COSEL

参考資料

TEST DATA OF G2W-12

Regulated DC Power Supply
October 19, 2010

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Design Manager

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Design Engineer

COSEL CO.,LTD.

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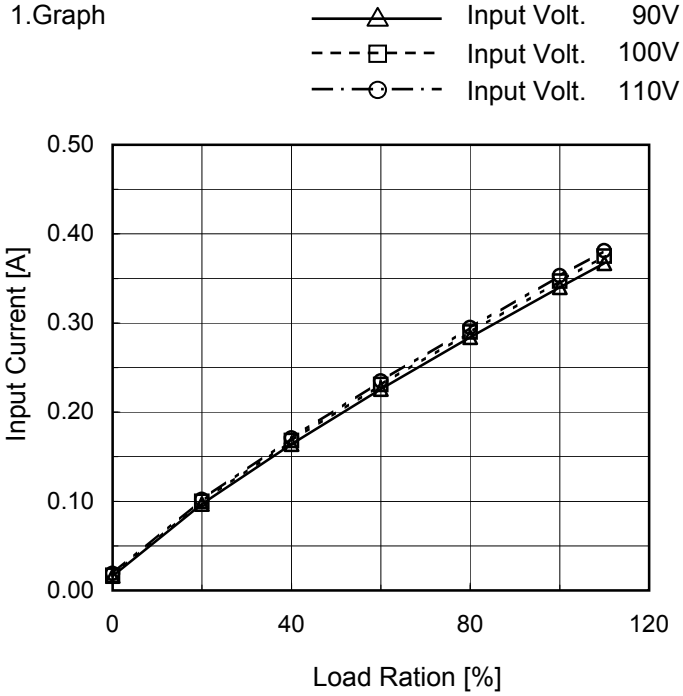
COSEL

Model	G2W-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	0.016	0.017	0.019
20	0.097	0.100	0.102
40	0.164	0.168	0.171
60	0.226	0.231	0.235
80	0.284	0.290	0.295
100	0.340	0.347	0.353
110	0.367	0.375	0.381
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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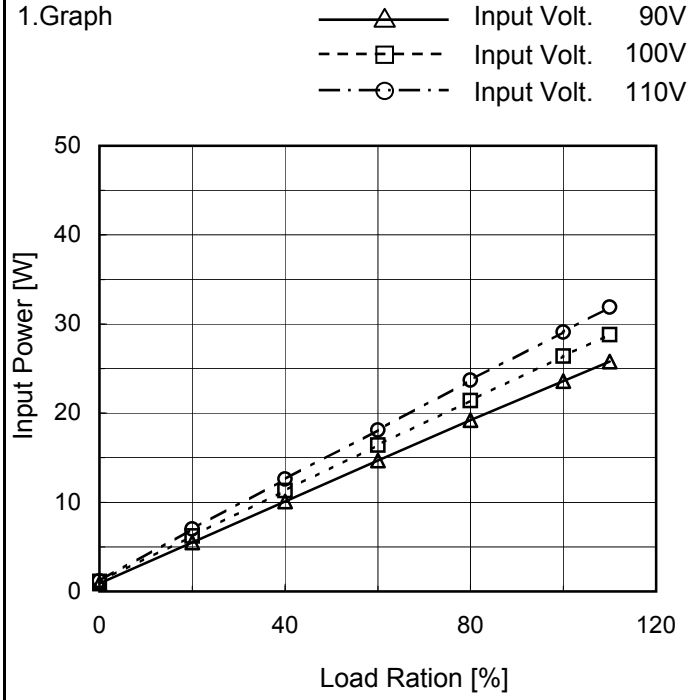
Model	G2W-12
Item	Input Power (by Load Current)
Object	――――――

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	0.90	1.10	1.20
20	5.50	6.20	7.00
40	10.10	11.30	12.60
60	14.70	16.40	18.10
80	19.20	21.40	23.70
100	23.60	26.40	29.10
110	25.80	28.80	31.90
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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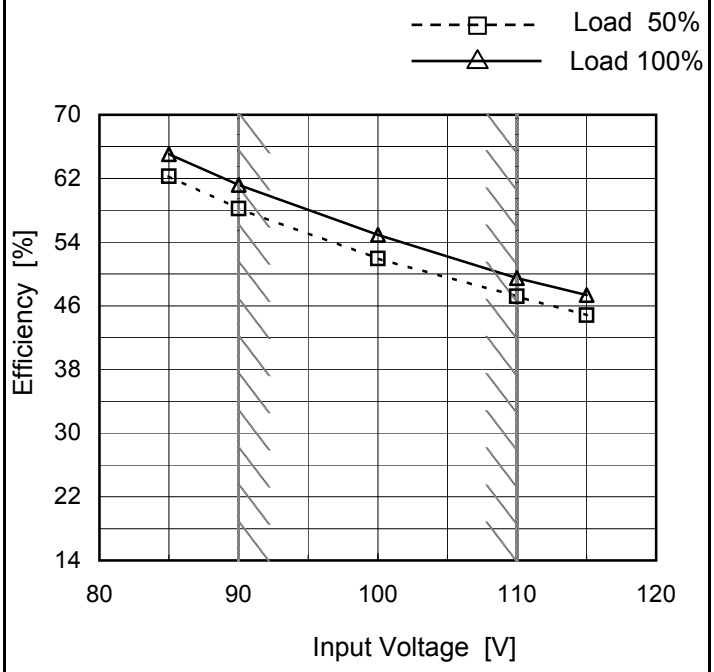
COSEL

Model	G2W-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	62.3	65.1
90	58.2	61.2
100	51.9	54.9
110	47.2	49.5
115	44.8	47.4
--	-	-
--	-	-
--	-	-
--	-	-

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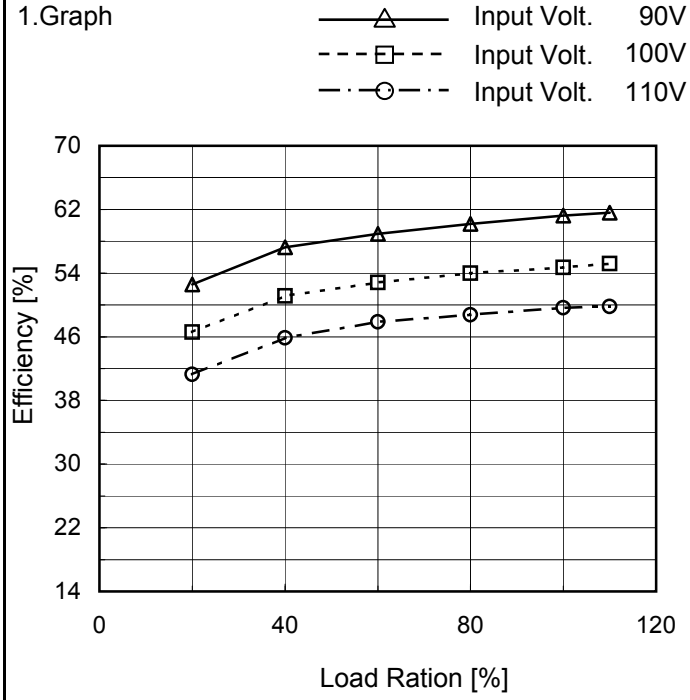
COSEL

Model	G2W-12
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

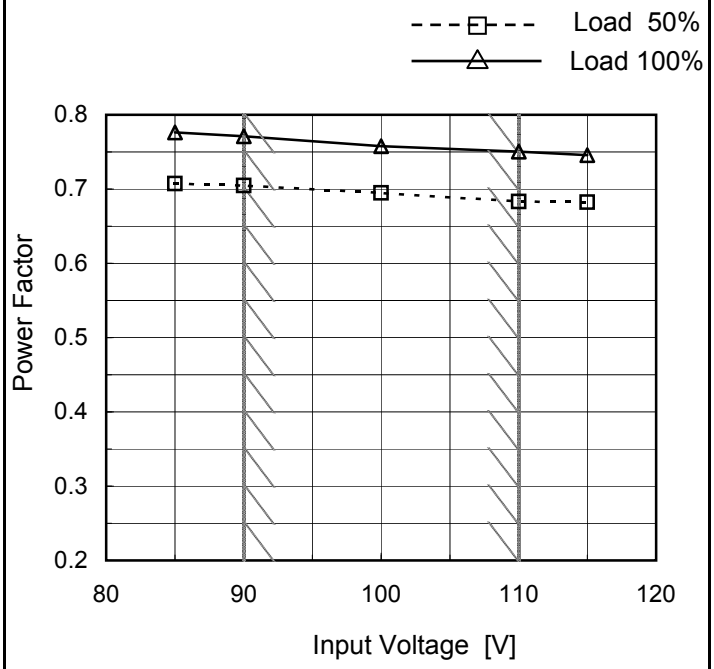
Load Ration [%]	Efficiency [%]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	-	-	-
20	52.6	46.6	41.3
40	57.2	51.1	45.9
60	59.0	52.8	47.9
80	60.2	54.0	48.8
100	61.2	54.7	49.6
110	61.6	55.2	49.8
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	G2W-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

