COSEL

参考資料

TEST DATA OF MGW301205

Regulated DC Power Supply
November 26, 2010

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COSEL CO.,LTD.

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CONTENTS

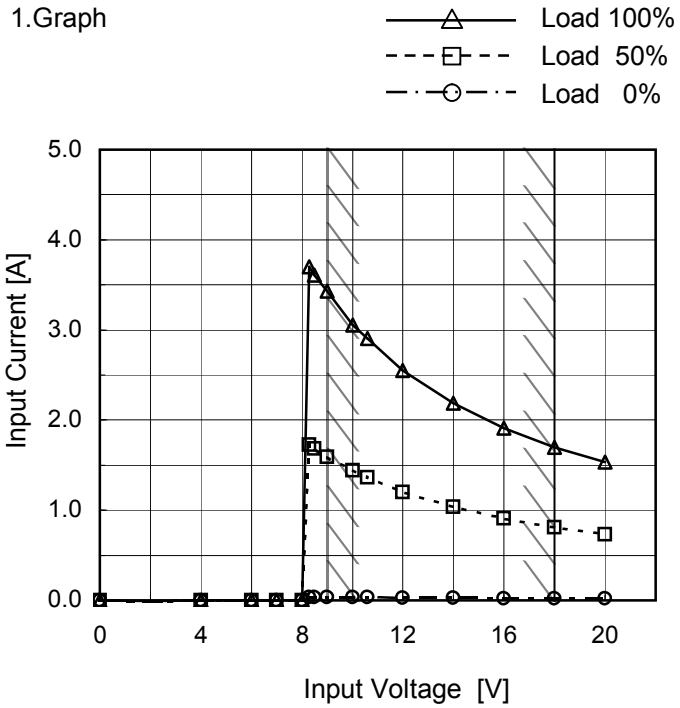
1.Input Current (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 1
2.Input Current (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・ 2
3.Input Power (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 3
4.Efficiency (by Input Voltage) ・・・・・・・・・・・・・・・・・・・・・・・・ 4
5.Efficiency (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・ 5
6.Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 6
7.Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 7
8.Dynamic Load Response ・・・・・・・・・・・・・・・・・・・・・・・・・・・ 8
9.Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・ 10
10.Ripple-Noise ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 12
11.Ripple Voltage (by Ambient Temperature) ・・・・・・・・・・・・・・・・・ 14
12.Ambient Temperature Drift ・・・・・・・・・・・・・・・・・・・・・・・・・ 15
13.Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・・・・・・・・・ 16
14.Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 17
15.Rise and Fall Time ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 18
16.Minimum Input Voltage for Regulated Output Voltage ・・・・・・・・・・ 20
17.Overcurrent Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・ 21
18.Overvoltage Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・ 22
19.Figure of Testing Circuitry ・・・・・・・・・・・・・・・・・・・・・・・・・ 23
(Final Page 23)

COSEL

Model	MGW301205
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
2.0	-0.004	-0.004	-0.004
4.0	-0.003	-0.003	-0.003
6.0	-0.002	-0.002	-0.002
7.0	-0.002	-0.002	-0.002
8.0	-0.002	-0.002	-0.002
8.3	0.035	1.728	3.702
8.5	0.035	1.686	3.607
9.0	0.036	1.588	3.429
10.0	0.036	1.443	3.057
10.6	0.037	1.361	2.906
12.0	0.032	1.202	2.548
14.0	0.026	1.034	2.190
16.0	0.022	0.908	1.912
18.0	0.020	0.813	1.696
20.0	0.019	0.735	1.535
--	-	-	-
--	-	-	-

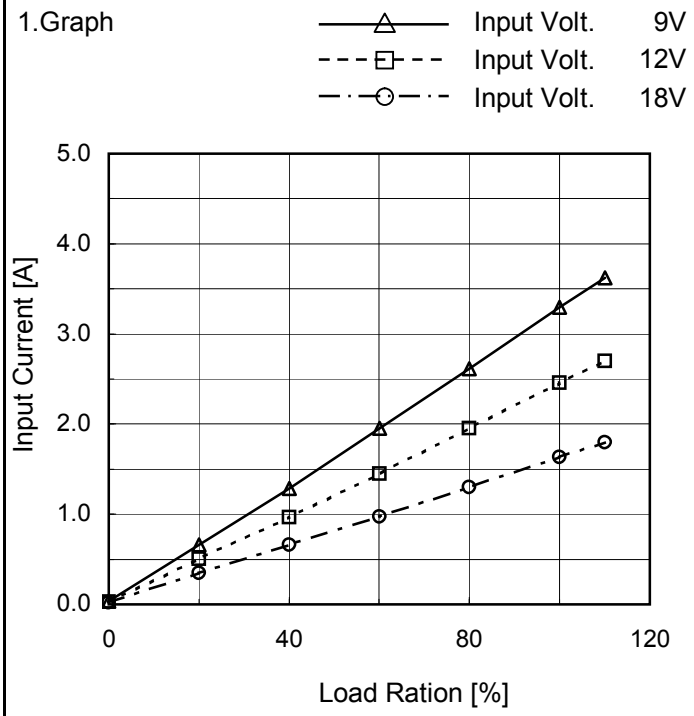
BC-10521

COSEL

Model	MGW301205
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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	0.035	0.031	0.020
20	0.658	0.502	0.348
40	1.286	0.967	0.658
60	1.950	1.448	0.974
80	2.614	1.952	1.297
100	3.298	2.454	1.630
110	3.620	2.698	1.799
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

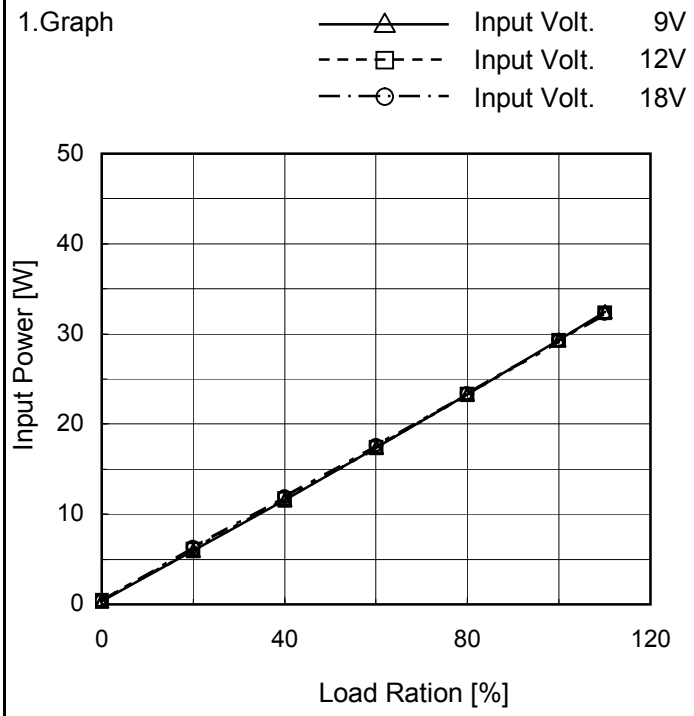
BC-10521

COSEL

Model	MGW301205
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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	0.33	0.39	0.36
20	6.00	6.10	6.31
40	11.60	11.69	11.93
60	17.40	17.39	17.62
80	23.28	23.28	23.35
100	29.33	29.23	29.25
110	32.43	32.28	32.24
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

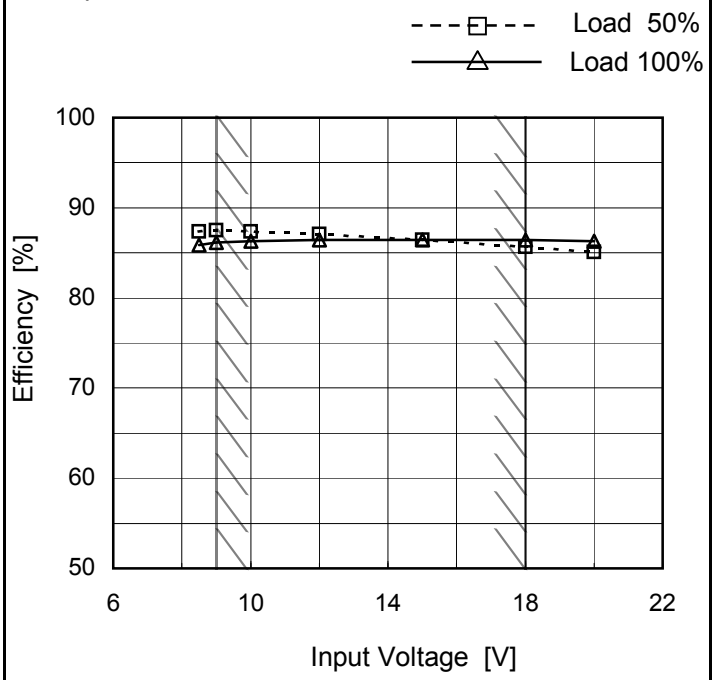
BC-10521

COSEL

Model	MGW301205
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%
8.5	87.4	85.9
9.0	87.5	86.1
10.0	87.3	86.3
12.0	87.1	86.4
15.0	86.4	86.5
18.0	85.7	86.4
20.0	85.1	86.3
--	-	-
--	-	-

