参考資料

TEST DATA OF MGFS1R5483R3

Regulated DC Power Supply
January 10, 2017

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COSEL CO.,LTD.

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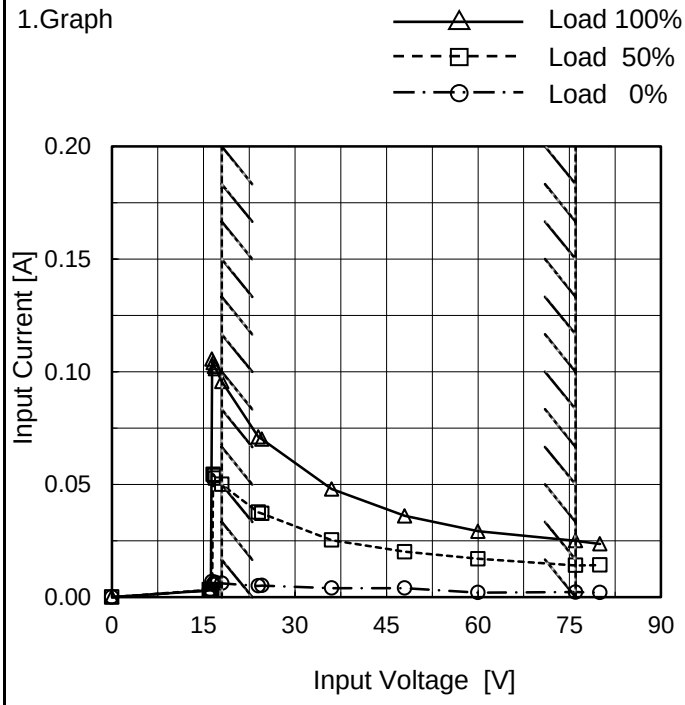

Note: Slanted line shows the range of the rated input voltage.

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	0.003	0.003	0.004
16.4	0.007	0.003	0.106
16.6	0.006	0.055	0.104
16.8	0.006	0.054	0.102
17.0	0.007	0.053	0.101
18.0	0.006	0.050	0.096
24.0	0.005	0.038	0.071
24.6	0.005	0.037	0.070
36.0	0.004	0.025	0.048
48.0	0.004	0.020	0.036
60.0	0.002	0.017	0.029
76.0	0.002	0.014	0.025
80.0	0.002	0.014	0.024
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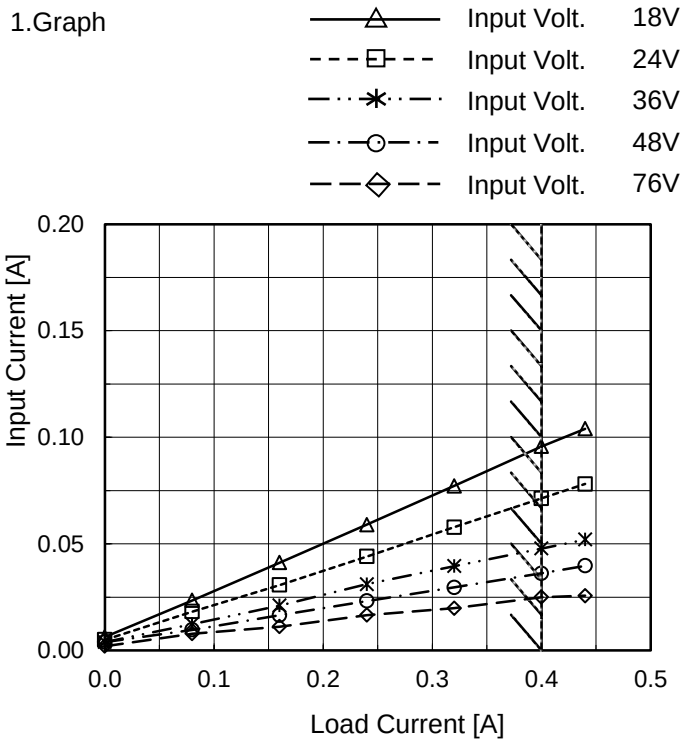
BC-10966

