参考資料

TEST DATA OF MGFS804805

Regulated DC Power Supply
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COSEL CO.,LTD.

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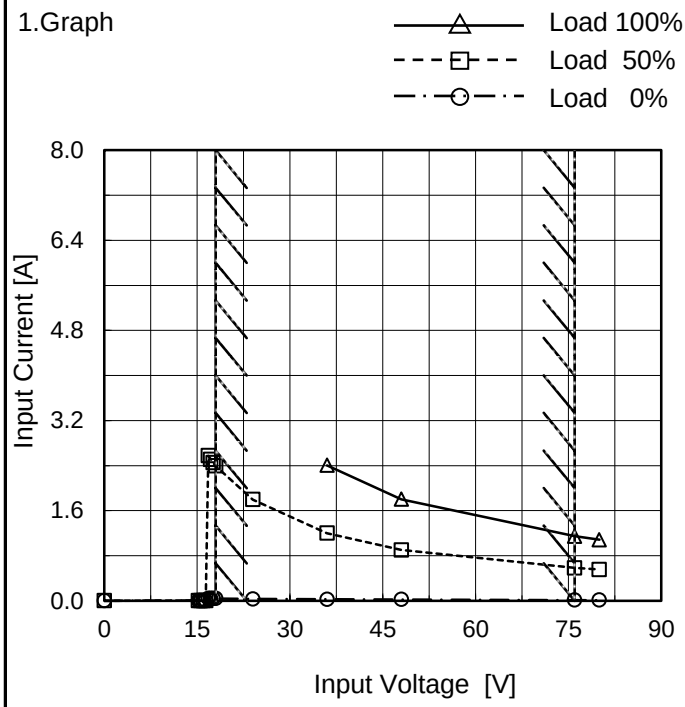
Model	MGFS804805
Item	Input Current (by Input Voltage)
Object	――――――――

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
15.2	0.004	0.004	- ※
15.6	0.004	0.004	- ※
16.0	0.004	0.004	- ※
16.4	0.004	0.004	- ※
16.8	0.041	2.575	- ※
17.2	0.040	2.511	- ※
17.6	0.040	2.452	- ※
18.0	0.039	2.394	- ※
24.0	0.032	1.796	- ※
36.0	0.025	1.200	2.404
48.0	0.024	0.902	1.803
76.0	0.011	0.584	1.146
80.0	0.011	0.556	1.084
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

※During this area, overcurrent protection activates and power supply operates in hiccup mode.

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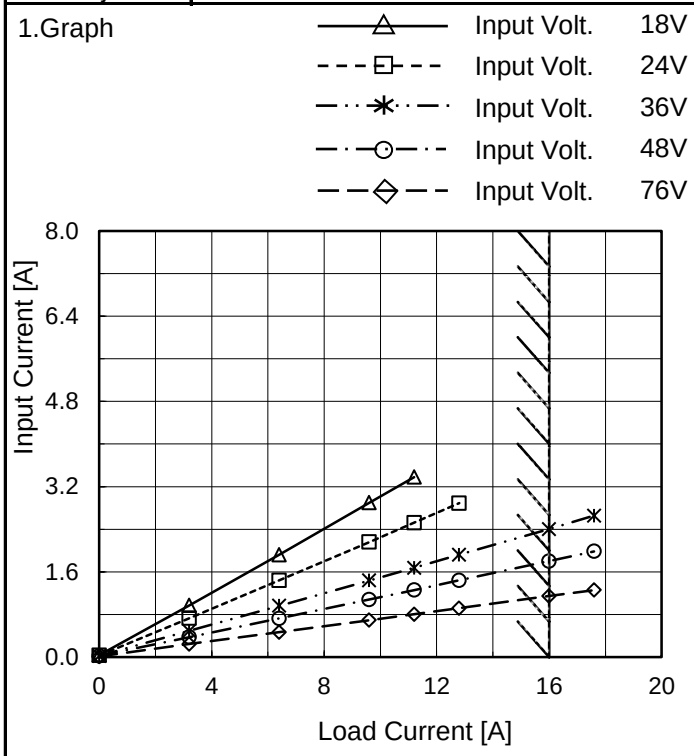
Model	MGFS804805
Item	Input Current (by Load Current)
Object	――――――

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]
0.0	0.039	0.032	0.025	0.024	0.011
3.2	0.971	0.729	0.492	0.376	0.247
6.4	1.921	1.442	0.965	0.726	0.469
9.6	2.899	2.160	1.439	1.082	0.694
11.2	3.379	2.522	1.677	1.259	0.806
12.8	- ※1	2.889	1.921	1.440	0.919
16.0	- ※1	- ※2	2.404	1.803	1.146
17.6	- ※1	- ※2	2.656	1.984	1.260
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※1 Maximum output current at minimum input Voltage is 70% of rated load current.
※2 Maximum output current at 24V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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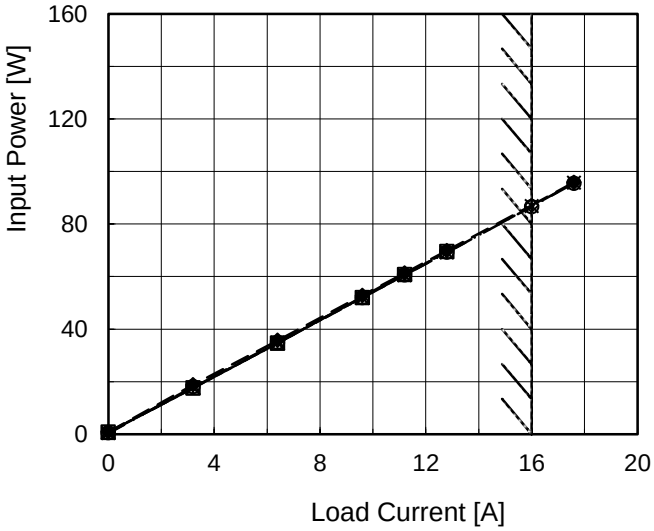
Model	MGFS804805
Item	Input Power (by Load Current)
Object	————————

