参考資料

TEST DATA OF MODULE M

(AME series)

Regulated DC Power Supply
October 28, 2020

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Item	Line Regulation
Object	+36V3.4A

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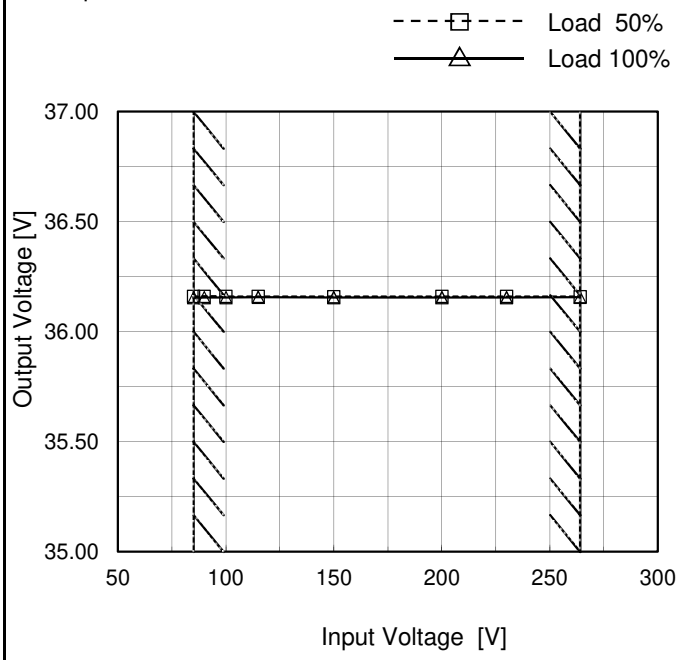

Note:
Hatched line shows the input voltage range.

2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	36.160	36.154
90	36.161	36.155
100	36.160	36.155
115	36.160	36.156
150	36.159	36.155
200	36.160	36.155
230	36.160	36.155
264	36.159	36.156
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BC-11640

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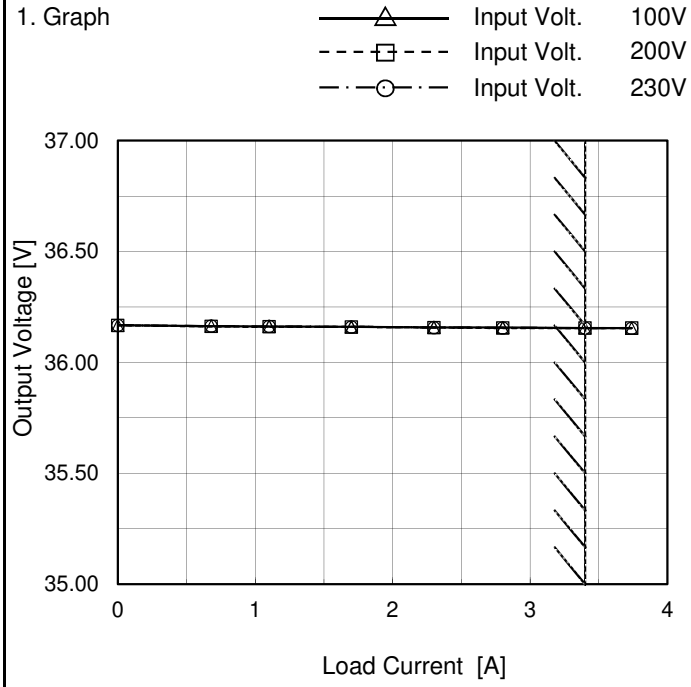
Model	MODULE M
Item	Load Regulation
Object	+36V3.4A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



