参考資料

TEST DATA OF MGFS62412

Regulated DC Power Supply
December 16, 2016

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COSEL CO.,LTD.

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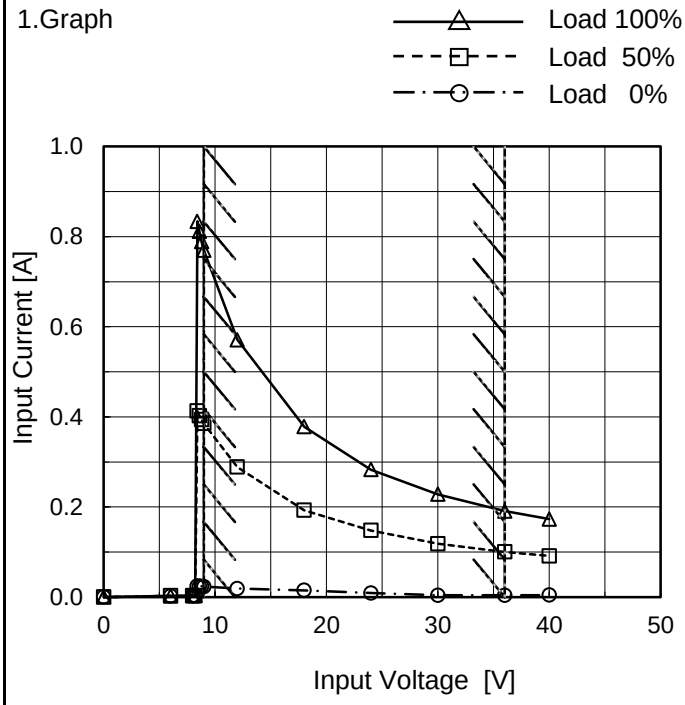

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
6.0	0.003	0.003	0.003
8.0	0.003	0.003	0.003
8.2	0.003	0.003	0.003
8.4	0.024	0.413	0.834
8.6	0.024	0.403	0.812
8.8	0.024	0.394	0.789
9.0	0.023	0.385	0.770
12.0	0.019	0.289	0.571
18.0	0.015	0.193	0.378
24.0	0.009	0.148	0.283
30.0	0.004	0.119	0.228
36.0	0.004	0.100	0.191
40.0	0.004	0.091	0.173
--	-	-	-
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--	-	-	-
--	-	-	-

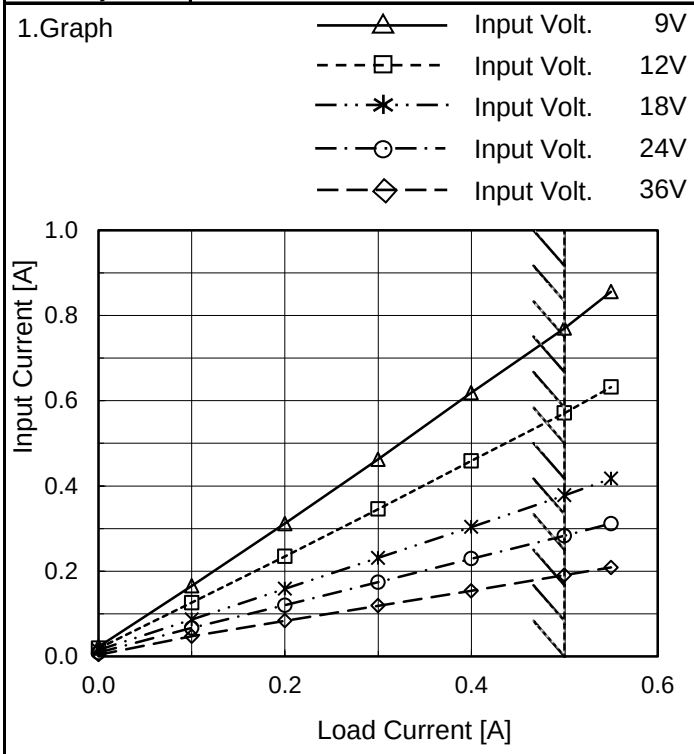
BC-11036

COSEL

Model	MGFS62412
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

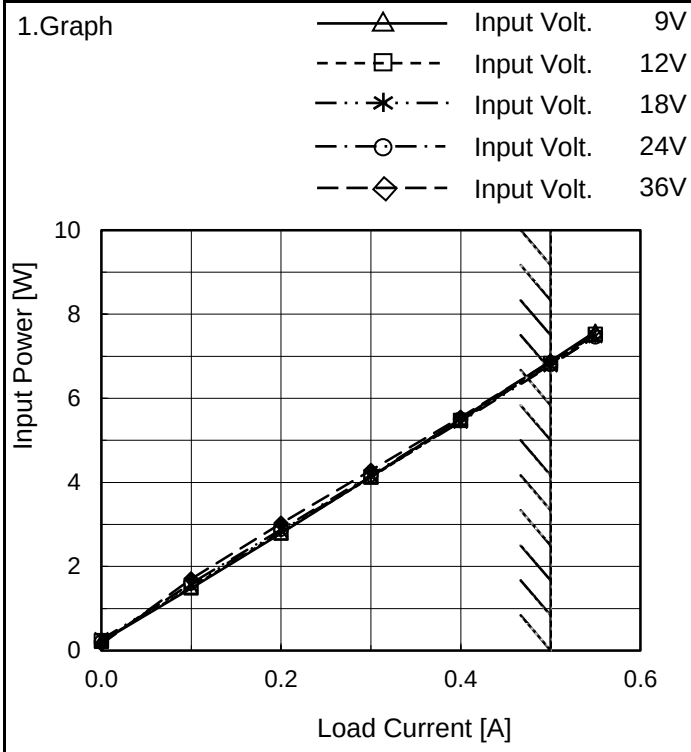
Load Current [A]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.023	0.019	0.015	0.009	0.004
0.10	0.165	0.126	0.087	0.067	0.047
0.20	0.312	0.235	0.159	0.120	0.084
0.30	0.463	0.346	0.231	0.174	0.119
0.40	0.619	0.459	0.304	0.230	0.154
0.50	0.770	0.571	0.378	0.283	0.191
0.55	0.856	0.632	0.417	0.312	0.209
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS62412
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

