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参考資料

TEST DATA OF GT3W-12

Regulated DC Power Supply
November 1, 2010

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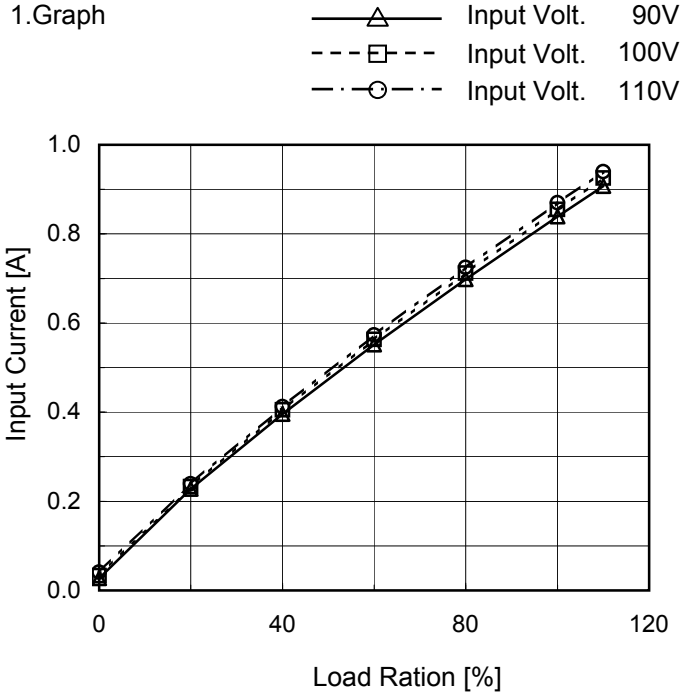
Model	GT3W-12
Item	Input Current (by Load Current)
Object	――――――

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	0.027	0.033	0.041
20	0.228	0.233	0.239
40	0.396	0.405	0.412
60	0.552	0.563	0.573
80	0.698	0.712	0.725
100	0.839	0.855	0.870
110	0.907	0.925	0.940
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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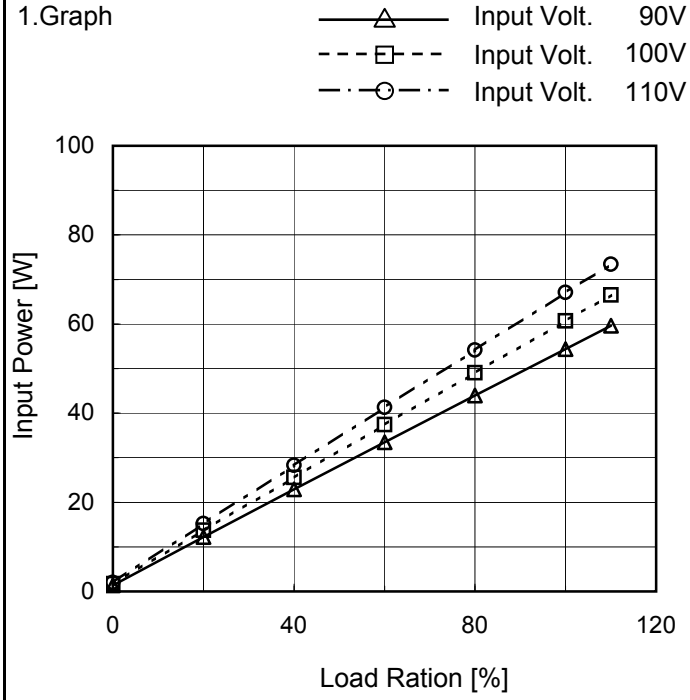
Model	GT3W-12
Item	Input Power (by Load Current)
Object	――――――

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	1.40	1.70	2.00
20	12.20	13.70	15.20
40	22.90	25.60	28.30
60	33.50	37.40	41.30
80	44.00	49.10	54.20
100	54.40	60.70	67.10
110	59.60	66.50	73.40
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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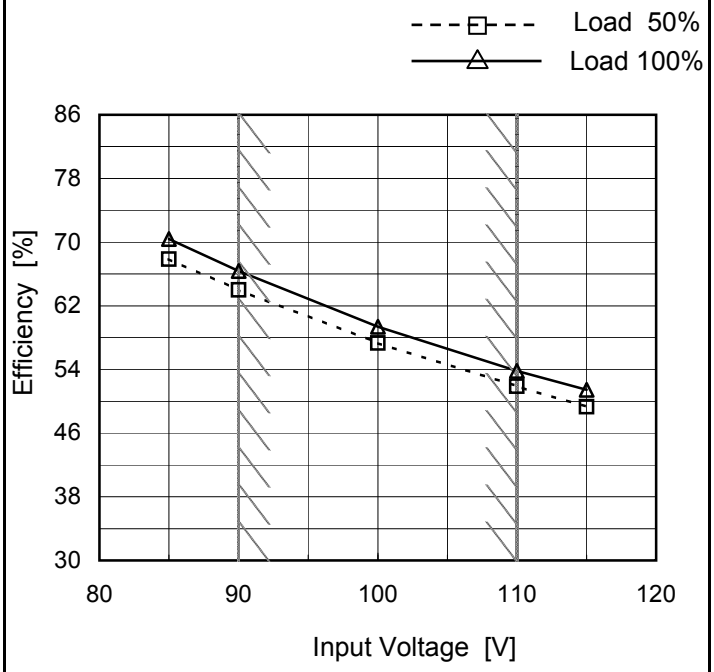
COSEL

Model	GT3W-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	67.9	70.4
90	64.0	66.4
100	57.3	59.4
110	51.9	53.8
115	49.3	51.4
--	-	-
--	-	-
--	-	-
--	-	-

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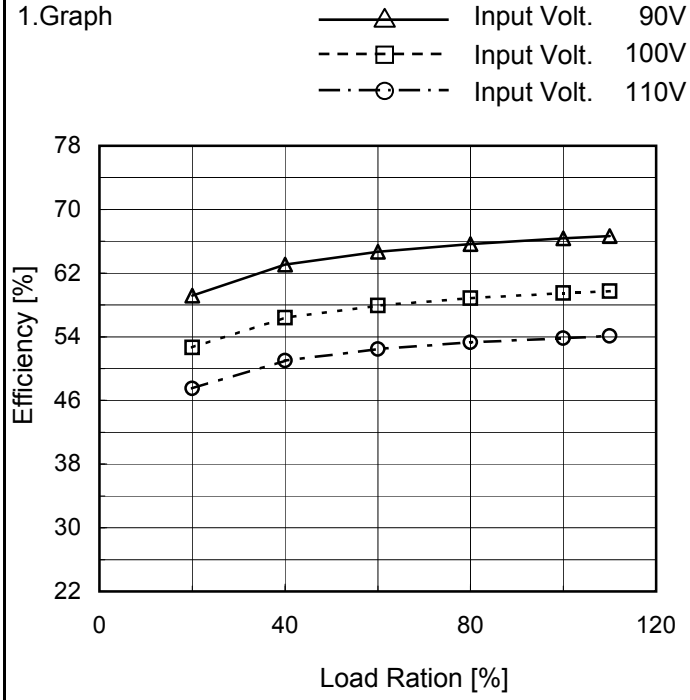
COSEL

Model	GT3W-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	59.2	52.7	47.5
40	63.1	56.4	51.0
60	64.7	57.9	52.5
80	65.7	58.8	53.3
100	66.4	59.5	53.8
110	66.6	59.7	54.1
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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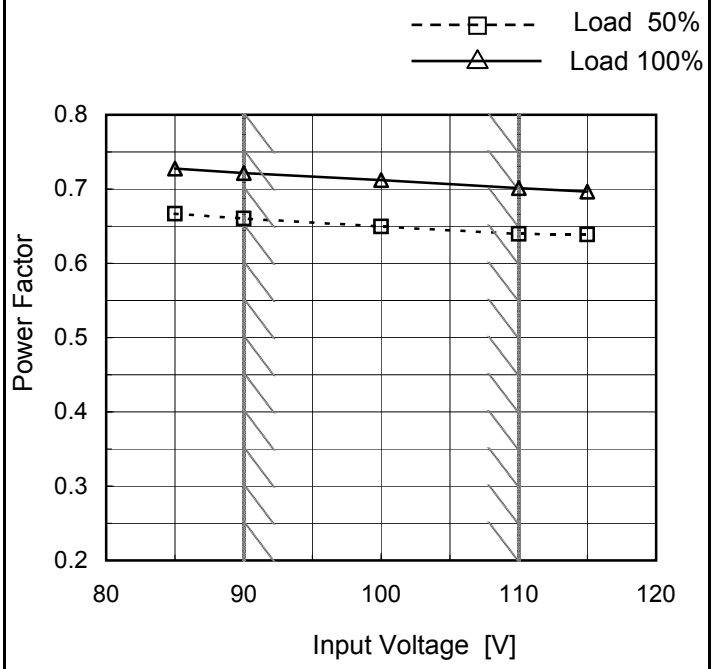
COSEL

