参考資料

COSEL

TEST DATA OF GT2.5W-12

Regulated DC Power Supply
November 2, 2010

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COSEL CO.,LTD.

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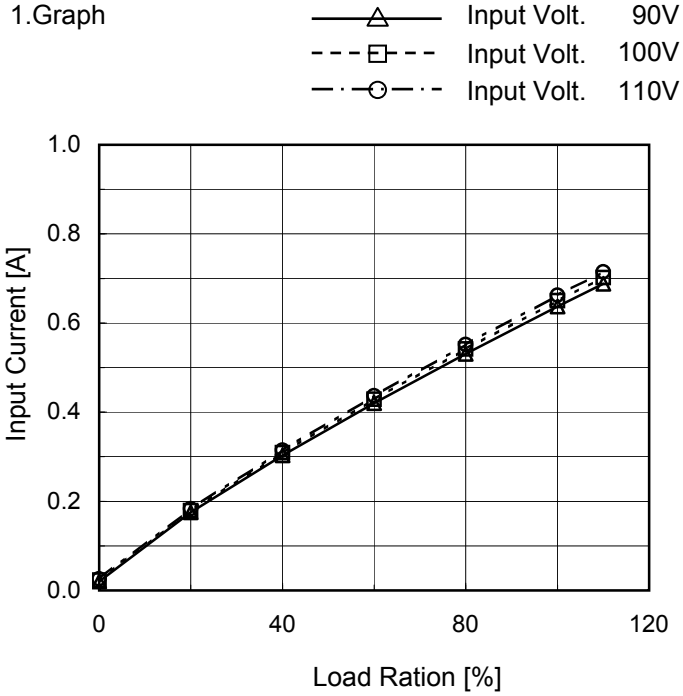
COSEL

Model	GT2.5W-12
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	0.020	0.023	0.026
20	0.175	0.179	0.183
40	0.303	0.309	0.315
60	0.420	0.429	0.437
80	0.531	0.542	0.552
100	0.637	0.650	0.662
110	0.688	0.702	0.715
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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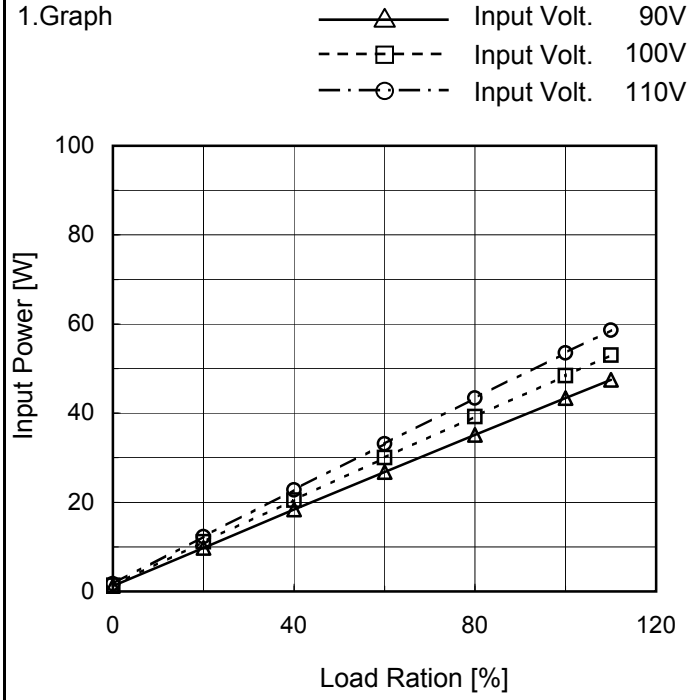
COSEL

Model	GT2.5W-12
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	1.20	1.40	1.70
20	9.80	11.10	12.30
40	18.40	20.50	22.80
60	26.80	30.00	33.10
80	35.10	39.20	43.40
100	43.40	48.40	53.50
110	47.50	53.00	58.60
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

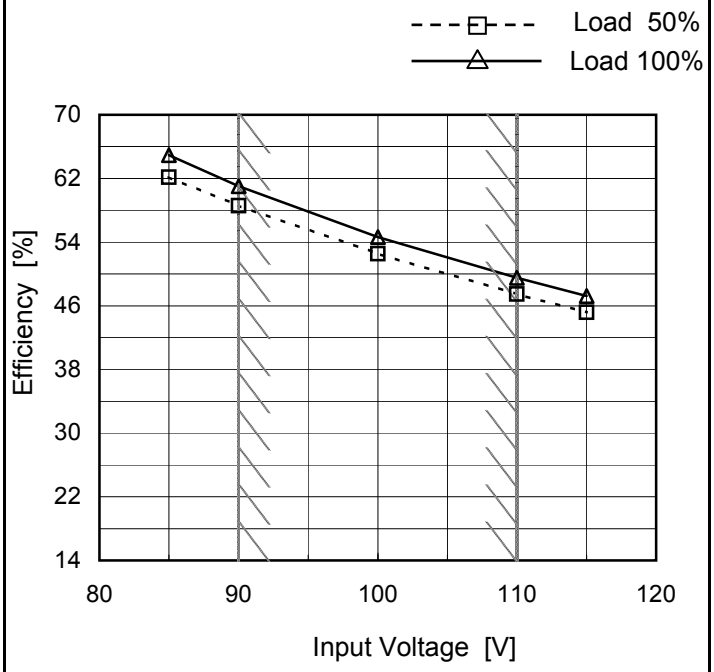
BC-10217

COSEL

Model	GT2.5W-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	62.2	64.9
90	58.6	61.0
100	52.5	54.6
110	47.5	49.5
115	45.2	47.2
--	-	-
--	-	-
--	-	-
--	-	-

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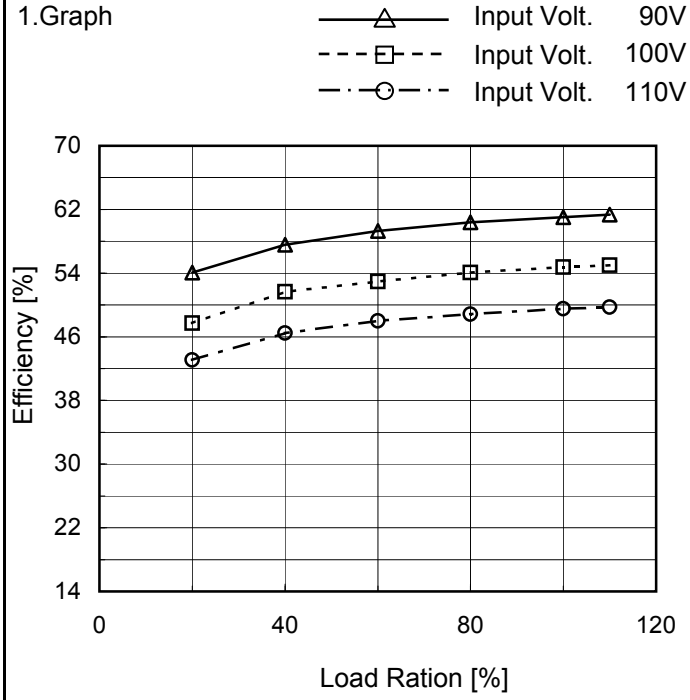
COSEL

Model	GT2.5W-12
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	-	-	-
20	54.1	47.7	43.1
40	57.6	51.7	46.4
60	59.3	53.0	48.0
80	60.4	54.1	48.8
100	61.0	54.7	49.5
110	61.4	55.0	49.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