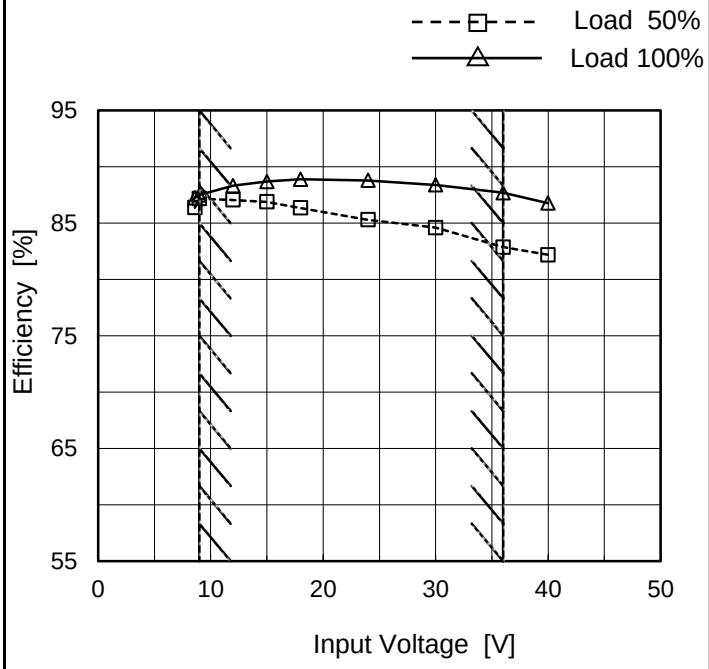
Load Current [A]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.22	0.23	0.27	0.20	0.15
0.10	1.49	1.51	1.56	1.60	1.70
0.20	2.79	2.81	2.85	2.88	3.02
0.30	4.13	4.12	4.14	4.17	4.28
0.40	5.51	5.47	5.44	5.50	5.55
0.50	6.89	6.83	6.78	6.80	6.88
0.55	7.59	7.52	7.48	7.46	7.53
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS62412
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%
8.6	86.4	87.2
9.0	87.2	87.5
12.0	87.1	88.3
15.0	86.9	88.7
18.0	86.3	88.9
24.0	85.3	88.8
30.0	84.6	88.4
36.0	82.9	87.7
40.0	82.2	86.8

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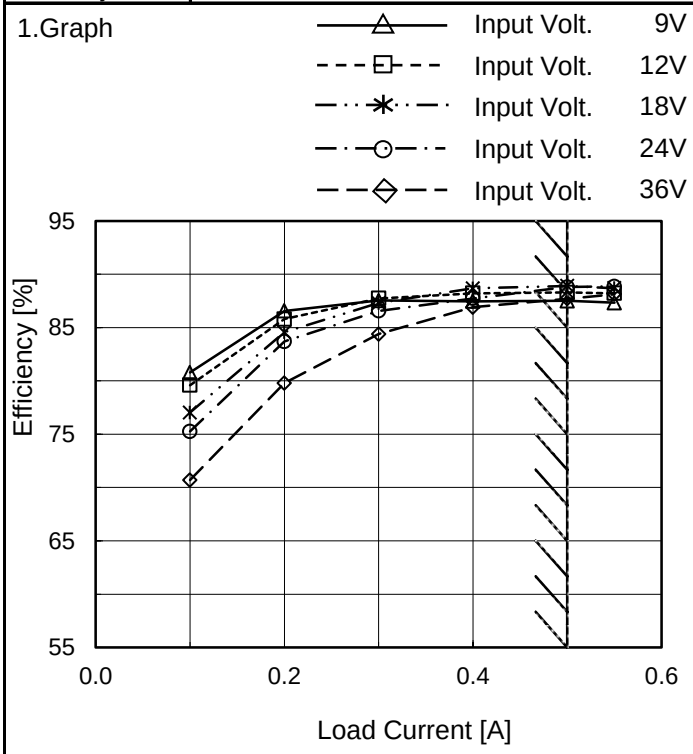
Model	MGFS62412
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

