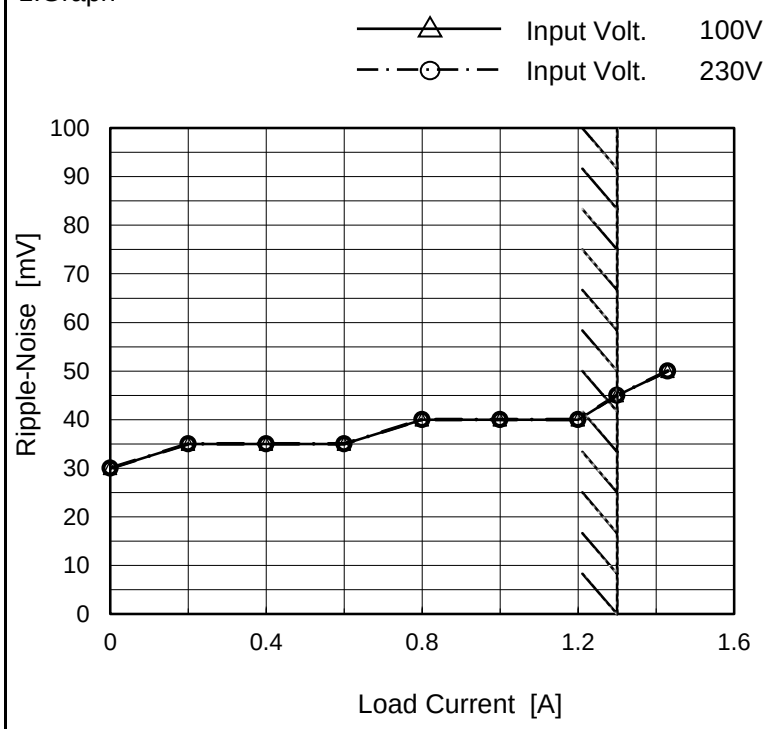
Model	MODULE C
Item	Ripple-Noise
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

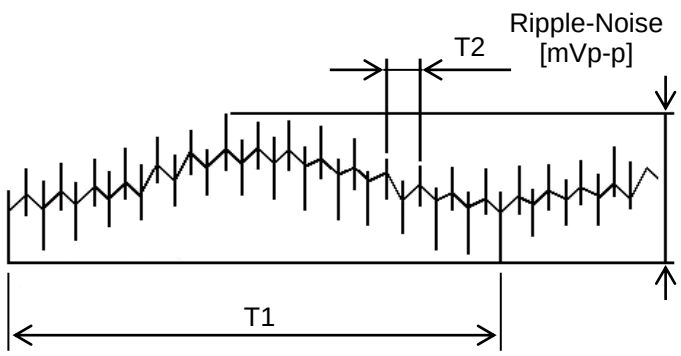


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 100 [V]	Ripple-Noise [mV] Input Volt. 230 [V]
0.00	30	30
0.20	35	35
0.40	35	35
0.60	35	35
0.80	40	40
1.00	40	40
1.20	40	40
1.30	45	45
1.43	50	50
--	-	-
--	-	-

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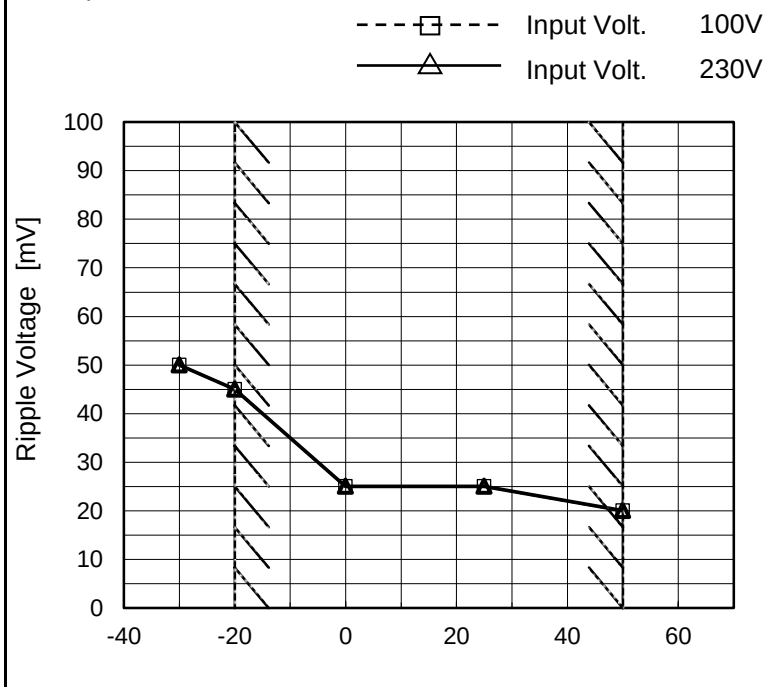
Model	MODULE C
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.3A

Testing Circuitry Figure B

1.Graph



Load 100 %

Measured by 20 MHz Oscilloscope.