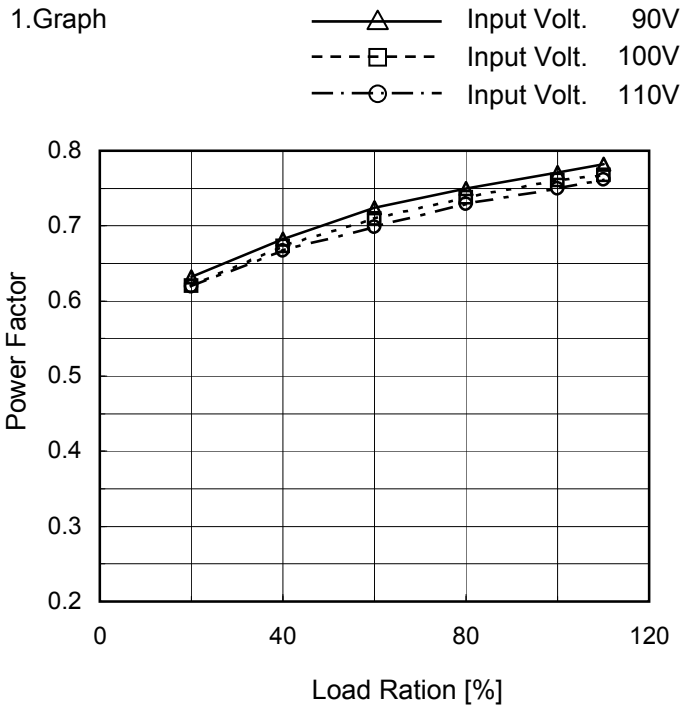
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.707	0.776
90	0.705	0.771
100	0.695	0.758
110	0.683	0.751
115	0.682	0.746
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G2W-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	0.632	0.620	0.619
40	0.682	0.673	0.667
60	0.724	0.710	0.699
80	0.750	0.738	0.729
100	0.771	0.761	0.750
110	0.782	0.768	0.761
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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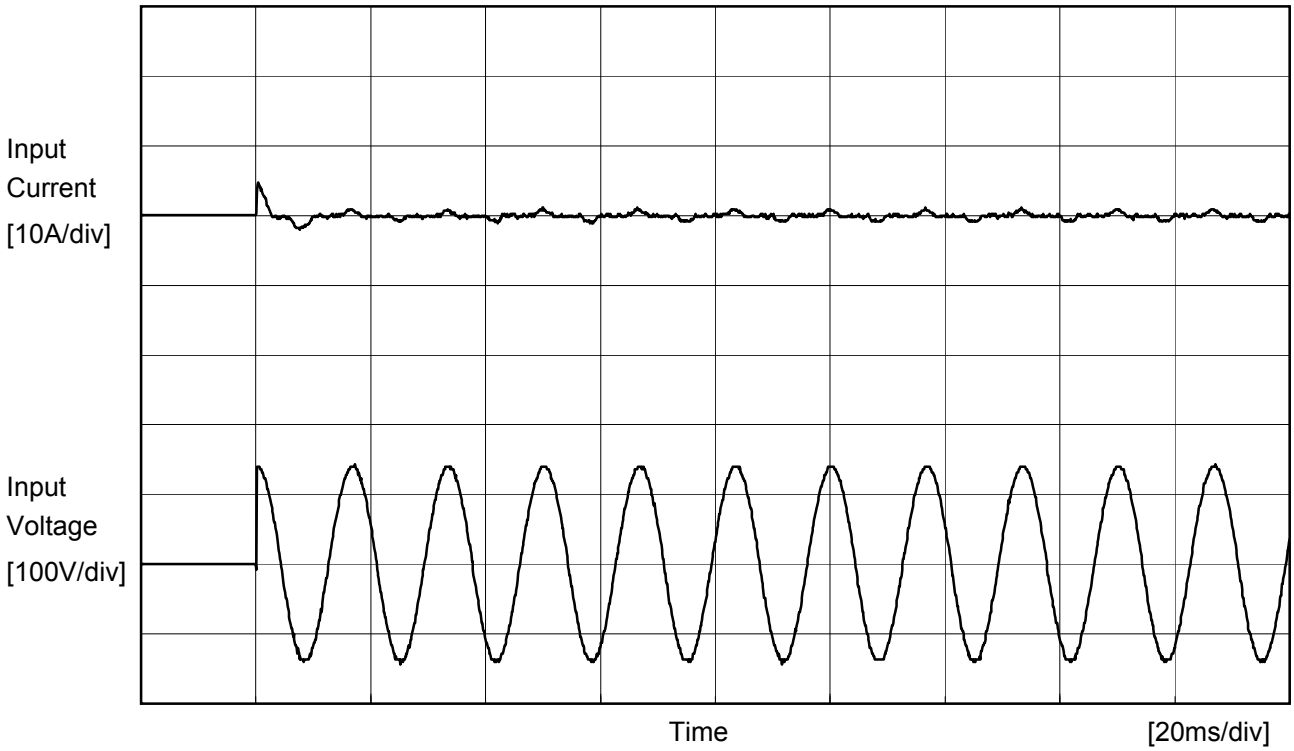
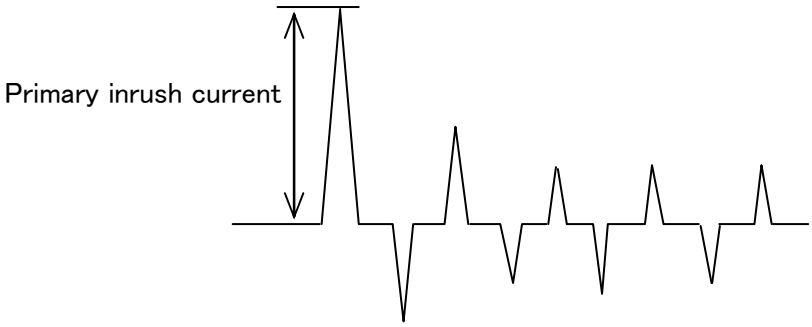
COSEL

Model	G2W-12	Temperature 25°C
Item	Inrush Current	Testing Circuitry Figure A
Object	――――――	



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	4.8 A

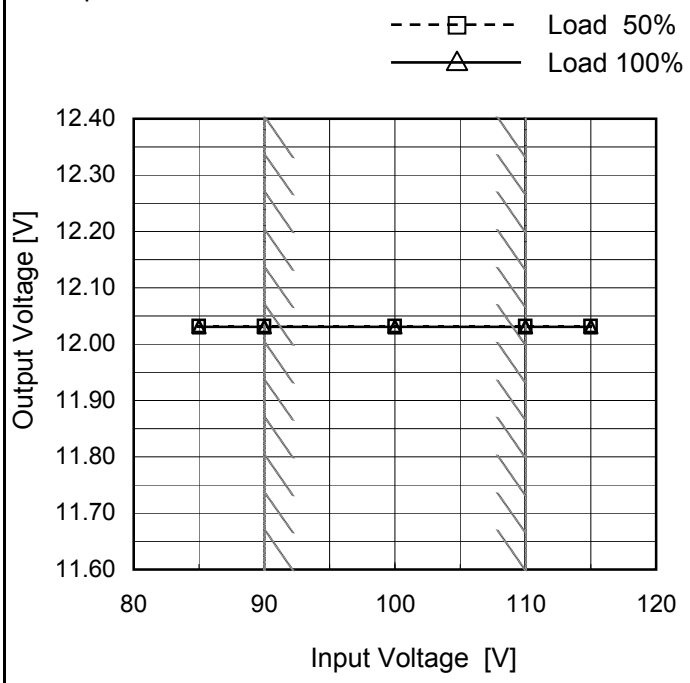


COSEL

Model	G2W-12
Item	Line Regulation
Object	+12V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