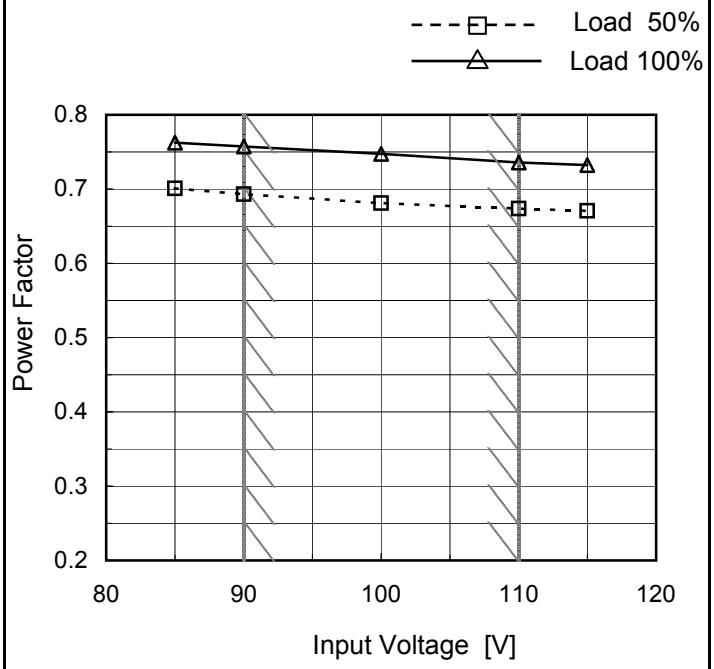
BC-10217

COSEL

Model	GT2.5W-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

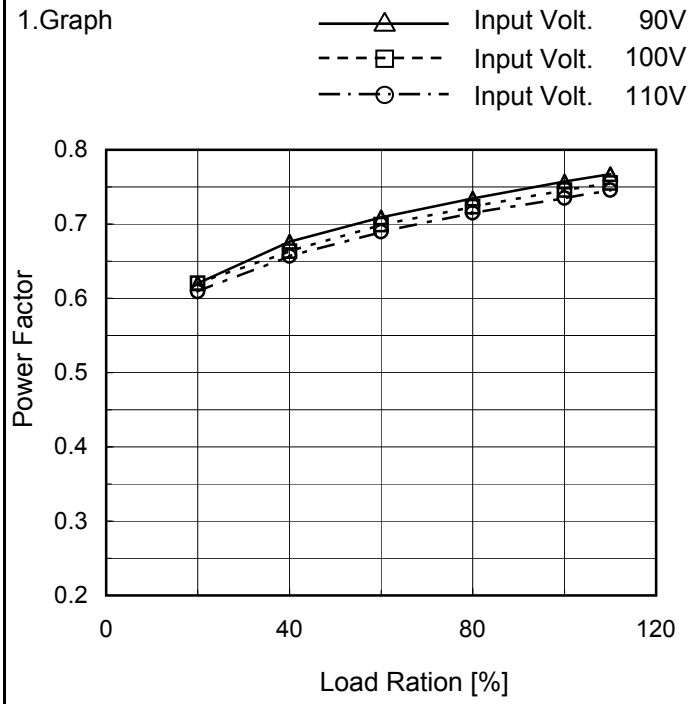
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.701	0.763
90	0.693	0.757
100	0.681	0.747
110	0.674	0.736
115	0.670	0.732
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT2.5W-12
Item	Power Factor (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Power Factor		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	-	-	-
20	0.620	0.620	0.609
40	0.676	0.663	0.657
60	0.709	0.699	0.690
80	0.734	0.723	0.715
100	0.757	0.746	0.735
110	0.767	0.755	0.746
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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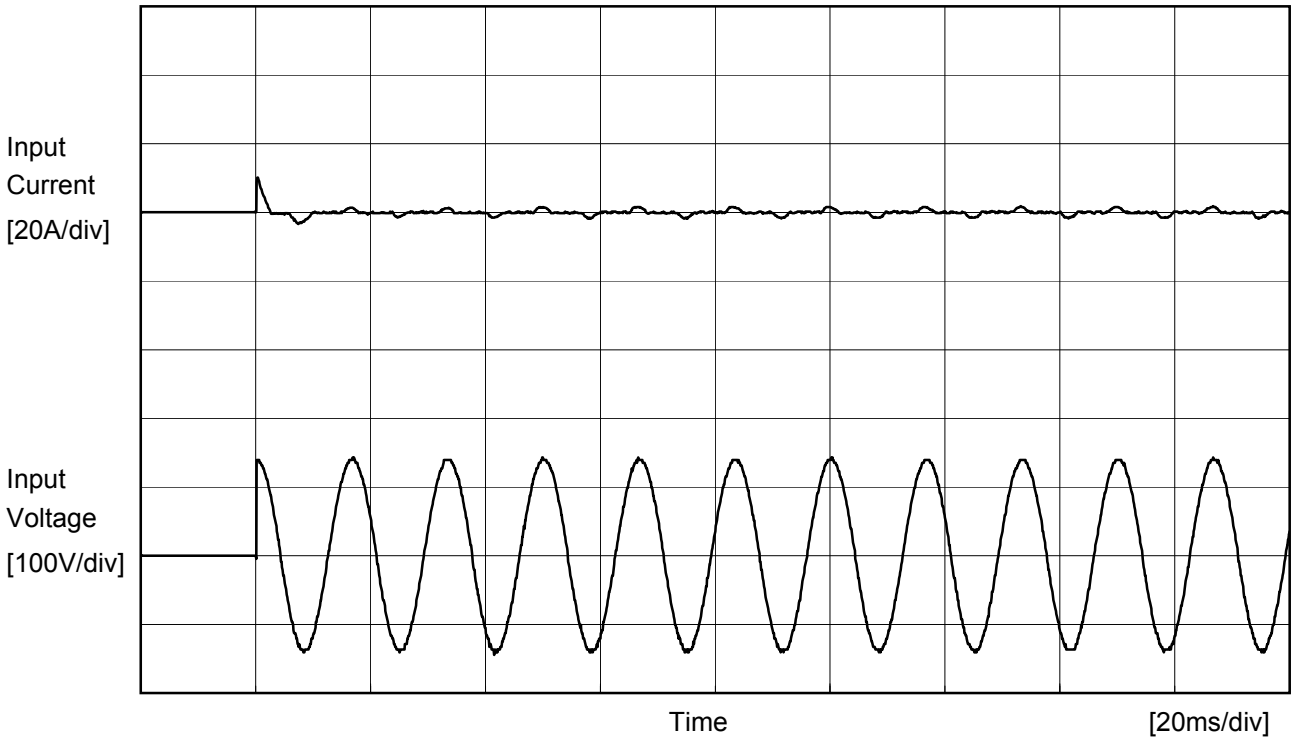
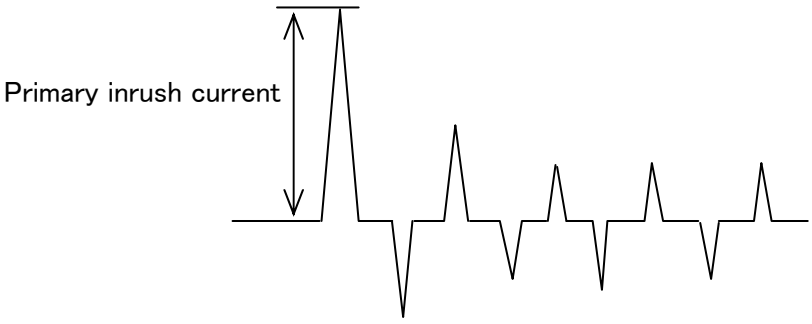
COSEL

Model	GT2.5W-12	
Item	Inrush Current	Temperature 25°C Testing Circuitry Figure A
Object	――――――	



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	10.1 A

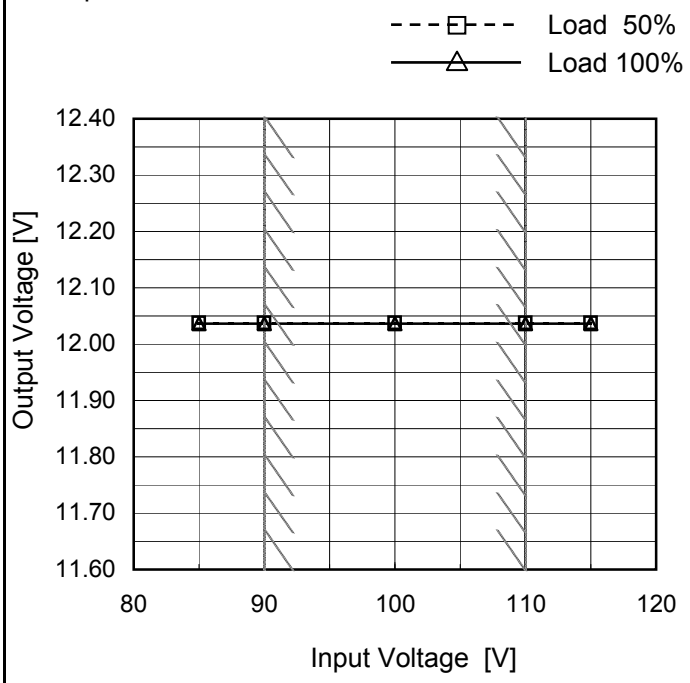


COSEL

Model	GT2.5W-12
Item	Line Regulation
Object	+12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

