参考資料

TEST DATA OF MGFS3483R3

Regulated DC Power Supply
January 11, 2017

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COSEL CO.,LTD.

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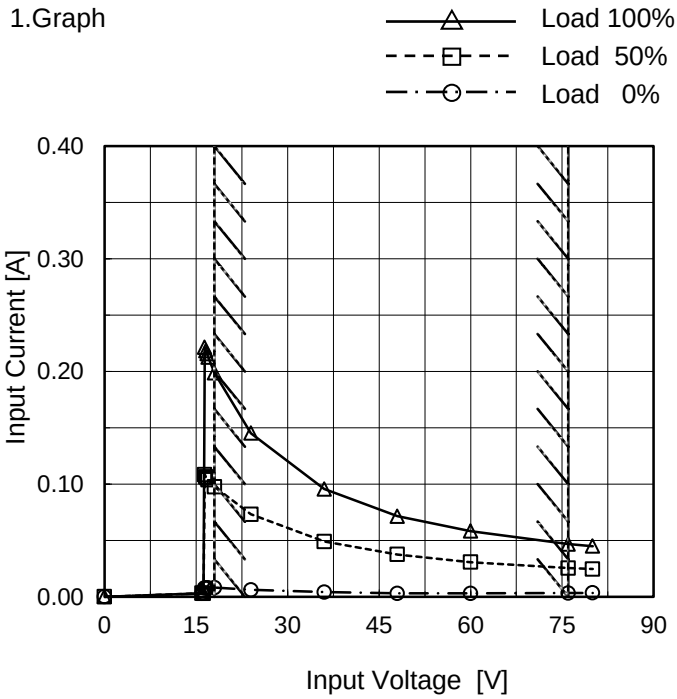
Model	MGFS3483R3
Item	Input Current (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

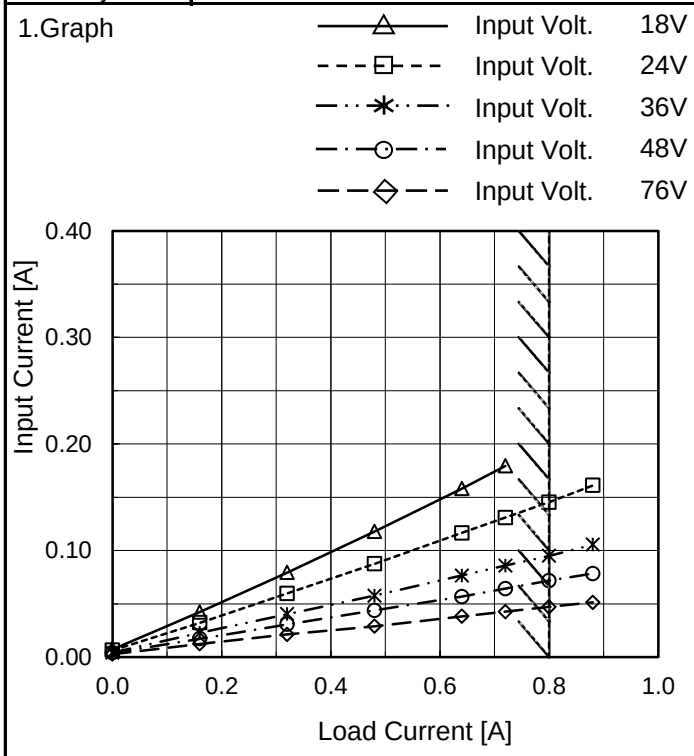
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
16.0	0.003	0.003	0.003
16.2	0.003	0.003	0.004
16.4	0.008	0.109	0.222
16.6	0.008	0.107	0.218
16.8	0.008	0.106	0.216
17.0	0.008	0.104	0.213
18.0	0.008	0.098	0.199
24.0	0.006	0.073	0.145
36.0	0.004	0.049	0.096
48.0	0.003	0.038	0.072
60.0	0.003	0.031	0.058
76.0	0.003	0.025	0.047
80.0	0.003	0.025	0.045
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGFS3483R3
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	0.007	0.006	0.004	0.004	0.003
0.16	0.042	0.032	0.023	0.017	0.012
0.32	0.079	0.060	0.040	0.031	0.021
0.48	0.118	0.088	0.058	0.044	0.029
0.64	0.158	0.117	0.077	0.057	0.038
0.72	0.179	0.131	0.086	0.064	0.043
0.80	- ※	0.145	0.095	0.072	0.047
0.88	- ※	0.161	0.106	0.078	0.051
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ 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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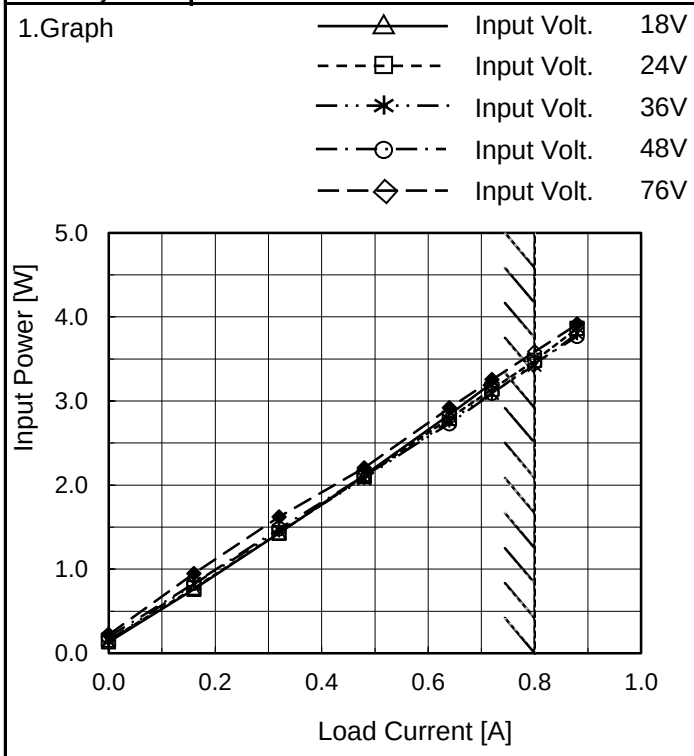
Model	MGFS3483R3
Item	Input Power (by Load Current)
Object	————————

