参考資料

TEST DATA OF MGFS34805

Regulated DC Power Supply
January 11, 2017

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COSEL CO.,LTD.

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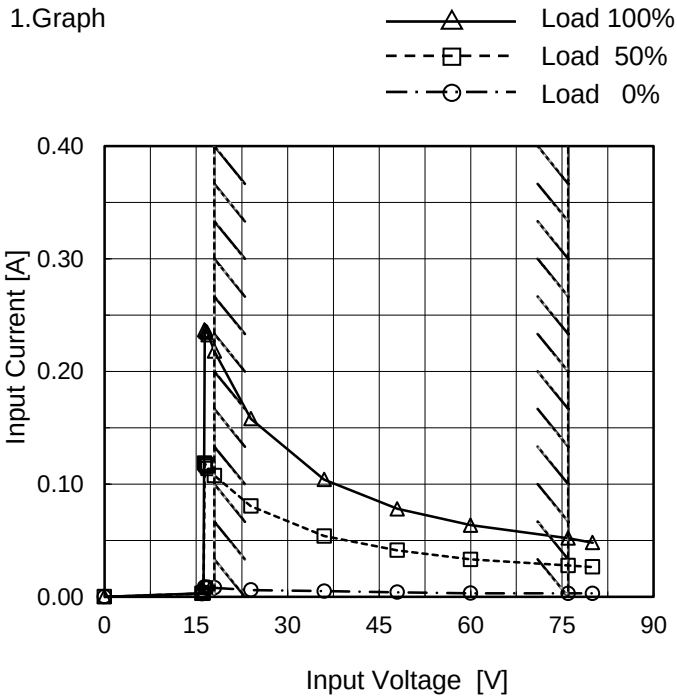

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
16.0	0.003	0.003	0.003
16.2	0.004	0.003	0.004
16.4	0.009	0.119	0.237
16.6	0.008	0.117	0.236
16.8	0.008	0.116	0.235
17.0	0.008	0.114	0.233
18.0	0.008	0.108	0.218
24.0	0.006	0.081	0.158
36.0	0.005	0.054	0.104
48.0	0.004	0.041	0.078
60.0	0.003	0.033	0.064
76.0	0.003	0.028	0.052
80.0	0.003	0.027	0.048
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-11003

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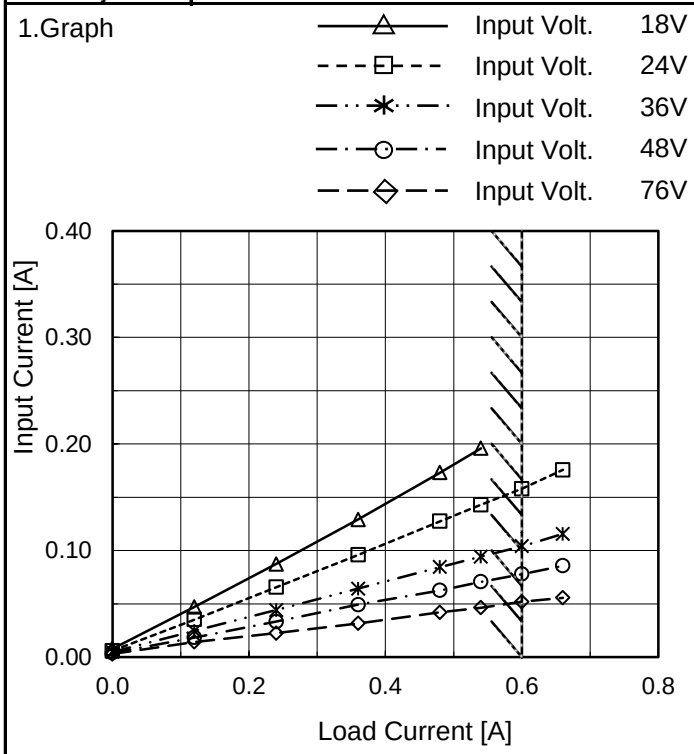
Model	MGFS34805
Item	Input Current (by Load Current)
Object	――――――

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	0.008	0.006	0.005	0.004	0.003
0.12	0.047	0.035	0.025	0.018	0.014
0.24	0.087	0.066	0.044	0.033	0.023
0.36	0.129	0.096	0.064	0.049	0.032
0.48	0.173	0.128	0.085	0.063	0.042
0.54	0.196	0.143	0.094	0.071	0.046
0.60	- ※	0.158	0.104	0.078	0.052
0.66	- ※	0.176	0.116	0.086	0.056
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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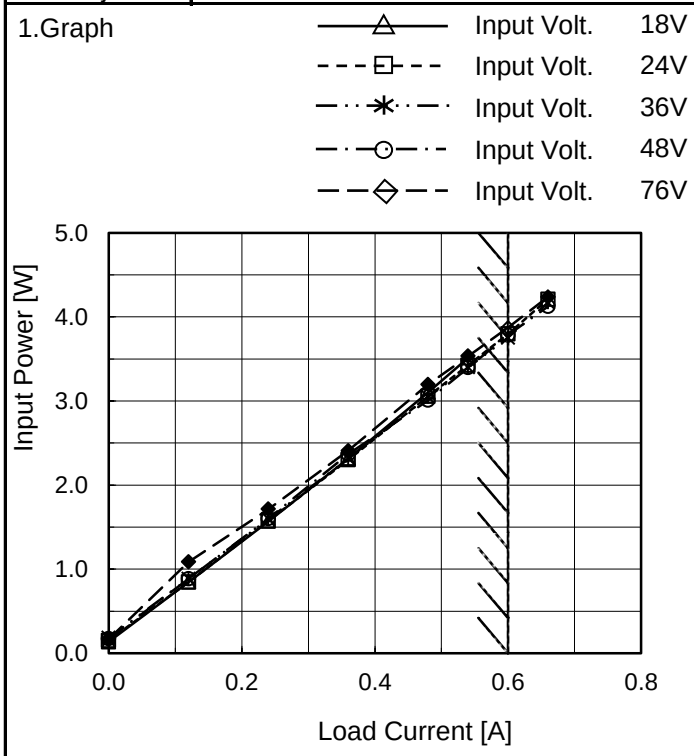
Model	MGFS34805
Item	Input Power (by Load Current)
Object	———————

