COSEL

参考資料

TEST DATA OF MGW151205

Regulated DC Power Supply
September 10, 2010

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Kazunari Asano Design Manager

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Shintaro Mizukami Design Engineer

COSEL CO.,LTD.

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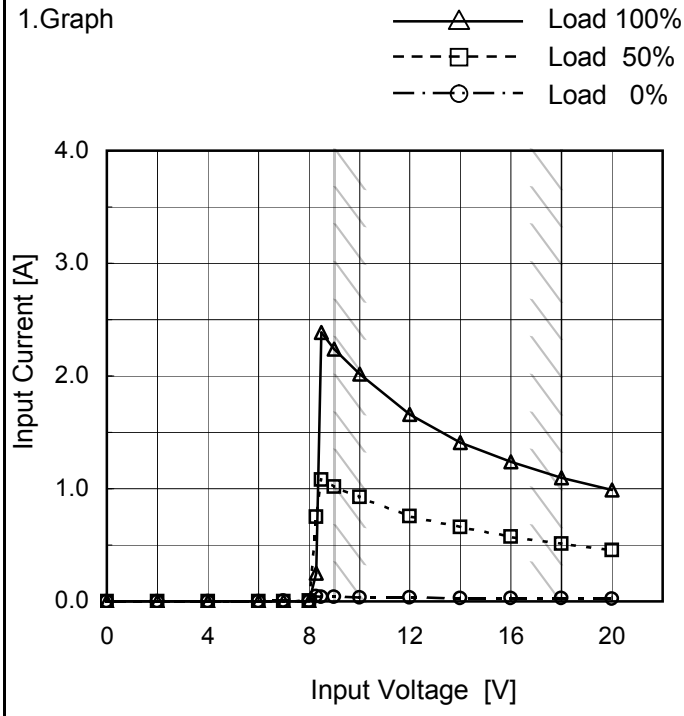
Model	MGW151205
Item	Input Current (by Input Voltage)
Object	————————

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	0.000	0.001	0.000
4.0	0.002	0.002	0.002
6.0	0.002	0.001	0.002
7.0	0.003	0.002	0.002
8.0	0.003	0.003	0.002
8.3	0.043	0.753	0.248
8.5	0.042	1.078	2.389
9.0	0.038	1.016	2.236
10.0	0.035	0.923	2.018
12.0	0.033	0.757	1.657
14.0	0.031	0.657	1.411
16.0	0.029	0.576	1.237
18.0	0.028	0.510	1.099
20.0	0.025	0.455	0.989
--	-	-	-
--	-	-	-
--	-	-	-

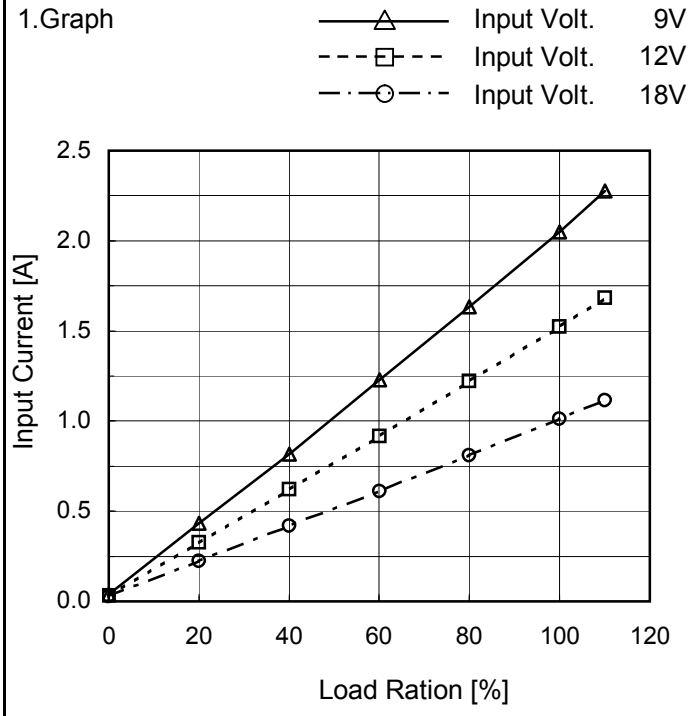
BC-10459

COSEL

Model	MGW151205
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

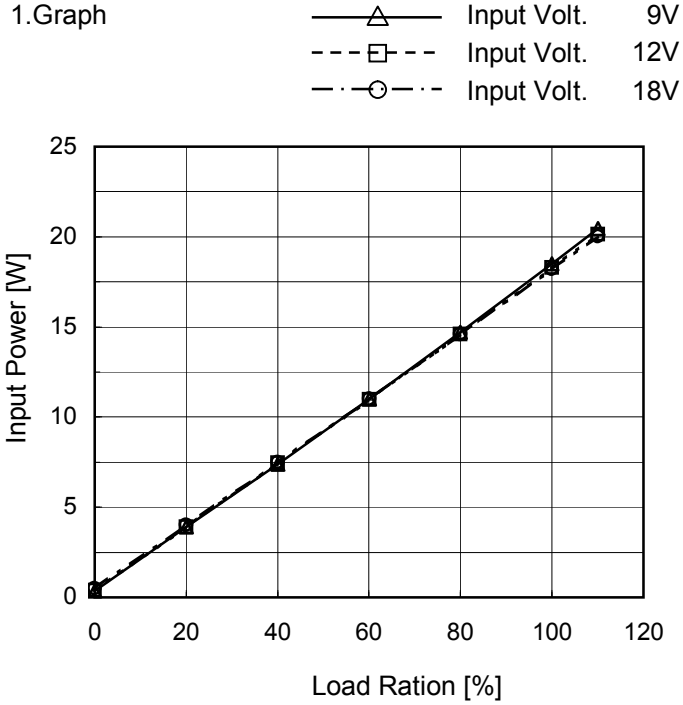
Load Ration [%]	Input Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	0.039	0.033	0.027
20	0.434	0.326	0.223
40	0.817	0.623	0.418
60	1.229	0.916	0.611
80	1.635	1.221	0.810
100	2.050	1.523	1.013
110	2.275	1.682	1.116
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW151205
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

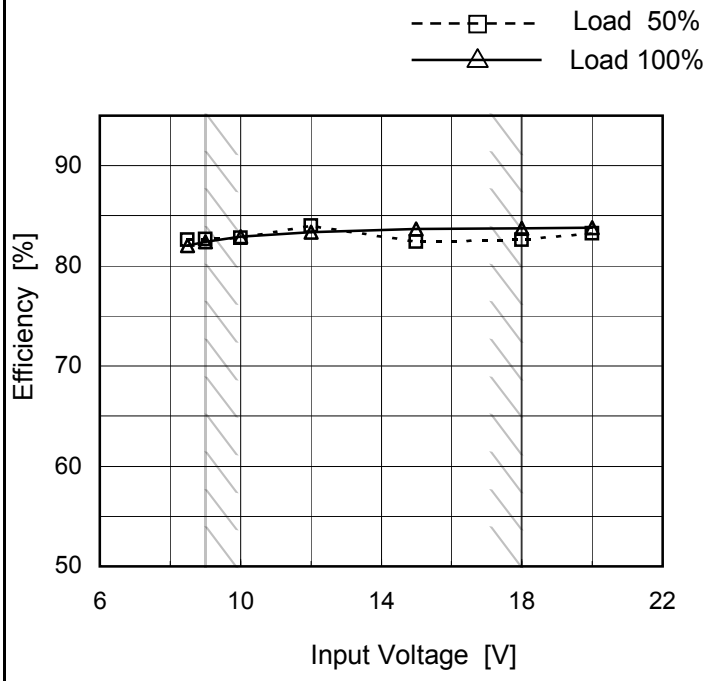
Load Ration [%]	Input Power [W] Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0	0.35	0.40	0.48
20	3.91	3.89	4.03
40	7.37	7.45	7.48
60	11.03	10.98	11.02
80	14.72	14.60	14.58
100	18.49	18.29	18.21
110	20.45	20.15	20.04
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW151205
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