Model	GT3W-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	0.667	0.728
90	0.660	0.721
100	0.649	0.712
110	0.640	0.701
115	0.639	0.696
--	-	-
--	-	-
--	-	-
--	-	-

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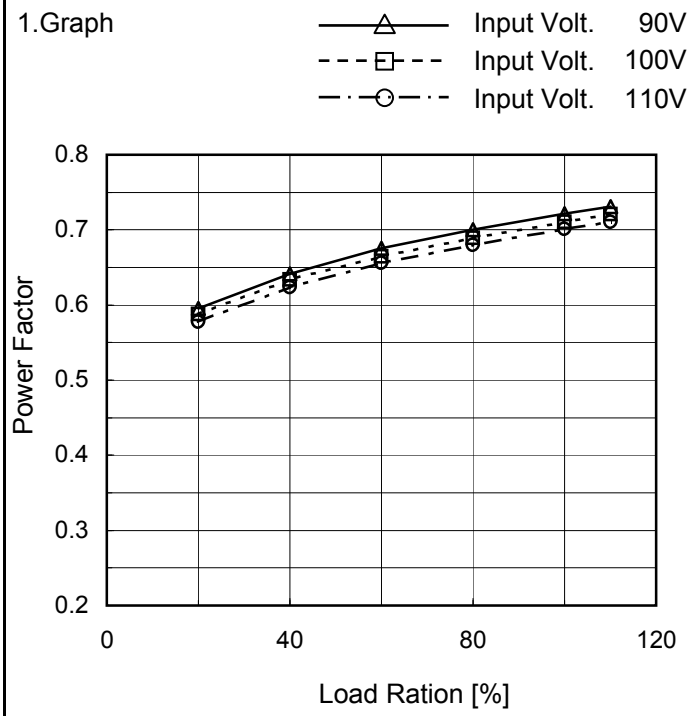
COSEL

Model	GT3W-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	0.595	0.588	0.578
40	0.641	0.634	0.623
60	0.675	0.664	0.656
80	0.701	0.690	0.680
100	0.721	0.711	0.701
110	0.731	0.720	0.711
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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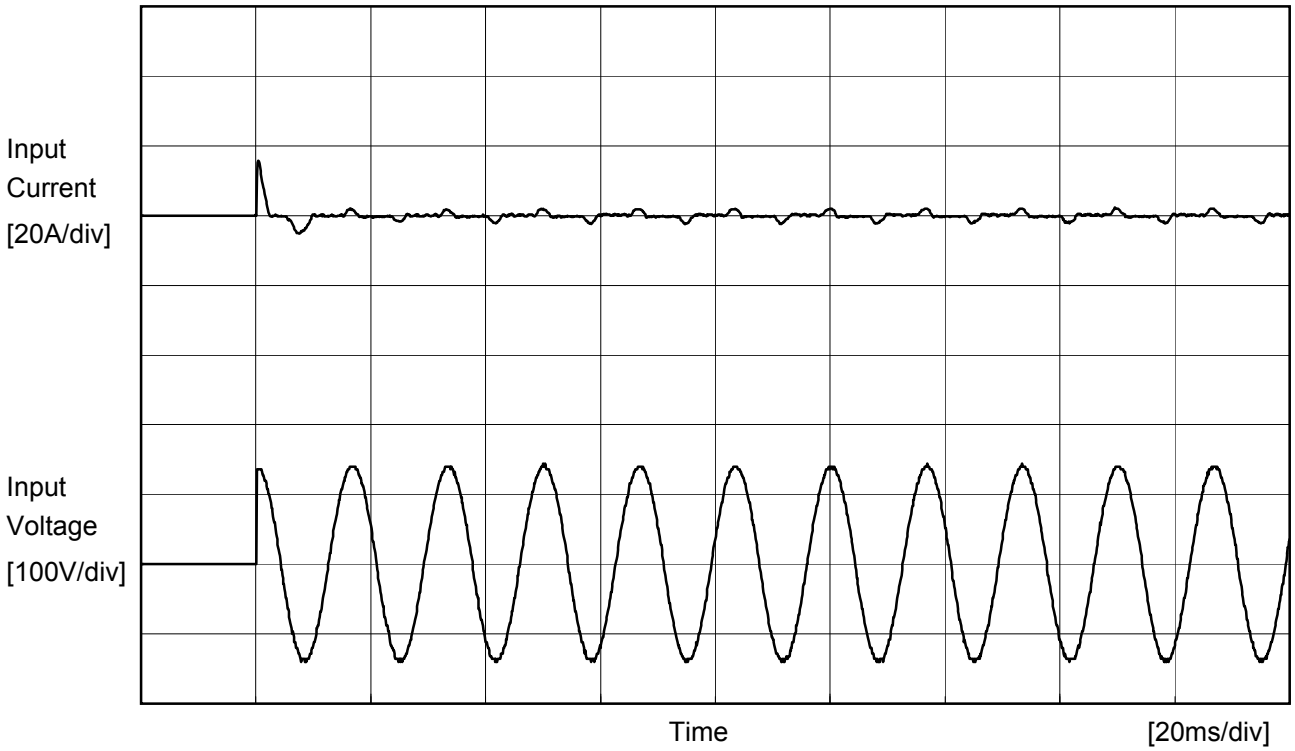
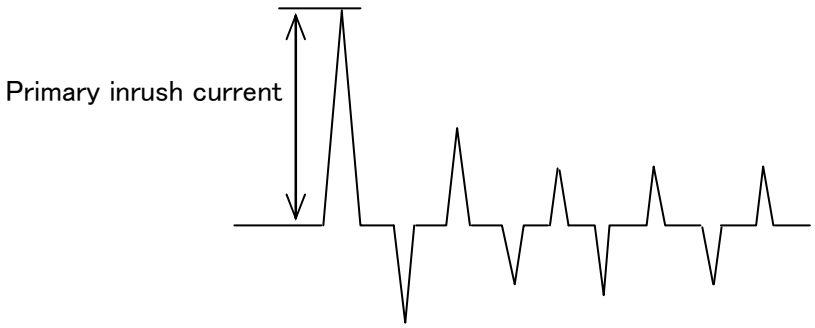
COSEL

Model	GT3W-12	Temperature 25°C
Item	Inrush Current	Testing Circuitry Figure A
Object	――――――	



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	15.8 A

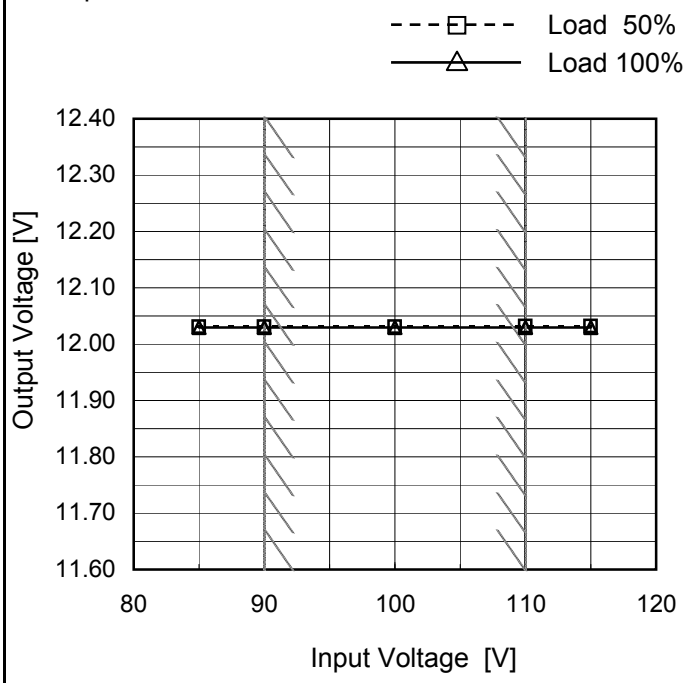


COSEL

Model	GT3W-12
Item	Line Regulation
Object	+12V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