COSEL

Model	MGFS1R5483R3
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

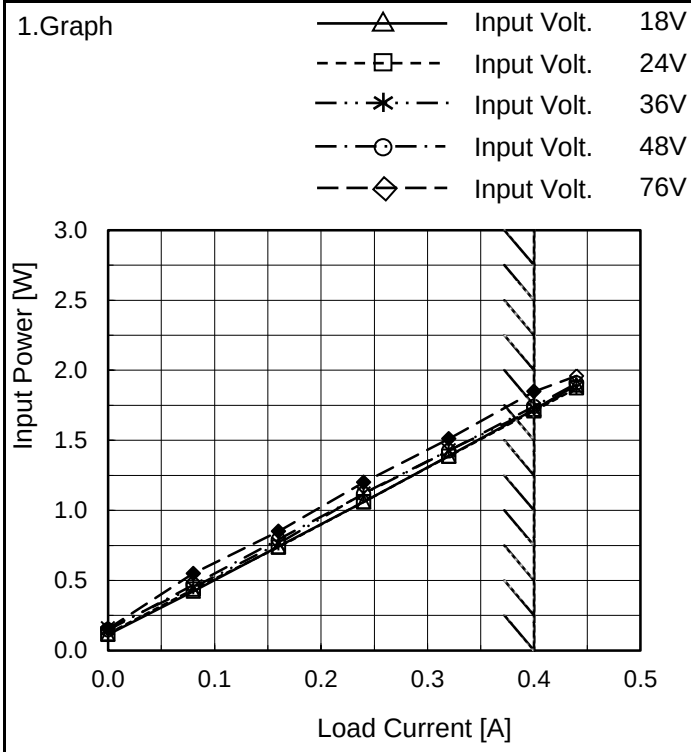
Load Current [A]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.006	0.005	0.004	0.004	0.002
0.08	0.024	0.018	0.012	0.010	0.008
0.16	0.041	0.031	0.021	0.017	0.011
0.24	0.059	0.044	0.031	0.023	0.017
0.32	0.077	0.058	0.040	0.030	0.020
0.40	0.096	0.071	0.048	0.036	0.025
0.44	0.104	0.078	0.052	0.040	0.026
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS1R5483R3
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	0.11	0.12	0.16	0.15	0.16
0.08	0.42	0.44	0.45	0.47	0.55
0.16	0.74	0.74	0.76	0.79	0.85
0.24	1.06	1.06	1.12	1.12	1.20
0.32	1.39	1.39	1.43	1.43	1.51
0.40	1.72	1.71	1.72	1.74	1.85
0.44	1.89	1.87	1.88	1.91	1.96
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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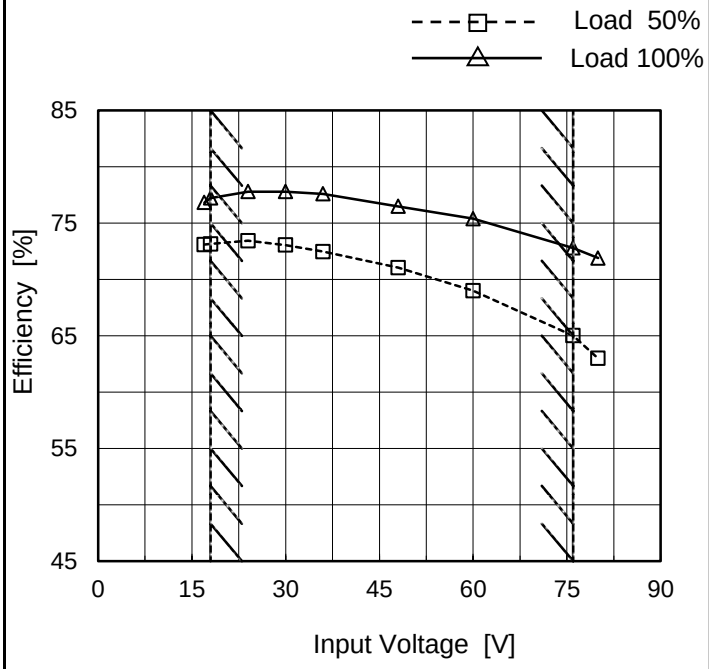
Model	MGFS1R5483R3
Item	Efficiency (by Input Voltage)
Object	———————————

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	73.1	76.8
18	73.2	77.2
24	73.4	77.8
30	73.1	77.8
36	72.5	77.6
48	71.0	76.5
60	69.0	75.4
76	65.0	72.8
80	63.0	71.9

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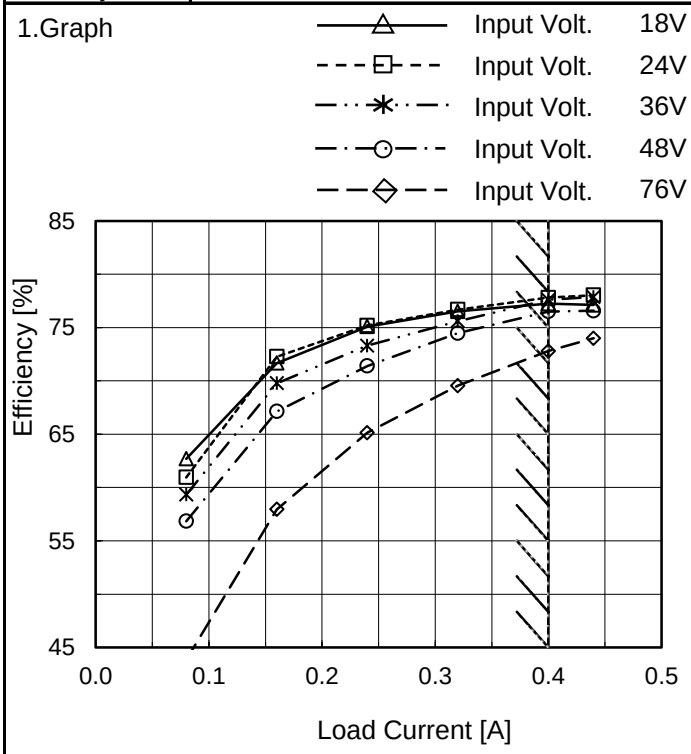
Model	MGFS1R5483R3
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-	-	-
0.08	62.7	60.9	59.3	56.8	43.8
0.16	71.7	72.3	69.8	67.1	58.0
0.24	75.1	75.2	73.3	71.4	65.1
0.32	76.5	76.7	75.6	74.5	69.6
0.40	77.2	77.8	77.6	76.5	72.8
0.44	77.1	78.0	77.9	76.6	74.0
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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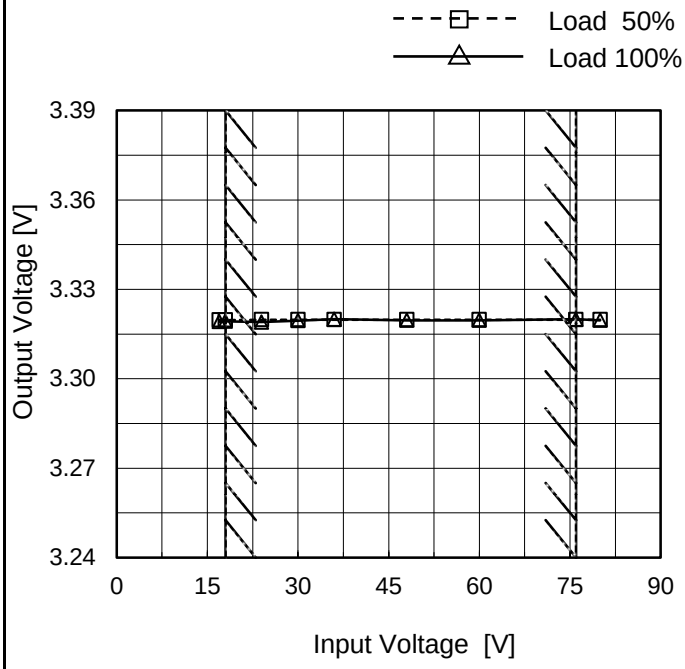
Model	MGFS1R5483R3
Item	Line Regulation
Object	+3.3V0.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