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	0.13	0.15	0.15	0.19	0.22
0.16	0.76	0.77	0.82	0.83	0.95
0.32	1.43	1.43	1.46	1.48	1.62
0.48	2.12	2.10	2.08	2.11	2.20
0.64	2.83	2.79	2.76	2.73	2.92
0.72	3.21	3.14	3.09	3.09	3.25
0.80	- ※	3.48	3.43	3.45	3.59
0.88	- ※	3.86	3.80	3.77	3.91
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ 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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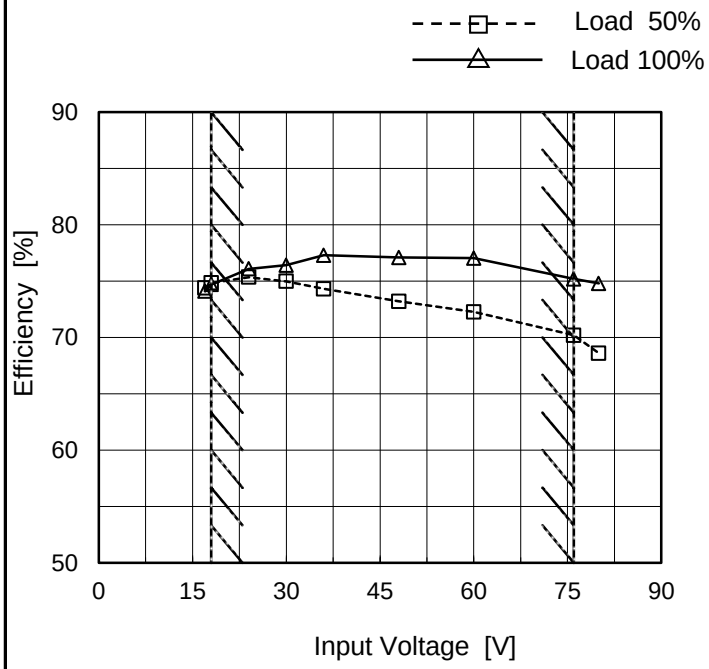
Model	MGFS3483R3
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	74.4	74.1 ※1
18	74.8	74.7 ※1
24	75.3	76.1
30	75.0	76.4
36	74.3	77.3
48	73.2	77.1
60	72.3	77.0
76	70.2	75.2
80	68.6	74.8

※1:Load 80%

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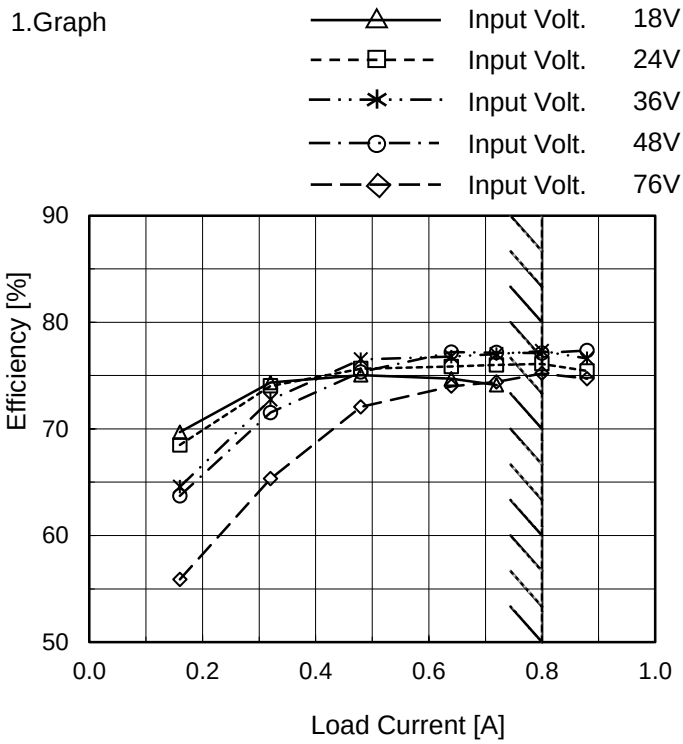
Model	MGFS3483R3
Item	Efficiency (by Load Current)
Object	――――――

