COSEL

参考資料

TEST DATA OF MGW302412

Regulated DC Power Supply
December 7, 2010

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COSEL CO.,LTD.

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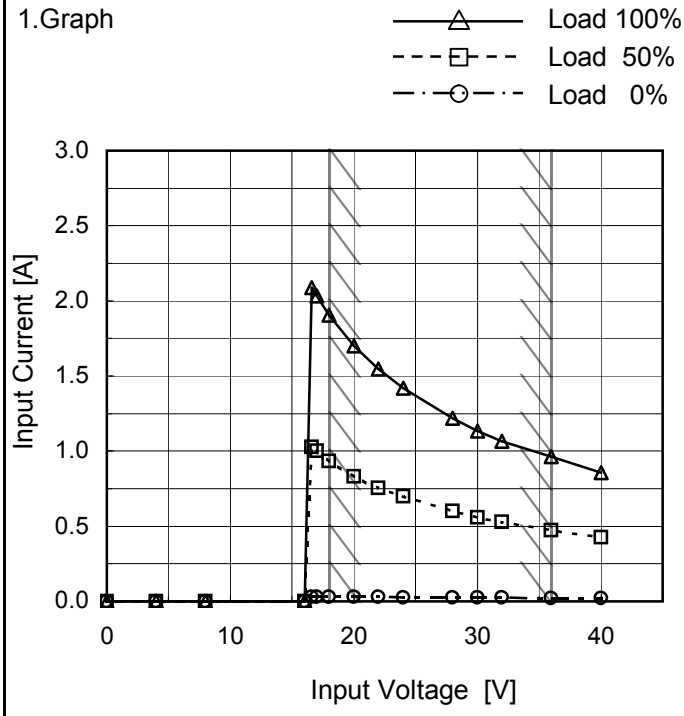
Model	MGW302412
Item	Input Current (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

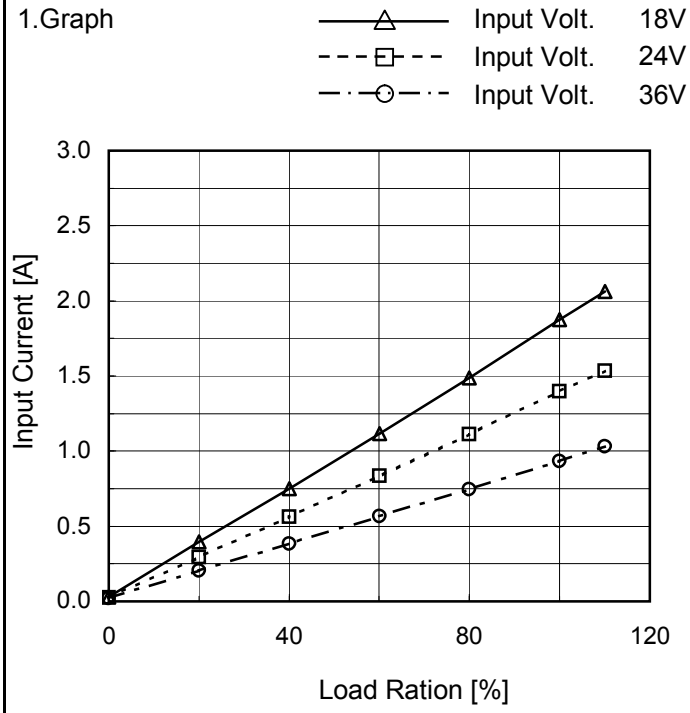
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
4.0	0.001	0.001	0.001
8.0	0.002	0.002	0.002
16.0	0.002	0.002	0.002
16.6	0.030	1.026	2.088
17.0	0.030	0.999	2.032
18.0	0.030	0.935	1.903
20.0	0.030	0.833	1.700
22.0	0.028	0.756	1.548
24.0	0.027	0.697	1.418
28.0	0.025	0.600	1.219
30.0	0.024	0.560	1.133
32.0	0.024	0.527	1.065
36.0	0.023	0.472	0.961
40.0	0.022	0.427	0.857
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW302412
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

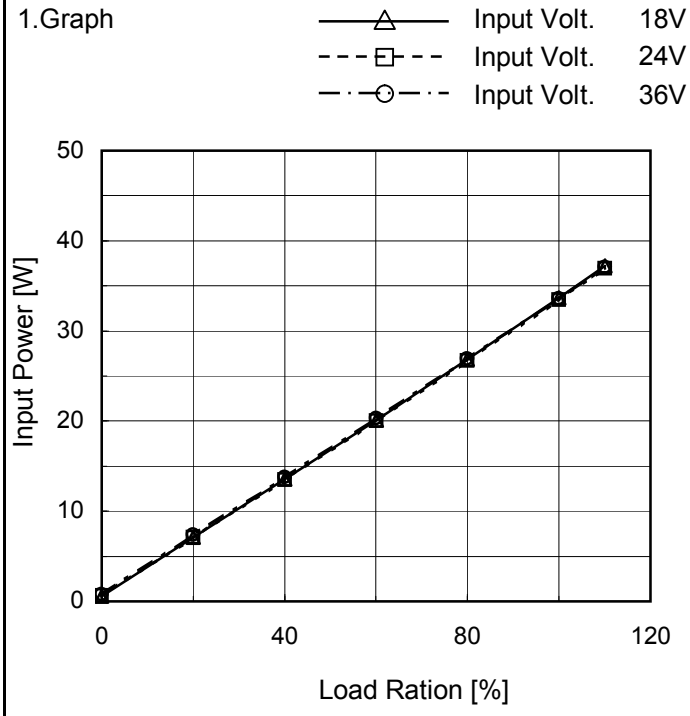
Load Ration [%]	Input Current [A] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.030	0.027	0.022
20	0.395	0.296	0.206
40	0.752	0.562	0.384
60	1.118	0.836	0.566
80	1.487	1.111	0.747
100	1.876	1.397	0.935
110	2.064	1.536	1.030
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW302412
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.54	0.64	0.80
20	7.14	7.09	7.39
40	13.57	13.51	13.79
60	20.12	20.03	20.29
80	26.83	26.68	26.90
100	33.69	33.48	33.60
110	37.19	36.94	37.05
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

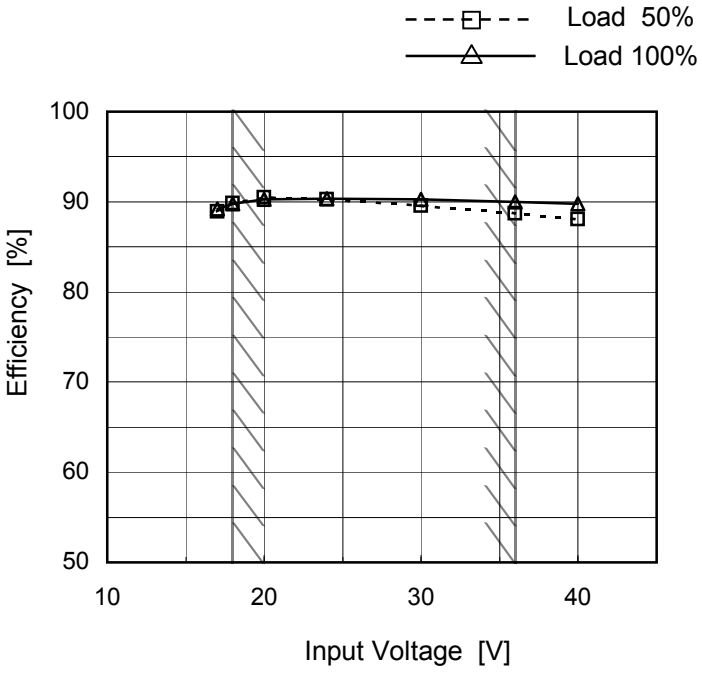
BC-10525

COSEL

Model	MGW302412
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

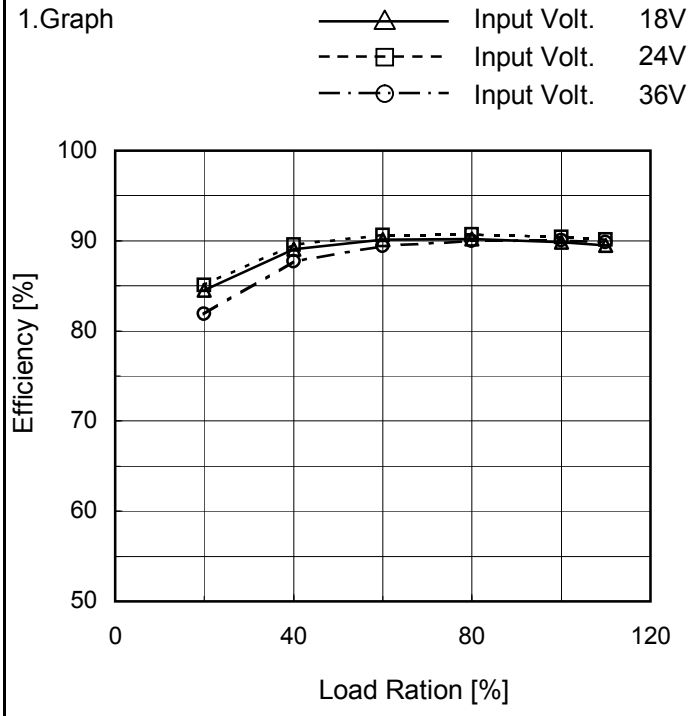
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	88.9	89.2
18	89.8	89.8
20	90.5	90.2
24	90.3	90.4
30	89.6	90.2
36	88.7	90.0
40	88.1	89.8
--	-	-
--	-	-