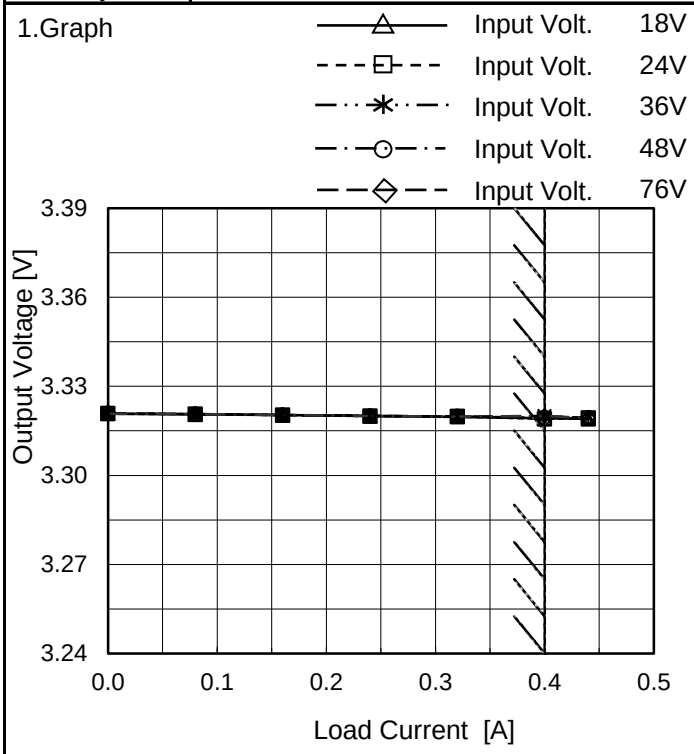
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	3.320	3.319
18	3.320	3.319
24	3.320	3.319
30	3.320	3.320
36	3.320	3.320
48	3.320	3.320
60	3.320	3.320
76	3.320	3.320
80	3.320	3.320

COSEL

Model	MGFS1R5483R3
Item	Load Regulation
Object	+3.3V0.4A

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	3.321	3.321	3.321	3.321	3.321
0.08	3.321	3.321	3.321	3.321	3.321
0.16	3.320	3.320	3.320	3.320	3.320
0.24	3.320	3.320	3.320	3.320	3.320
0.32	3.320	3.320	3.320	3.320	3.320
0.40	3.319	3.319	3.320	3.320	3.320
0.44	3.319	3.319	3.319	3.319	3.319
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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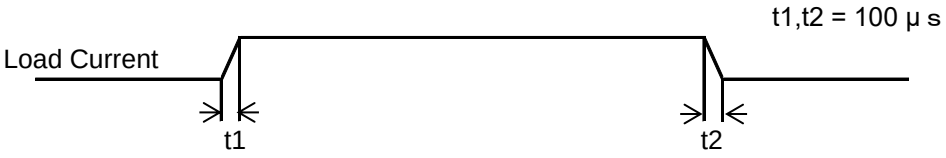
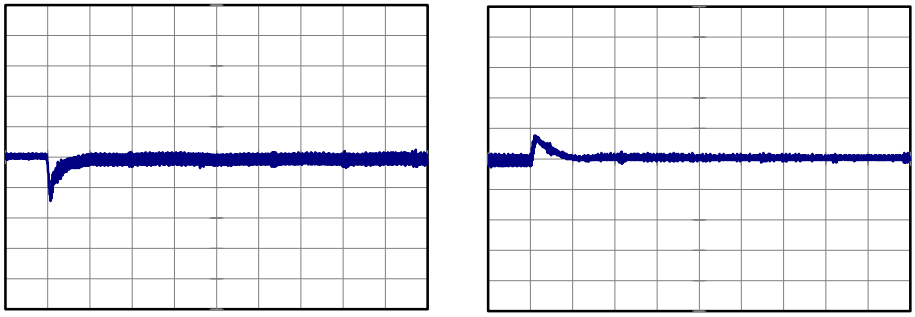
Model	MGFS1R5483R3
Item	Dynamic Load Response
Object	+3.3V0.4A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
Cycle 100 ms



