COSEL

参考資料

TEST DATA OF GT3.5-24

Regulated DC Power Supply
July 23, 2010

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COSEL CO.,LTD.

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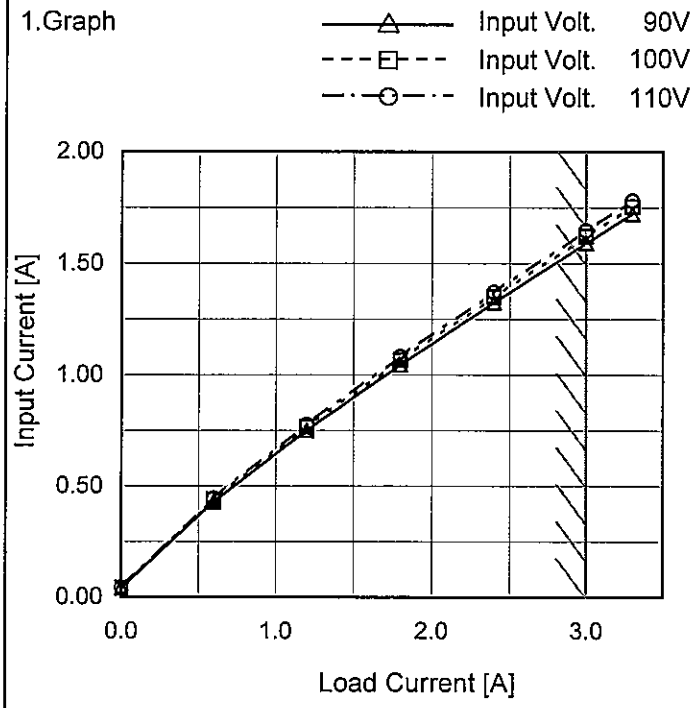
COSEL

Model	GT3.5-24
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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	0.042	0.041	0.043
0.6	0.430	0.439	0.446
1.2	0.752	0.766	0.778
1.8	1.046	1.066	1.084
2.4	1.326	1.350	1.372
3.0	1.592	1.622	1.648
3.3	1.722	1.754	1.782
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

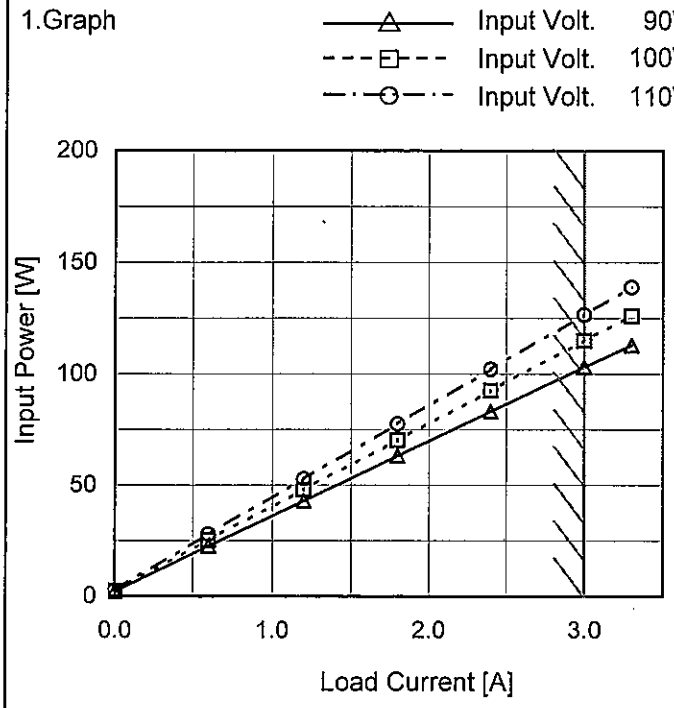
BC-10202

COSEL

Model	GT3.5-24
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

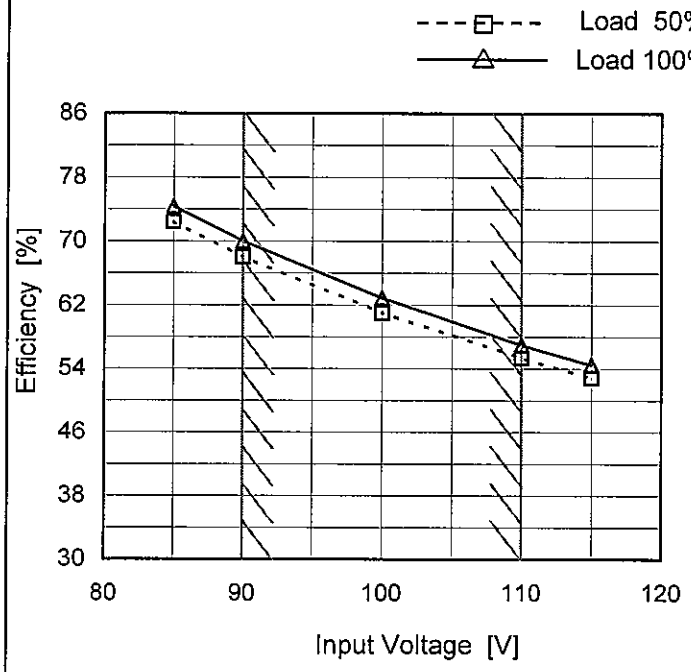
Load Current [A]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	2.1	2.4	2.8
0.6	22.7	25.3	28.0
1.2	43.0	48.0	52.9
1.8	63.2	70.3	77.6
2.4	83.2	92.6	102.2
3.0	103.2	114.9	126.6
3.3	112.9	126.0	138.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT3.5-24
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

