COSEL

参考資料

TEST DATA OF GT3.5-12

Regulated DC Power Supply
July 23, 2010

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COSEL CO.,LTD.

COSEL

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Object	———————

Temperature 25°C
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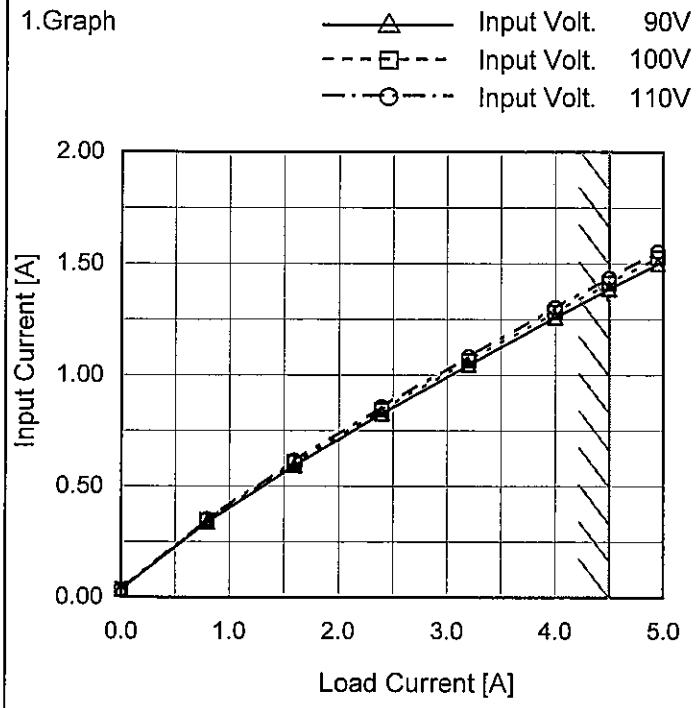


Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	0.037	0.034	0.035
0.80	0.339	0.346	0.352
1.60	0.594	0.606	0.616
2.40	0.828	0.844	0.858
3.20	1.046	1.065	1.084
4.00	1.258	1.281	1.303
4.50	1.386	1.412	1.436
4.95	1.498	1.528	1.554
--	-	-	-
--	-	-	-
--	-	-	-

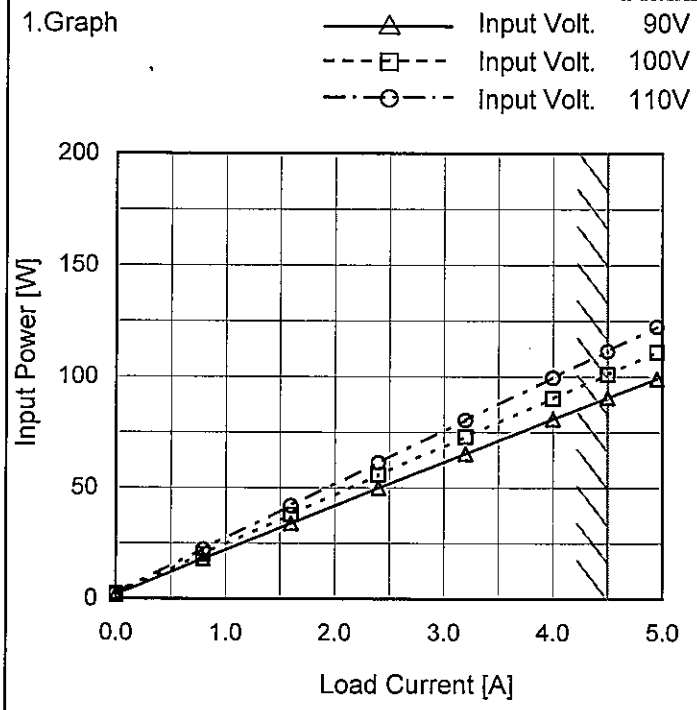
BC-10200

COSEL

Model	GT3.5-12
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

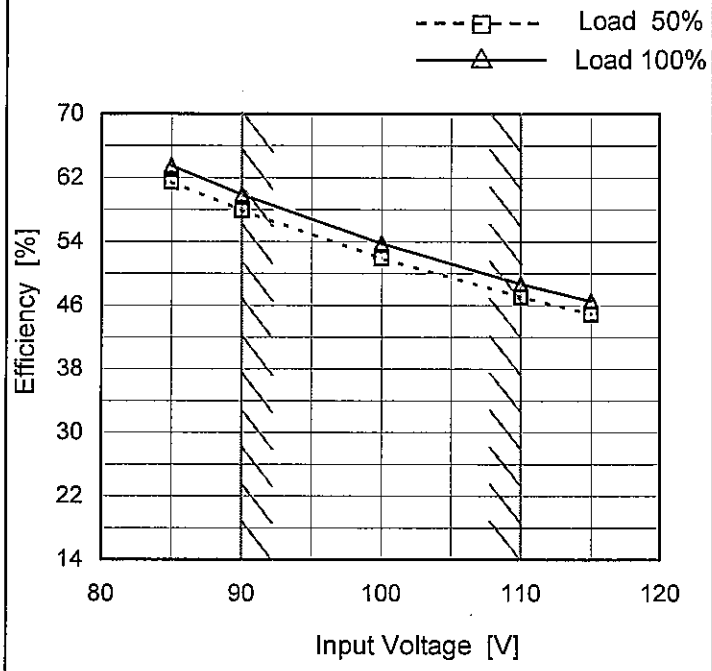
Load Current [A]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	1.9	2.2	2.5
0.80	18.1	20.1	22.3
1.60	34.1	38.0	42.0
2.40	50.0	55.7	61.4
3.20	65.4	73.0	80.5
4.00	81.0	90.2	99.6
4.50	90.6	101.0	111.5
4.95	99.2	111.0	122.4
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT3.5-12
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