COSEL

Model	MGW302412
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-
20	84.5	85.1	81.9
40	89.1	89.6	87.7
60	90.2	90.6	89.4
80	90.2	90.7	90.0
100	89.8	90.4	90.0
110	89.5	90.1	89.8
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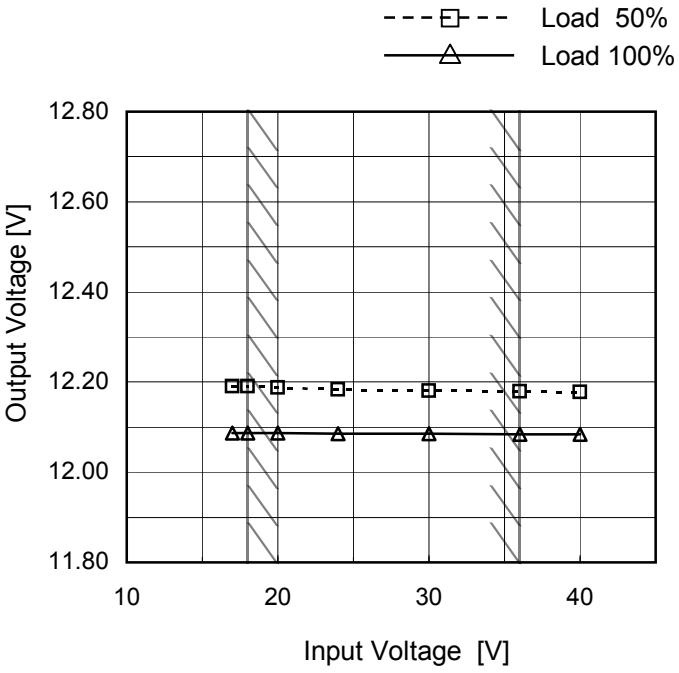
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW302412
Item	Line Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



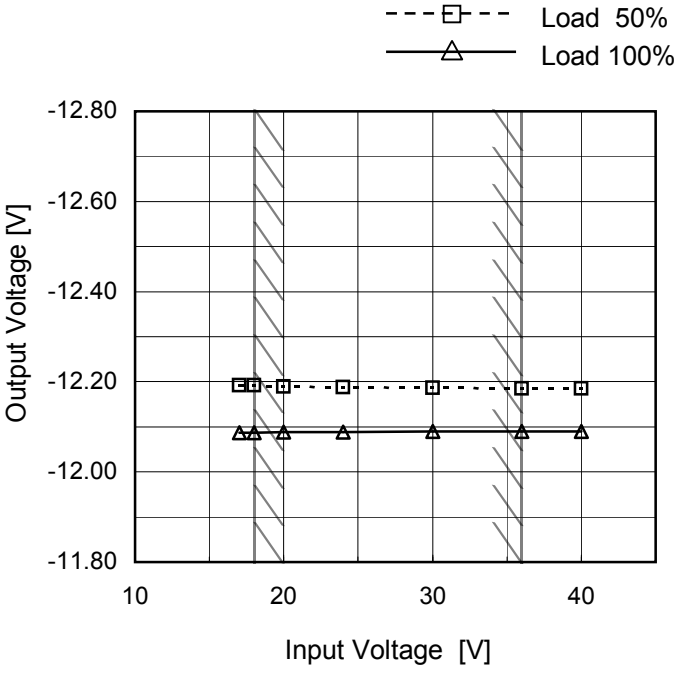
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	12.191	12.087
18	12.190	12.087
20	12.188	12.087
24	12.184	12.086
30	12.181	12.085
36	12.179	12.085
40	12.178	12.084
--	-	-
--	-	-

-12V: Rated output current

Object	-12V1.25A

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%
17	-12.192	-12.087
18	-12.191	-12.088
20	-12.190	-12.088
24	-12.188	-12.089
30	-12.186	-12.089
36	-12.185	-12.090
40	-12.184	-12.090
--	-	-
--	-	-

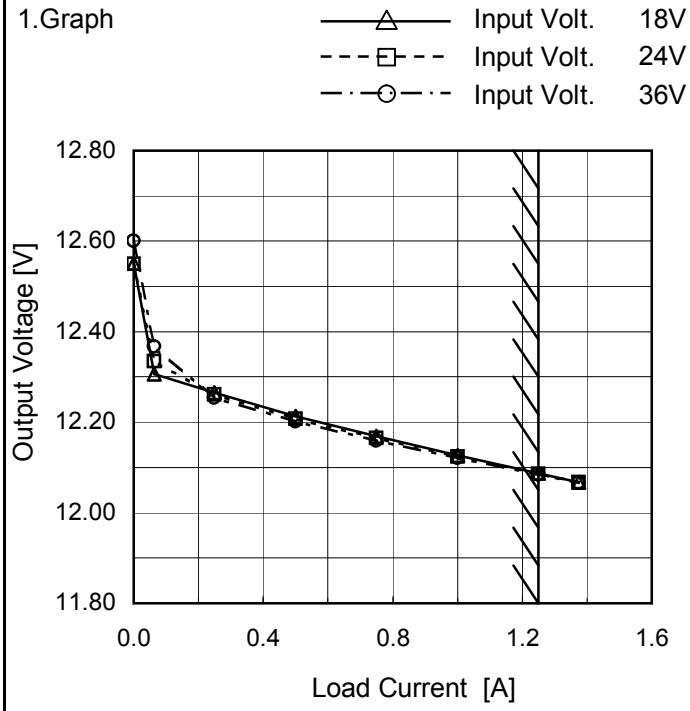
+12V: Rated output current

COSEL

Model	MGW302412
Item	Load Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



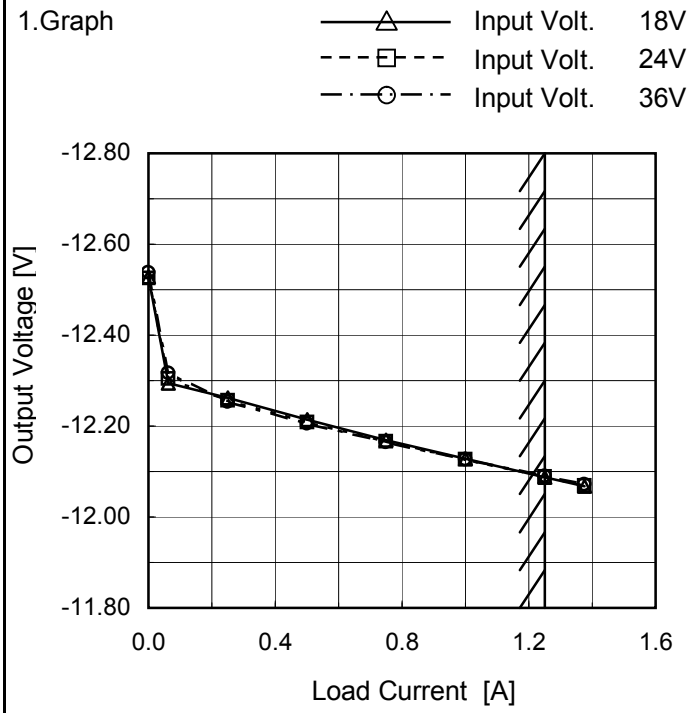
2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	12.550	12.549	12.601
0.063	12.307	12.335	12.367
0.250	12.265	12.260	12.255
0.500	12.214	12.207	12.202
0.750	12.169	12.165	12.160
1.000	12.127	12.124	12.121
1.250	12.087	12.086	12.085
1.375	12.068	12.067	12.066
--	-	-	-
--	-	-	-
--	-	-	-