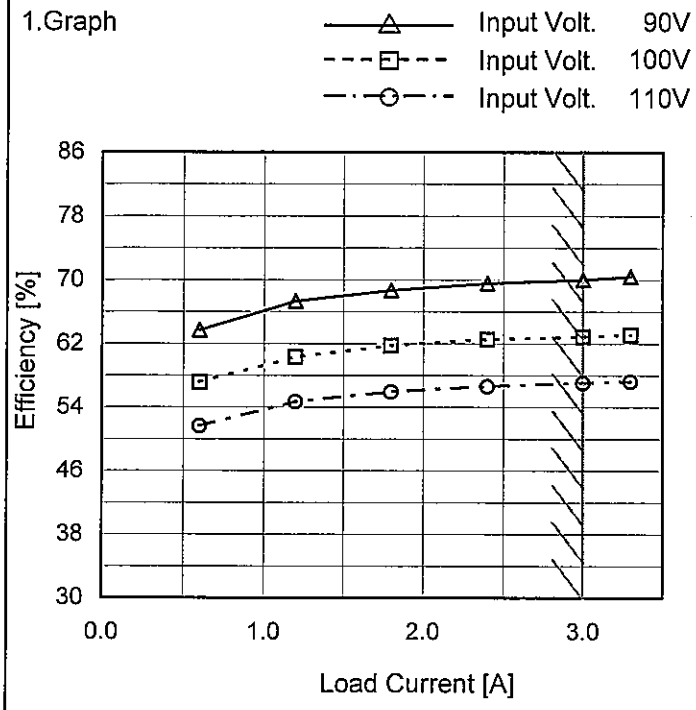
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
85	72.4	74.4
90	68.0	70.0
100	61.0	62.9
110	55.3	57.0
115	52.8	54.5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-24
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

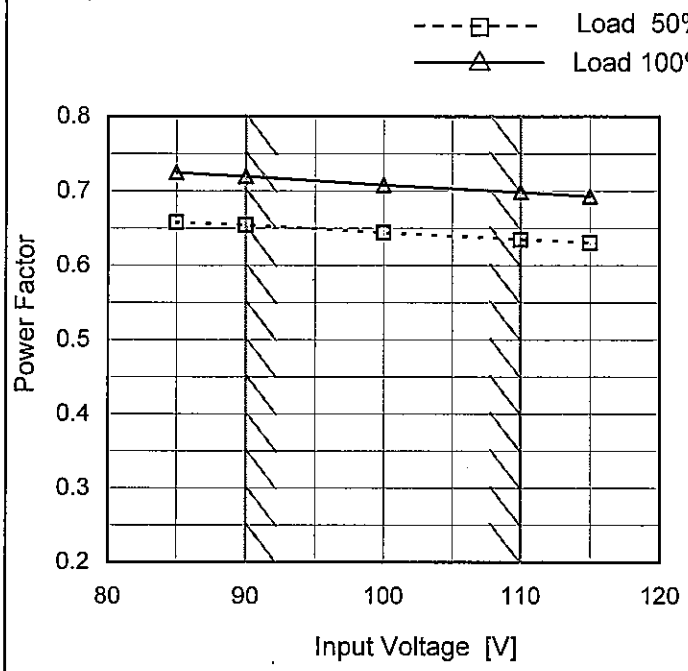
Load Current [A]	Efficiency [%] Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	-	-	-
0.6	63.7	57.2	51.7
1.2	67.3	60.3	54.7
1.8	68.7	61.8	56.0
2.4	69.6	62.5	56.6
3.0	70.0	62.9	57.1
3.3	70.4	63.1	57.2
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT3.5-24
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