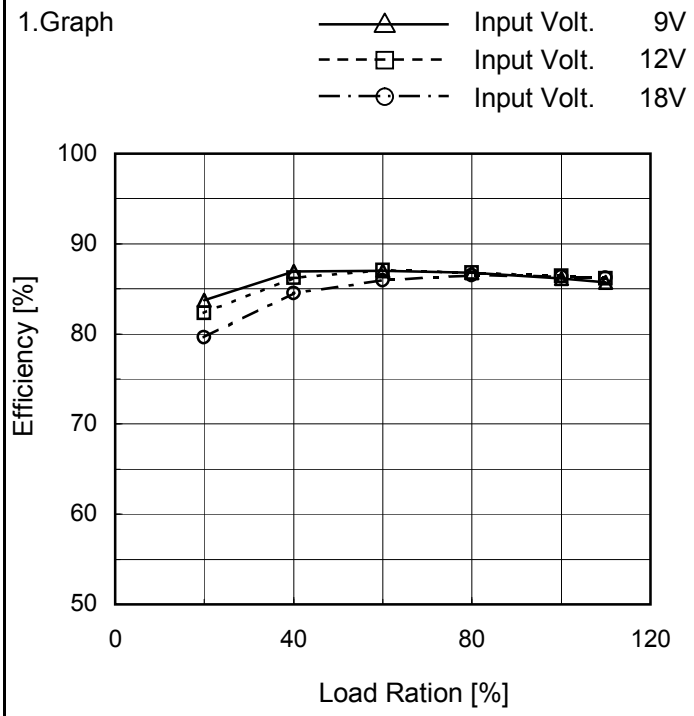
BC-10521

COSEL

Model	MGW301205
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	-	-	-
20	83.7	82.3	79.6
40	86.9	86.2	84.5
60	87.0	87.1	86.0
80	86.8	86.8	86.5
100	86.2	86.5	86.4
110	85.7	86.1	86.2
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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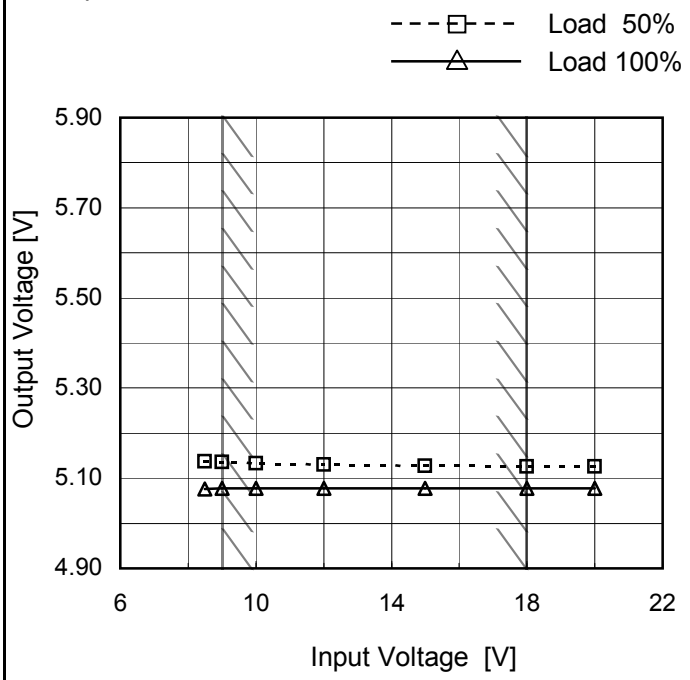
COSEL

Model	MGW301205
Item	Line Regulation
Object	+5V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



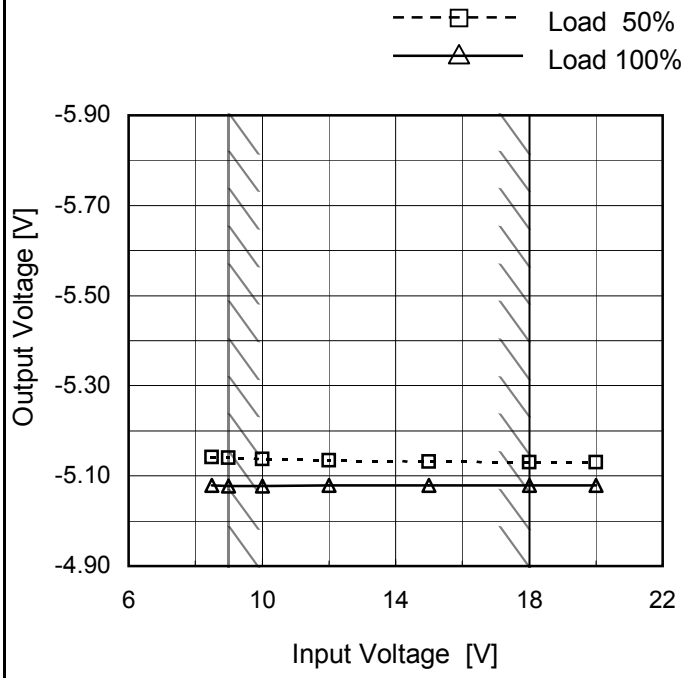
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	5.137	5.077
9.0	5.136	5.078
10.0	5.133	5.078
12.0	5.130	5.078
15.0	5.128	5.078
18.0	5.126	5.078
20.0	5.126	5.078
--	-	-
--	-	-

-5V: Rated output current

Object	-5V2.5A

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%
8.5	-5.142	-5.078
9.0	-5.140	-5.078
10.0	-5.138	-5.078
12.0	-5.135	-5.078
15.0	-5.132	-5.079
18.0	-5.130	-5.079
20.0	-5.130	-5.079
--	-	-
--	-	-

+5V: Rated output current

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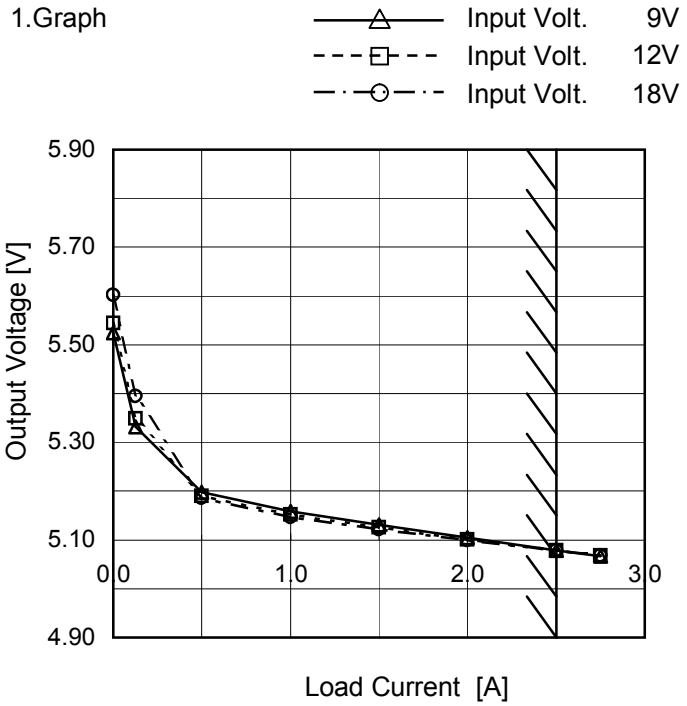
Model	MGW301205
Item	Load Regulation
Object	+5V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



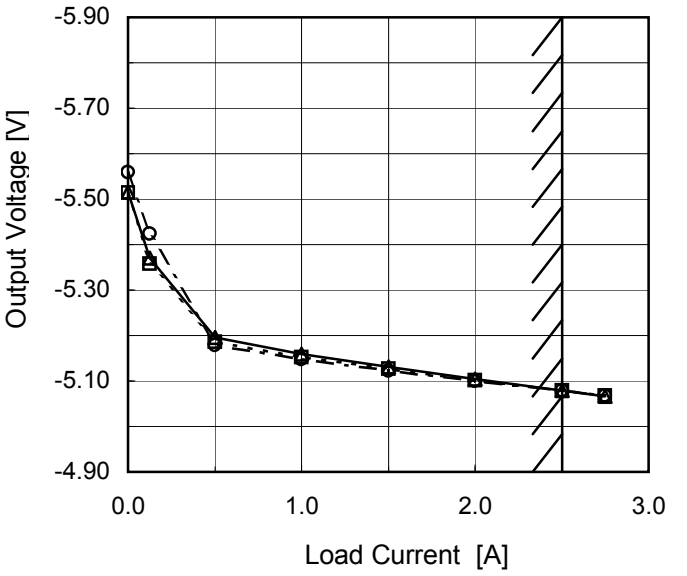
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.000	5.524	5.544	5.602
0.125	5.332	5.349	5.395
0.500	5.198	5.190	5.186
1.000	5.159	5.152	5.147
1.500	5.131	5.125	5.122
2.000	5.104	5.101	5.099
2.500	5.079	5.078	5.078
2.750	5.066	5.067	5.068
--	-	-	-
--	-	-	-
--	-	-	-