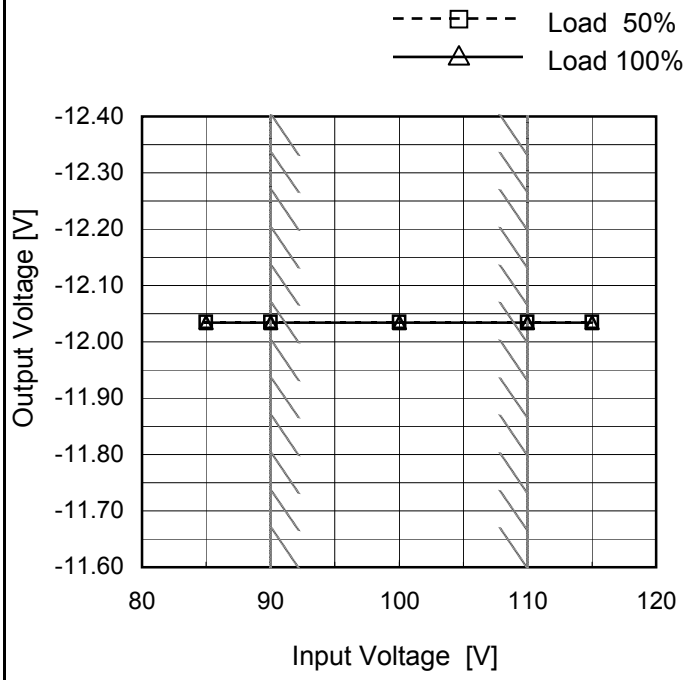


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	12.038	12.036
90	12.038	12.036
100	12.038	12.036
110	12.038	12.036
115	12.038	12.036
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V1.1A

1.Graph



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

2.Values

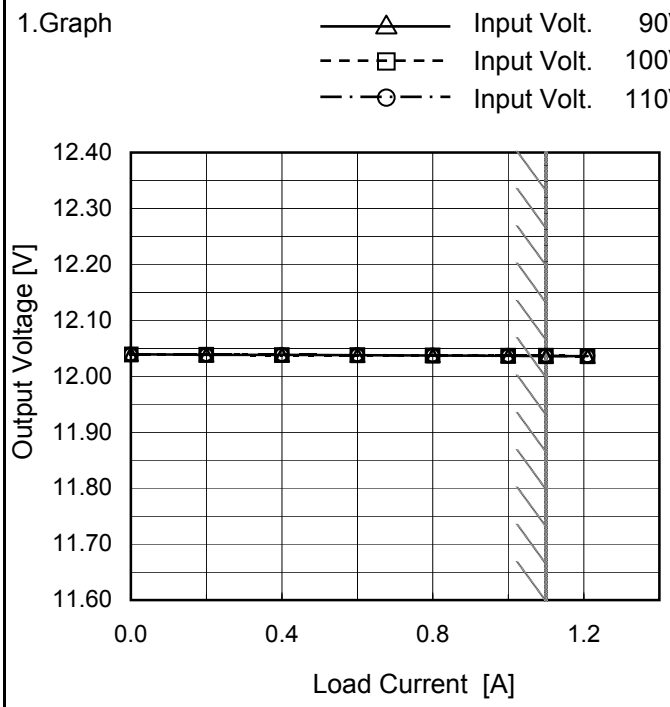
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	-12.035	-12.034
90	-12.035	-12.034
100	-12.035	-12.034
110	-12.035	-12.035
115	-12.035	-12.035
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT2.5W-12
Item	Load Regulation
Object	+12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

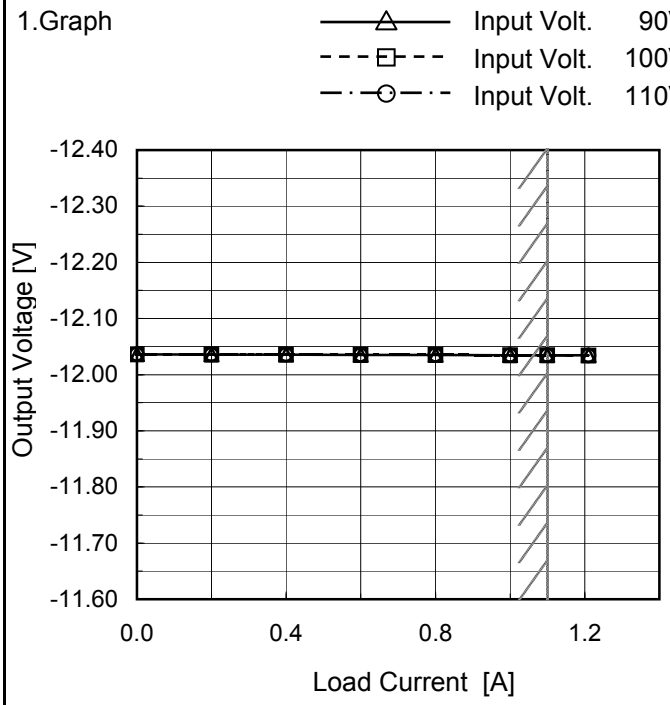


2.Values

Load Current [A]	Output Voltage [V] Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	12.039	12.039	12.039
0.20	12.039	12.039	12.039
0.40	12.038	12.038	12.038
0.60	12.038	12.038	12.038
0.80	12.037	12.037	12.037
1.00	12.037	12.037	12.037
1.10	12.036	12.036	12.036
1.21	12.036	12.036	12.036
--	-	-	-
--	-	-	-
--	-	-	-

Object	-12V1.1A

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	-12.036	-12.036	-12.036
0.20	-12.036	-12.036	-12.036
0.40	-12.036	-12.036	-12.035
0.60	-12.035	-12.035	-12.035
0.80	-12.035	-12.035	-12.035
1.00	-12.035	-12.035	-12.034
1.10	-12.034	-12.034	-12.034
1.21	-12.034	-12.034	-12.034
--	-	-	-
--	-	-	-
--	-	-	-

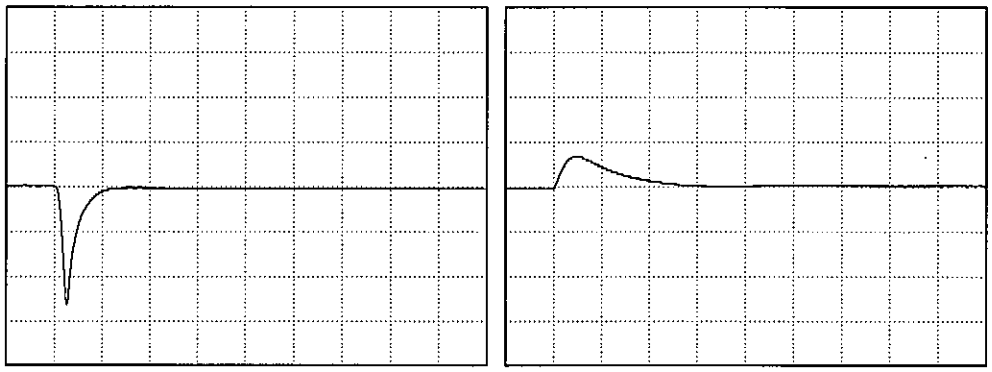
COSEL

Model	GT2.5W-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+12V1.1A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

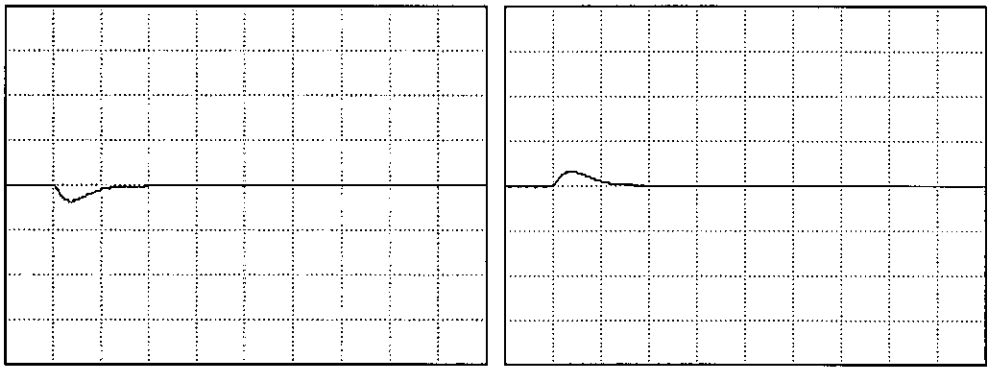
Min. Load (0A) ←→
Load 100% (1.1A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.55A) ←→
Load 100% (1.1A)