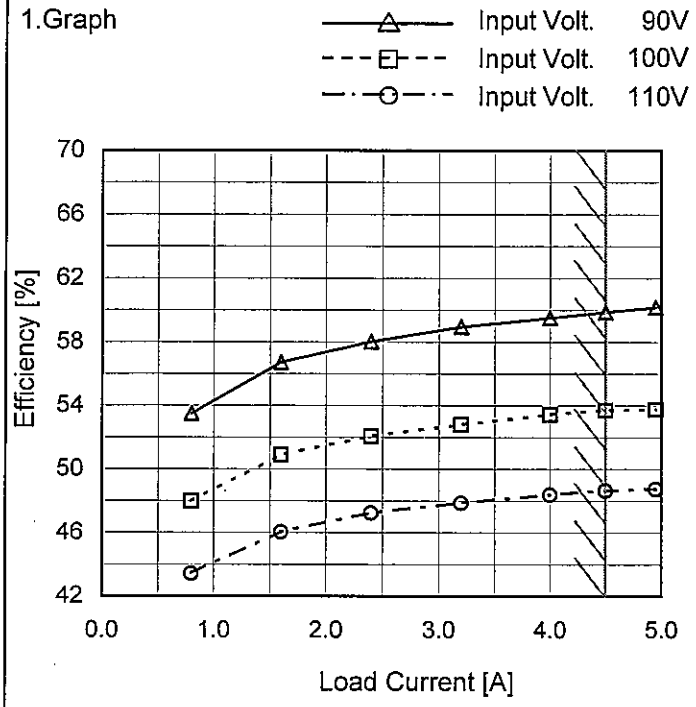
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
85	61.4	63.5
90	57.9	59.9
100	51.9	53.8
110	47.1	48.7
115	44.9	46.5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-12
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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.80	53.5	48.0	43.4
1.60	56.7	50.9	46.0
2.40	58.0	52.1	47.2
3.20	58.9	52.8	47.9
4.00	59.5	53.4	48.4
4.50	59.9	53.7	48.7
4.95	60.2	53.8	48.8
--	-	-	-
--	-	-	-
--	-	-	-

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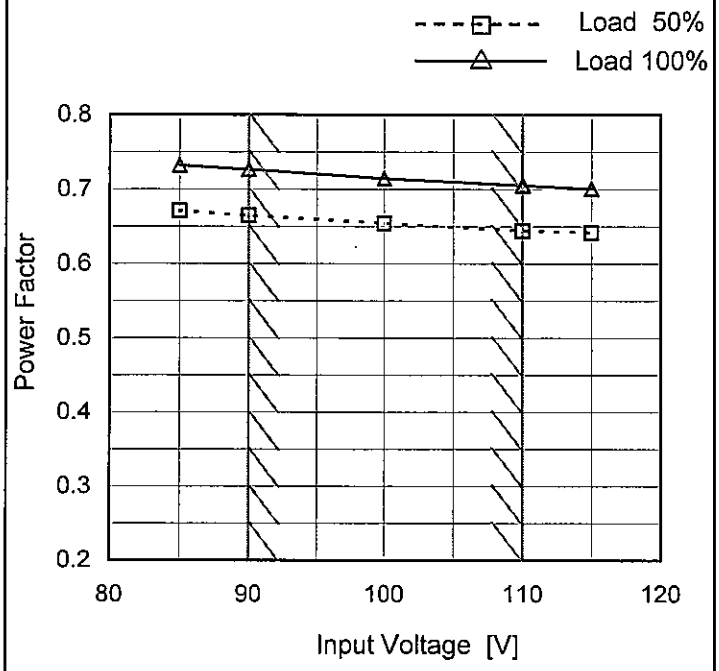
Model	GT3.5-12
Item	Power Factor (by Input Voltage)
Object	

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]	Power Factor	
	Load 50%	Load 100%
85	0.671	0.732
90	0.665	0.727
100	0.654	0.715
110	0.644	0.706
115	0.642	0.701
--	-	-
--	-	-
--	-	-
--	-	-

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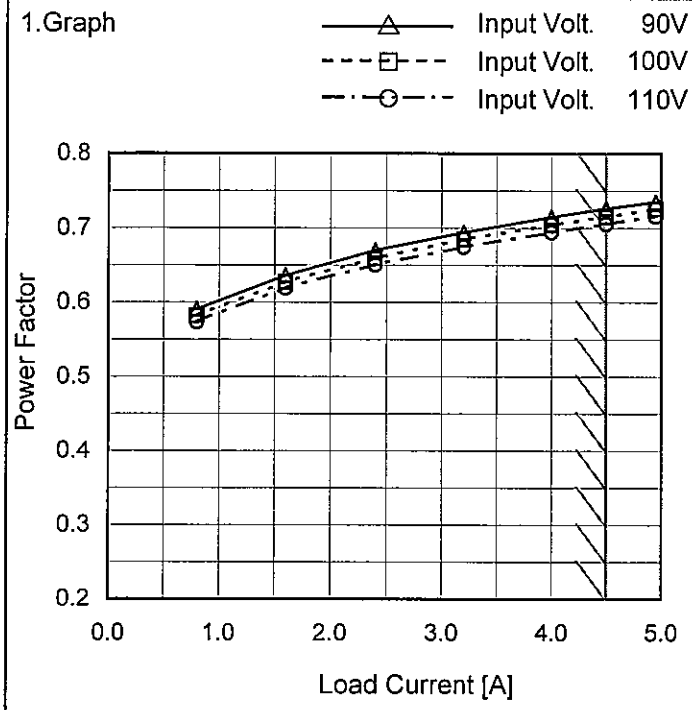
Model	GT3.5-12
Item	Power Factor (by Load Current)
Object	————————