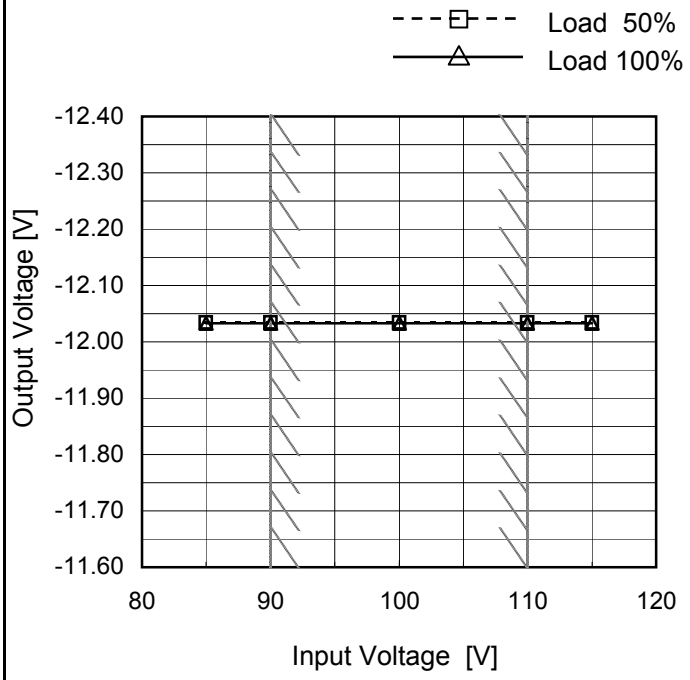


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	12.032	12.031
90	12.032	12.031
100	12.032	12.031
110	12.032	12.031
115	12.032	12.031
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V0.6A

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	-12.034	-12.033
90	-12.034	-12.033
100	-12.034	-12.033
110	-12.034	-12.033
115	-12.034	-12.033
--	-	-
--	-	-
--	-	-
--	-	-

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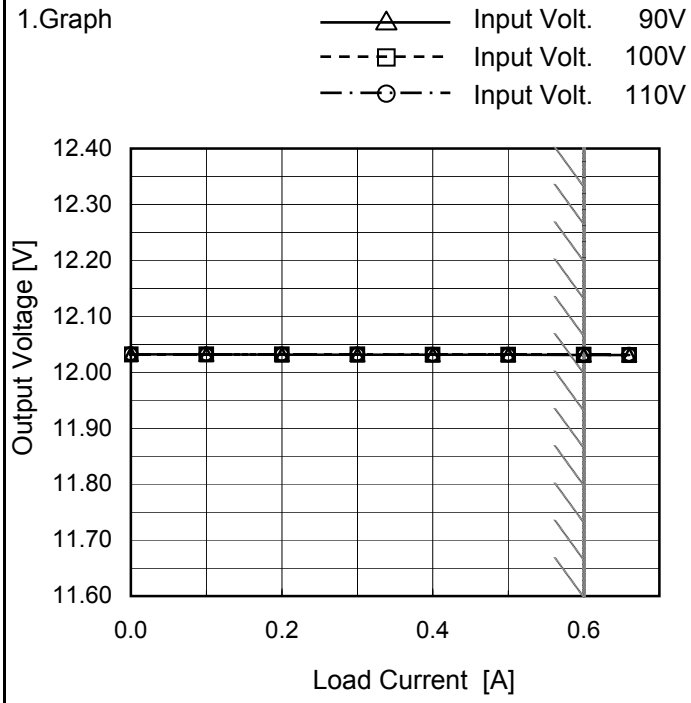
COSEL

Model	G2W-12
Item	Load Regulation
Object	+12V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

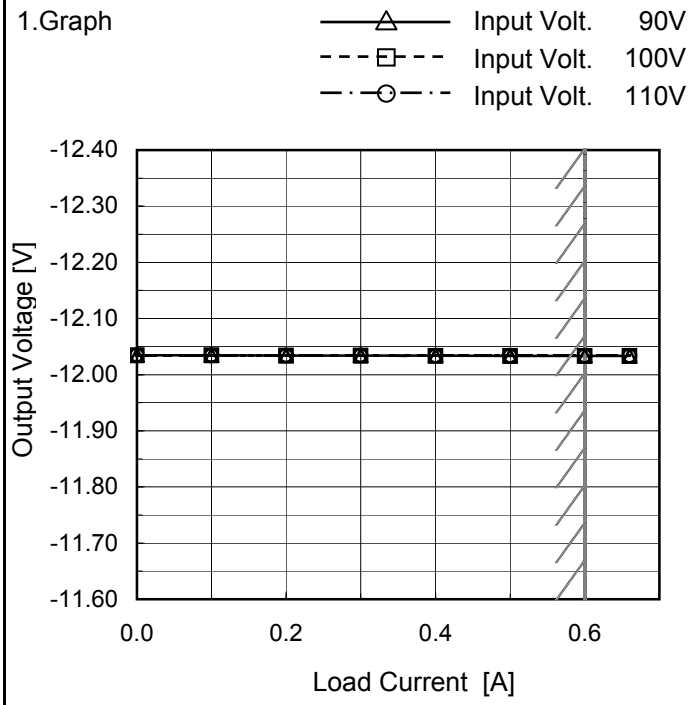


2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	12.032	12.032	12.032
0.10	12.032	12.032	12.032
0.20	12.032	12.032	12.032
0.30	12.031	12.032	12.032
0.40	12.031	12.032	12.032
0.50	12.031	12.031	12.032
0.60	12.031	12.031	12.031
0.66	12.031	12.031	12.031
--	-	-	-
--	-	-	-
--	-	-	-

Object	-12V0.6A

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	-12.035	-12.035	-12.034
0.10	-12.034	-12.034	-12.034
0.20	-12.034	-12.034	-12.034
0.30	-12.034	-12.034	-12.034
0.40	-12.034	-12.034	-12.034
0.50	-12.034	-12.033	-12.033
0.60	-12.033	-12.033	-12.033
0.66	-12.033	-12.033	-12.033
--	-	-	-
--	-	-	-
--	-	-	-

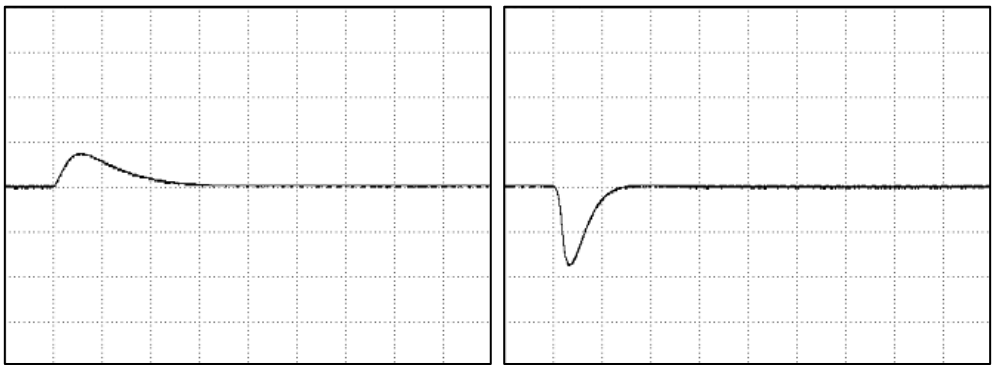
COSEL

Model	G2W-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+12V0.6A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

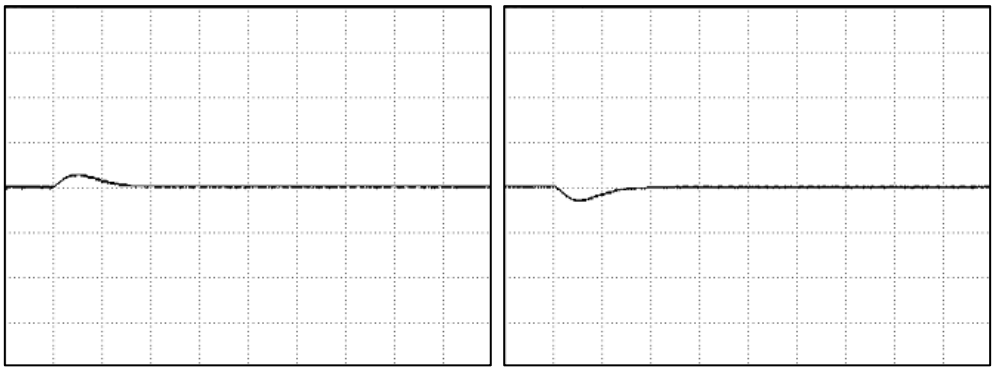
Min. Load (0A) ←→
Load 100% (0.6A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.3A) ←→
Load 100% (0.6A)



