COSEL

参考資料

TEST DATA OF G1W-15

Regulated DC Power Supply
October 13, 2010

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COSEL CO.,LTD.

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CONTENTS

1.Input Current (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 1
2.Input Power (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 2
3.Efficiency (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 3
4.Efficiency (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 4
5.Power Factor (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 5
6.Power Factor (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 6
7.Inrush Current ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 7
8.Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 8
9.Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 9
10.Dynamic Load Response ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 10
11.Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 12
12.Ripple Voltage (by Ambient Temperature) ・・・・・・・・・・・・・・・・・・・・ 14
13.Ambient Temperature Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・ 15
14.Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 16
15.Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 17
16.Rise and Fall Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 18
17.Hold-Up Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 20
18.Instantaneous Interruption Compensation ・・・・・・・・・・・・・・・・・・・・ 22
19.Minimum Input Voltage for Regulated Output Voltage ・・・・・・・・・・・・・・ 24
20.Overcurrent Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 25
21.Figure of Testing Circuitry ・・・・・・・・・・・・・・・・・・・・・・・・・・ 26

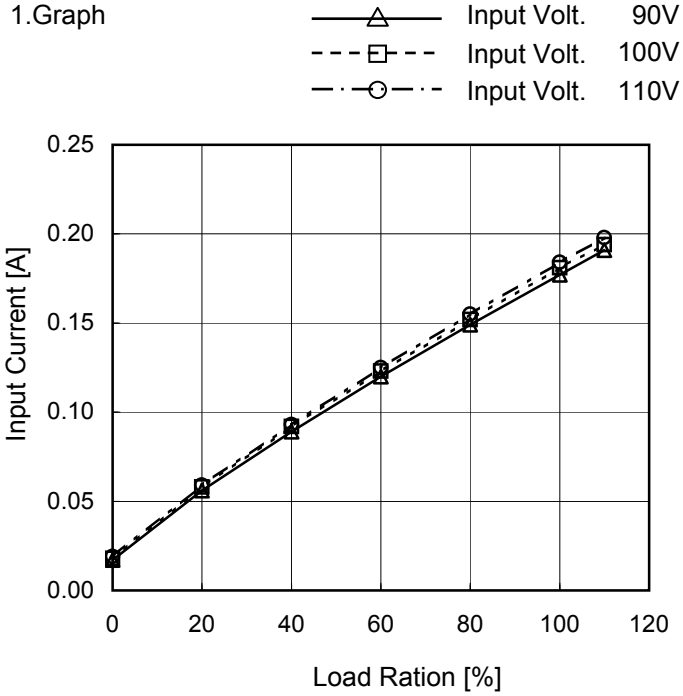
(Final Page 26)

COSEL

Model	G1W-15
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	0.017	0.018	0.019
20	0.056	0.058	0.059
40	0.089	0.092	0.093
60	0.120	0.123	0.125
80	0.149	0.152	0.155
100	0.177	0.181	0.184
110	0.191	0.194	0.198
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

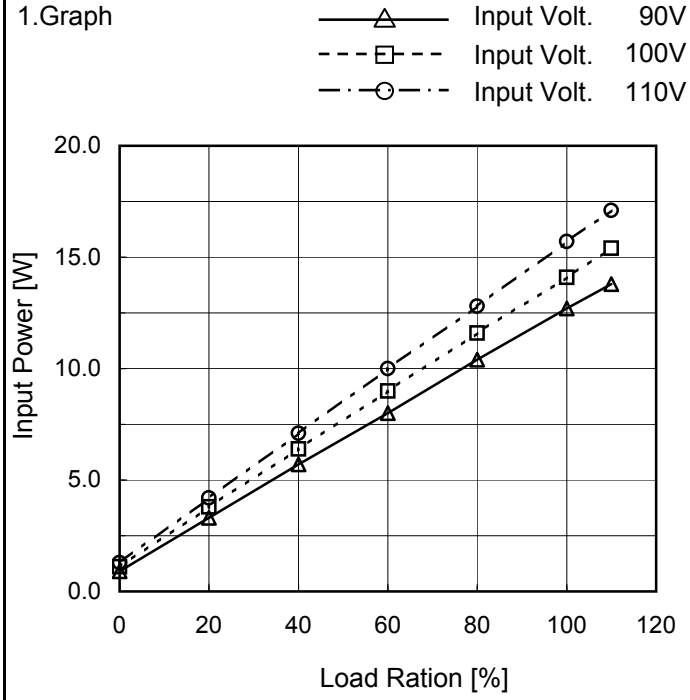
BC-10212

COSEL

Model	G1W-15
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

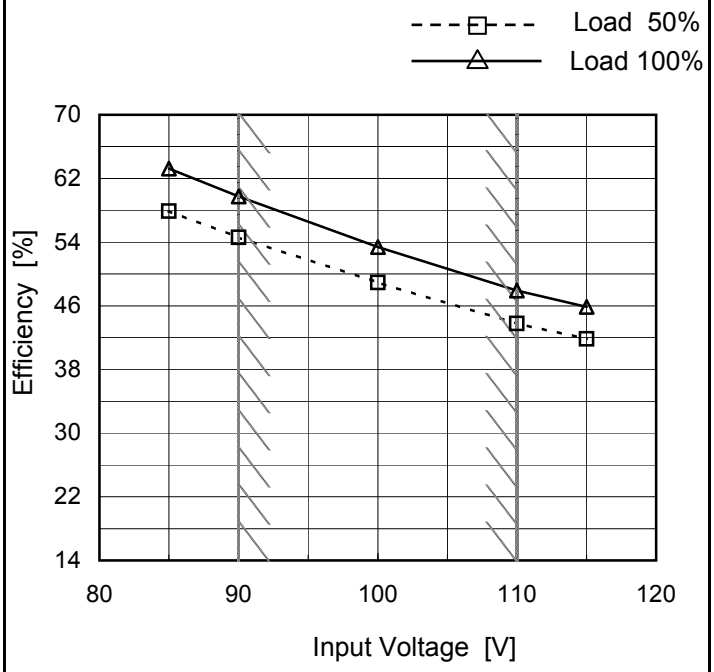
Load Ration [%]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	0.90	1.10	1.30
20	3.30	3.80	4.20
40	5.70	6.40	7.10
60	8.00	9.00	10.00
80	10.40	11.60	12.80
100	12.70	14.10	15.70
110	13.80	15.40	17.10
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	G1W-15
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	57.9	63.2
90	54.6	59.7
100	48.9	53.4
110	43.8	47.9
115	41.8	45.9
--	-	-
--	-	-
--	-	-
--	-	-

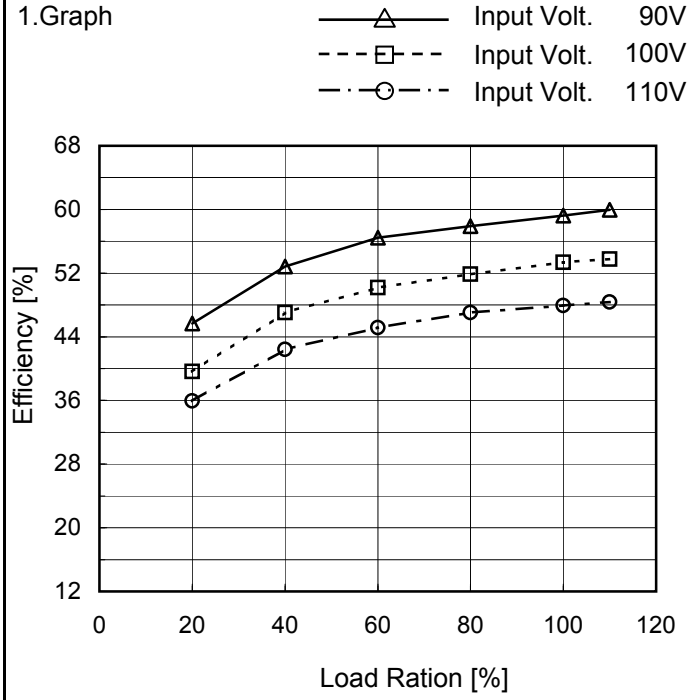
BC-10212

COSEL

Model	G1W-15
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

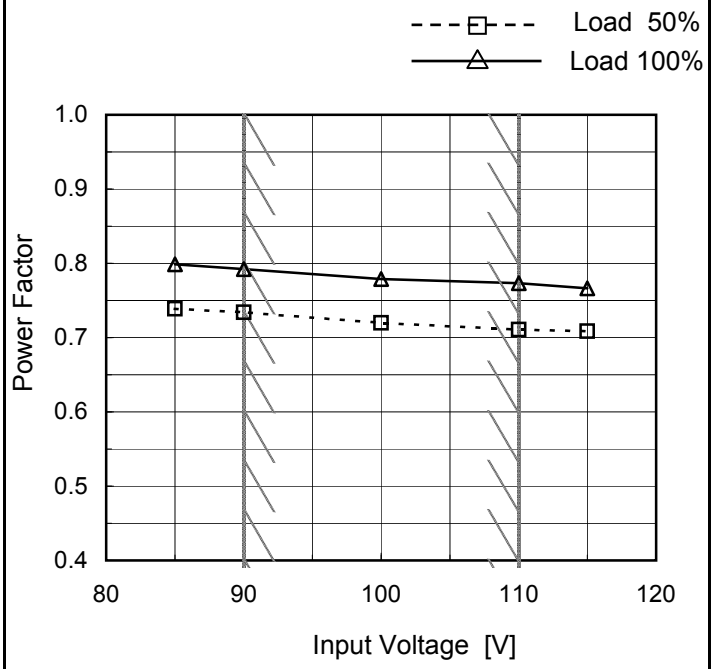
Load Ration [%]	Efficiency [%]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	-	-	-
20	45.7	39.7	35.9
40	52.8	47.0	42.4
60	56.5	50.2	45.1
80	57.9	51.9	47.0
100	59.2	53.4	47.9
110	60.0	53.7	48.4
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	G1W-15
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