-12V: Rated output current

Object	-12V1.25A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	-12.528	-12.525	-12.538
0.063	-12.294	-12.304	-12.317
0.250	-12.262	-12.257	-12.254
0.500	-12.214	-12.209	-12.206
0.750	-12.169	-12.167	-12.165
1.000	-12.128	-12.127	-12.127
1.250	-12.088	-12.089	-12.090
1.375	-12.068	-12.069	-12.072
--	-	-	-
--	-	-	-
--	-	-	-

+12V: Rated output current

BC-10525

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Model	MGW302412
Item	Dynamic Load Response
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

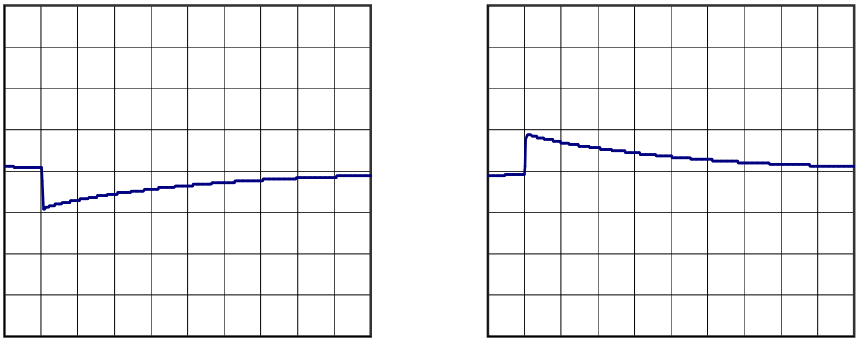
Input Volt. 24 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

Load Current

Min. Load (0A) ⟷
Load 100% (1.25A)

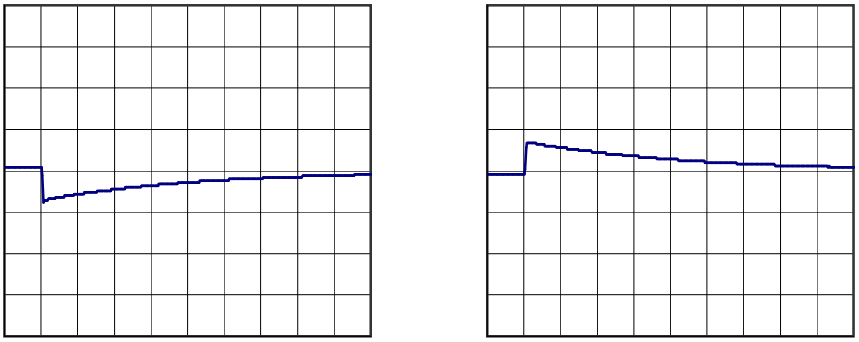
500mV/div



50ms/div 50ms/div

Min. Load (0A) ⟷
Load 50% (0.625A)

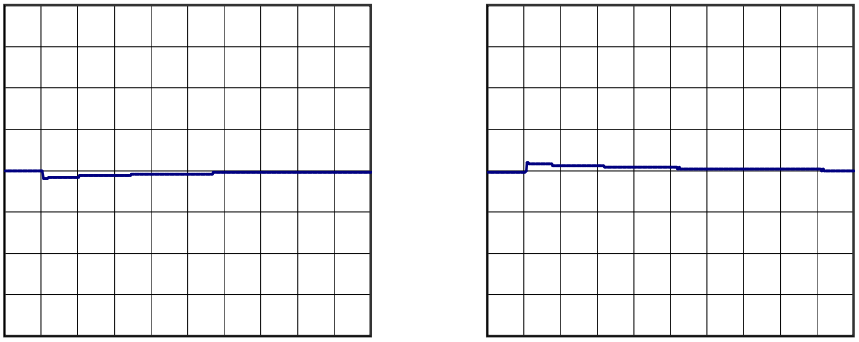
500mV/div



50ms/div 50ms/div

Load 50% (0.625A) ⟷
Load 100% (1.25A)

500mV/div



50ms/div 50ms/div

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Model	MGW302412
Item	Dynamic Load Response
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure A

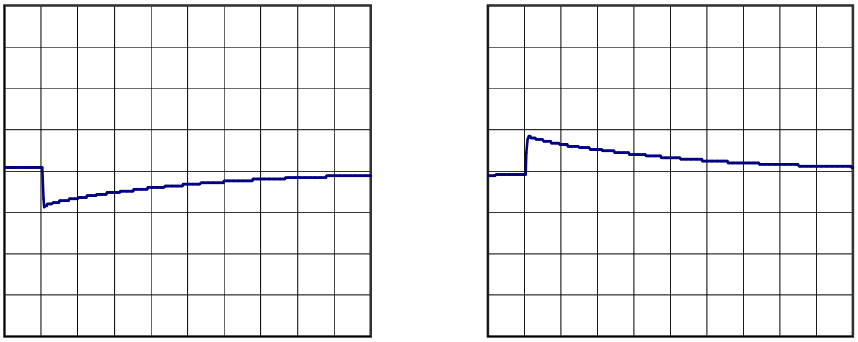
Input Volt. 24 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

Load Current

Min. Load (0A) ⟷
Load 100% (1.25A)

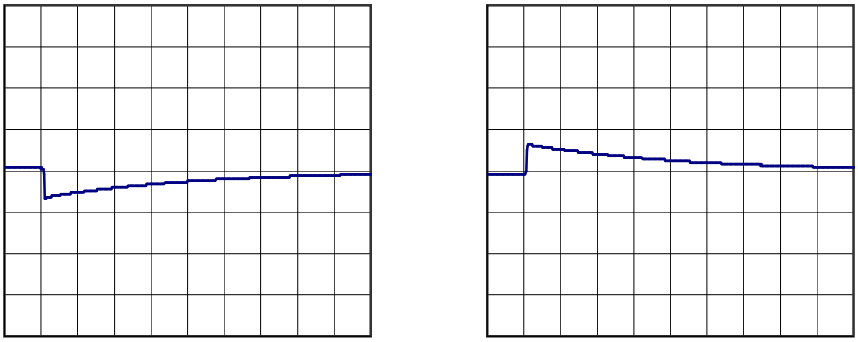
500mV/div



50ms/div 50ms/div

Min. Load (0A) ⟷
Load 50% (0.625A)

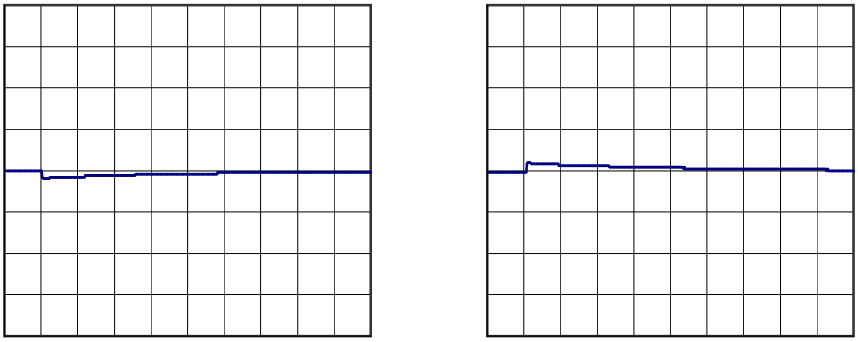
500mV/div



50ms/div 50ms/div

Load 50% (0.625A) ⟷
Load 100% (1.25A)

500mV/div



50ms/div 50ms/div

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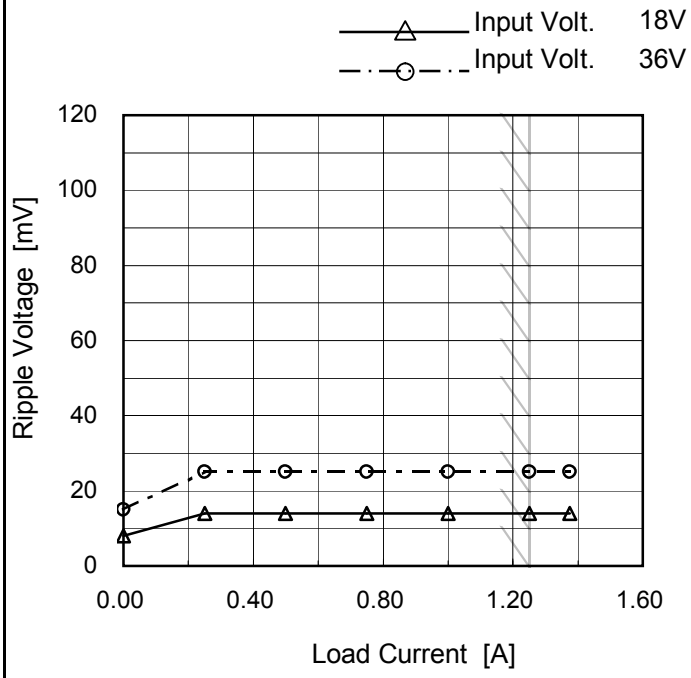
Model	MGW302412
Item	Ripple Voltage (by Load Current)
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