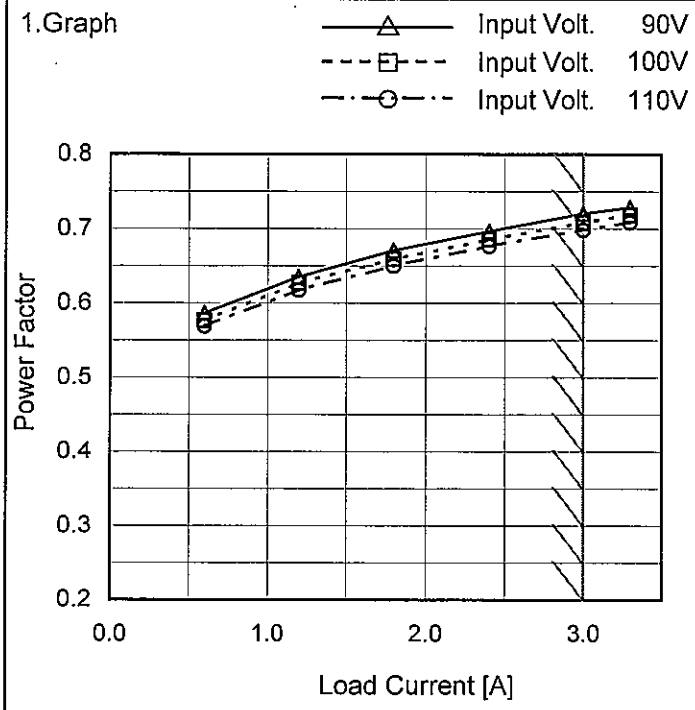
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.658	0.725
90	0.654	0.720
100	0.644	0.708
110	0.635	0.699
115	0.631	0.693
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-24
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]
0.0	-	-	-
0.6	0.587	0.576	0.569
1.2	0.635	0.627	0.617
1.8	0.671	0.659	0.650
2.4	0.697	0.685	0.677
3.0	0.721	0.708	0.698
3.3	0.729	0.718	0.709
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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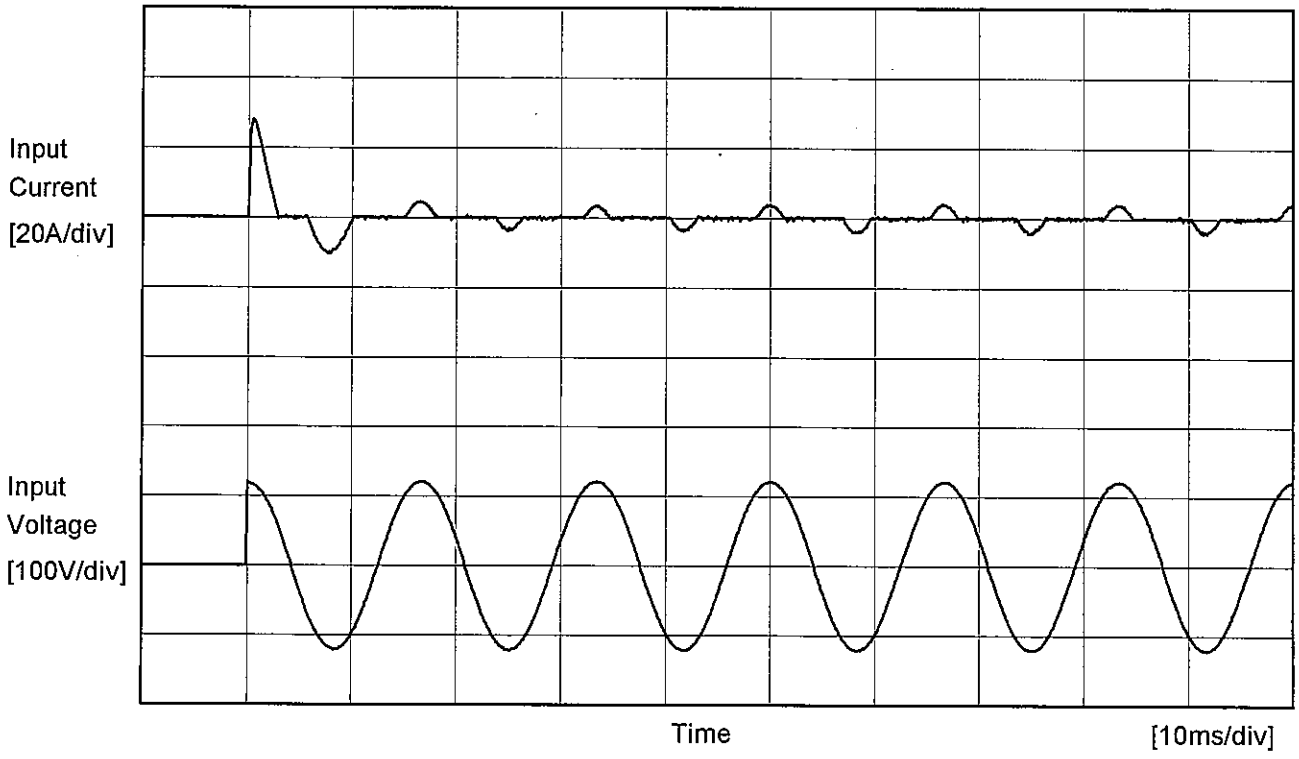
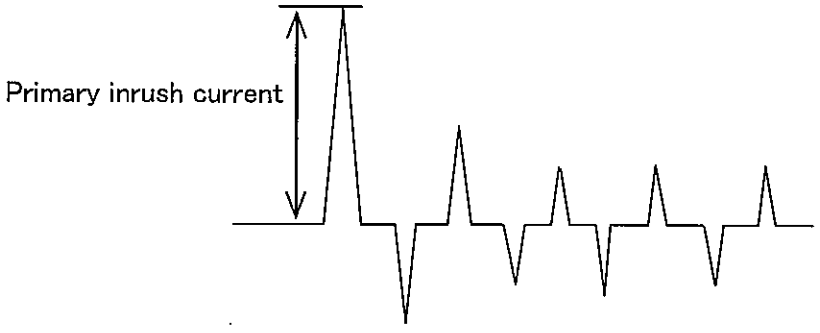
Model	GT3.5-24
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	28.0 A

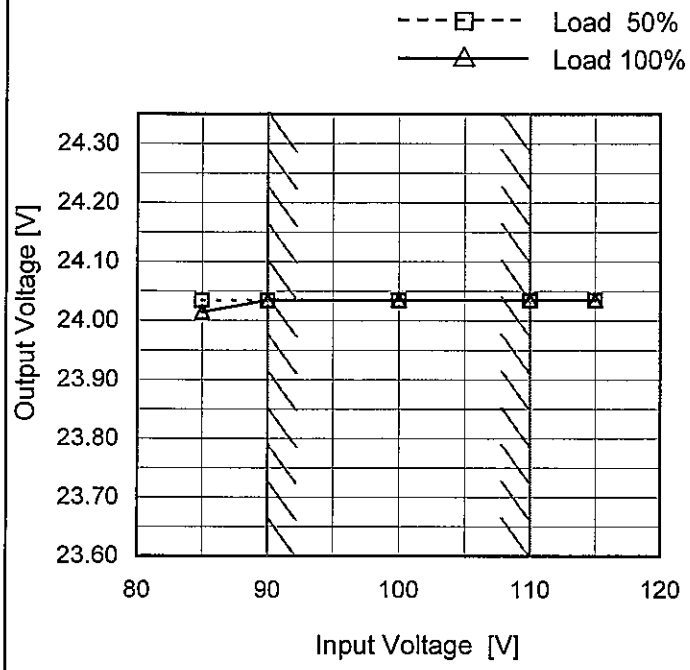


COSEL

Model	GT3.5-24
Item	Line Regulation
Object	+24V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