-5V: Rated output current

Object	-5V2.5A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.000	-5.516	-5.514	-5.559
0.125	-5.370	-5.358	-5.425
0.500	-5.195	-5.186	-5.178
1.000	-5.160	-5.153	-5.147
1.500	-5.131	-5.126	-5.123
2.000	-5.105	-5.102	-5.100
2.500	-5.079	-5.079	-5.079
2.750	-5.066	-5.067	-5.068
--	-	-	-
--	-	-	-
--	-	-	-

+5V: Rated output current

BC-10521

COSEL

Model	MGW301205
Item	Dynamic Load Response
Object	+5V2.5A

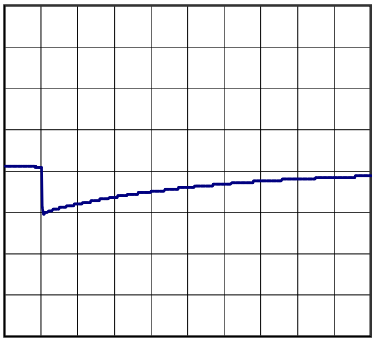
Temperature 25°C
Testing Circuitry Figure A

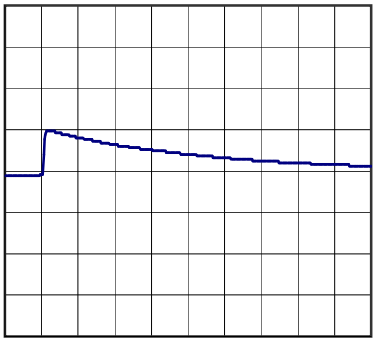
Input Volt. 12 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

Load Current

Min. Load (0A) ←→
Load 100% (2.5A)

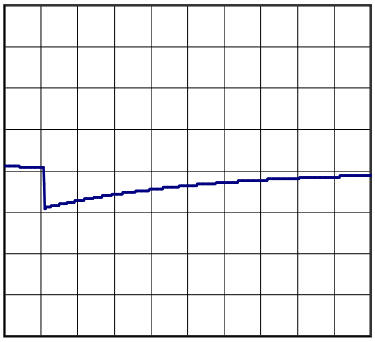


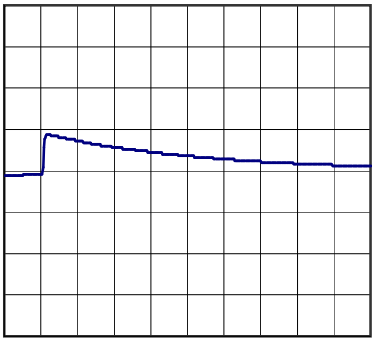


500mV/div

50ms/div 50ms/div

Min. Load (0A) ←→
Load 50% (1.25A)

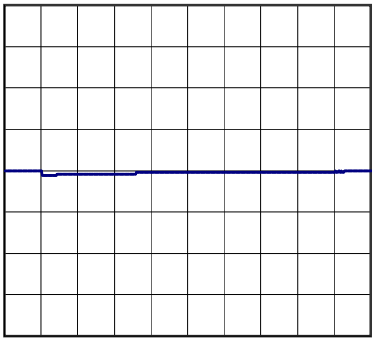


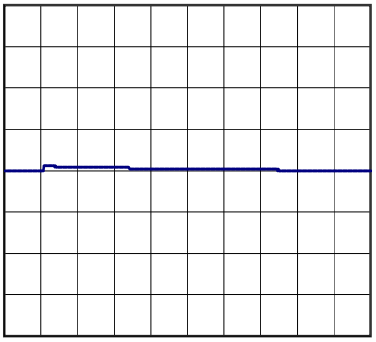


500mV/div

50ms/div 50ms/div

Load 50% (1.25A) ←→
Load 100% (2.5A)





500mV/div

50ms/div 50ms/div

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Model	MGW301205	Temperature 25°C
Item	Dynamic Load Response	Testing Circuitry Figure A
Object	-5V2.5A	

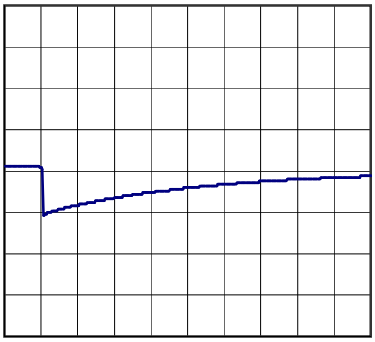
Input Volt. 12 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

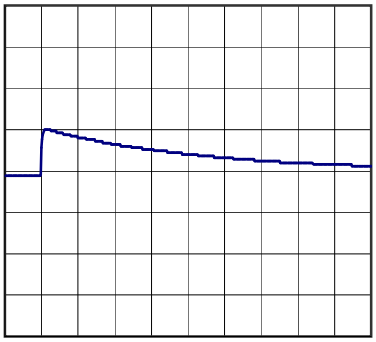
Load Current

Min. Load (0A) ←→
Load 100% (2.5A)

500mV/div



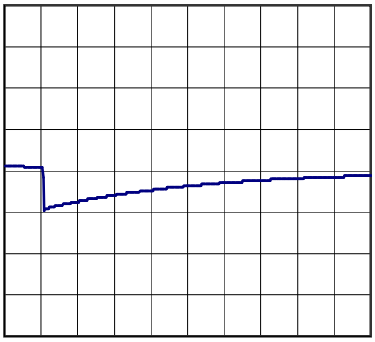
50ms/div



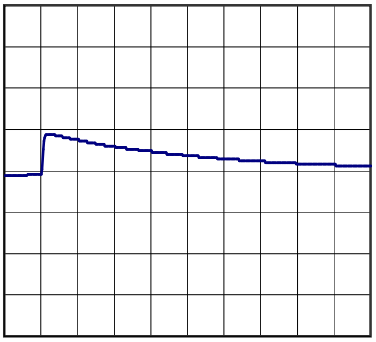
50ms/div

Min. Load (0A) ←→
Load 50% (1.25A)

500mV/div



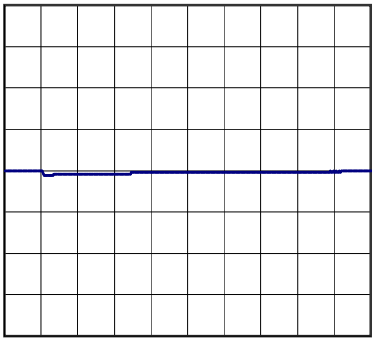
50ms/div



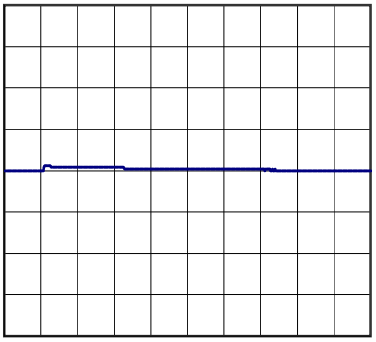
50ms/div

Load 50% (1.25A) ←→
Load 100% (2.5A)

500mV/div



50ms/div



50ms/div

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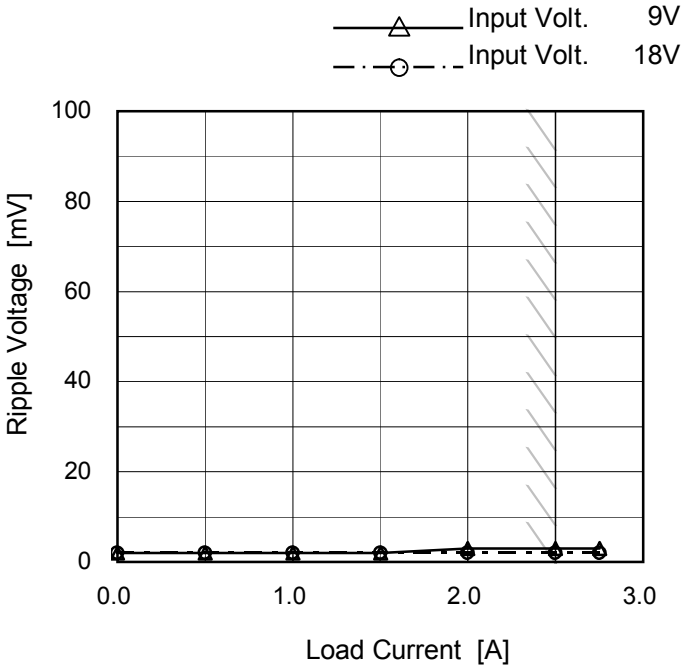
Model	MGW301205
Item	Ripple Voltage (by Load Current)
Object	+5V2.5A

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.