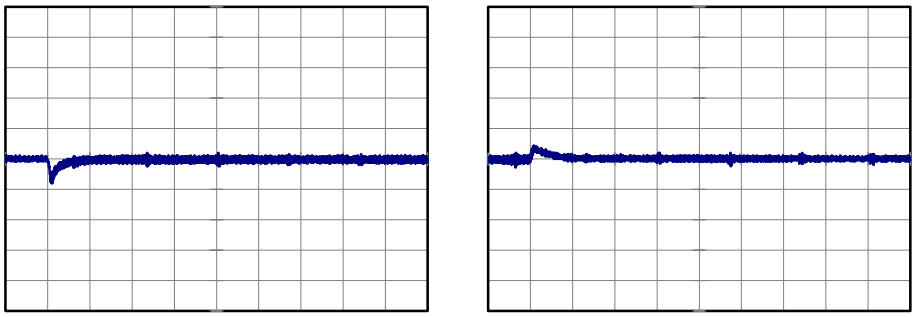
Min.Load (0A)←→
Load 100% (0.4A)



100 mV/div

400 μs/div 400 μs/div

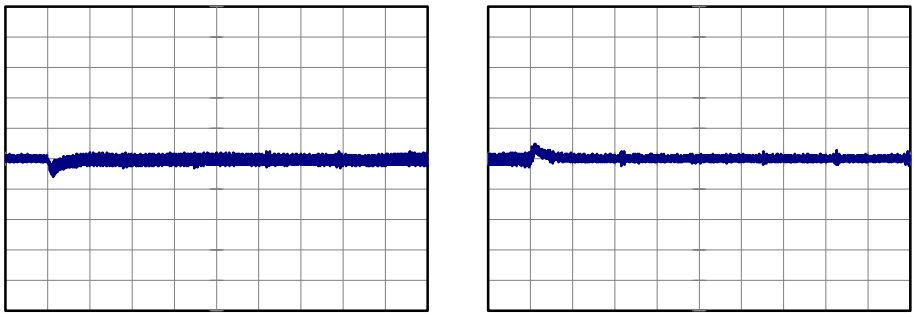
Min.Load (0A)←→
Load 50% (0.2A)



100 mV/div

400 μs/div 400 μs/div

Load 50% (0.2A)←→
Load 100% (0.4A)



100 mV/div

400 μs/div 400 μs/div

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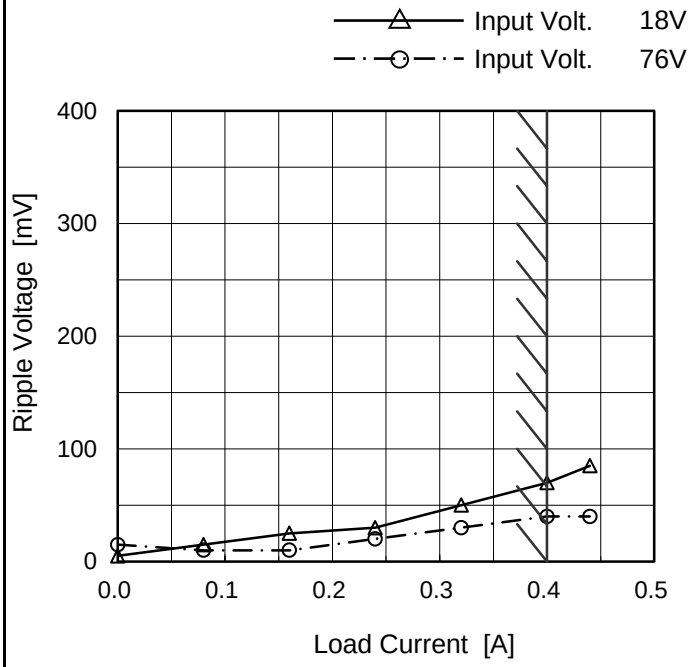
Model	MGFS1R5483R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V0.4A

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]

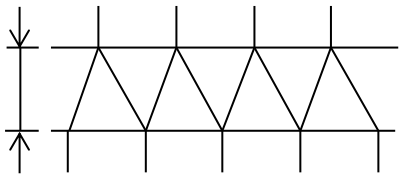


Fig.Complex Ripple Wave Form

2.Values

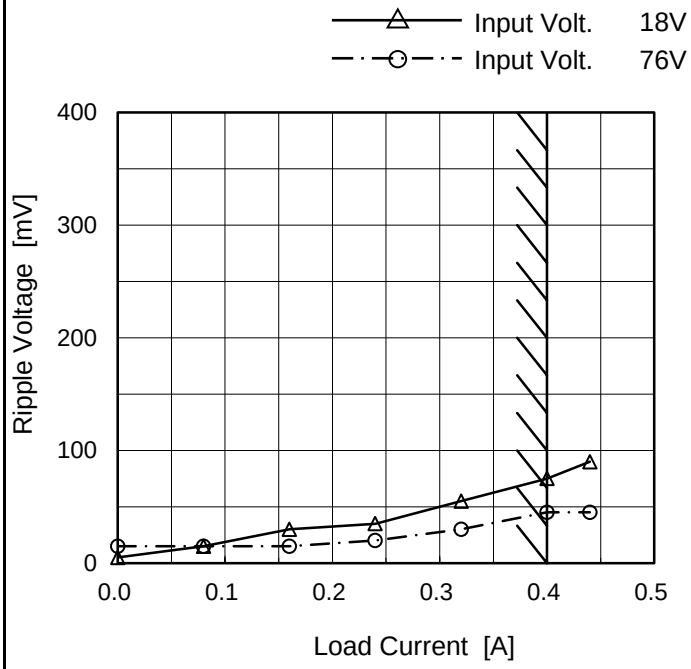
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	5	15
0.08	15	10
0.16	25	10
0.24	30	20
0.32	50	30
0.40	70	40
0.44	85	40
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS1R5483R3
Item	Ripple-Noise
Object	+3.3V0.4A

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]