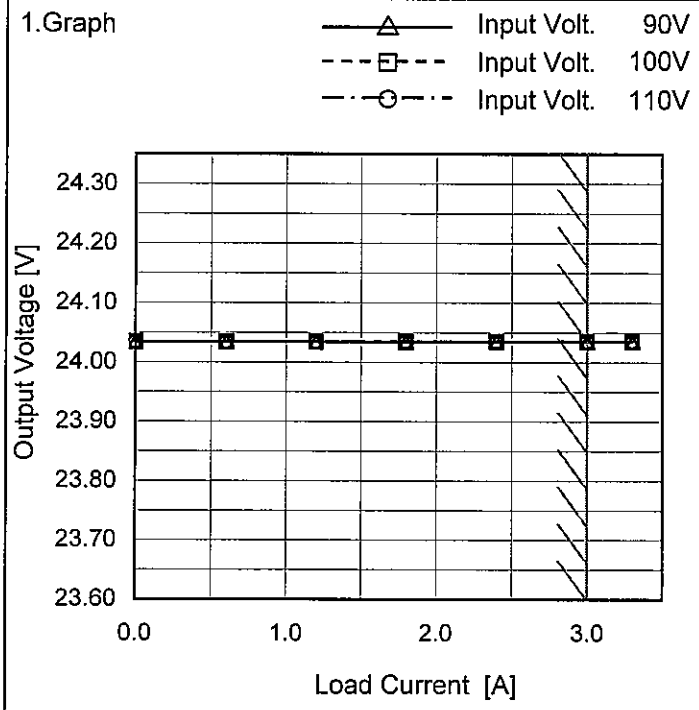
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	24.034	24.015
90	24.034	24.035
100	24.034	24.035
110	24.034	24.035
115	24.034	24.035
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-24
Item	Load Regulation
Object	+24V3A

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]
0.0	24.034	24.034	24.035
0.6	24.034	24.034	24.034
1.2	24.034	24.034	24.034
1.8	24.034	24.035	24.035
2.4	24.035	24.035	24.035
3.0	24.035	24.035	24.035
3.3	24.035	24.035	24.035
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

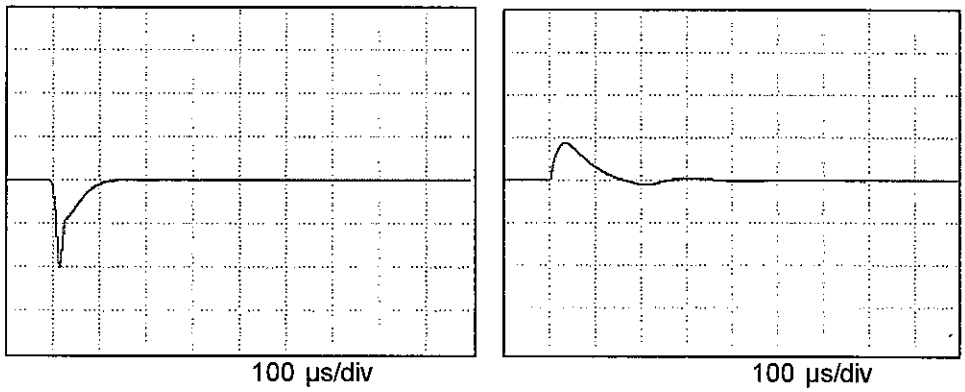
COSEL

Model	GT3.5-24		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+24V3A		

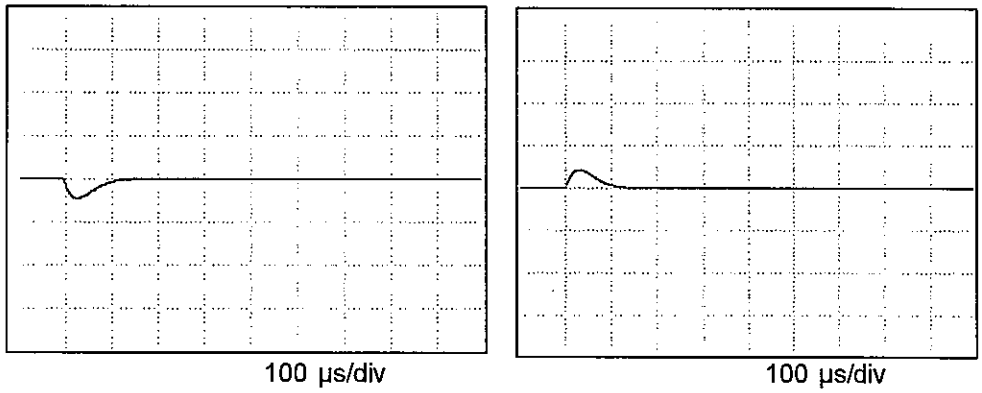
Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (3A)



Load 50% (1.5A) ⟷
Load 100% (3A)