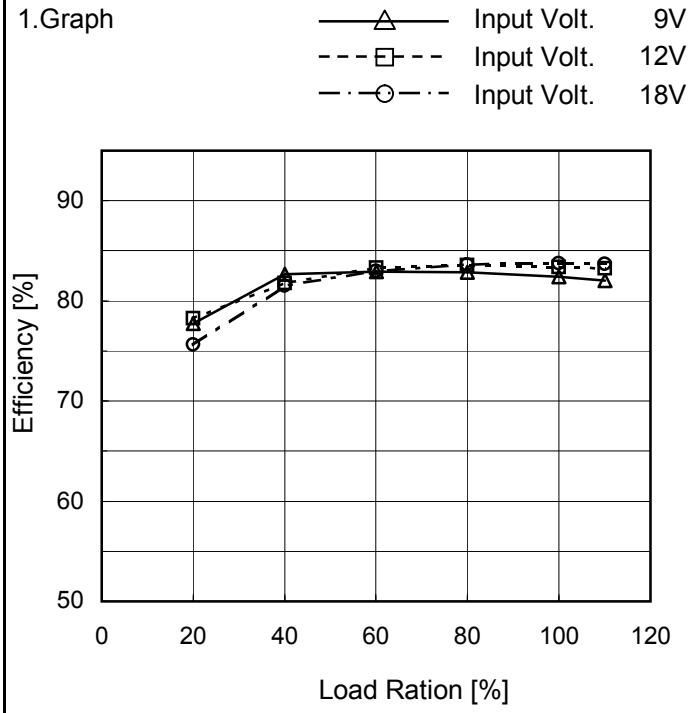
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	82.6	82.0
9.0	82.7	82.4
10.0	82.8	82.9
12.0	84.0	83.4
15.0	82.4	83.7
18.0	82.6	83.7
20.0	83.2	83.8
--	-	-
--	-	-

COSEL

Model	MGW151205
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	77.7	78.2	75.6
40	82.7	81.7	81.5
60	82.9	83.3	83.0
80	82.9	83.5	83.7
100	82.4	83.4	83.7
110	82.0	83.2	83.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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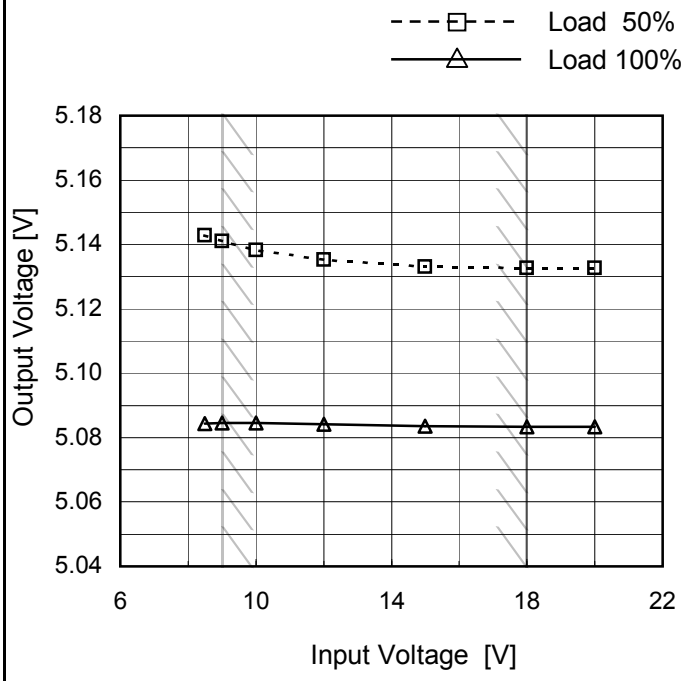
Model	MGW151205
Item	Line Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



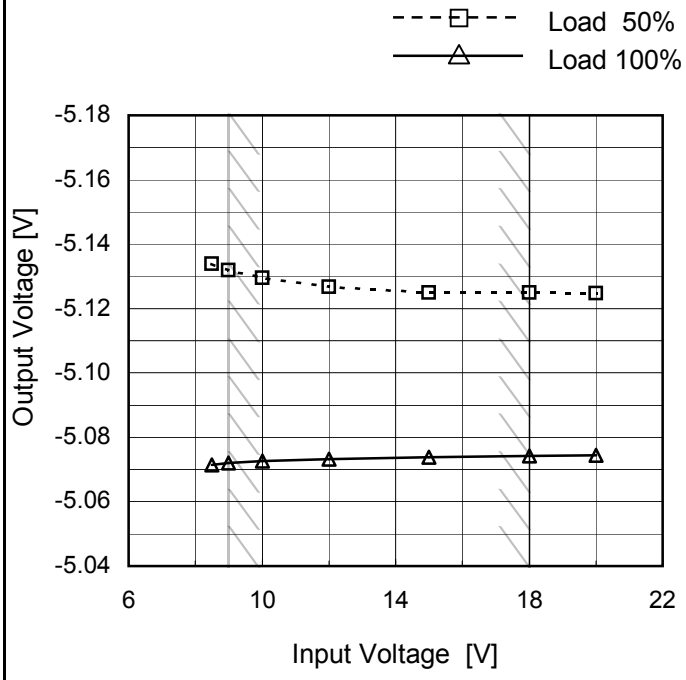
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	5.143	5.084
9.0	5.141	5.085
10.0	5.138	5.085
12.0	5.135	5.084
15.0	5.133	5.084
18.0	5.133	5.083
20.0	5.133	5.083
--	-	-
--	-	-

-5V: Rated output current

Object	-5V1.5A

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	-5.134	-5.072
9.0	-5.132	-5.072
10.0	-5.129	-5.073
12.0	-5.127	-5.073
15.0	-5.125	-5.074
18.0	-5.125	-5.074
20.0	-5.125	-5.075
--	-	-
--	-	-

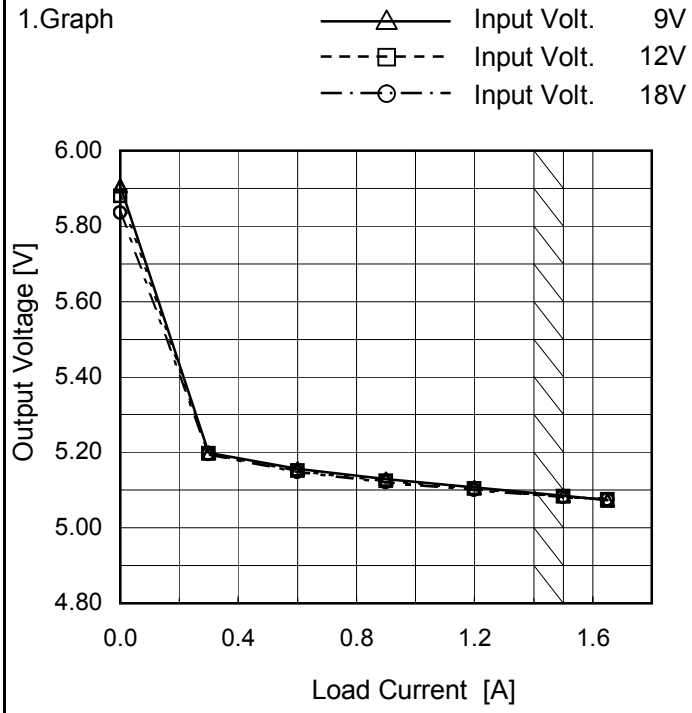
+5V: Rated output current

COSEL

Model	MGW151205
Item	Load Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



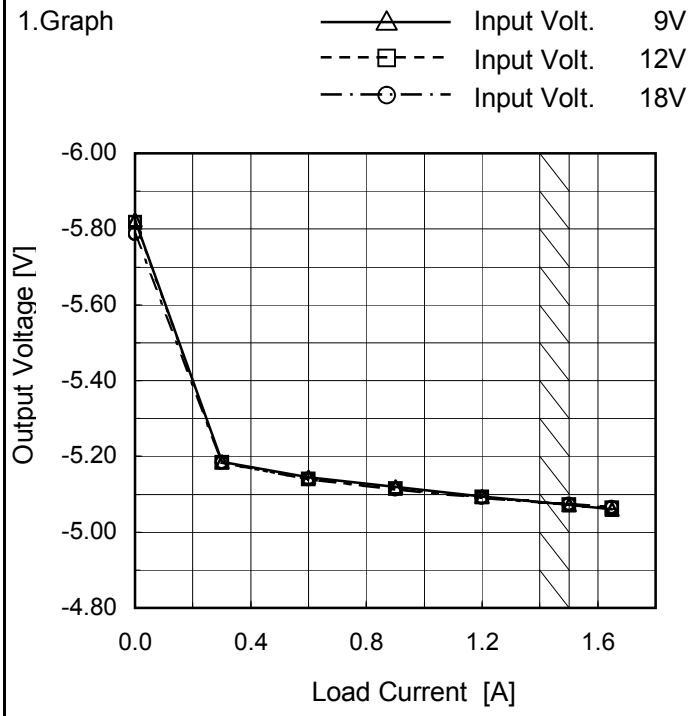
2.Values

Load Current [A]	Output Voltage [V] Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	5.906	5.880	5.835
0.30	5.200	5.198	5.196
0.60	5.157	5.151	5.148
0.90	5.130	5.125	5.121
1.20	5.107	5.103	5.100
1.50	5.085	5.084	5.083
1.65	5.074	5.074	5.074
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