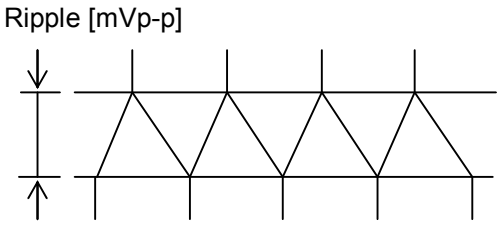


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.000	8	15
0.250	14	25
0.500	14	25
0.750	14	25
1.000	14	25
1.250	14	25
1.375	14	25
--	-	-
--	-	-
--	-	-
--	-	-

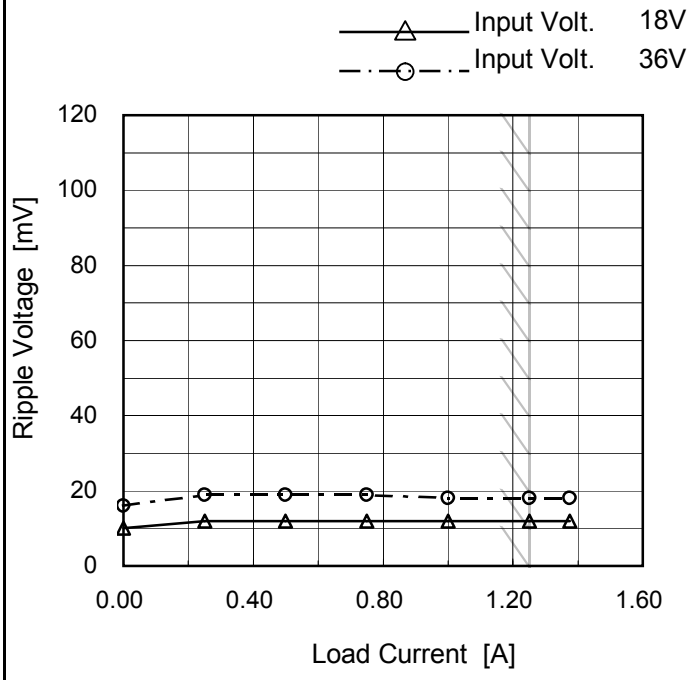
-12V: Rated output current

COSEL

Model	MGW302412
Item	Ripple Voltage (by Load Current)
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

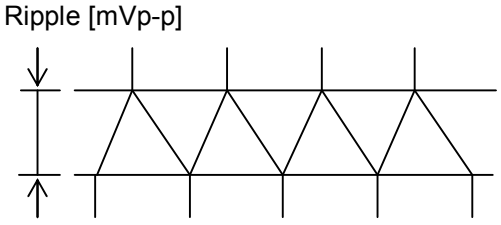


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.000	10	16
0.250	12	19
0.500	12	19
0.750	12	19
1.000	12	18
1.250	12	18
1.375	12	18
--	-	-
--	-	-
--	-	-
--	-	-

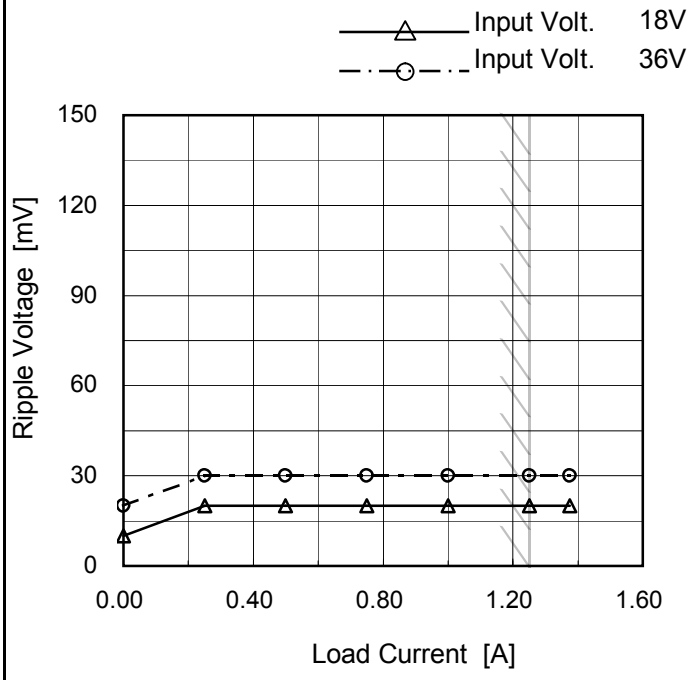
+12V: Rated output current

COSEL

Model	MGW302412
Item	Ripple-Noise
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

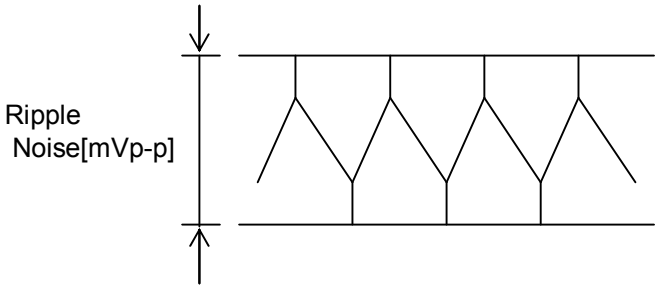


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.000	10	20
0.250	20	30
0.500	20	30
0.750	20	30
1.000	20	30
1.250	20	30
1.375	20	30
--	-	-
--	-	-
--	-	-
--	-	-

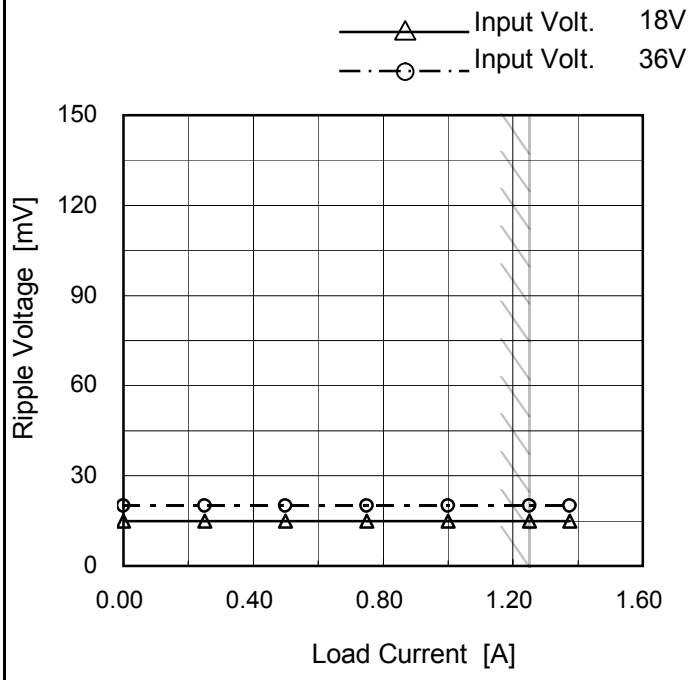
-12V: Rated output current

COSEL

Model	MGW302412
Item	Ripple-Noise
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

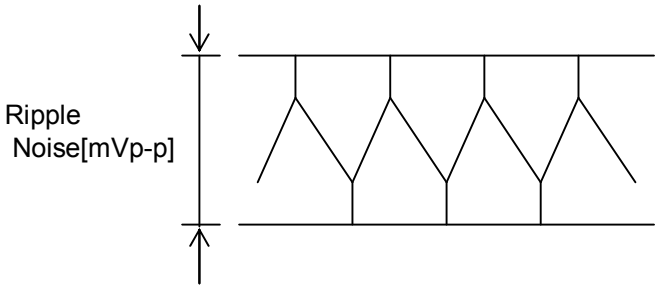


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.000	15	20
0.250	15	20
0.500	15	20
0.750	15	20
1.000	15	20
1.250	15	20
1.375	15	20
--	-	-
--	-	-
--	-	-
--	-	-