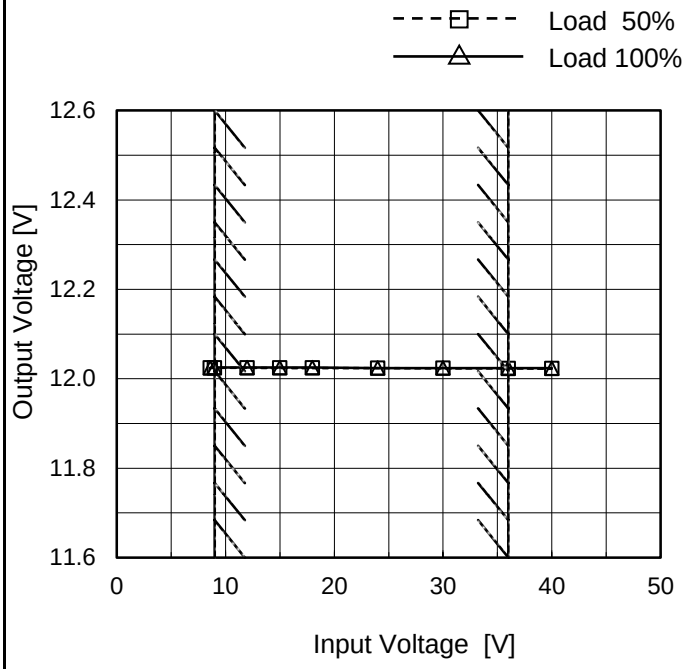
Load Current [A]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	-	-	-	-	-
0.10	80.8	79.6	77.0	75.3	70.7
0.20	86.6	85.8	84.6	83.7	79.8
0.30	87.5	87.7	87.3	86.6	84.4
0.40	87.5	88.2	88.7	87.7	86.9
0.50	87.5	88.3	88.9	88.8	87.7
0.55	87.3	88.2	88.7	88.9	88.1
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS62412
Item	Line Regulation
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

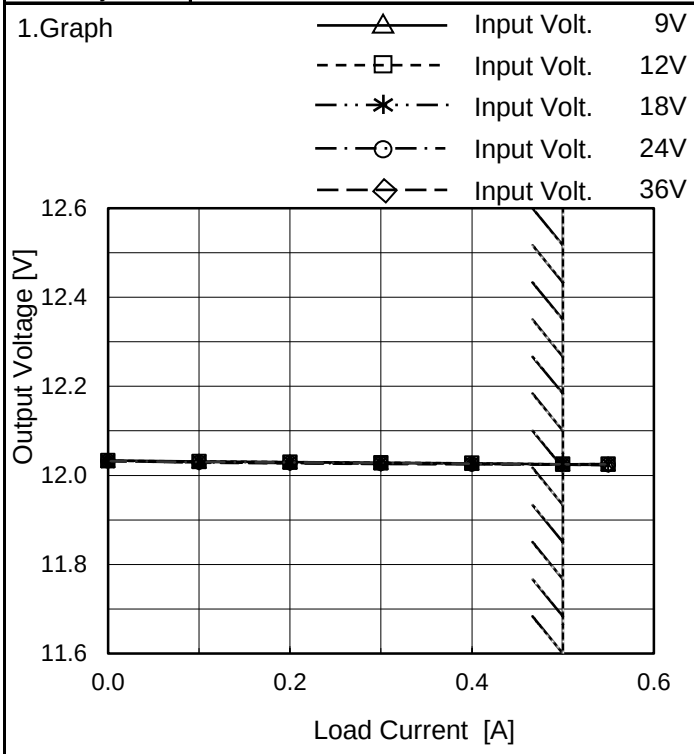
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	12.024	12.025
9.0	12.024	12.025
12.0	12.024	12.025
15.0	12.024	12.025
18.0	12.024	12.025
24.0	12.024	12.024
30.0	12.023	12.024
36.0	12.023	12.024
40.0	12.023	12.024

COSEL

Model	MGFS62412
Item	Load Regulation
Object	+12V0.5A

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]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	12.033	12.033	12.032	12.032	12.033
0.10	12.031	12.031	12.030	12.029	12.028
0.20	12.030	12.030	12.029	12.028	12.027
0.30	12.029	12.028	12.027	12.027	12.025
0.40	12.027	12.027	12.026	12.025	12.025
0.50	12.025	12.025	12.025	12.024	12.024
0.55	12.025	12.025	12.025	12.024	12.023
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS62412
Item	Dynamic Load Response
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

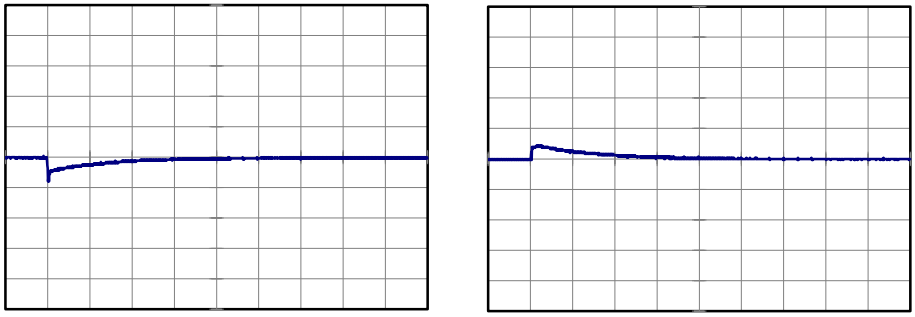
Input Volt. 24 V
Cycle 100 ms

t1,t2 = 100 μs

Load Current

t1 t2

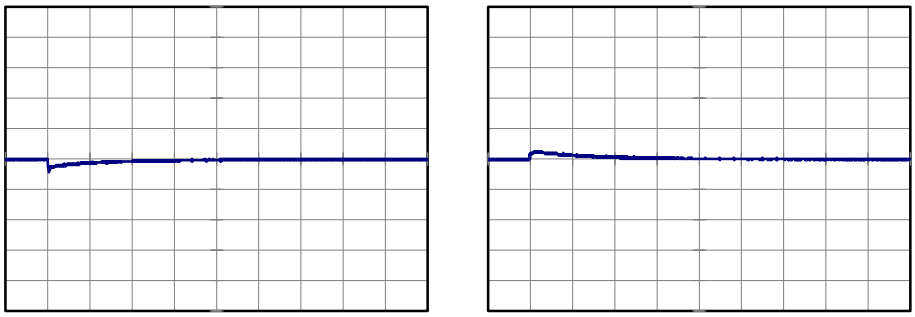
Min.Load (0A)←→
Load 100% (0.5A)