Ripple [mVp-p]

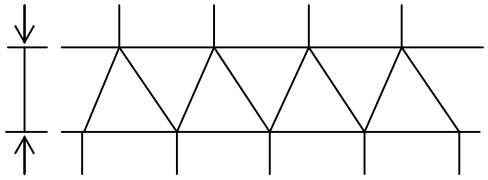


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	2	2
0.50	2	2
1.00	2	2
1.50	2	2
2.00	3	2
2.50	3	2
2.75	3	2
--	-	-
--	-	-
--	-	-
--	-	-

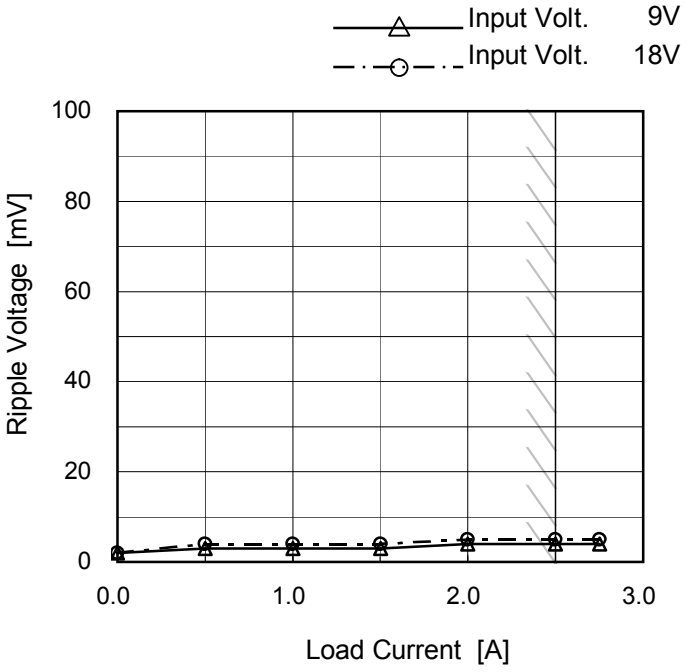
-5V: Rated output current

COSEL

Model	MGW301205
Item	Ripple Voltage (by Load Current)
Object	-5V2.5A

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.

Ripple [mVp-p]

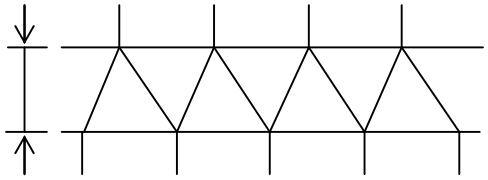


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	2	2
0.50	3	4
1.00	3	4
1.50	3	4
2.00	4	5
2.50	4	5
2.75	4	5
--	-	-
--	-	-
--	-	-
--	-	-

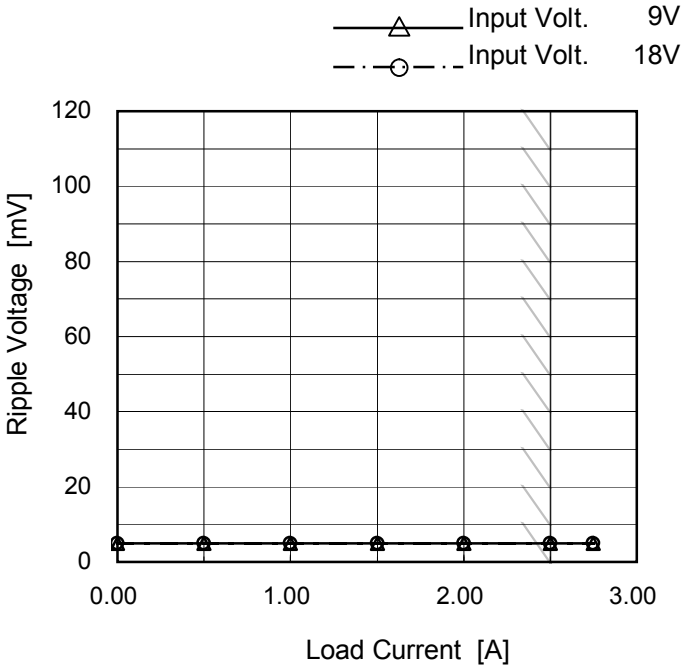
+5V: Rated output current

COSEL

Model	MGW301205
Item	Ripple-Noise
Object	+5V2.5A

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.

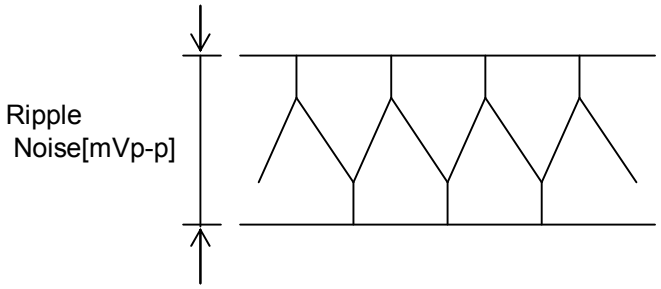


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	5	5
0.50	5	5
1.00	5	5
1.50	5	5
2.00	5	5
2.50	5	5
2.75	5	5
--	-	-
--	-	-
--	-	-
--	-	-

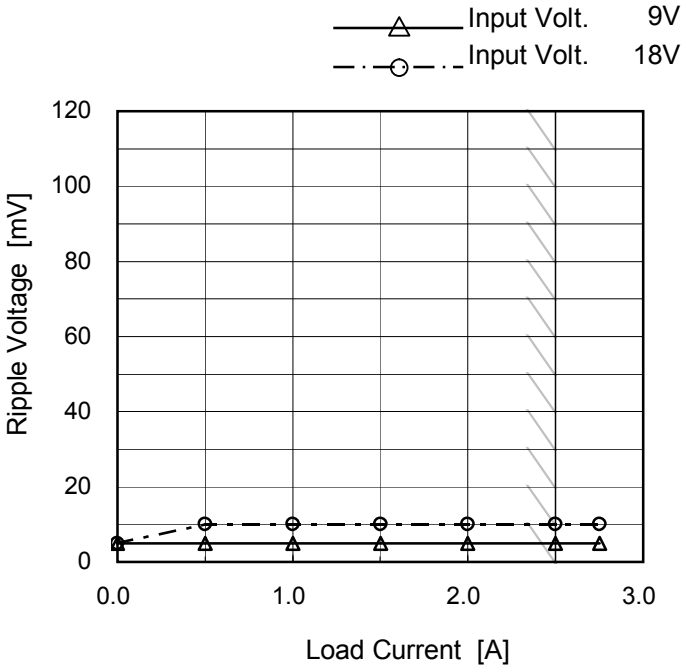
-5V: Rated output current

COSEL

Model	MGW301205
Item	Ripple-Noise
Object	-5V2.5A

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.

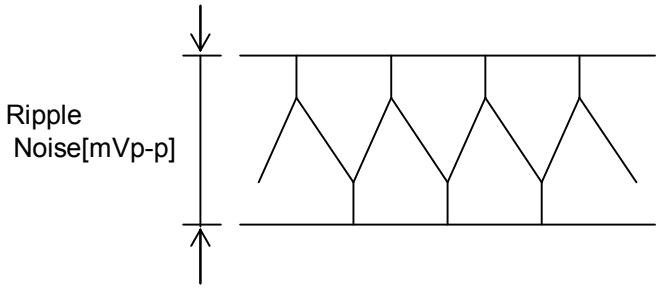


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	5	5
0.50	5	10
1.00	5	10
1.50	5	10
2.00	5	10
2.50	5	10
2.75	5	10
--	-	-
--	-	-
--	-	-
--	-	-