-5V: Rated output current

Object	-5V1.5A

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]
0.00	-5.824	-5.817	-5.787
0.30	-5.185	-5.184	-5.184
0.60	-5.145	-5.140	-5.139
0.90	-5.119	-5.115	-5.112
1.20	-5.095	-5.093	-5.092
1.50	-5.072	-5.073	-5.074
1.65	-5.060	-5.063	-5.065
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

+5V: Rated output current

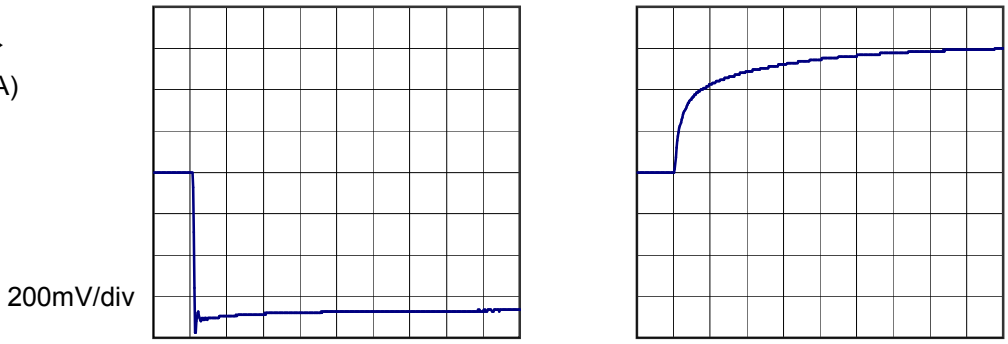
COSEL

Model	MGW151205
Item	Dynamic Load Response
Object	+5V1.5A

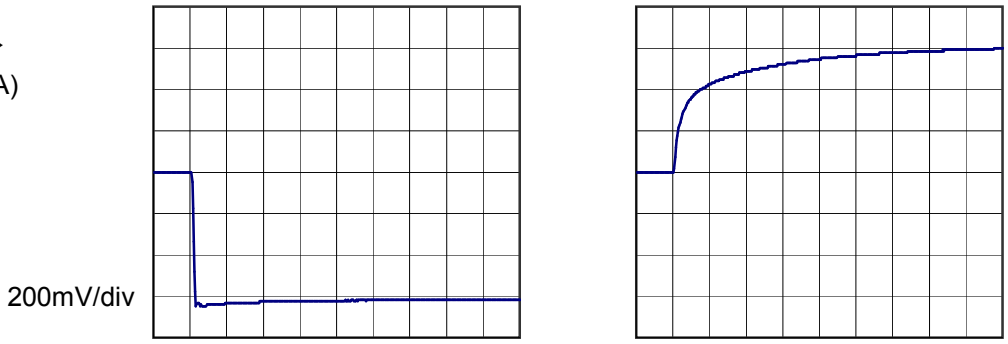
Temperature 25°C
Testing Circuitry Figure A

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

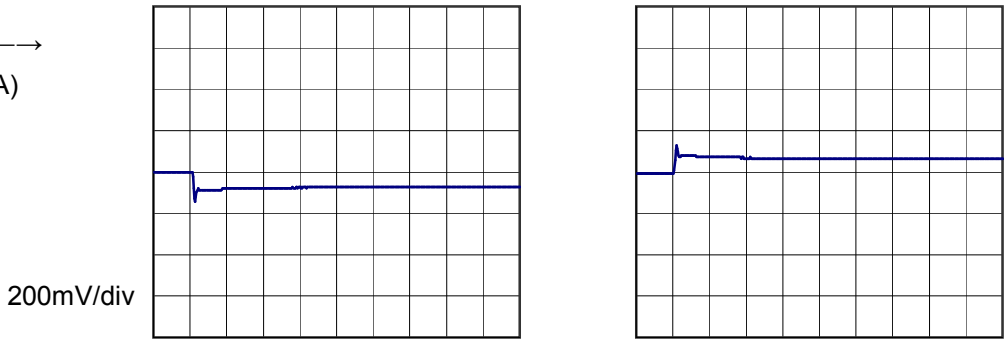
Min. Load (0A) ⟷
Load 100% (1.5A)



Min. Load (0A) ⟷
Load 50% (0.75A)



Load 50% (0.75A) ⟷
Load 100% (1.5A)



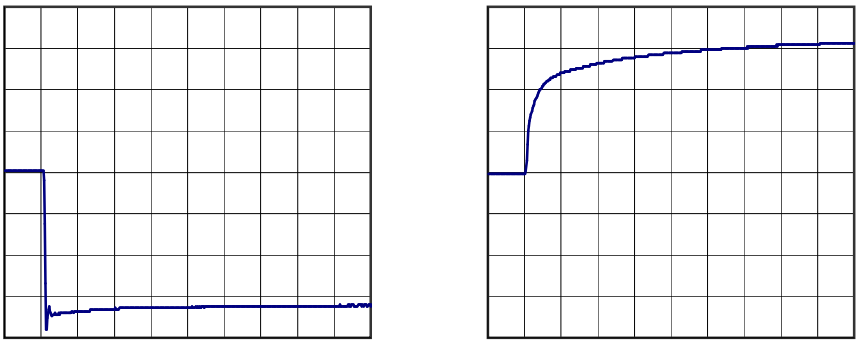
COSEL

Model	MGW151205
Item	Dynamic Load Response
Object	-5V1.5A

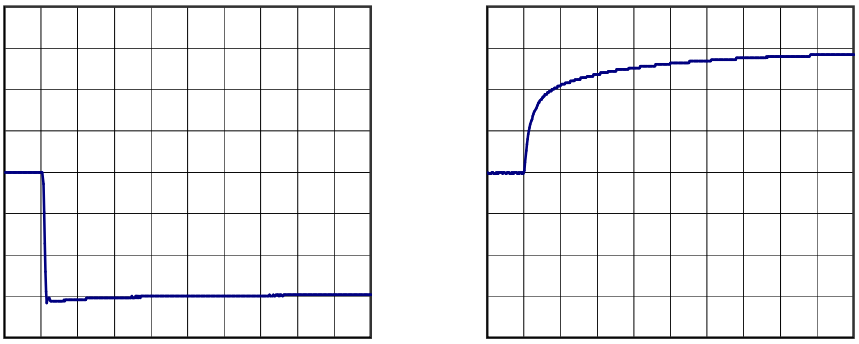
Temperature 25°C
Testing Circuitry Figure A

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

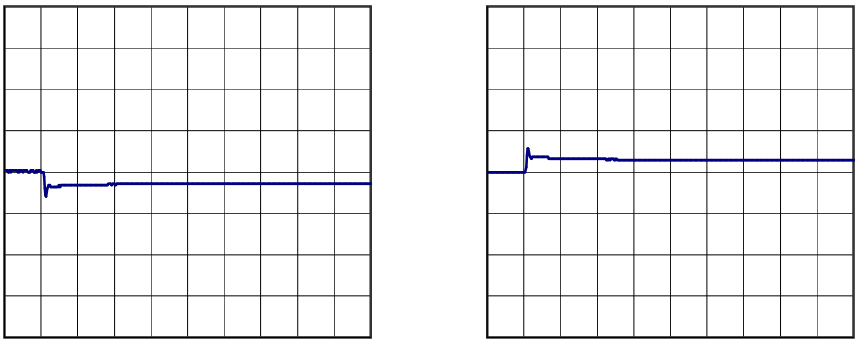
Min. Load (0A) ⟷
Load 100% (1.5A)



Min. Load (0A) ⟷
Load 50% (0.75A)



Load 50% (0.75A) ⟷
Load 100% (1.5A)