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	0.14	0.15	0.18	0.17	0.17
0.12	0.85	0.85	0.89	0.88	1.09
0.24	1.57	1.57	1.60	1.60	1.71
0.36	2.32	2.30	2.32	2.37	2.41
0.48	3.10	3.06	3.05	3.01	3.20
0.54	3.51	3.43	3.40	3.40	3.53
0.60	- ※	3.80	3.75	3.78	3.87
0.66	- ※	4.21	4.17	4.12	4.24
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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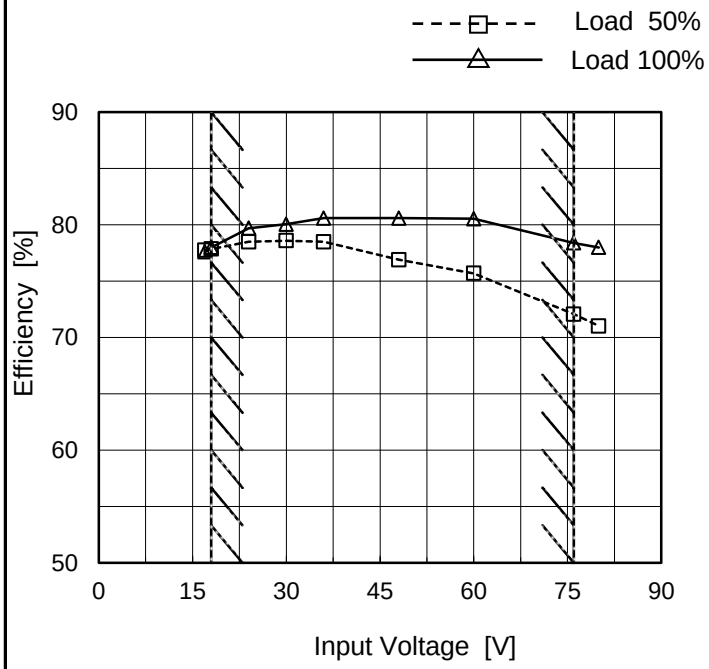
Model	MGFS34805
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	77.7	77.6 ※1
18	77.9	78.0 ※1
24	78.5	79.7
30	78.6	80.1
36	78.5	80.6
48	76.9	80.6
60	75.7	80.5
76	72.1	78.4
80	71.0	78.0

※1:Load 80%

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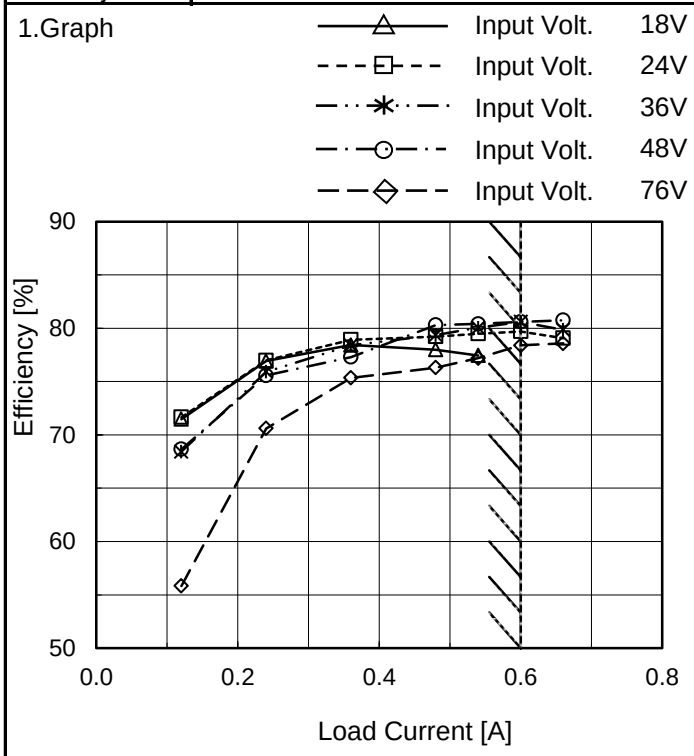
Model	MGFS34805
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-	-	-
0.12	71.5	71.7	68.4	68.7	55.8
0.24	76.9	77.0	75.9	75.6	70.6
0.36	78.4	78.9	78.4	77.3	75.4
0.48	78.0	79.2	79.3	80.3	76.3
0.54	77.5	79.5	80.0	80.4	77.2
0.60	- ※	79.7	80.6	80.6	78.4
0.66	- ※	79.1	79.8	80.7	78.6
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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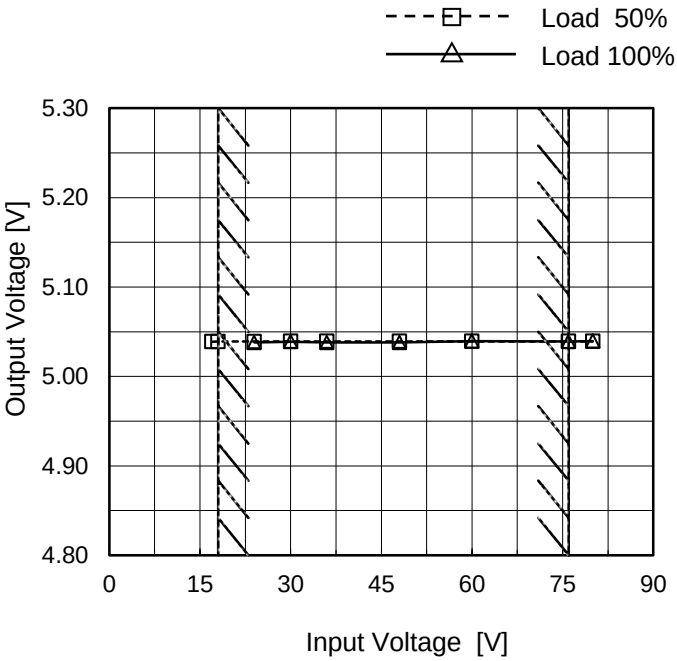
Model	MGFS34805
Item	Line Regulation
Object	+5V0.6A