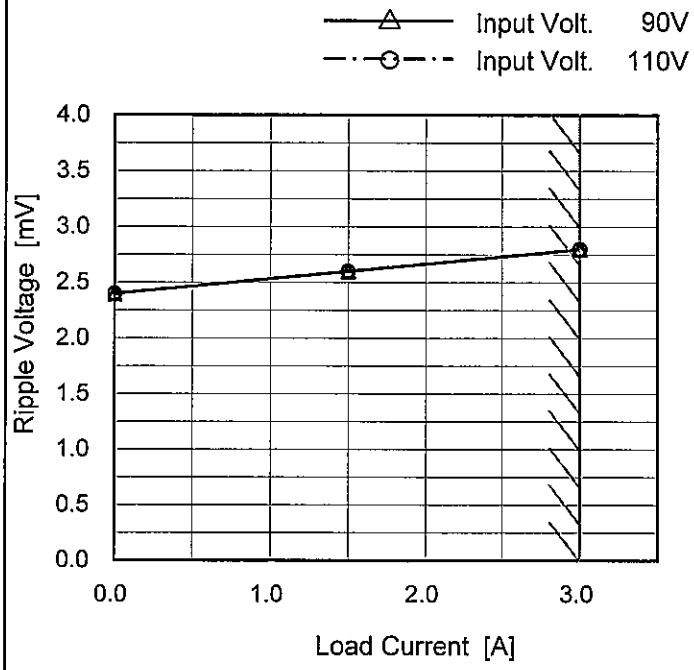


COSEL

Model	GT3.5-24
Item	Ripple Voltage (by Load Current)
Object	+24V3A

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

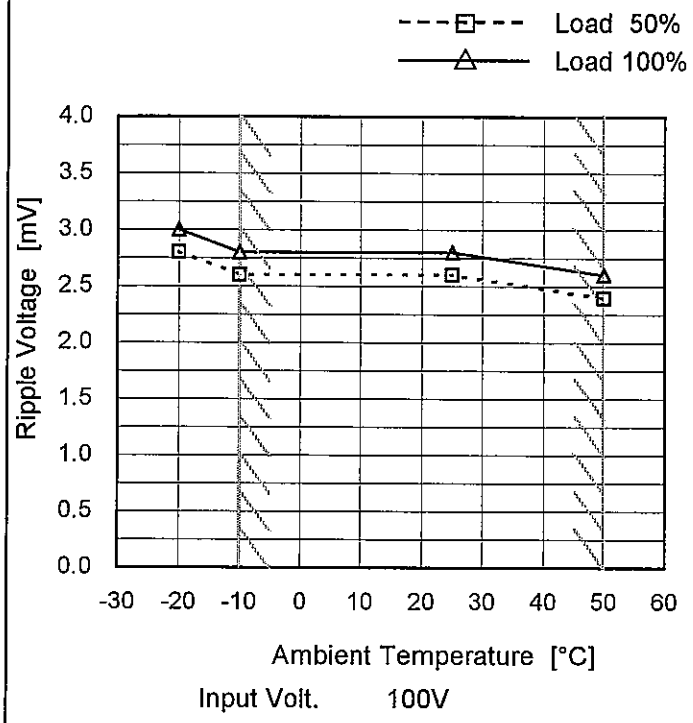
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.0	2.4	2.4
1.5	2.6	2.6
3.0	2.8	2.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-24
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V3A

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

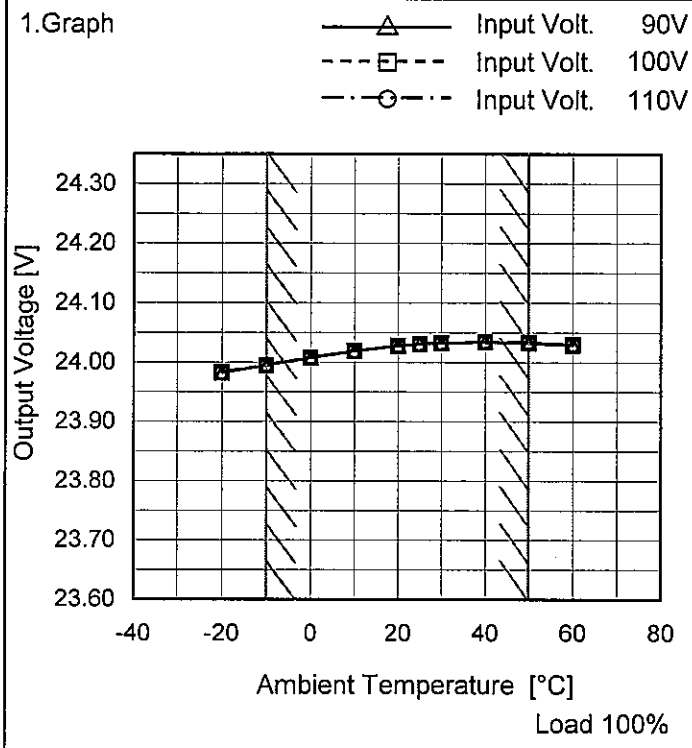
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	2.8	3.0
-10	2.6	2.8
25	2.6	2.8
50	2.4	2.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3.5-24
Item	Ambient Temperature Drift
Object	+24V3A

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	23.983	23.983	23.983
-10	23.995	23.995	23.995
0	24.008	24.008	24.008
10	24.019	24.019	24.019
20	24.028	24.028	24.028
25	24.031	24.031	24.031
30	24.033	24.033	24.033
40	24.034	24.034	24.035
50	24.033	24.033	24.034
60	24.030	24.030	24.030
--	-	-	-