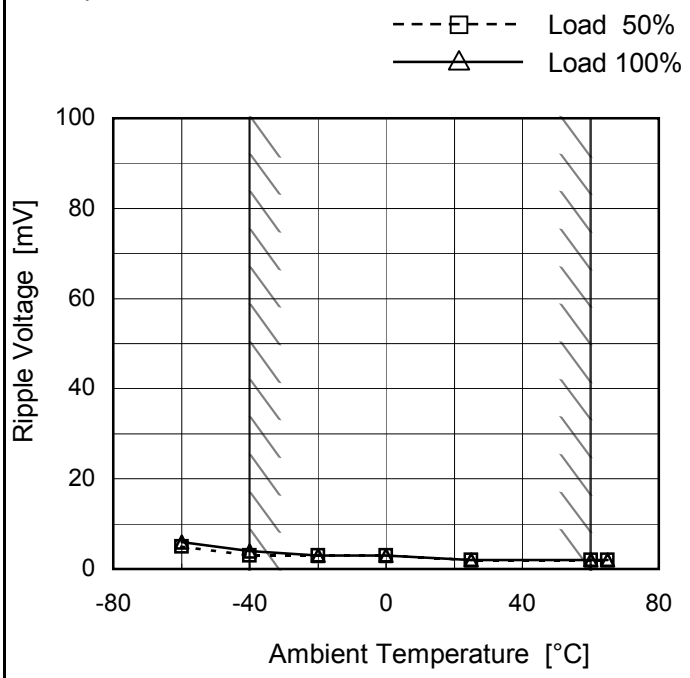
+5V: Rated output current

COSEL

Model	MGW301205
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V2.5A

Testing Circuitry Figure A

1.Graph



Input Volt. 12V

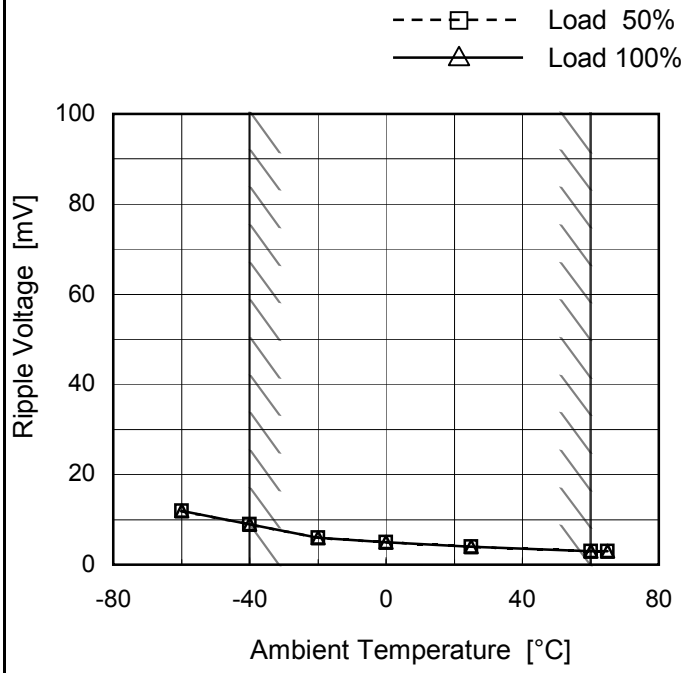
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	6
-40	3	4
-20	3	3
0	3	3
25	2	2
60	2	2
65	2	2
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Object	-5V2.5A

1.Graph



Input Volt. 12V

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	12	12
-40	9	9
-20	6	6
0	5	5
25	4	4
60	3	3
65	3	3
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

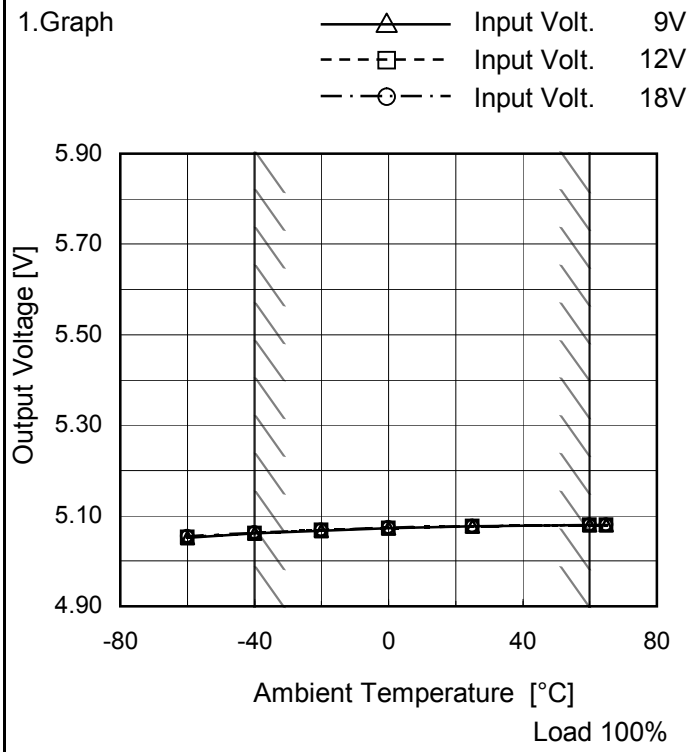
COSEL

Model	MGW301205
Item	Ambient Temperature Drift

Testing Circuitry Figure A

Object +5V2.5A

1.Graph

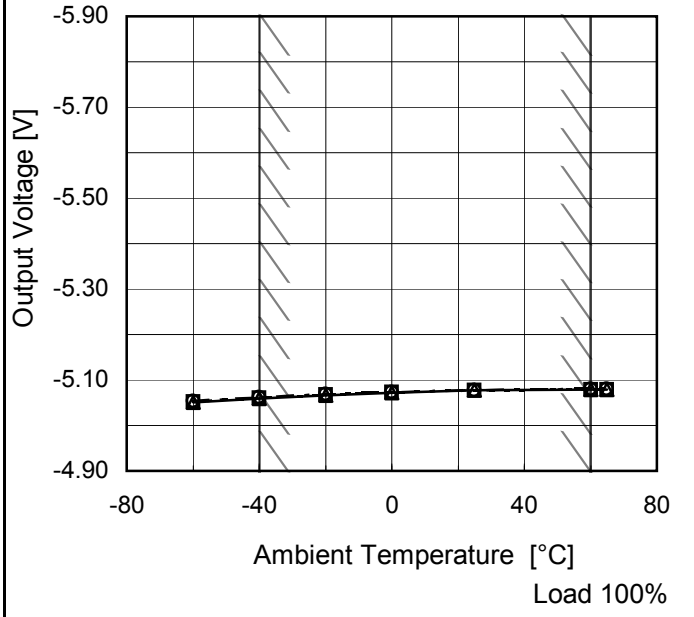


2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	5.052	5.053	5.054
-40	5.061	5.061	5.062
-20	5.068	5.068	5.069
0	5.073	5.073	5.073
25	5.077	5.077	5.077
60	5.079	5.079	5.079
65	5.080	5.080	5.079
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object -5V2.5A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	-5.051	-5.052	-5.054
-40	-5.059	-5.061	-5.062
-20	-5.067	-5.068	-5.069
0	-5.072	-5.073	-5.074
25	-5.077	-5.077	-5.078
60	-5.079	-5.079	-5.080
65	-5.079	-5.080	-5.080
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW301205	
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 : 9 - 18V
Load Current (AVR 1) : 0 - 2.5A (AVR 2) : 0 - 2.5A

* 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	+5V2.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	18	0	5.606	±273	±5.5
Minimum Voltage	-40	9	2.5	5.061		

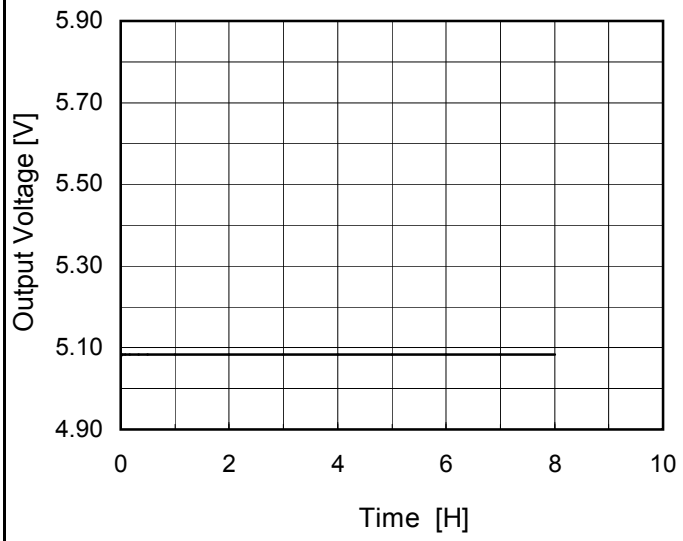
Object	-5V2.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	18	0	-5.568	±255	±5.1
Minimum Voltage	-40	9	2.5	-5.059		

COSEL

Model	MGW301205
Item	Time Lapse Drift
Object	+5V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