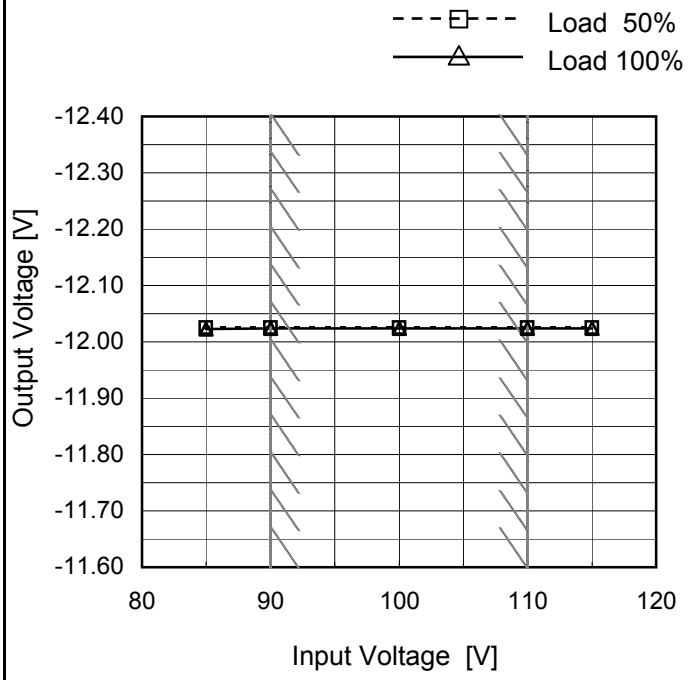


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	12.031	12.030
90	12.031	12.030
100	12.031	12.030
110	12.031	12.030
115	12.031	12.030
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V1.5A

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	-12.025	-12.023
90	-12.025	-12.023
100	-12.025	-12.023
110	-12.025	-12.023
115	-12.025	-12.023
--	-	-
--	-	-
--	-	-
--	-	-

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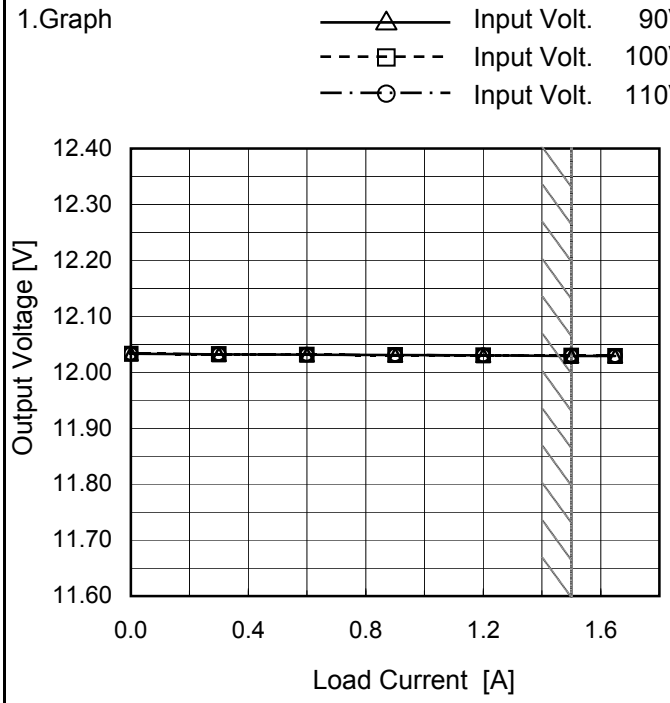
COSEL

Model	GT3W-12
Item	Load Regulation
Object	+12V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

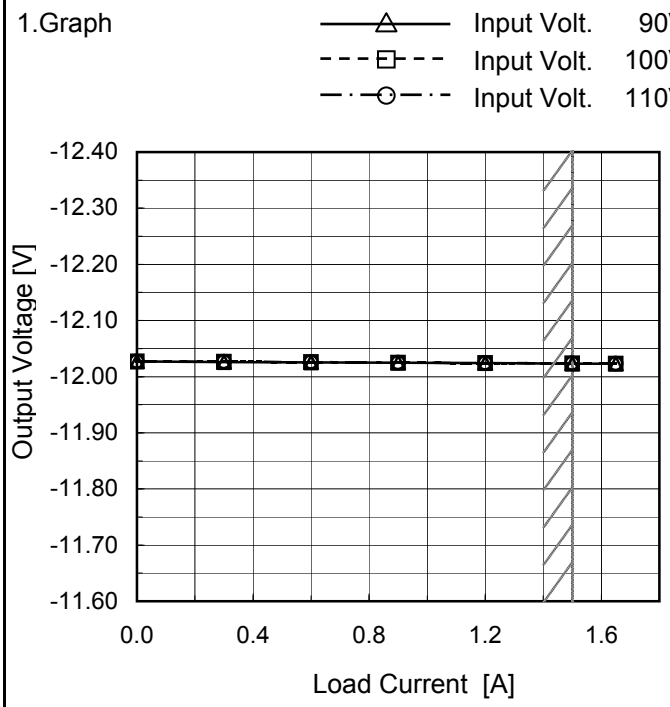


2.Values

Load Current [A]	Output Voltage [V] Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	12.033	12.033	12.033
0.30	12.032	12.032	12.033
0.60	12.032	12.032	12.032
0.90	12.031	12.031	12.031
1.20	12.030	12.030	12.030
1.50	12.029	12.030	12.030
1.65	12.029	12.029	12.029
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-12V1.5A

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	-12.027	-12.027	-12.027
0.30	-12.026	-12.026	-12.026
0.60	-12.025	-12.026	-12.026
0.90	-12.025	-12.025	-12.025
1.20	-12.024	-12.024	-12.024
1.50	-12.023	-12.023	-12.023
1.65	-12.023	-12.023	-12.023
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

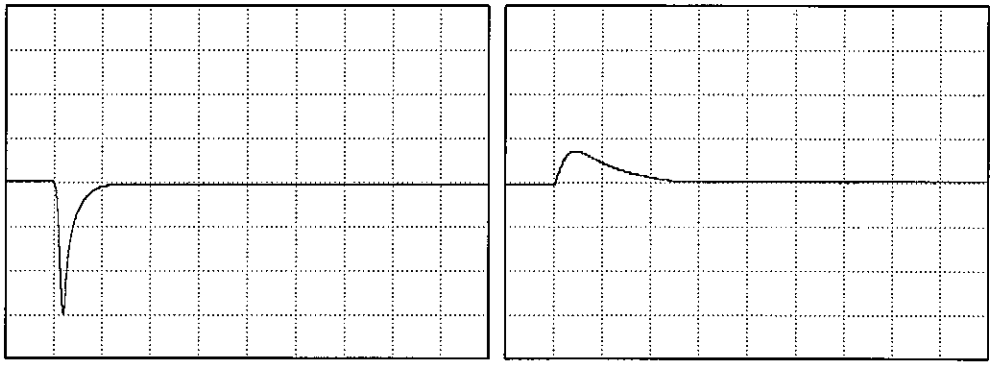
COSEL

Model	GT3W-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+12V1.5A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

Min. Load (0A) ⟷
Load 100% (1.5A)

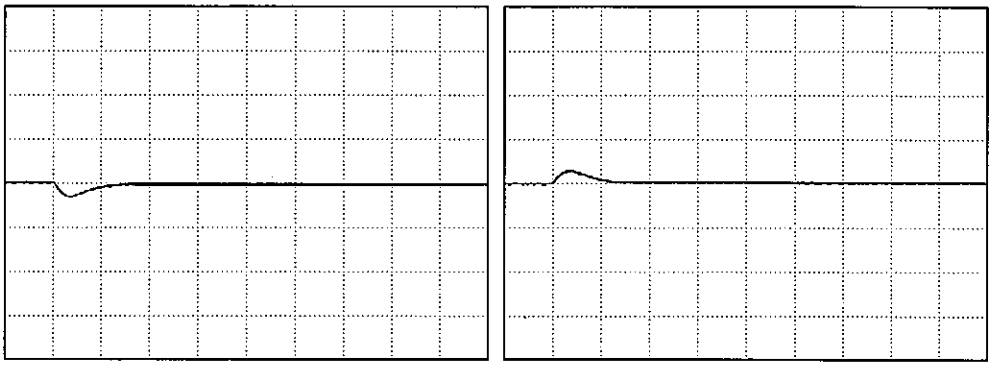


50 mV/div

100 μs/div

100 μs/div

Load 50% (0.75A) ⟷
Load 100% (1.5A)