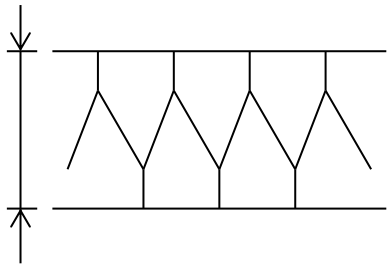


Fig.Complex Ripple Noise Wave Form

2.Values

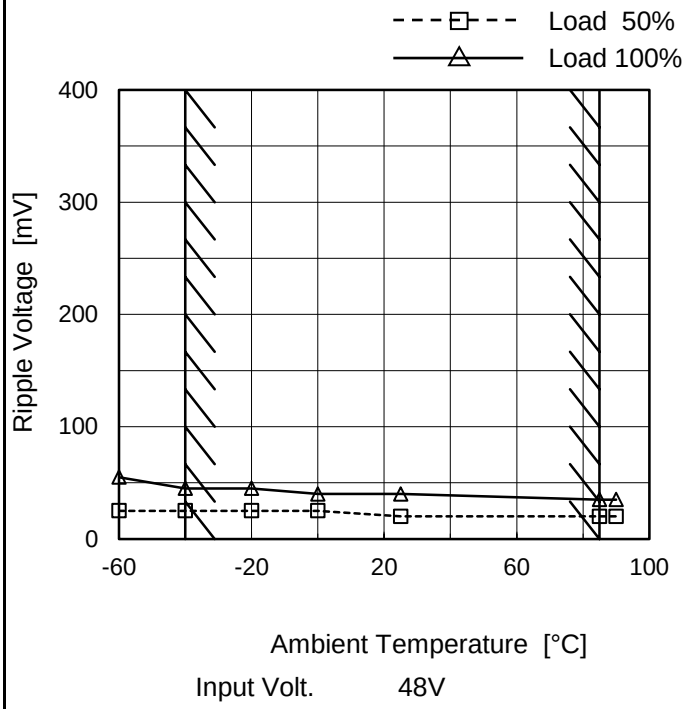
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	5	15
0.08	15	15
0.16	30	15
0.24	35	20
0.32	55	30
0.40	75	45
0.44	90	45
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS1R5483R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V0.4A

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

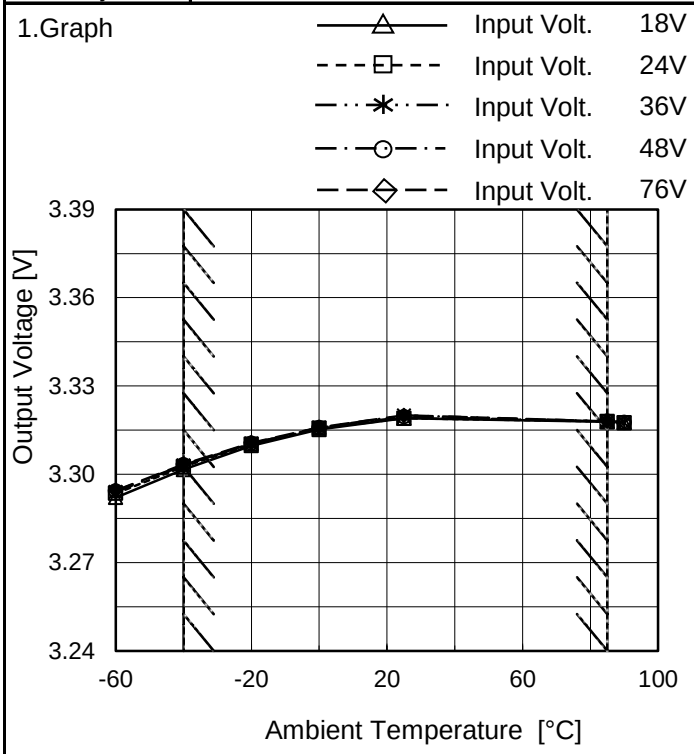
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	25	55
-40	25	45
-20	25	45
0	25	40
25	20	40
85	20	35
90	20	35
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS1R5483R3
Item	Ambient Temperature Drift
Object	+3.3V0.4A

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	3.292	3.294	3.294	3.294	3.295
-40	3.302	3.303	3.303	3.303	3.303
-20	3.310	3.310	3.310	3.311	3.311
0	3.315	3.316	3.316	3.316	3.316
25	3.319	3.319	3.320	3.320	3.320
85	3.318	3.318	3.318	3.318	3.318
90	3.318	3.318	3.318	3.318	3.318
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Model	MGFS1R5483R3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V0.4A	

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 - 85°C
Input Voltage : 18 - 76V
Load Current : 0 - 0.4A

* 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

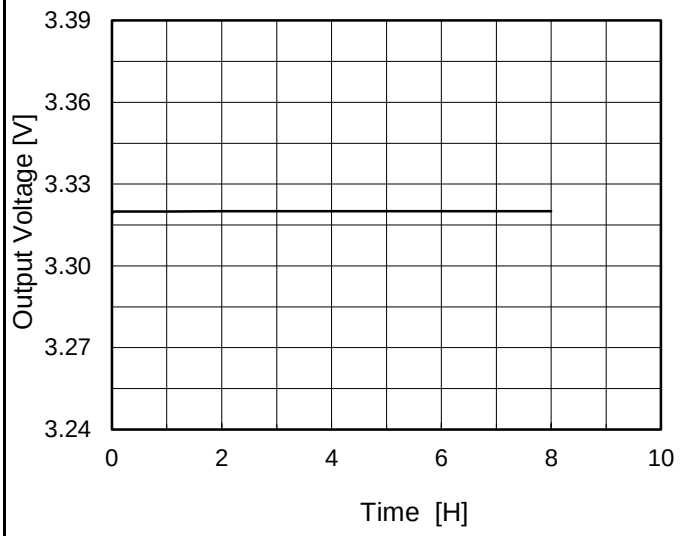
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	75	76	0	3.321	±10	±0.3
Minimum Voltage	-40	18	0.4	3.302		