50 mV/div

100 μs/div 100 μs/div

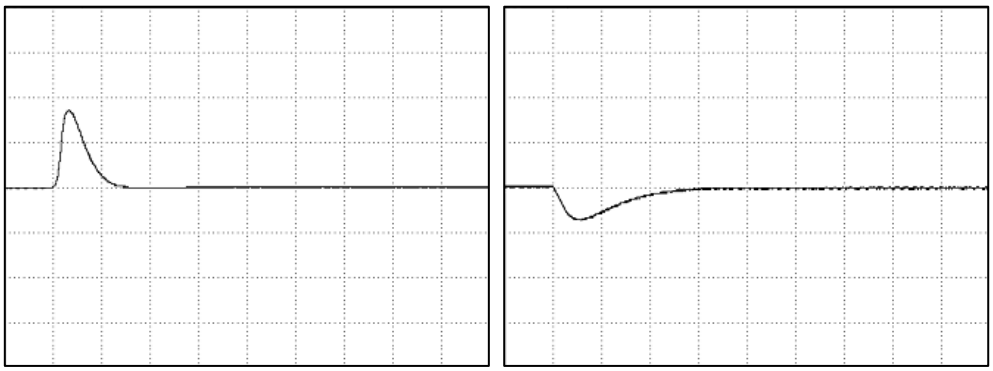
COSEL

Model	G2W-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	-12V0.6A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

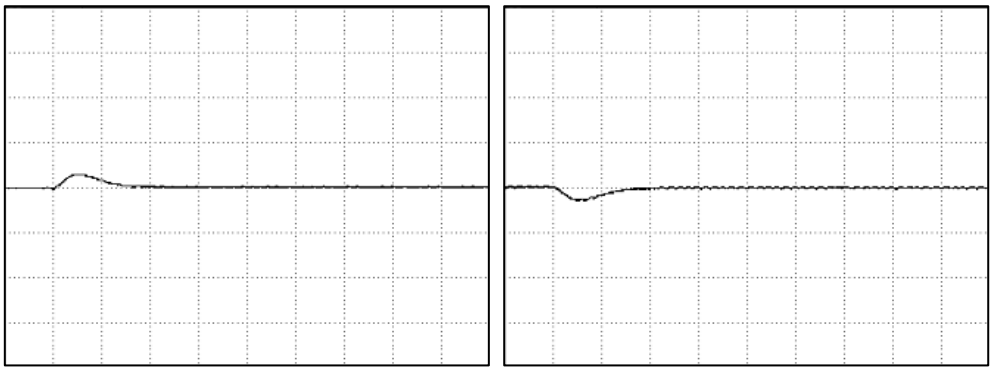
Min. Load (0A) ←→
Load 100% (0.6A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.3A) ←→
Load 100% (0.6A)



50 mV/div

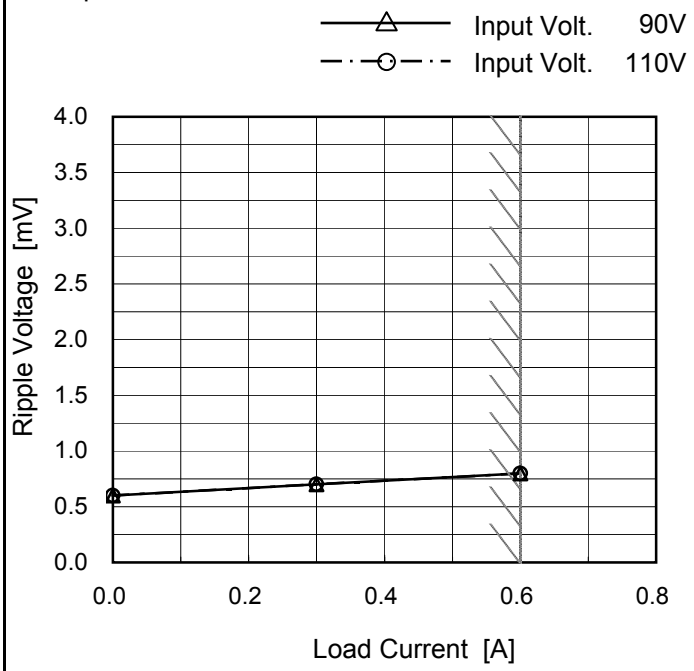
100 μs/div 100 μs/div

COSEL

Model	G2W-12
Item	Ripple Voltage (by Load Current)
Object	+12V0.6A

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	0.6	0.6
0.3	0.7	0.7
0.6	0.8	0.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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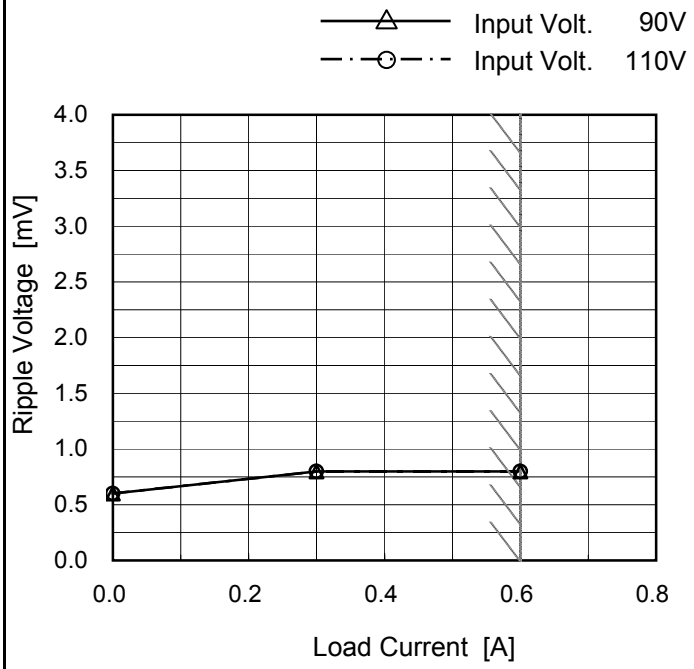
COSEL

Model	G2W-12
Item	Ripple Voltage (by Load Current)
Object	-12V0.6A

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

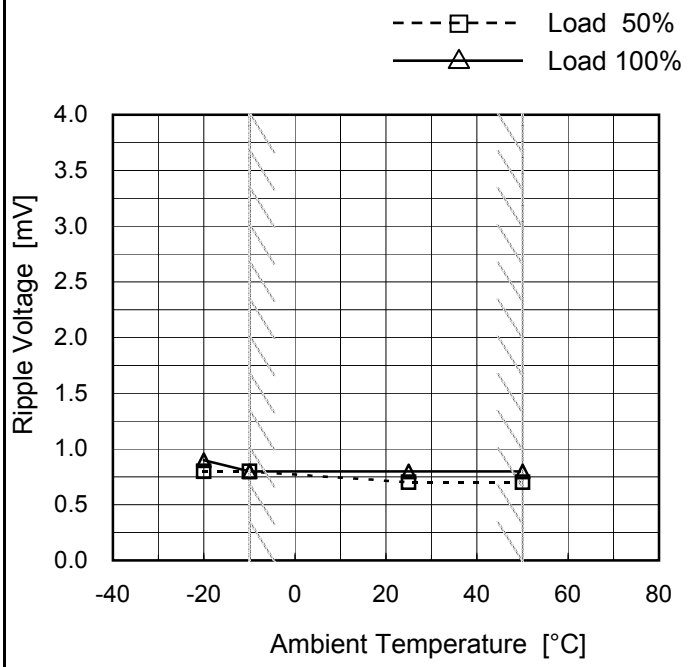
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.0	0.6	0.6
0.3	0.8	0.8
0.6	0.8	0.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G2W-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.6A

Testing Circuitry Figure A

1.Graph



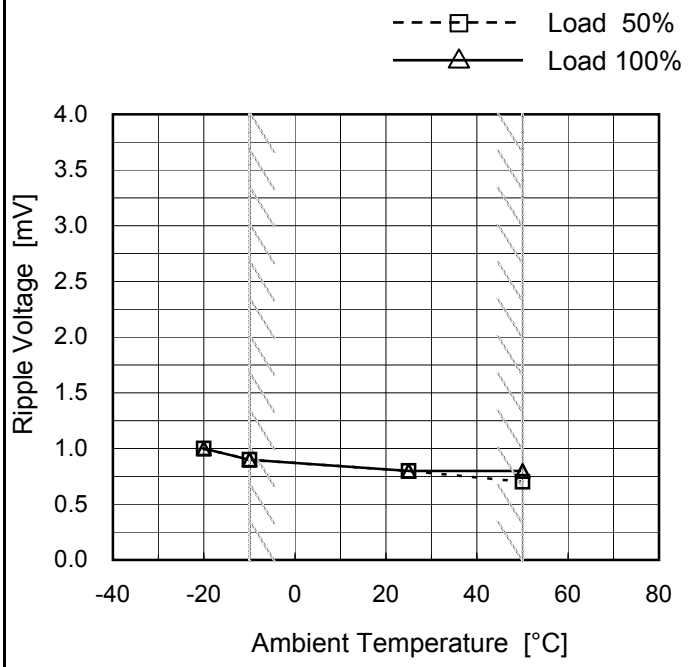
Input Volt. 100V

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	0.8	0.9
-10	0.8	0.8
25	0.7	0.8
50	0.7	0.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V0.6A