50 mV/div

100 μs/div

100 μs/div

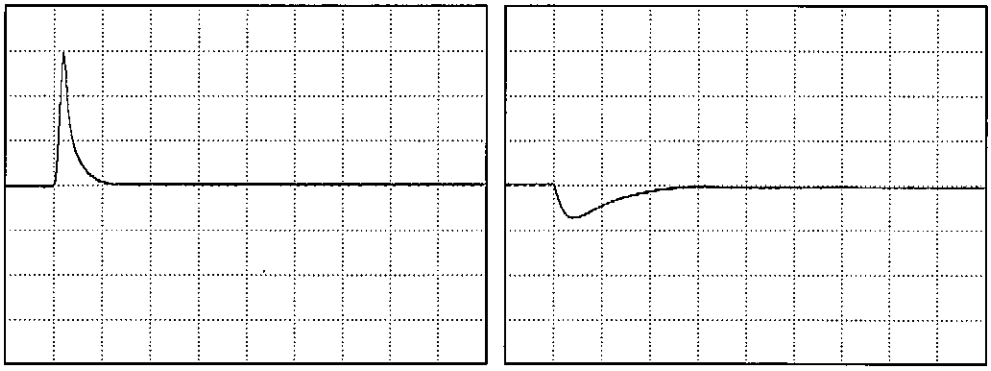
COSEL

Model	GT3W-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	-12V1.5A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

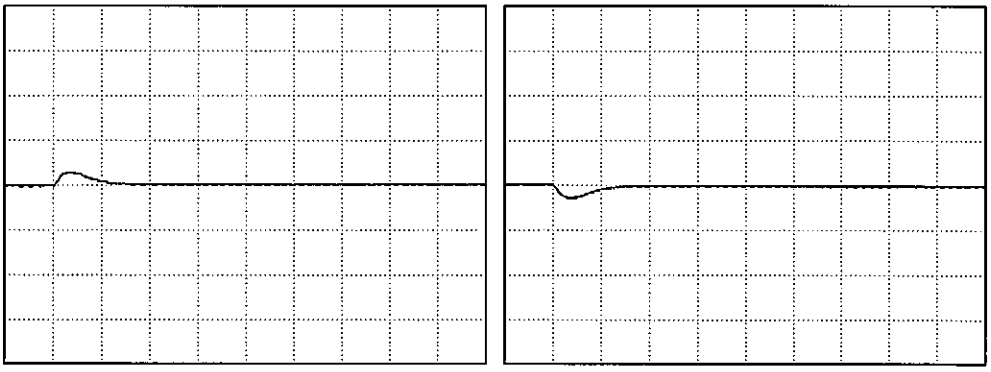
Min. Load (0A) ⟷
Load 100% (1.5A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.75A) ⟷
Load 100% (1.5A)



50 mV/div

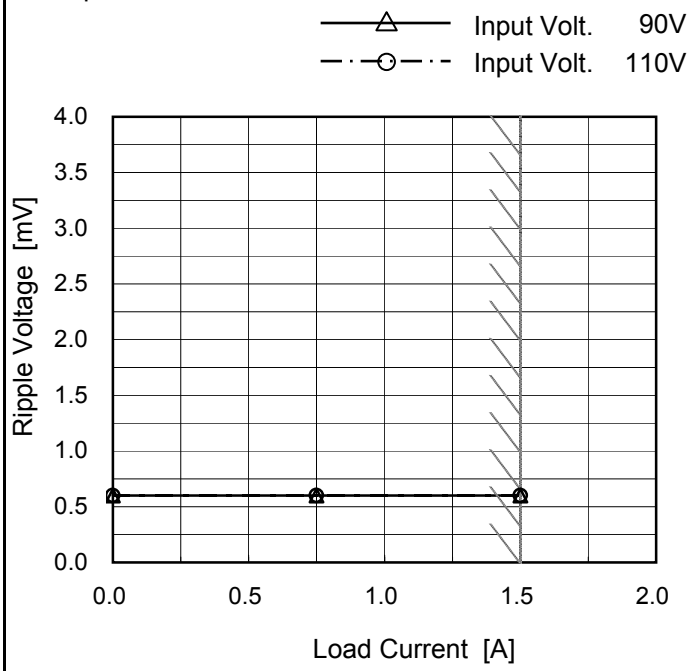
100 μs/div 100 μs/div

COSEL

Model	GT3W-12
Item	Ripple Voltage (by Load Current)
Object	+12V1.5A

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	0.6	0.6
0.75	0.6	0.6
1.50	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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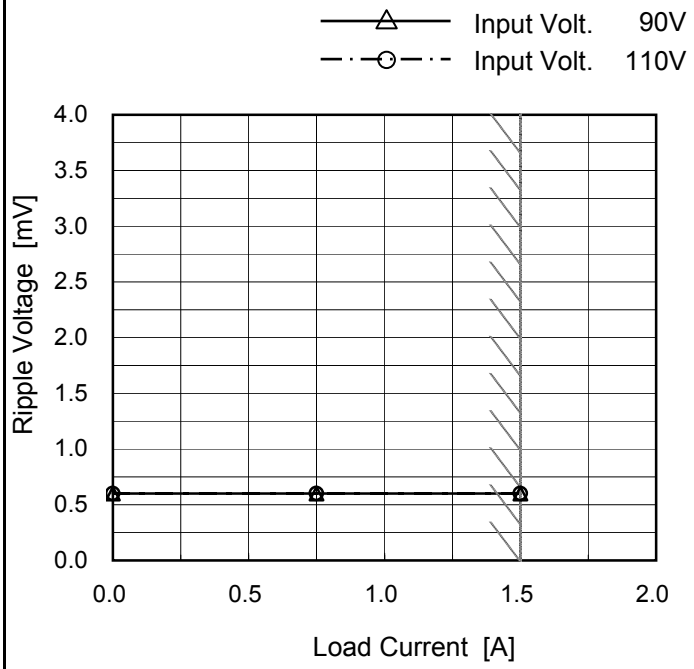
COSEL

Model	GT3W-12
Item	Ripple Voltage (by Load Current)
Object	-12V1.5A

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]	Ripple Voltage [mV] Input Volt. 110 [V]
0.00	0.6	0.6
0.75	0.6	0.6
1.50	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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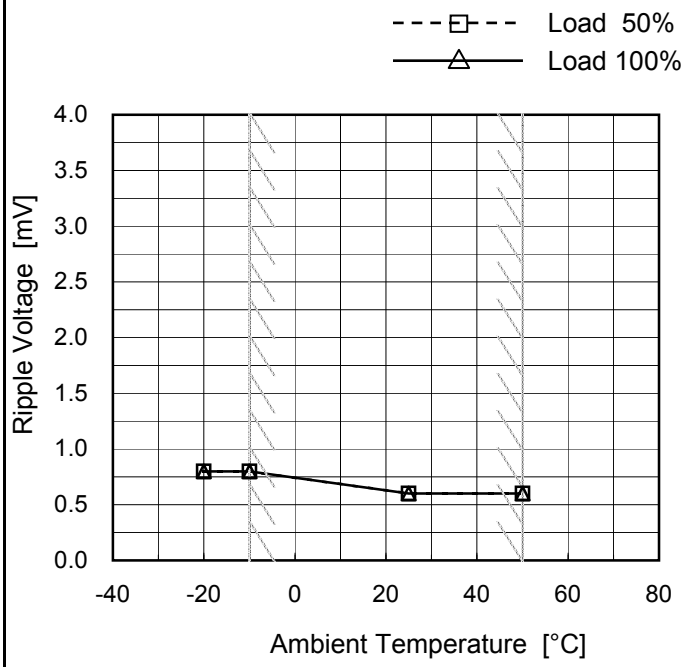
COSEL

Model	GT3W-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.5A

Testing Circuitry Figure A

1.Graph



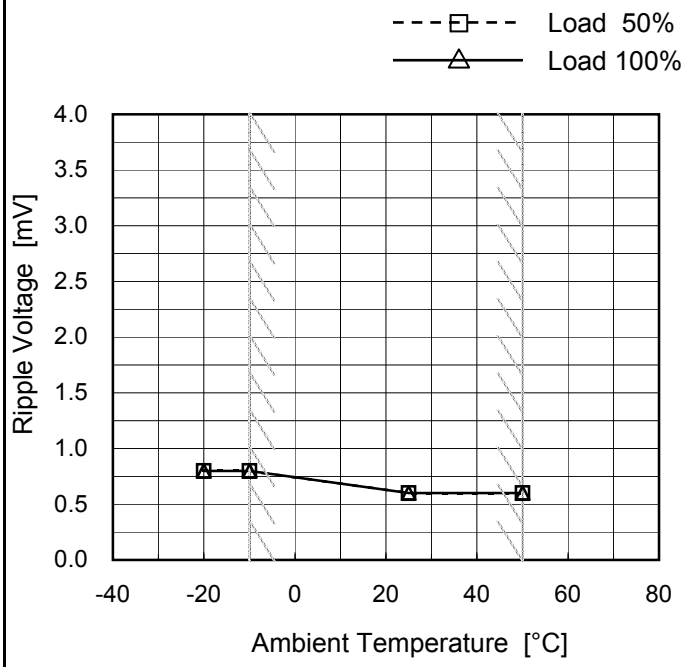
Input Volt. 100V

2.Values

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

Object	-12V1.5A

1.Graph



Input Volt. 100V

Measured by 20 MHz Oscilloscope.