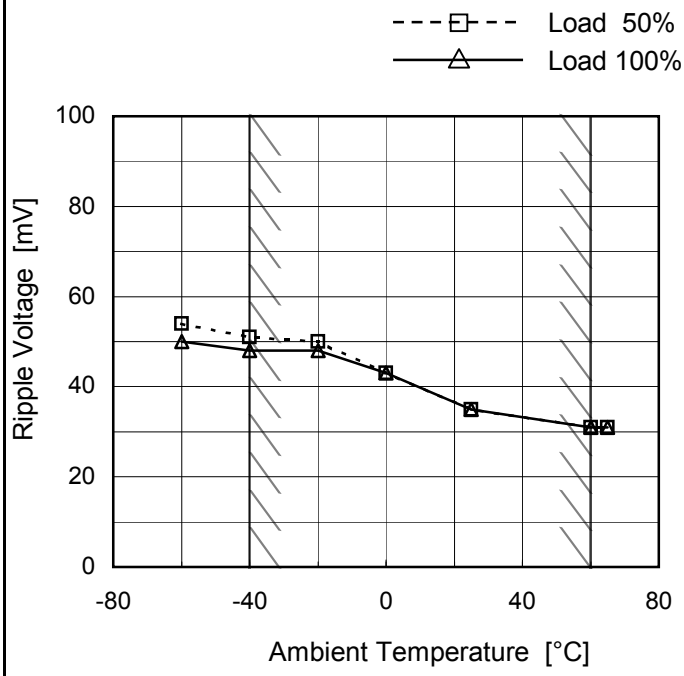
+12V: Rated output current

COSEL

Model	MGW302412
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph



Input Volt. 24V

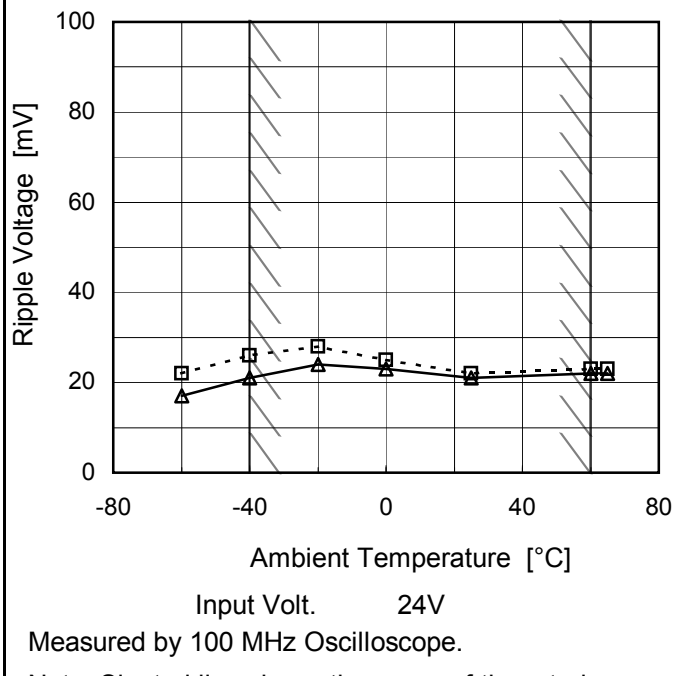
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	54	50
-40	51	48
-20	50	48
0	43	43
25	35	35
60	31	31
65	31	31
--	-	-
--	-	-
--	-	-
--	-	-

-12V: Rated output current

Object	-12V1.25A

1.Graph



Input Volt. 24V

Measured by 100 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%
-60	22	17
-40	26	21
-20	28	24
0	25	23
25	22	21
60	23	22
65	23	22
--	-	-
--	-	-
--	-	-
--	-	-

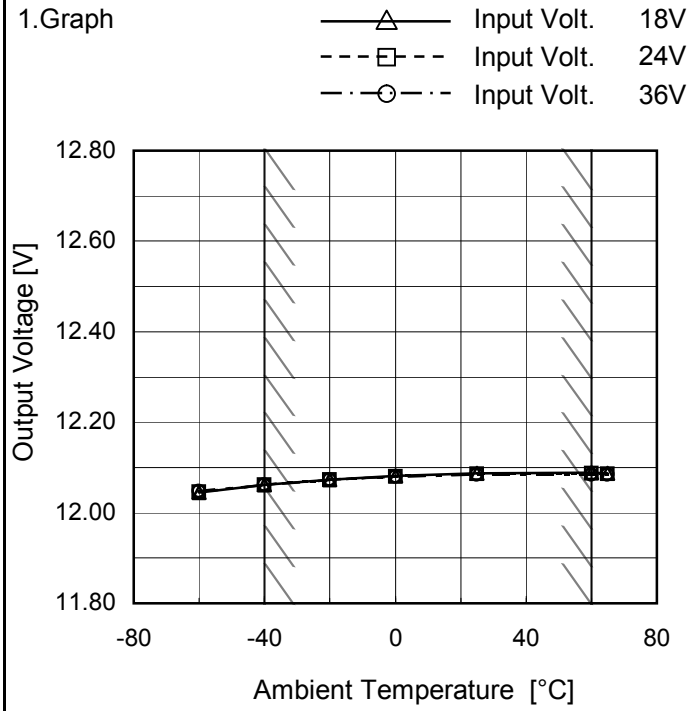
+12V: Rated output current

COSEL

Model	MGW302412
Item	Ambient Temperature Drift
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph



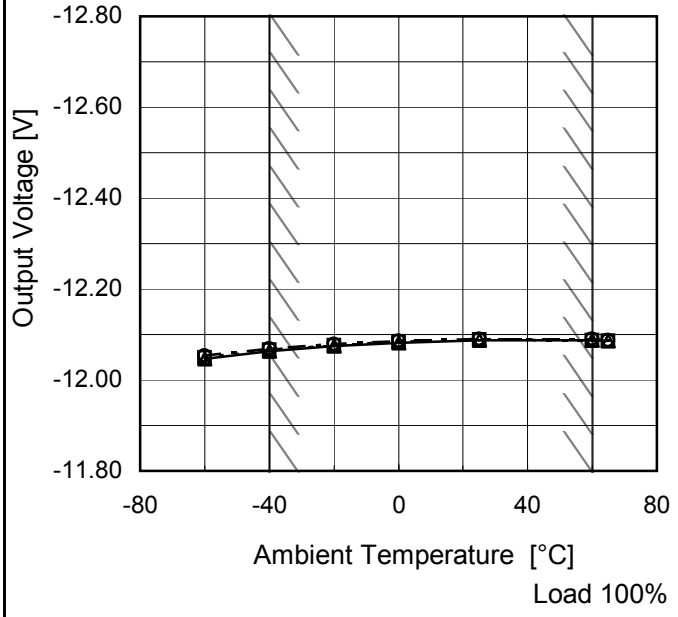
Load 100%

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	12.045	12.046	12.047
-40	12.062	12.062	12.062
-20	12.073	12.073	12.073
0	12.081	12.081	12.080
25	12.087	12.086	12.085
60	12.088	12.087	12.085
65	12.087	12.086	12.084
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-12V1.25A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	-12.047	-12.050	-12.053
-40	-12.063	-12.066	-12.069
-20	-12.074	-12.077	-12.079
0	-12.082	-12.084	-12.086
25	-12.087	-12.089	-12.090
60	-12.087	-12.088	-12.090
65	-12.085	-12.087	-12.088
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW302412	
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 : -40 - 60°C
Input Voltage : 18 - 36V
Load Current (AVR 1) : 0 - 1.25A (AVR 2) : 0 - 1.25A

* Other Output : Rated Load

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

* Output Voltage Accuracy (Ration) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2.Values

Object	+12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	36	0	12.595	±267	±2.2
Minimum Voltage	-40	18	1.25	12.062		

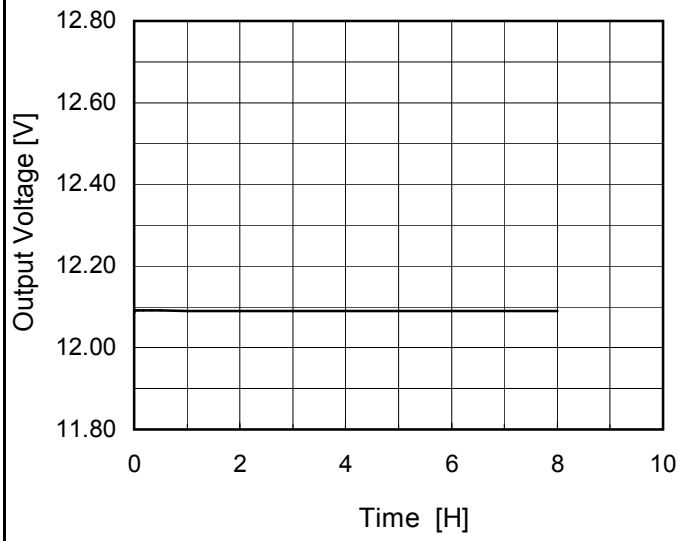
Object	-12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	36	0	-12.536	±237	±2.0
Minimum Voltage	-40	18	1.25	-12.063		

COSEL

Model	MGW302412
Item	Time Lapse Drift
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