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	-	-	-	-	-
0.16	69.7	68.5	64.6	63.7	55.9
0.32	74.3	74.0	72.7	71.5	65.3
0.48	75.0	75.6	76.5	75.3	72.1
0.64	74.7	75.8	76.8	77.2	74.0
0.72	74.1	76.0	77.0	77.2	74.4
0.80	- ※	76.1	77.3	77.1	75.2
0.88	- ※	75.4	76.6	77.3	74.7
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ 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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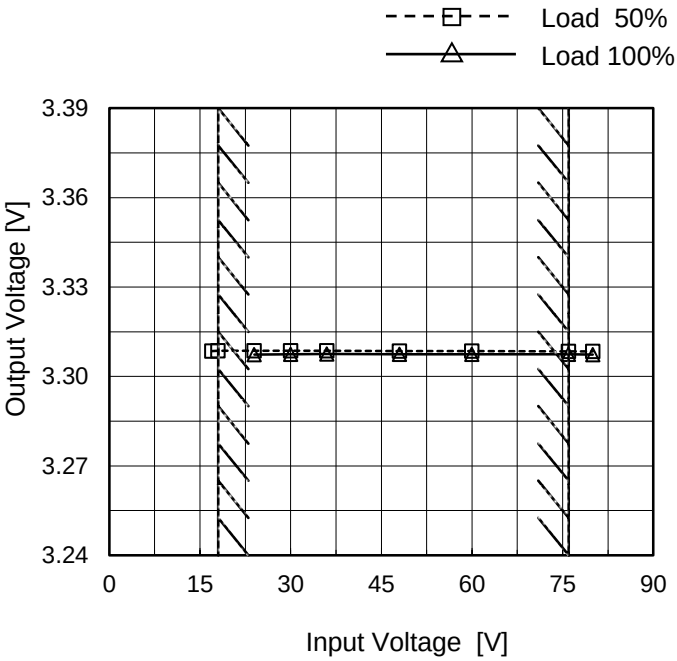
Model	MGFS3483R3
Item	Line Regulation
Object	+3.3V0.8A

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	3.309	- ※
18	3.309	- ※
24	3.309	3.307
30	3.309	3.307
36	3.309	3.308
48	3.309	3.307
60	3.309	3.307
76	3.308	3.307
80	3.308	3.307

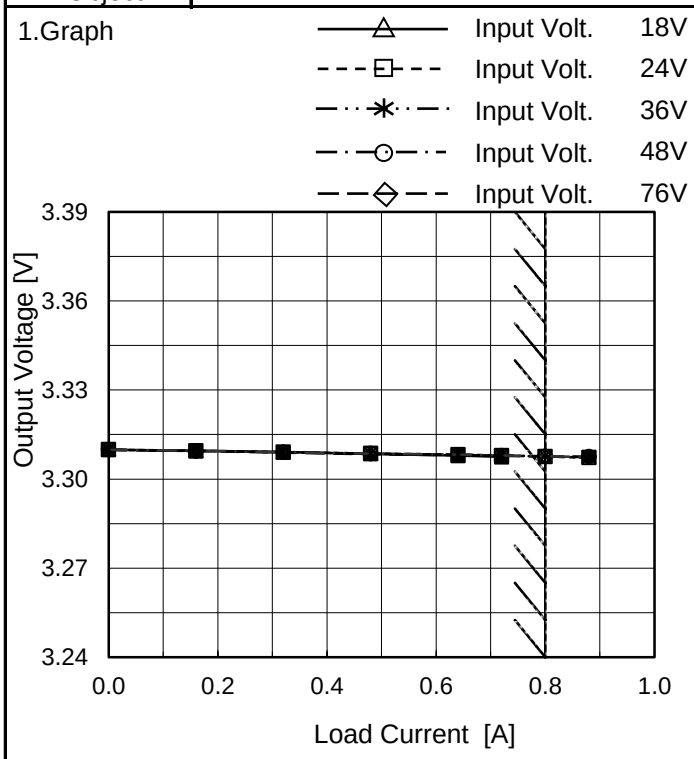
※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

COSEL

Model	MGFS3483R3
Item	Load Regulation
Object	+3.3V0.8A

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	3.310	3.310	3.310	3.310	3.310
0.16	3.310	3.310	3.310	3.309	3.309
0.32	3.309	3.309	3.309	3.309	3.309
0.48	3.309	3.309	3.309	3.309	3.308
0.64	3.308	3.308	3.308	3.308	3.308
0.72	3.307	3.308	3.308	3.308	3.308
0.80	- ※	3.308	3.308	3.308	3.308
0.88	- ※	3.307	3.307	3.308	3.307
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ 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	MGFS3483R3	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+3.3V0.8A	

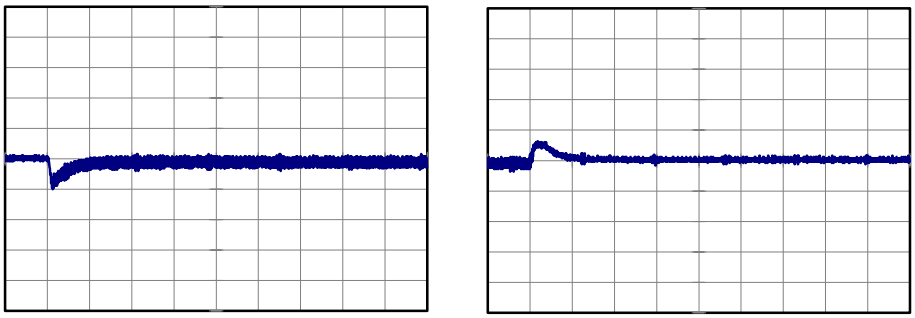
Input Volt. 48 V
Cycle 100 ms

t1,t2 = 100 μ s

Load Current

t1 t2

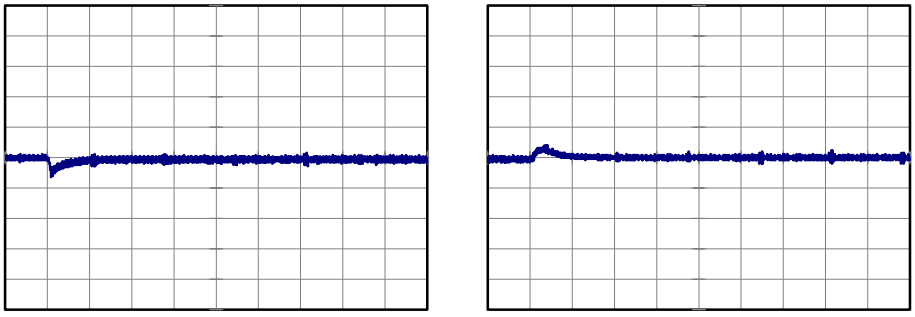
Min.Load (0A)←→
Load 100% (0.8A)