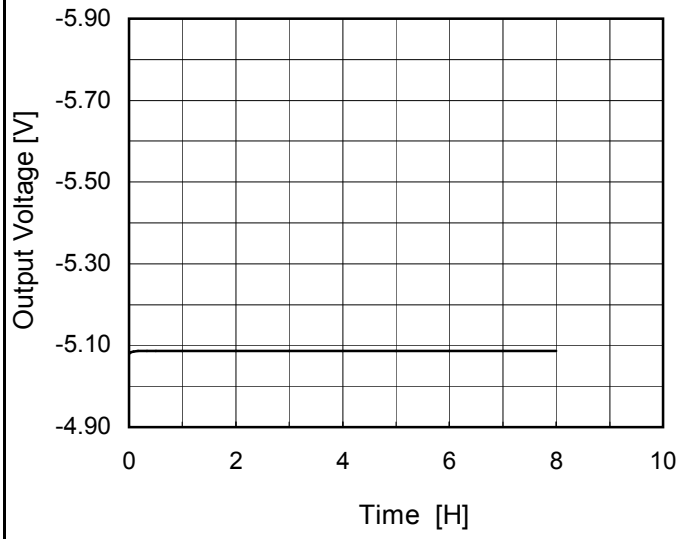
Input Volt. 12V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.078
0.5	5.084
1.0	5.083
2.0	5.083
3.0	5.083
4.0	5.083
5.0	5.083
6.0	5.083
7.0	5.083
8.0	5.083

Object	-5V2.5A

1.Graph



Input Volt. 12V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-5.079
0.5	-5.086
1.0	-5.086
2.0	-5.086
3.0	-5.086
4.0	-5.086
5.0	-5.086
6.0	-5.086
7.0	-5.086
8.0	-5.086

BC-10521

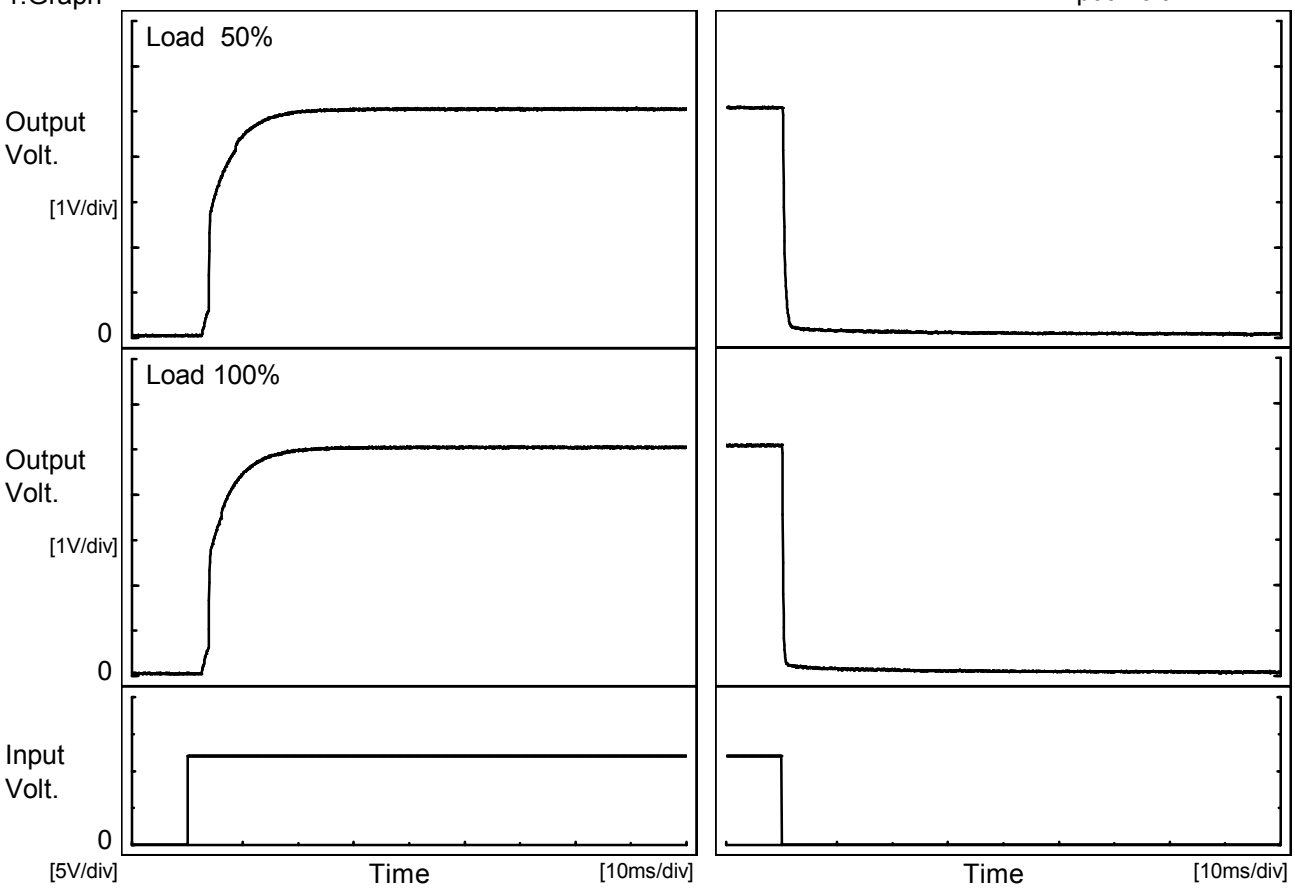
COSEL

Model	MGW301205
Item	Rise and Fall Time
Object	+5V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

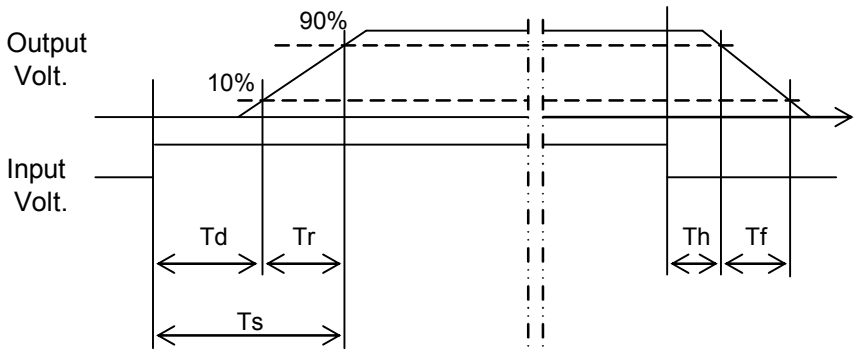
Input Volt. 12 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	3.7	6.9	10.6	0.2	0.9
100 %	3.5	7.2	10.7	0.2	0.4