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	1.0	1.0
-10	0.9	0.9
25	0.8	0.8
50	0.7	0.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

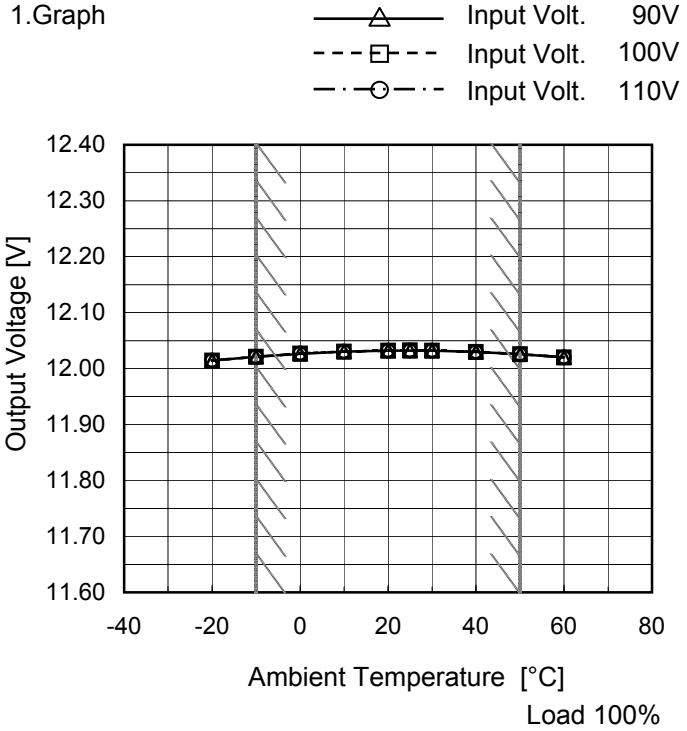
COSEL

Model	G2W-12
Item	Ambient Temperature Drift

Testing Circuitry Figure A

Object +12V0.6A

1.Graph

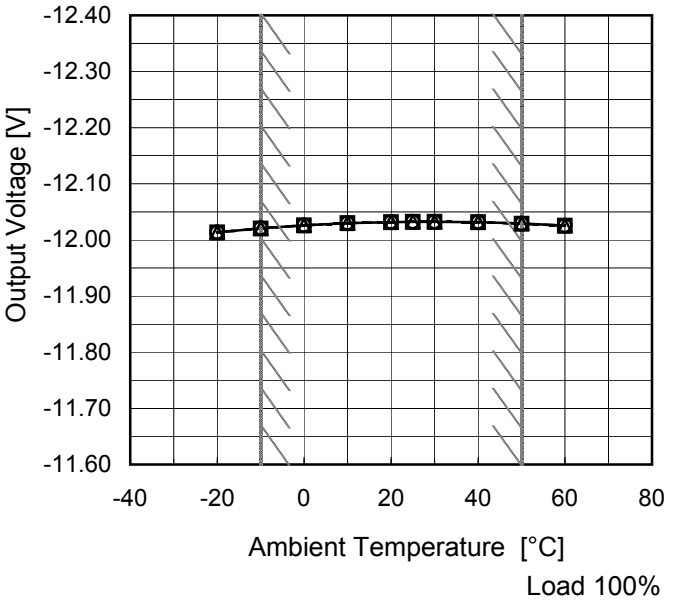


2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	12.014	12.014	12.014
-10	12.021	12.021	12.021
0	12.027	12.027	12.027
10	12.030	12.030	12.030
20	12.032	12.032	12.032
25	12.032	12.032	12.032
30	12.032	12.032	12.032
40	12.030	12.030	12.030
50	12.026	12.026	12.026
60	12.020	12.020	12.020
--	-	-	-

Object -12V0.6A

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	-12.013	-12.013	-12.013
-10	-12.021	-12.021	-12.021
0	-12.026	-12.026	-12.026
10	-12.030	-12.030	-12.030
20	-12.032	-12.032	-12.032
25	-12.032	-12.032	-12.032
30	-12.032	-12.032	-12.032
40	-12.031	-12.032	-12.031
50	-12.029	-12.029	-12.029
60	-12.026	-12.026	-12.026
--	-	-	-

COSEL

Model	G2W-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 - 0.6A (AVR 2) : 0 - 0.6A

* 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	+12V0.6A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	110	0	12.034	±7	±0.1
Minimum Voltage	-10	90	0.6	12.021		

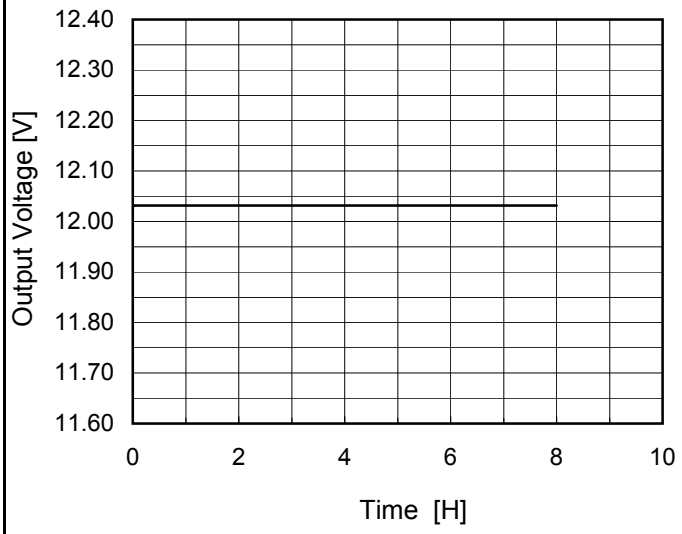
Object	-12V0.6A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	30	100	0	-12.034	±7	±0.1
Minimum Voltage	-10	90	0.6	-12.020		

COSEL

Model	G2W-12
Item	Time Lapse Drift
Object	+12V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



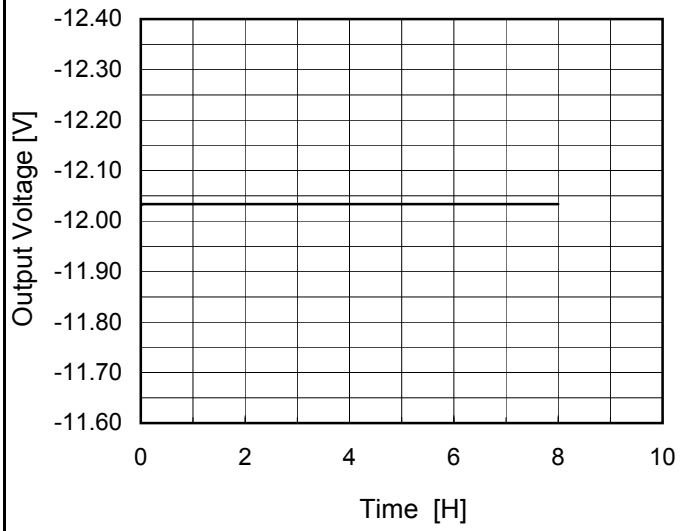
Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.031
0.5	12.032
1.0	12.032
2.0	12.032
3.0	12.032
4.0	12.032
5.0	12.032
6.0	12.032
7.0	12.032
8.0	12.032