100 mV/div

400 μs/div 400 μs/div

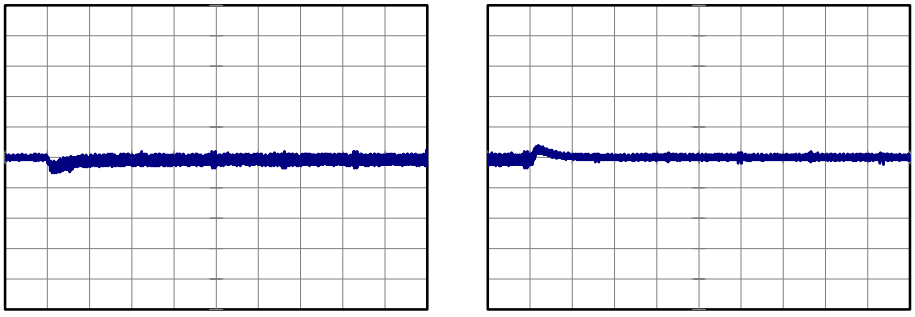
Min.Load (0A)←→
Load 50% (0.4A)



100 mV/div

400 μs/div 400 μs/div

Load 50% (0.4A)←→
Load 100% (0.8A)



100 mV/div

400 μs/div 400 μs/div

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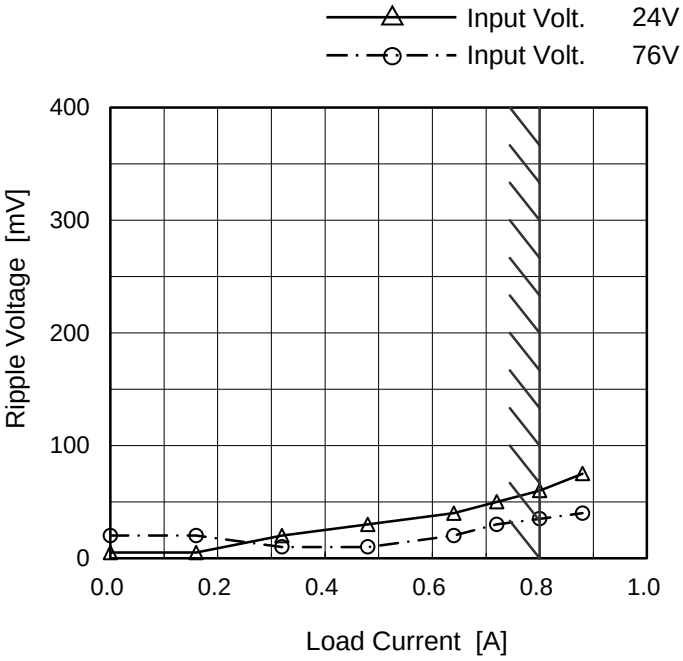
Model	MGFS3483R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V0.8A

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]

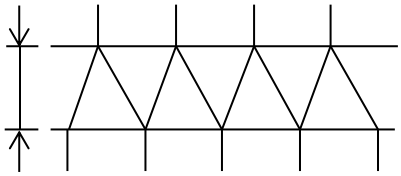


Fig.Complex Ripple Wave Form

2.Values

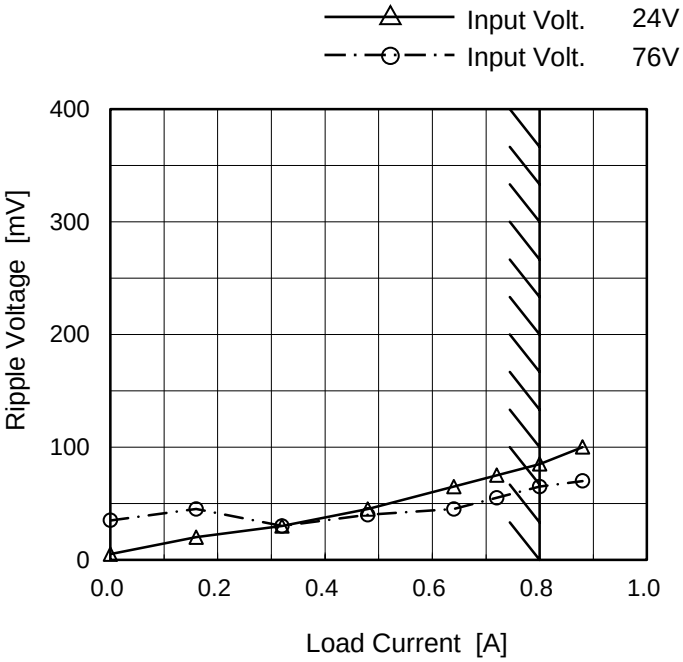
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 24 [V]	Input Volt. 76 [V]
0.00	5	20
0.16	5	20
0.32	20	10
0.48	30	10
0.64	40	20
0.72	50	30
0.80	60	35
0.88	75	40
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS3483R3
Item	Ripple-Noise
Object	+3.3V0.8A

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]