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]	Power Factor		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.80	0.591	0.582	0.574
1.60	0.636	0.627	0.619
2.40	0.670	0.659	0.650
3.20	0.694	0.685	0.675
4.00	0.715	0.704	0.695
4.50	0.727	0.715	0.706
4.95	0.735	0.726	0.716
--	-	-	-
--	-	-	-
--	-	-	-

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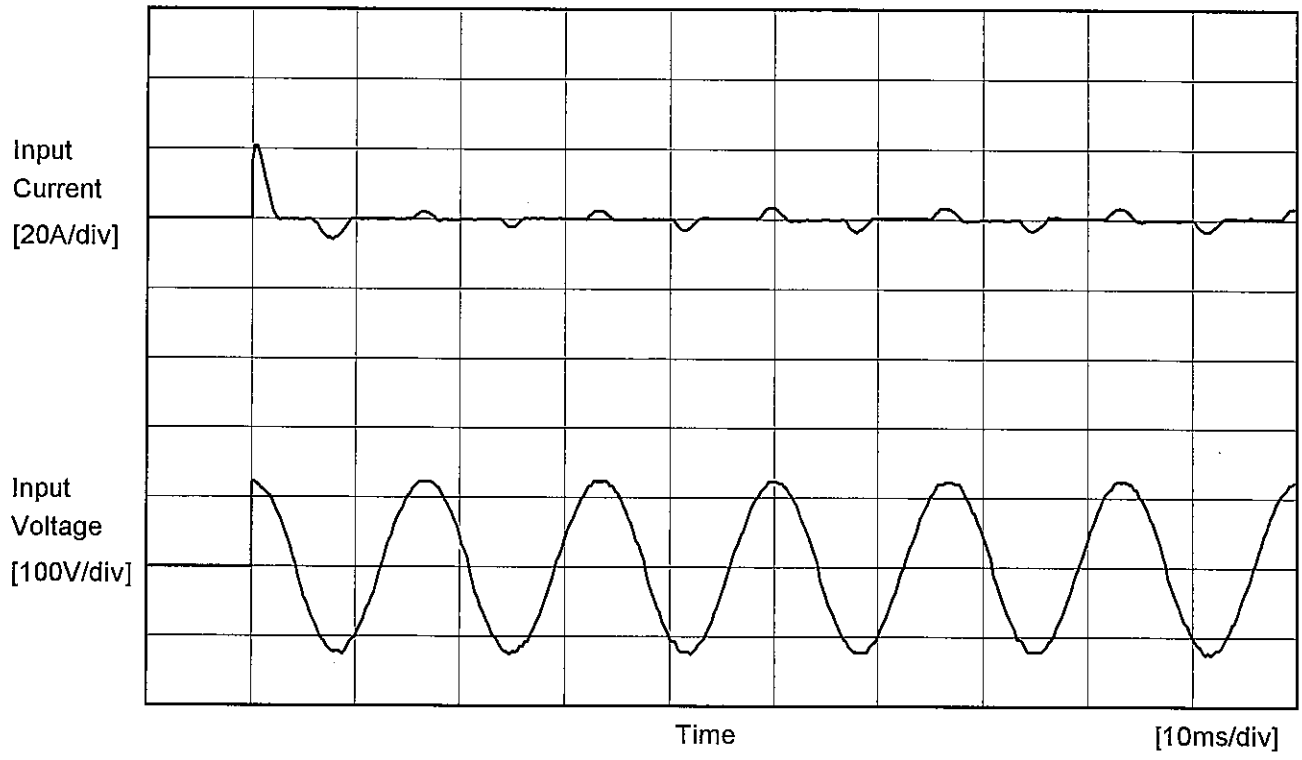
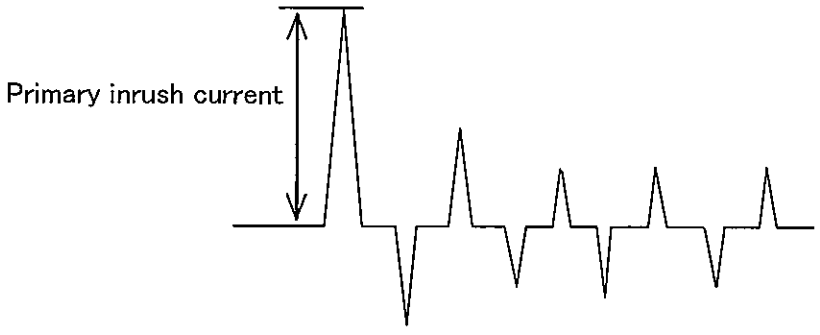
Model	GT3.5-12
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	20.8 A