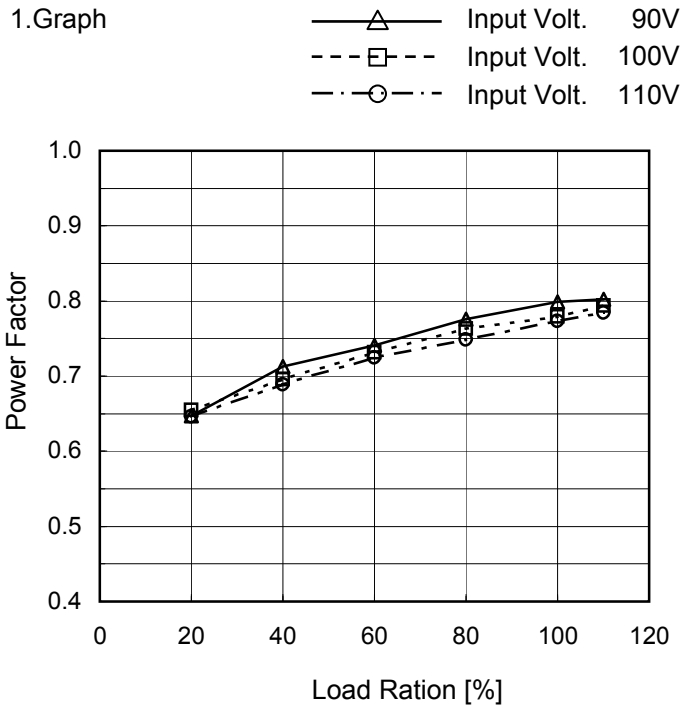
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.739	0.799
90	0.734	0.792
100	0.720	0.779
110	0.711	0.773
115	0.709	0.766
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G1W-15
Item	Power Factor (by Load Current)
Object	――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph

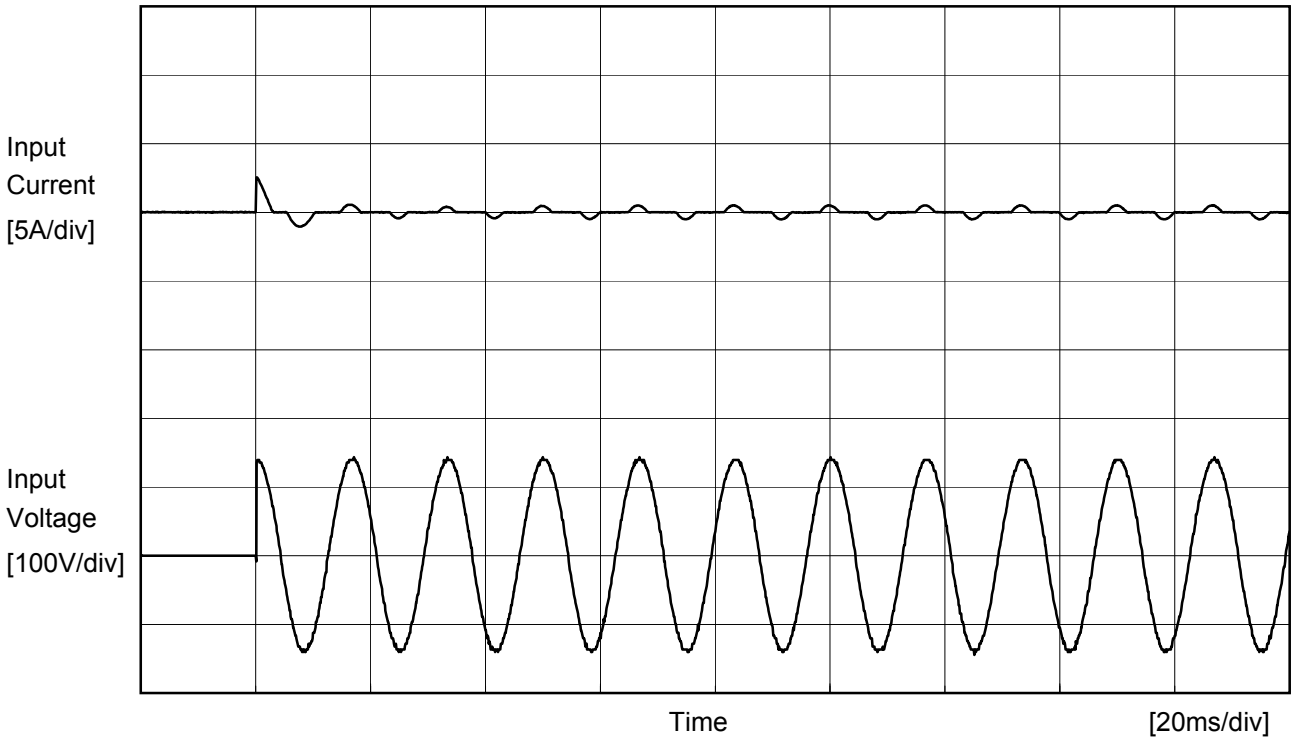


2.Values

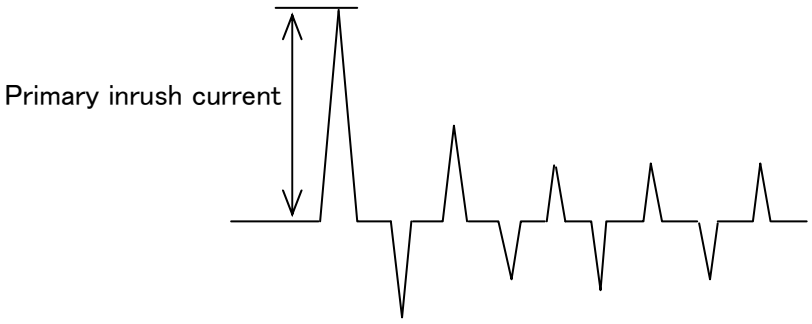
Load Ration [%]	Power Factor		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0	-	-	-
20	0.647	0.655	0.646
40	0.713	0.696	0.689
60	0.741	0.732	0.725
80	0.776	0.763	0.749
100	0.799	0.779	0.773
110	0.802	0.794	0.784
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	G1W-15	Temperature 25°C
Item	Inrush Current	Testing Circuitry Figure A
Object	――――――	



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	2.6 A

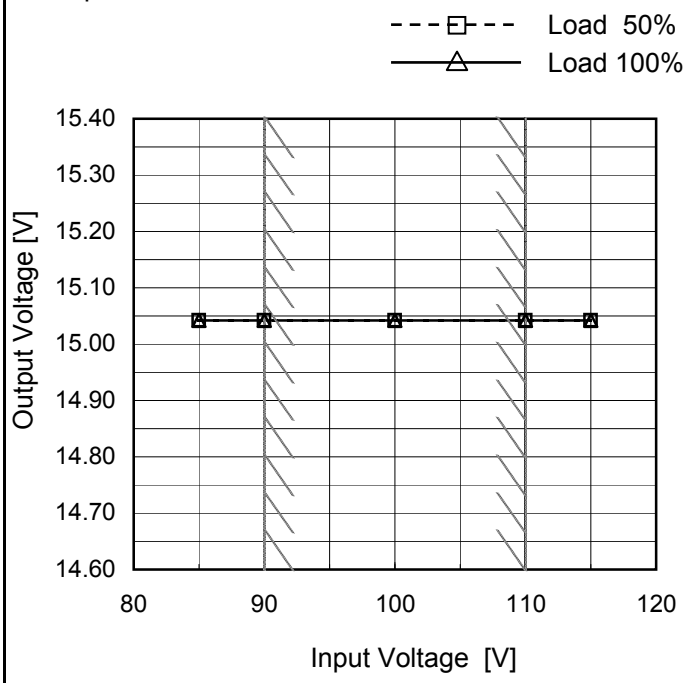


COSEL

Model	G1W-15
Item	Line Regulation
Object	+15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