50 mV/div

100 μs/div 100 μs/div

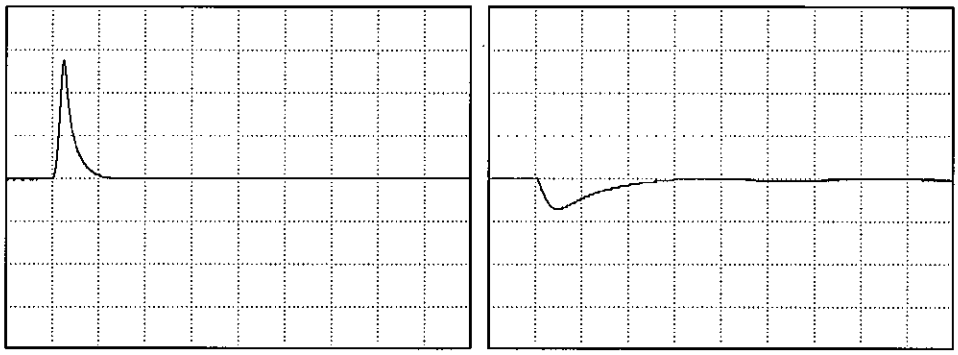
COSEL

Model	GT2.5W-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	-12V1.1A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

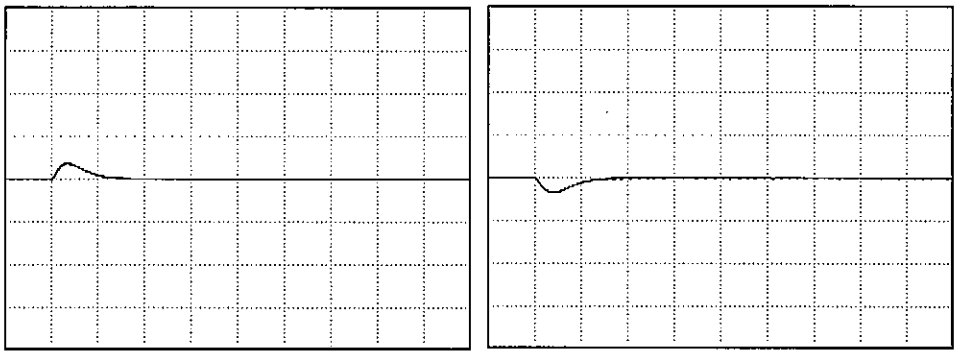
Min. Load (0A) ⟷
Load 100% (1.1A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.55A) ⟷
Load 100% (1.1A)



50 mV/div

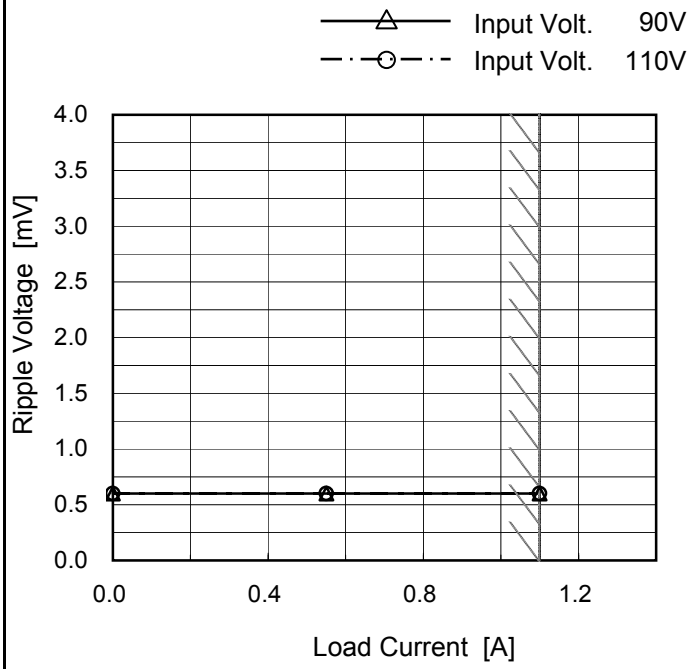
100 μs/div 100 μs/div

COSEL

Model	GT2.5W-12
Item	Ripple Voltage (by Load Current)
Object	+12V1.1A

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

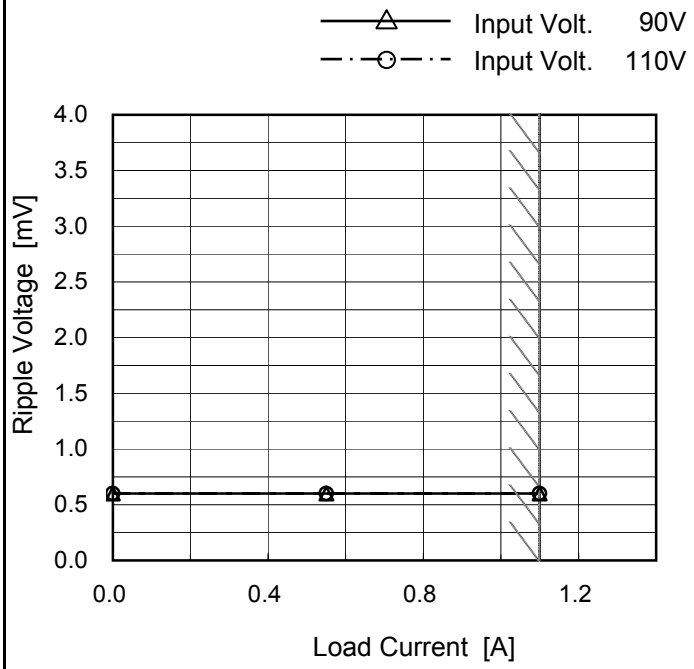
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.00	0.6	0.6
0.55	0.6	0.6
1.10	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT2.5W-12
Item	Ripple Voltage (by Load Current)
Object	-12V1.1A

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

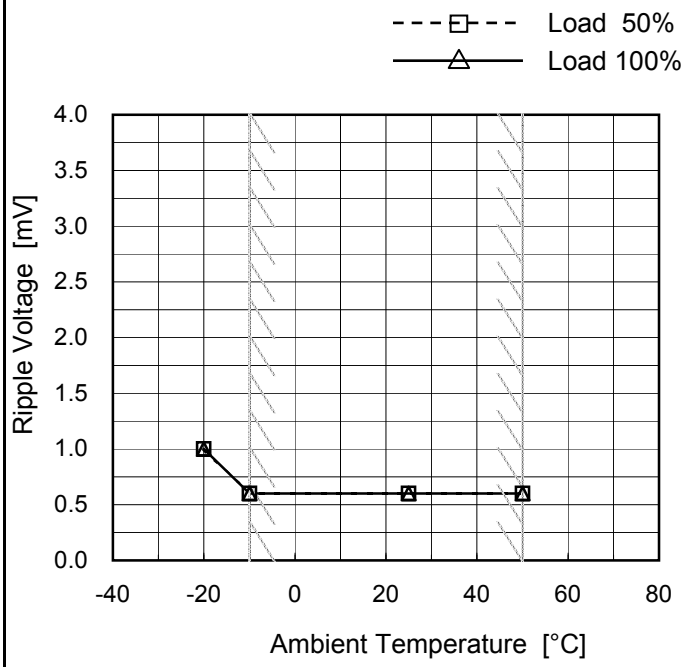
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.00	0.6	0.6
0.55	0.6	0.6
1.10	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT2.5W-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.1A

Testing Circuitry Figure A

1.Graph



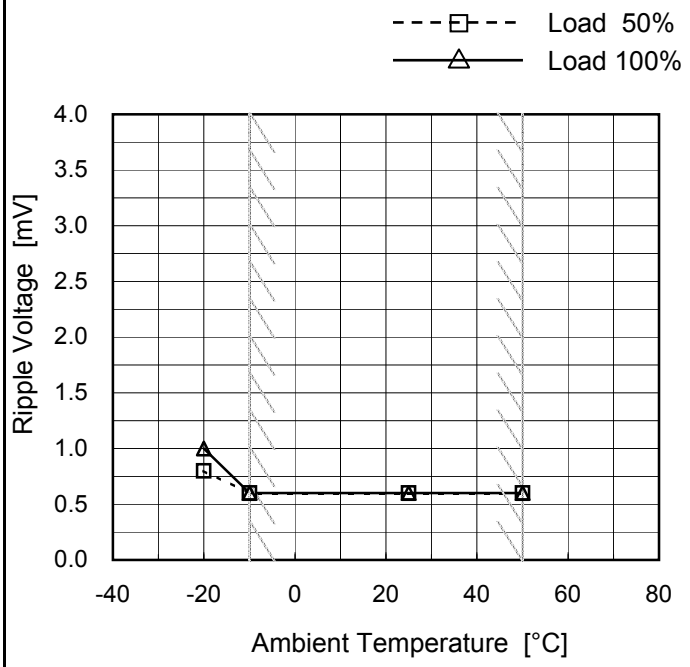
Input Volt. 100V

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	1.0	1.0
-10	0.6	0.6
25	0.6	0.6
50	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V1.1A

1.Graph



Input Volt. 100V

Measured by 20 MHz Oscilloscope.