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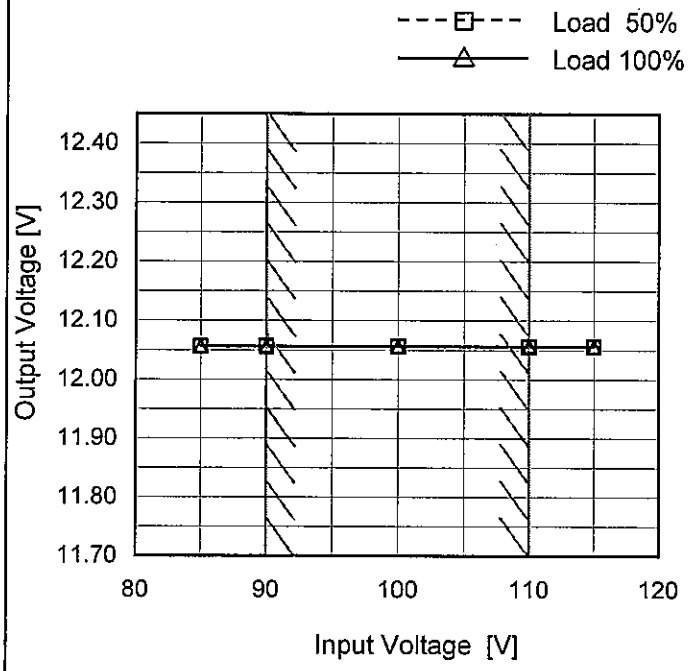
Model	GT3.5-12
Item	Line Regulation
Object	+12V4.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

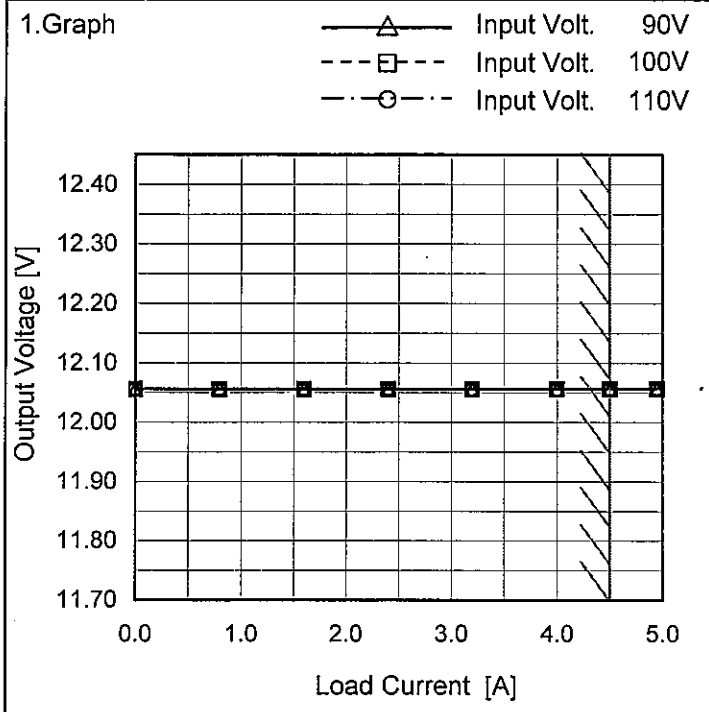
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	12.056	12.057
90	12.056	12.057
100	12.056	12.056
110	12.056	12.056
115	12.056	12.056
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-12
Item	Load Regulation
Object	+12V4.5A

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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	12.056	12.056	12.056
0.80	12.056	12.056	12.056
1.60	12.056	12.056	12.056
2.40	12.056	12.056	12.056
3.20	12.056	12.056	12.056
4.00	12.057	12.056	12.056
4.50	12.057	12.057	12.056
4.95	12.057	12.057	12.057
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

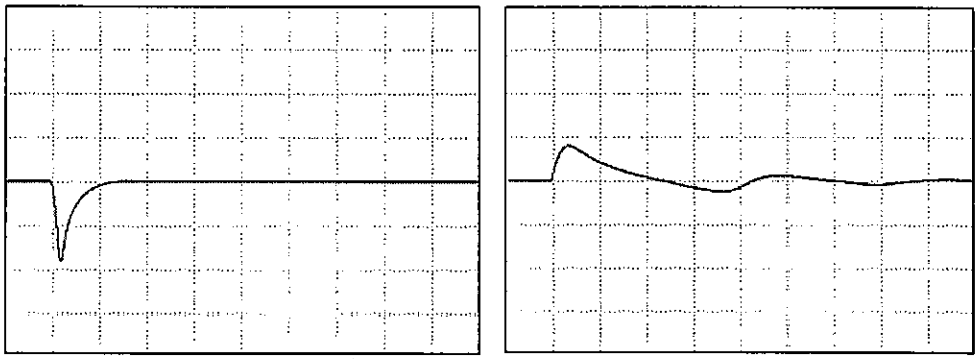
Model	GT3.5-12
Item	Dynamic Load Response
Object	+12V4.5A

Temperature 25°C
Testing Circuitry Figure A

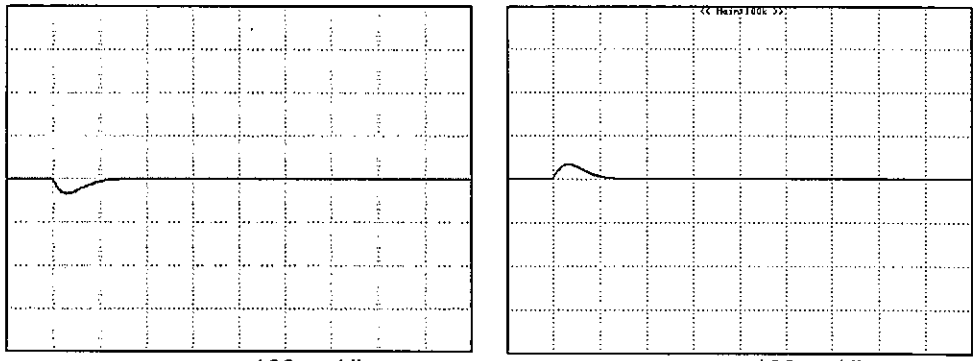
Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (4.5A)



