参考資料

TEST DATA OF MGFS64812

Regulated DC Power Supply
December 6, 2016

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COSEL CO.,LTD.

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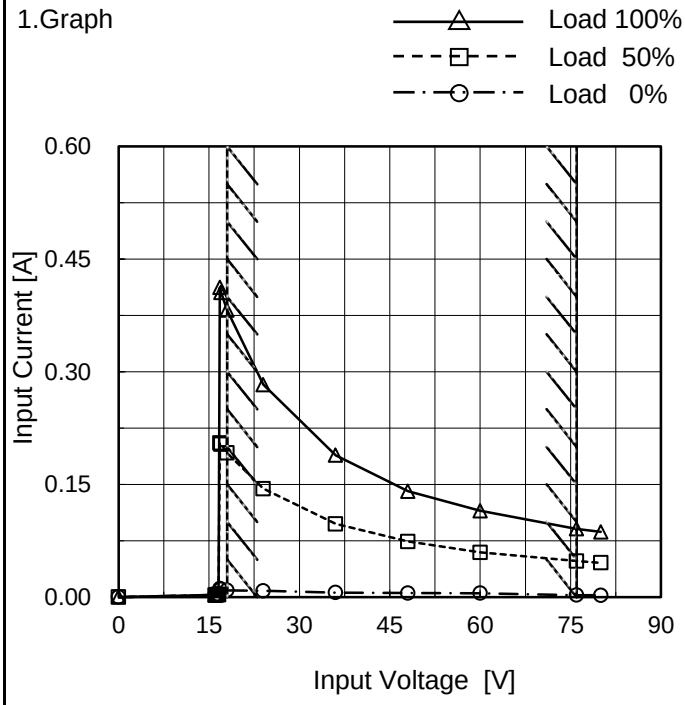
Model	MGFS64812
Item	Input Current (by Input Voltage)
Object	————————

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
16.0	0.003	0.003	0.003
16.2	0.003	0.003	0.004
16.4	0.004	0.003	0.004
16.6	0.003	0.004	0.003
16.8	0.011	0.205	0.412
17.0	0.010	0.204	0.406
18.0	0.009	0.192	0.382
24.0	0.008	0.144	0.283
36.0	0.006	0.098	0.189
48.0	0.005	0.074	0.141
60.0	0.005	0.059	0.115
76.0	0.003	0.048	0.091
80.0	0.002	0.046	0.087
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

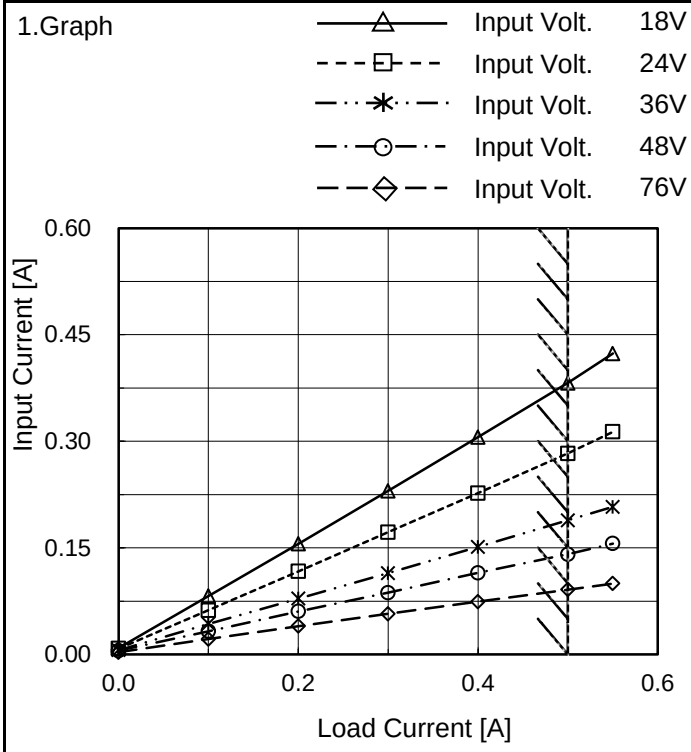
BC-11040

COSEL

Model	MGFS64812
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

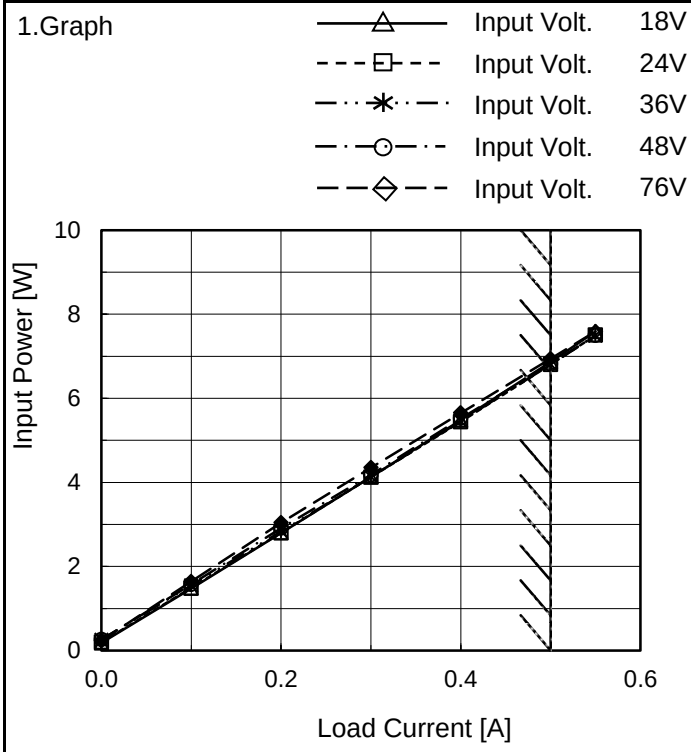
Load Current [A]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.009	0.008	0.006	0.005	0.003
0.10	0.082	0.062	0.043	0.033	0.022
0.20	0.156	0.117	0.079	0.061	0.040
0.30	0.230	0.172	0.114	0.087	0.057
0.40	0.306	0.227	0.151	0.115	0.074
0.50	0.382	0.283	0.189	0.141	0.091
0.55	0.424	0.313	0.208	0.156	0.100
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS64812
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