Object	-12V0.6A

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

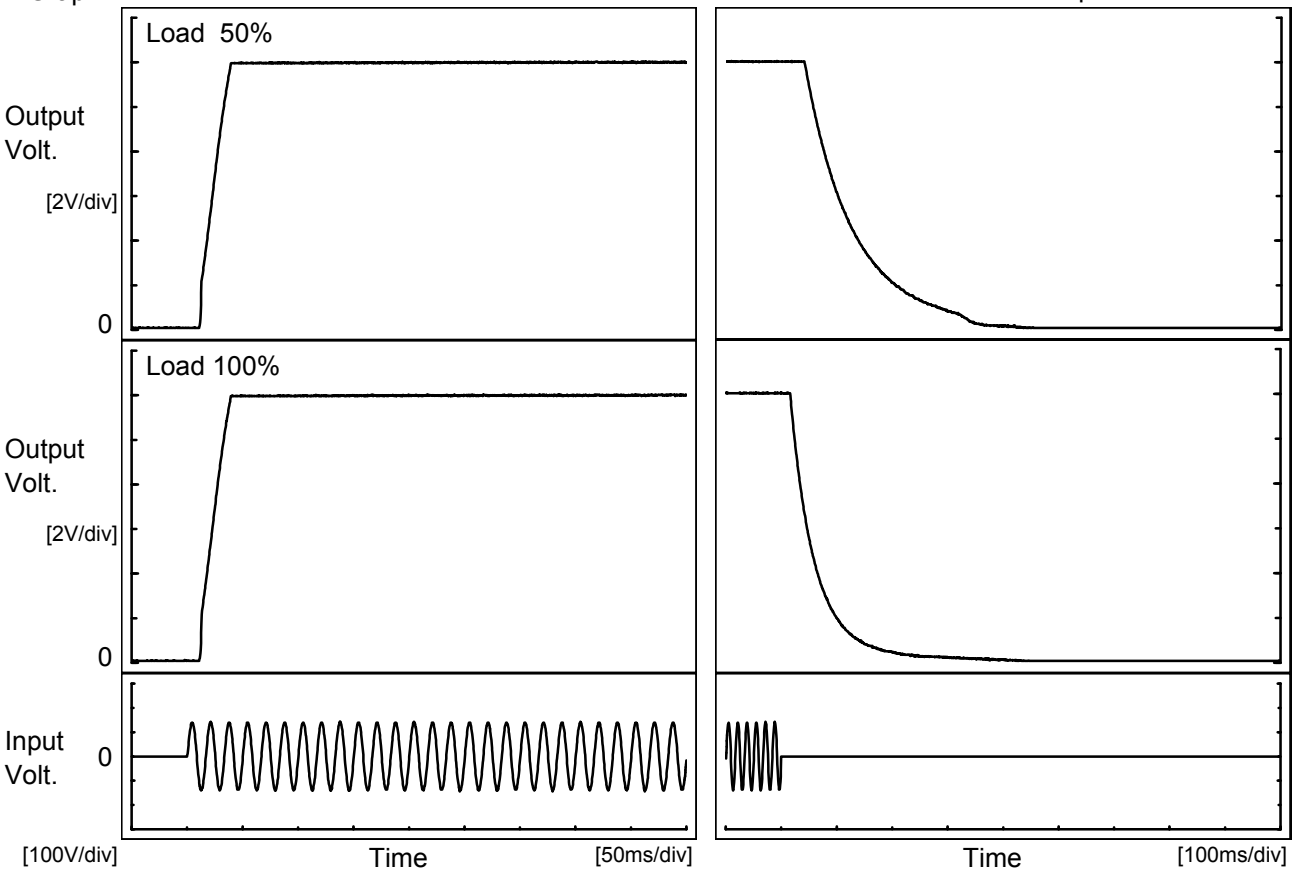
COSEL

Model	G2W-12
Item	Rise and Fall Time
Object	+12V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

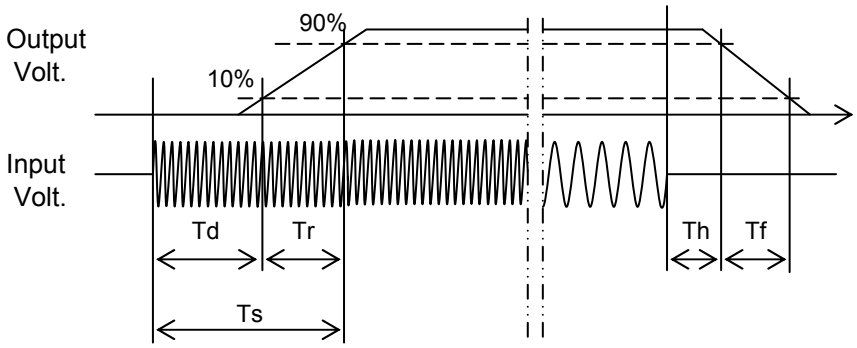
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	12.8	23.3	36.1	49.0	203.5
100 %	12.8	23.3	36.1	20.0	106.0

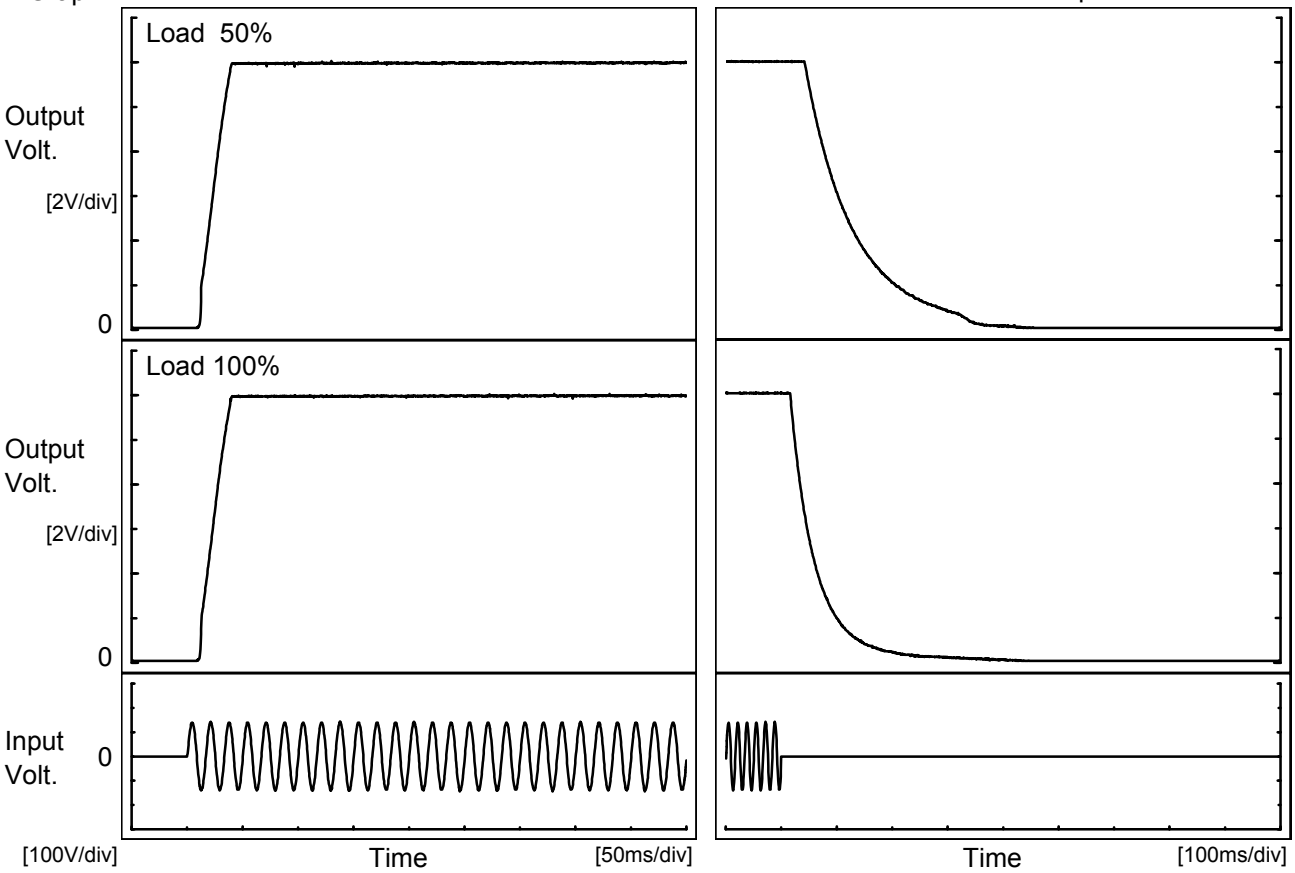


COSEL

Model	G2W-12	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-12V0.6A	

1.Graph

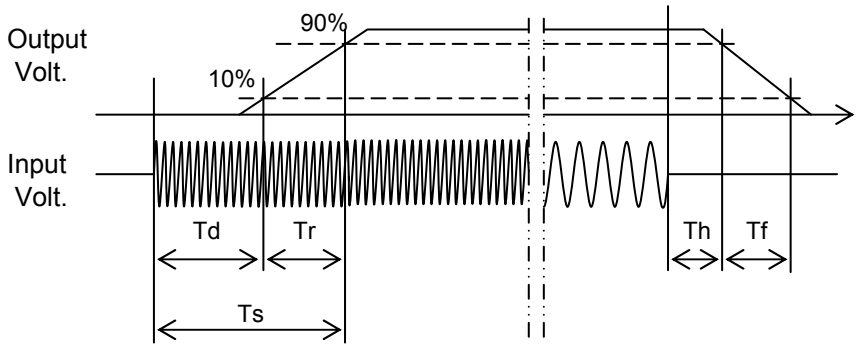
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	12.8	23.8	36.6	48.0	202.0
100 %	12.8	23.8	36.6	19.5	103.5