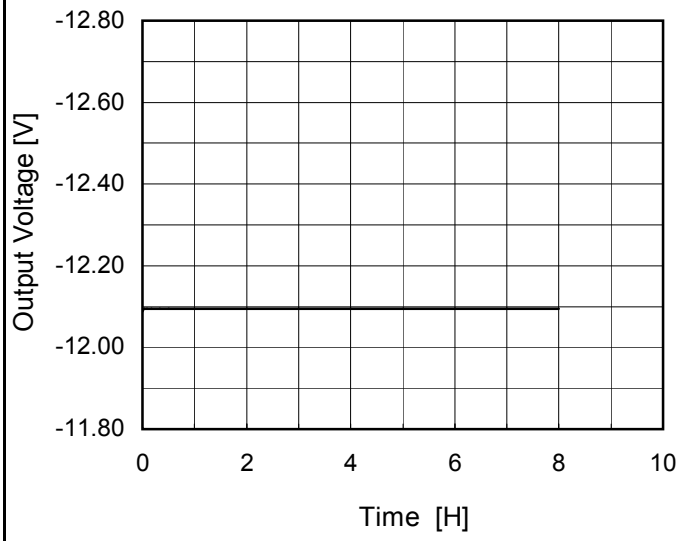
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.086
0.5	12.091
1.0	12.091
2.0	12.091
3.0	12.091
4.0	12.090
5.0	12.090
6.0	12.091
7.0	12.090
8.0	12.091

Object	-12V1.25A

1.Graph



Input Volt. 24V
Load 100%

2.Values

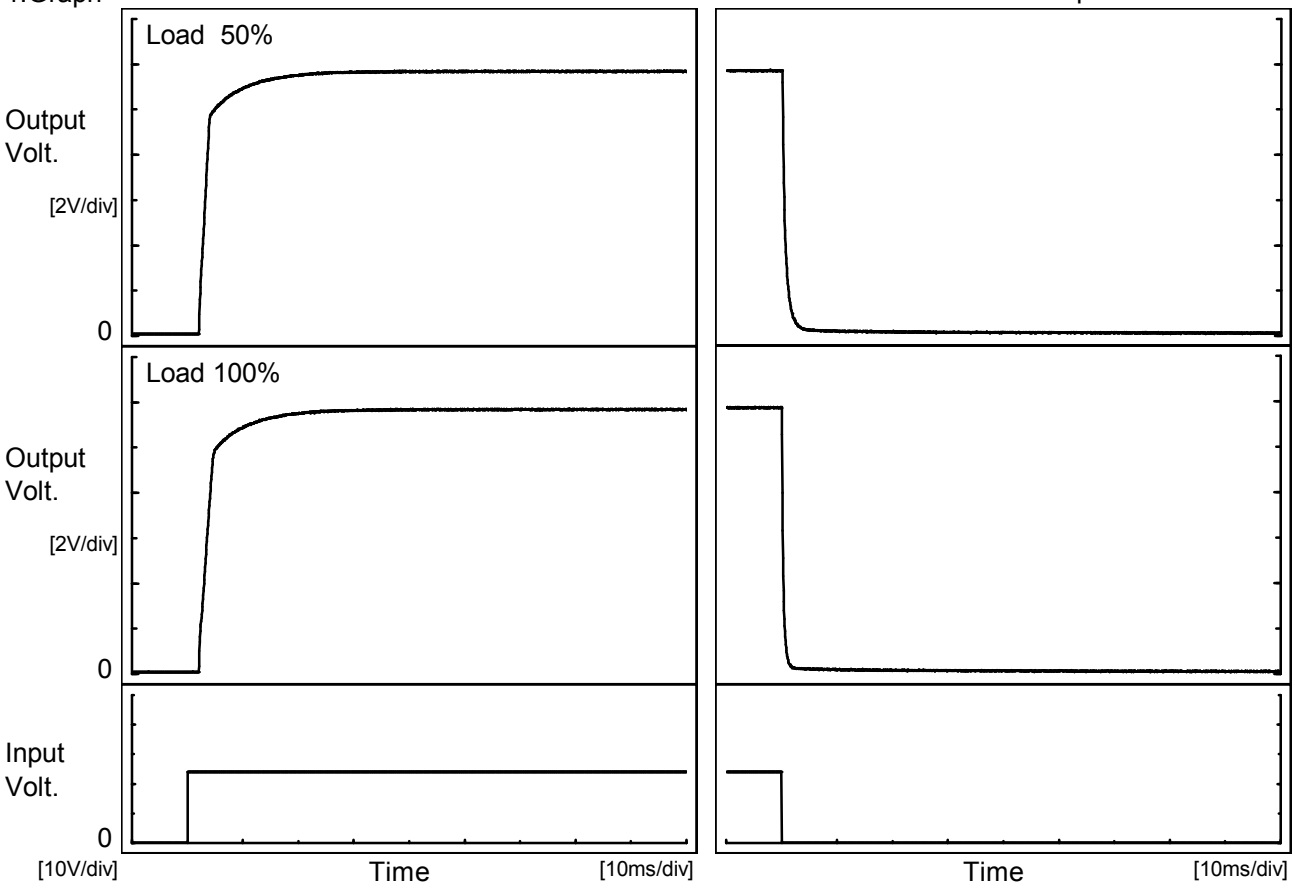
Time since start [H]	Output Voltage [V]
0.0	-12.089
0.5	-12.095
1.0	-12.094
2.0	-12.094
3.0	-12.094
4.0	-12.094
5.0	-12.094
6.0	-12.094
7.0	-12.094
8.0	-12.094

COSEL

Model	MGW302412	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V1.25A	

1.Graph

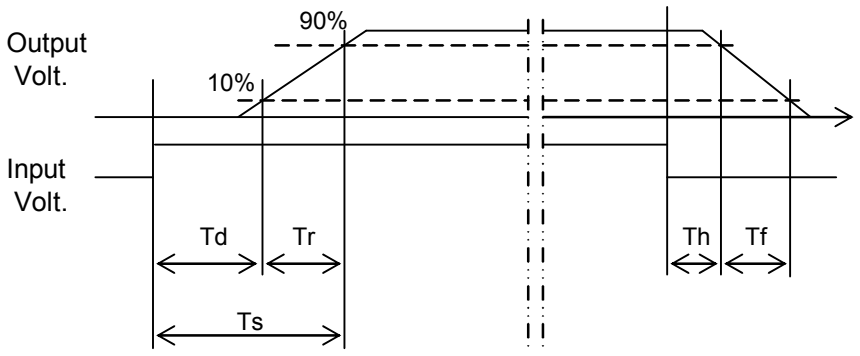
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.2	7.3	9.5	0.1	1.4
100 %	2.2	7.8	10.0	0.1	0.7