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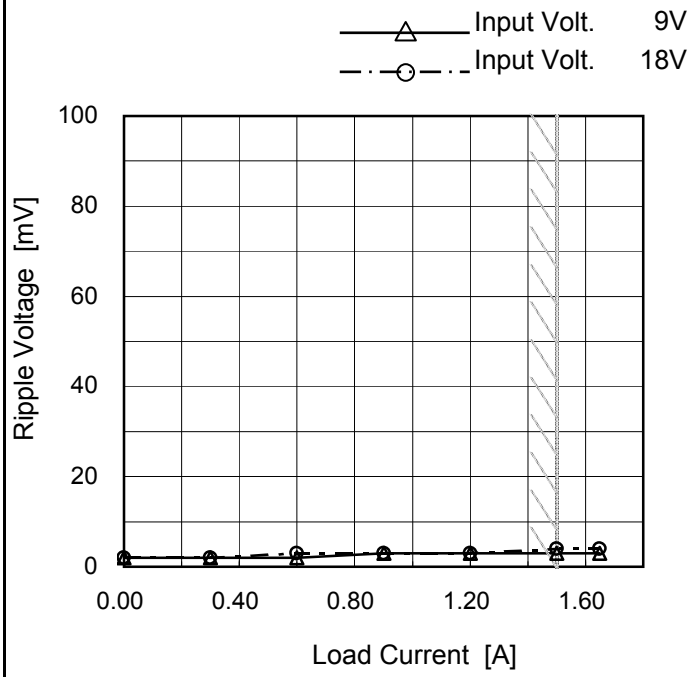
Model	MGW151205
Item	Ripple Voltage (by Load Current)
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
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]

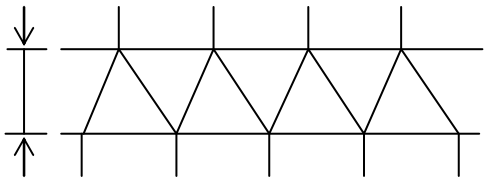


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	2	2
0.30	2	2
0.60	2	3
0.90	3	3
1.20	3	3
1.50	3	4
1.65	3	4
--	-	-
--	-	-
--	-	-
--	-	-

−5V: Rated output current

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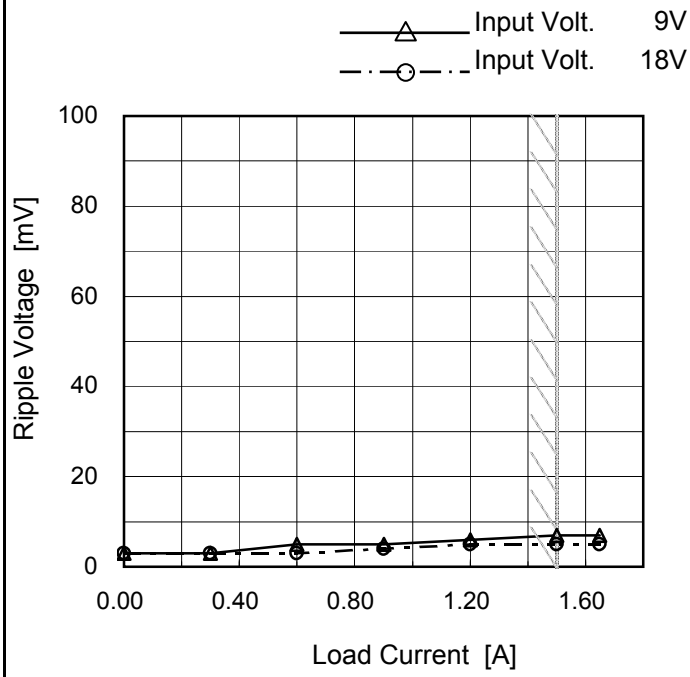
Model	MGW151205
Item	Ripple Voltage (by Load Current)
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
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]

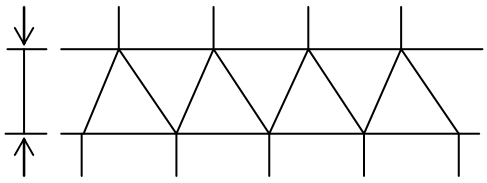


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	3	3
0.30	3	3
0.60	5	3
0.90	5	4
1.20	6	5
1.50	7	5
1.65	7	5
--	-	-
--	-	-
--	-	-
--	-	-

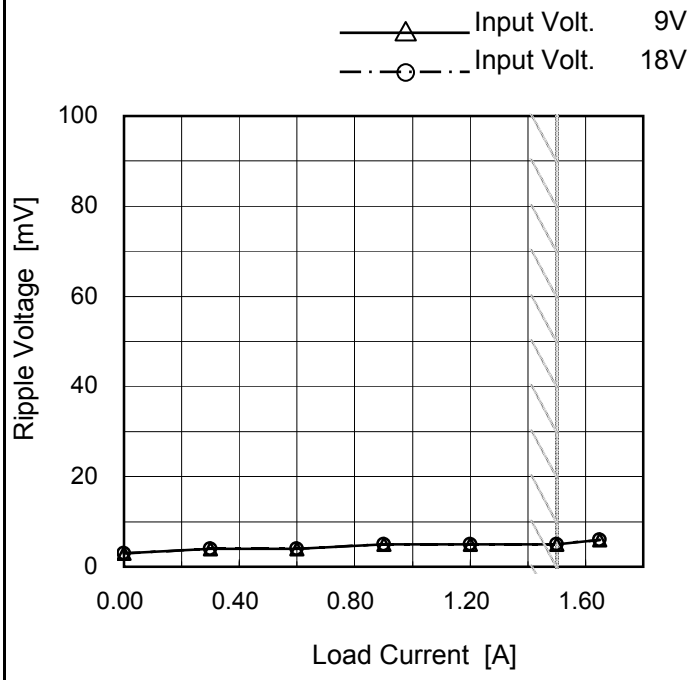
+5V: Rated output current

COSEL

Model	MGW151205
Item	Ripple-Noise
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

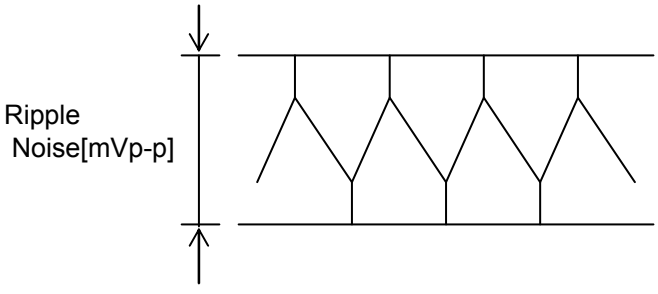


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	3	3
0.30	4	4
0.60	4	4
0.90	5	5
1.20	5	5
1.50	5	5
1.65	6	6
--	-	-
--	-	-
--	-	-
--	-	-

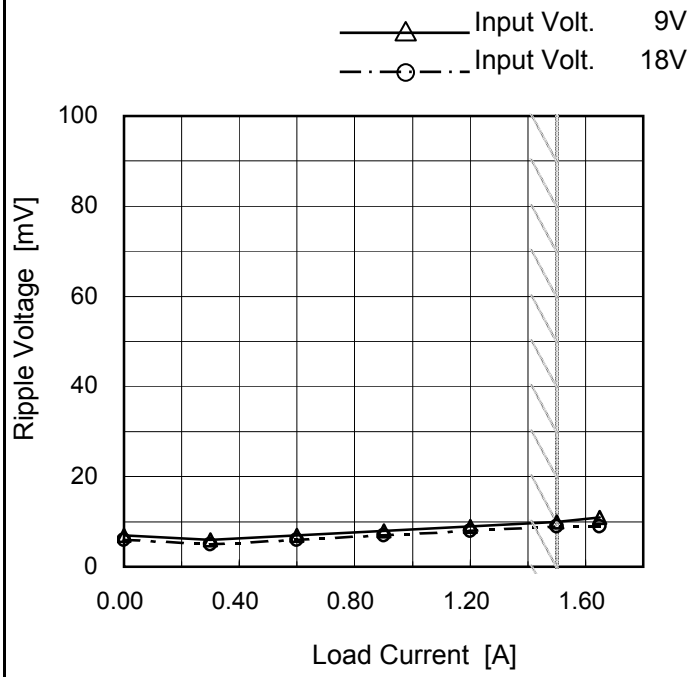
−5V: Rated output current

COSEL

Model	MGW151205
Item	Ripple-Noise
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