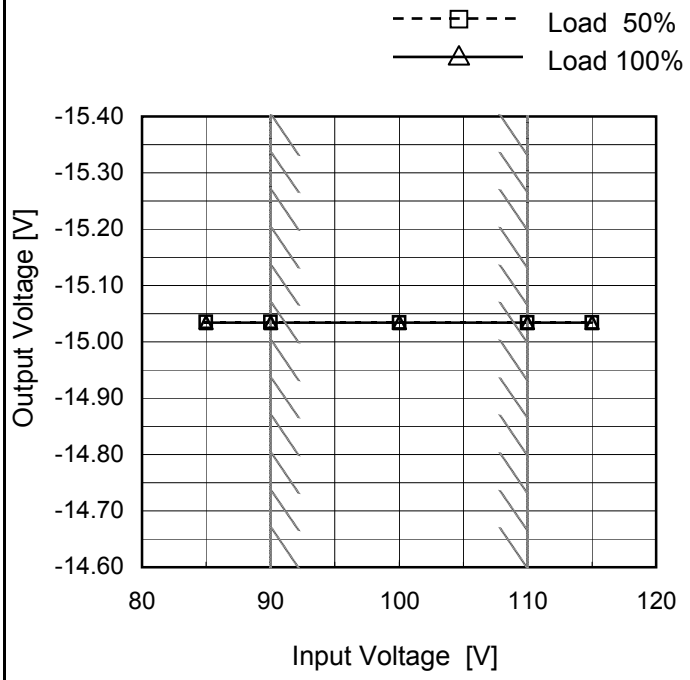


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	15.042	15.042
90	15.042	15.042
100	15.042	15.042
110	15.042	15.042
115	15.042	15.042
--	-	-
--	-	-
--	-	-
--	-	-

Object	-15V0.25A

1.Graph



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

2.Values

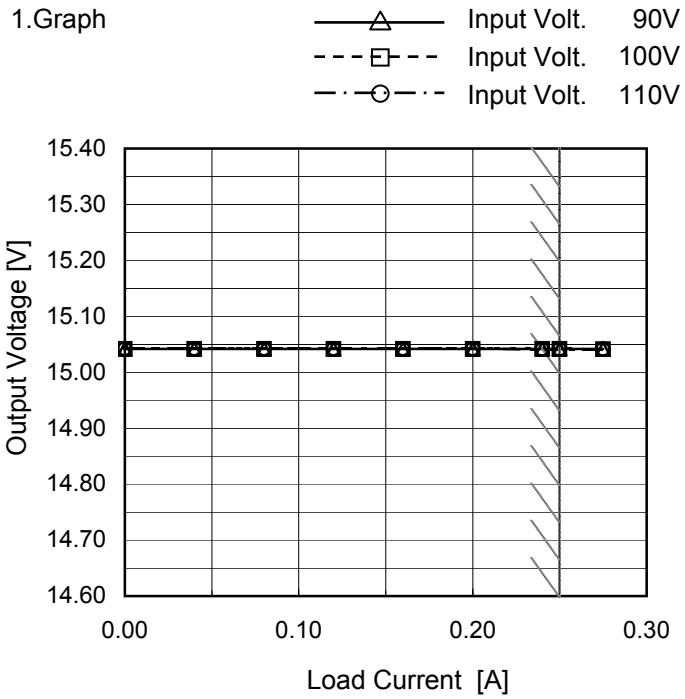
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	-15.035	-15.034
90	-15.035	-15.034
100	-15.035	-15.034
110	-15.035	-15.034
115	-15.035	-15.034
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G1W-15
Item	Load Regulation
Object	+15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

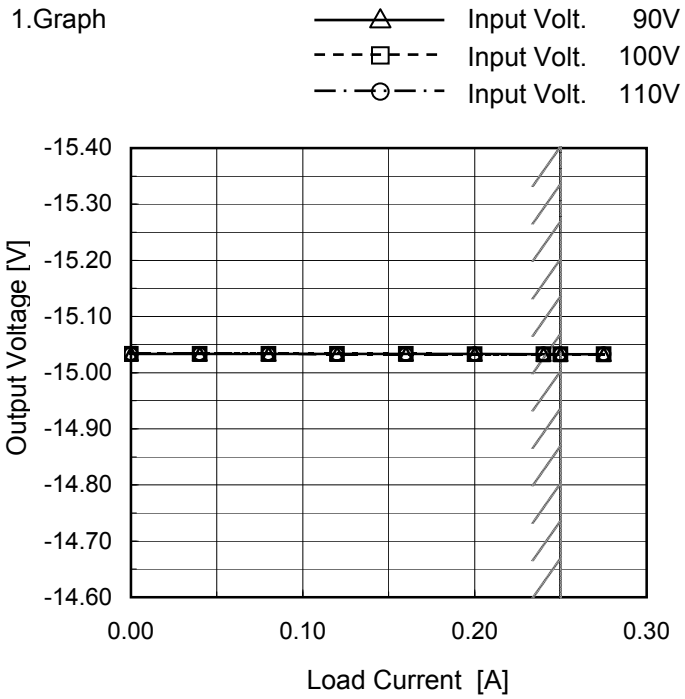


2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.000	15.042	15.042	15.042
0.040	15.042	15.042	15.042
0.080	15.042	15.042	15.042
0.120	15.042	15.042	15.042
0.160	15.042	15.042	15.042
0.200	15.042	15.042	15.042
0.240	15.042	15.042	15.041
0.250	15.042	15.042	15.041
0.275	15.042	15.041	15.041
--	-	-	-
--	-	-	-

Object	-15V0.25A

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]
0.000	-15.033	-15.033	-15.033
0.040	-15.033	-15.033	-15.033
0.080	-15.033	-15.033	-15.033
0.120	-15.033	-15.033	-15.033
0.160	-15.033	-15.033	-15.033
0.200	-15.033	-15.033	-15.033
0.240	-15.033	-15.033	-15.033
0.250	-15.033	-15.033	-15.033
0.275	-15.033	-15.033	-15.033
--	-	-	-
--	-	-	-

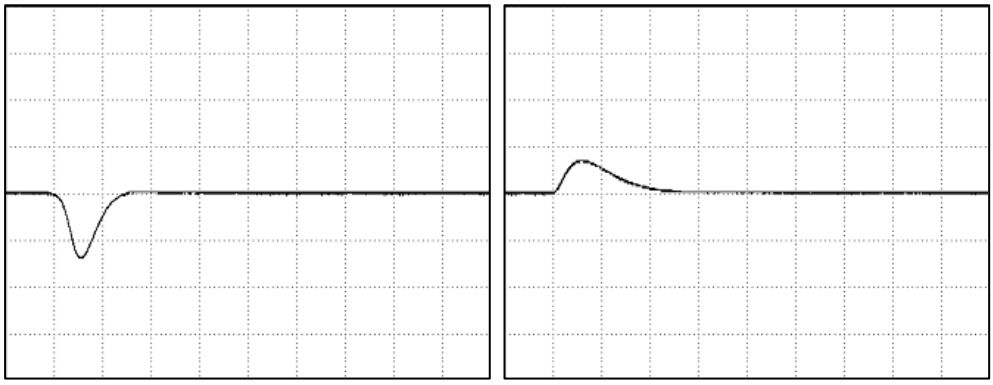
COSEL

Model	G1W-15	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+15V0.25A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

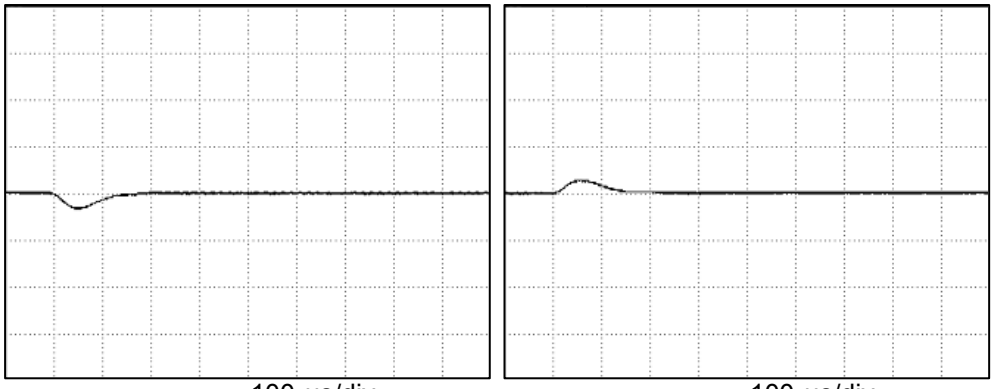
Min. Load (0A) ←→
Load 100% (0.25A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.125A) ←→
Load 100% (0.25A)