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]
0.0	0.71	0.78	0.38	0.51	0.84
3.2	17.55	17.57	17.74	18.07	18.77
6.4	34.70	34.65	34.75	34.90	35.70
9.6	52.20	51.96	51.85	51.95	52.83
11.2	61.12	60.69	60.48	60.55	61.31
12.8	- ※1	69.51	69.16	69.19	69.86
16.0	- ※1	- ※2	86.75	86.60	87.11
17.6	- ※1	- ※2	95.68	95.45	95.83
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※1 Maximum output current at minimum input Voltage is 70% of rated load current.
※2 Maximum output current at 24V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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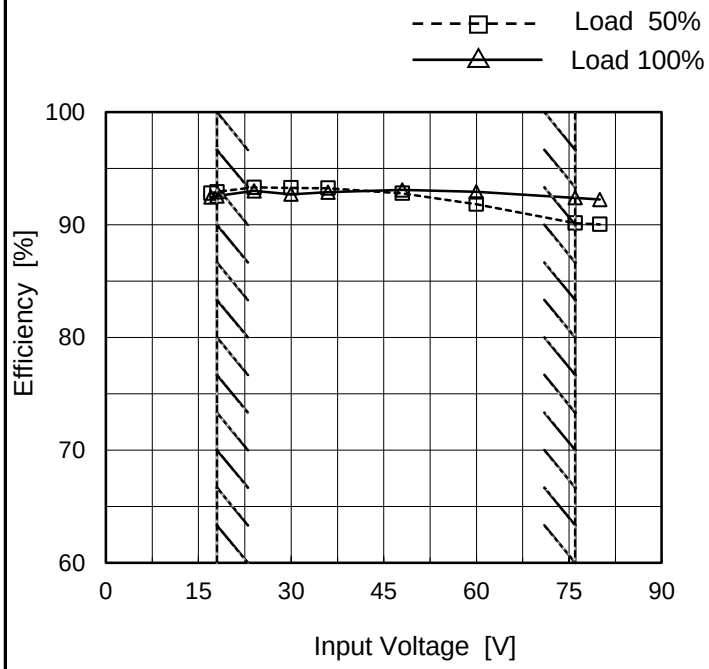
Model	MGFS804805
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	92.8	92.5 ※1
18	92.9	92.6 ※1
24	93.3	93.0 ※2
30	93.3	92.7
36	93.3	92.9
48	92.8	93.1
60	91.8	92.9
76	90.2	92.4
80	90.0	92.2

※1：Load 70%
※2：Load 80%

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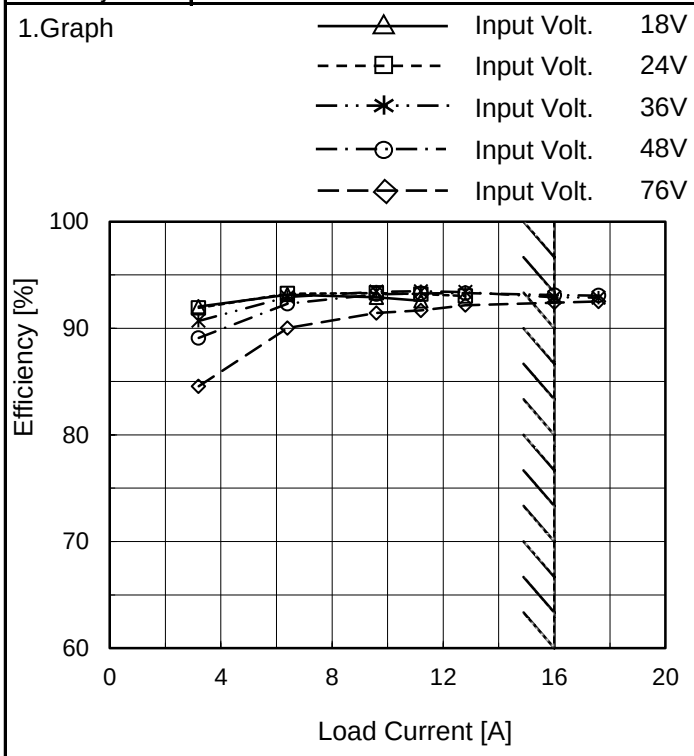
Model	MGFS804805
Item	Efficiency (by Load Current)
Object	————————

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]
0.0	-	-	-	-	-
3.2	92.0	91.9	90.7	89.1	84.5
6.4	93.2	93.2	92.9	92.3	90.0
9.6	92.9	93.3	93.4	93.2	91.4
11.2	92.6	93.2	93.5	93.3	91.7
12.8	- ※1	93.0	93.4	93.3	92.2
16.0	- ※1	- ※2	92.9	93.1	92.4
17.6	- ※1	- ※2	92.9	93.1	92.5
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※1 Maximum output current at minimum input Voltage is 70% of rated load current.
※2 Maximum output current at 24V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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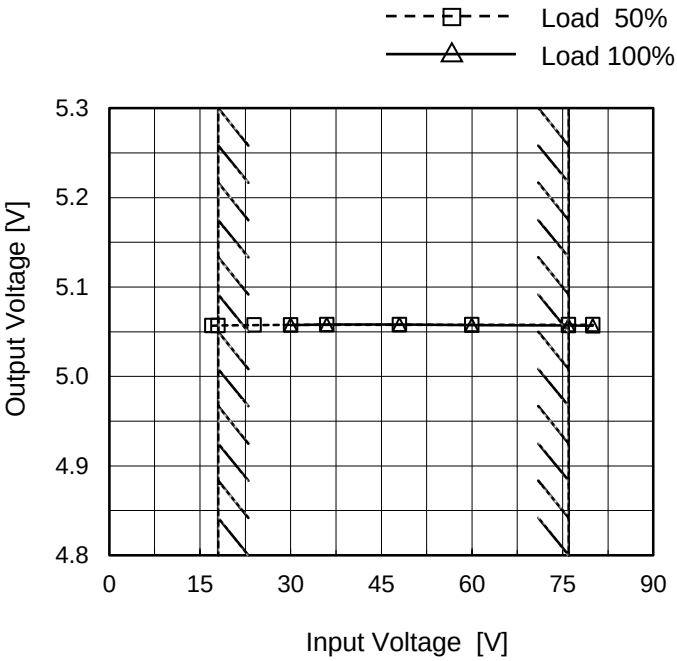
Model	MGFS804805
Item	Line Regulation
Object	+5V16A