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	5.039	- ※
18	5.039	- ※
24	5.039	5.038
30	5.039	5.039
36	5.039	5.038
48	5.039	5.038
60	5.039	5.040
76	5.039	5.039
80	5.039	5.040

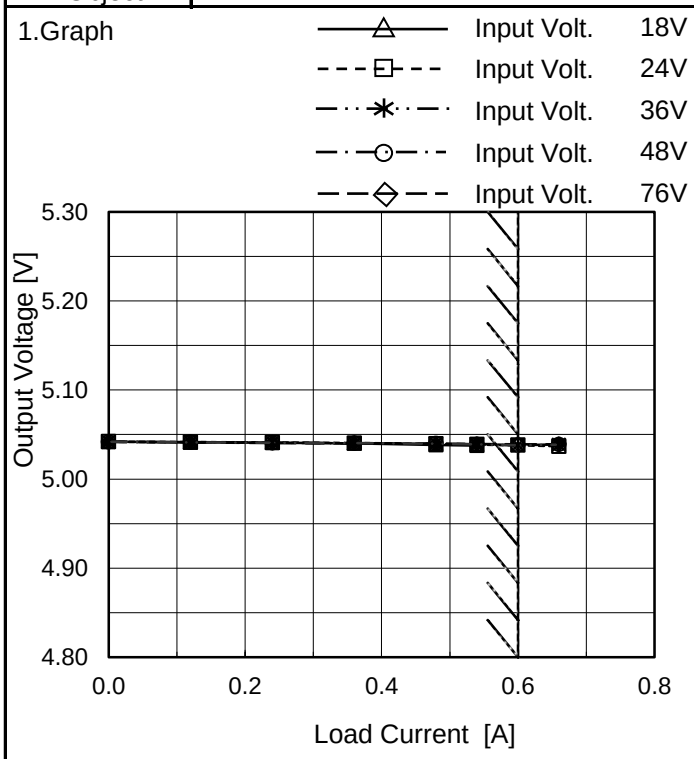
※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

COSEL

Model	MGFS34805
Item	Load Regulation
Object	+5V0.6A

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	5.042	5.042	5.042	5.042	5.042
0.12	5.041	5.041	5.041	5.041	5.041
0.24	5.041	5.041	5.041	5.041	5.041
0.36	5.040	5.040	5.040	5.040	5.040
0.48	5.038	5.040	5.040	5.040	5.040
0.54	5.038	5.039	5.039	5.039	5.039
0.60	- ※	5.038	5.038	5.038	5.039
0.66	- ※	5.037	5.039	5.039	5.039
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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Model	MGFS34805	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+5V0.6A	

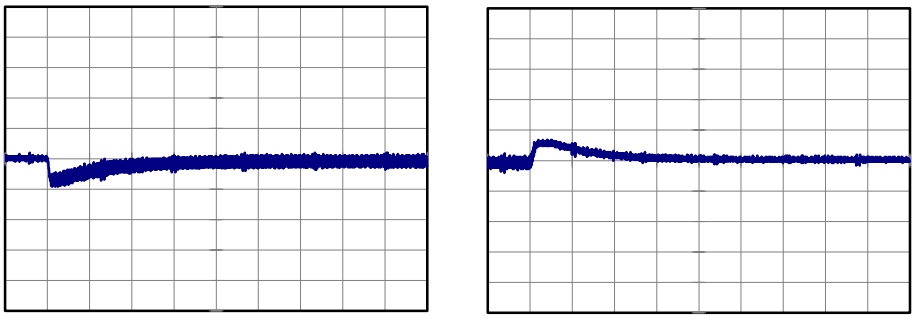
Input Volt. 48 V
Cycle 100 ms

t1,t2 = 100 μ s

Load Current

t1 t2

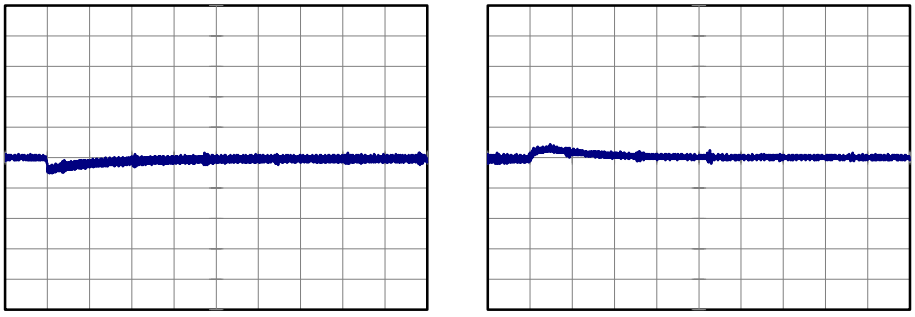
Min.Load (0A)←→
Load 100% (0.6A)