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

2.Values

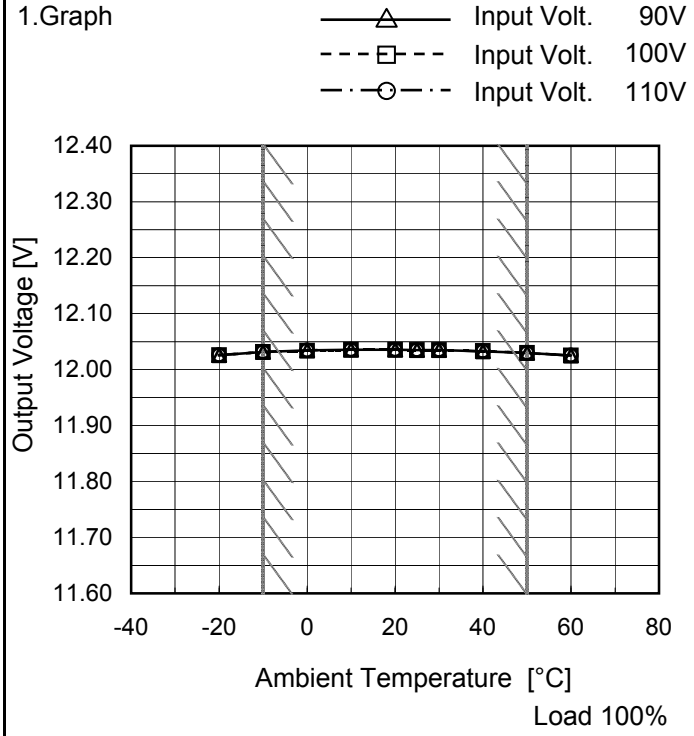
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	0.8	1.0
-10	0.6	0.6
25	0.6	0.6
50	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT2.5W-12
Item	Ambient Temperature Drift
Object	+12V1.1A

Testing Circuitry Figure A

1.Graph

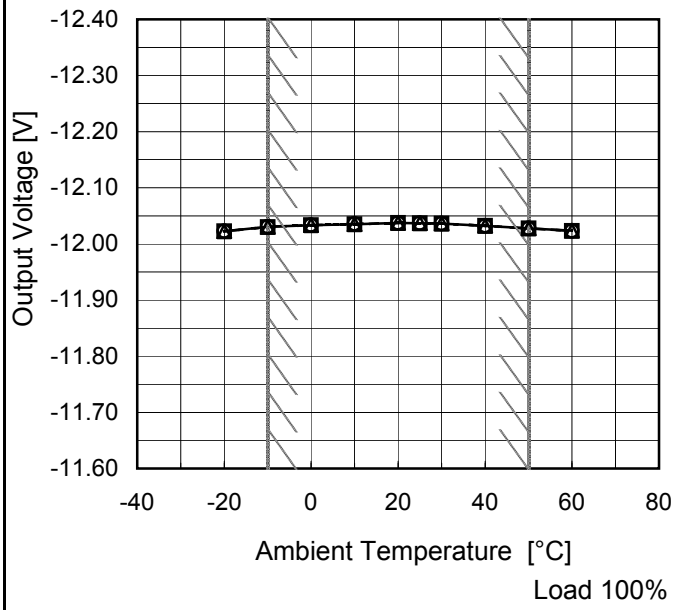


2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	12.026	12.026	12.026
-10	12.031	12.031	12.031
0	12.034	12.034	12.034
10	12.035	12.035	12.035
20	12.035	12.035	12.036
25	12.035	12.035	12.035
30	12.035	12.035	12.035
40	12.033	12.033	12.033
50	12.030	12.030	12.030
60	12.025	12.025	12.025
--	-	-	-

Object	-12V1.1A

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	-12.023	-12.023	-12.023
-10	-12.030	-12.030	-12.030
0	-12.033	-12.033	-12.033
10	-12.035	-12.035	-12.035
20	-12.037	-12.037	-12.037
25	-12.037	-12.037	-12.037
30	-12.036	-12.036	-12.036
40	-12.032	-12.032	-12.032
50	-12.028	-12.028	-12.028
60	-12.023	-12.023	-12.023
--	-	-	-

COSEL

Model	GT2.5W-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A

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 (AVR 1) : 0 - 1.1A (AVR 2) : 0 - 1.1A

* 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

Object	+12V1.1A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	20	110	0	12.038	±5	±0.1
Minimum Voltage	50	110	1.1	12.028		

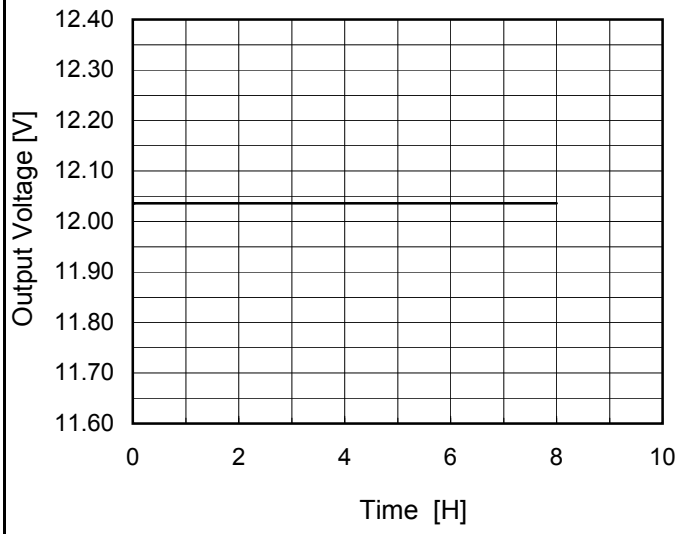
Object	-12V1.1A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	20	110	0	-12.039	±6	±0.1
Minimum Voltage	50	110	1.1	-12.027		

COSEL

Model	GT2.5W-12
Item	Time Lapse Drift
Object	+12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



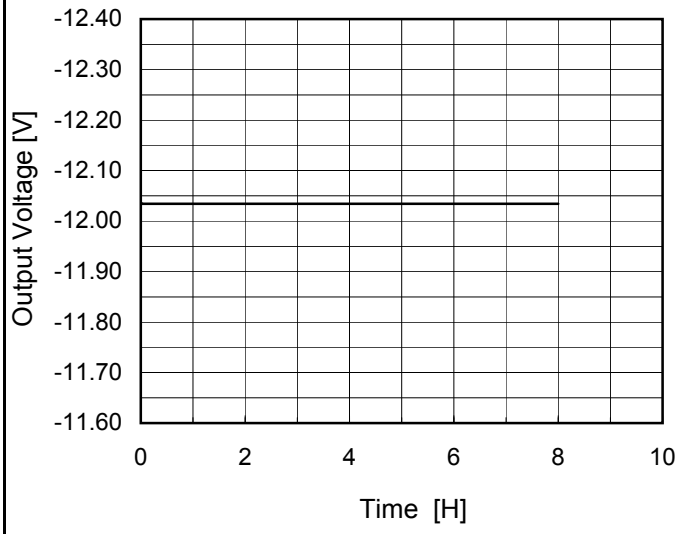
Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.037
0.5	12.036
1.0	12.036
2.0	12.036
3.0	12.036
4.0	12.036
5.0	12.036
6.0	12.036
7.0	12.036
8.0	12.036

Object	-12V1.1A

1.Graph



Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.035
0.5	-12.034
1.0	-12.034
2.0	-12.034
3.0	-12.034
4.0	-12.034
5.0	-12.034
6.0	-12.034
7.0	-12.034
8.0	-12.034