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	5.057	- ※1
18	5.057	- ※1
24	5.057	- ※2
30	5.058	5.057
36	5.058	5.058
48	5.058	5.058
60	5.058	5.057
76	5.058	5.057
80	5.058	5.057

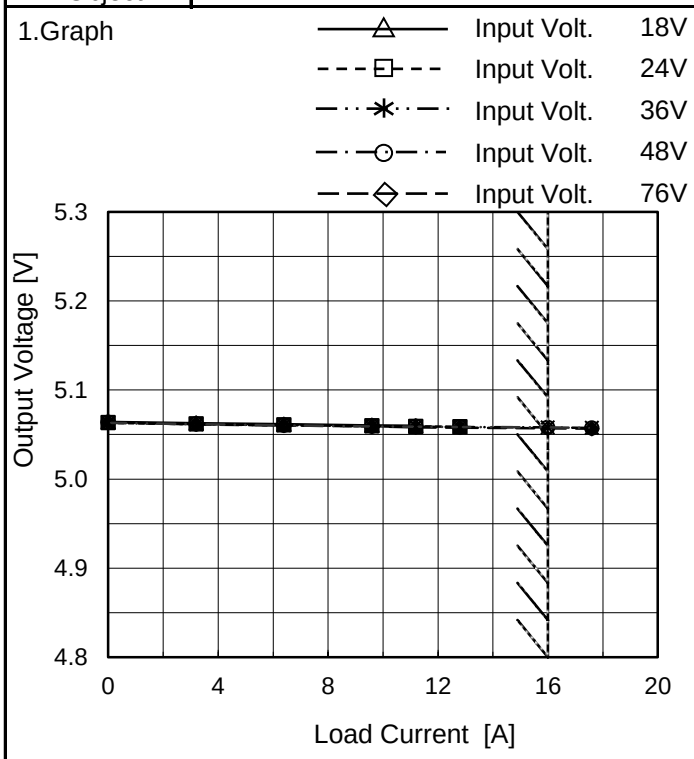
※1 Maximum output current at minimum input Voltage is 70% of rated load current.
※2 Maximum output current at 24V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

COSEL

Model	MGFS804805
Item	Load Regulation
Object	+5V16A

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]
0.0	5.064	5.063	5.063	5.064	5.064
3.2	5.063	5.062	5.062	5.062	5.061
6.4	5.062	5.061	5.060	5.060	5.060
9.6	5.060	5.060	5.059	5.059	5.059
11.2	5.060	5.059	5.059	5.059	5.058
12.8	- ※1	5.059	5.058	5.058	5.058
16.0	- ※1	- ※2	5.058	5.058	5.057
17.6	- ※1	- ※2	5.057	5.057	5.057
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※1 Maximum output current at minimum input Voltage is 70% of rated load current.
※2 Maximum output current at 24V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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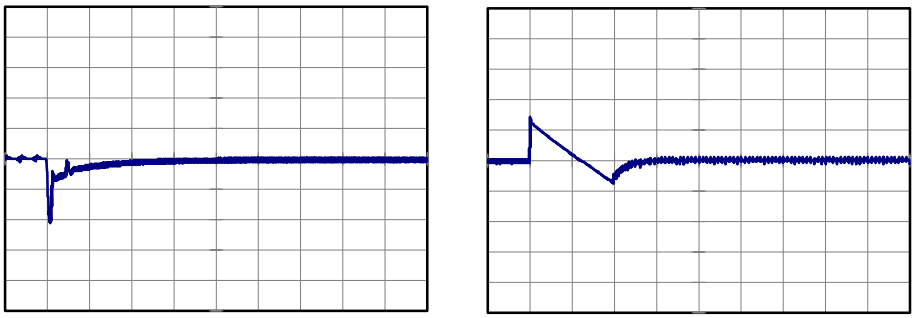
Model	MGFS804805	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+5V16A	

Input Volt. 48 V
Cycle 100 ms

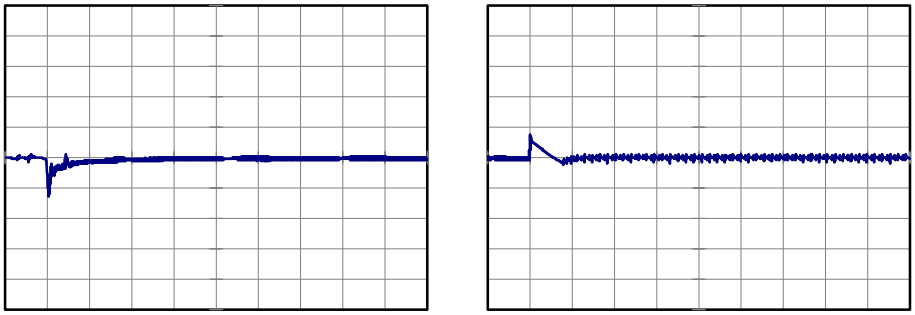
Min.Load (0A)←→
Load 100% (16A)



200 mV/div

1 ms/div 4 ms/div

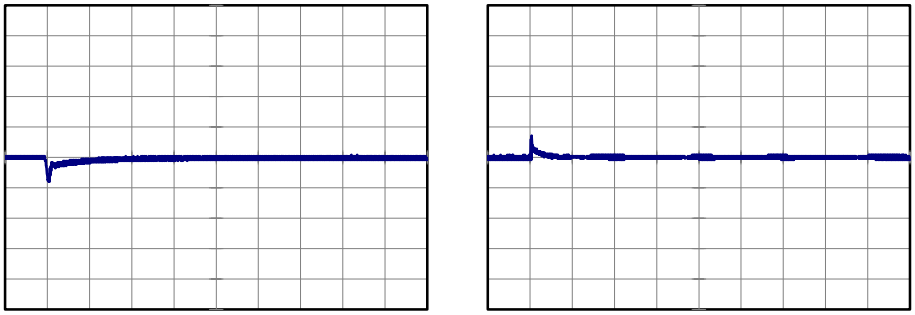
Min.Load (0A)←→
Load 50% (8A)