100 mV/div

400 μs/div 400 μs/div

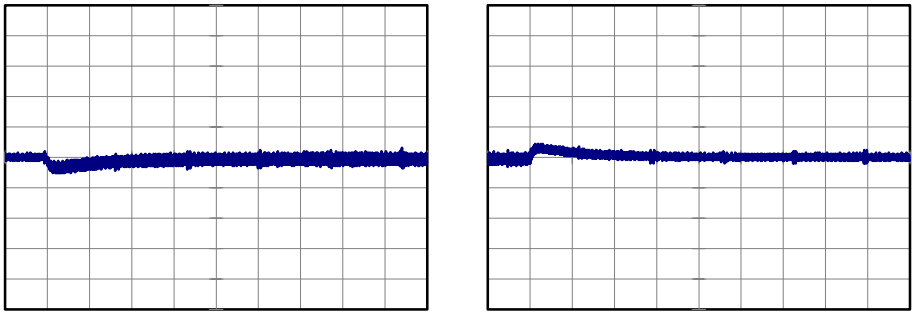
Min.Load (0A)←→
Load 50% (0.3A)



100 mV/div

400 μs/div 400 μs/div

Load 50% (0.3A)←→
Load 100% (0.6A)



100 mV/div

400 μs/div 400 μs/div

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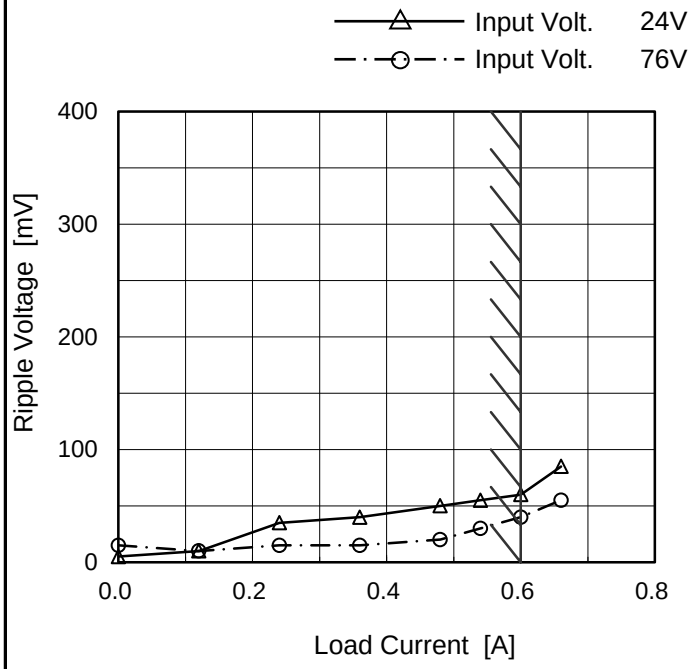
Model	MGFS34805
Item	Ripple Voltage (by Load Current)
Object	+5V0.6A

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]

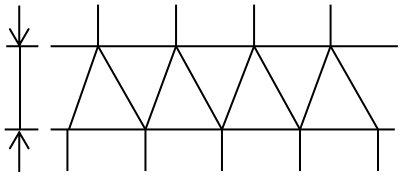


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 24 [V]	Input Volt. 76 [V]
0.00	5	15
0.12	10	10
0.24	35	15
0.36	40	15
0.48	50	20
0.54	55	30
0.60	60	40
0.66	85	55
--	-	-
--	-	-
--	-	-

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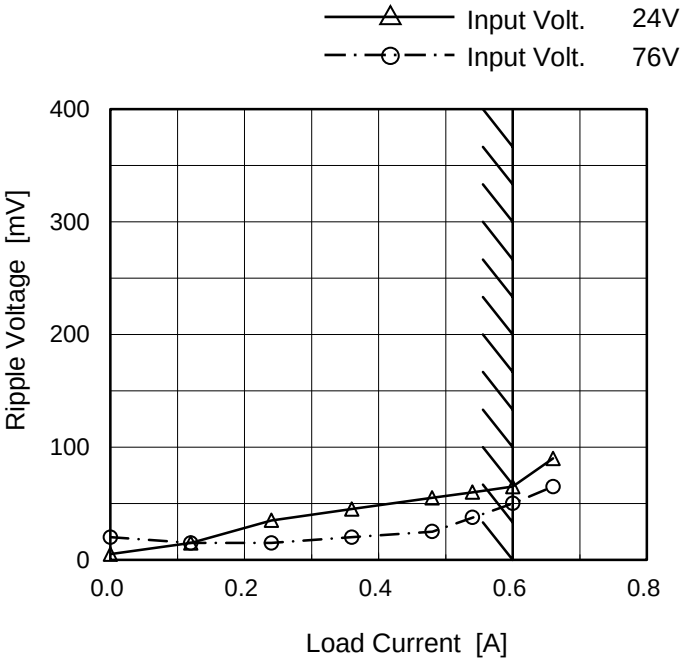
Model	MGFS34805
Item	Ripple-Noise
Object	+5V0.6A

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]