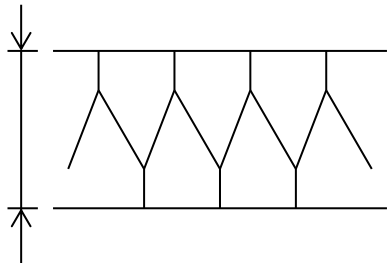


Fig.Complex Ripple Noise Wave Form

2.Values

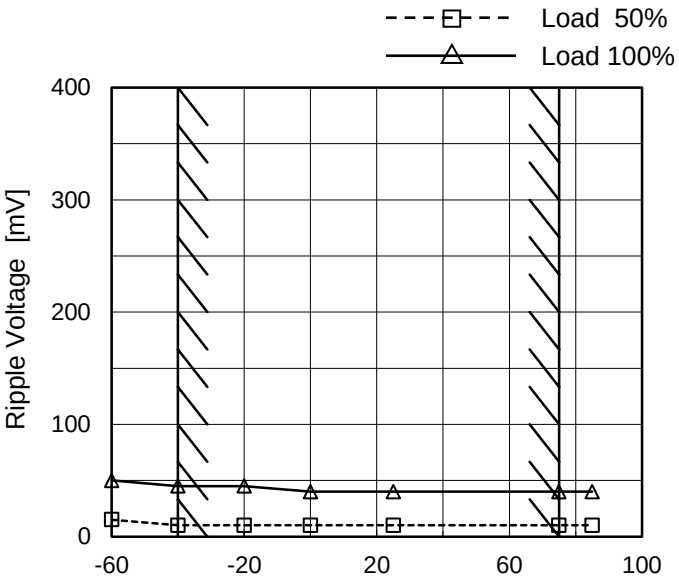
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 24 [V]	Input Volt. 76 [V]
0.00	5	35
0.16	20	45
0.32	30	30
0.48	45	40
0.64	65	45
0.72	75	55
0.80	85	65
0.88	100	70
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS3483R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V0.8A

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

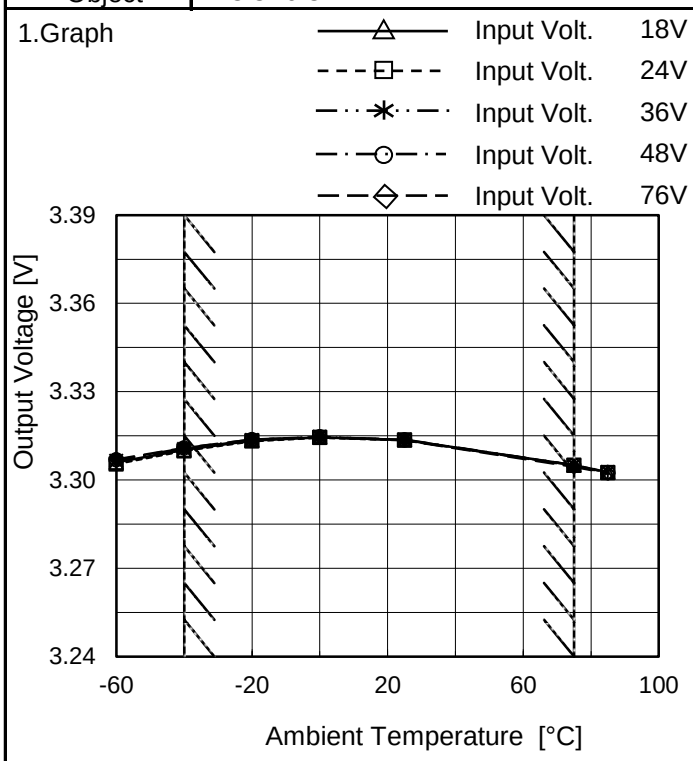
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	15	50
-40	10	45
-20	10	45
0	10	40
25	10	40
75	10	40
85	10	40
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS3483R3
Item	Ambient Temperature Drift
Object	+3.3V0.8A

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	3.306	3.305	3.307	3.307	3.307
-40	3.310	3.310	3.311	3.311	3.311
-20	3.313	3.313	3.314	3.314	3.314
0	3.315	3.314	3.315	3.315	3.315
25	3.314	3.314	3.314	3.314	3.314
75	3.305	3.305	3.305	3.305	3.305
85	3.303	3.303	3.303	3.302	3.302
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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

Model	MGFS3483R3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V0.8A	

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 - 0.8A

* 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	0	24	0	3.317	±6	±0.2
Minimum Voltage	75	76	0.8	3.305		

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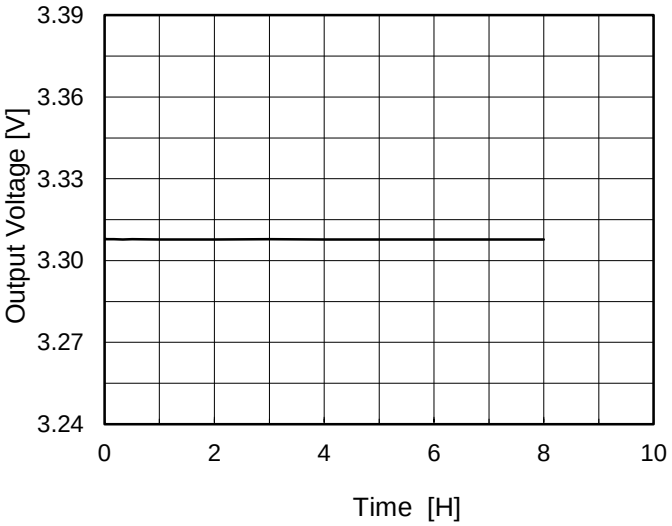
Model	MGFS3483R3
Item	Time Lapse Drift
Object	+3.3V0.8A