200 mV/div

1 ms/div 4 ms/div

Load 50% (8A)←→
Load 100% (16A)



200 mV/div

1 ms/div 4 ms/div

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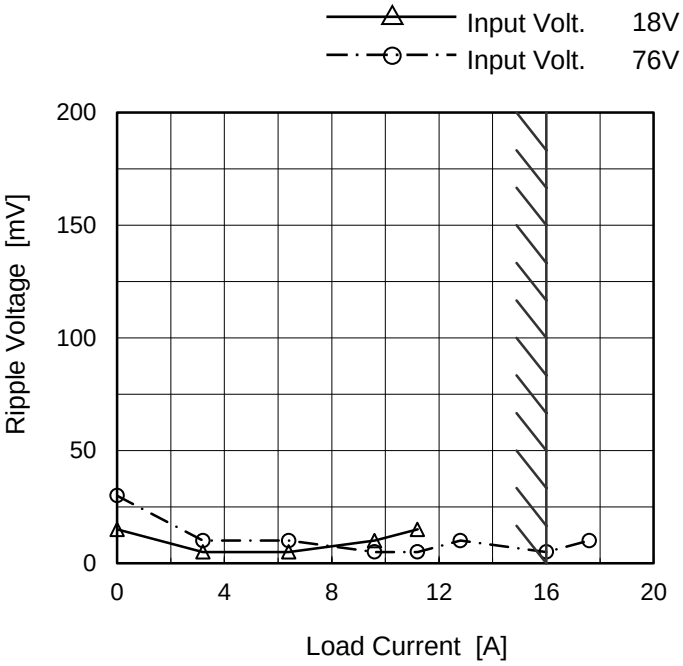
Model	MGFS804805
Item	Ripple Voltage (by Load Current)
Object	+5V16A

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]

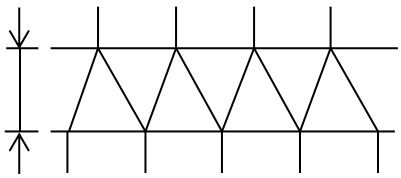


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.0	15	30
3.2	5	10
6.4	5	10
9.6	10	5
11.2	15	5
12.8	- ※	10
16.0	- ※	5
17.6	- ※	10
--	-	-
--	-	-
--	-	-

※ Maximum output current at minimum input Voltage is 70% of rated load current. Refer to instruction manuals for details of input derating.

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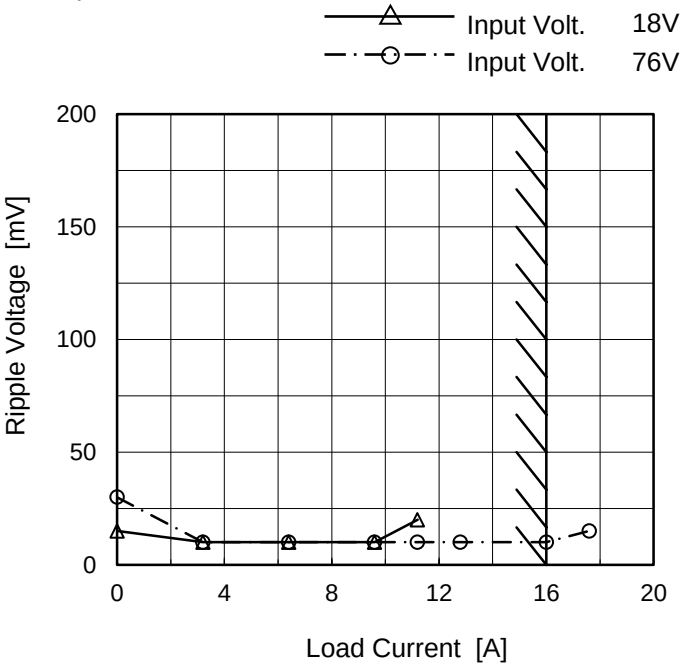
Model	MGFS804805
Item	Ripple-Noise
Object	+5V16A

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]

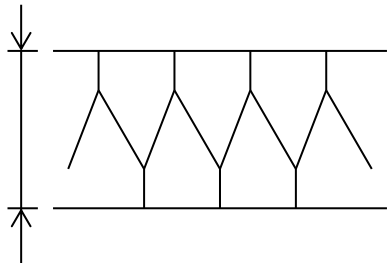


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.0	15	30
3.2	10	10
6.4	10	10
9.6	10	10
11.2	20	10
12.8	- ※	10
16.0	- ※	10
17.6	- ※	15
--	-	-
--	-	-
--	-	-

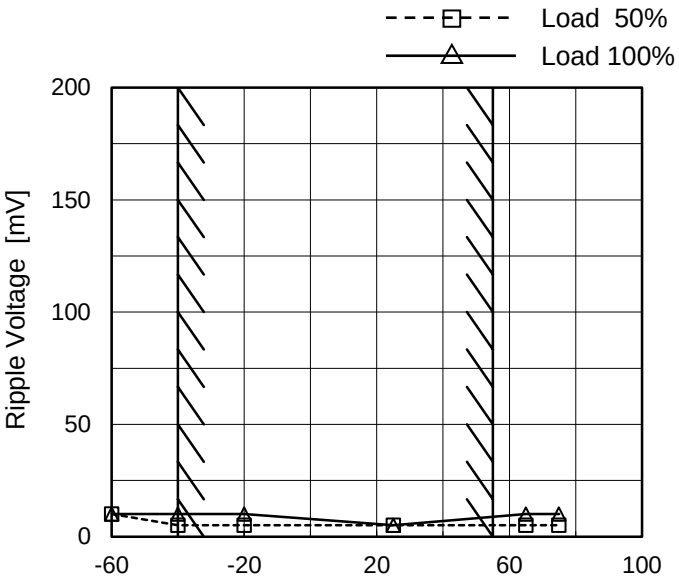
※ Maximum output current at minimum input Voltage is 70% of rated load current. Refer to instruction manuals for details of input derating.