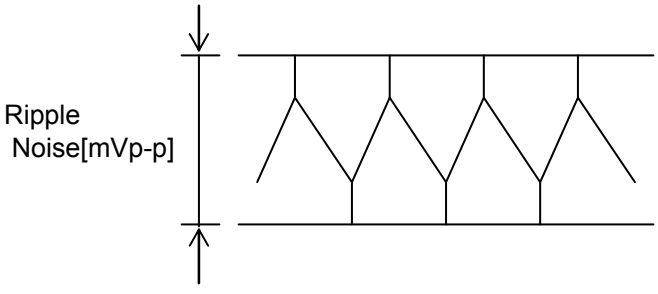


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	7	6
0.30	6	5
0.60	7	6
0.90	8	7
1.20	9	8
1.50	10	9
1.65	11	9
--	-	-
--	-	-
--	-	-
--	-	-

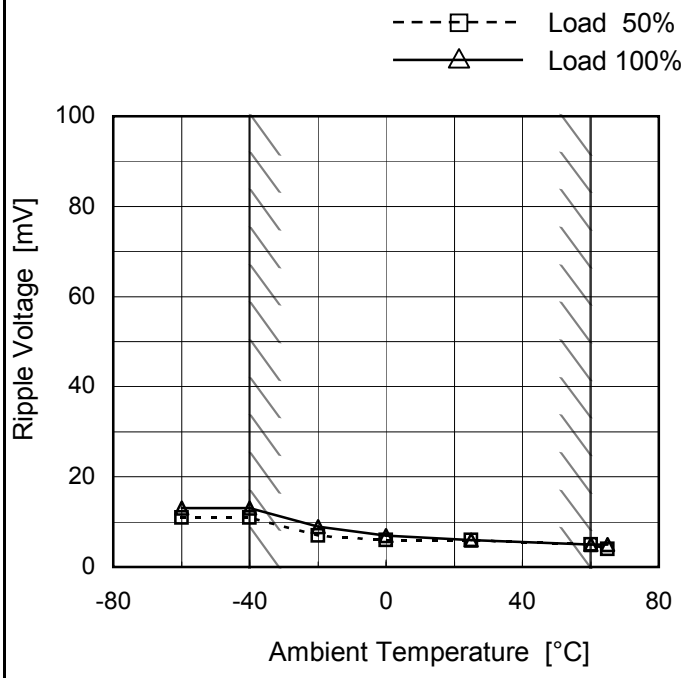
+5V: Rated output current

COSEL

Model	MGW151205
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 12V

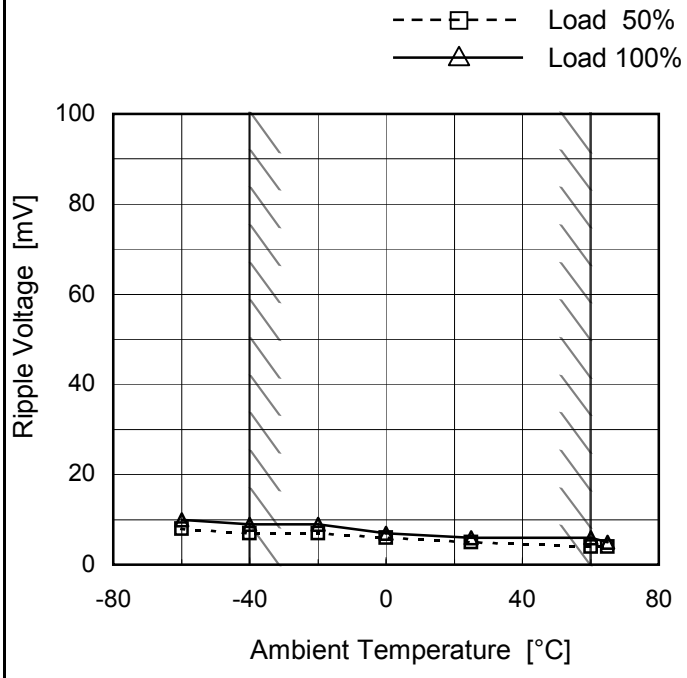
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	11	13
-40	11	13
-20	7	9
0	6	7
25	6	6
60	5	5
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Object	-5V1.5A

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	8	10
-40	7	9
-20	7	9
0	6	7
25	5	6
60	4	6
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

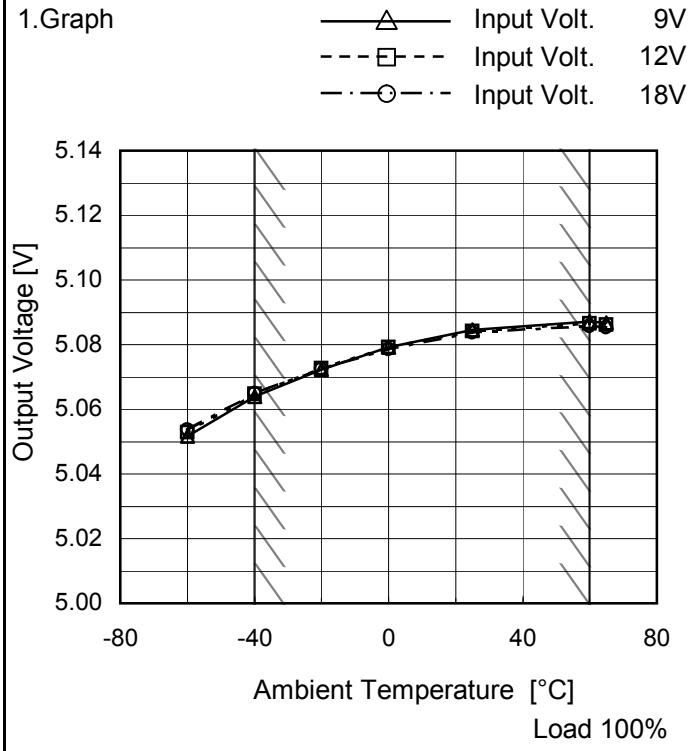
+5V: Rated output current

COSEL

Model	MGW151205
Item	Ambient Temperature Drift
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph



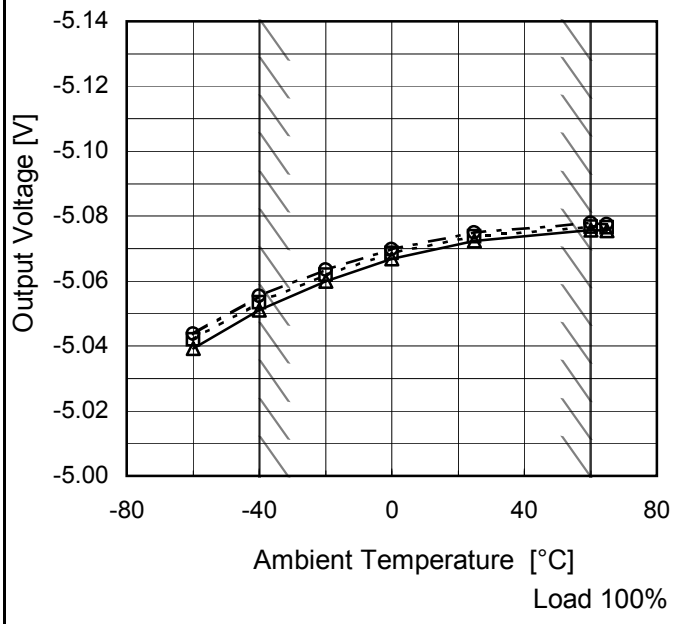
Load 100%

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	5.064	5.065	5.065
-20	5.072	5.073	5.072
0	5.079	5.079	5.079
25	5.085	5.084	5.084
60	5.087	5.087	5.086
65	5.087	5.086	5.085
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-5V1.5A

1.Graph



Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	-5.039	-5.042	-5.044
-40	-5.051	-5.054	-5.055
-20	-5.060	-5.062	-5.063
0	-5.067	-5.069	-5.070
25	-5.072	-5.074	-5.075
60	-5.076	-5.077	-5.078
65	-5.076	-5.077	-5.078
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW151205	
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 - 1.5A (AVR 2) : 0 - 1.5A

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

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

2.Values

Object	+5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	9	0	5.901	±419	±8.4
Minimum Voltage	-40	9	1.5	5.064		