50 mV/div

100 μs/div 100 μs/div

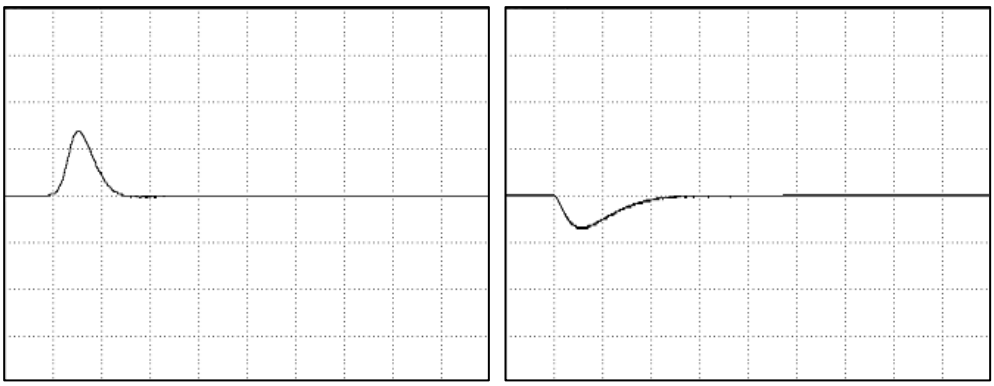
COSEL

Model	G1W-15	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-15V0.25A		

Input Volt. 100 V
Cycle 1000 ms

Load Current

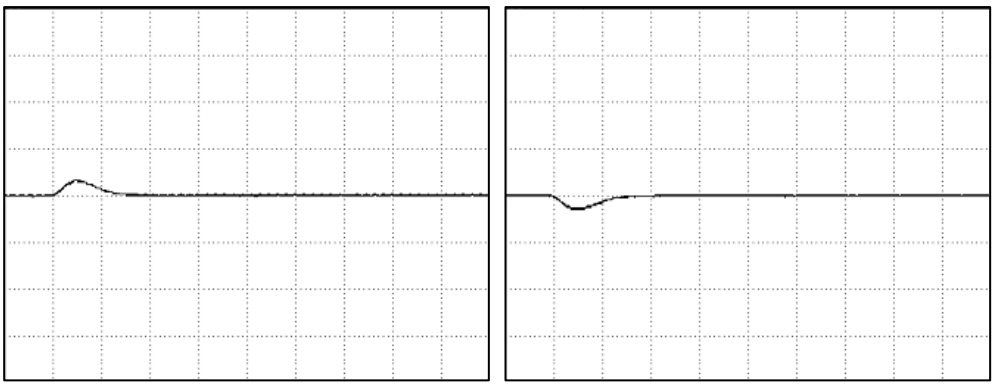
Min. Load (0A) ←→
Load 100% (0.25A)



50 mV/div

100 μs/div 100 μs/div

Load 50% (0.125A) ←→
Load 100% (0.25A)



50 mV/div

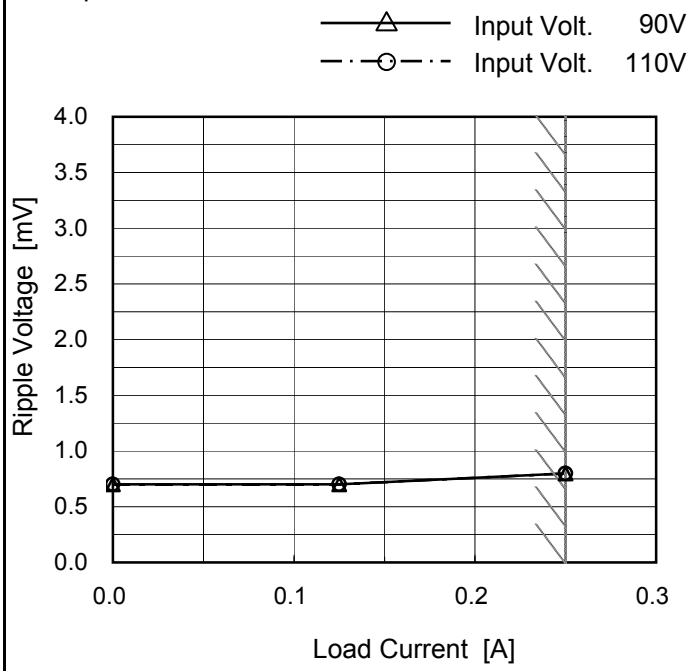
100 μs/div 100 μs/div

COSEL

Model	G1W-15
Item	Ripple Voltage (by Load Current)
Object	+15V0.25A

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

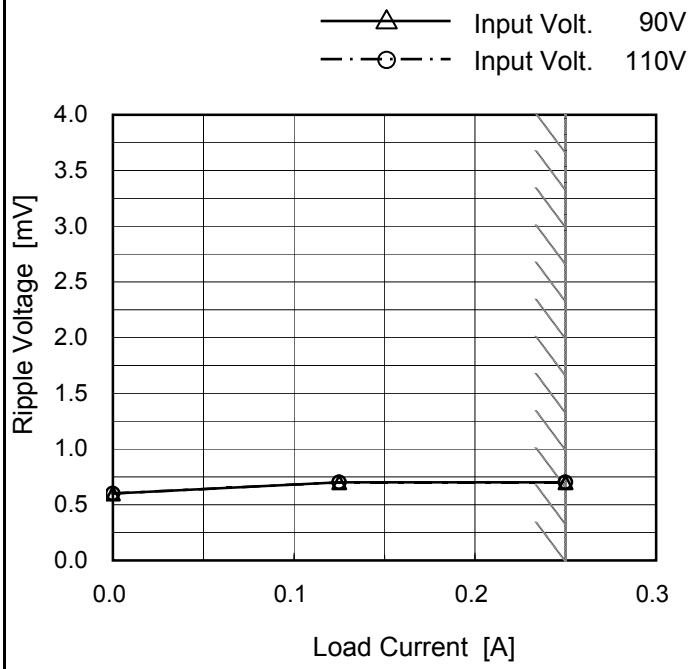
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.000	0.7	0.7
0.125	0.7	0.7
0.250	0.8	0.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G1W-15
Item	Ripple Voltage (by Load Current)
Object	-15V0.25A

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

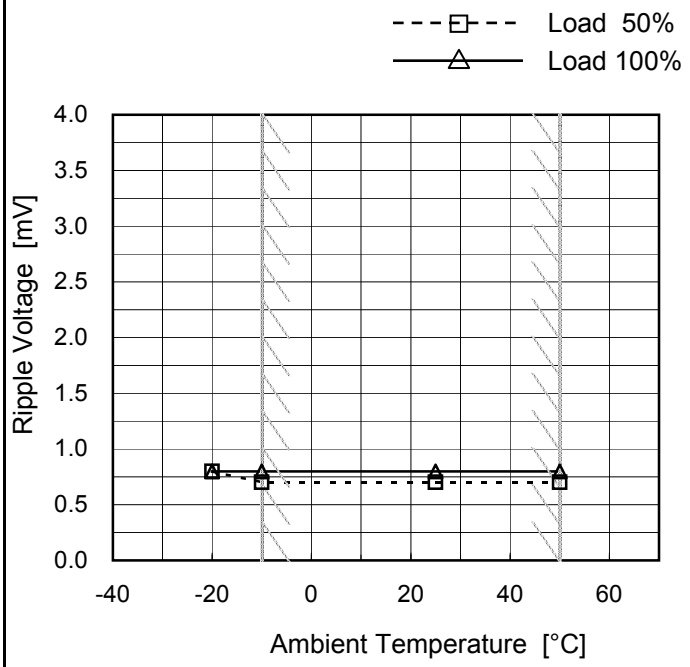
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.000	0.6	0.6
0.125	0.7	0.7
0.250	0.7	0.7
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G1W-15
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.25A