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

2.Values

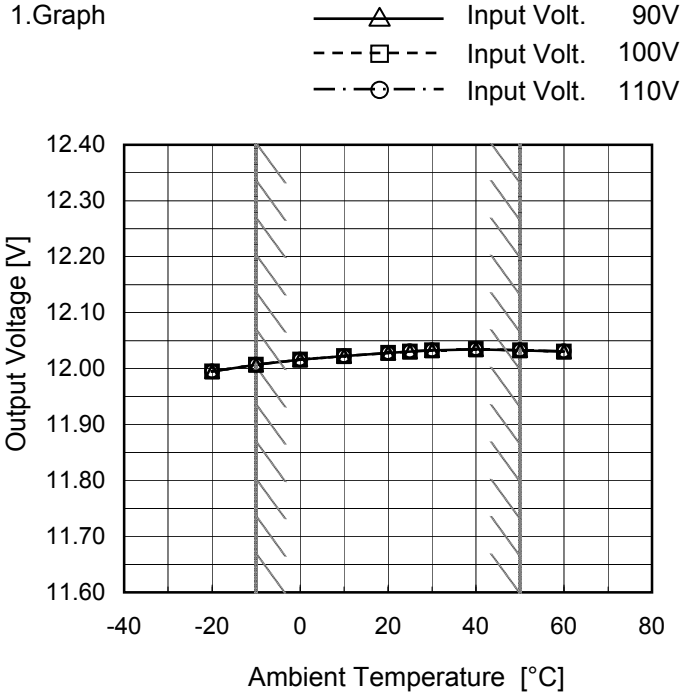
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	0.8	0.8
-10	0.8	0.8
25	0.6	0.6
50	0.6	0.6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GT3W-12
Item	Ambient Temperature Drift
Object	+12V1.5A

Testing Circuitry Figure A

1.Graph



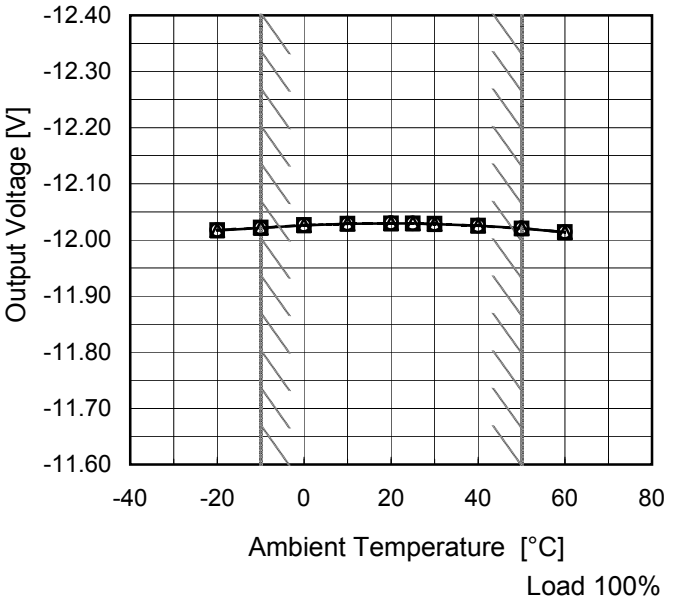
Load 100%

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	11.995	11.995	11.995
-10	12.007	12.007	12.007
0	12.016	12.016	12.016
10	12.022	12.022	12.022
20	12.028	12.028	12.028
25	12.031	12.031	12.031
30	12.033	12.033	12.033
40	12.035	12.035	12.035
50	12.033	12.033	12.033
60	12.031	12.031	12.031
--	-	-	-

Object	-12V1.5A

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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	-12.017	-12.017	-12.017
-10	-12.022	-12.022	-12.022
0	-12.026	-12.026	-12.026
10	-12.029	-12.029	-12.029
20	-12.030	-12.030	-12.030
25	-12.030	-12.029	-12.030
30	-12.029	-12.029	-12.029
40	-12.025	-12.025	-12.025
50	-12.021	-12.021	-12.021
60	-12.014	-12.014	-12.014
--	-	-	-

COSEL

Model	GT3W-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 - 1.5A (AVR 2) : 0 - 1.5A

* 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

Object	+12V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	110	0	12.039	±17	±0.1
Minimum Voltage	-10	90	1.5	12.005		

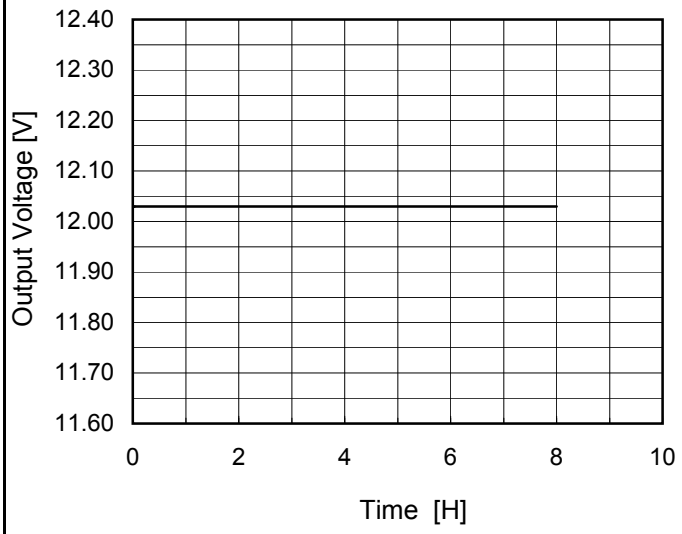
Object	-12V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	20	100	0	-12.033	±7	±0.1
Minimum Voltage	50	90	1.5	-12.019		

COSEL

Model	GT3W-12
Item	Time Lapse Drift
Object	+12V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



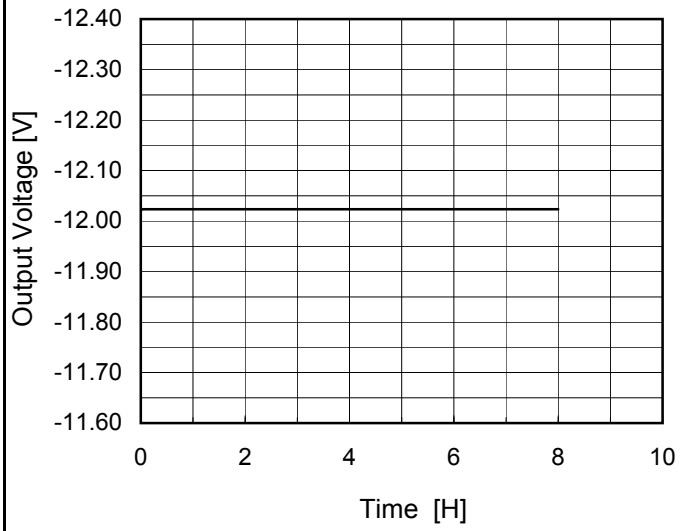
Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.029
0.5	12.030
1.0	12.030
2.0	12.030
3.0	12.030
4.0	12.030
5.0	12.030
6.0	12.030
7.0	12.030
8.0	12.030

Object	-12V1.5A

1.Graph



Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.024
0.5	-12.024
1.0	-12.024
2.0	-12.024
3.0	-12.024
4.0	-12.024
5.0	-12.024
6.0	-12.024
7.0	-12.024
8.0	-12.024