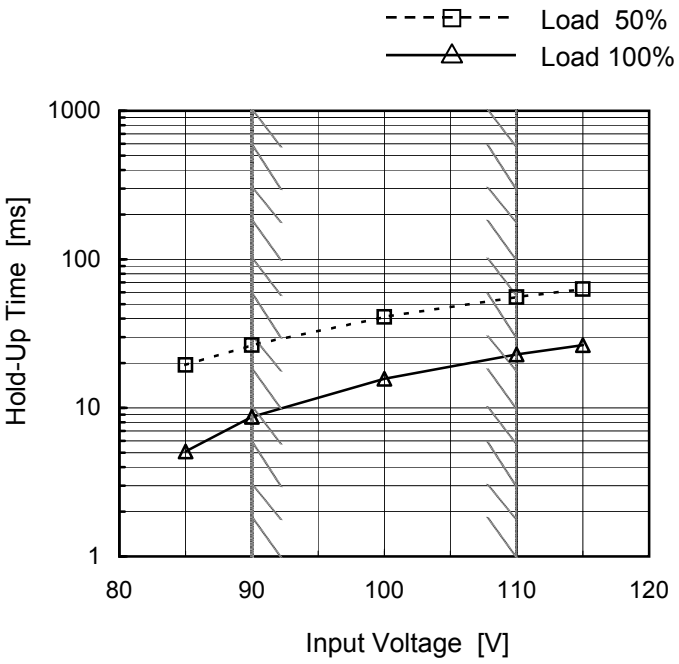


COSEL

Model	G2W-12
Item	Hold-Up Time
Object	+12V0.6A

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	9
100	41	16
110	56	23
115	63	27
--	-	-
--	-	-
--	-	-
--	-	-

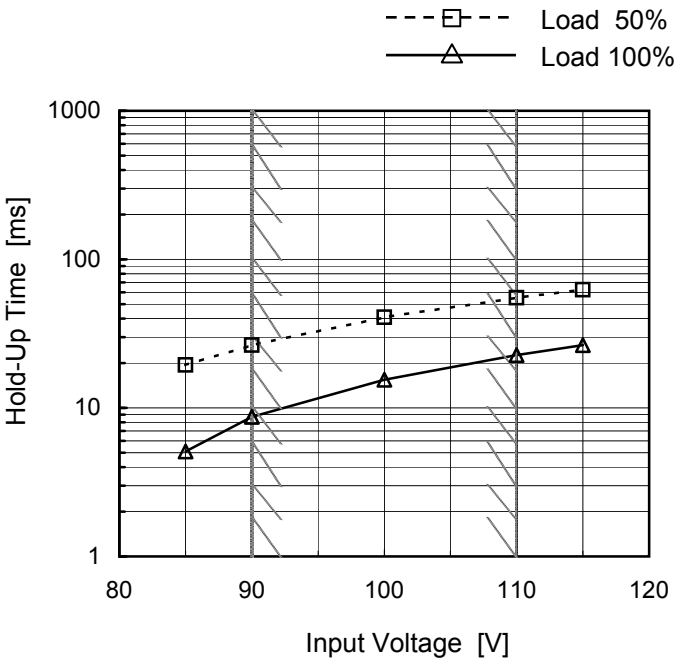
BC-10213

COSEL

Model	G2W-12
Item	Hold-Up Time
Object	-12V0.6A

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	26	9
100	41	16
110	55	23
115	62	26
--	-	-
--	-	-
--	-	-
--	-	-

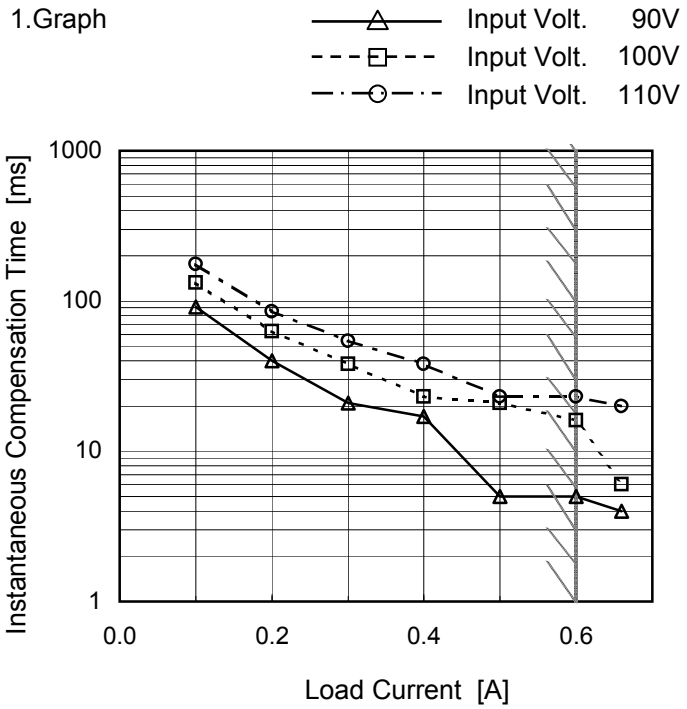
BC-10213

COSEL

Model	G2W-12
Item	Instantaneous Interruption Compensation
Object	+12V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

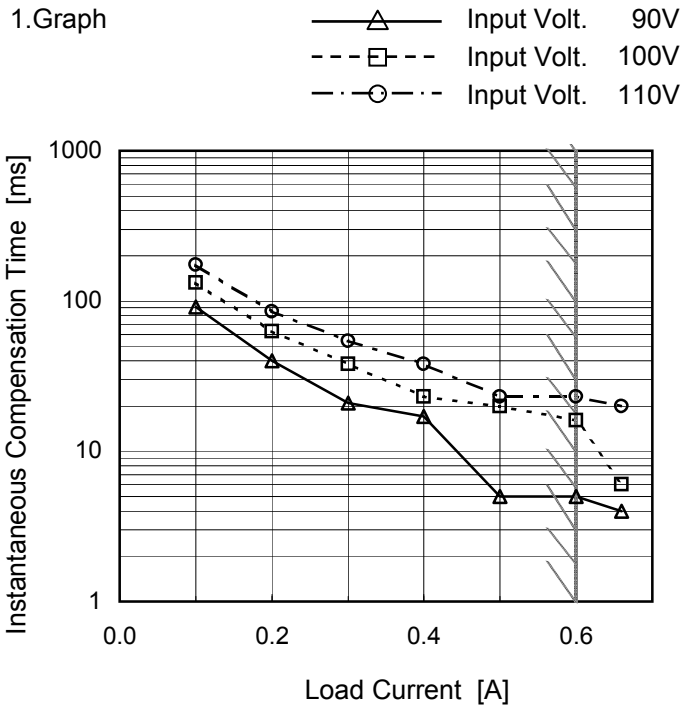
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.10	91	133	176
0.20	40	63	85
0.30	21	38	54
0.40	17	23	38
0.50	5	21	23
0.60	5	16	23
0.66	4	6	20
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	G2W-12
Item	Instantaneous Interruption Compensation
Object	-12V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