500 mV/div

2 ms/div 2 ms/div

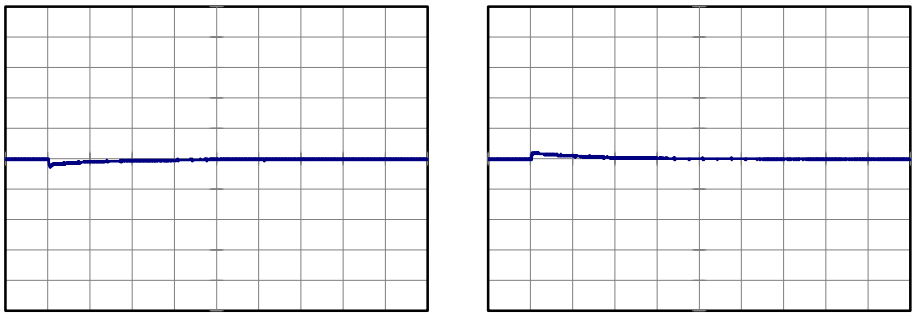
Min.Load (0A)←→
Load 50% (0.25A)



500 mV/div

2 ms/div 2 ms/div

Load 50% (0.25A)←→
Load 100% (0.5A)



500 mV/div

2 ms/div 2 ms/div

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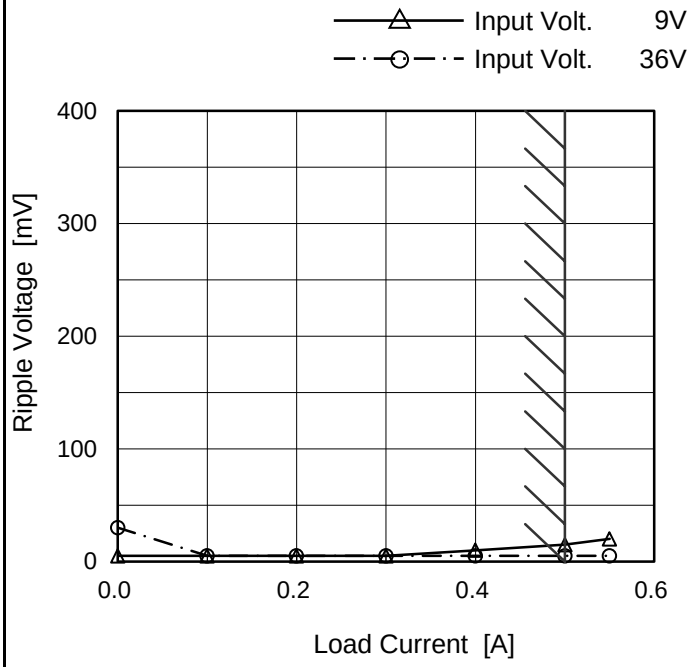
Model	MGFS62412
Item	Ripple Voltage (by Load Current)
Object	+12V0.5A

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]

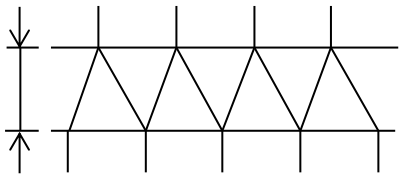


Fig.Complex Ripple Wave Form

2.Values

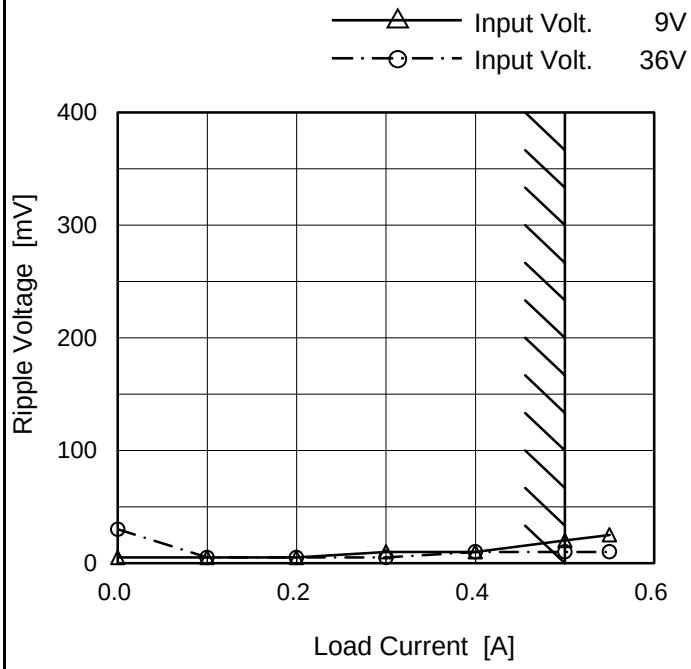
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	5	30
0.10	5	5
0.20	5	5
0.30	5	5
0.40	10	5
0.50	15	5
0.55	20	5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS62412
Item	Ripple-Noise
Object	+12V0.5A

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.