COSEL

Model	GT3.5-24	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V3A	

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 - 3A

* 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

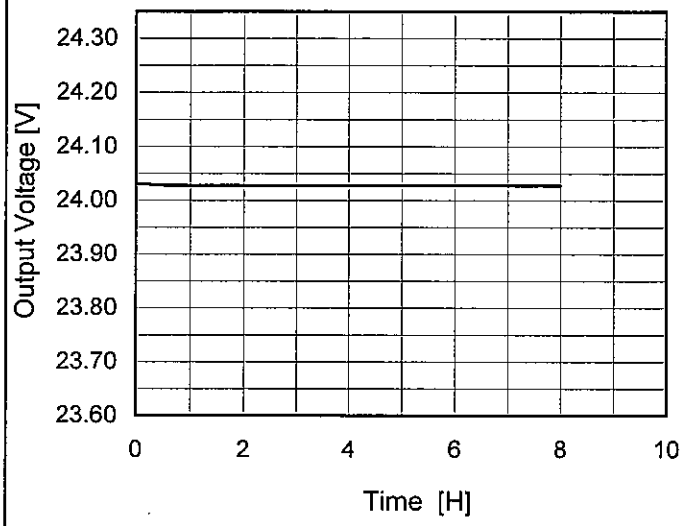
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	110	3	24.035	±21	±0.1
Minimum Voltage	-10	90	0	23.993		

COSEL

Model	GT3.5-24
Item	Time Lapse Drift
Object	+24V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

2.Values

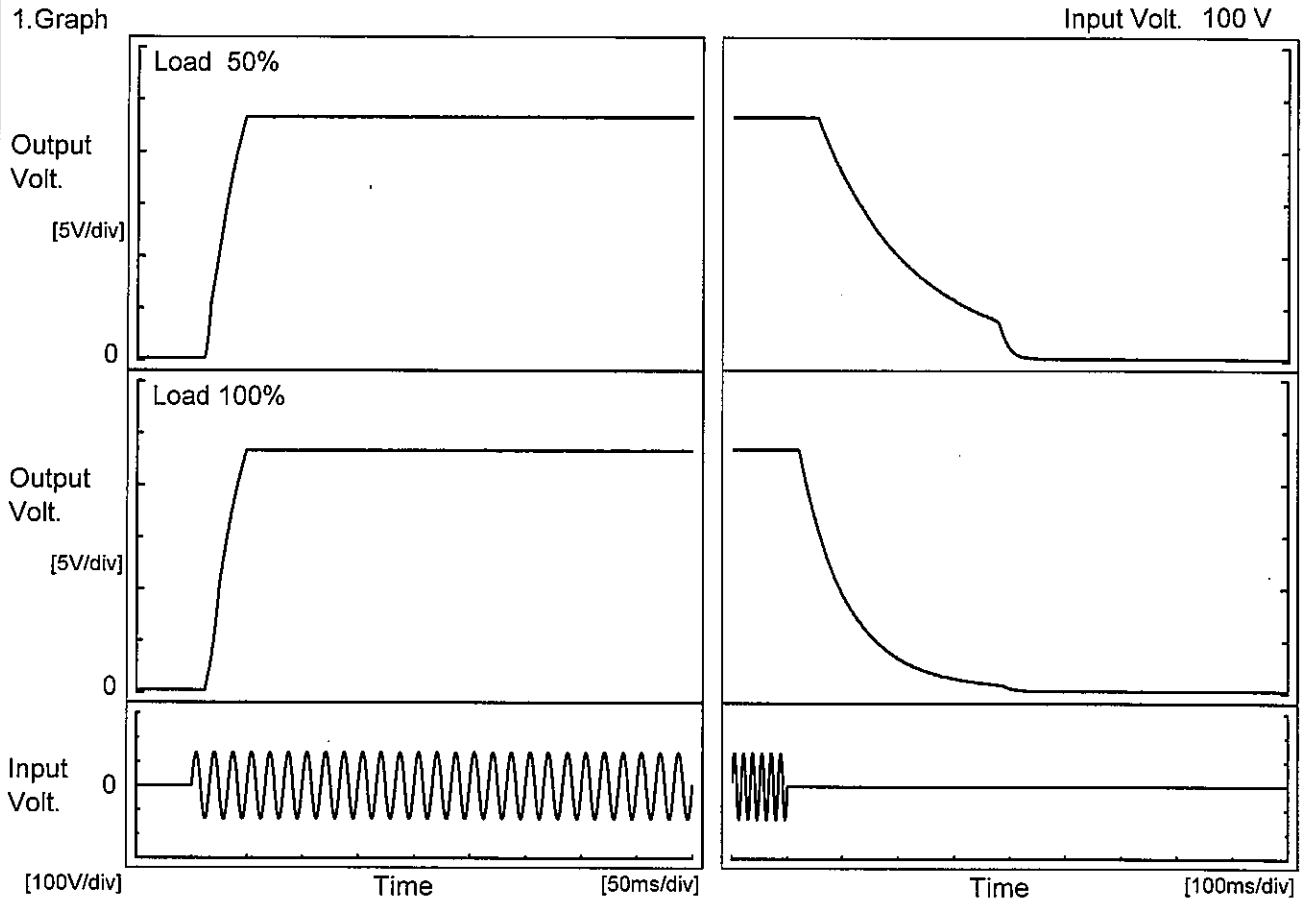
Time since start [H]	Output Voltage [V]
0.0	24.031
0.5	24.028
1.0	24.028
2.0	24.028
3.0	24.028
4.0	24.028
5.0	24.028
6.0	24.028
7.0	24.028
8.0	24.028