Note: Hatched 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	36.167	36.167	36.167
0.68	36.164	36.162	36.164
1.10	36.162	36.161	36.162
1.70	36.160	36.160	36.160
2.30	36.158	36.157	36.157
2.80	36.157	36.155	36.156
3.40	36.155	36.155	36.155
3.74	36.154	36.155	36.154
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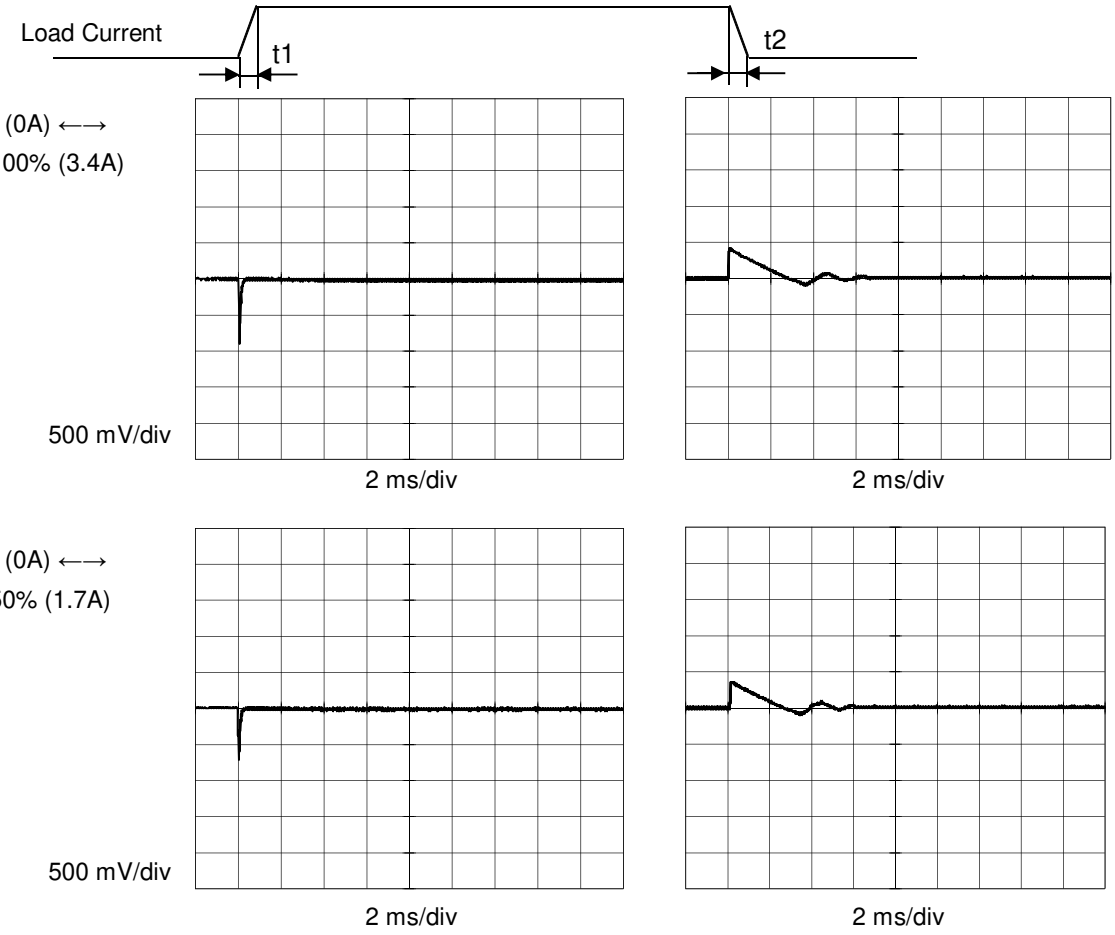
BC-11640

COSEL

Model	MODULE M		
Item	Dynamic Load Response	Temperature Testing Circuitry	25° C Figure A
Object	+36V3.4A		

Input Volt. 100 V
Cycle 1000 ms

Response t1=t2=50us. Typ



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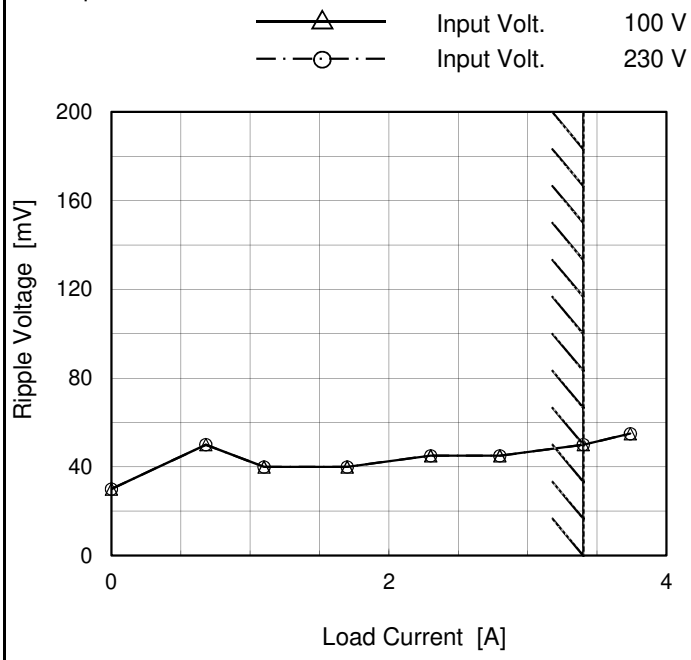
Model	MODULE M
Item	Ripple Voltage (by Load Current)
Object	+36V3.4A

Temperature 25°C
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100[V]	Input Volt. 230[V]
0.00	30	30
0.68	50	50
1.10	40	40
1.70	40	40
2.30	45	45
2.80	45	45
3.40	50	50
3.74	55	55
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Note:
Measured by 20MHz Oscilloscope.