Testing Circuitry Figure A

1.Graph



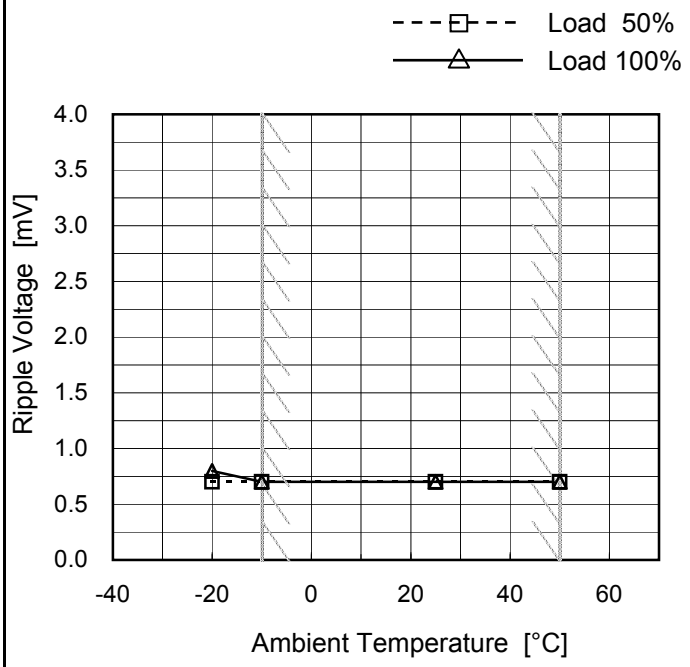
Input Volt. 100V

2.Values

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

Object	-15V0.25A

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	0.7	0.8
-10	0.7	0.7
25	0.7	0.7
50	0.7	0.7
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

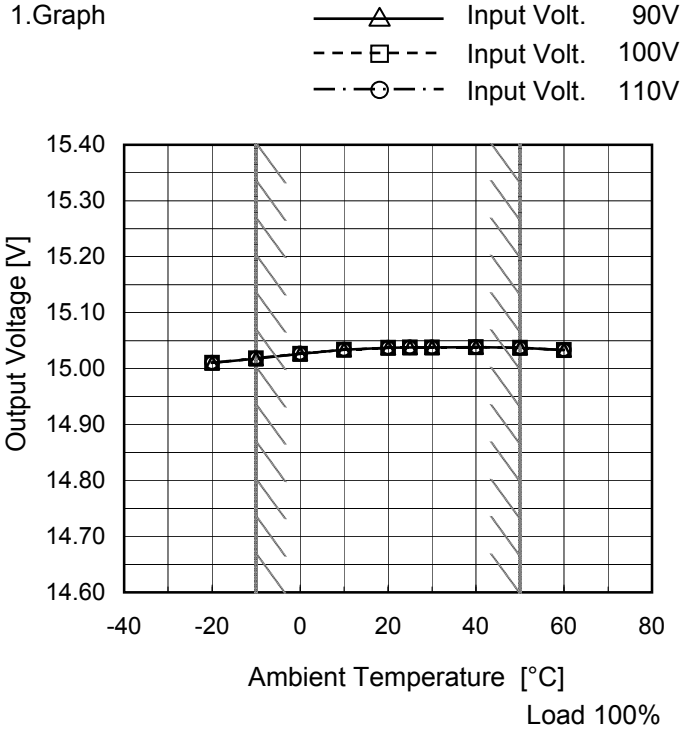
COSEL

Model	G1W-15
Item	Ambient Temperature Drift

Testing Circuitry Figure A

Object +15V0.25A

1.Graph

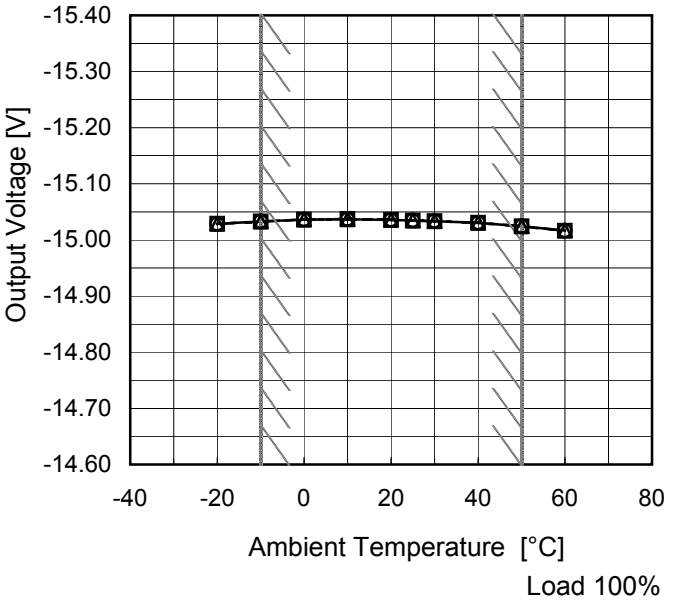


2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	15.010	15.010	15.011
-10	15.018	15.018	15.018
0	15.027	15.027	15.027
10	15.034	15.034	15.034
20	15.037	15.037	15.037
25	15.038	15.038	15.038
30	15.038	15.038	15.038
40	15.039	15.039	15.039
50	15.037	15.037	15.037
60	15.033	15.033	15.033
--	-	-	-

Object -15V0.25A

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	-15.029	-15.029	-15.029
-10	-15.033	-15.033	-15.033
0	-15.036	-15.036	-15.036
10	-15.037	-15.037	-15.037
20	-15.036	-15.036	-15.036
25	-15.035	-15.035	-15.034
30	-15.034	-15.034	-15.034
40	-15.031	-15.031	-15.030
50	-15.024	-15.024	-15.024
60	-15.017	-15.017	-15.017
--	-	-	-

COSEL

Model	G1W-15	
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 - 0.25A (AVR 2) : 0 - 0.25A

* 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	+15V0.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	90	0	15.039	±11	±0.1
Minimum Voltage	-10	90	0	15.017		

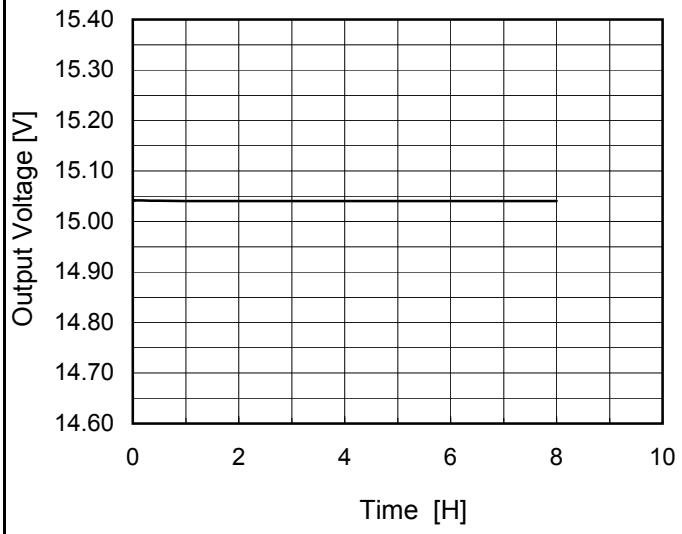
Object	-15V0.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	10	100	0	-15.038	±7	±0.1
Minimum Voltage	50	110	0.25	-15.024		

COSEL

Model	G1W-15
Item	Time Lapse Drift
Object	+15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



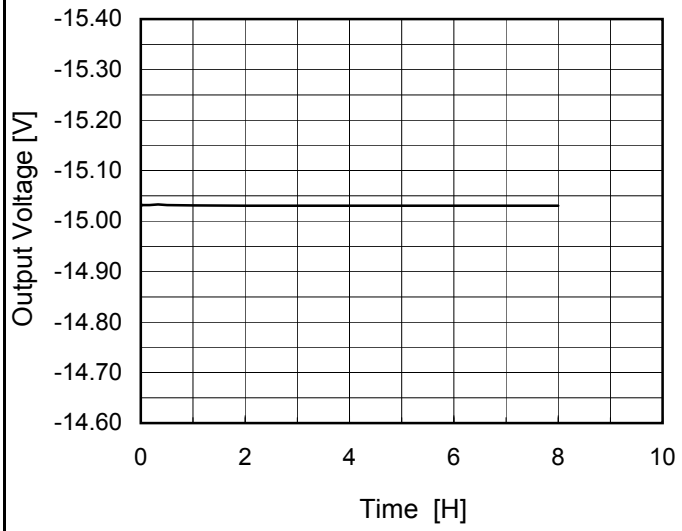
Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	15.041
0.5	15.041
1.0	15.041
2.0	15.041
3.0	15.041
4.0	15.041
5.0	15.041
6.0	15.041
7.0	15.041
8.0	15.041

Object	-15V0.25A

1.Graph



Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-15.033
0.5	-15.032
1.0	-15.031
2.0	-15.031
3.0	-15.031
4.0	-15.031
5.0	-15.031
6.0	-15.031
7.0	-15.031
8.0	-15.031