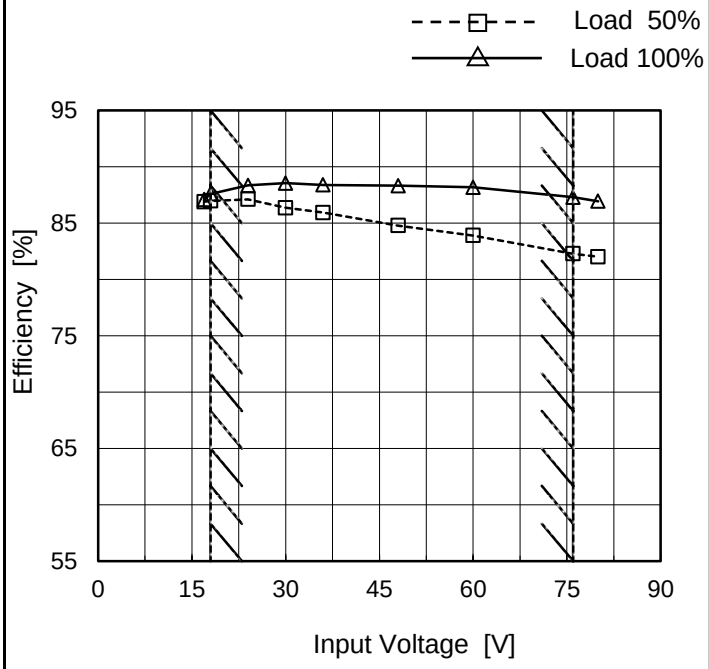
Load Current [A]	Input Power [W]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.18	0.20	0.26	0.26	0.24
0.10	1.48	1.49	1.55	1.57	1.64
0.20	2.79	2.80	2.83	2.91	3.04
0.30	4.13	4.12	4.13	4.18	4.35
0.40	5.48	5.44	5.46	5.52	5.65
0.50	6.87	6.80	6.81	6.82	6.94
0.55	7.59	7.50	7.49	7.50	7.59
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS64812
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

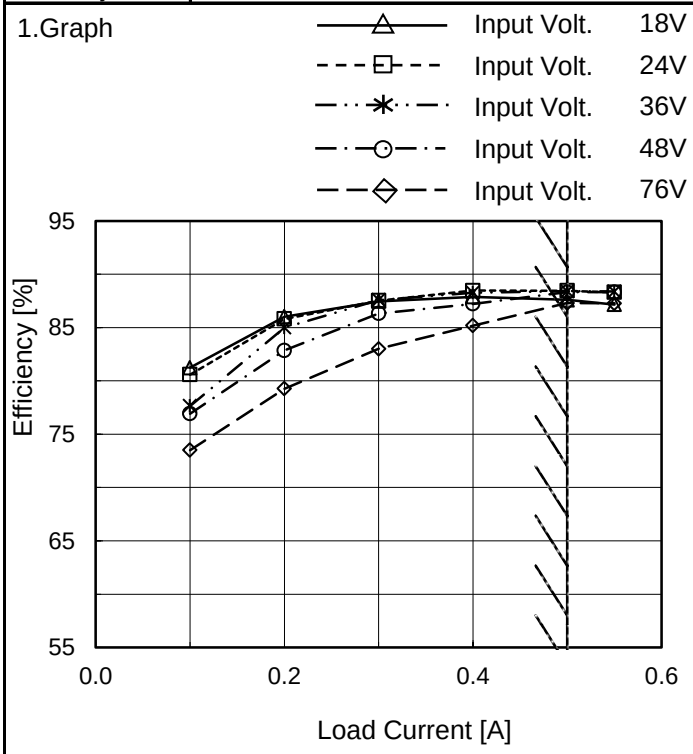
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	86.9	87.1
18	87.0	87.6
24	87.1	88.4
30	86.4	88.6
36	85.9	88.4
48	84.8	88.3
60	83.9	88.2
76	82.3	87.3
80	82.0	87.0