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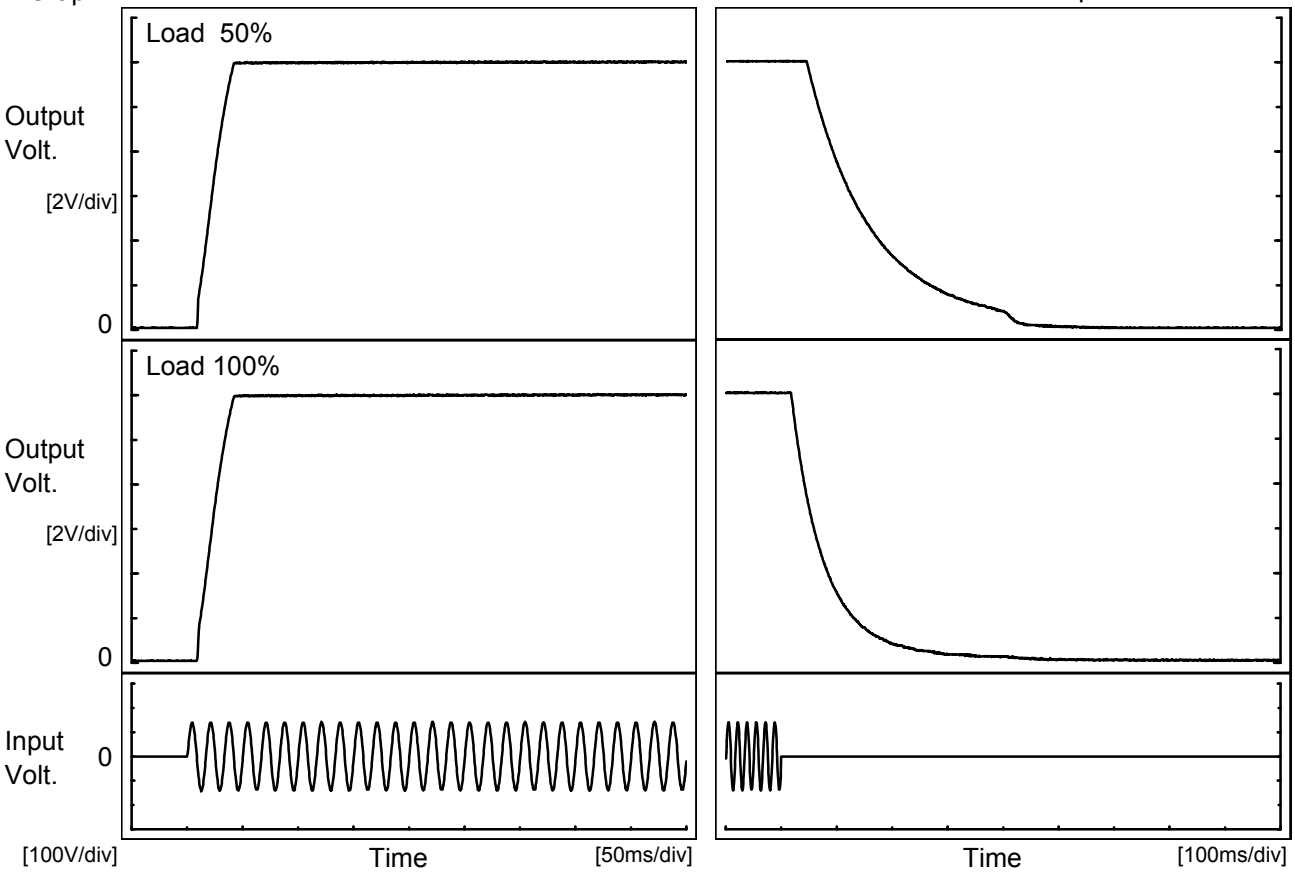
COSEL

Model	GT3W-12
Item	Rise and Fall Time
Object	+12V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

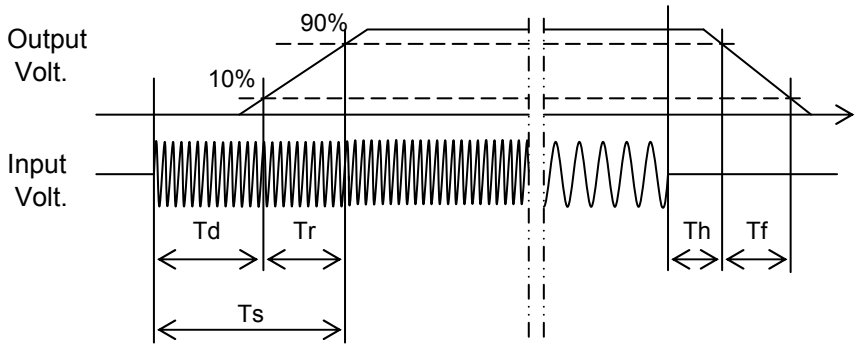
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	10.0	27.5	37.5	56.0	276.5
100 %	10.5	27.0	37.5	23.5	142.0



BC-10219

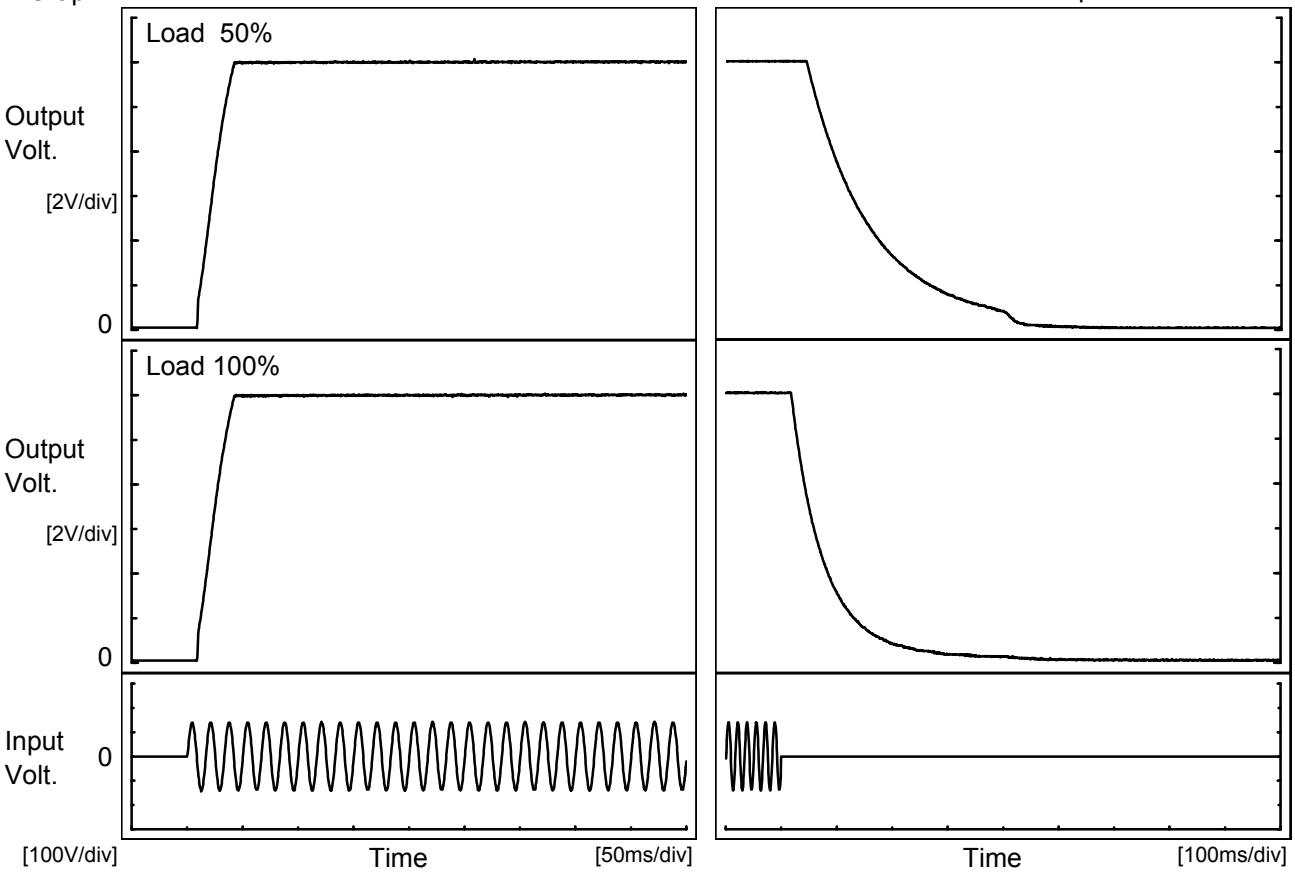
COSEL

Model	GT3W-12
Item	Rise and Fall Time
Object	-12V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