COSEL

Model	MGFS804805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V16A

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	10	10
-40	5	10
-20	5	10
25	5	5
65	5	10
75	5	10
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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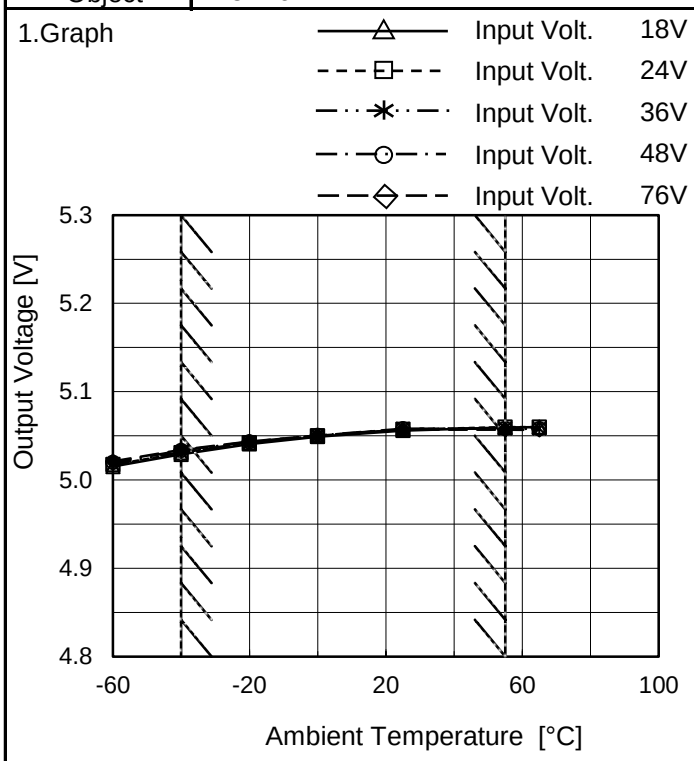
Model	MGFS804805
Item	Ambient Temperature Drift
Object	+5V16A

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	5.015	5.017	5.018	5.020	5.021
-40	5.029	5.031	5.032	5.033	5.034
-20	5.041	5.042	5.042	5.043	5.043
0	5.049	5.050	5.050	5.050	5.050
25	5.056	5.057	5.058	5.058	5.057
55	5.059	5.060	5.058	5.058	5.057
65	5.060	5.060	5.058	5.058	5.057
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Note: In case of input Volt.18V, Load 70%.
24V, Load 80%.
Other case Load 100%.

Model	MGFS804805	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V16A	

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 - 55°C
Input Voltage : 18 - 76V
Load Current : 0 - 16A

* 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	55	48	0	5.064	±18	±0.4
Minimum Voltage	-40	18	11.2	5.029		

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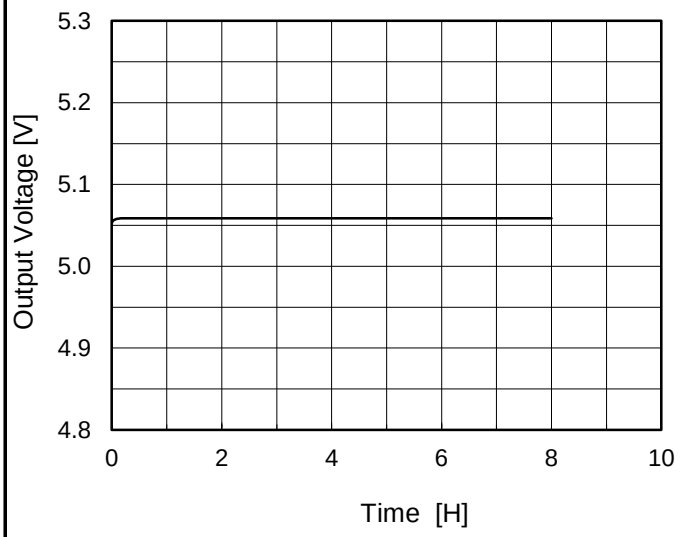
Model	MGFS804805
Item	Time Lapse Drift
Object	+5V16A

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	5.052
0.5	5.059
1.0	5.059
2.0	5.059
3.0	5.059
4.0	5.059
5.0	5.059
6.0	5.059
7.0	5.059
8.0	5.059

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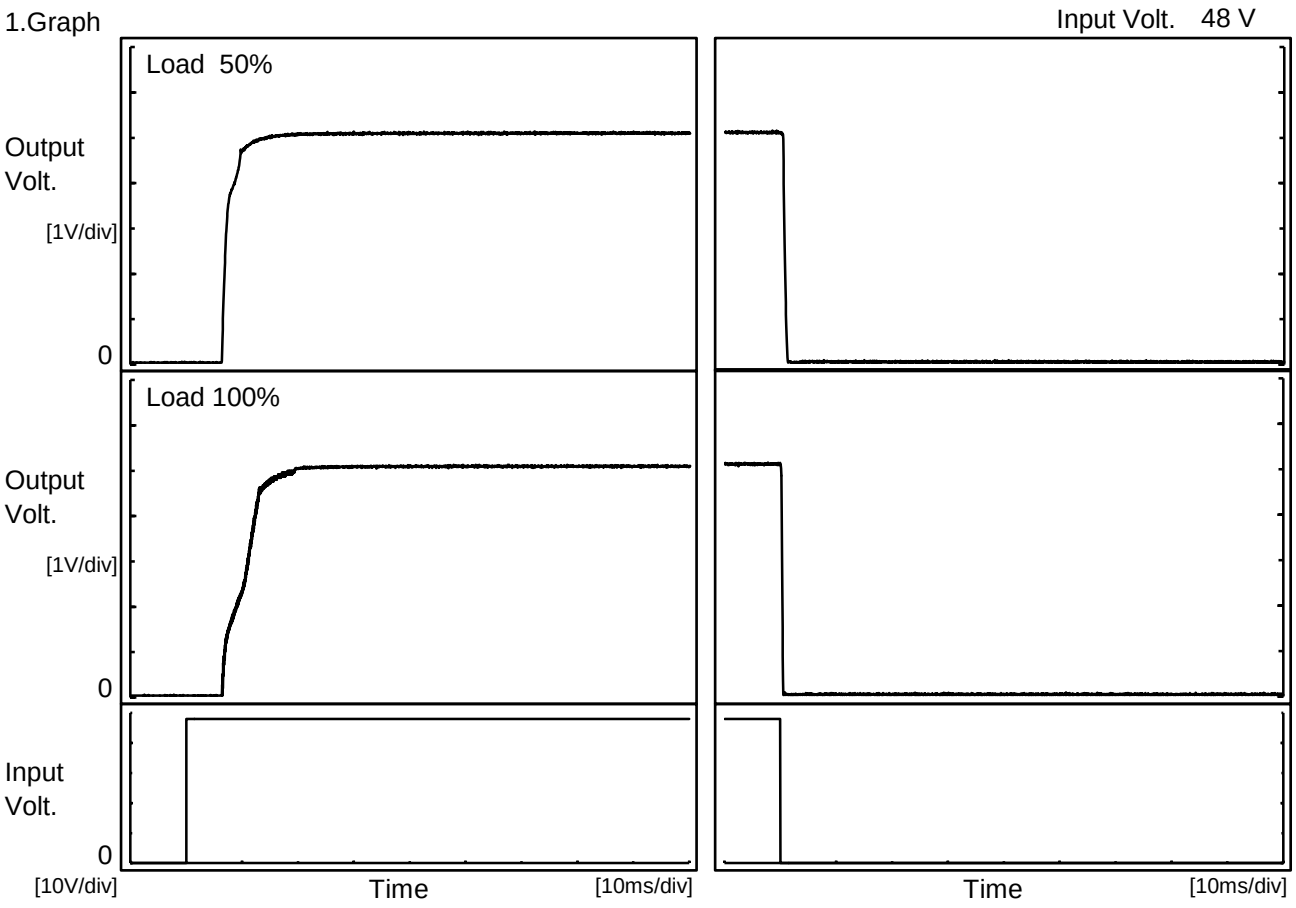
Model	MGFS804805	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V16A	