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

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
-30	50	50
-20	45	45
0	25	25
25	25	25
50	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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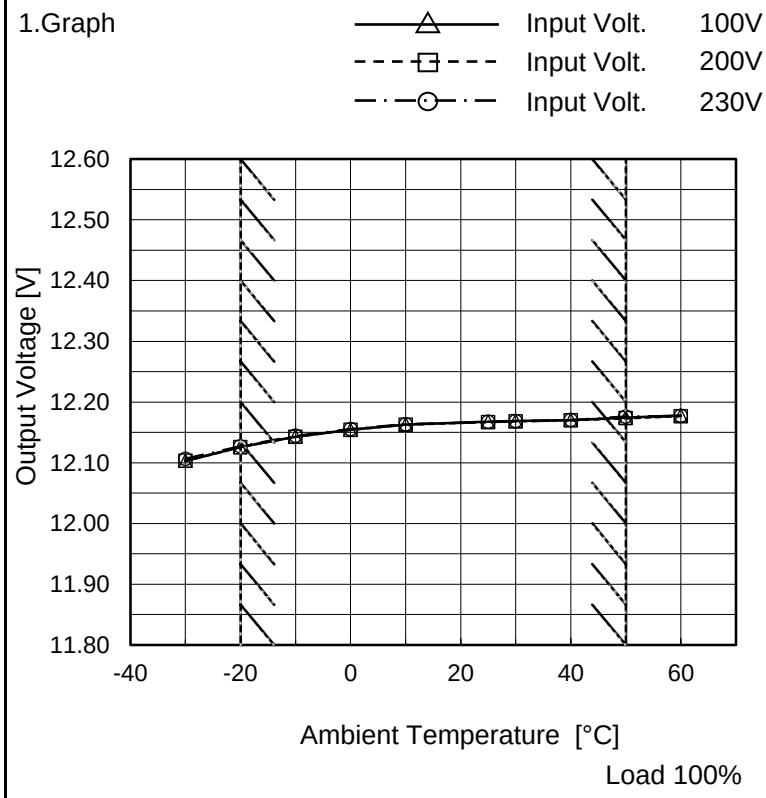
Model	MODULE C
Item	Ambient Temperature Drift
Object	+12V1.3A

Testing Circuitry Figure A

1.Graph



Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-30	12.103	12.103	12.106
-20	12.126	12.126	12.127
-10	12.143	12.143	12.144
0	12.154	12.154	12.155
10	12.163	12.163	12.163
25	12.167	12.167	12.167
30	12.169	12.168	12.168
40	12.170	12.170	12.170
50	12.174	12.173	12.176
60	12.178	12.177	12.177
--	-	-	-

Model	MODULE C	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V1.3A	

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 - 50°C
Input Voltage : 85 - 264V
Load Current : 0 - 1.3A

* 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	50	100	0.00	12.181	±30	±0.3
Minimum Voltage	-20	85	1.30	12.122		

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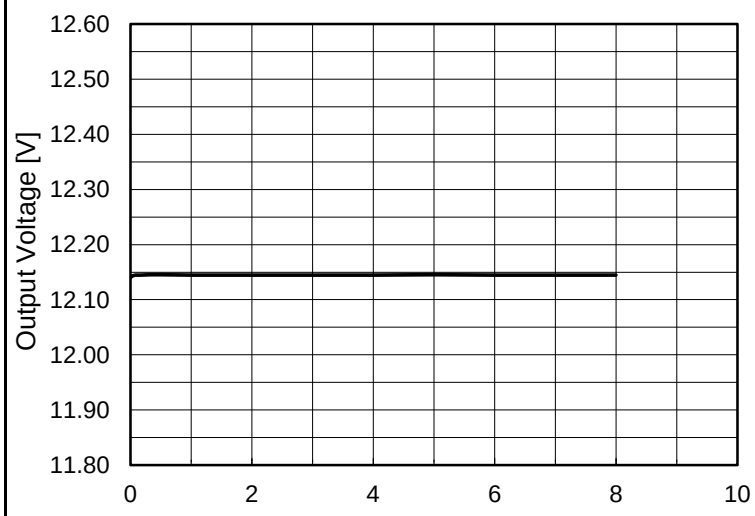
Model	MODULE C
Item	Time Lapse Drift
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC230V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.139
0.5	12.145
1.0	12.145
2.0	12.145
3.0	12.145
4.0	12.145
5.0	12.145
6.0	12.145
7.0	12.145
8.0	12.145