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	3.308
0.5	3.308
1.0	3.308
2.0	3.308
3.0	3.308
4.0	3.308
5.0	3.308
6.0	3.308
7.0	3.308
8.0	3.308

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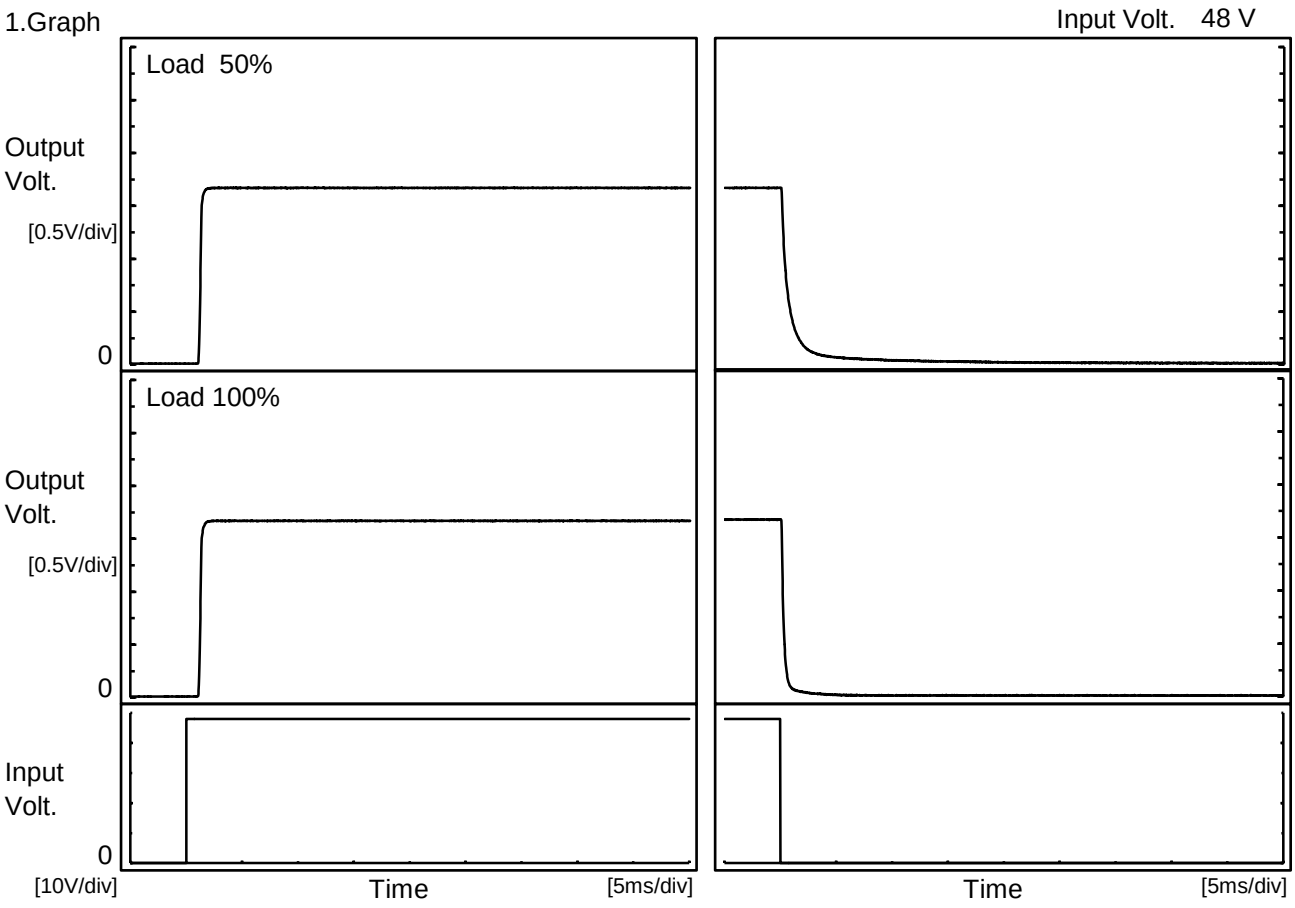
Model	MGFS3483R3	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+3.3V0.8A	

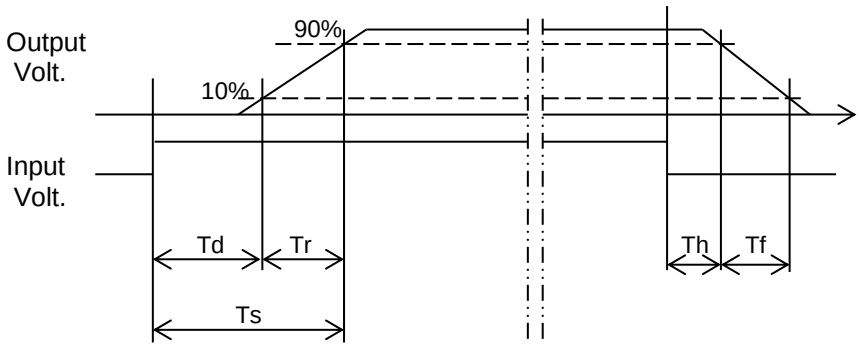
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	0.2	1.4	0.2	1.9
100 %	1.2	0.2	1.4	0.1	0.5