BC-10521

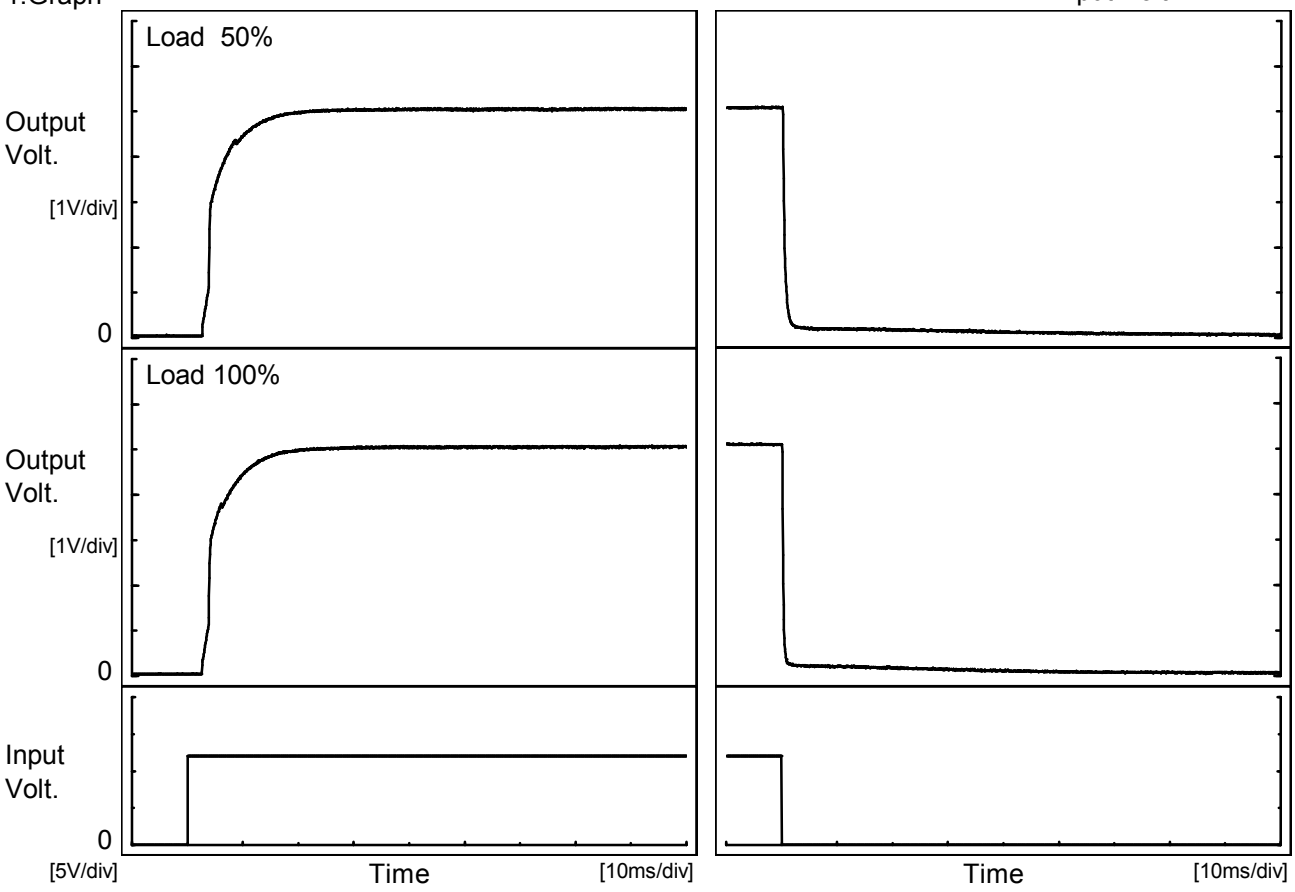
COSEL

Model	MGW301205
Item	Rise and Fall Time
Object	-5V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

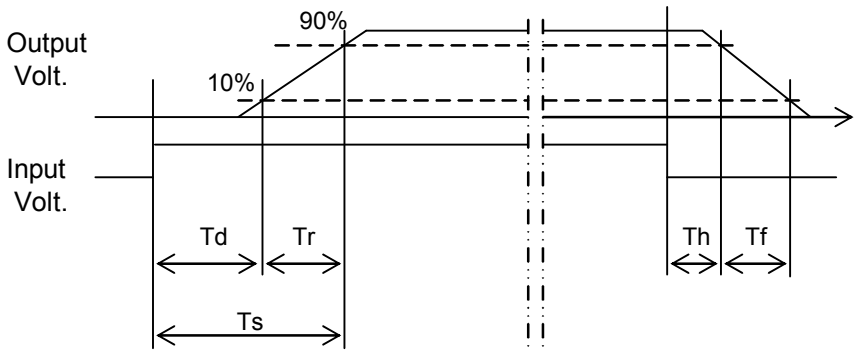
Input Volt. 12 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	3.1	7.6	10.7	0.2	1.0
100 %	3.0	7.7	10.7	0.2	0.5



BC-10521

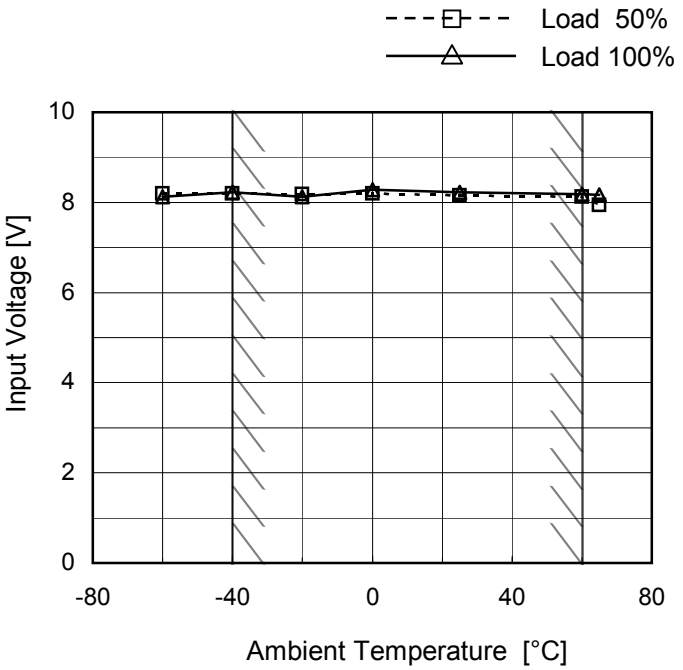
COSEL

Model	MGW301205
Item	Minimum Input Voltage for Regulated Output Voltage

Testing Circuitry Figure A

Object: +5V2.5A

1.Graph

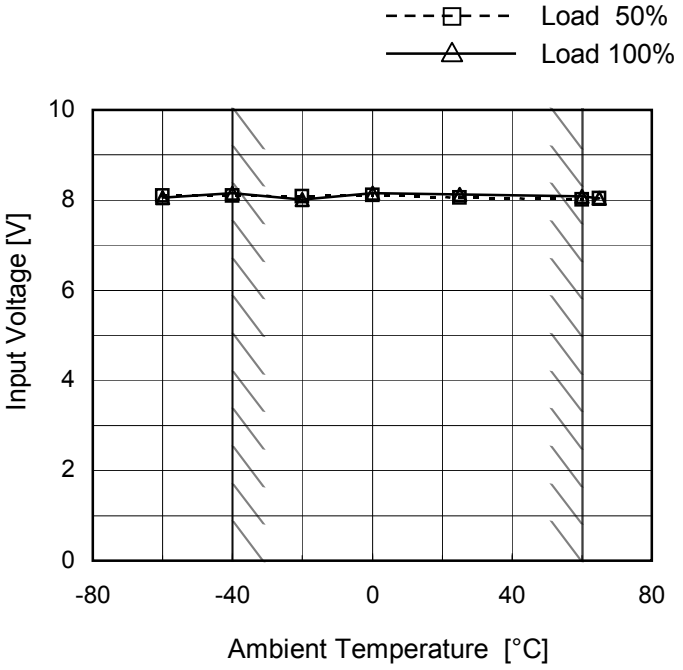


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.2	8.2
-40	8.2	8.3
-20	8.2	8.2
0	8.2	8.3
25	8.2	8.3
60	8.2	8.2
65	8.0	8.2
--	-	-
--	-	-
--	-	-
--	-	-

Object: -5V2.5A

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%
-60	8.1	8.1
-40	8.1	8.2
-20	8.1	8.1
0	8.2	8.2
25	8.1	8.2
60	8.1	8.1
65	8.1	8.1
--	-	-
--	-	-
--	-	-
--	-	-

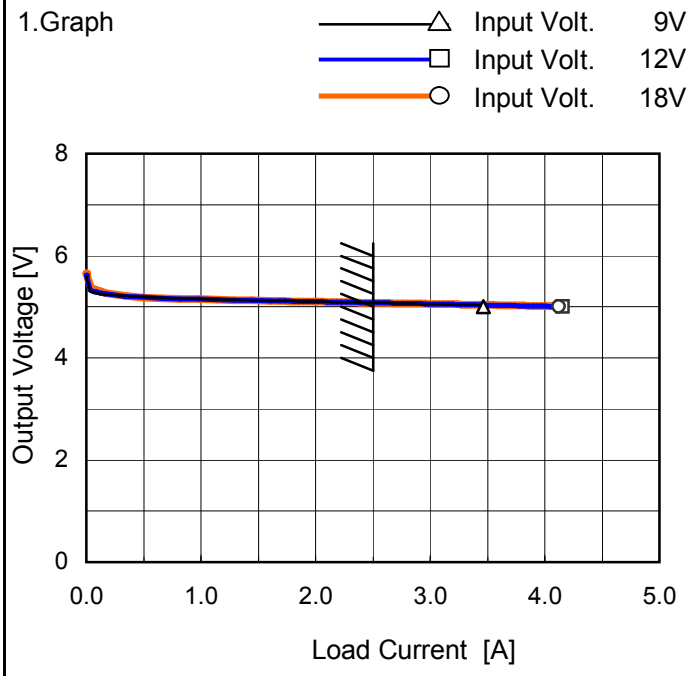
COSEL

Model	MGW301205
Item	Overcurrent Protection

Temperature 25°C
Testing Circuitry Figure A

Object +5V2.5A

1.Graph

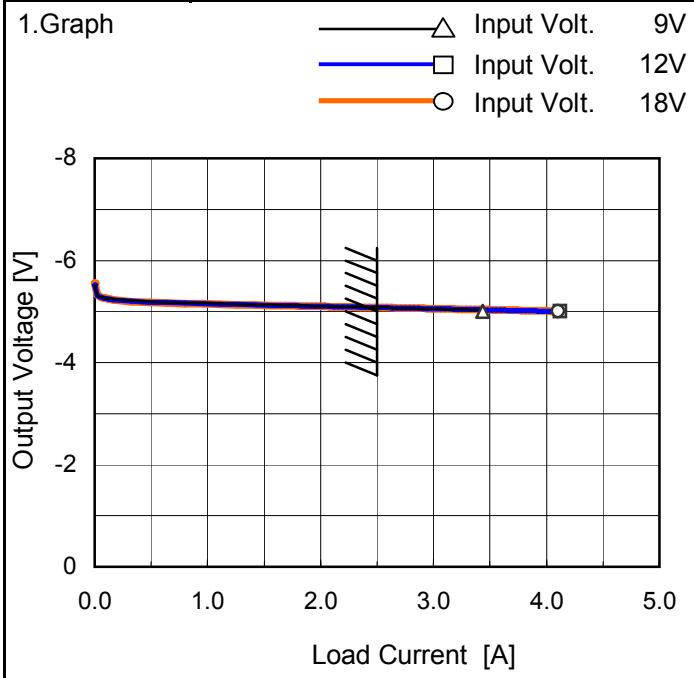


2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
5.00	3.47	4.16	4.12
4.75	-	-	-
4.50	-	-	-
4.00	-	-	-
3.50	-	-	-
3.00	-	-	-
2.50	-	-	-
2.00	-	-	-
1.50	-	-	-
1.00	-	-	-
0.50	-	-	-
0.00	-	-	-