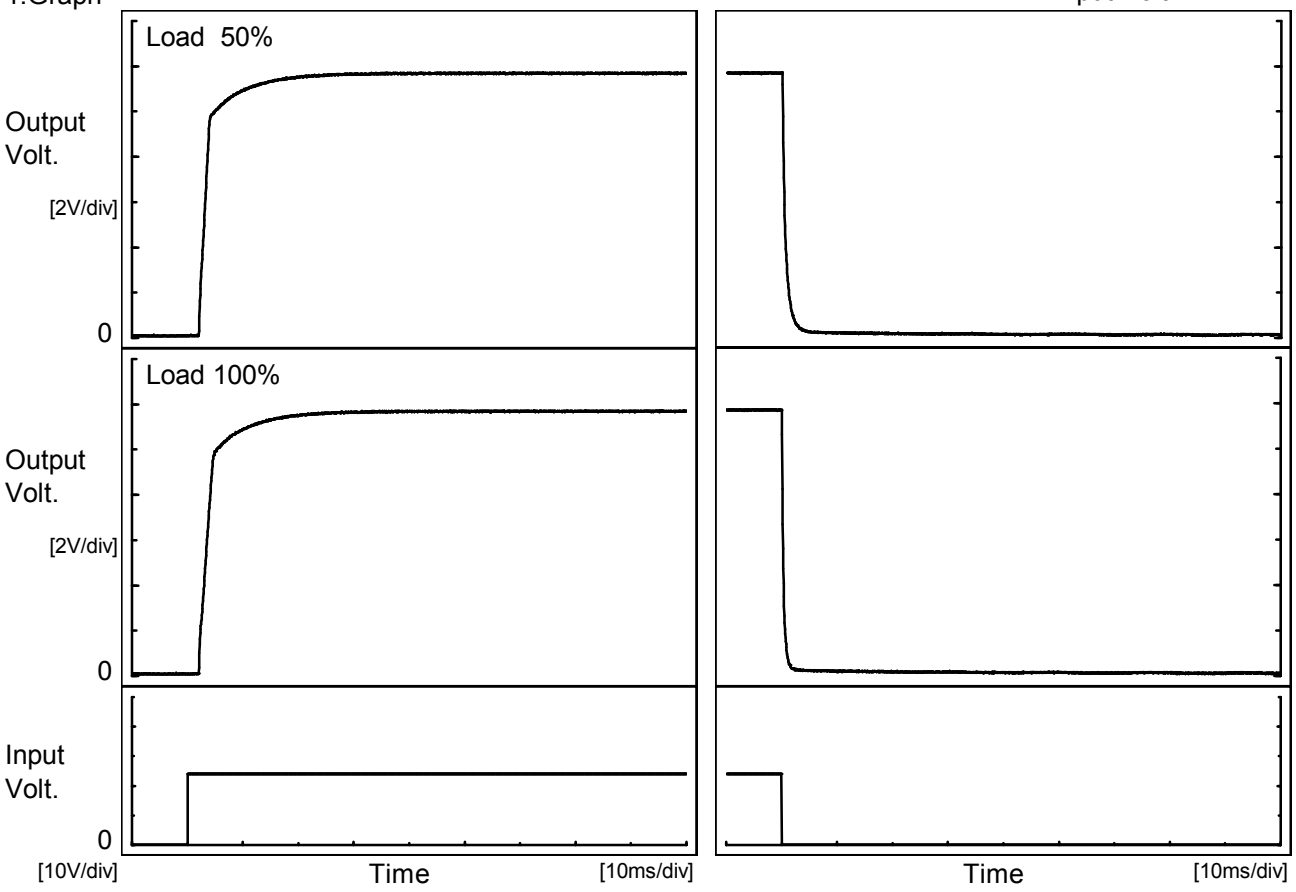


COSEL

Model	MGW302412	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-12V1.25A	

1.Graph

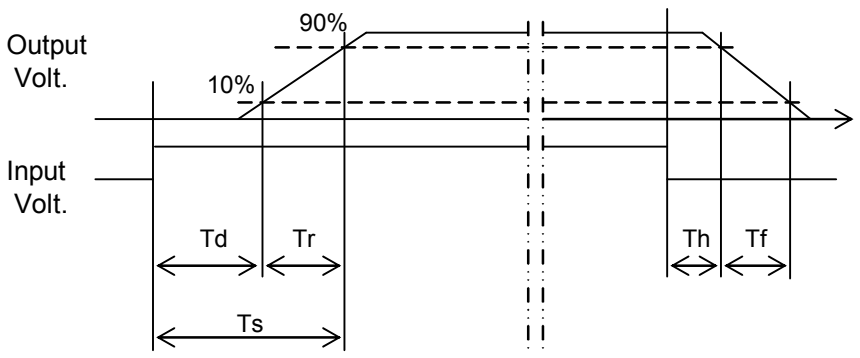
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.2	7.3	9.5	0.1	1.5
100 %	2.2	7.7	9.9	0.1	0.8

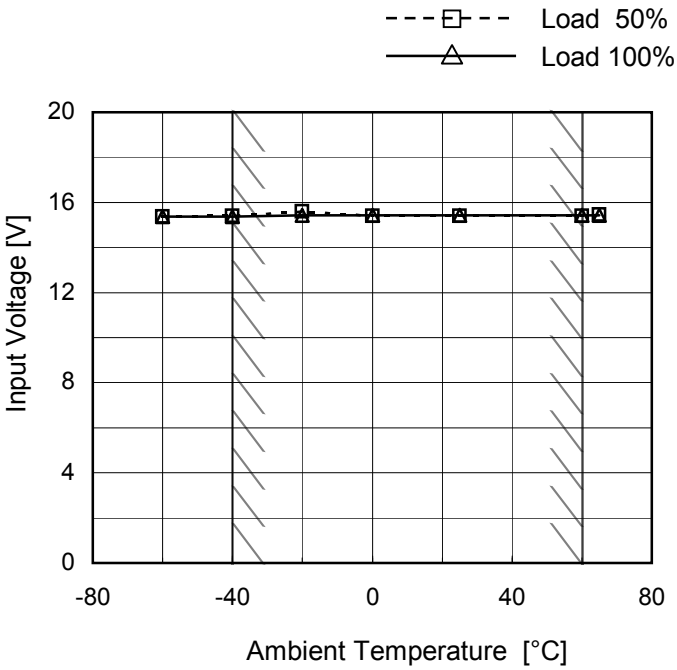


COSEL

Model	MGW302412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

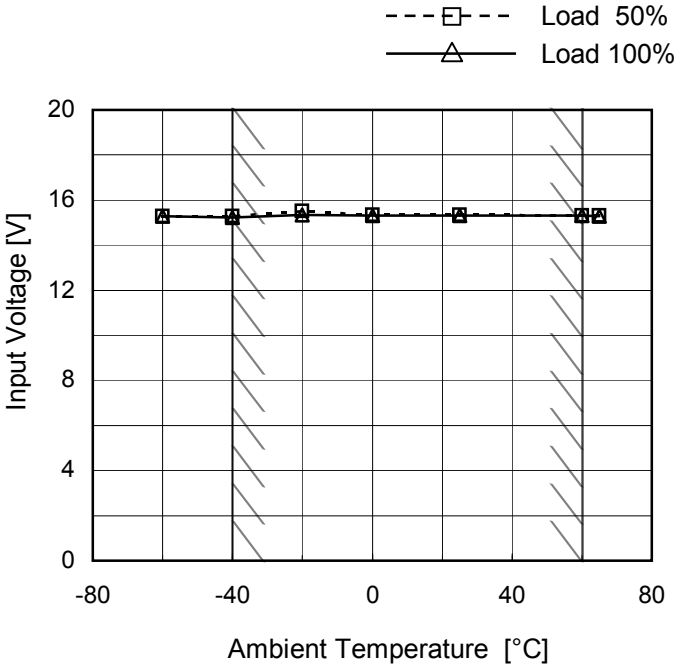


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.4	15.4
-40	15.4	15.4
-20	15.6	15.5
0	15.5	15.5
25	15.4	15.5
60	15.5	15.5
65	15.5	15.5
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V1.25A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.3	15.3
-40	15.3	15.3
-20	15.6	15.4
0	15.4	15.4
25	15.4	15.4
60	15.4	15.4
65	15.4	15.3
--	-	-
--	-	-
--	-	-
--	-	-

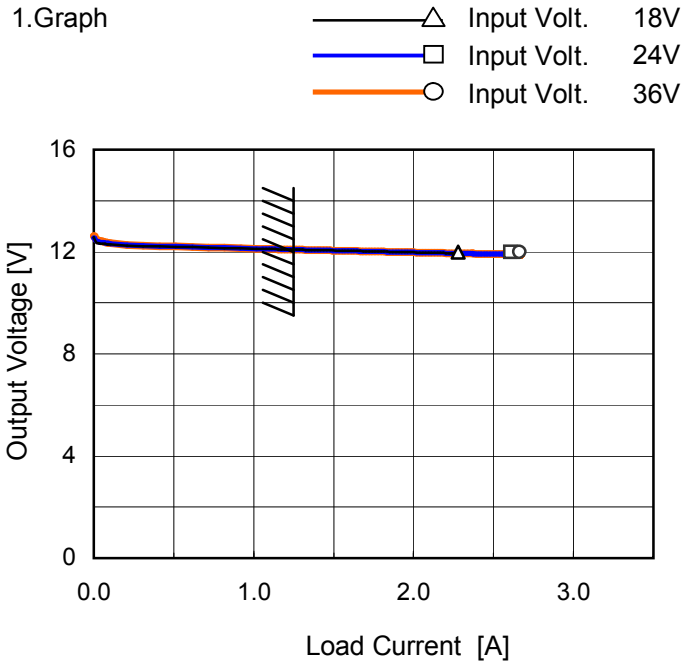
Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	MGW302412
Item	Overcurrent Protection
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