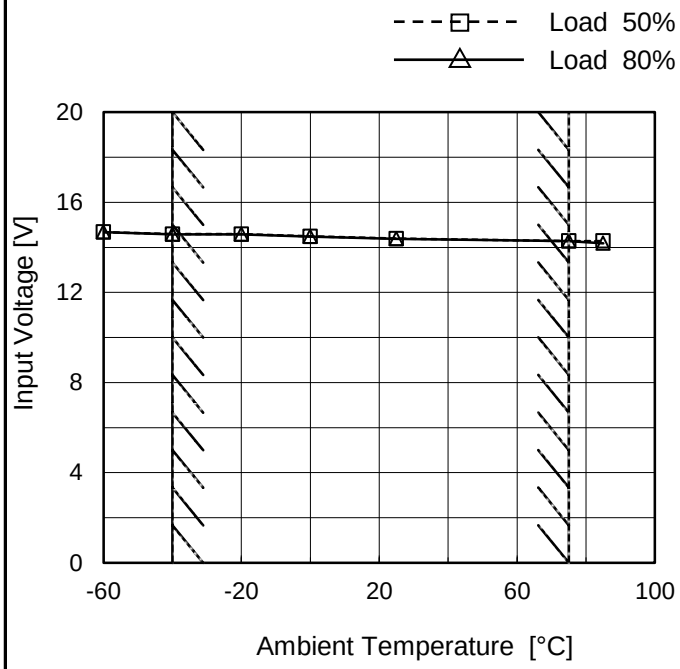


COSEL

Model	MGFS3483R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V0.8A

Testing Circuitry Figure A

1.Graph



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

2.Values

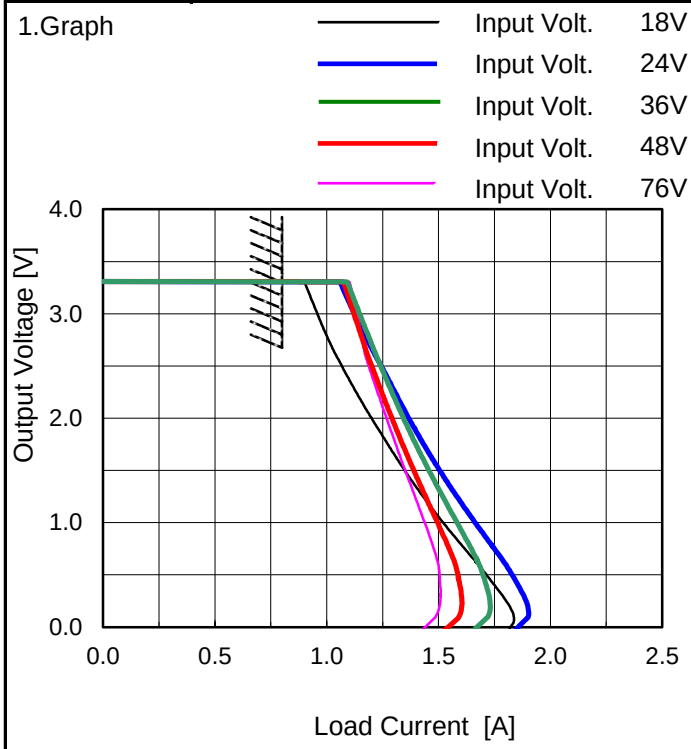
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 80%
-60	14.7	14.7
-40	14.6	14.6
-20	14.6	14.6
0	14.5	14.5
25	14.4	14.4
75	14.3	14.3
85	14.3	14.2
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS3483R3
Item	Overcurrent Protection
Object	+3.3V0.8A

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

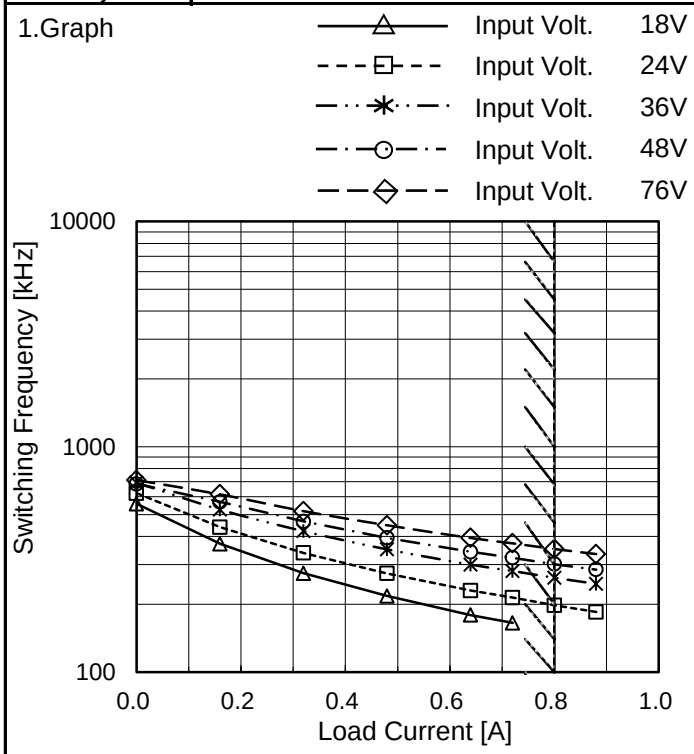
Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.14	0.932	1.094	1.122	1.101	1.121
2.97	0.963	1.125	1.150	1.124	1.138
2.64	1.032	1.206	1.213	1.177	1.169
2.31	1.115	1.288	1.278	1.232	1.216
1.98	1.204	1.369	1.347	1.293	1.270
1.65	1.302	1.458	1.420	1.357	1.323
1.32	1.404	1.557	1.497	1.425	1.382
0.99	1.523	1.664	1.583	1.495	1.439
0.66	1.648	1.777	1.668	1.563	1.492
0.33	1.772	1.871	1.721	1.601	1.510
0.00	1.817	1.841	1.646	1.499	1.391
--	-	-	-	-	-