Ripple Noise[mVp-p]

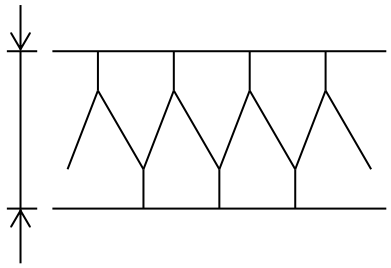


Fig.Complex Ripple Noise Wave Form

2.Values

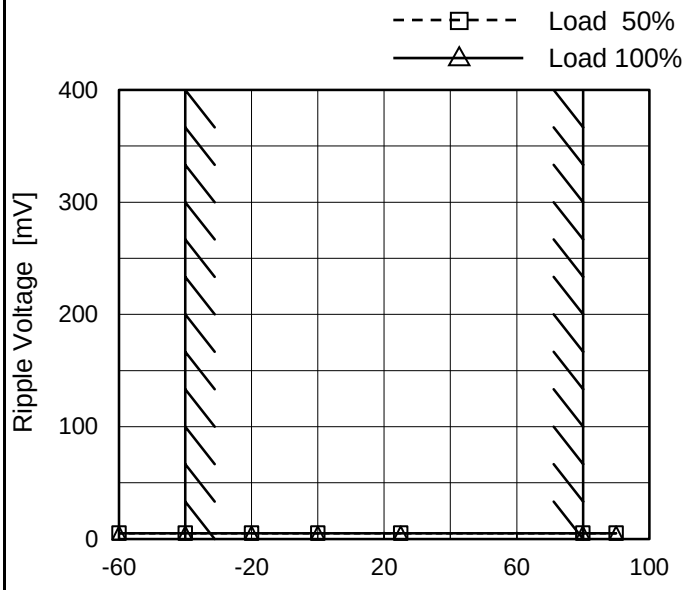
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	5	30
0.10	5	5
0.20	5	5
0.30	10	5
0.40	10	10
0.50	20	10
0.55	25	10
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS62412
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

Measured by 100 MHz Oscilloscope.

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

2.Values

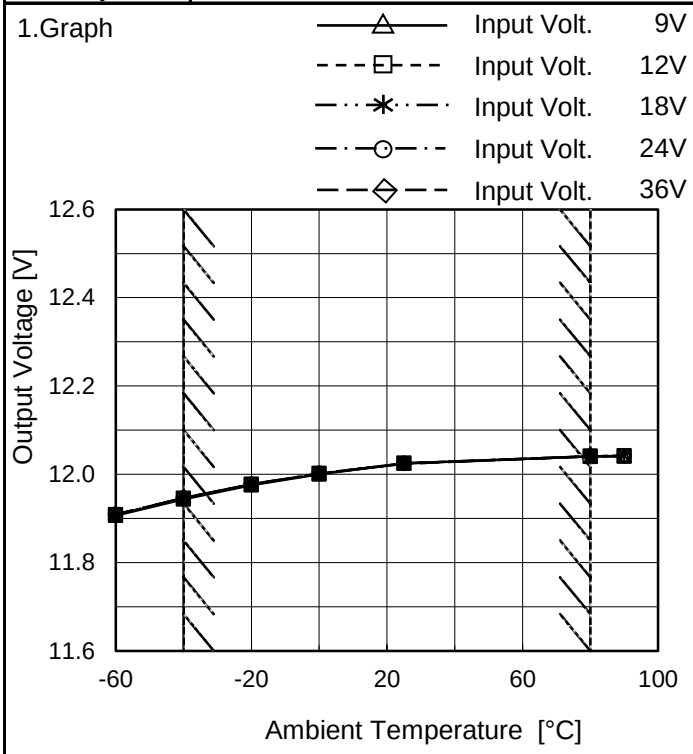
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	5
-40	5	5
-20	5	5
0	5	5
25	5	5
80	5	5
90	5	5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS62412
Item	Ambient Temperature Drift
Object	+12V0.5A

Testing Circuitry Figure A

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]	Input Volt. 24[V]	Input Volt. 36[V]
-60	11.907	11.908	11.909	11.909	11.909
-40	11.944	11.946	11.946	11.947	11.946
-20	11.976	11.977	11.977	11.977	11.977
0	12.000	12.002	12.002	12.002	12.001
25	12.025	12.025	12.025	12.024	12.024
80	12.040	12.041	12.041	12.041	12.040
90	12.041	12.042	12.042	12.042	12.041
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Model	MGFS62412	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V0.5A	

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 - 80°C
Input Voltage : 9 - 36V
Load Current : 0 - 0.5A

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

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

2.Values

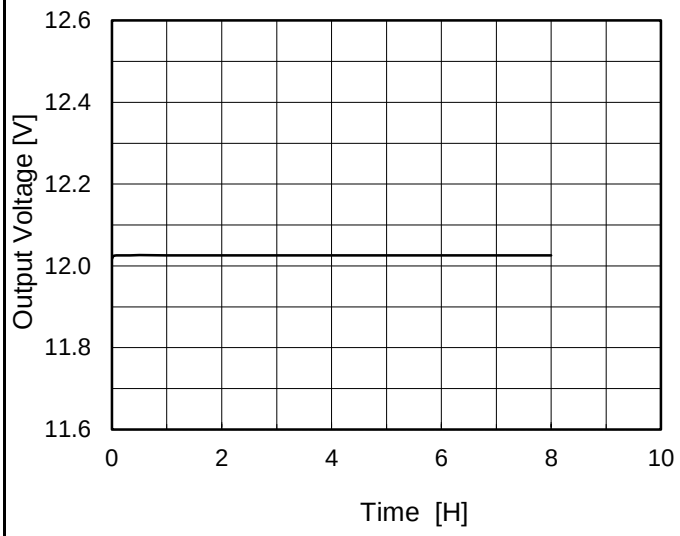
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	75	9	0	12.050	±53	±0.4
Minimum Voltage	-40	9	0.5	11.944		