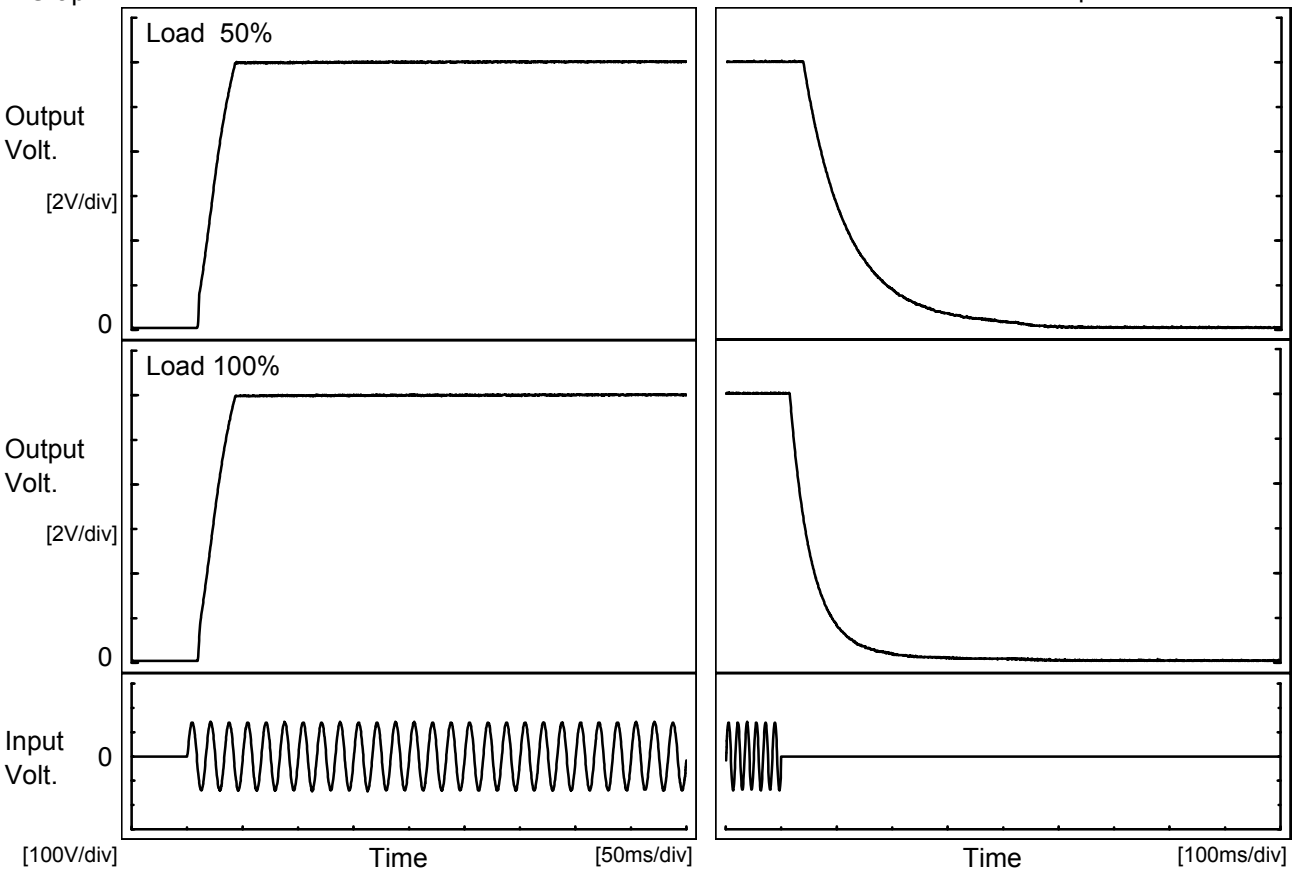
COSEL

Model	GT2.5W-12
Item	Rise and Fall Time
Object	+12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

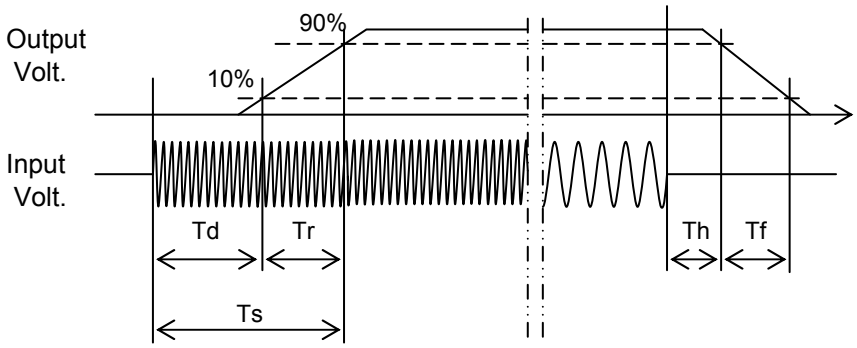
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	10.8	27.8	38.6	46.0	187.5
100 %	11.3	27.3	38.6	19.0	96.0



BC-10217

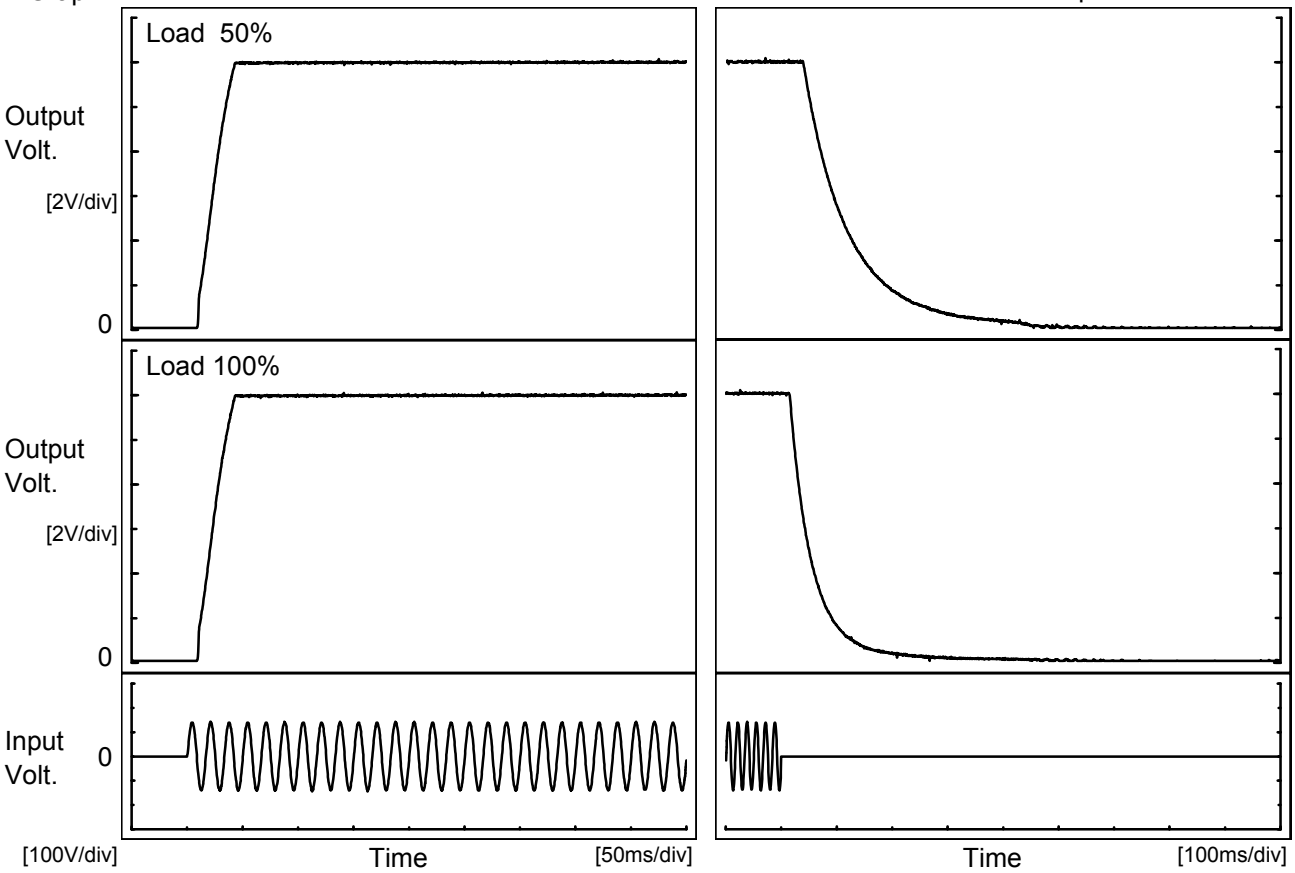
COSEL

Model	GT2.5W-12
Item	Rise and Fall Time
Object	-12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