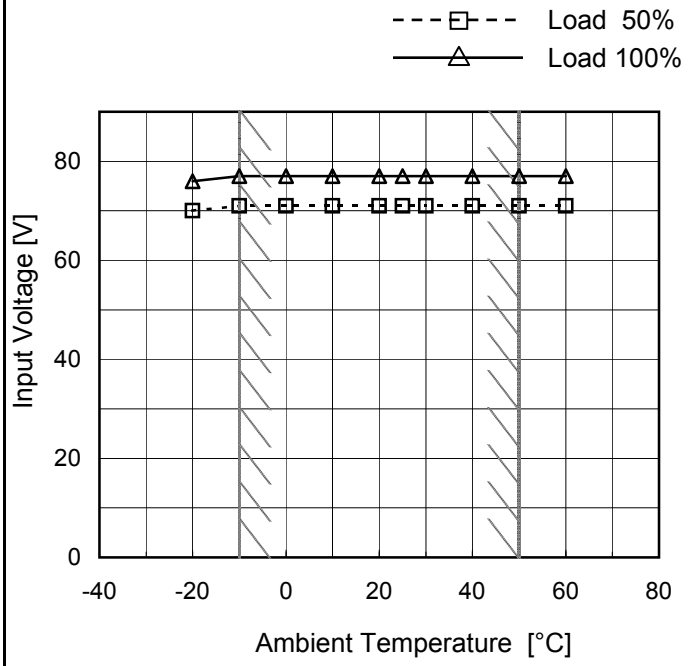
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.10	91	132	174
0.20	40	63	85
0.30	21	38	54
0.40	17	23	38
0.50	5	20	23
0.60	5	16	23
0.66	4	6	20
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	G2W-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.6A

Testing Circuitry Figure A

1.Graph

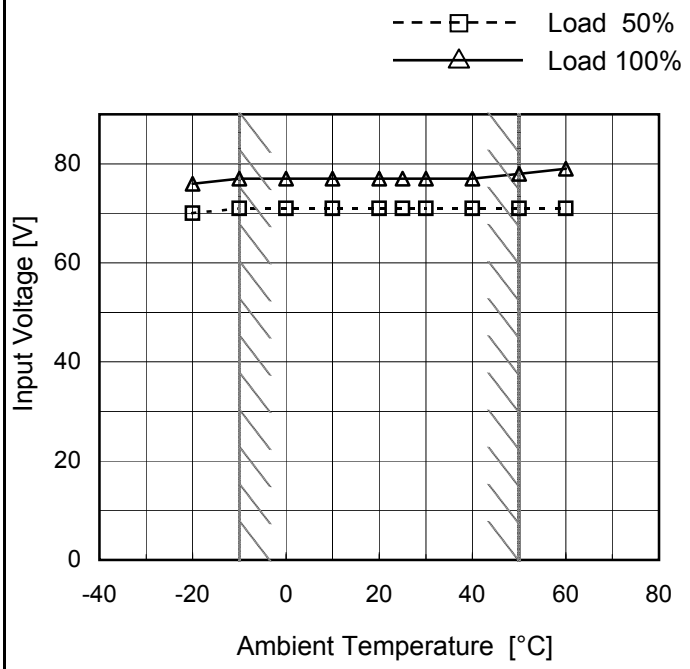


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	70	76
-10	71	77
0	71	77
10	71	77
20	71	77
25	71	77
30	71	77
40	71	77
50	71	77
60	71	77
--	-	-

Object	-12V0.6A

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	70	76
-10	71	77
0	71	77
10	71	77
20	71	77
25	71	77
30	71	77
40	71	77
50	71	78
60	71	79
--	-	-

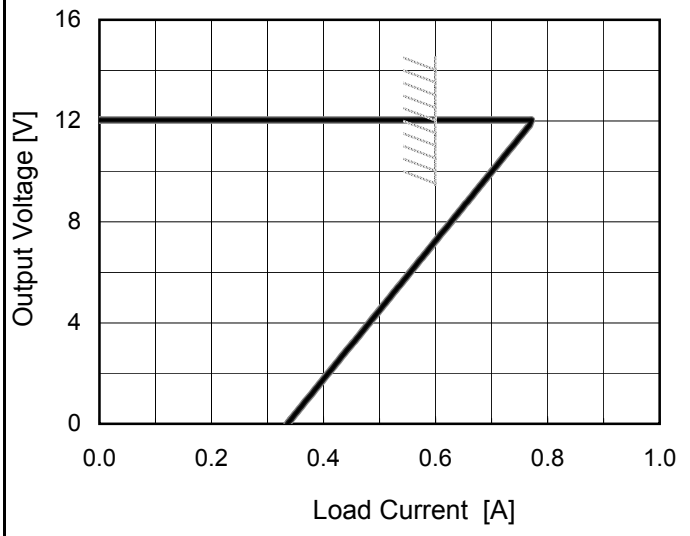
COSEL

Model	G2W-12
Item	Overcurrent Protection

Temperature 25°C
Testing Circuitry Figure A

Object +12V0.6A

1.Graph

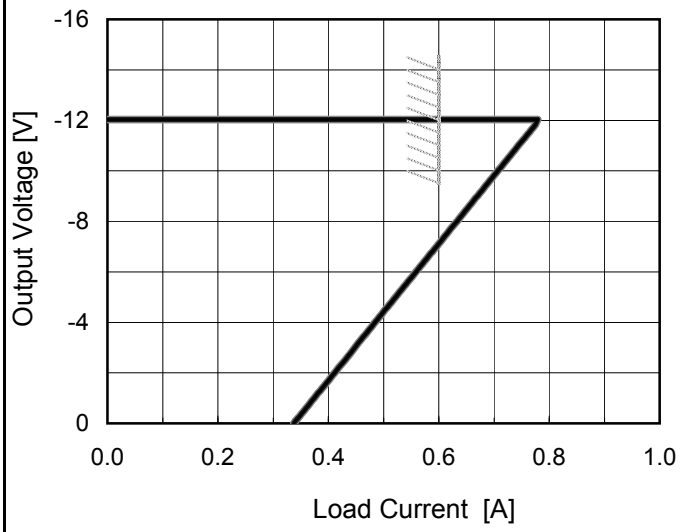


2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
12.0	0.77	0.77	0.77
11.4	0.75	0.75	0.75
10.8	0.73	0.73	0.73
9.6	0.69	0.69	0.69
8.4	0.64	0.64	0.64
7.2	0.60	0.60	0.60
6.0	0.56	0.56	0.56
4.8	0.51	0.51	0.51
3.6	0.47	0.47	0.47
2.4	0.43	0.43	0.43
1.2	0.38	0.38	0.38
0.0	0.33	0.33	0.33

Object -12V0.6A

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	0.78	0.78	0.78
-11.4	0.76	0.76	0.76
-10.8	0.73	0.73	0.73
-9.6	0.69	0.69	0.69
-8.4	0.65	0.65	0.65
-7.2	0.60	0.60	0.60
-6.0	0.56	0.56	0.56
-4.8	0.51	0.51	0.51
-3.6	0.47	0.47	0.47
-2.4	0.43	0.43	0.43
-1.2	0.39	0.39	0.39
0.0	0.34	0.34	0.34

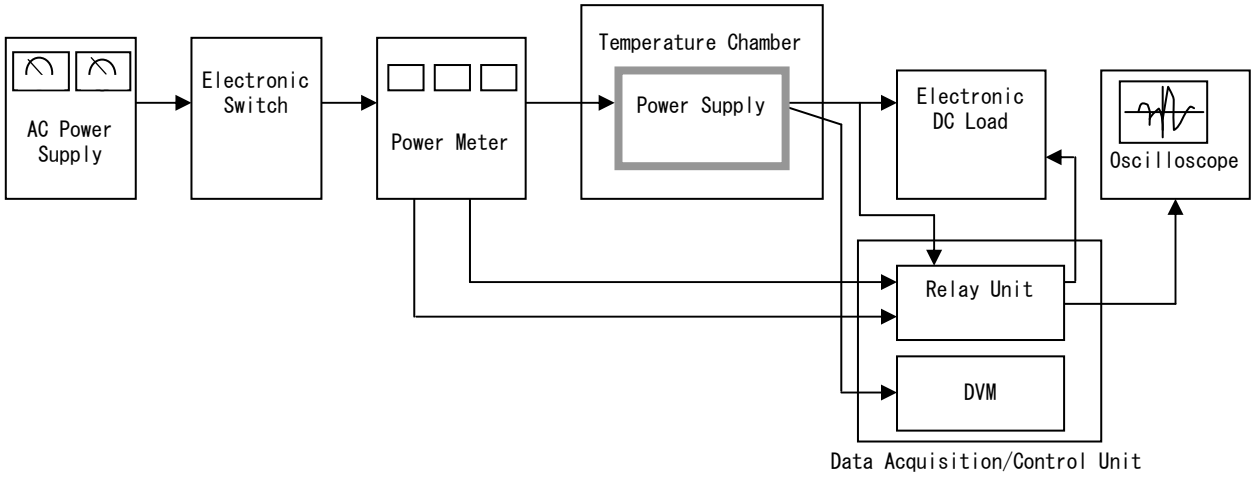

AC Power Supply
Electronic Switch
Power Meter
Temperature Chamber
Power Supply
Electronic DC Load
Oscilloscope
Relay Unit
DVM
Data Acquisition/Control Unit

Figure A