COSEL

Model	GT3.5-24
Item	Rise and Fall Time
Object	+24V3A

Temperature 25°C
Testing Circuitry Figure A

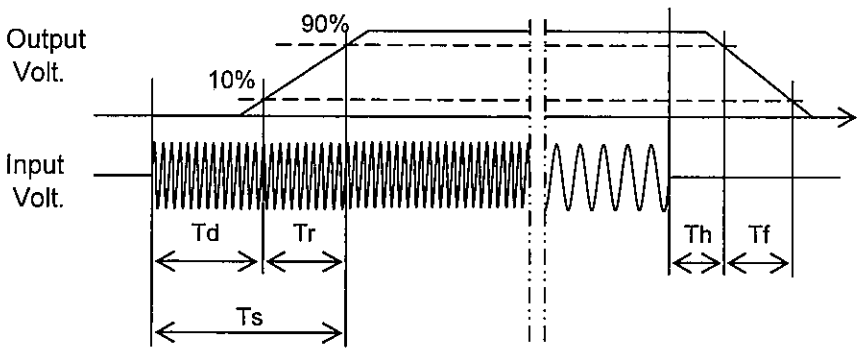
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	14.5	29.5	44.0	65.0	321.5
100 %	16.8	28.3	45.1	27.0	200.5

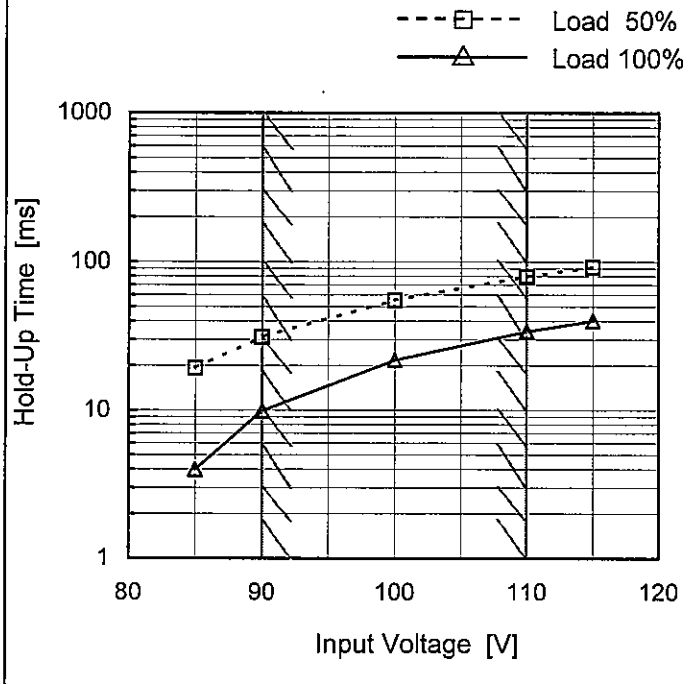


COSEL

Model	GT3.5-24
Item	Hold-Up Time
Object	+24V3A

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

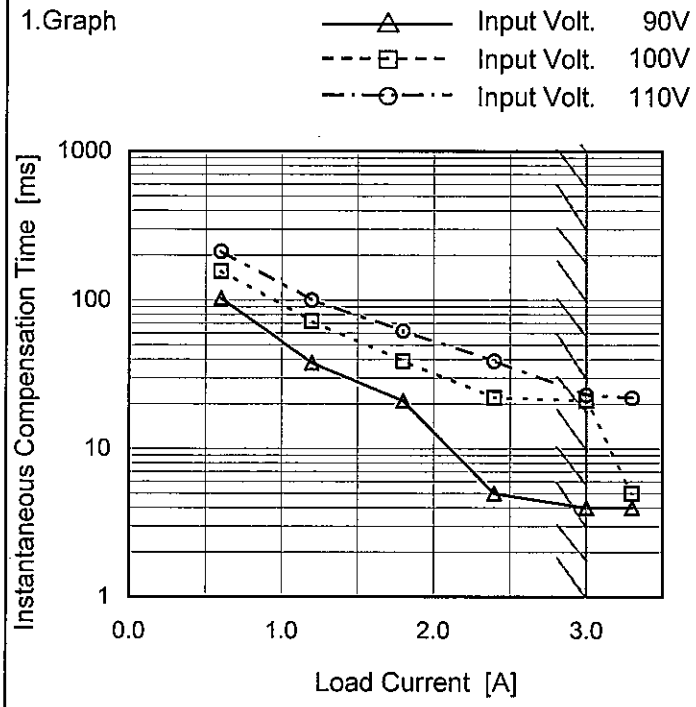
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	19	4
90	31	10
100	55	22
110	80	34
115	92	40
---	-	-
---	-	-
---	-	-
---	-	-

COSEL

Model	GT3.5-24
Item	Instantaneous Interruption Compensation
Object	+24V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