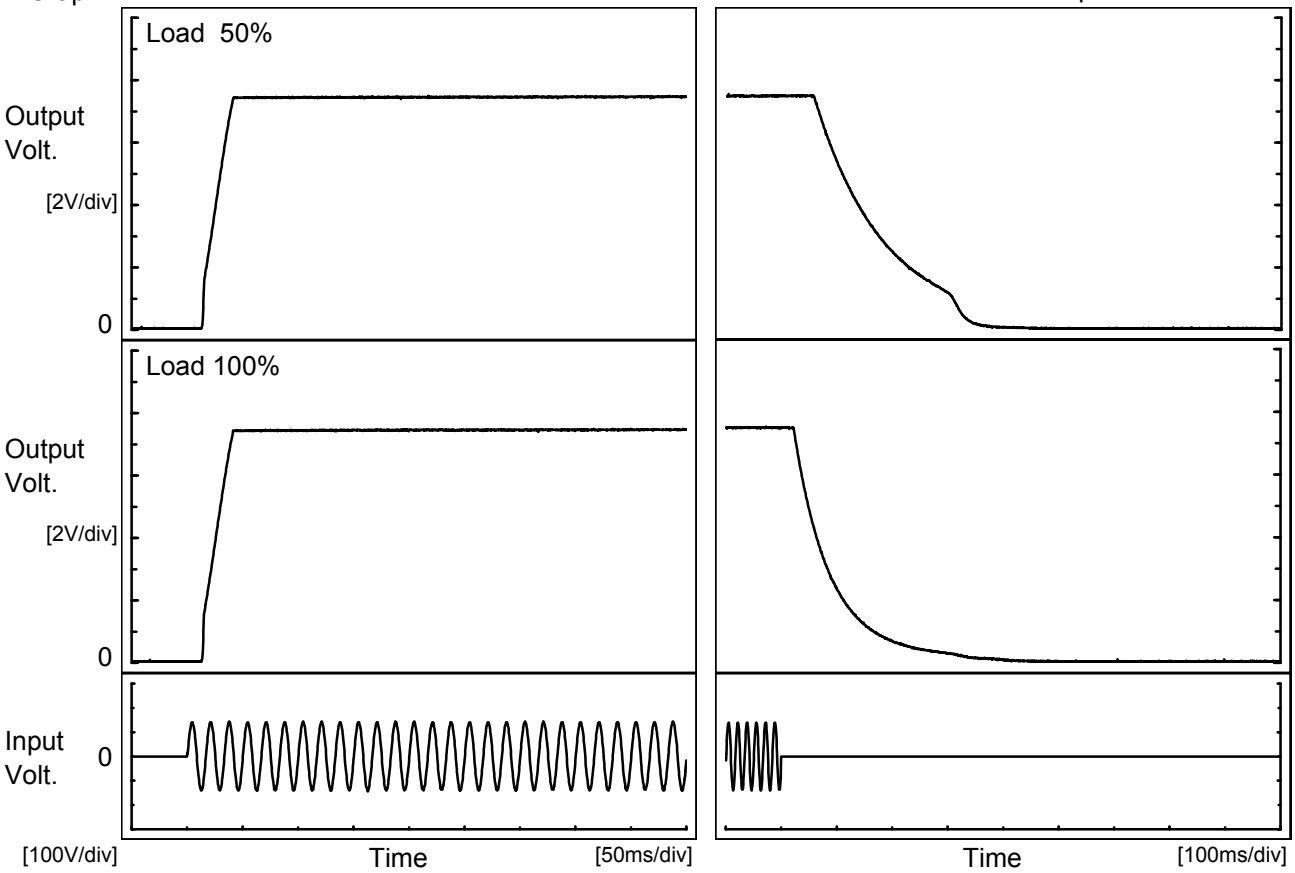
COSEL

Model	G1W-15
Item	Rise and Fall Time
Object	+15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

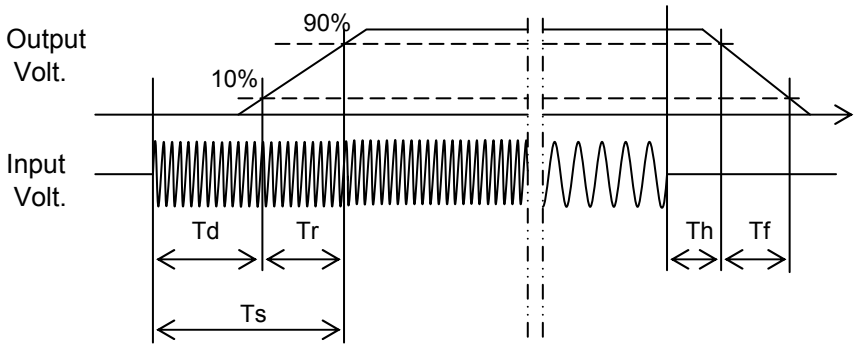
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	14.8	23.5	38.3	70.0	244.0
100 %	14.8	23.5	38.3	28.5	159.5



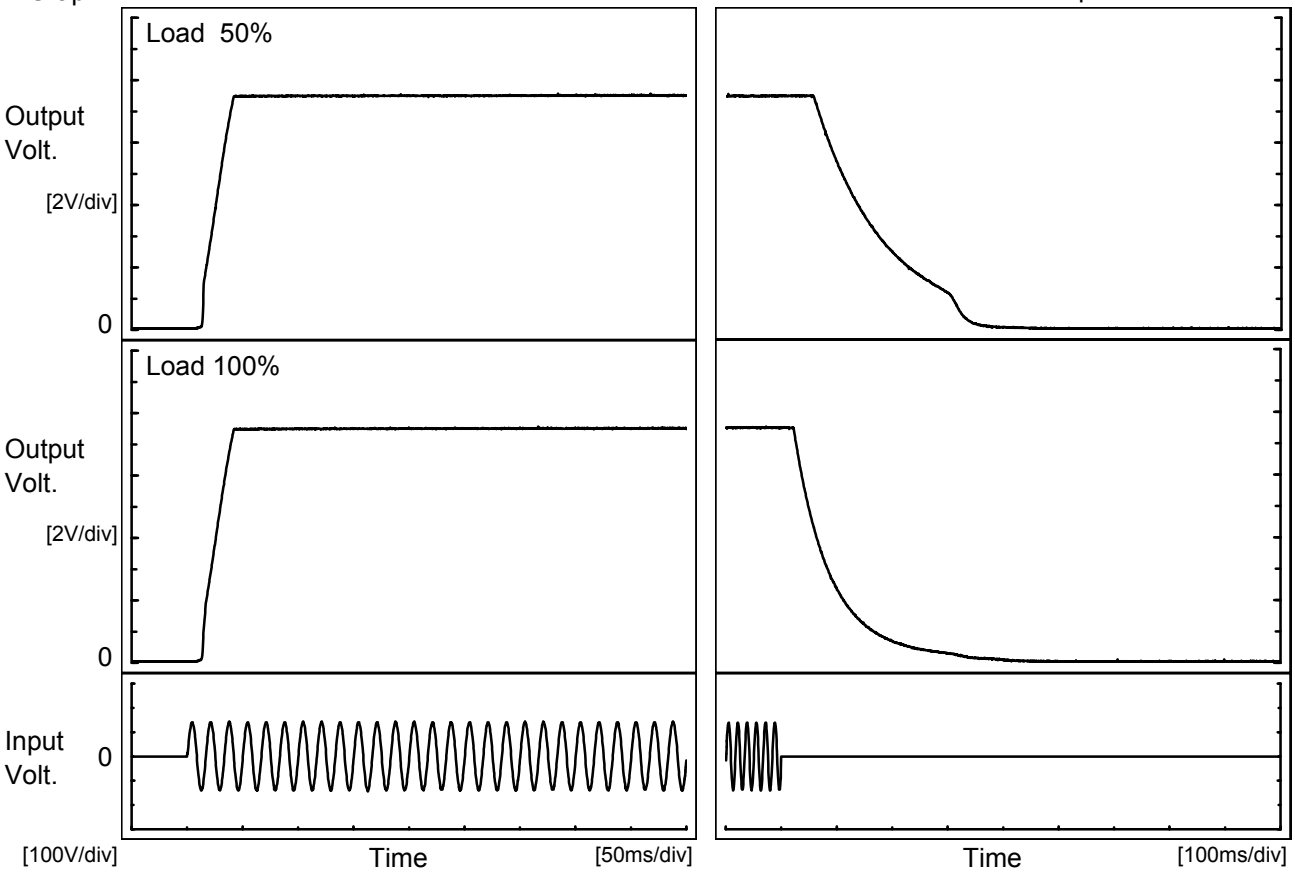
COSEL

Model	G1W-15
Item	Rise and Fall Time
Object	-15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