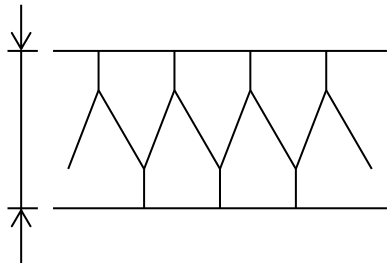


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 24 [V]	Input Volt. 76 [V]
0.00	5	20
0.12	15	15
0.24	35	15
0.36	45	20
0.48	55	25
0.54	60	37.5
0.60	65	50
0.66	90	65
--	-	-
--	-	-
--	-	-

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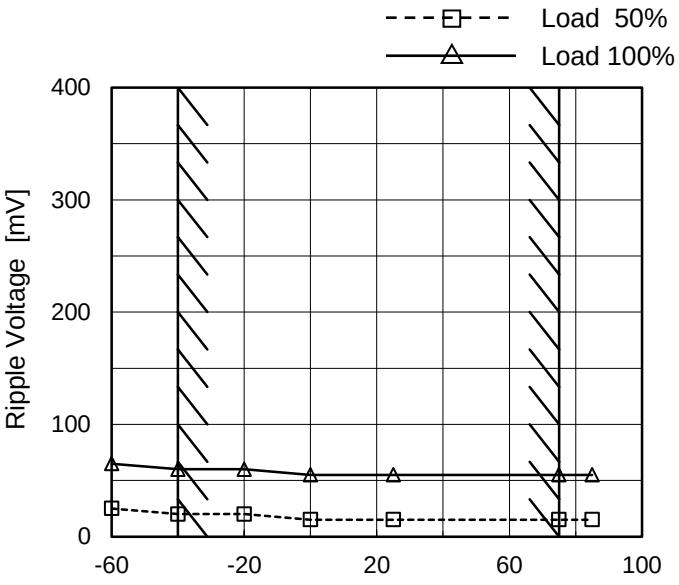
Model	MGFS34805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V0.6A

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	25	65
-40	20	60
-20	20	60
0	15	55
25	15	55
75	15	55
85	15	55
--	-	-
--	-	-
--	-	-
--	-	-

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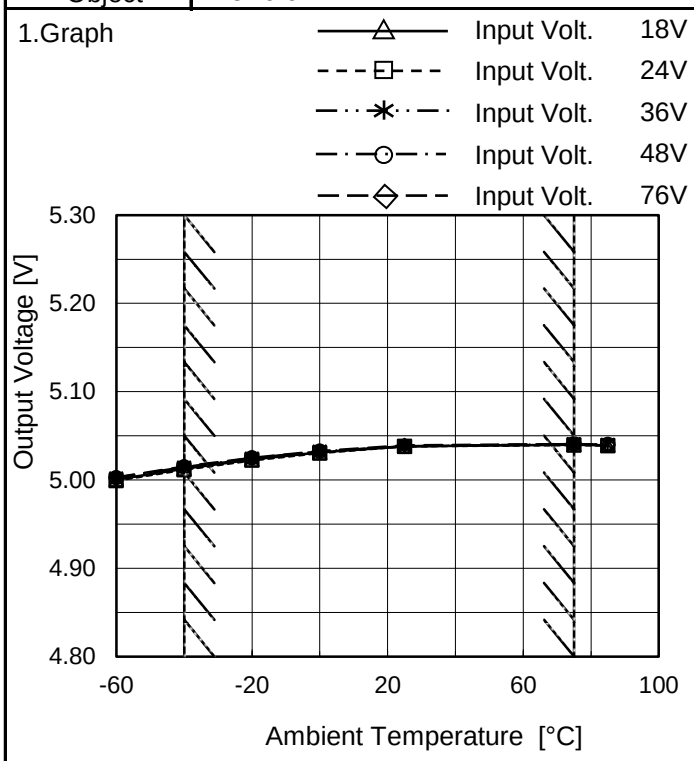
Model	MGFS34805
Item	Ambient Temperature Drift
Object	+5V0.6A

Testing Circuitry Figure A

1.Graph



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	5.000	4.999	5.002	5.002	5.003
-40	5.013	5.012	5.014	5.015	5.015
-20	5.023	5.022	5.024	5.025	5.025
0	5.031	5.030	5.032	5.032	5.033
25	5.038	5.038	5.038	5.038	5.039
75	5.040	5.039	5.041	5.041	5.041
85	5.039	5.039	5.040	5.040	5.040
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Note: In case of Input Volt. 18V, Load 80%. Other case Load 100%.

Model	MGFS34805	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V0.6A	

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 - 75°C
Input Voltage : 24 - 76V
Load Current : 0 - 0.6A

* 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	70	76	0	5.044	±16	±0.3
Minimum Voltage	-40	24	0.6	5.012		

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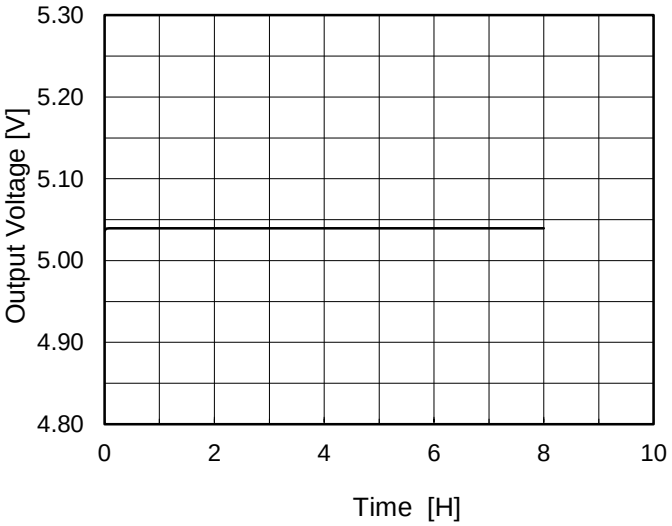
Model	MGFS34805
Item	Time Lapse Drift
Object	+5V0.6A