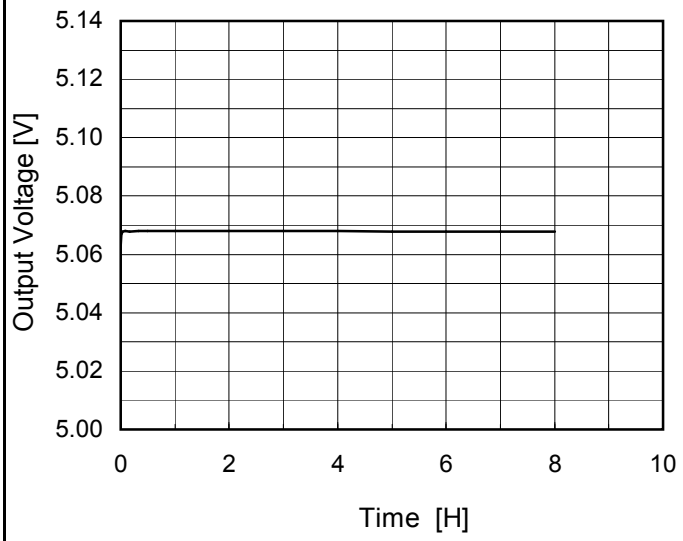
Object	-5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	9	0	-5.823	±392	±7.8
Minimum Voltage	-40	9	1.5	-5.039		

COSEL

Model	MGW151205
Item	Time Lapse Drift
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



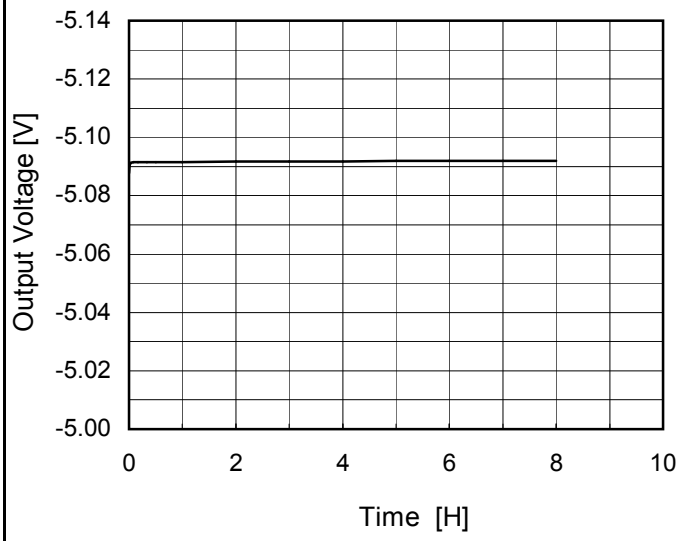
Input Volt. 12V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.063
0.5	5.068
1.0	5.068
2.0	5.068
3.0	5.068
4.0	5.068
5.0	5.068
6.0	5.068
7.0	5.068
8.0	5.068

Object	-5V1.5A

1.Graph



Input Volt. 12V
Load 100%

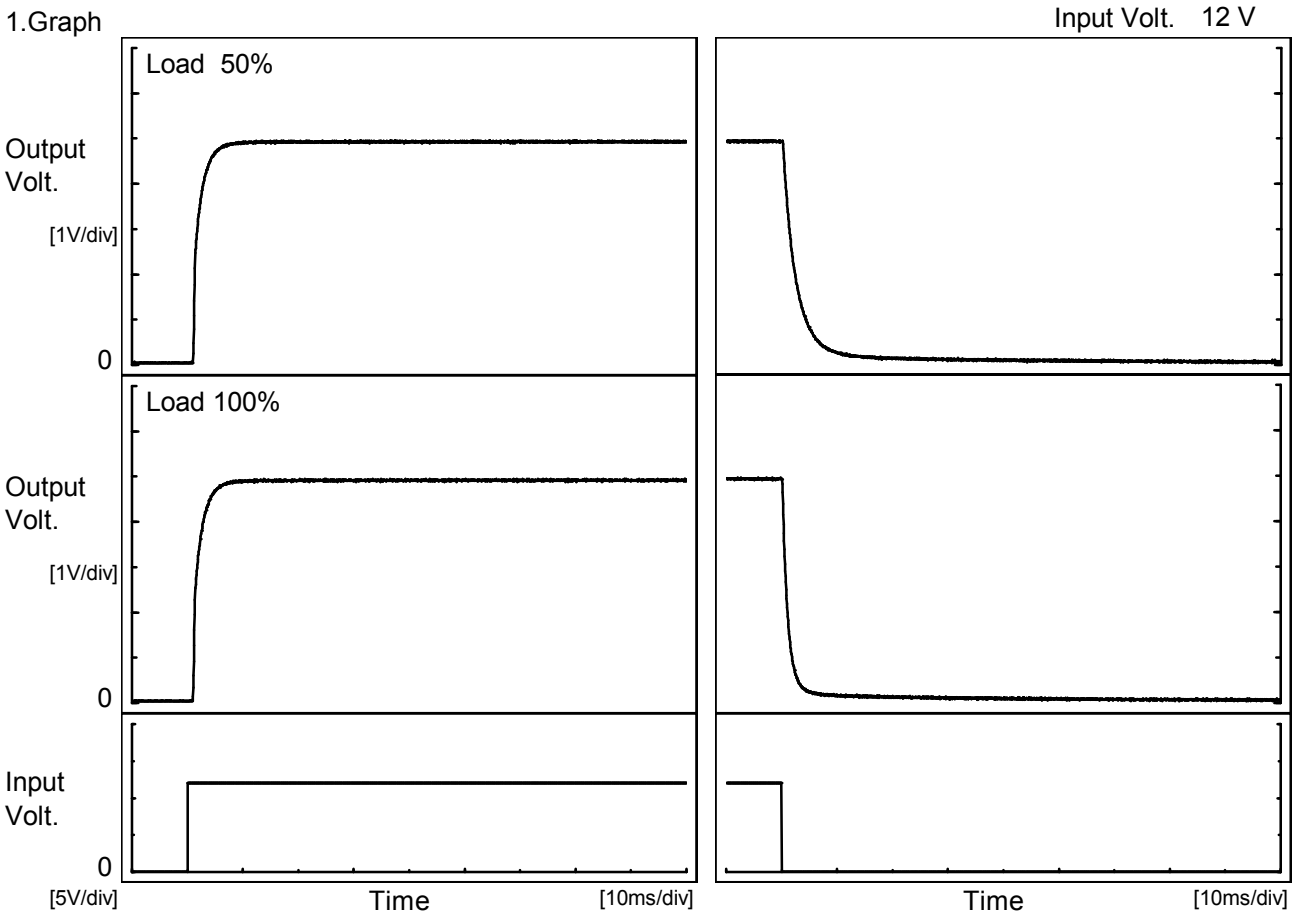
2.Values

Time since start [H]	Output Voltage [V]
0.0	-5.088
0.5	-5.092
1.0	-5.092
2.0	-5.092
3.0	-5.092
4.0	-5.092
5.0	-5.092
6.0	-5.092
7.0	-5.092
8.0	-5.092

COSEL

Model	MGW151205	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V1.5A	

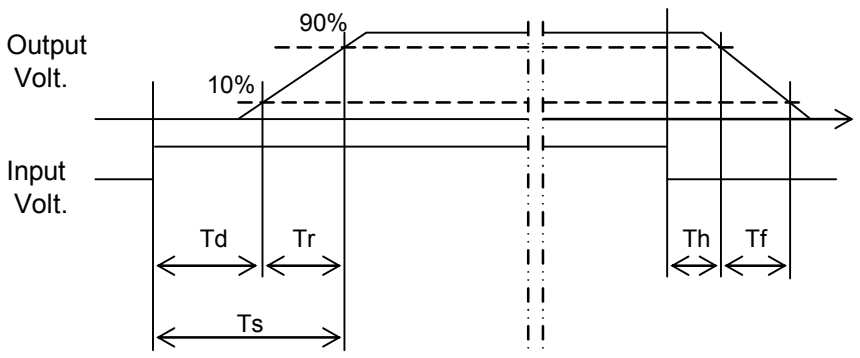
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	3.1	4.3	0.3	6.0
100 %	1.1	3.2	4.3	0.2	2.6