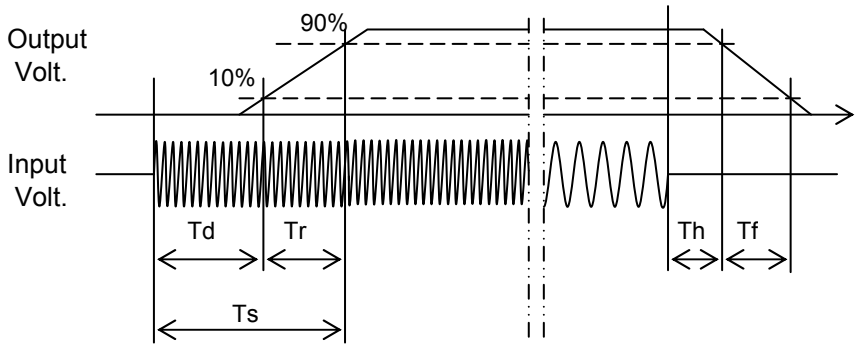
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	14.5	24.0	38.5	68.5	250.0
100 %	14.5	23.8	38.3	28.0	153.0



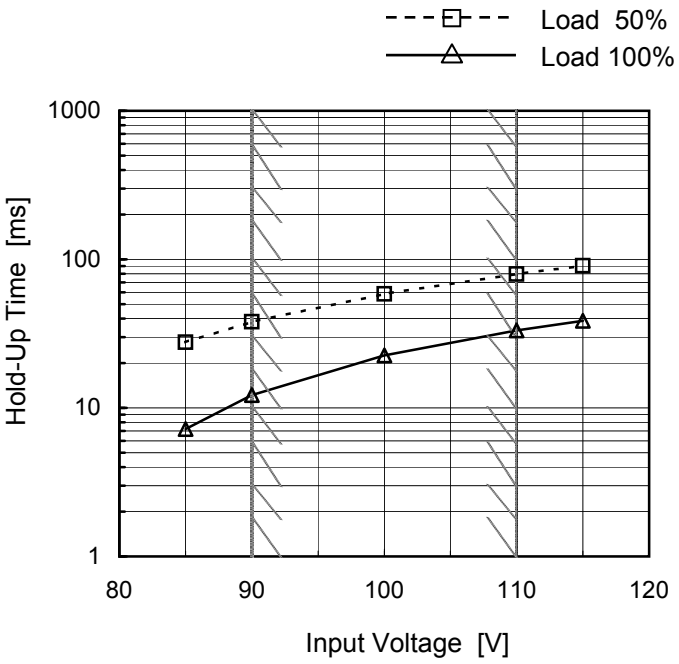
BC-10212

COSEL

Model	G1W-15
Item	Hold-Up Time
Object	+15V0.25A

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	28	7
90	38	12
100	58	23
110	80	33
115	91	39
--	-	-
--	-	-
--	-	-
--	-	-

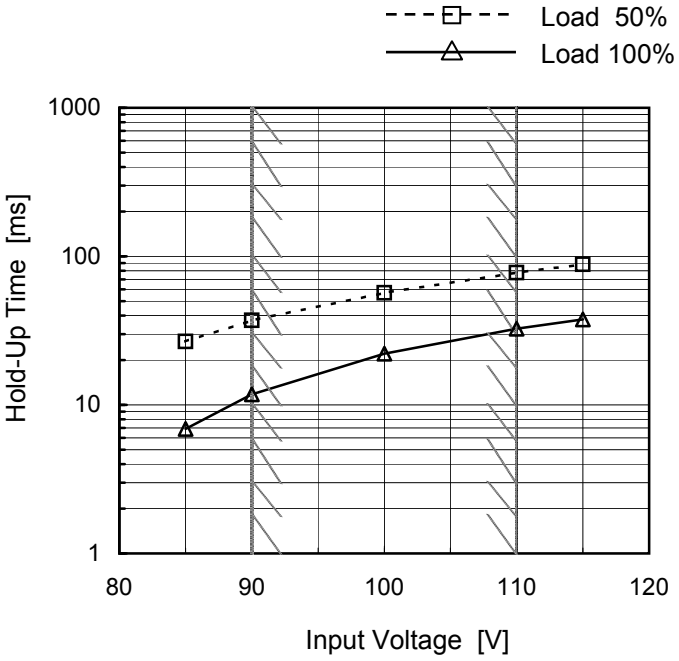
BC-10212

COSEL

Model	G1W-15
Item	Hold-Up Time
Object	-15V0.25A

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

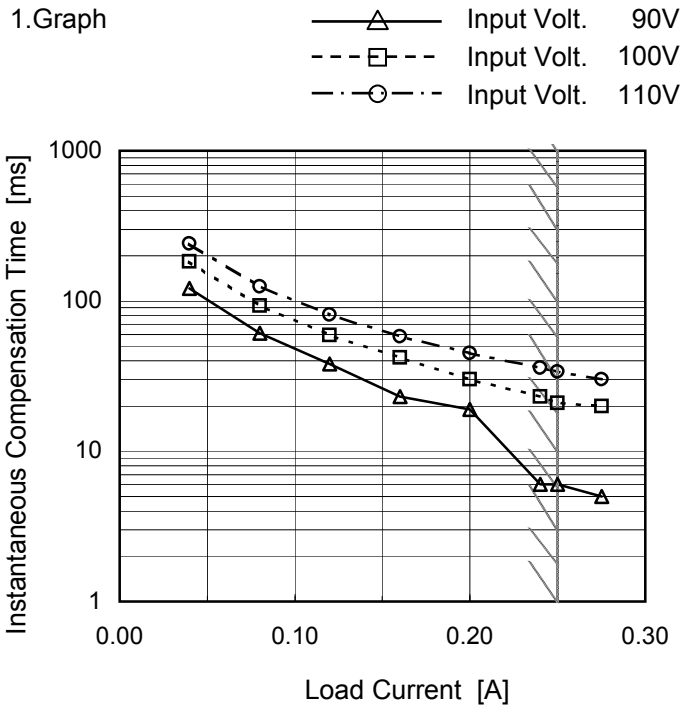
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	27	7
90	37	12
100	57	22
110	78	33
115	88	38
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	G1W-15
Item	Instantaneous Interruption Compensation
Object	+15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

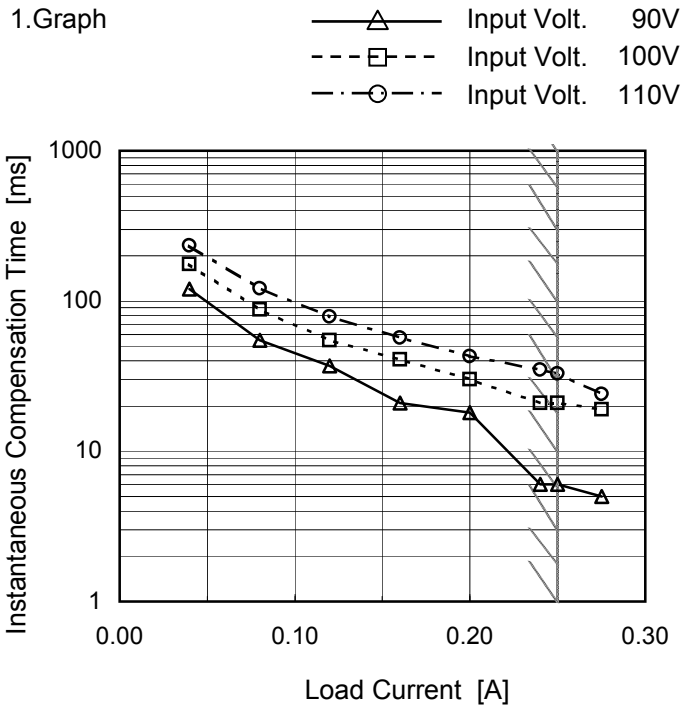
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.000	-	-	-
0.040	121	183	241
0.080	61	93	125
0.120	38	59	81
0.160	23	42	58
0.200	19	30	45
0.240	6	23	36
0.250	6	21	34
0.275	5	20	30
--	-	-	-
--	-	-	-

COSEL

Model	G1W-15
Item	Instantaneous Interruption Compensation
Object	-15V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