COSEL

Model	MGFS1R5483R3
Item	Time Lapse Drift
Object	+3.3V0.4A

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	3.319
0.5	3.320
1.0	3.320
2.0	3.320
3.0	3.320
4.0	3.320
5.0	3.320
6.0	3.320
7.0	3.320
8.0	3.320

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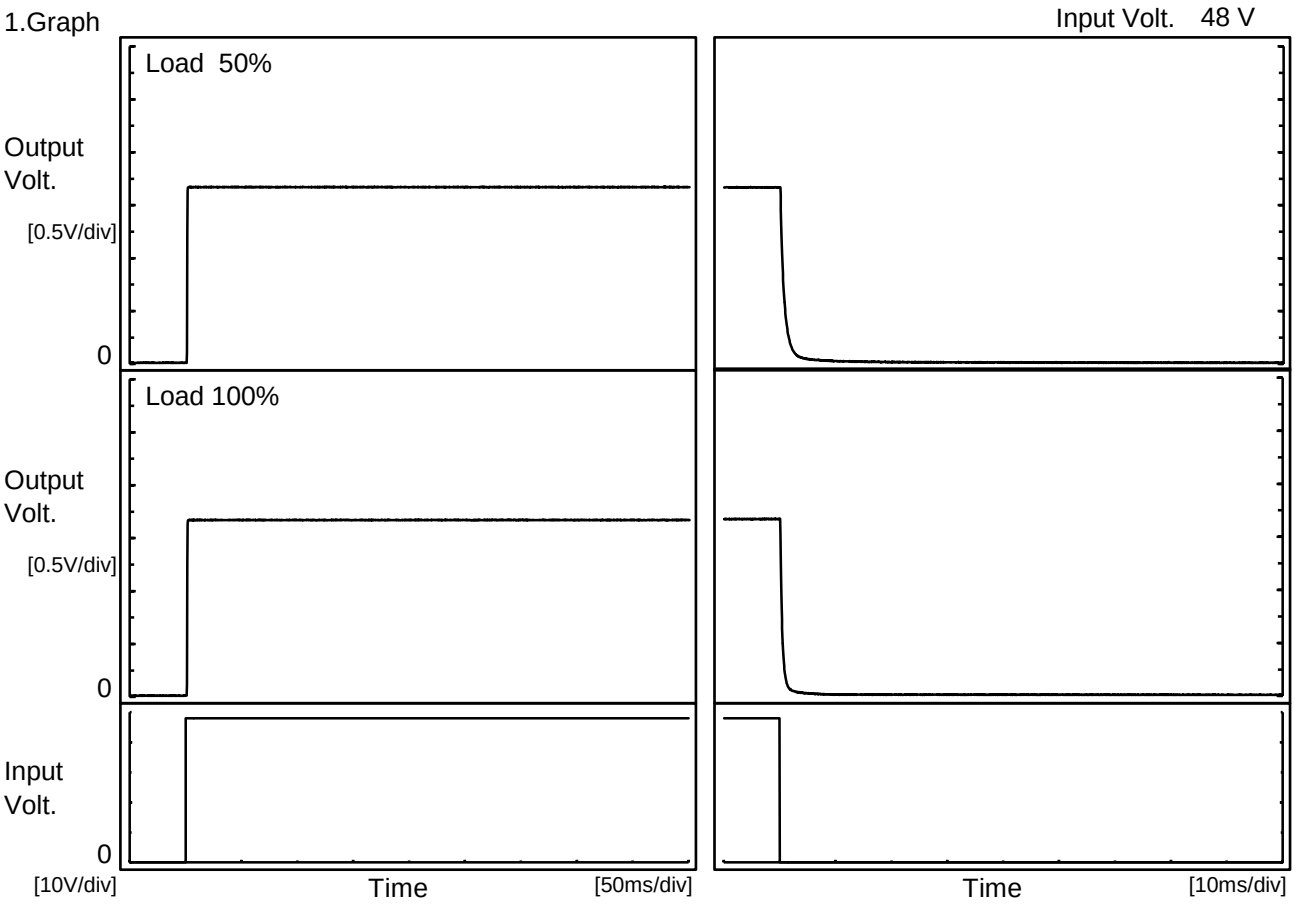
Model	MGFS1R5483R3	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+3.3V0.4A	

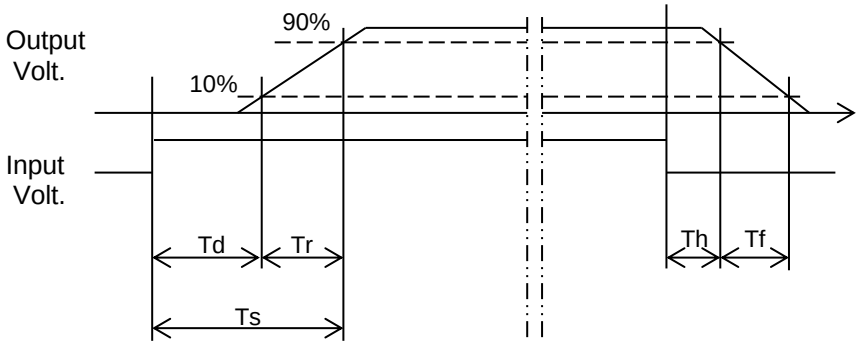
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.5	0.3	1.8	0.2	1.8
100 %	1.5	0.3	1.8	0.2	0.9