Ripple Voltage is shown as p-p in the figure below.

Hatched line shows the range of the rated load current.

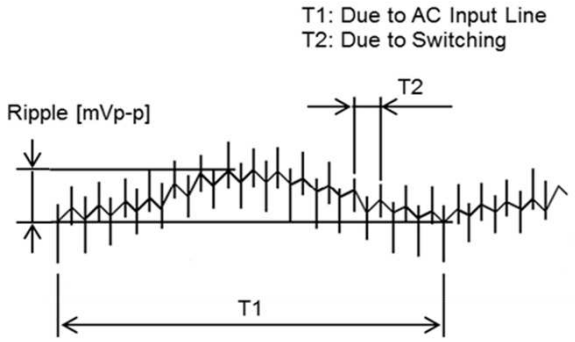

Fig. Complex Ripple Wave Form

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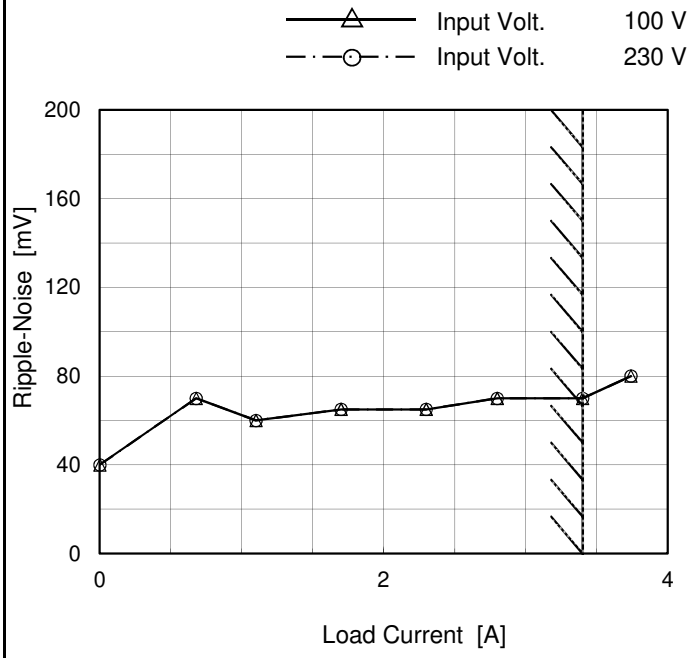
Model	MODULE M
Item	Ripple Noise
Object	+36V3.4A

Temperature 25°C
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Noise [mV]	
	Input Volt. 100[V]	Input Volt. 230[V]
0.00	40	40
0.68	70	70
1.10	60	60
1.70	65	65
2.30	65	65
2.80	70	70
3.40	70	70
3.74	80	80
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Note:
Measured by 20MHz Oscilloscope.

Ripple Noise is shown as p-p in the figure below.

Hatched line shows the range of the rated load current.