COSEL

Model	MGFS64812
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	-	-	-	-	-
0.10	81.2	80.6	77.7	76.9	73.5
0.20	86.0	85.8	85.0	82.9	79.3
0.30	87.5	87.5	87.6	86.3	83.0
0.40	87.9	88.5	88.3	87.2	85.2
0.50	87.6	88.4	88.4	88.3	87.3
0.55	87.2	88.3	88.4	88.3	87.3
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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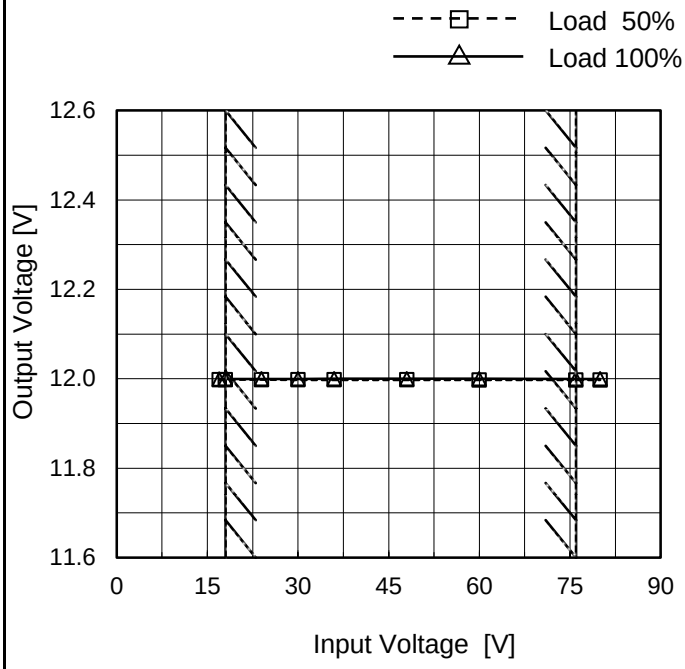
Model	MGFS64812
Item	Line Regulation
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

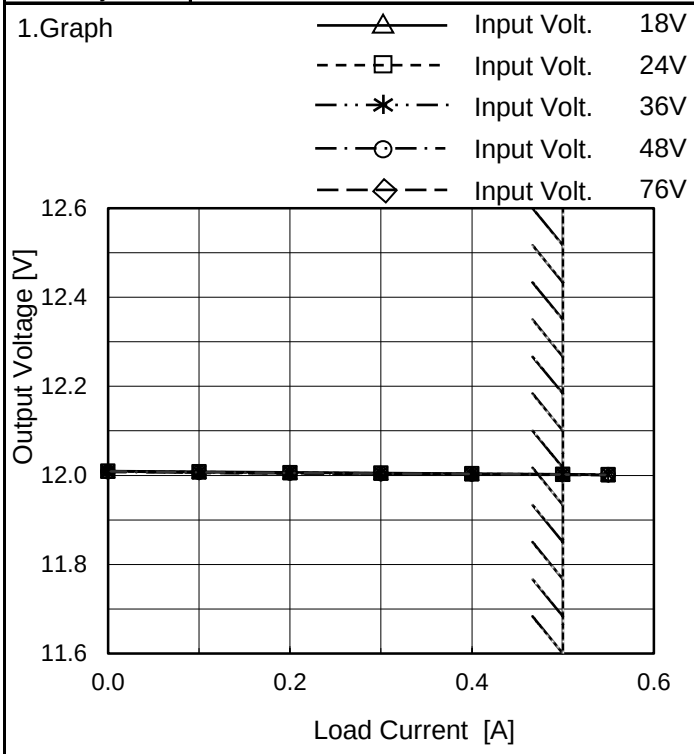
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	11.998	11.999
18	11.998	12.000
24	11.998	12.000
30	11.998	12.000
36	11.998	12.000
48	11.998	12.000
60	11.997	12.000
76	11.997	12.000
80	11.997	12.000

COSEL

Model	MGFS64812
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	12.010	12.009	12.009	12.008	12.010
0.10	12.008	12.008	12.007	12.006	12.005
0.20	12.007	12.006	12.005	12.005	12.004
0.30	12.005	12.005	12.004	12.004	12.003
0.40	12.004	12.004	12.003	12.003	12.002
0.50	12.002	12.002	12.002	12.002	12.001
0.55	12.001	12.002	12.001	12.001	12.000
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS64812
Item	Dynamic Load Response
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

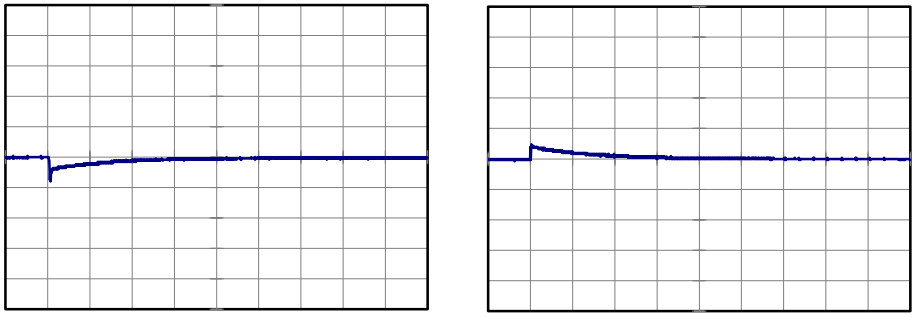
Input Volt. 48 V
Cycle 100 ms

t1,t2 = 100 μs

Load Current

t1 t2

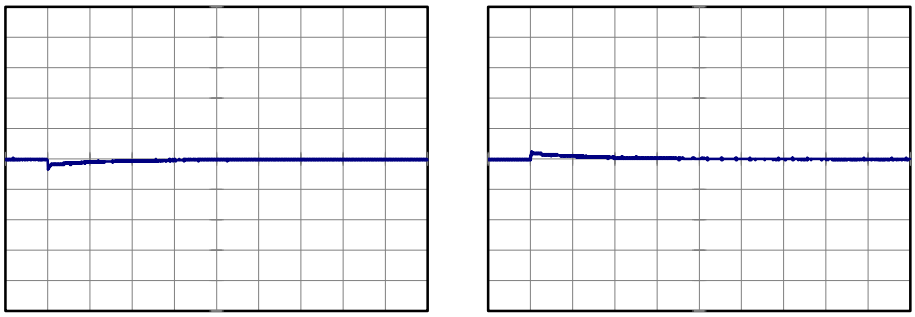
Min.Load (0A)←→
Load 100% (0.5A)