COSEL

Model	MGFS62412
Item	Time Lapse Drift
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 24V
Load 100%

2.Values

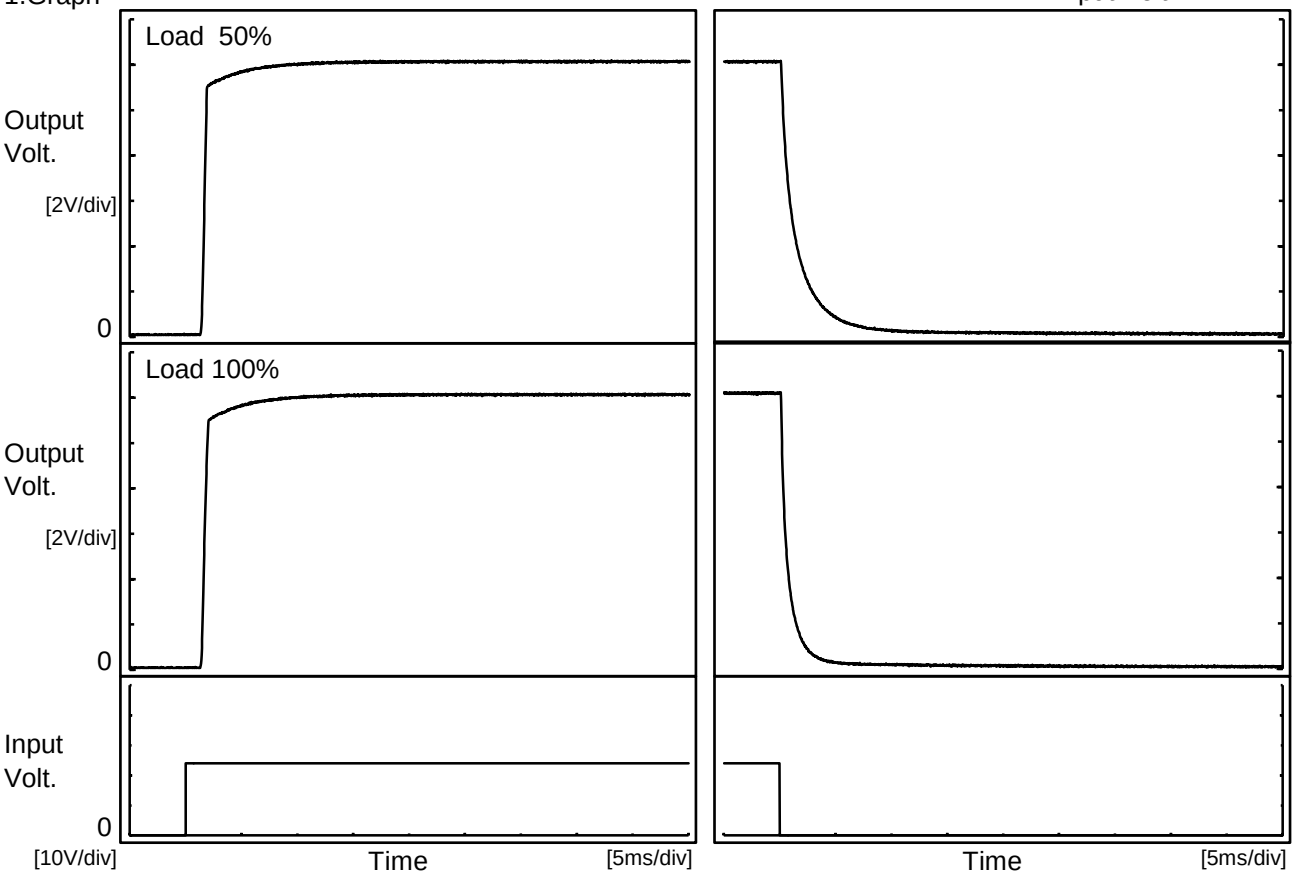
Time since start [H]	Output Voltage [V]
0.0	12.018
0.5	12.026
1.0	12.026
2.0	12.026
3.0	12.026
4.0	12.026
5.0	12.026
6.0	12.026
7.0	12.026
8.0	12.026

COSEL

Model	MGFS62412	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.5A	

1.Graph

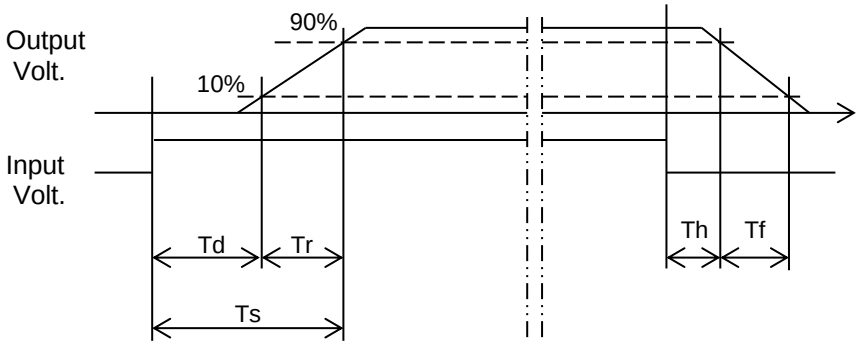
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.5	0.4	1.9	0.2	3.8
100 %	1.5	0.6	2.1	0.2	1.8