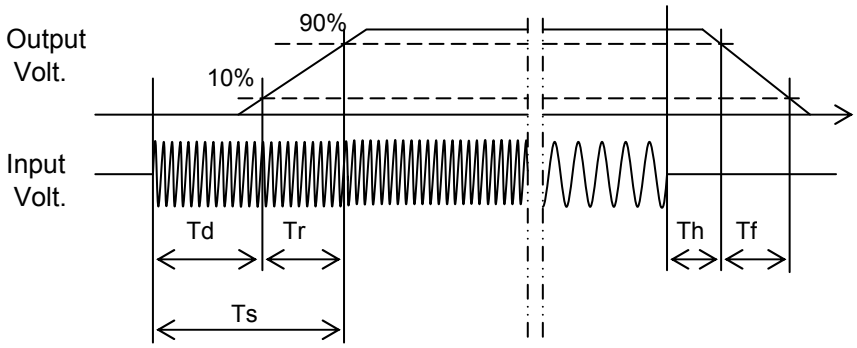
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	10.5	27.8	38.3	46.0	185.0
100 %	10.5	27.8	38.3	18.5	94.5



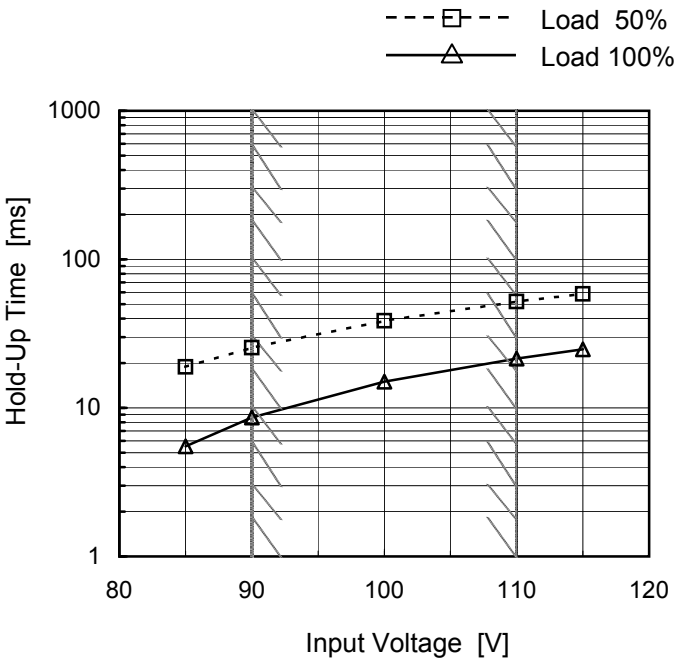
BC-10217

COSEL

Model	GT2.5W-12
Item	Hold-Up Time
Object	+12V1.1A

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	6
90	25	9
100	39	15
110	52	22
115	59	25
--	-	-
--	-	-
--	-	-
--	-	-

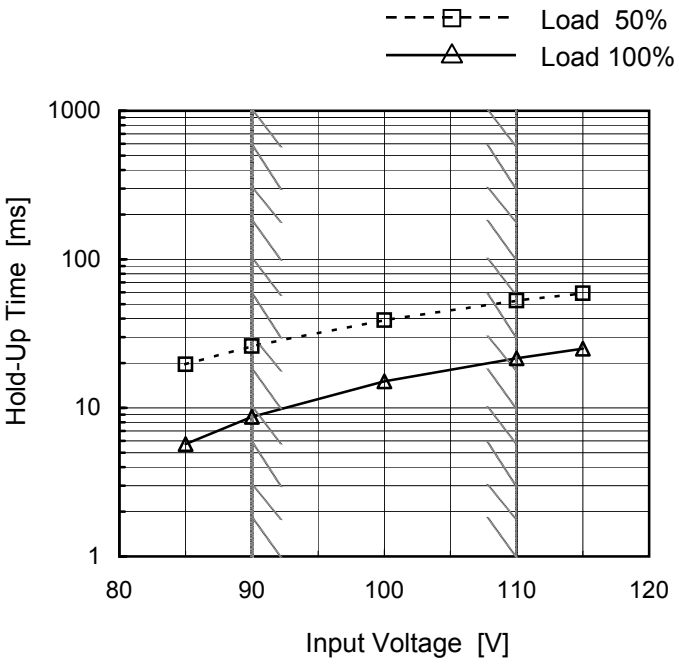
BC-10217

COSEL

Model	GT2.5W-12
Item	Hold-Up Time
Object	-12V1.1A

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

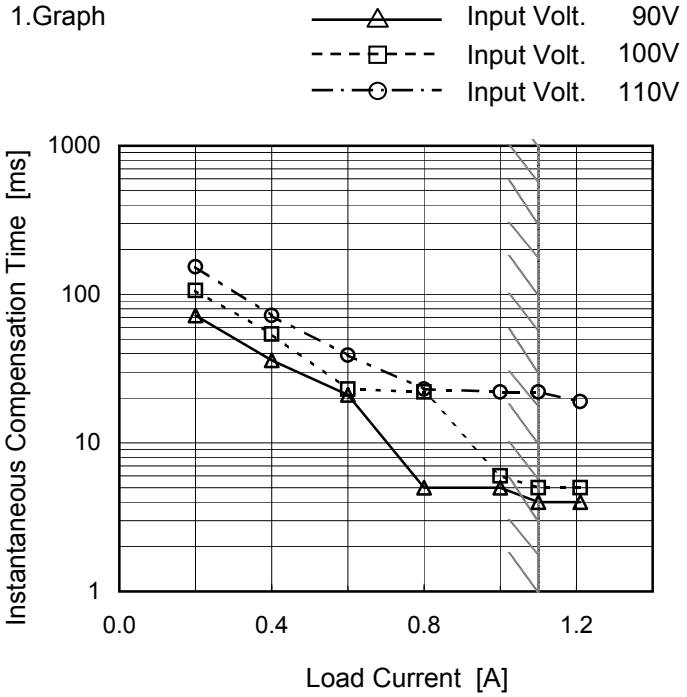
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	20	6
90	26	9
100	39	15
110	53	22
115	59	25
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT2.5W-12
Item	Instantaneous Interruption Compensation
Object	+12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

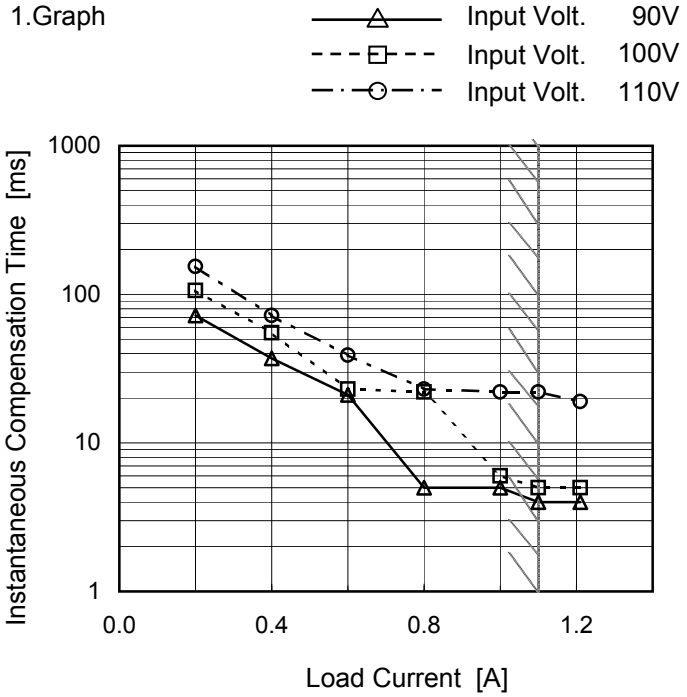
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.20	72	106	153
0.40	36	54	72
0.60	21	23	39
0.80	5	22	23
1.00	5	6	22
1.10	4	5	22
1.21	4	5	19
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT2.5W-12
Item	Instantaneous Interruption Compensation
Object	-12V1.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

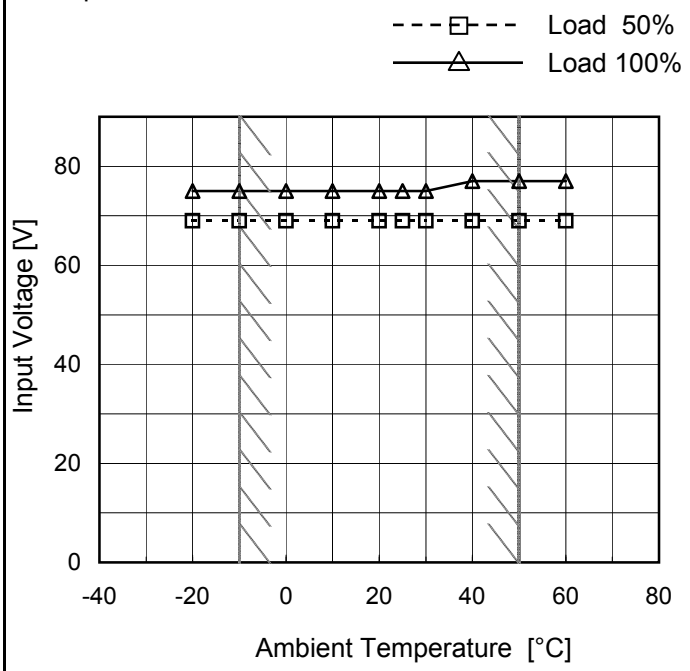
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.20	72	106	154
0.40	37	55	72
0.60	21	23	39
0.80	5	22	23
1.00	5	6	22
1.10	4	5	22
1.21	4	5	19
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT2.5W-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.1A