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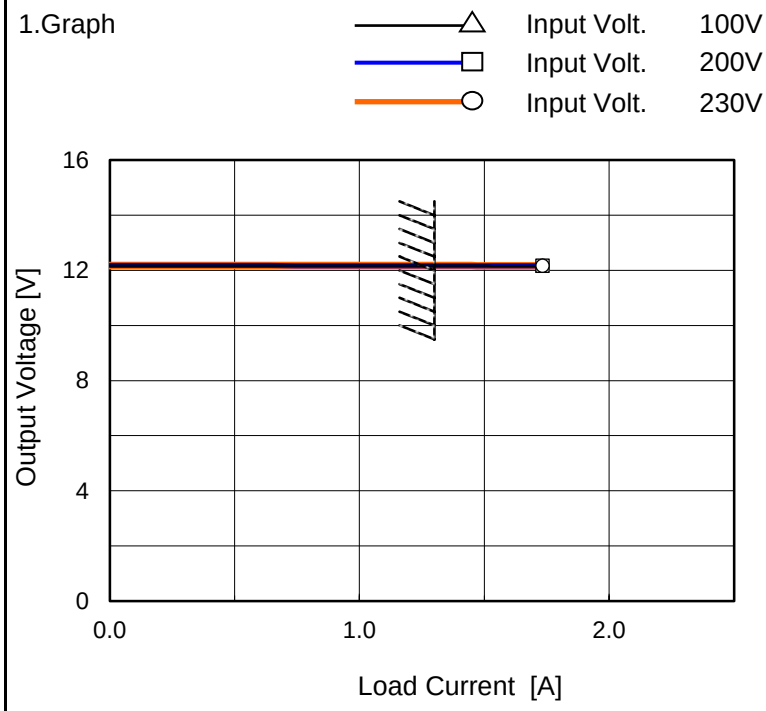
Model	MODULE C
Item	Overcurrent Protection
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
12	1.73	1.73	1.73
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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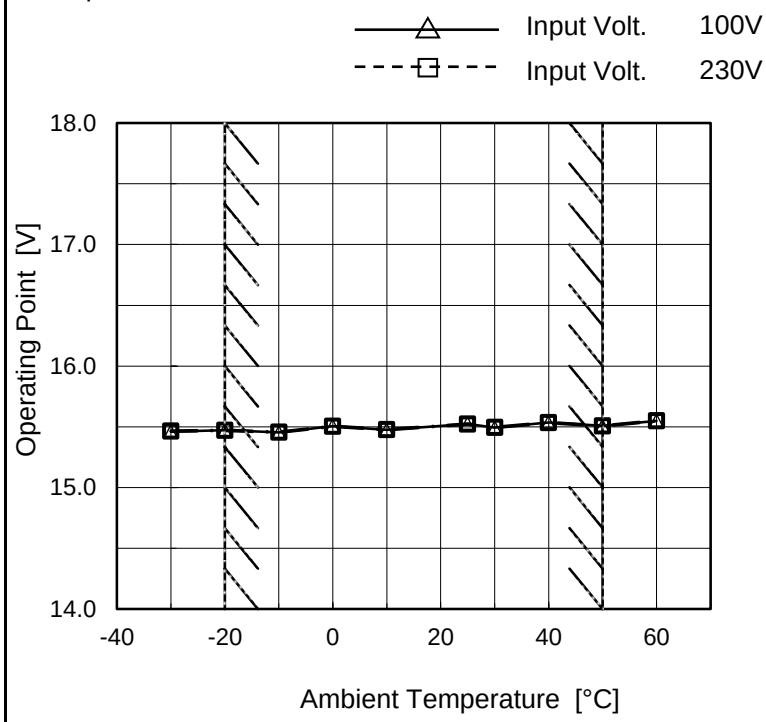
Model	MODULE C
Item	Overvoltage Protection
Object	+12V1.3A