500 mV/div

2 ms/div 2 ms/div

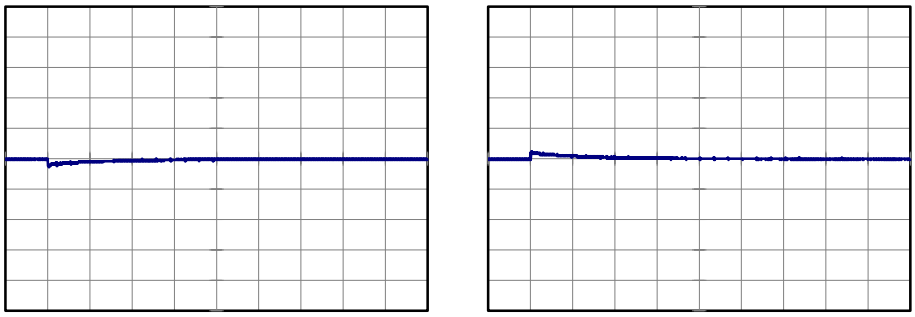
Min.Load (0A)←→
Load 50% (0.25A)



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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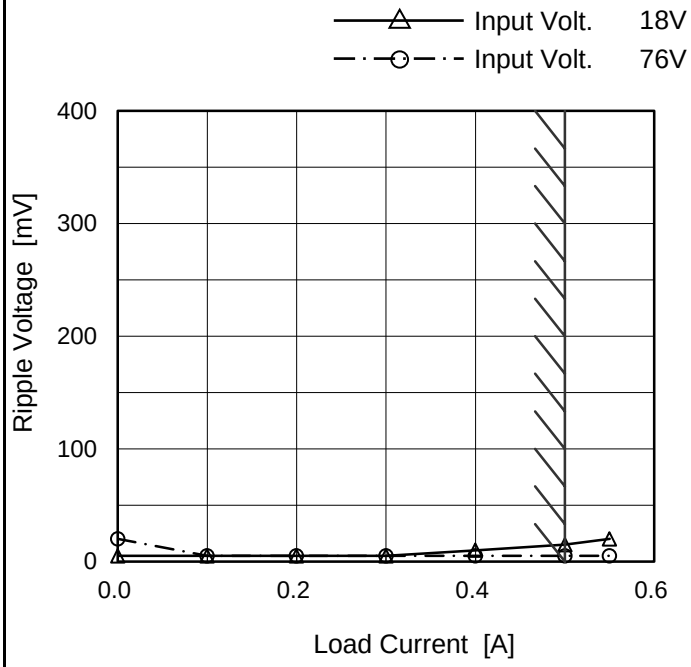
Model	MGFS64812
Item	Ripple Voltage (by Load Current)
Object	+12V0.5A

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]

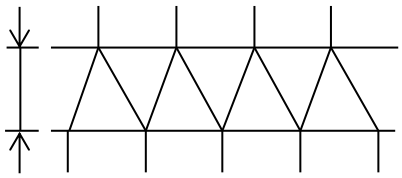


Fig.Complex Ripple Wave Form

2.Values

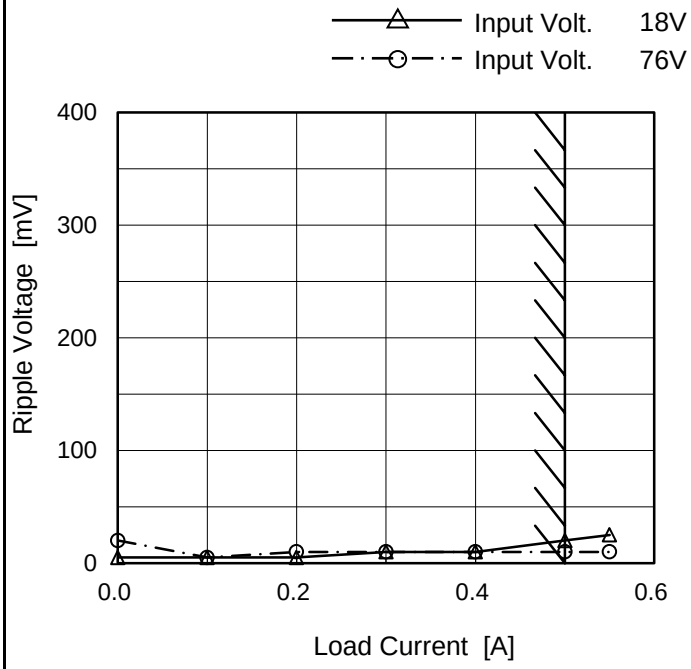
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	5	20
0.10	5	5
0.20	5	5
0.30	5	5
0.40	10	5
0.50	15	5
0.55	20	5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS64812
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]

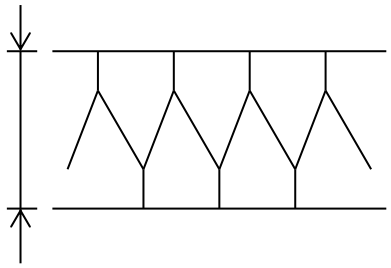


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	5	20
0.10	5	5
0.20	5	10
0.30	10	10
0.40	10	10
0.50	20	10
0.55	25	10
--	-	-
--	-	-
--	-	-
--	-	-