COSEL

Model	MGFS3483R3
Item	Switching frequency (by Load Current)
Object	+3.3V0.8A

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	558	622	693	684	711
0.16	371	440	526	569	615
0.32	274	338	422	466	518
0.48	218	274	350	394	448
0.64	179	230	300	342	394
0.72	165	214	281	322	373
0.80	- ※	198	262	301	352
0.88	- ※	185	247	285	334
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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

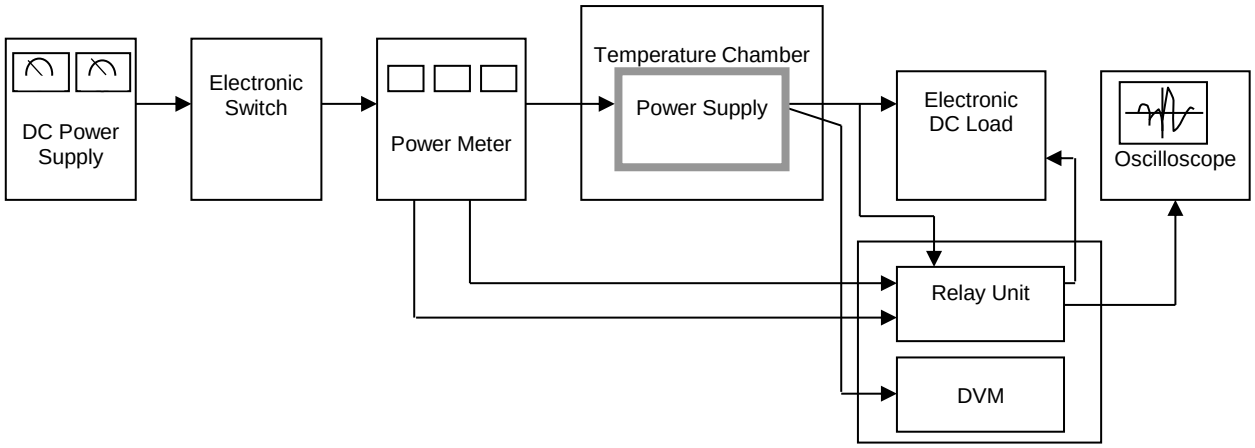


Figure A

Data Acquisition/Control Unit

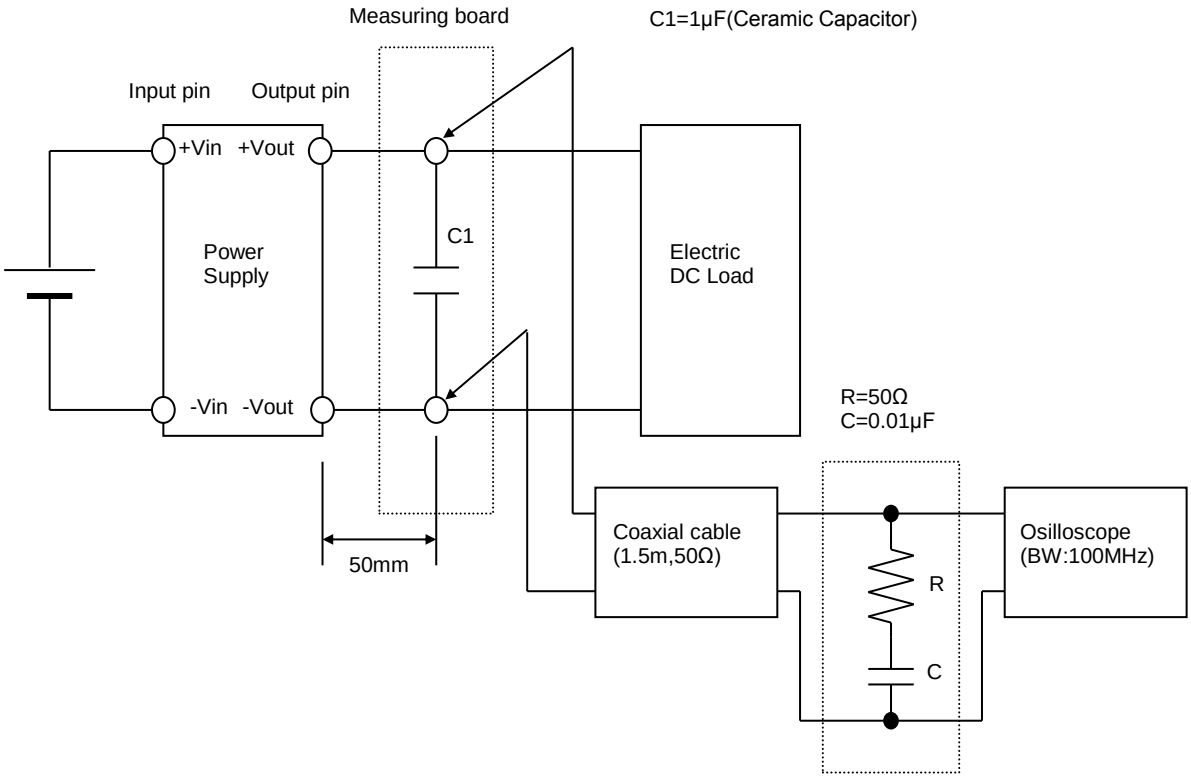


Figure B（Ripple and Ripple noise Characteristic）