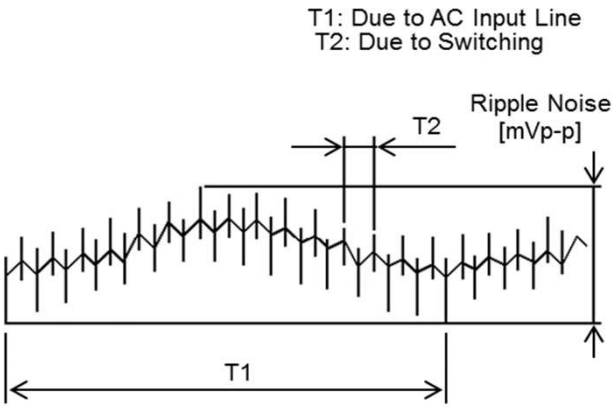

Fig. Complex Ripple Wave Form

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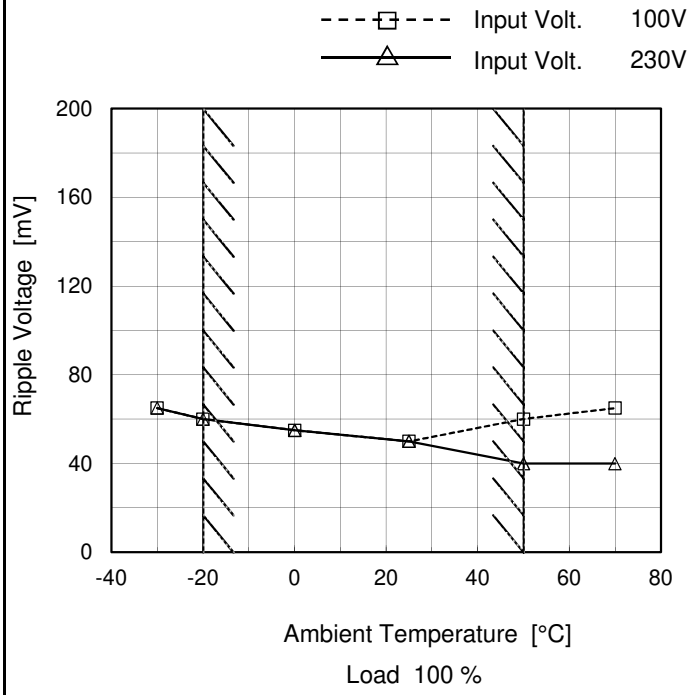
Model	MODULE M
Item	Ripple Voltage (by Ambient Temp.)
Object	+36V3.4A

Testing Circuitry Figure B

1. Graph



Load 100 %

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
-30	65	65
-20	60	60
0	55	55
25	50	50
50	60	40
70	65	40
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Note:
Measured by 20MHz Oscilloscope.

Hatched line shows the range of the rated operating temperature.

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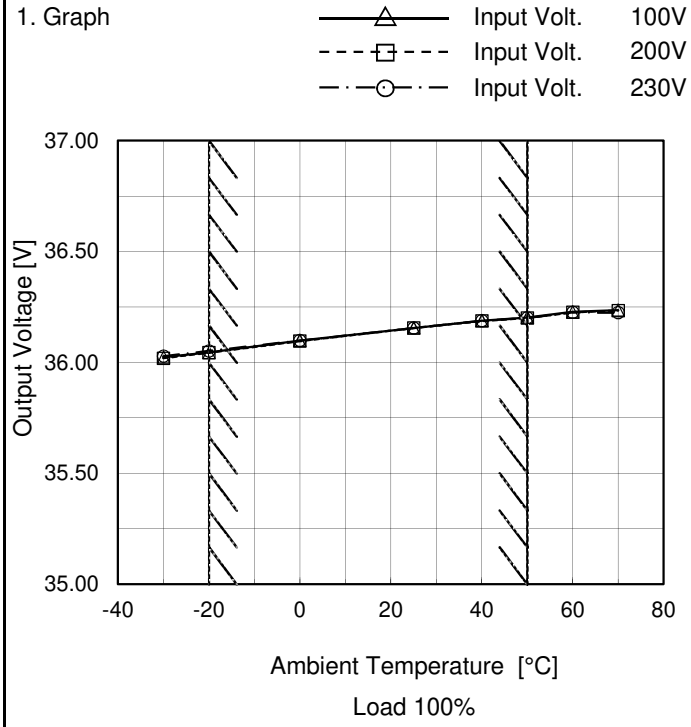
Model	MODULE M
Item	Ambient Temperature Drift
Object	+36V3.4A

Testing Circuitry Figure A

1. Graph



Note:
Hatched line shows the range of the rated operating temperature.

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-30	36.024	36.019	36.028
-20	36.045	36.044	36.052
0	36.099	36.096	36.099
25	36.155	36.155	36.155
40	36.188	36.187	36.188
50	36.203	36.200	36.201
60	36.228	36.226	36.226
70	36.236	36.234	36.224
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MODULE M	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+36V3.4A	

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 - 3.4A

* 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	230	0.0	36.235	±96	±0.3
Minimum Voltage	-20	200	3.4	36.044		