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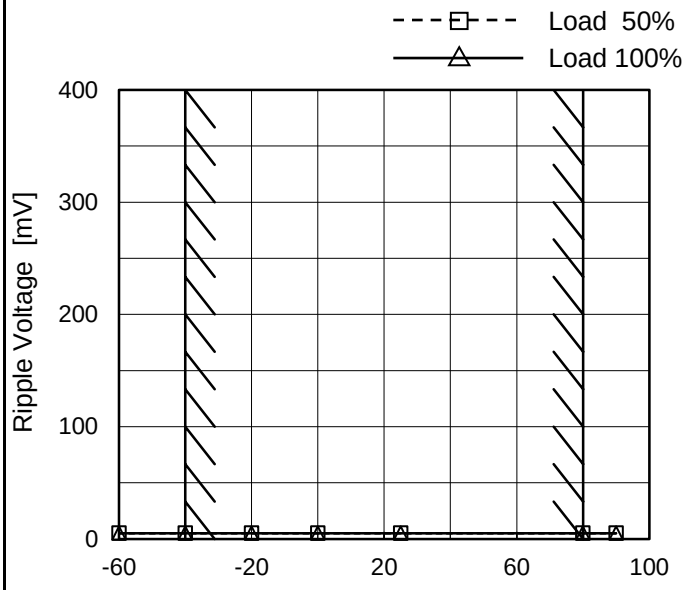
Model	MGFS64812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

Measured by 100 MHz Oscilloscope.

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

2.Values

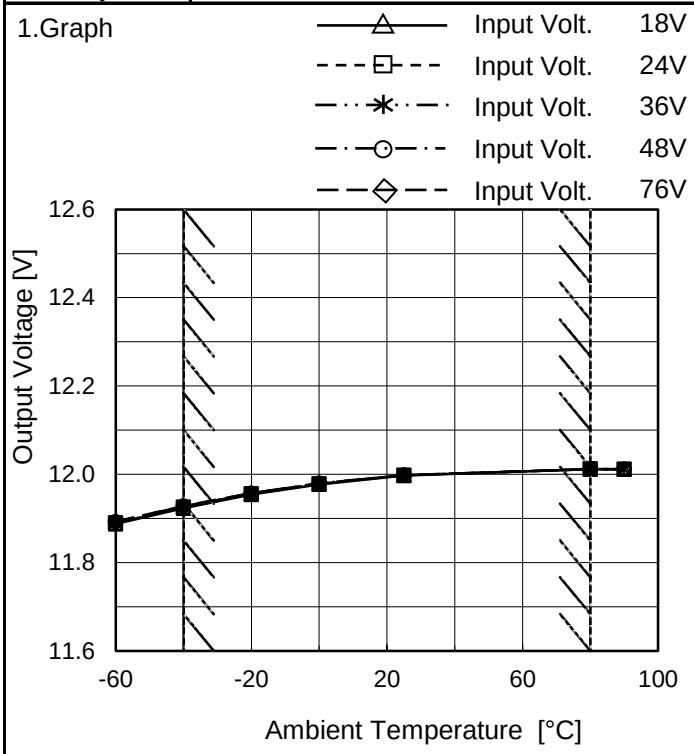
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	5
-40	5	5
-20	5	5
0	5	5
25	5	5
80	5	5
90	5	5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS64812
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	11.888	11.890	11.891	11.893	11.893
-40	11.923	11.925	11.926	11.928	11.928
-20	11.954	11.955	11.956	11.957	11.957
0	11.977	11.978	11.979	11.979	11.979
25	11.997	11.998	11.998	11.998	11.998
80	12.011	12.012	12.012	12.012	12.012
90	12.011	12.012	12.012	12.012	12.012
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Model	MGFS64812	
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 : 18 - 76V
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	76	0	12.021	±49	±0.4
Minimum Voltage	-40	18	0.5	11.923		

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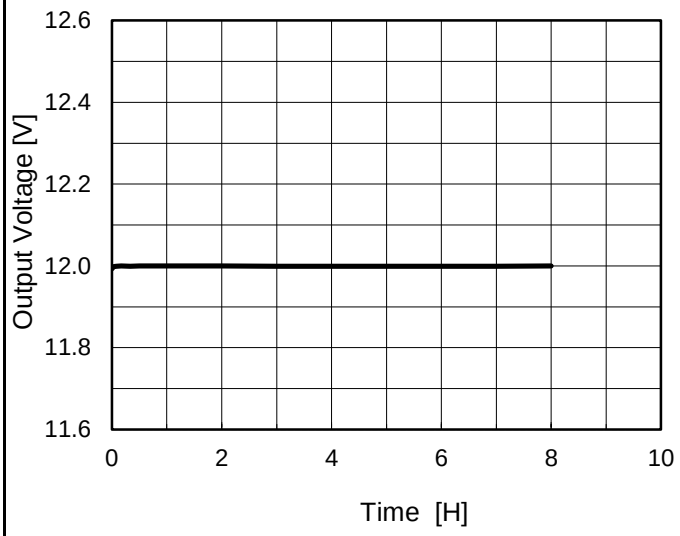
Model	MGFS64812
Item	Time Lapse Drift
Object	+12V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	11.993
0.5	12.000
1.0	12.000
2.0	12.000
3.0	12.000
4.0	12.000
5.0	12.000
6.0	12.000
7.0	12.000
8.0	12.000