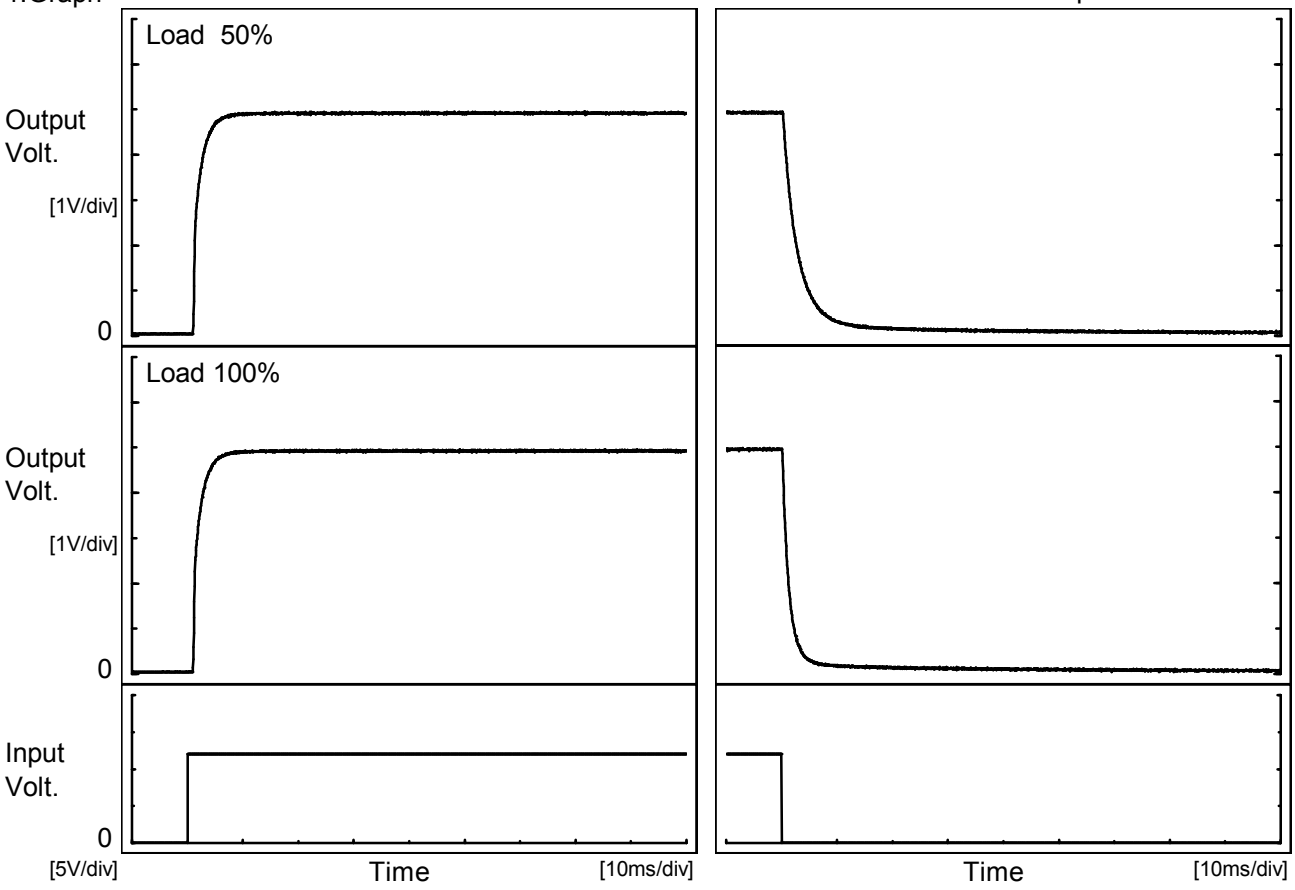


COSEL

Model	MGW151205	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-5V1.5A	

1.Graph

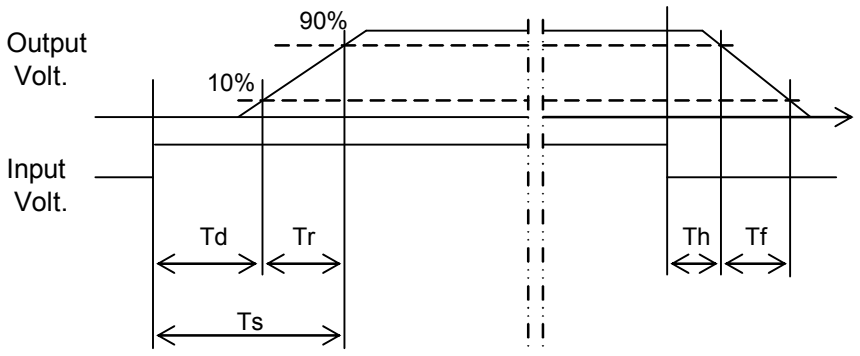
Input Volt. 12 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	3.2	4.4	0.3	6.9
100 %	1.1	3.1	4.2	0.2	3.1

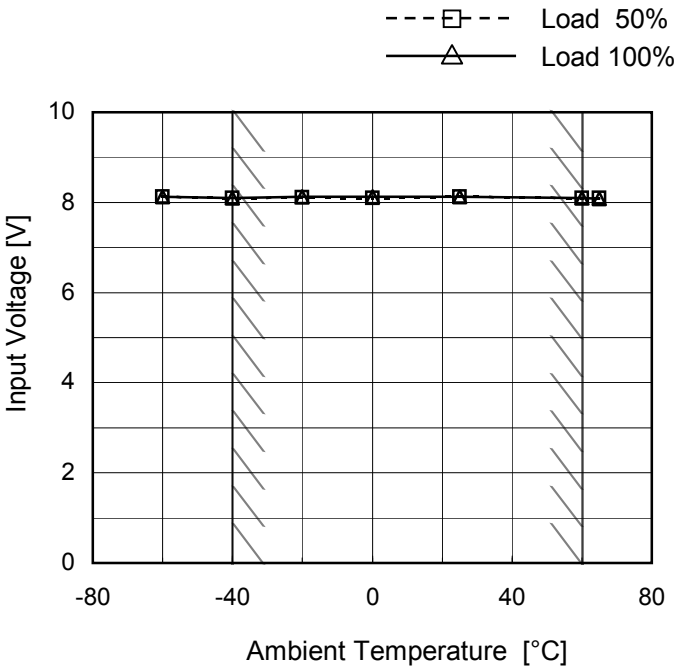


COSEL

Model	MGW151205
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph

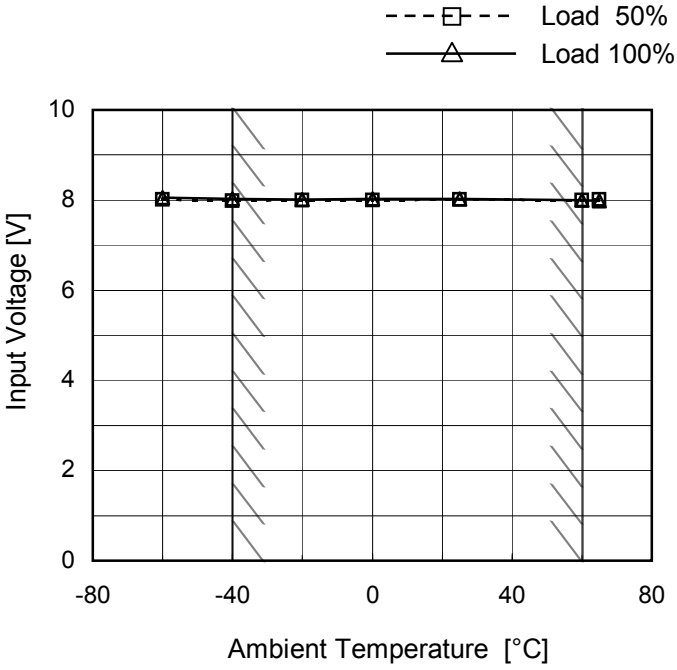


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.2	8.2
-40	8.1	8.1
-20	8.2	8.2
0	8.1	8.2
25	8.2	8.2
60	8.1	8.1
65	8.1	8.1
--	-	-
--	-	-
--	-	-
--	-	-

Object	-5V1.5A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.1
-40	8.0	8.1
-20	8.0	8.1
0	8.0	8.1
25	8.1	8.1
60	8.0	8.0
65	8.1	8.0
--	-	-
--	-	-
--	-	-
--	-	-