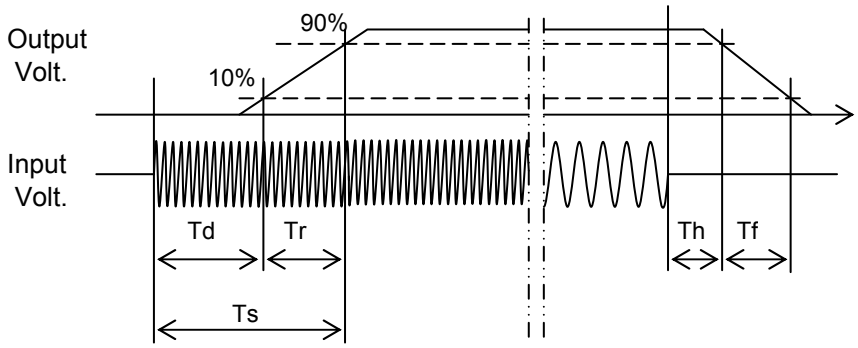
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	10.0	27.8	37.8	55.5	275.5
100 %	10.0	27.8	37.8	23.5	139.0



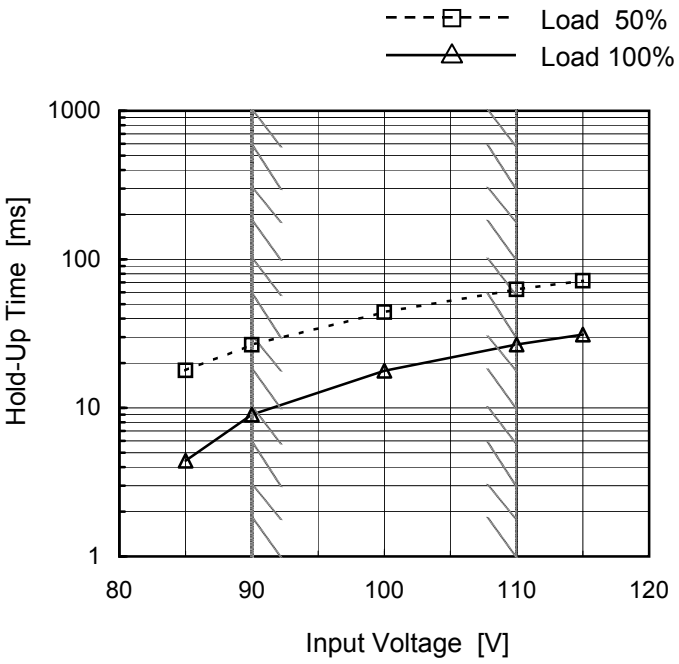
BC-10219

COSEL

Model	GT3W-12
Item	Hold-Up Time
Object	+12V1.5A

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	18	4
90	27	9
100	44	18
110	63	27
115	72	31
--	-	-
--	-	-
--	-	-
--	-	-

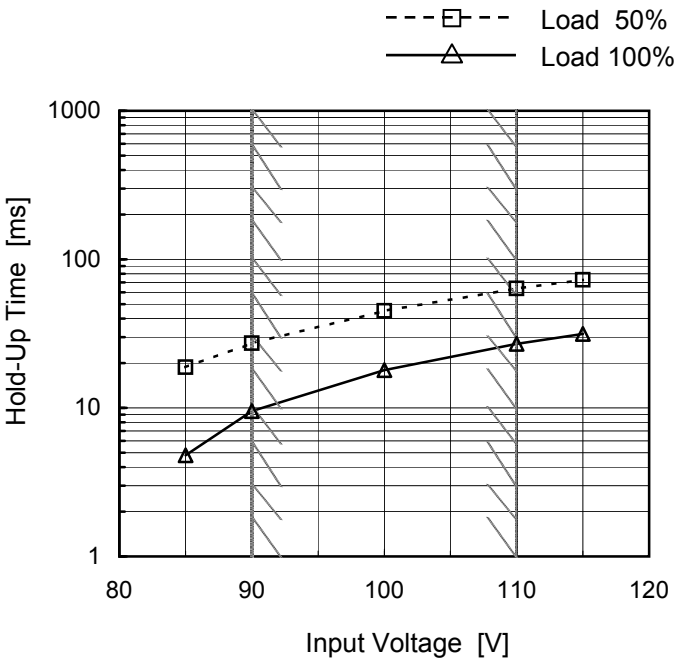
BC-10219

COSEL

Model	GT3W-12
Item	Hold-Up Time
Object	-12V1.5A

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	27	10
100	45	18
110	64	27
115	73	32
--	-	-
--	-	-
--	-	-
--	-	-

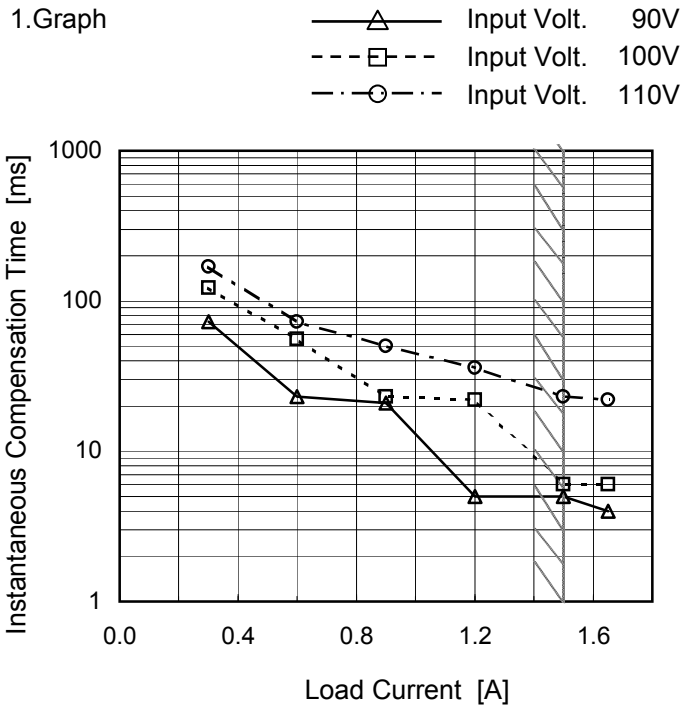
BC-10219

COSEL

Model	GT3W-12
Item	Instantaneous Interruption Compensation
Object	+12V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

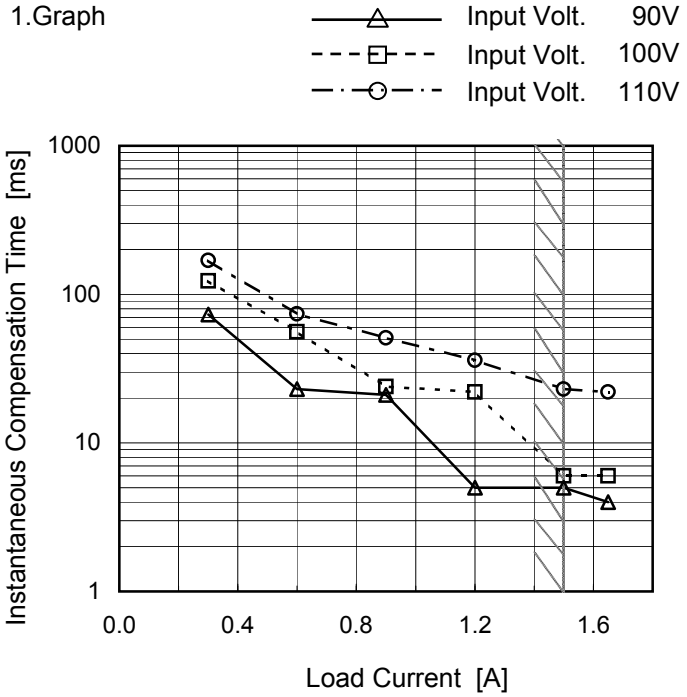
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.30	73	123	169
0.60	23	56	73
0.90	21	23	50
1.20	5	22	36
1.50	5	6	23
1.65	4	6	22
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GT3W-12
Item	Instantaneous Interruption Compensation
Object	-12V1.5A

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	-	-	-
0.30	73	123	169
0.60	23	56	74
0.90	21	24	51
1.20	5	22	36
1.50	5	6	23
1.65	4	6	22
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