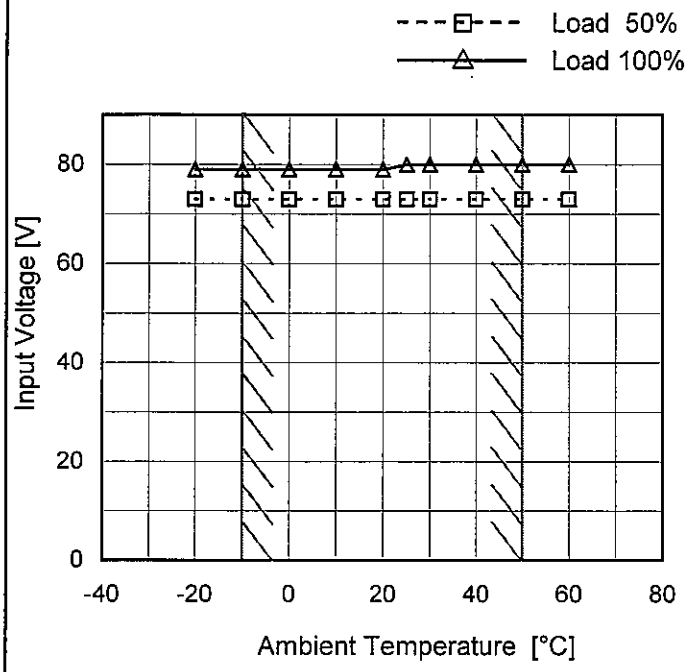
Load Current [A]	Time [ms] Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	-	-	-
0.6	103	157	213
1.2	38	72	100
1.8	21	39	62
2.4	5	22	39
3.0	4	21	23
3.3	4	5	22
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT3.5-24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V3A

Testing Circuitry Figure A

1.Graph



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

2.Values

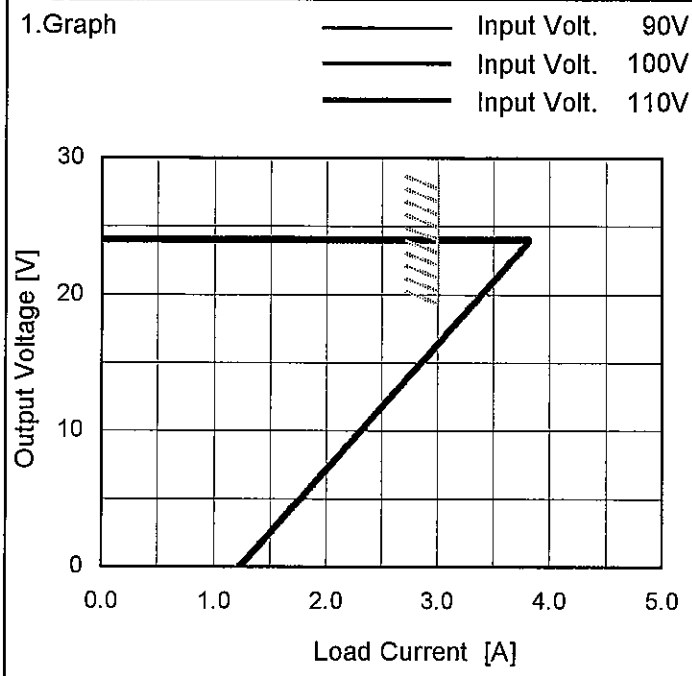
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	73	79
-10	73	79
0	73	79
10	73	79
20	73	79
25	73	80
30	73	80
40	73	80
50	73	80
60	73	80
--	-	-

COSEL

Model	GT3.5-24
Item	Overcurrent Protection
Object	+24V3A

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]
24.0	3.81	3.82	3.82
22.8	3.73	3.73	3.73
21.6	3.62	3.62	3.62
19.2	3.36	3.36	3.36
16.8	3.06	3.07	3.07
14.4	2.82	2.82	2.82
12.0	2.54	2.54	2.54
9.6	2.27	2.27	2.27
7.2	2.02	2.02	2.02
4.8	1.76	1.76	1.76
2.4	1.49	1.49	1.49
0.0	1.22	1.22	1.22

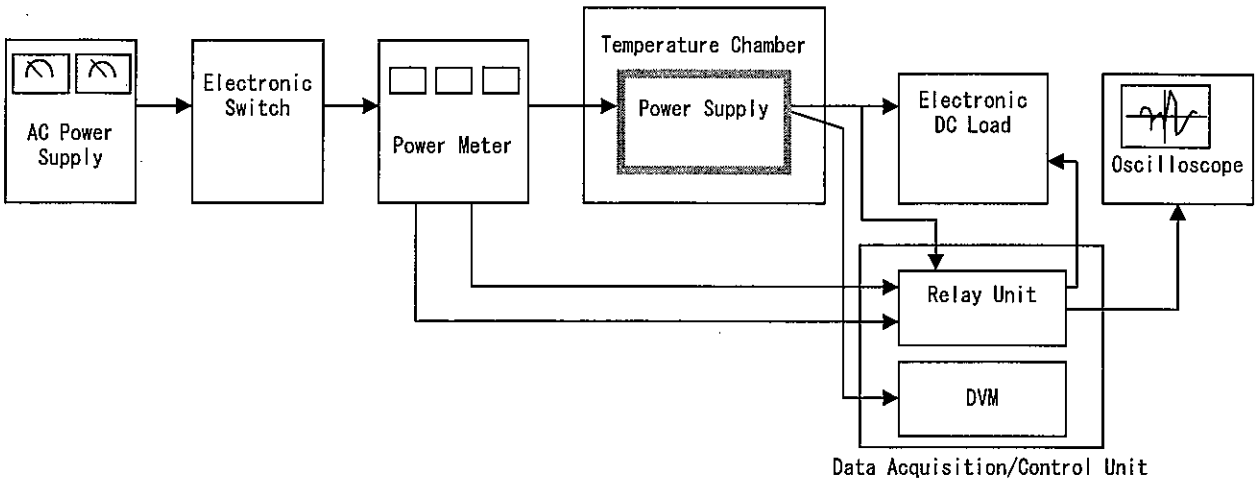

AC Power Supply
Electronic Switch
Power Meter
Temperature Chamber
Power Supply
Electronic DC Load
Oscilloscope
Relay Unit
DVM
Data Acquisition/Control Unit

Figure A