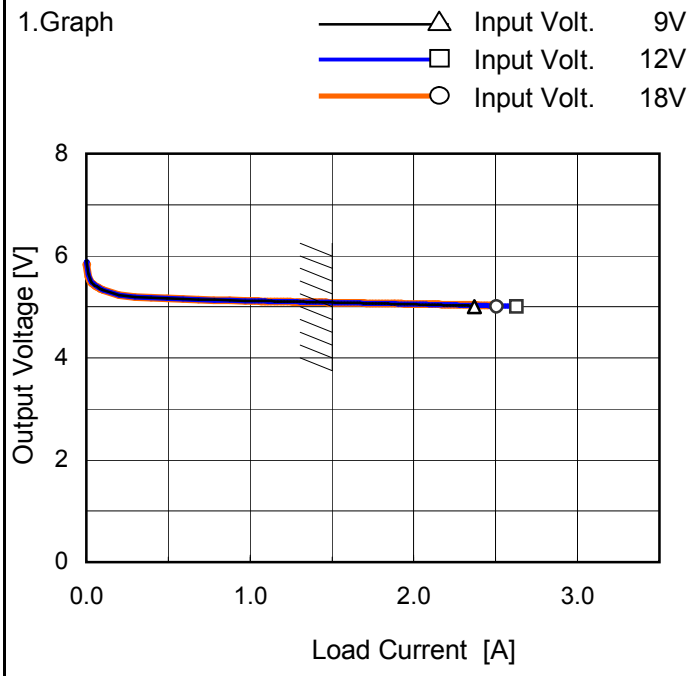
Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	MGW151205
Item	Overcurrent Protection
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



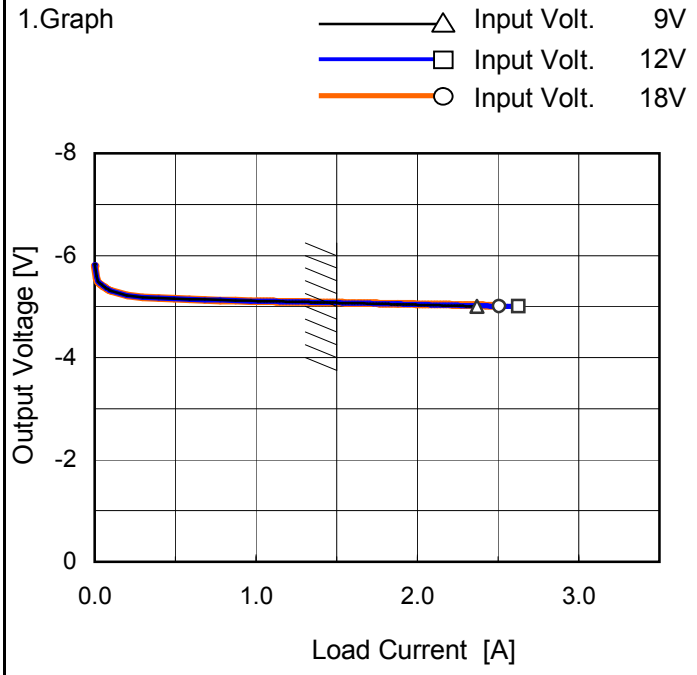
2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
5.00	2.37	2.63	2.51
4.75	-	-	-
4.50	-	-	-
4.00	-	-	-
3.50	-	-	-
3.00	-	-	-
2.50	-	-	-
2.00	-	-	-
1.50	-	-	-
1.00	-	-	-
0.50	-	-	-
0.00	-	-	-

-5V: Rated output current

Object	-5V1.5A

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	2.37	2.63	2.51
-4.75	-	-	-
-4.50	-	-	-
-4.00	-	-	-
-3.50	-	-	-
-3.00	-	-	-
-2.50	-	-	-
-2.00	-	-	-
-1.50	-	-	-
-1.00	-	-	-
-0.50	-	-	-
0.00	-	-	-

+5V: Rated output current

BC-10459

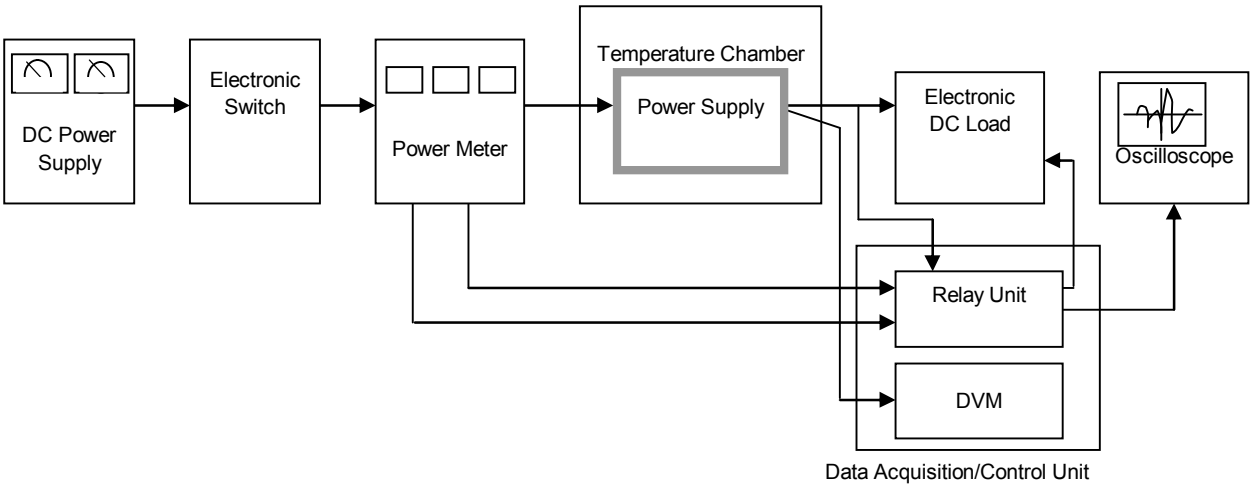


Figure A

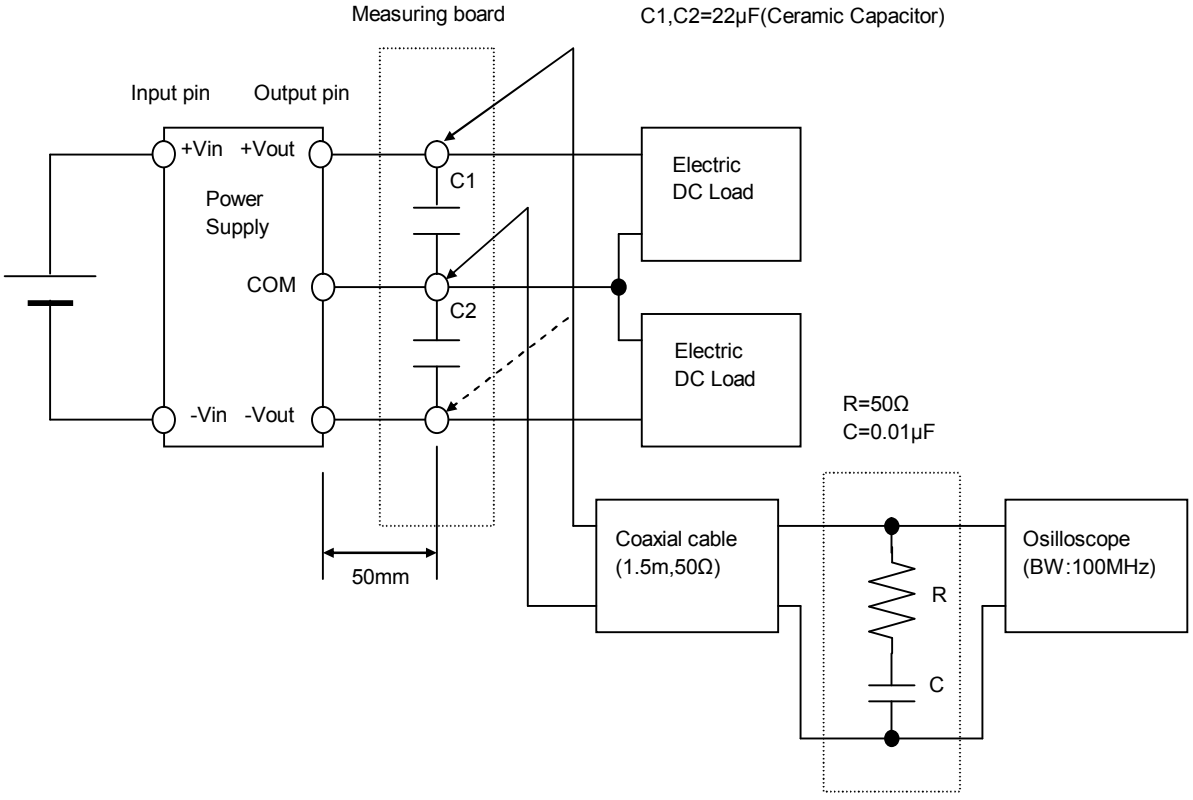


Figure B（Ripple and Ripple noise Characteristic）