Load 50% (2.25A) ⟷
Load 100% (4.5A)

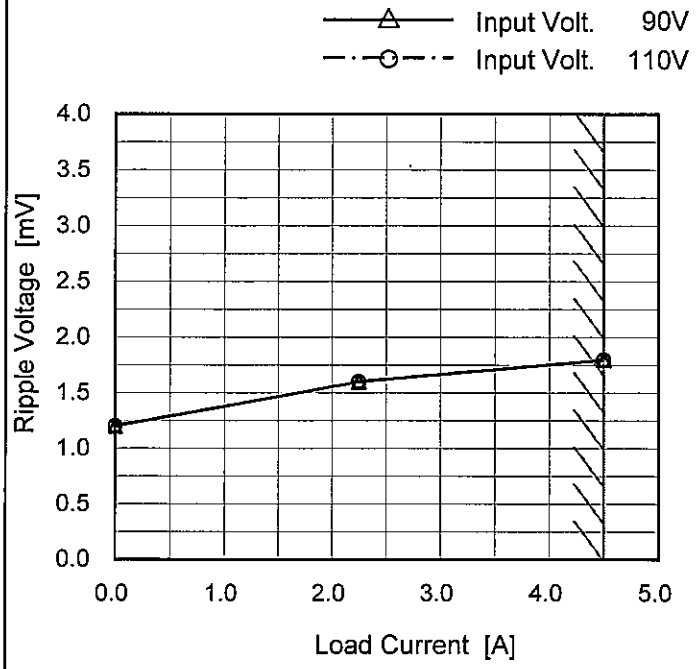


COSEL

Model	GT3.5-12
Item	Ripple Voltage (by Load Current)
Object	+12V4.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated load current.

2.Values

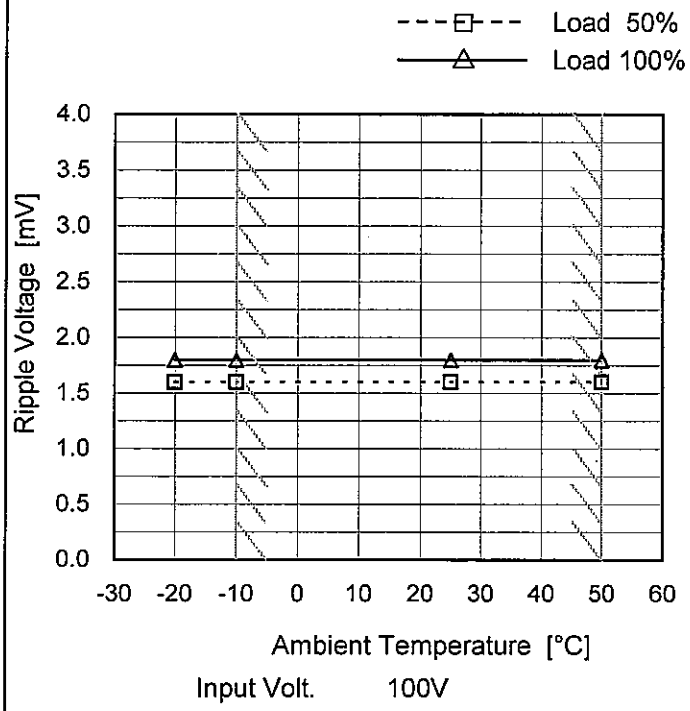
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.00	1.2	1.2
2.25	1.6	1.6
4.50	1.8	1.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V4.5A

Testing Circuitry Figure A

1.Graph



Input Volt. 100V

Measured by 20 MHz Oscilloscope.

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

2.Values

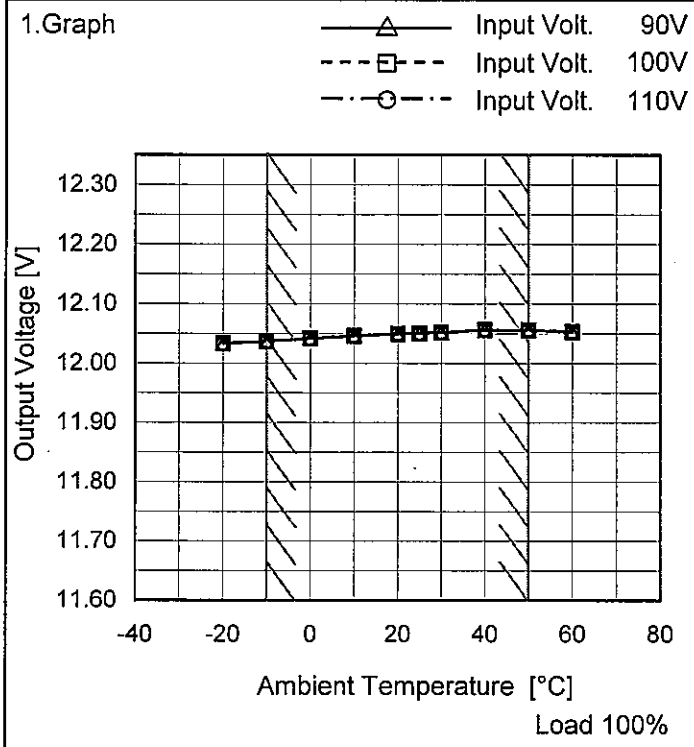
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	1.6	1.8
-10	1.6	1.8
25	1.6	1.8
50	1.6	1.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-12
Item	Ambient Temperature Drift
Object	+12V4.5A