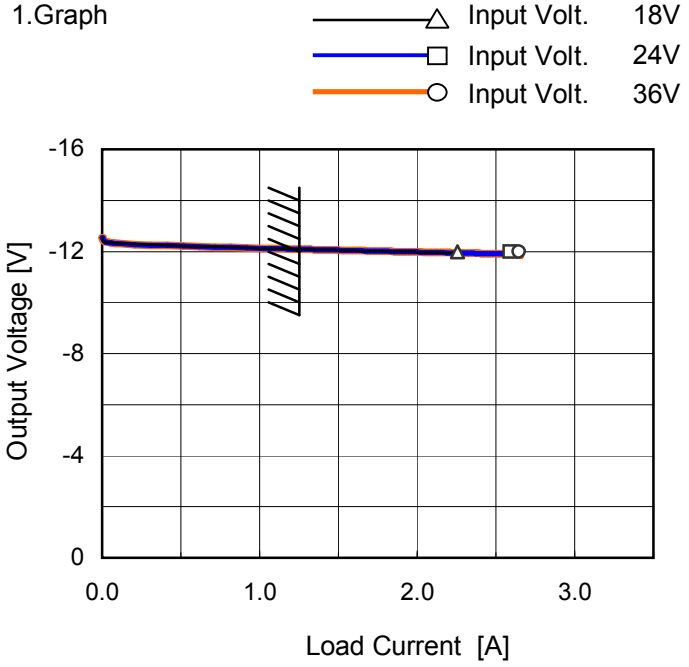


2.Values

Output Voltage [V]	Load Current [A] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
12.00	2.28	2.61	2.66
11.40	-	-	-
10.80	-	-	-
9.60	-	-	-
8.40	-	-	-
7.20	-	-	-
6.00	-	-	-
4.80	-	-	-
3.60	-	-	-
2.40	-	-	-
1.20	-	-	-
0.00	-	-	-

Object	-12V1.25A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

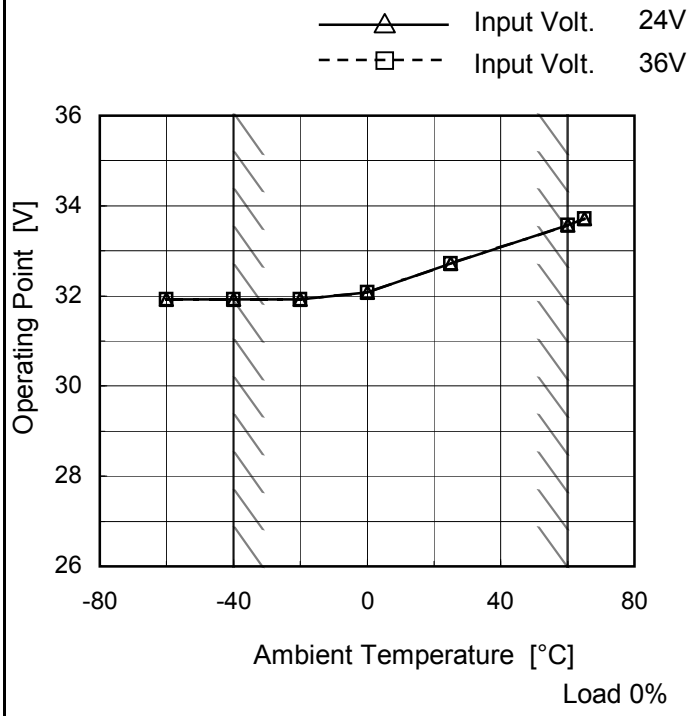
Output Voltage [V]	Load Current [A] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-12.00	2.26	2.59	2.65
-11.40	-	-	-
-10.80	-	-	-
-9.60	-	-	-
-8.40	-	-	-
-7.20	-	-	-
-6.00	-	-	-
-4.80	-	-	-
-3.60	-	-	-
-2.40	-	-	-
-1.20	-	-	-
0.00	-	-	-

COSEL

Model	MGW302412
Item	Overvoltage Protection
Object	+24V1.25A

Testing Circuitry Figure A

1.Graph



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

Measured as a single output(+24V).

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 24[V]	Input Volt. 36[V]
-60	31.92	31.92
-40	31.93	31.93
-20	31.93	31.93
0	32.08	32.08
25	32.72	32.72
60	33.57	33.57
65	33.71	33.71
--	-	-
--	-	-
--	-	-
--	-	-

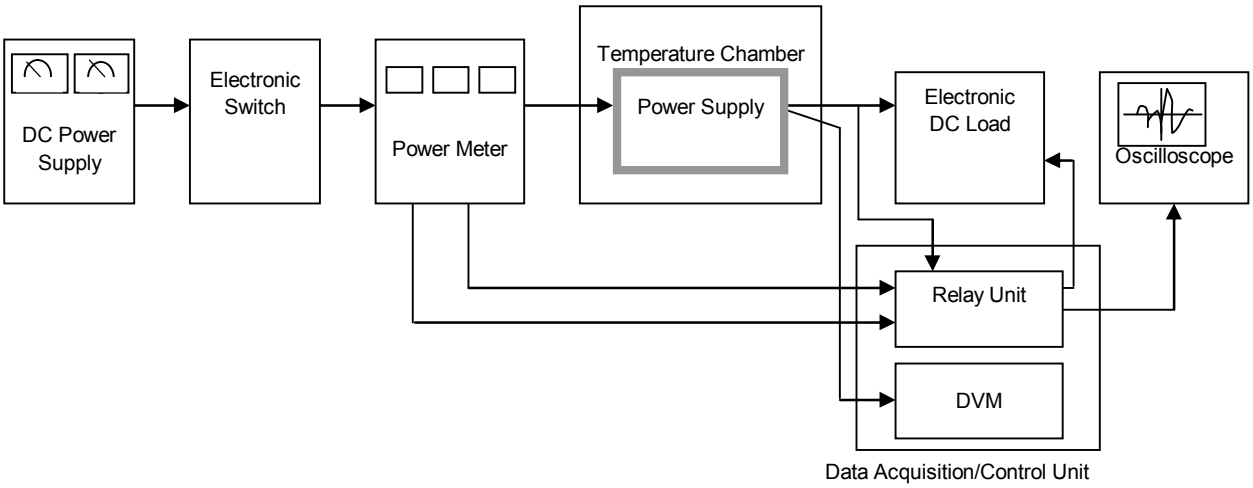


Figure A

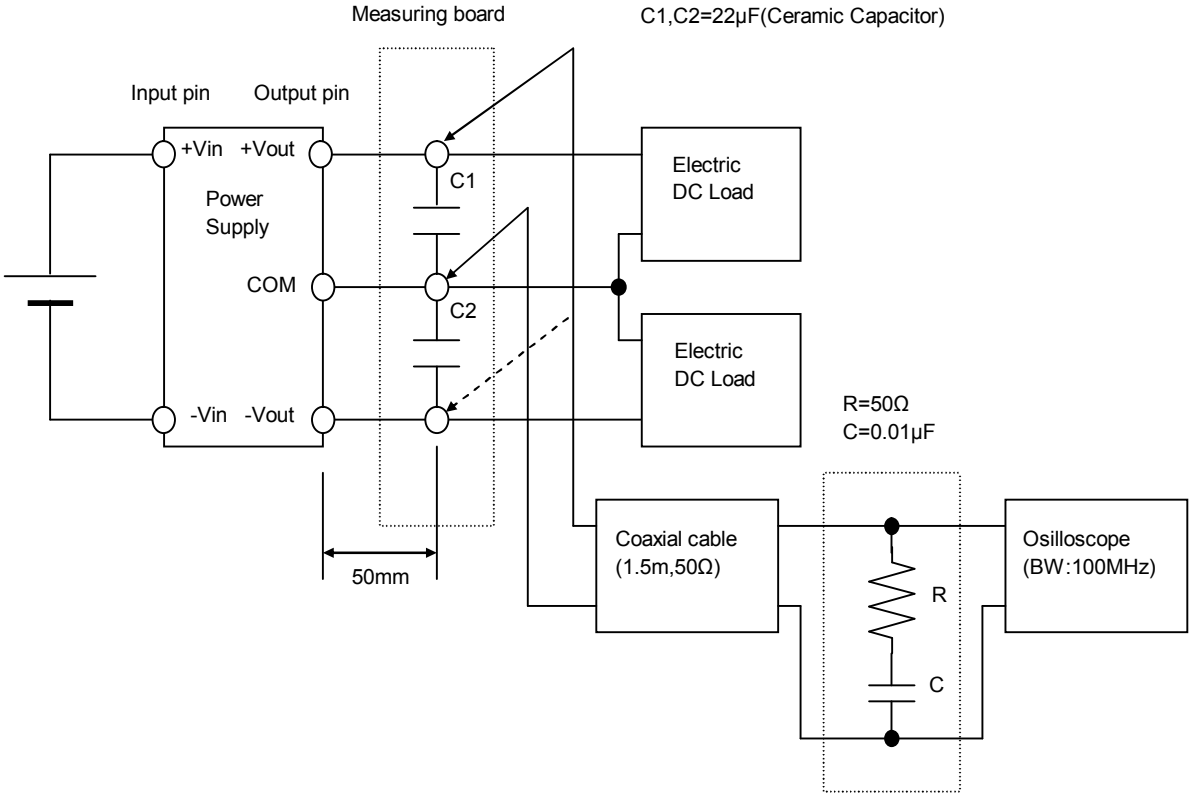


Figure B（Ripple and Ripple noise Characteristic）