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	5.037
0.5	5.040
1.0	5.040
2.0	5.040
3.0	5.040
4.0	5.040
5.0	5.040
6.0	5.040
7.0	5.040
8.0	5.040

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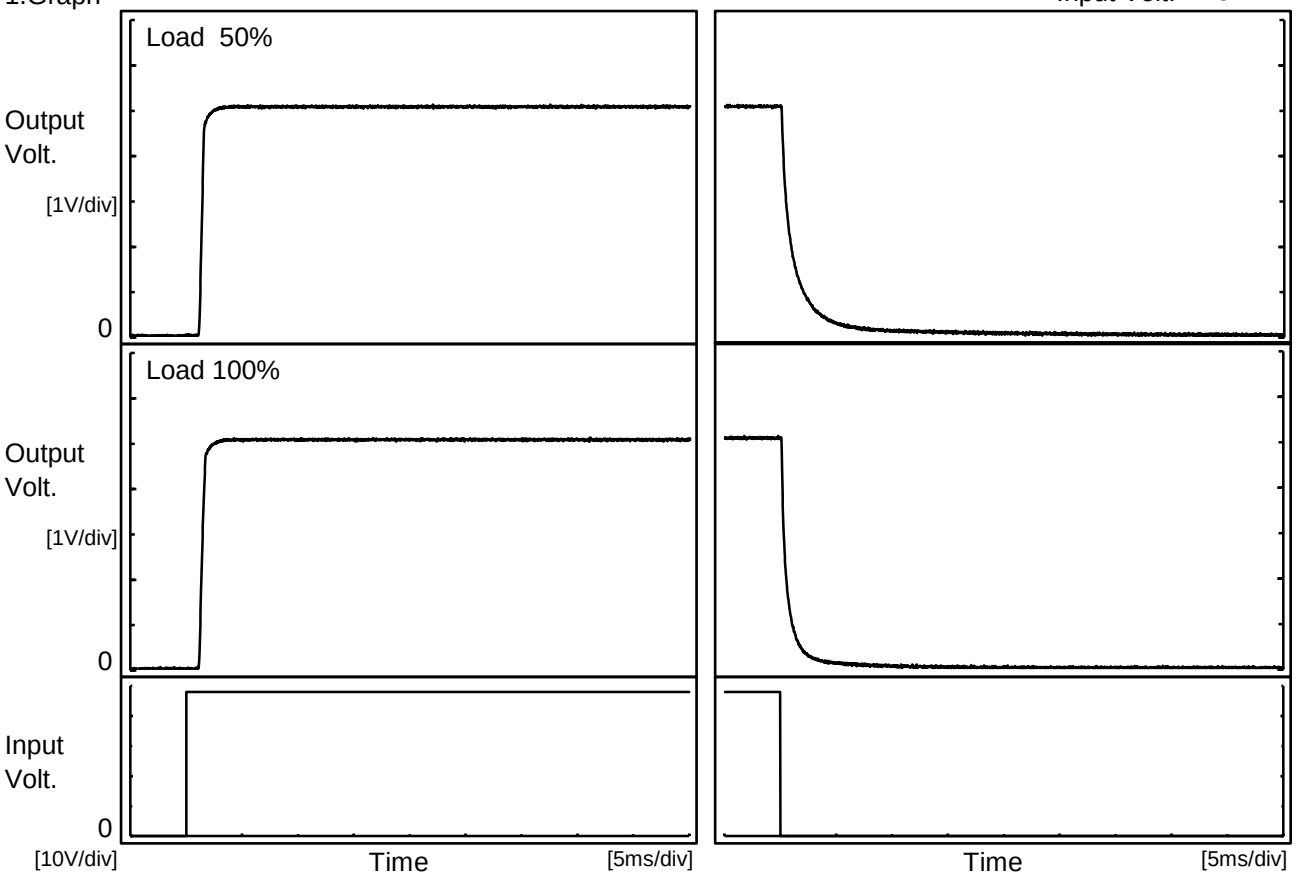
Model	MGFS34805	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V0.6A	

1.Graph

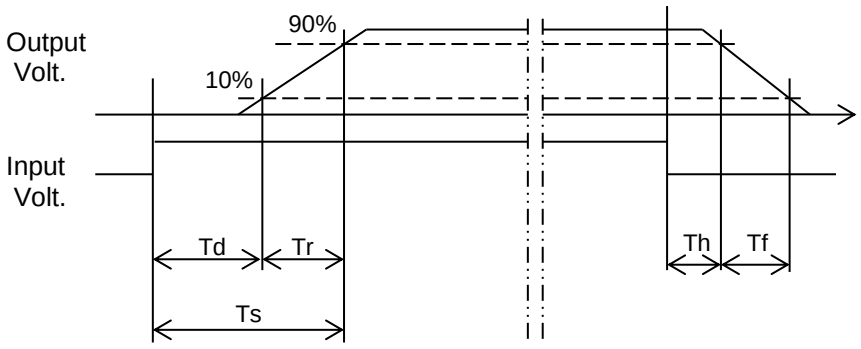
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	0.4	1.6	0.2	3.2
100 %	1.2	0.5	1.7	0.1	1.6