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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	12.033	12.033	12.033
-10	12.037	12.037	12.037
0	12.042	12.042	12.042
10	12.046	12.046	12.046
20	12.049	12.049	12.049
25	12.051	12.051	12.051
30	12.052	12.052	12.052
40	12.056	12.056	12.056
50	12.056	12.056	12.056
60	12.053	12.053	12.053
--	-	-	-

COSEL

Model	GT3.5-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V4.5A	

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 : -10 - 50°C
Input Voltage : 90 - 110V
Load Current : 0 - 4.5A

* 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

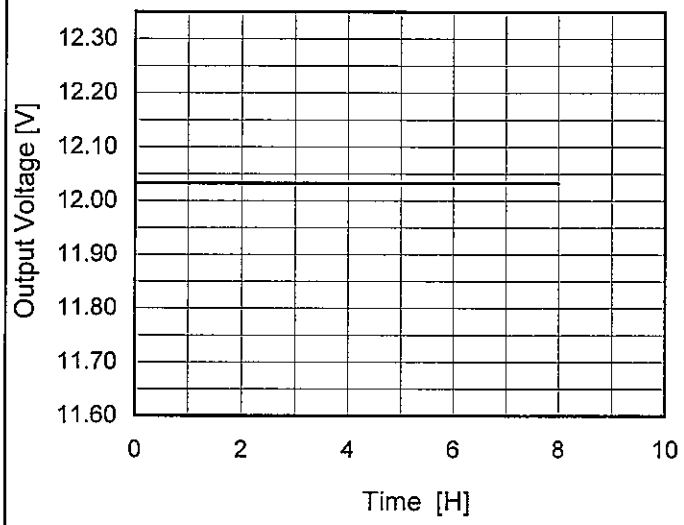
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	90	4.5	12.056	±10	±0.1
Minimum Voltage	-10	90	0	12.036		

COSEL

Model	GT3.5-12
Item	Time Lapse Drift
Object	+12V4.5A

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	12.033
0.5	12.033
1.0	12.033
2.0	12.033
3.0	12.033
4.0	12.033
5.0	12.033
6.0	12.033
7.0	12.033
8.0	12.033

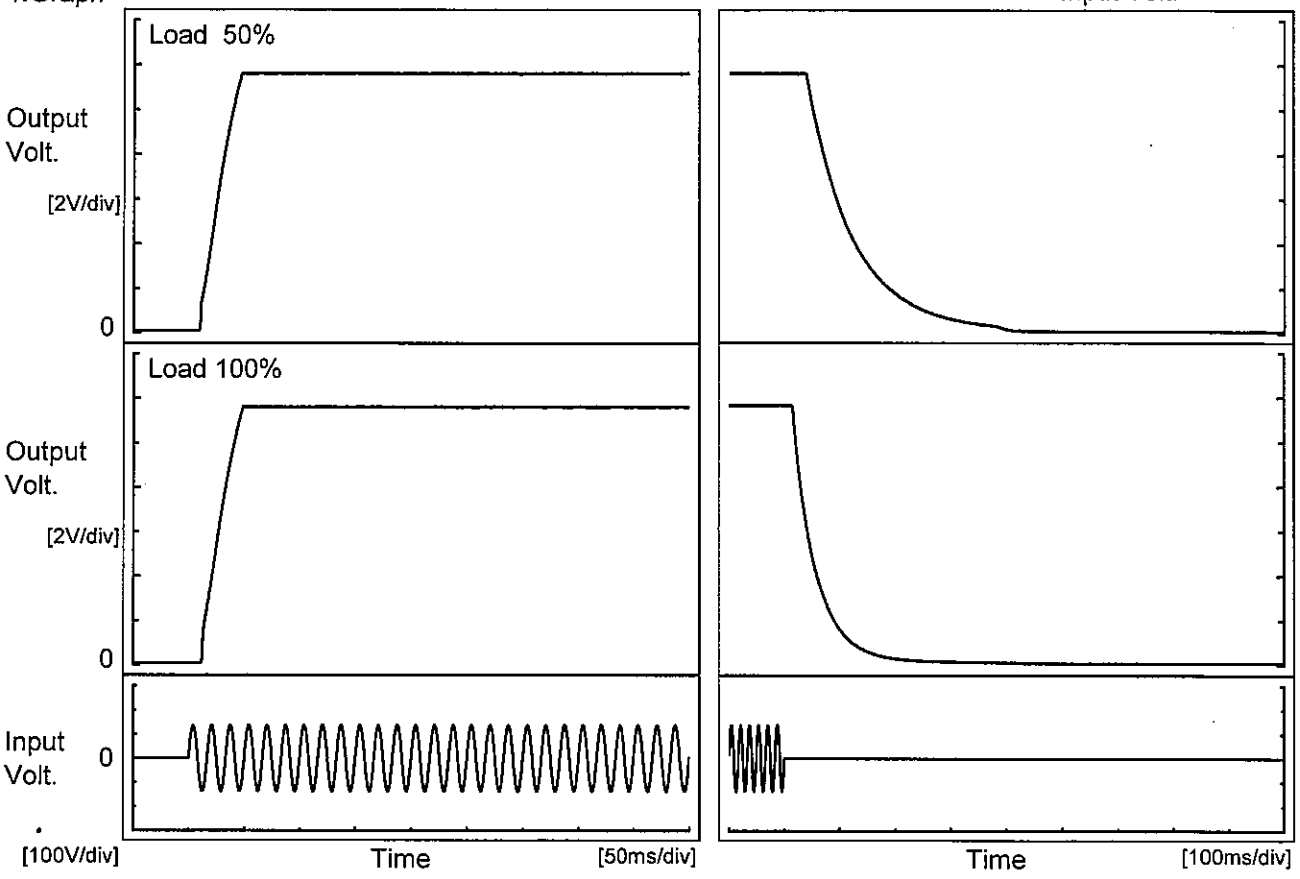
COSEL

Model	GT3.5-12
Item	Rise and Fall Time
Object	+12V4.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