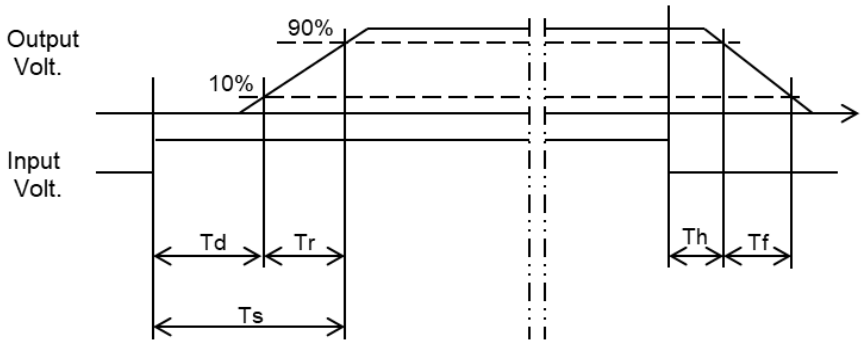
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	6.5	3.2	9.7	0.5	0.6
100 %	6.5	4.8	11.3	0.2	0.2



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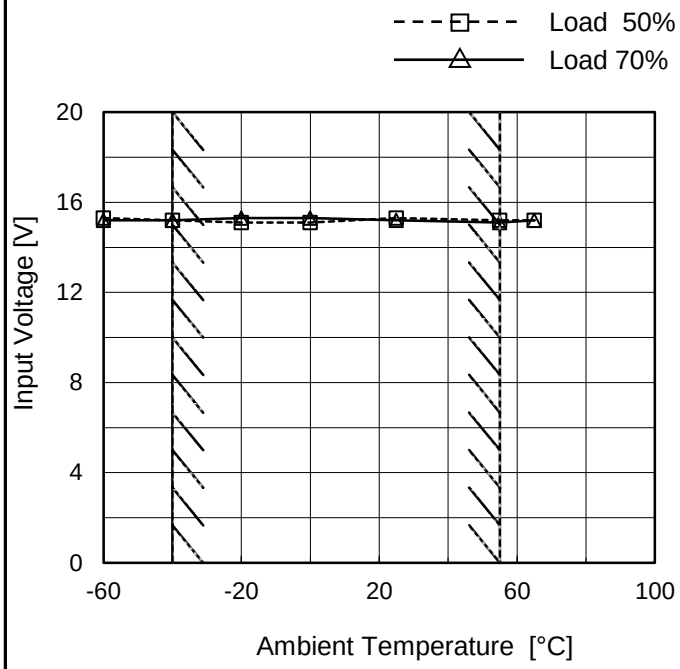
Model	MGFS804805
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V16A

Testing Circuitry Figure A

1.Graph



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

2.Values

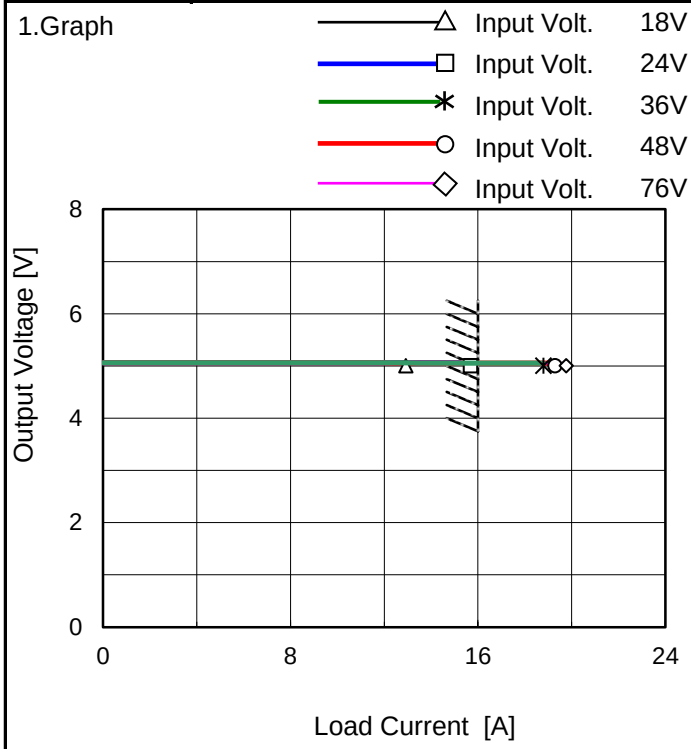
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 70%
-60	15.3	15.2
-40	15.2	15.2
-20	15.1	15.3
0	15.1	15.3
25	15.3	15.2
55	15.2	15.1
65	15.2	15.2
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS804805
Item	Overcurrent Protection
Object	+5V16A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