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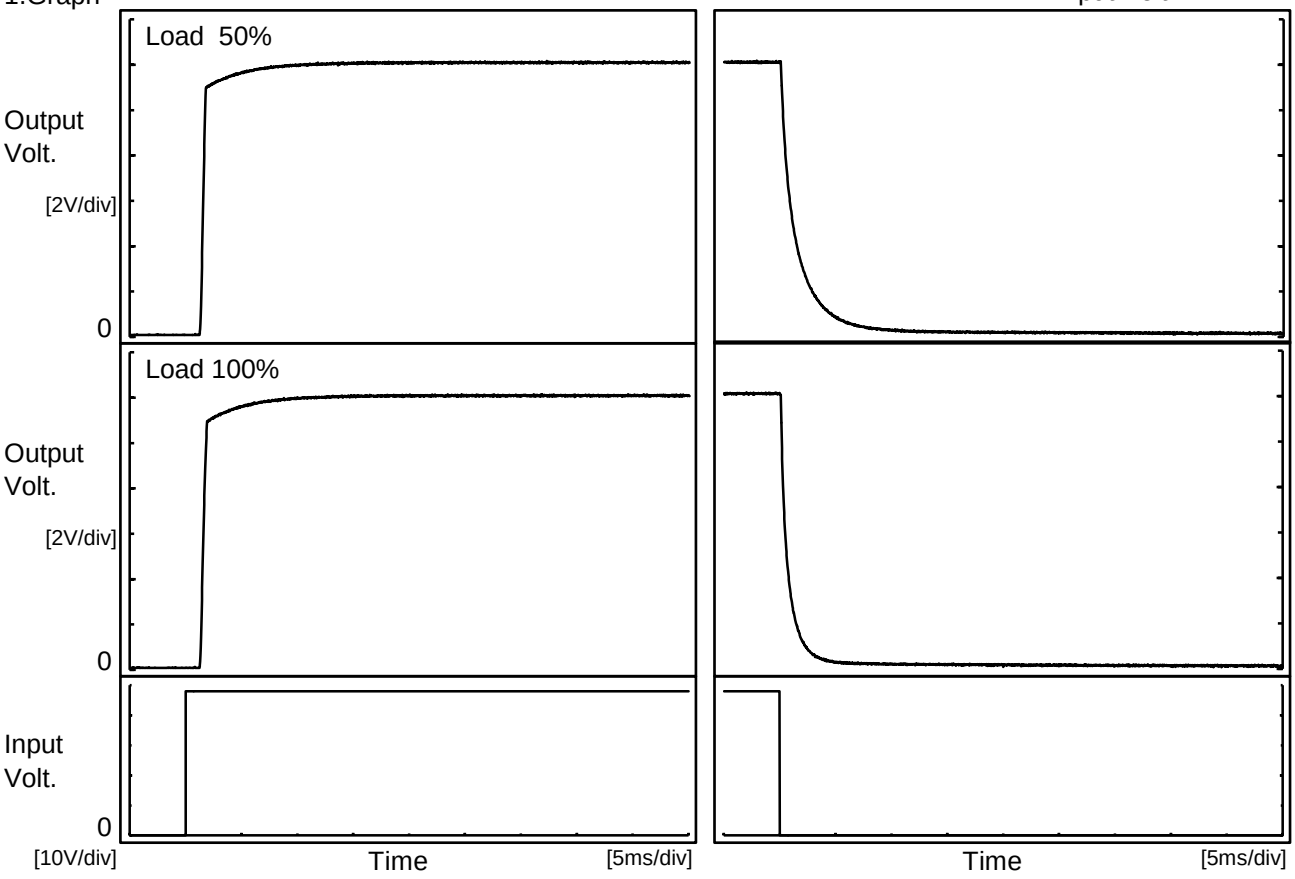
Model	MGFS64812	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.5A	

1.Graph

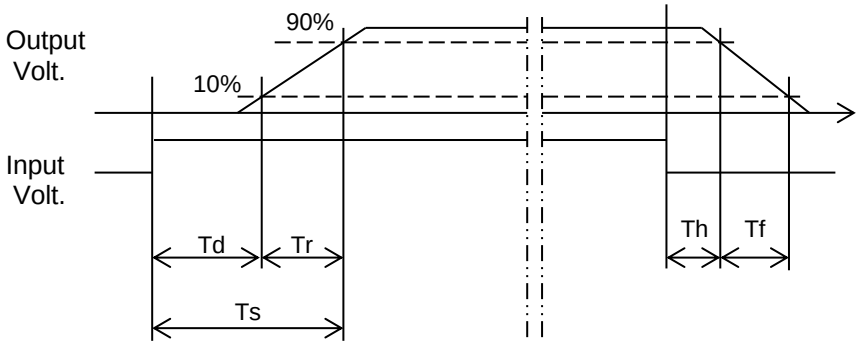
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.4	0.4	1.8	0.2	3.7
100 %	1.4	0.6	2.0	0.1	1.9