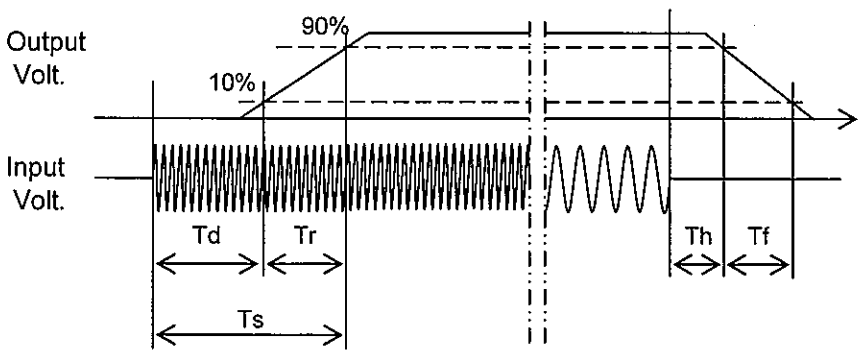
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	11.0	32.5	43.5	45.5	185.5
100 %	13.3	31.5	44.8	18.0	94.0

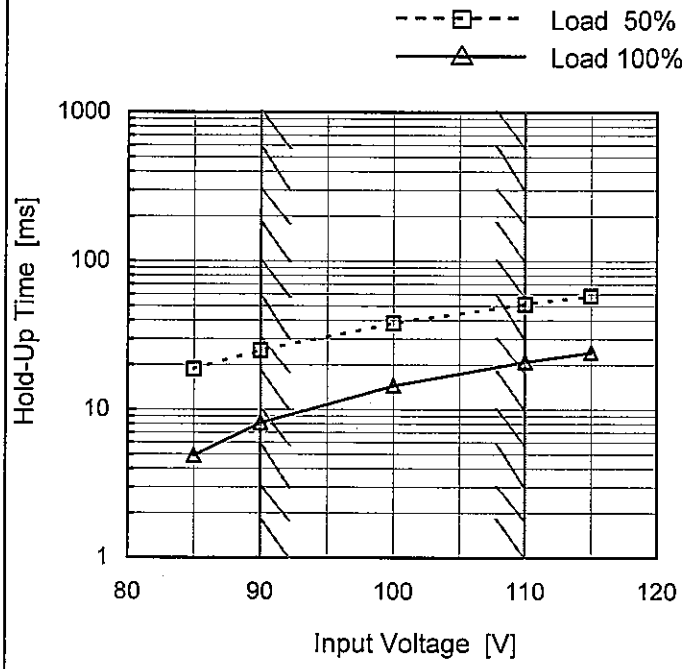


COSEL

Model	GT3.5-12
Item	Hold-Up Time
Object	+12V4.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.
Note: Slanted line shows the range of the rated input voltage.

2.Values

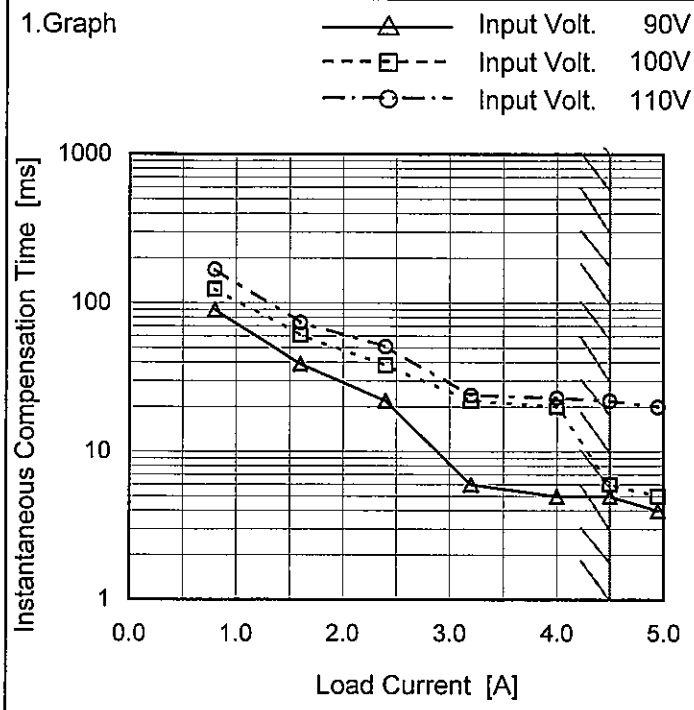
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	19	5
90	25	8
100	38	15
110	52	21
115	58	24
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-12
Item	Instantaneous Interruption Compensation
Object	+12V4.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