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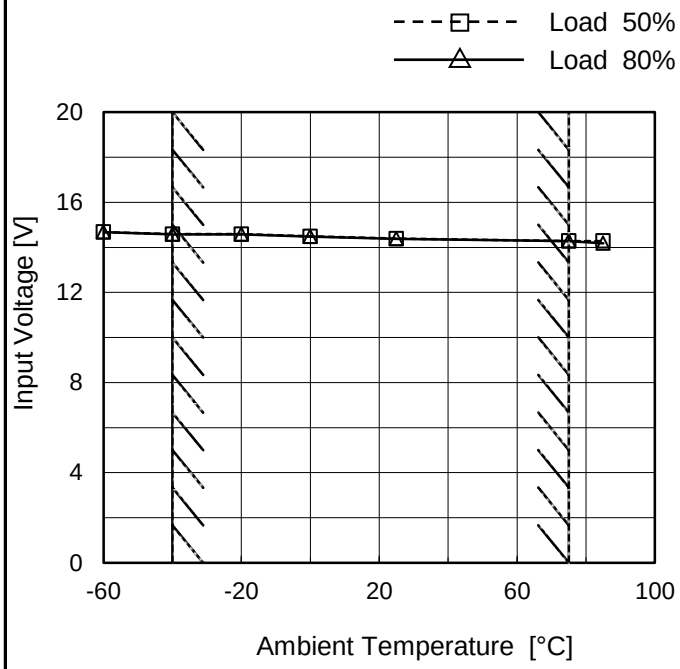
Model	MGFS34805
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V0.6A

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 80%
-60	14.7	14.7
-40	14.6	14.6
-20	14.6	14.6
0	14.5	14.5
25	14.4	14.4
75	14.3	14.3
85	14.3	14.2
--	-	-
--	-	-
--	-	-
--	-	-

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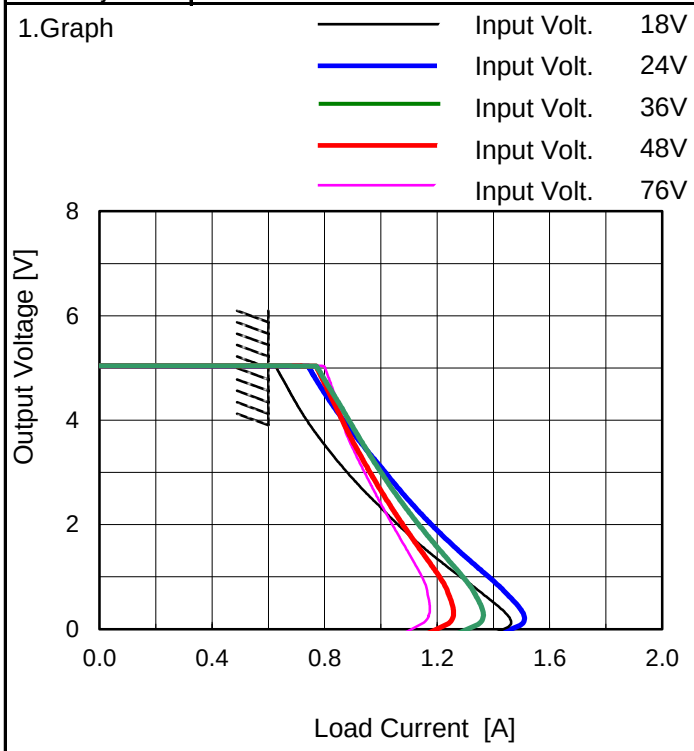
Model	MGFS34805
Item	Overcurrent Protection
Object	+5V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Maximum output current at minimum input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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]
4.75	0.655	0.773	0.803	0.796	0.819
4.50	0.679	0.802	0.830	0.817	0.835
4.00	0.735	0.866	0.884	0.862	0.863
3.50	0.802	0.938	0.942	0.908	0.896
3.00	0.878	1.015	0.998	0.961	0.942
2.50	0.965	1.093	1.062	1.016	0.989
2.00	1.061	1.179	1.133	1.077	1.040
1.50	1.162	1.277	1.211	1.142	1.094
1.00	1.282	1.384	1.292	1.208	1.146
0.50	1.402	1.476	1.351	1.252	1.173
0.00	1.413	1.439	1.275	1.163	1.072
--	-	-	-	-	-

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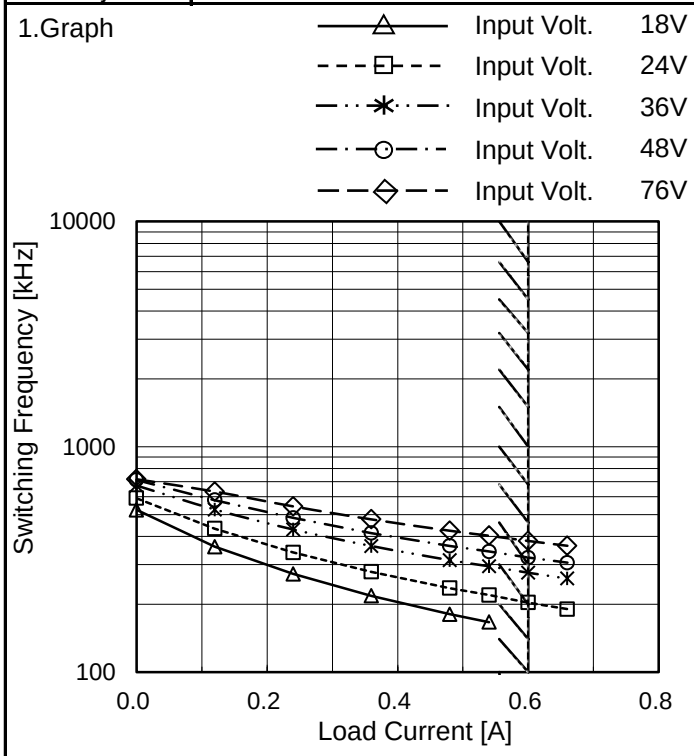
Model	MGFS34805
Item	Switching frequency (by Load Current)
Object	+5V0.6A