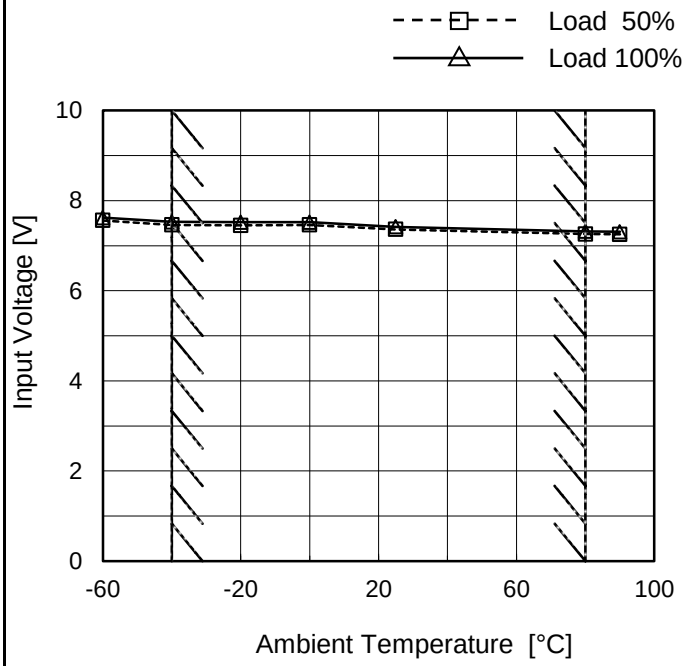


COSEL

Model	MGFS62412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

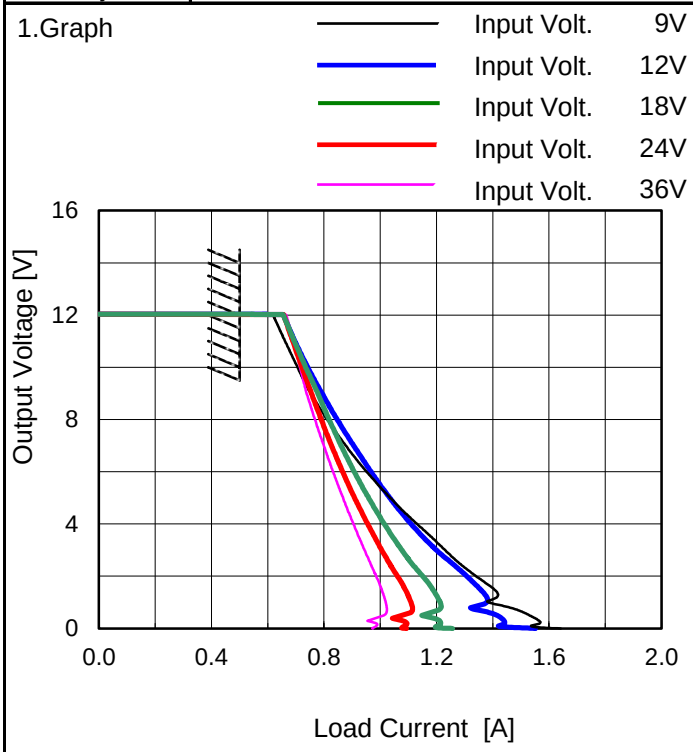
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	7.6	7.7
-40	7.5	7.6
-20	7.5	7.6
0	7.5	7.6
25	7.4	7.5
80	7.3	7.4
90	7.3	7.4
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS62412
Item	Overcurrent Protection
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

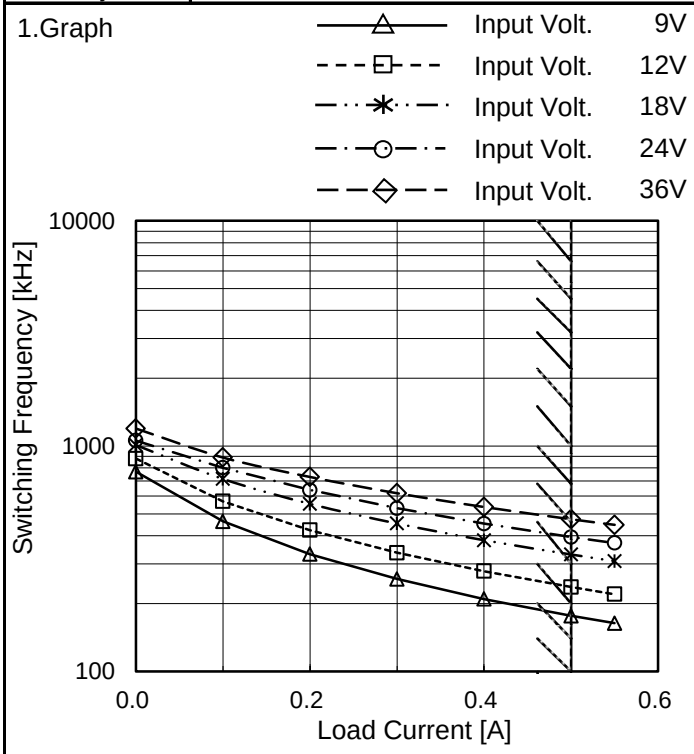
Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
11.4	0.644	0.680	0.678	0.676	0.682
10.8	0.670	0.704	0.701	0.694	0.695
9.6	0.723	0.761	0.752	0.734	0.725
8.4	0.787	0.823	0.802	0.775	0.756
7.2	0.862	0.892	0.851	0.818	0.792
6.0	0.951	0.966	0.907	0.865	0.832
4.8	1.051	1.048	0.968	0.917	0.873
3.6	1.169	1.141	1.038	0.975	0.919
2.4	1.289	1.264	1.119	1.036	0.969
1.2	1.418	1.378	1.202	1.102	1.014
0.0	1.642	1.552	1.257	1.093	0.973
--	-	-	-	-	-

COSEL

Model	MGFS62412
Item	Switching frequency (by Load Current)
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

When load current is low, MG operates intermittently, so switching frequency would not become constant.