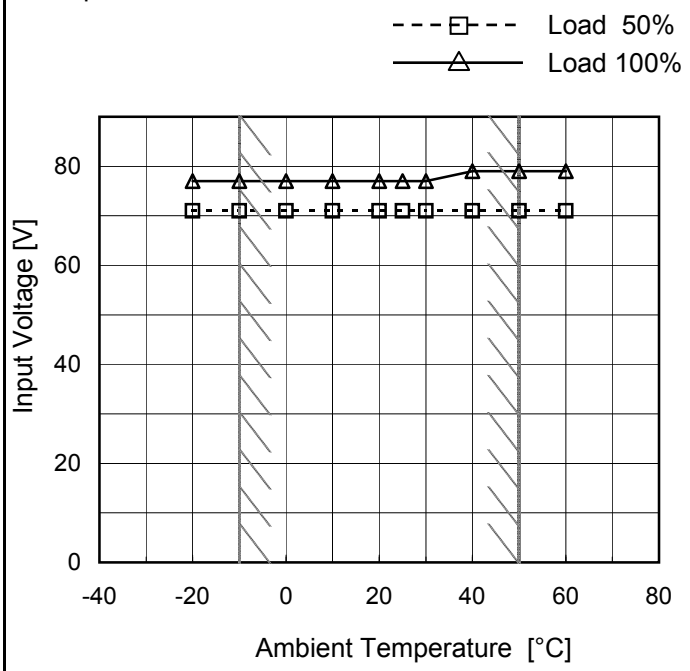
Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.000	-	-	-
0.040	120	176	233
0.080	55	88	121
0.120	37	55	79
0.160	21	41	57
0.200	18	30	43
0.240	6	21	35
0.250	6	21	33
0.275	5	19	24
--	-	-	-
--	-	-	-

COSEL

Model	G1W-15
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.25A

Testing Circuitry Figure A

1.Graph

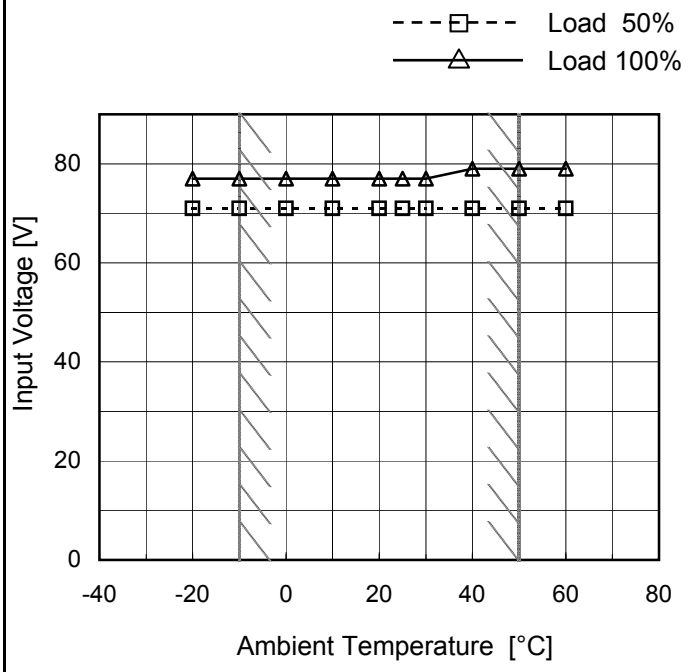


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	71	77
-10	71	77
0	71	77
10	71	77
20	71	77
25	71	77
30	71	77
40	71	79
50	71	79
60	71	79
--	-	-

Object	-15V0.25A

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

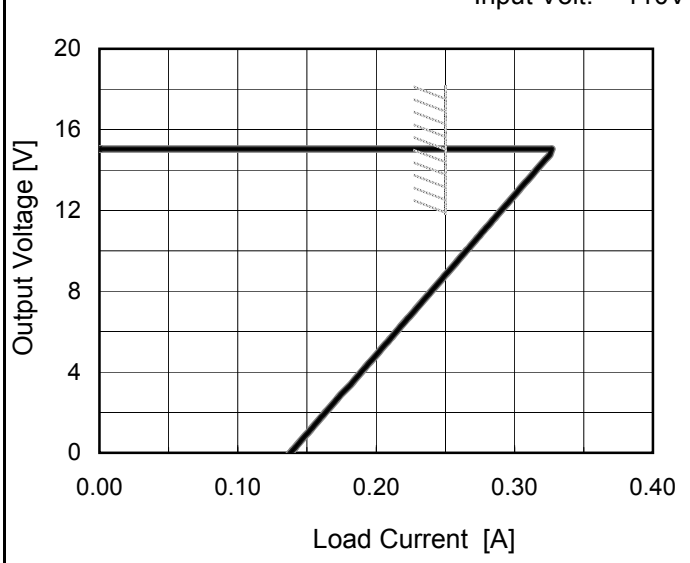
COSEL

Model	G1W-15
Item	Overcurrent Protection

Temperature 25°C
Testing Circuitry Figure A

Object +15V0.25A

1.Graph

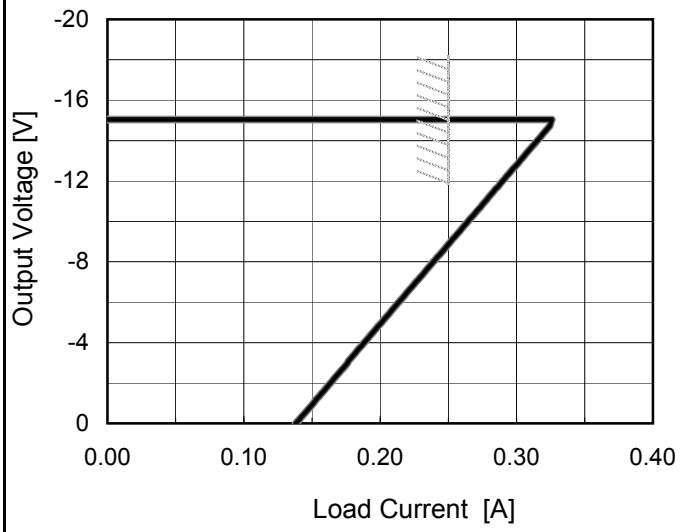


2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
15.0	0.33	0.33	0.33
14.3	0.32	0.32	0.32
13.5	0.31	0.31	0.31
12.0	0.29	0.29	0.29
10.5	0.27	0.27	0.27
9.0	0.25	0.25	0.25
7.5	0.23	0.23	0.23
6.0	0.21	0.21	0.21
4.5	0.20	0.20	0.20
3.0	0.18	0.18	0.18
1.5	0.16	0.16	0.16
0.0	0.14	0.14	0.14

Object -15V0.25A

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]
-15.00	0.33	0.33	0.33
-14.25	0.32	0.32	0.32
-13.50	0.31	0.31	0.31
-12.00	0.29	0.29	0.29
-10.50	0.27	0.27	0.27
-9.00	0.25	0.25	0.25
-7.50	0.23	0.23	0.23
-6.00	0.21	0.21	0.21
-4.50	0.20	0.20	0.20
-3.00	0.18	0.18	0.18
-1.50	0.16	0.16	0.16
0.00	0.14	0.14	0.14

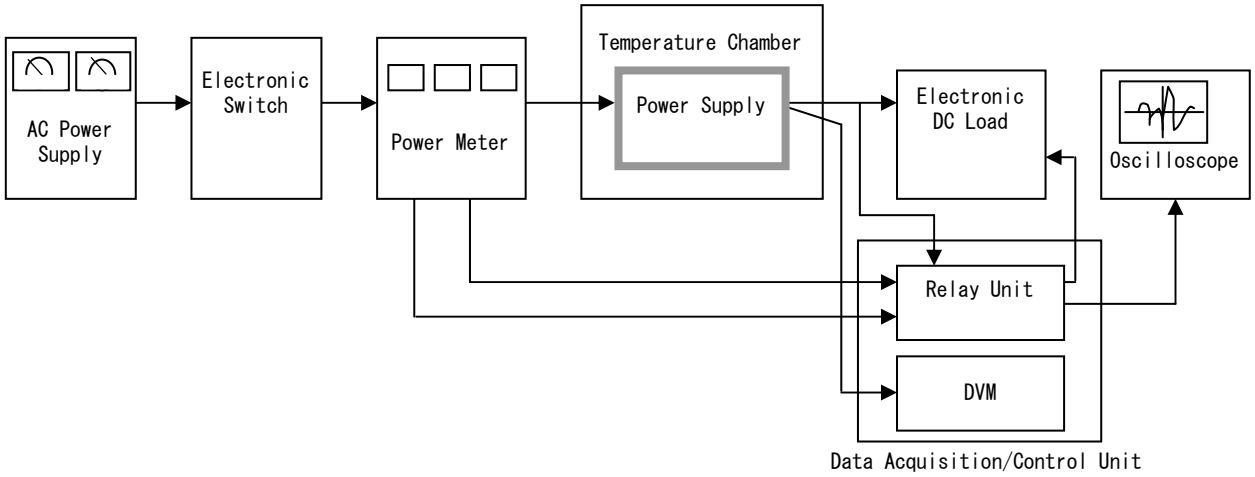

AC Power Supply
Electronic Switch
Power Meter
Temperature Chamber
Power Supply
Electronic DC Load
Oscilloscope
Relay Unit
DVM
Data Acquisition/Control Unit

Figure A