Testing Circuitry Figure A

1.Graph



Load 0%

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

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 100[V]	Input Volt. 230[V]
-30	15.46	15.47
-20	15.47	15.47
-10	15.45	15.45
0	15.51	15.50
10	15.47	15.48
25	15.52	15.52
30	15.49	15.49
40	15.53	15.53
50	15.51	15.51
60	15.55	15.55
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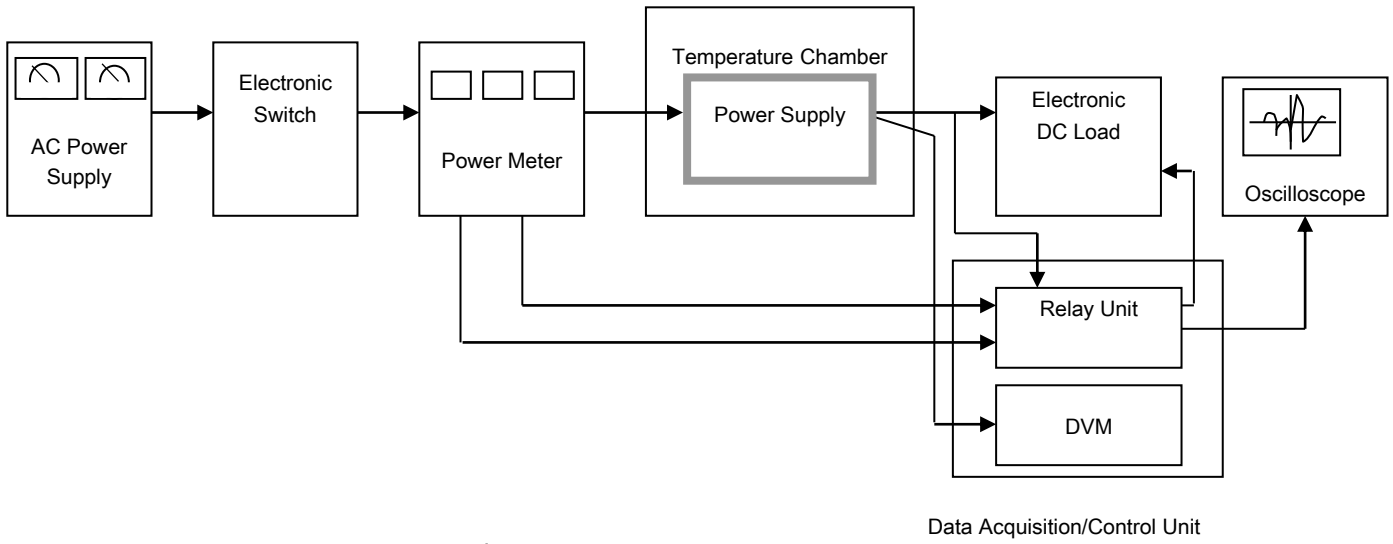
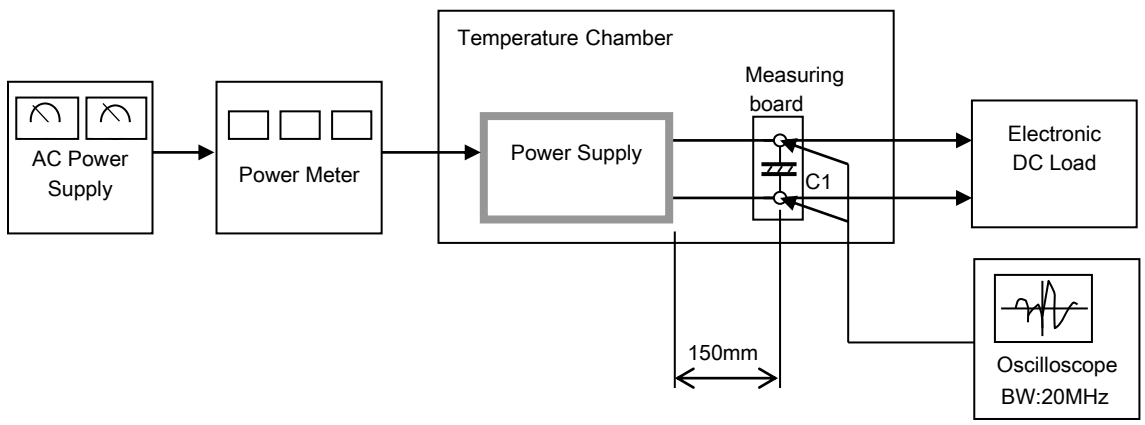


Figure A



C1= 22 μF
(Electrolytic capacitor)

Figure B