2.Values

Load Current [A]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	770	880	1011	1059	1197
0.10	463	568	715	802	890
0.20	331	424	554	638	730
0.30	257	336	453	530	618
0.40	210	279	382	453	537
0.50	176	237	330	395	474
0.55	164	220	309	371	447
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

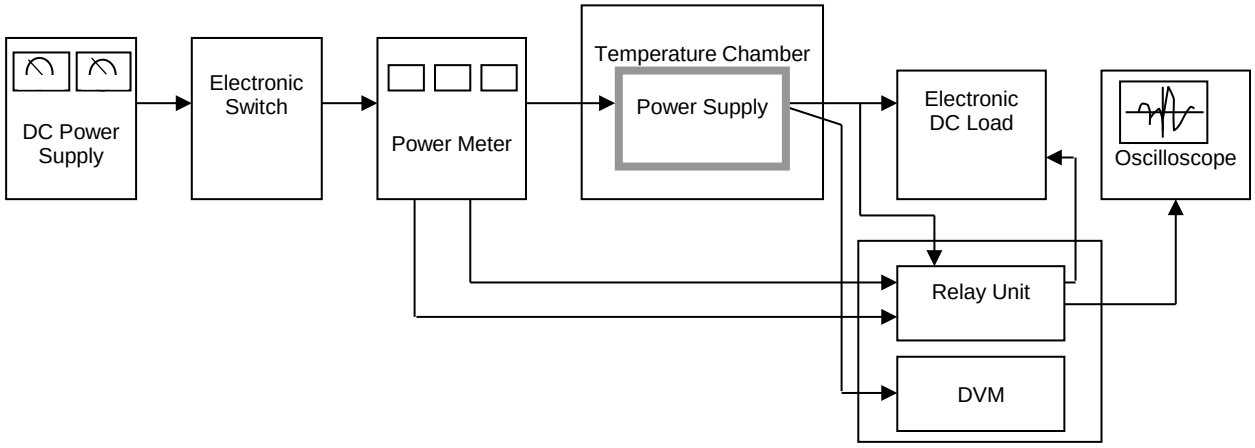


Figure A

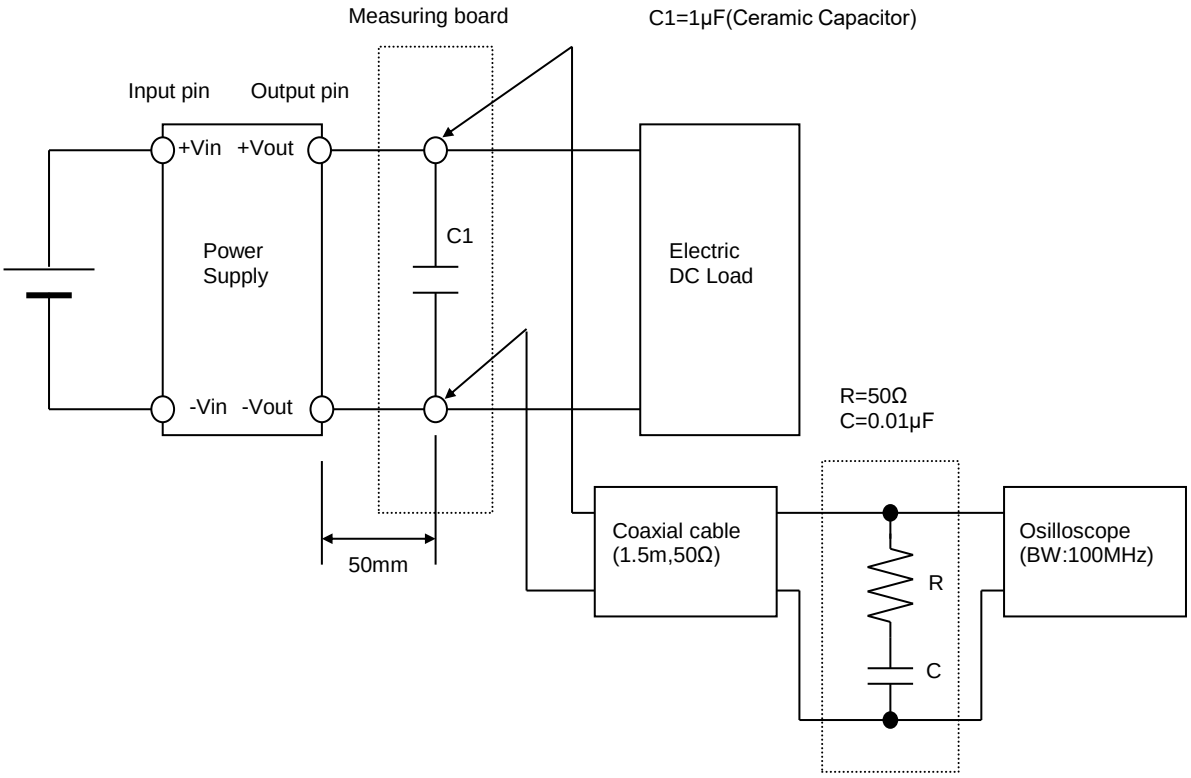


Figure B（Ripple and Ripple noise Characteristic）