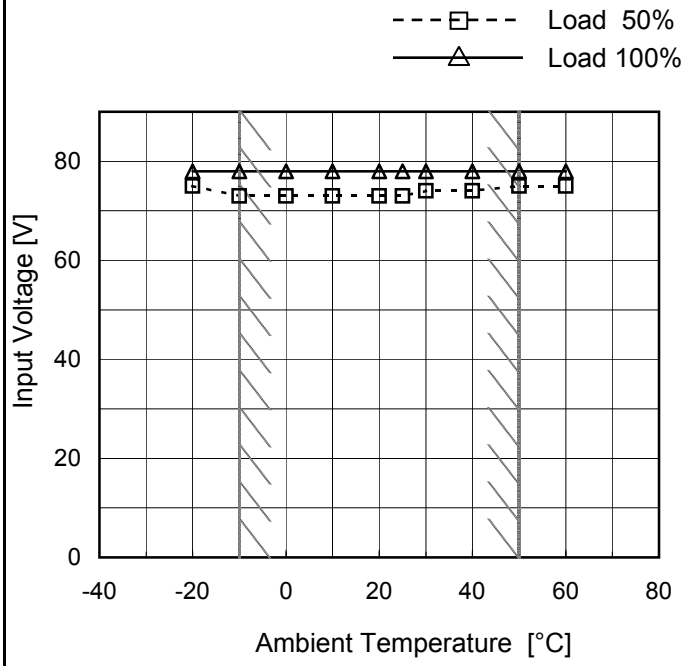
BC-10219

COSEL

Model	GT3W-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.5A

Testing Circuitry Figure A

1.Graph

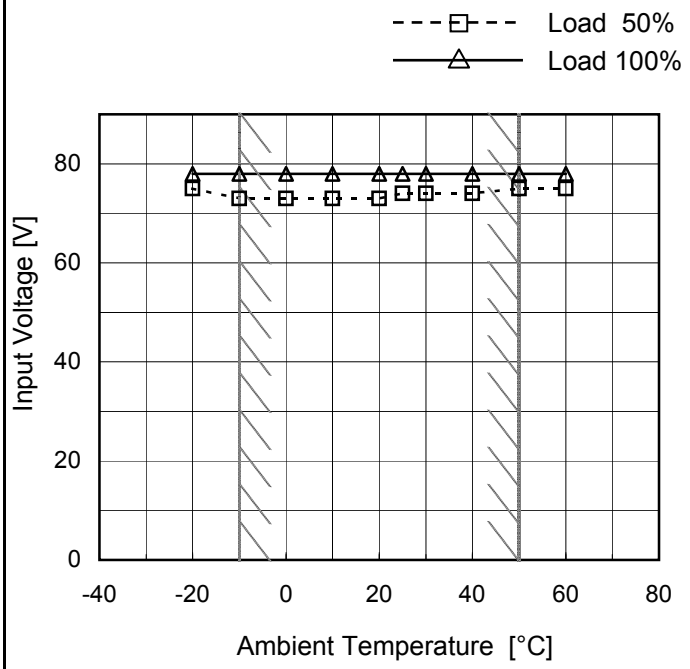


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	75	78
-10	73	78
0	73	78
10	73	78
20	73	78
25	73	78
30	74	78
40	74	78
50	75	78
60	75	78
--	-	-

Object	-12V1.5A

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	75	78
-10	73	78
0	73	78
10	73	78
20	73	78
25	74	78
30	74	78
40	74	78
50	75	78
60	75	78
--	-	-

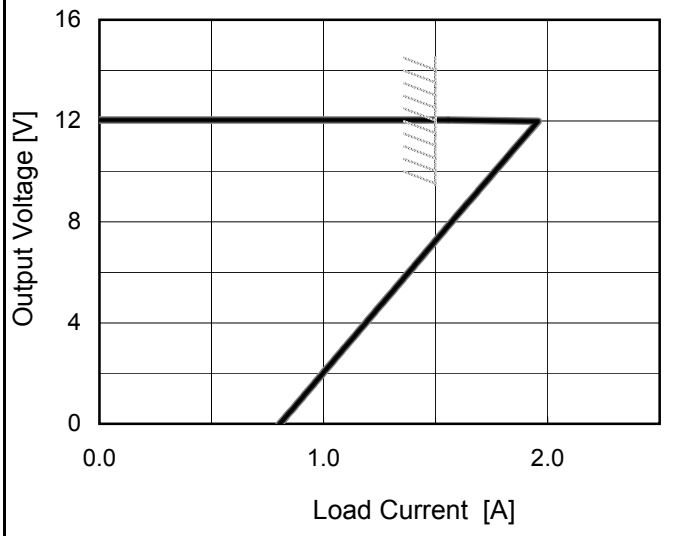
COSEL

Model	GT3W-12
Item	Overcurrent Protection

Temperature 25°C
Testing Circuitry Figure A

Object +12V1.5A

1.Graph

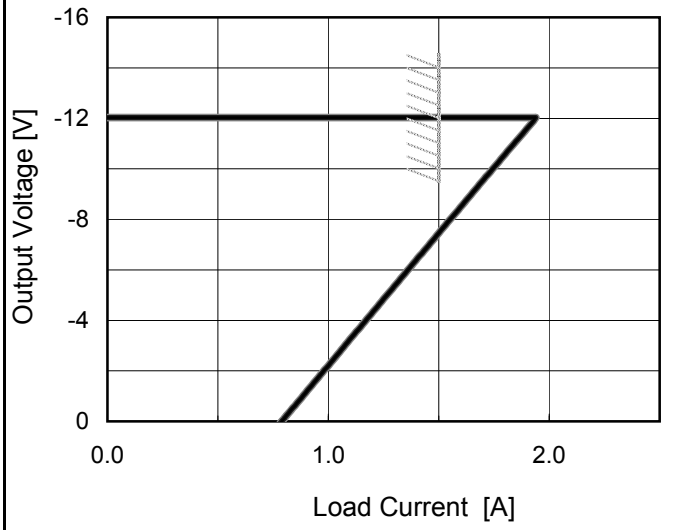


2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
12.0	1.96	1.96	1.96
11.4	1.90	1.90	1.90
10.8	1.84	1.84	1.84
9.6	1.73	1.73	1.73
8.4	1.61	1.61	1.61
7.2	1.50	1.50	1.50
6.0	1.38	1.38	1.38
4.8	1.28	1.28	1.28
3.6	1.16	1.16	1.16
2.4	1.04	1.04	1.04
1.2	0.93	0.93	0.93
0.0	0.80	0.80	0.80

Object -12V1.5A

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	1.94	1.94	1.94
-11.4	1.88	1.88	1.88
-10.8	1.82	1.82	1.82
-9.6	1.71	1.71	1.71
-8.4	1.60	1.60	1.60
-7.2	1.48	1.48	1.48
-6.0	1.37	1.37	1.37
-4.8	1.25	1.25	1.25
-3.6	1.14	1.14	1.14
-2.4	1.02	1.02	1.02
-1.2	0.91	0.91	0.91
0.0	0.78	0.78	0.78

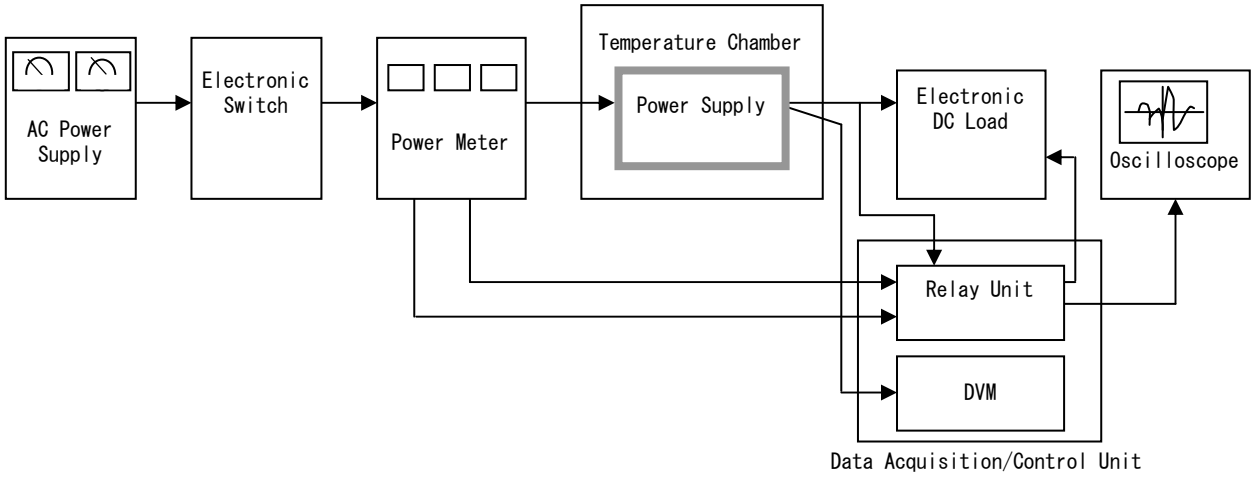

AC Power Supply
Electronic Switch
Power Meter
Temperature Chamber
Power Supply
Electronic DC Load
Oscilloscope
Relay Unit
DVM
Data Acquisition/Control Unit

Figure A