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]
5.00	12.932	15.683	18.797	19.288	19.765
4.75	- ※1	- ※2	-	-	-
4.50	-	-	-	-	-
4.00	-	-	-	-	-
3.50	-	-	-	-	-
3.00	-	-	-	-	-
2.50	-	-	-	-	-
2.00	-	-	-	-	-
1.50	-	-	-	-	-
1.00	-	-	-	-	-
0.50	-	-	-	-	-
0.00	-	-	-	-	-

※1 Maximum output current at minimum input Voltage is 70% of rated load current.
※2 Maximum output current at 24V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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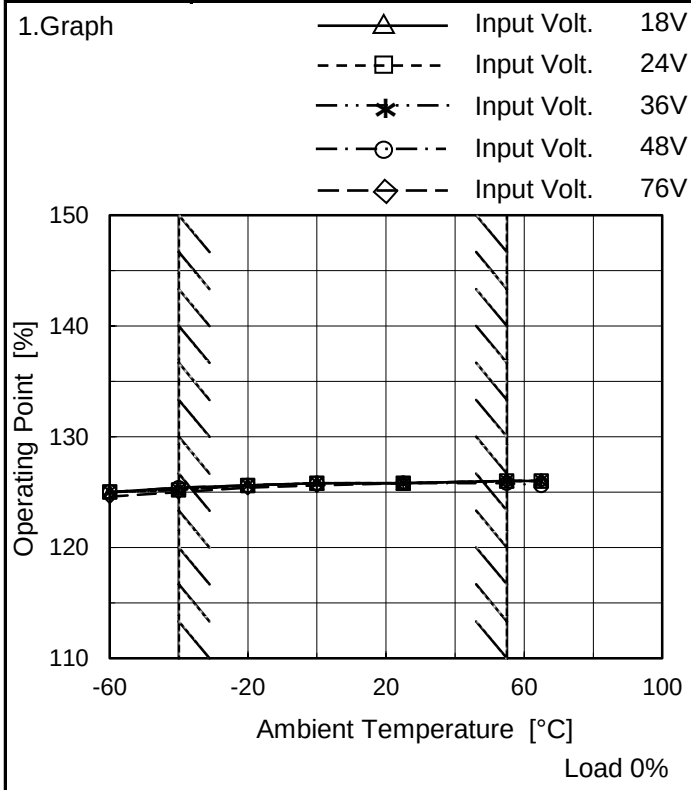
Model	MGFS804805
Item	Overvoltage Protection
Object	+5V16A

Testing Circuitry Figure A

1.Graph



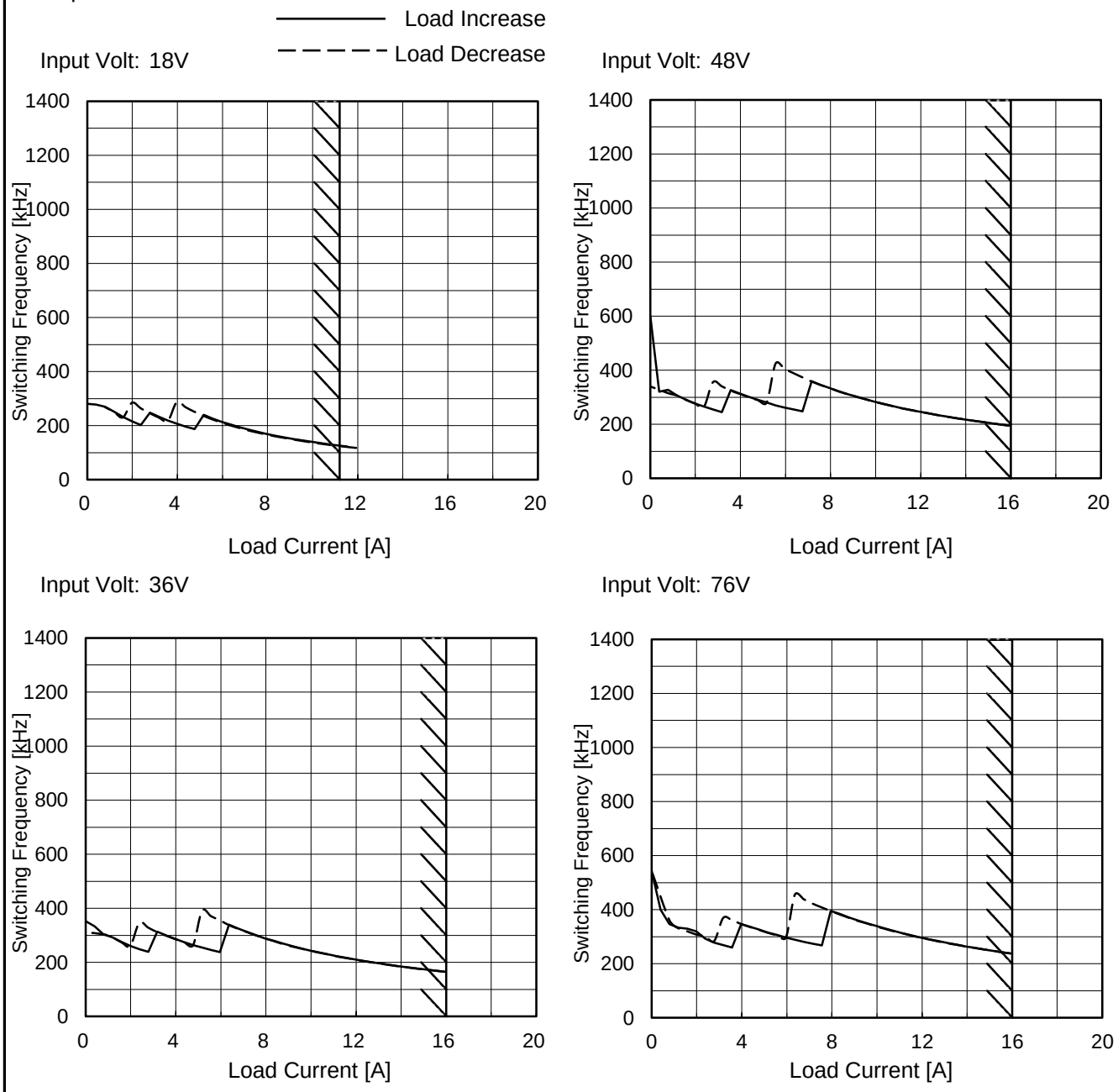
Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Operating Point [%] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	125	125	125	125	125
-40	125	125	125	125	125
-20	126	126	126	126	125
0	126	126	126	126	126
25	126	126	126	126	126
55	126	126	126	126	126
65	126	126	126	126	126
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Model	MGFS804805	
Item	Switching frequency (by Load Current)	Temperature 25°C Testing Circuitry Figure A
Object	+5V16A	