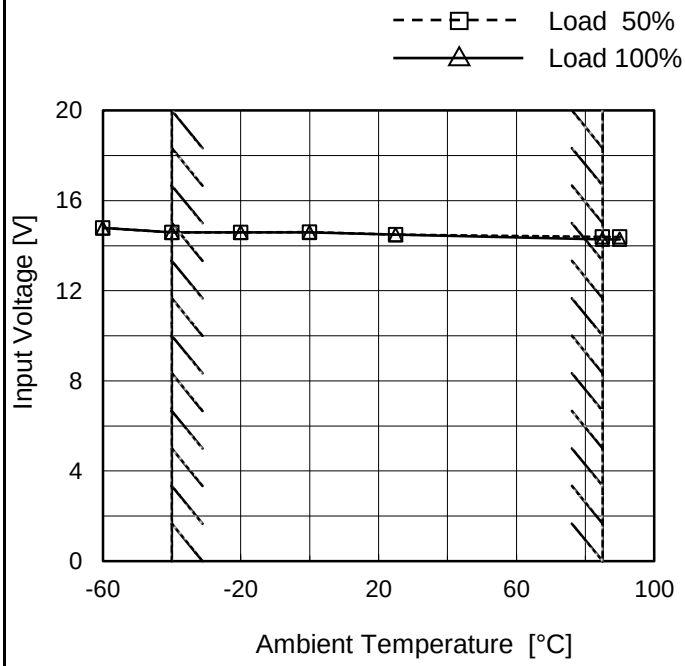


COSEL

Model	MGFS1R5483R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V0.4A

Testing Circuitry Figure A

1.Graph



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

2.Values

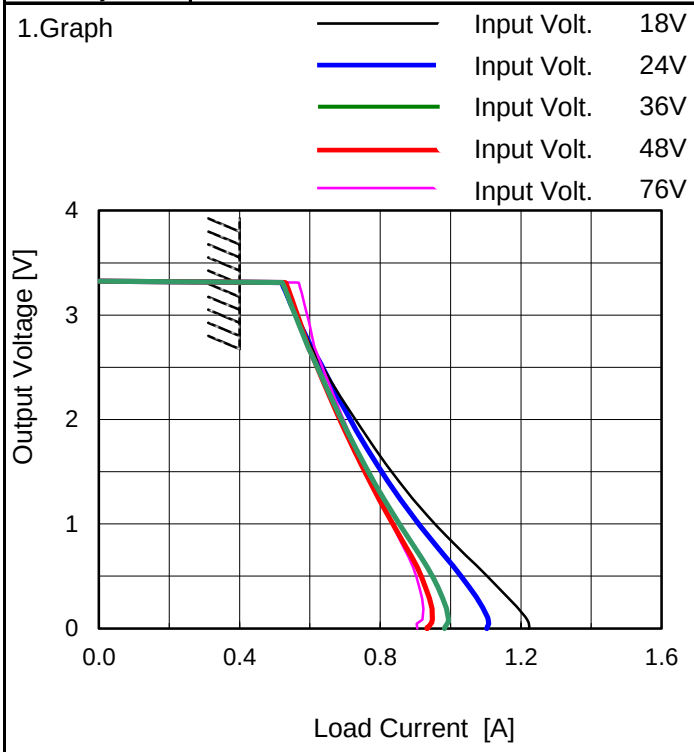
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	14.8	14.8
-40	14.6	14.6
-20	14.6	14.6
0	14.6	14.6
25	14.5	14.5
85	14.4	14.3
90	14.4	14.3
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS1R5483R3
Item	Overcurrent Protection
Object	+3.3V0.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

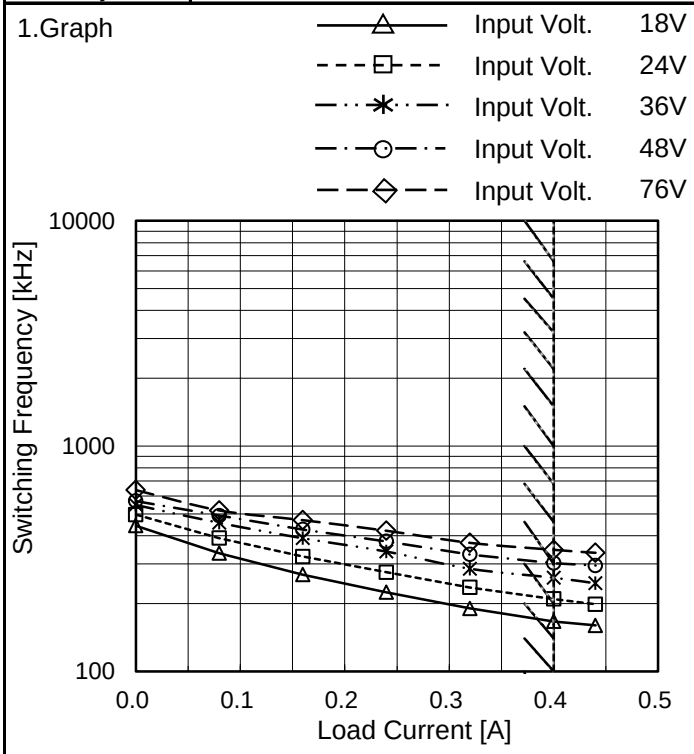
Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.14	0.540	0.541	0.541	0.548	0.581
2.97	0.561	0.561	0.559	0.565	0.593
2.64	0.602	0.603	0.594	0.595	0.612
2.31	0.659	0.655	0.638	0.637	0.651
1.98	0.719	0.707	0.683	0.679	0.690
1.65	0.784	0.762	0.731	0.724	0.732
1.32	0.855	0.824	0.784	0.772	0.776
0.99	0.961	0.915	0.860	0.841	0.838
0.66	1.044	0.984	0.916	0.890	0.880
0.33	1.160	1.073	0.978	0.940	0.919
0.00	1.222	1.103	0.983	0.933	0.905
--	-	-	-	-	-