Object -5V2.5A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

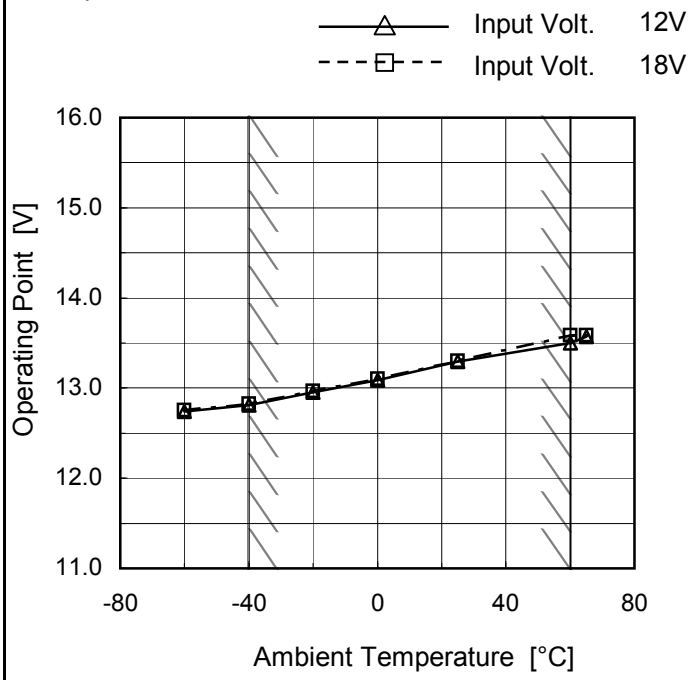
Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-5.00	3.44	4.12	4.11
-4.75	-	-	-
-4.50	-	-	-
-4.00	-	-	-
-3.50	-	-	-
-3.00	-	-	-
-2.50	-	-	-
-2.00	-	-	-
-1.50	-	-	-
-1.00	-	-	-
-0.50	-	-	-
0.00	-	-	-

COSEL

Model	MGW301205
Item	Overvoltage Protection
Object	+10V2.5A

Testing Circuitry Figure A

1.Graph



Load 0%

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

Measured as a single output(+10V).

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 12[V]	Input Volt. 18[V]
-60	12.74	12.76
-40	12.81	12.82
-20	12.95	12.97
0	13.09	13.10
25	13.29	13.30
60	13.50	13.58
65	13.57	13.58
--	-	-
--	-	-
--	-	-
--	-	-

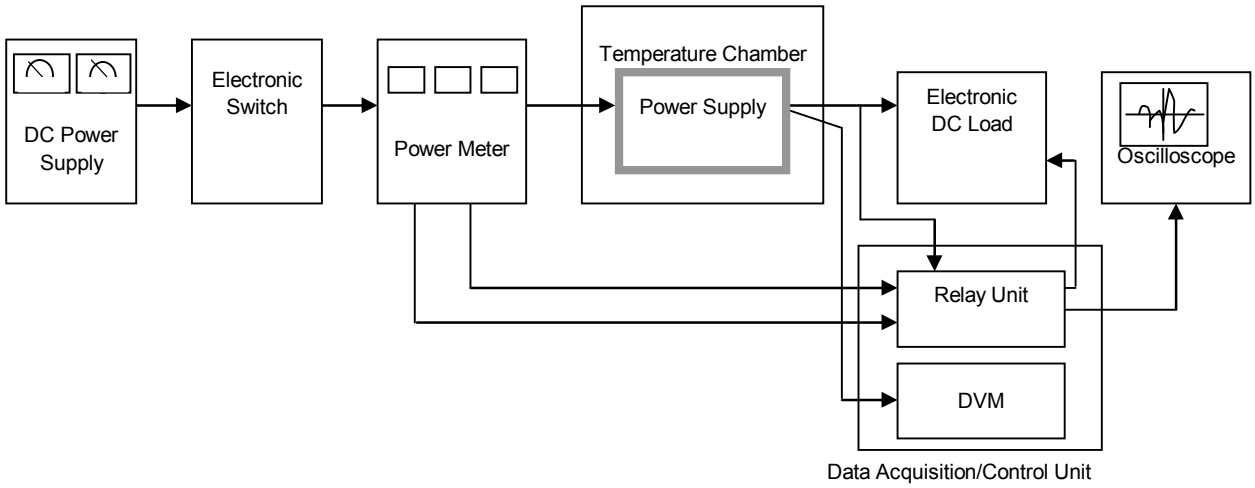


Figure A

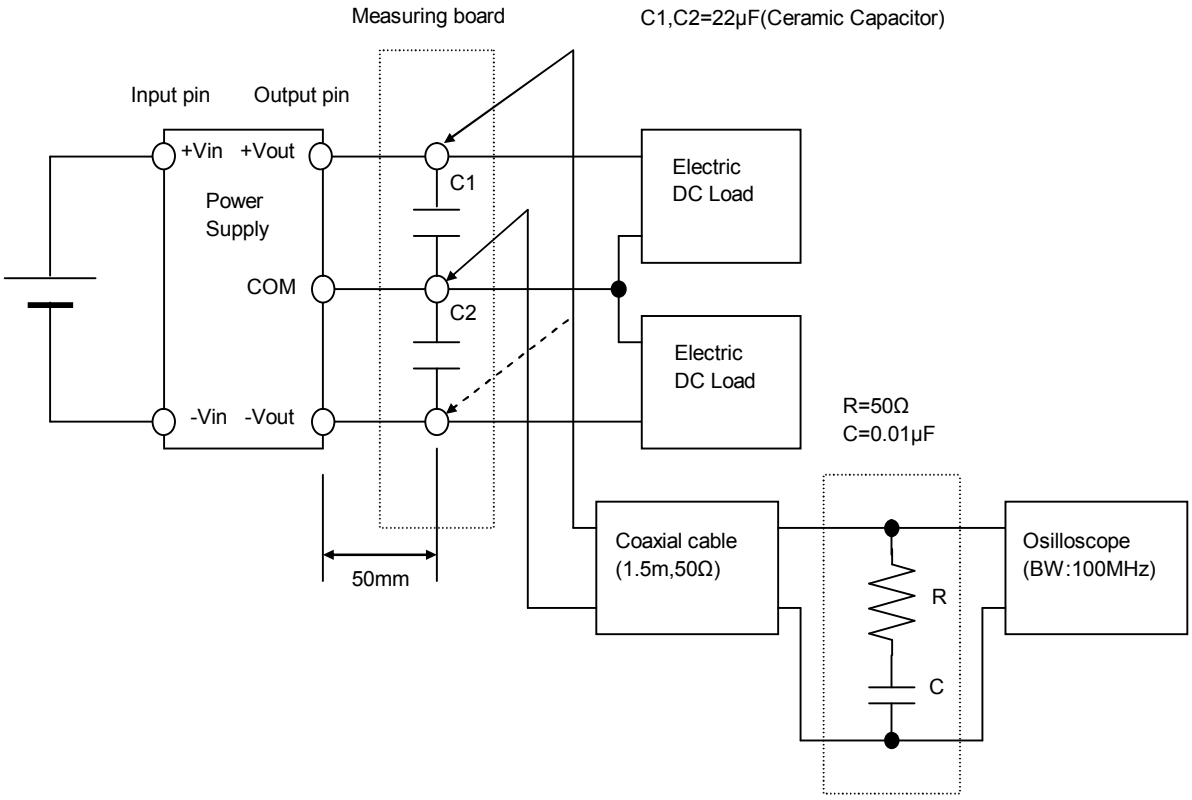


Figure B（Ripple and Ripple noise Characteristic）