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	525	592	673	712	718
0.12	360	433	527	579	633
0.24	273	340	430	484	544
0.36	218	278	363	414	476
0.48	180	236	314	363	424
0.54	167	220	295	343	403
0.60	- ※	203	276	322	382
0.66	- ※	190	260	306	364
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

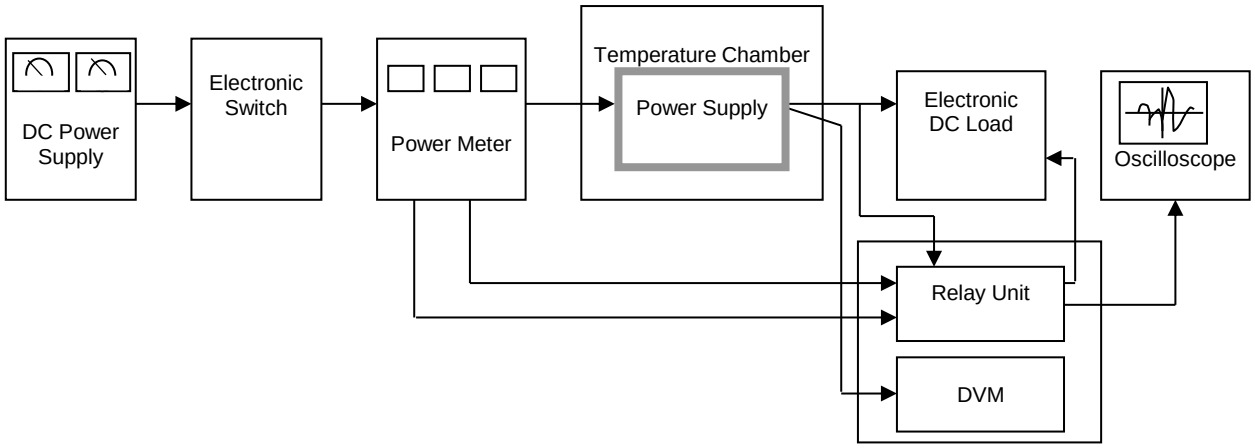


Figure A

Data Acquisition/Control Unit

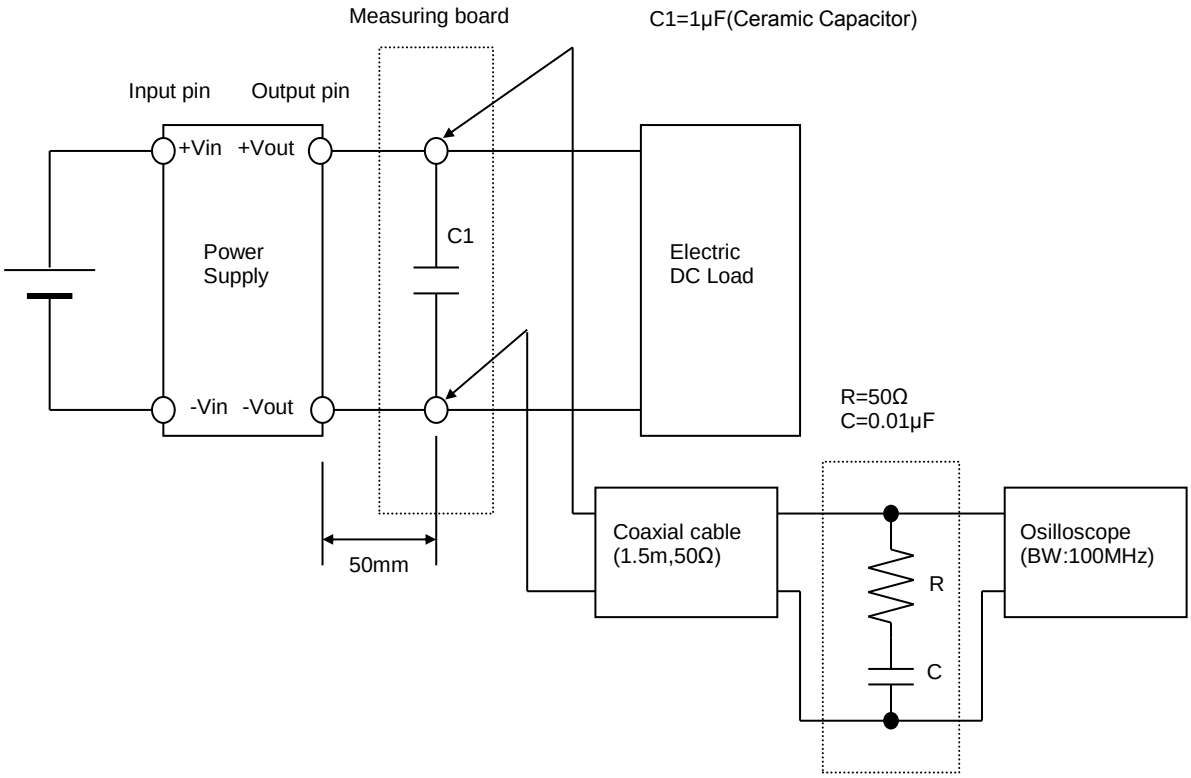


Figure B（Ripple and Ripple noise Characteristic）