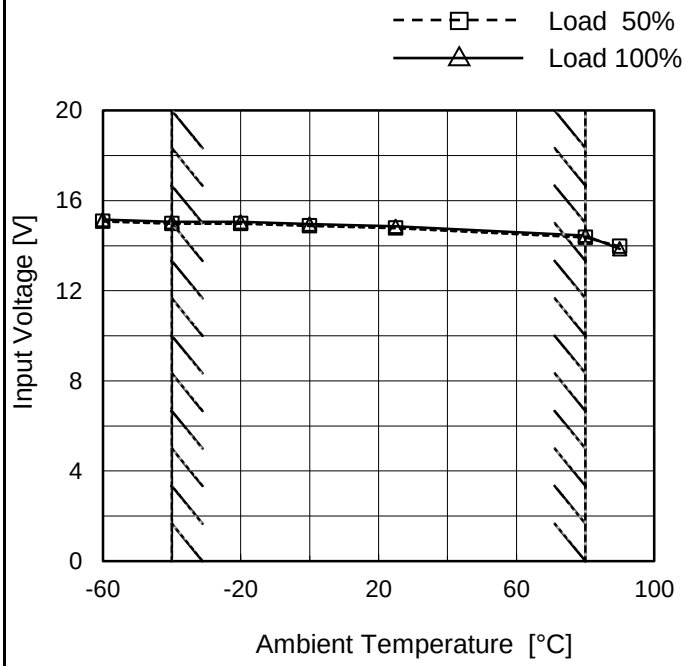


COSEL

Model	MGFS64812
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

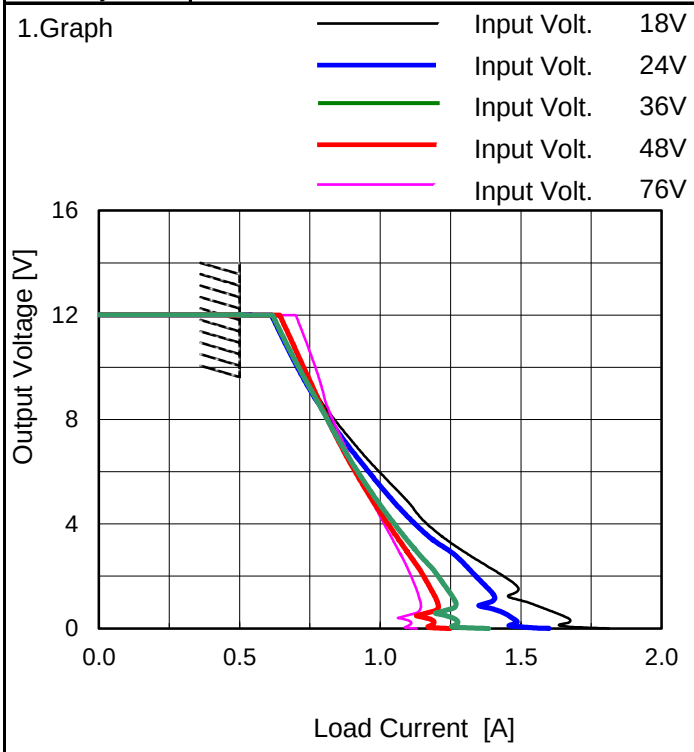
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.1	15.2
-40	15.0	15.1
-20	15.0	15.1
0	14.9	15.0
25	14.8	14.9
80	14.4	14.5
90	14.0	13.9
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS64812
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

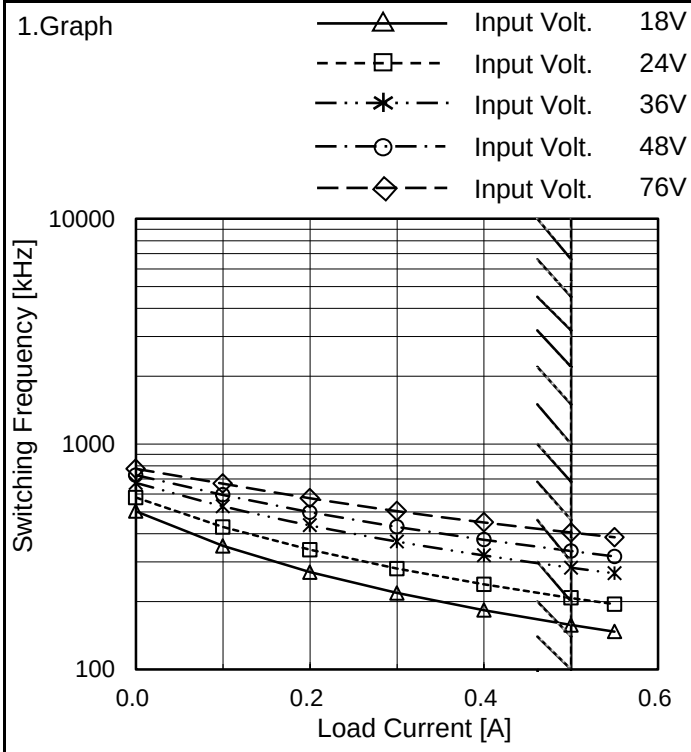
Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
11.4	0.639	0.640	0.644	0.668	0.722
10.8	0.668	0.668	0.671	0.693	0.742
9.6	0.734	0.725	0.729	0.744	0.781
8.4	0.808	0.793	0.790	0.794	0.815
7.2	0.895	0.870	0.852	0.850	0.864
6.0	0.996	0.958	0.919	0.911	0.917
4.8	1.102	1.051	0.995	0.978	0.974
3.6	1.208	1.164	1.078	1.052	1.034
2.4	1.376	1.305	1.175	1.130	1.092
1.2	1.458	1.406	1.257	1.195	1.138
0.0	1.813	1.600	1.386	1.247	1.129
--	-	-	-	-	-