Testing Circuitry Figure A

1.Graph

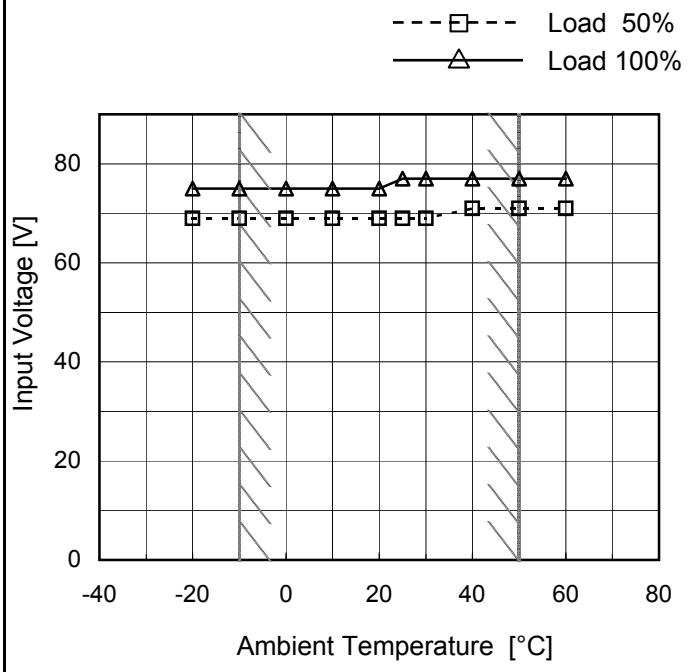


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	69	75
-10	69	75
0	69	75
10	69	75
20	69	75
25	69	75
30	69	75
40	69	77
50	69	77
60	69	77
--	-	-

Object	-12V1.1A

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	69	75
-10	69	75
0	69	75
10	69	75
20	69	75
25	69	77
30	69	77
40	71	77
50	71	77
60	71	77
--	-	-

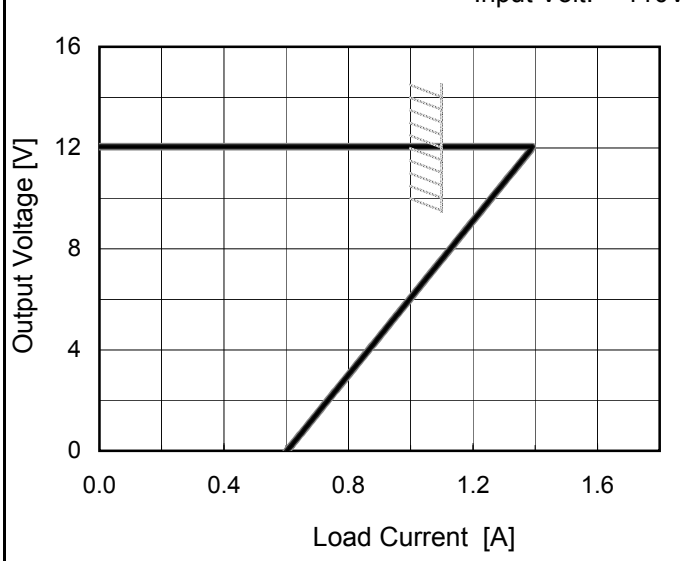
COSEL

Model	GT2.5W-12
Item	Overcurrent Protection

Temperature 25°C
Testing Circuitry Figure A

Object +12V1.1A

1.Graph

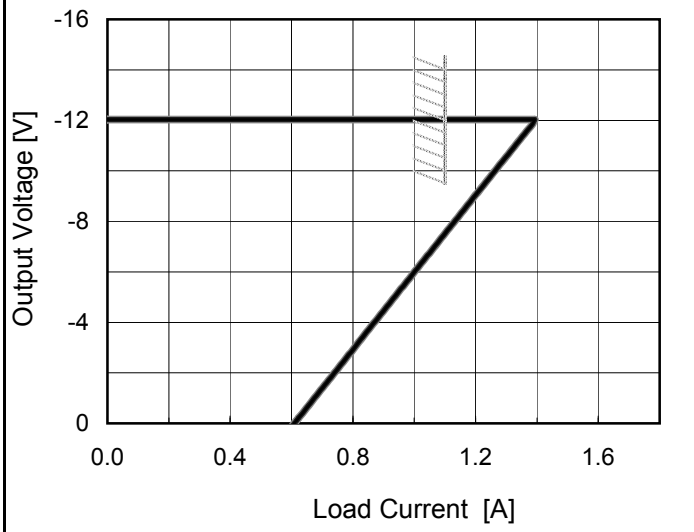


2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
12.0	1.39	1.39	1.39
11.4	1.35	1.35	1.35
10.8	1.31	1.31	1.31
9.6	1.24	1.24	1.24
8.4	1.16	1.16	1.16
7.2	1.08	1.08	1.08
6.0	1.00	1.00	1.00
4.8	0.92	0.92	0.92
3.6	0.84	0.84	0.84
2.4	0.76	0.76	0.76
1.2	0.68	0.68	0.68
0.0	0.60	0.60	0.60

Object -12V1.1A

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	1.39	1.39	1.39
-11.4	1.35	1.35	1.35
-10.8	1.31	1.31	1.31
-9.6	1.24	1.24	1.24
-8.4	1.16	1.16	1.16
-7.2	1.08	1.08	1.08
-6.0	1.00	1.00	1.00
-4.8	0.92	0.92	0.92
-3.6	0.85	0.85	0.85
-2.4	0.77	0.77	0.77
-1.2	0.69	0.69	0.69
0.0	0.60	0.60	0.60

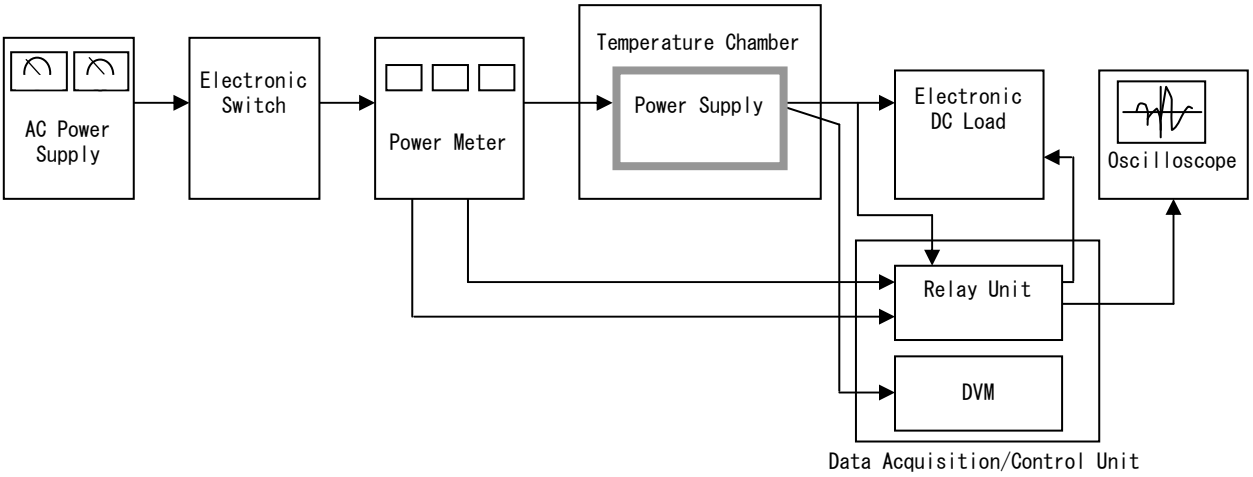

AC Power Supply
Electronic Switch
Power Meter
Temperature Chamber
Power Supply
Electronic DC Load
Oscilloscope
Relay Unit
DVM
Data Acquisition/Control Unit

Figure A