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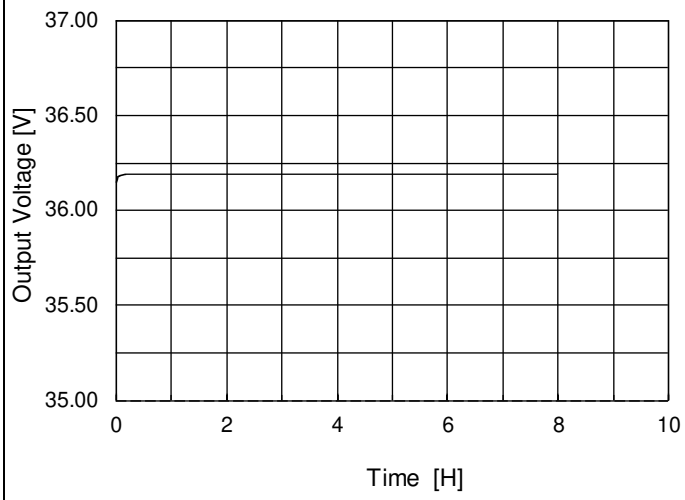
Model	MODULE M
Item	Time Lapse Drift
Object	+36V3.4A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



Input Volt. 100V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	36.149
0.5	36.189
1.0	36.189
2.0	36.190
3.0	36.191
4.0	36.191
5.0	36.192
6.0	36.192
7.0	36.192
8.0	36.192

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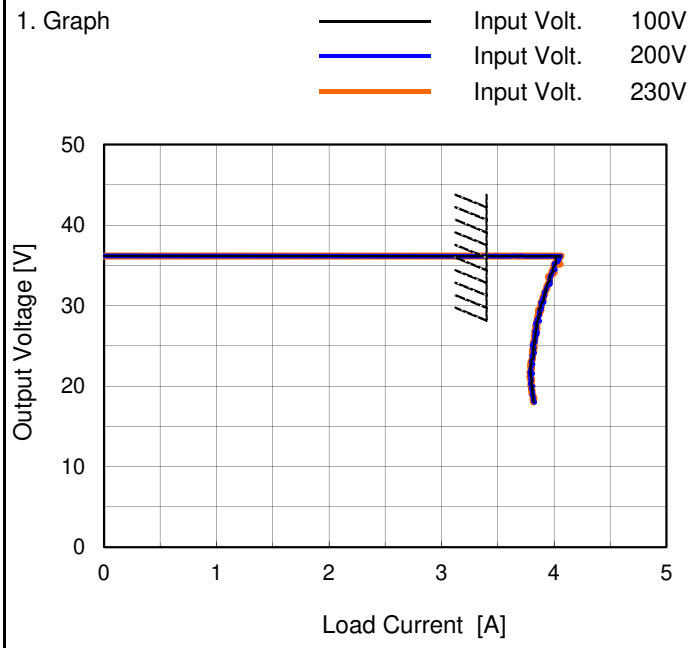
Model	MODULE M
Item	Overcurrent Protection
Object	+36V3.4A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

Hiccup mode activates when the output voltage is below 18V.

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
34.2	4.00	3.99	3.98
32.4	3.94	3.94	3.94
28.8	3.87	3.87	3.86
25.2	3.82	3.82	3.82
21.6	3.80	3.79	3.79
18.0	3.82	3.83	3.82
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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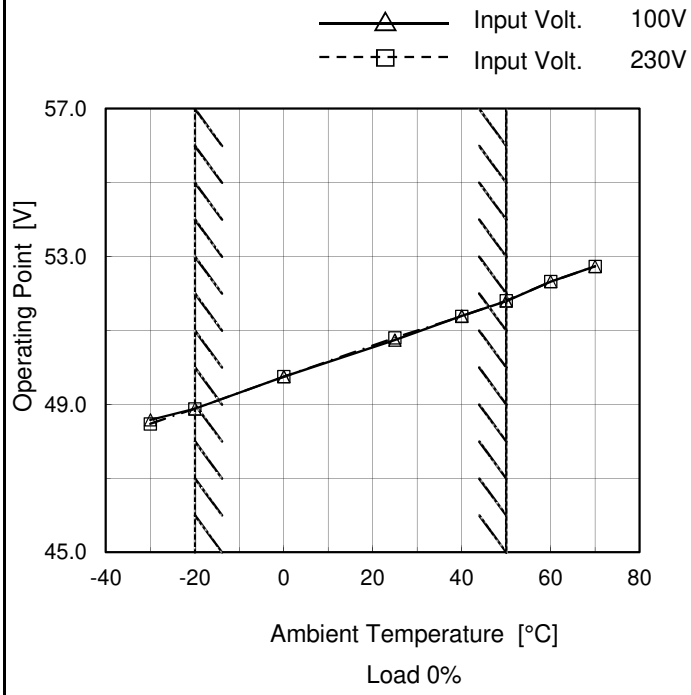
Model	MODULE M
Item	Overvoltage Protection
Object	+36V3.4A

Testing Circuitry Figure A

1. Graph



Load 0%

Note:
Hatched line shows the range of the rated operating temperature.

2. Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 100[V]	Input Volt. 230[V]
-30	48.58	48.47
-20	48.88	48.88
0	49.75	49.75
25	50.74	50.80
40	51.39	51.38
50	51.79	51.80
60	52.32	52.32
70	52.73	52.73
--	-	-
--	-	-
--	-	-

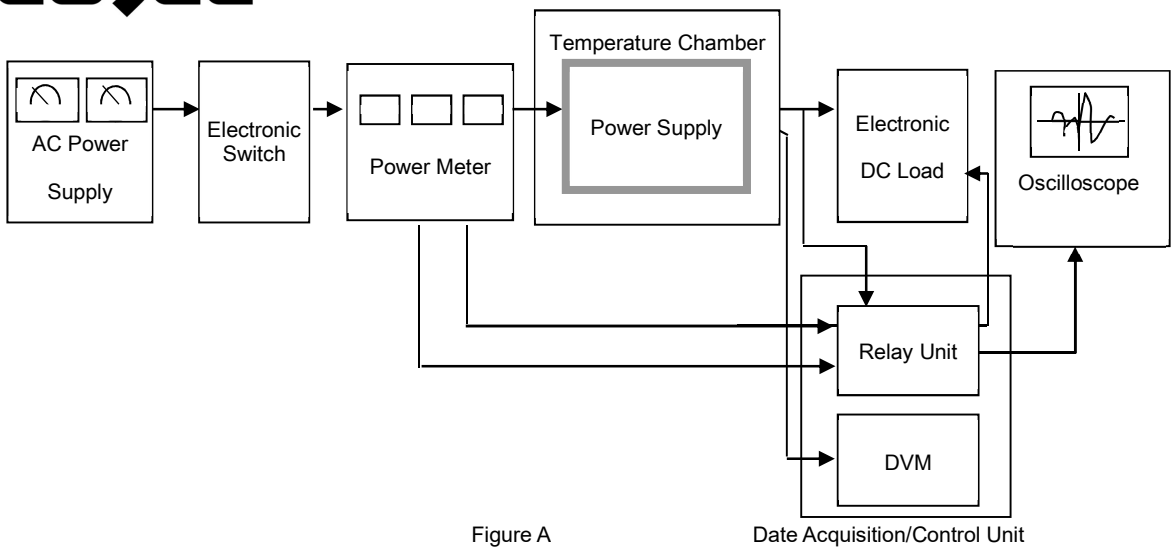


Figure A

Date Acquisition/Control Unit

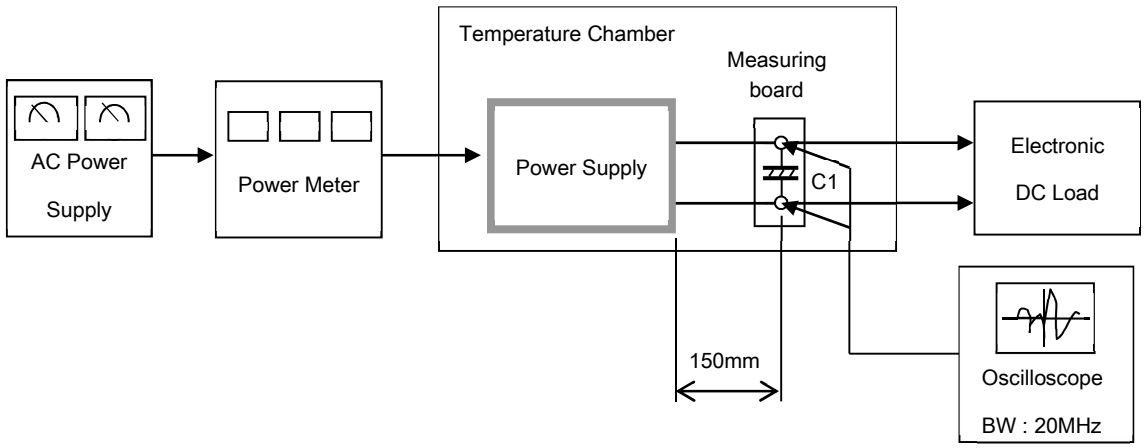


Figure B

C1 = 22 μF
(Electrolytic capacitor)