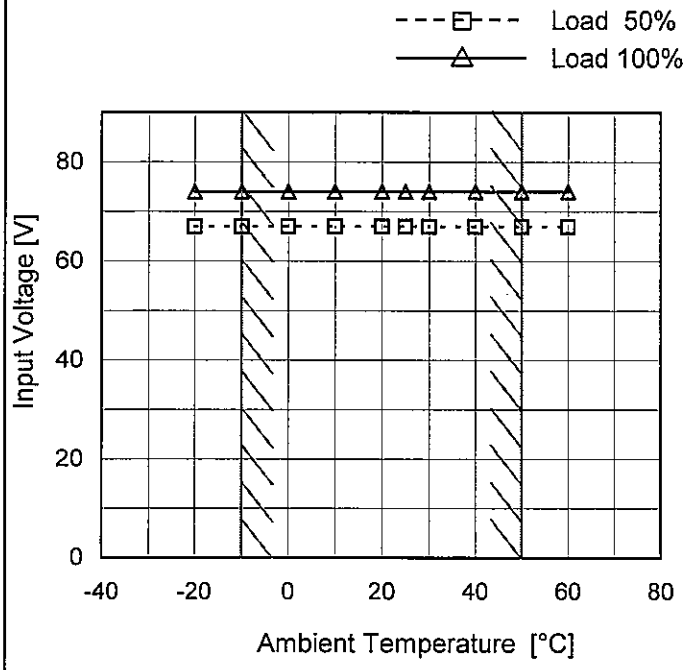
Load Current [A]	Time [ms] Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.80	90	124	168
1.60	39	61	74
2.40	22	38	51
3.20	6	22	24
4.00	5	20	23
4.50	5	6	22
4.95	4	5	20
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT3.5-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V4.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

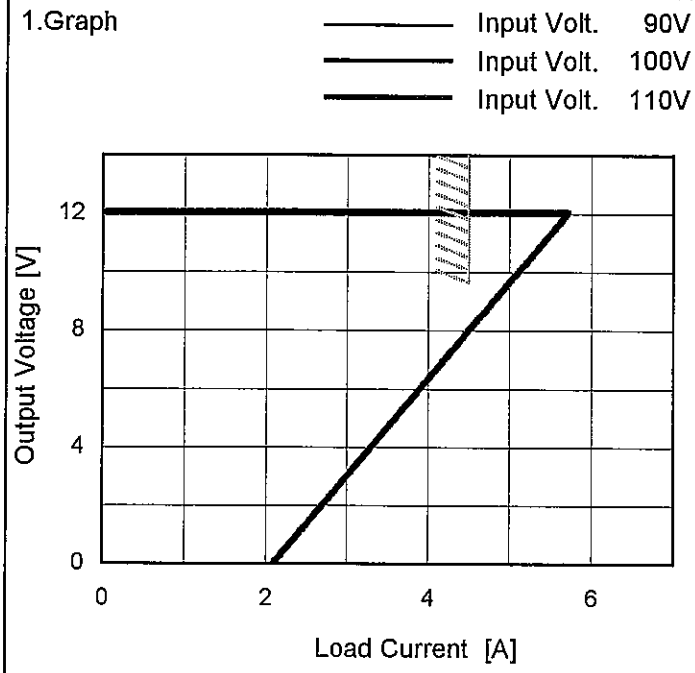
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	67	74
-10	67	74
0	67	74
10	67	74
20	67	74
25	67	74
30	67	74
40	67	74
50	67	74
60	67	74
--	-	-

COSEL

Model	GT3.5-12
Item	Overcurrent Protection
Object	+12V4.5A

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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
12.0	5.71	5.71	5.71
11.4	5.55	5.54	5.54
10.8	5.35	5.35	5.35
9.6	5.00	5.00	5.00
8.4	4.64	4.64	4.64
7.2	4.30	4.30	4.30
6.0	3.93	3.93	3.93
4.8	3.55	3.55	3.55
3.6	3.18	3.18	3.18
2.4	2.82	2.82	2.82
1.2	2.46	2.46	2.46
0.0	2.08	2.08	2.08

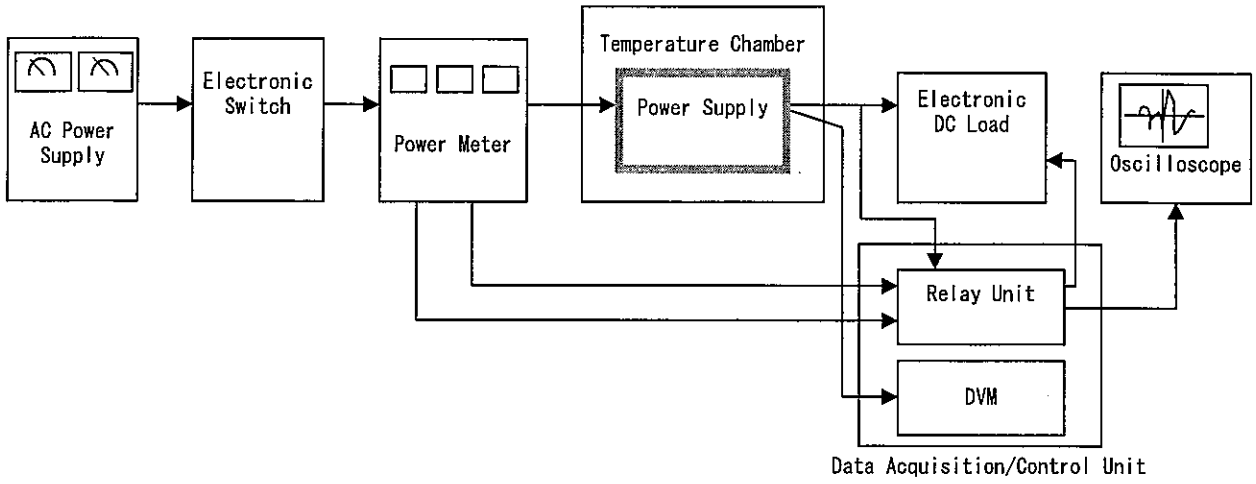

AC Power Supply
Electronic Switch
Power Meter
Temperature Chamber
Power Supply
Electronic DC Load
Oscilloscope
Relay Unit
DVM
Data Acquisition/Control Unit

Figure A