1.Graph



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

-switching frequency of MG80 changes depending on load current and input voltage.
When load current is low, switching frequency becomes high and step down to low frequency at certain point.
There is hysteresis, so characteristic is different between load increase (sweep from 0% to 100%) and load decrease (sweep from 100% to 0%).

-When load current is low, MG80 operates intermittently, so switching frequency would not become constant.
※ Maximum output current at minimum input Voltage is 70% of rated load current.
Refer to instruction manuals for details of input derating.

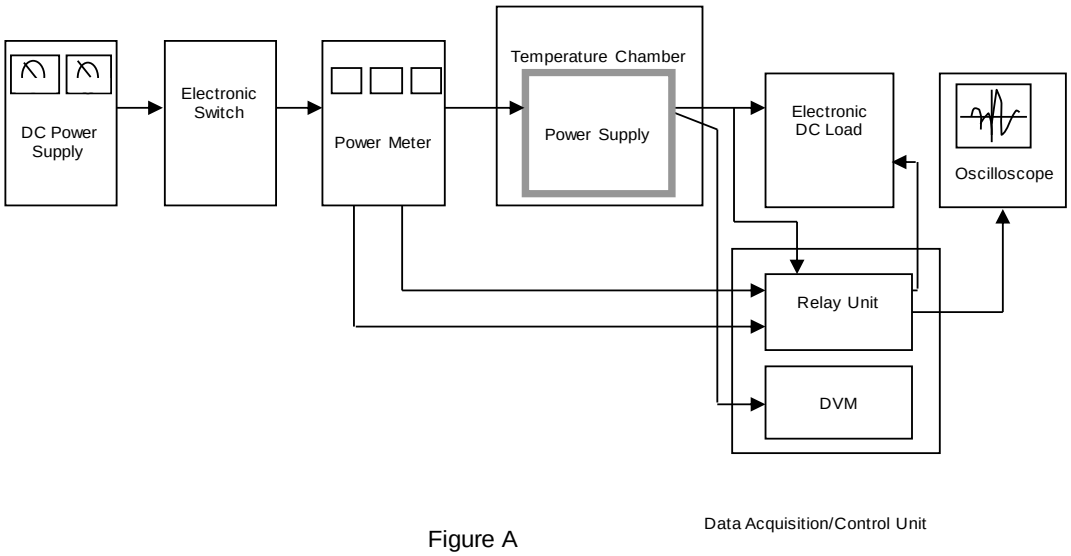


Figure A

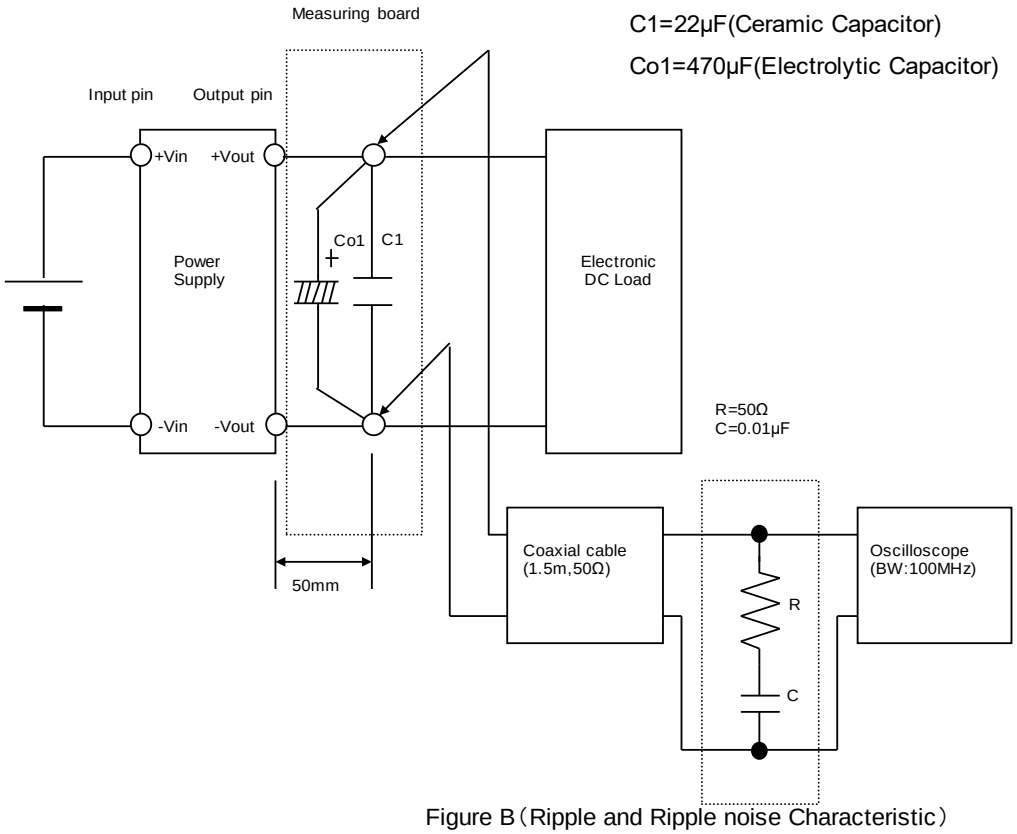


Figure B（Ripple and Ripple noise Characteristic）