COSEL

Model	MGFS64812
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	504	579	673	728	777
0.10	353	428	530	595	668
0.20	270	340	436	498	575
0.30	218	280	369	429	504
0.40	183	238	320	377	449
0.50	157	207	283	335	405
0.55	147	195	267	317	386
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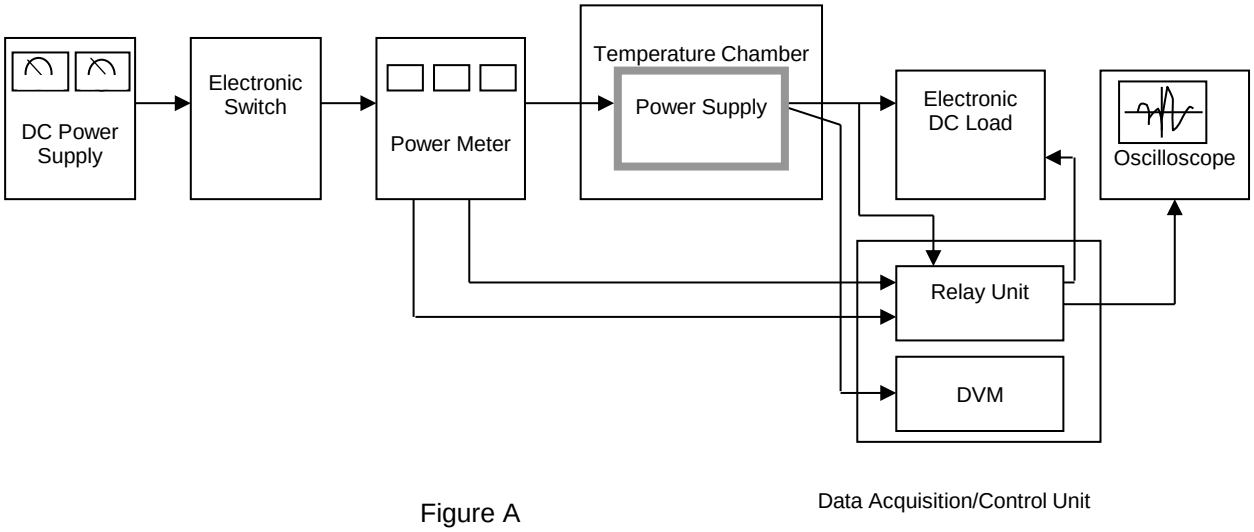

Figure A

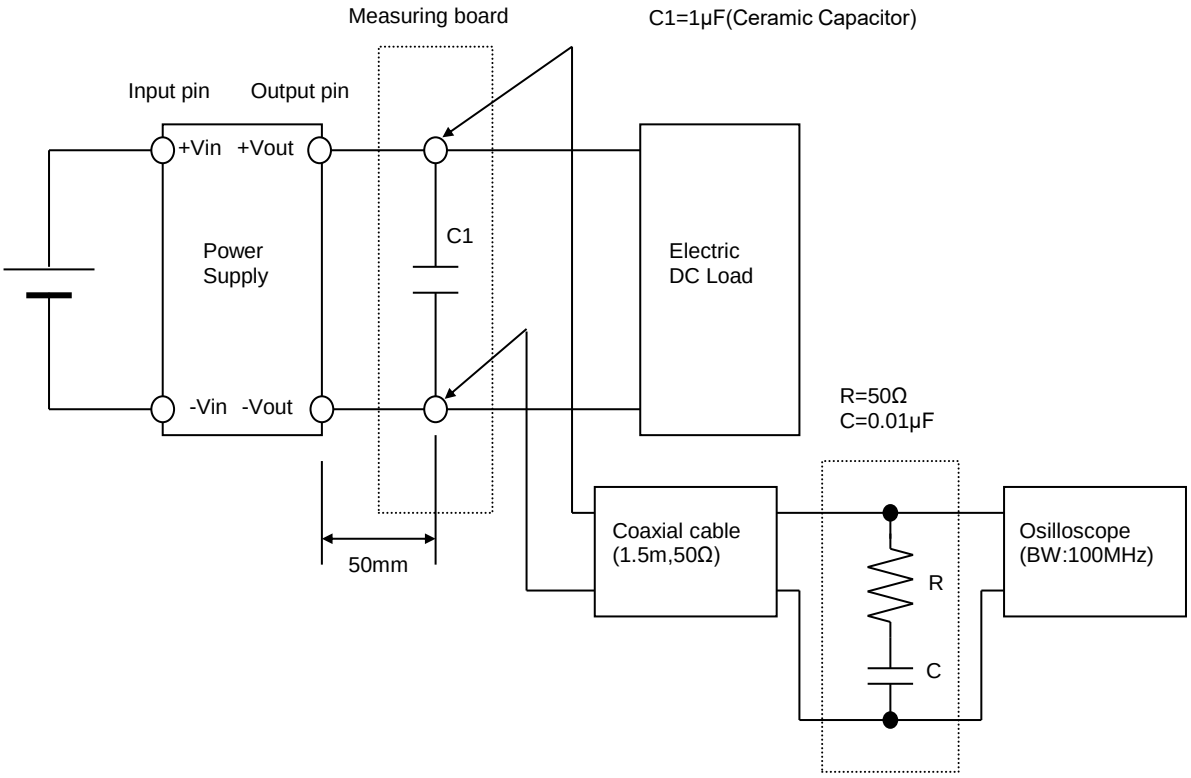

Figure B（Ripple and Ripple noise Characteristic）