COSEL

Model	MGFS1R5483R3
Item	Switching frequency (by Load Current)
Object	+3.3V0.4A

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	443	496	548	570	638
0.08	334	390	456	492	518
0.16	269	324	390	426	469
0.24	224	275	340	377	421
0.32	190	236	286	330	372
0.40	167	210	261	303	347
0.44	160	199	246	295	336
--	-	-	-	-	-
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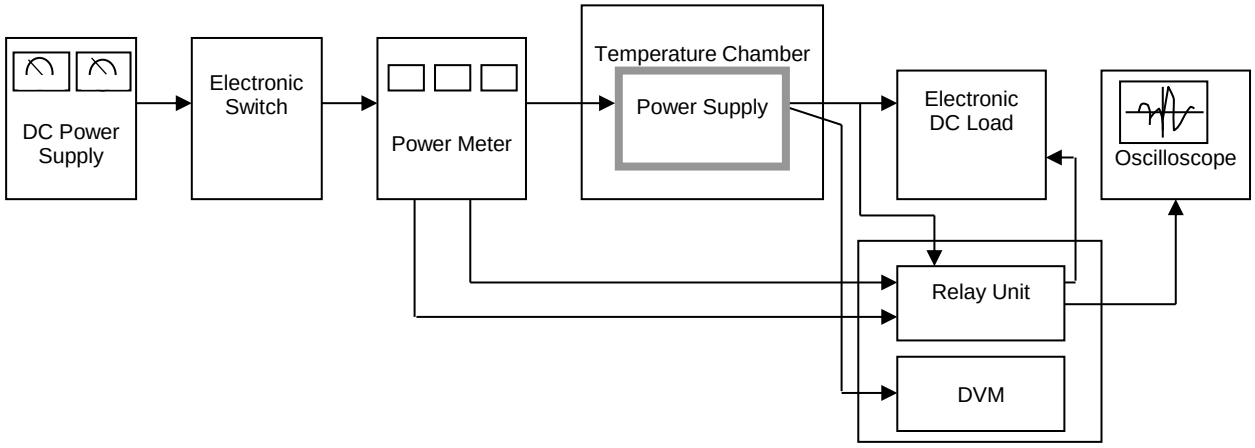

Figure A

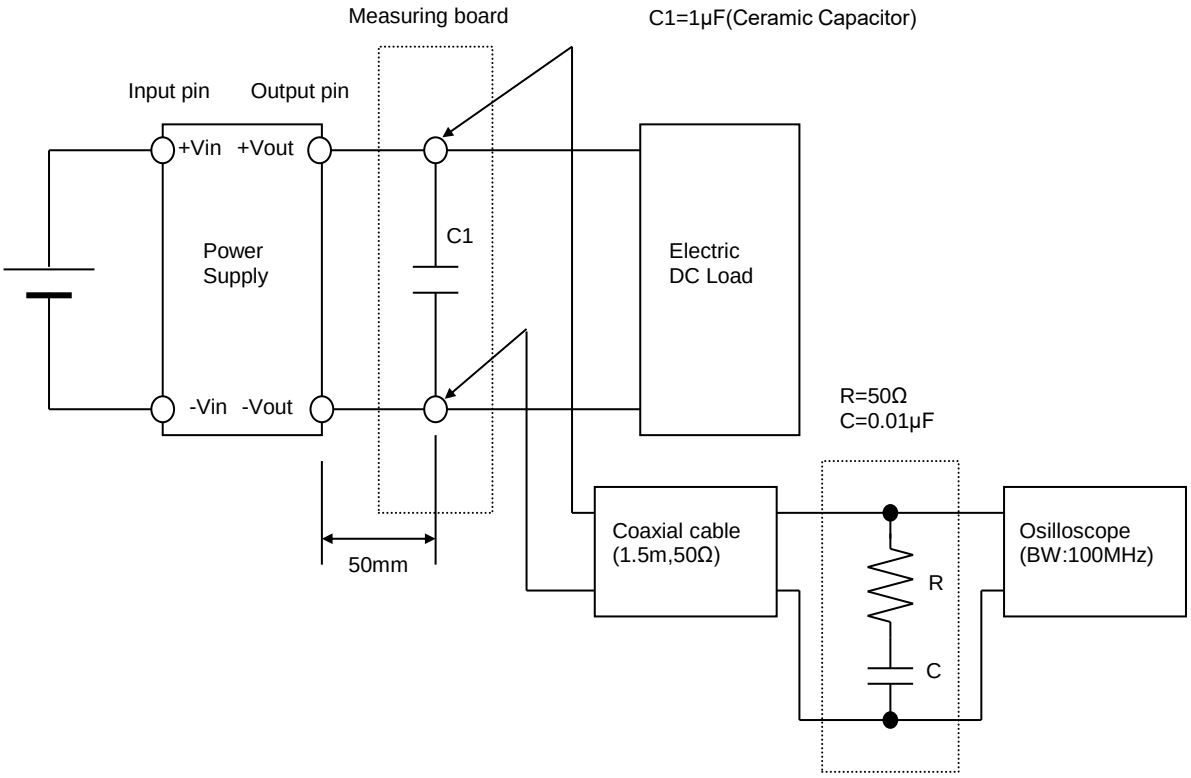

Figure B（Ripple and Ripple noise Characteristic）