COSEL

TEST DATA OF MGS104815

Regulated DC Power Supply
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Item	Input Current (by Input Voltage)
Object	

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

— △ — Load 100%
--- ⊟ --- Load 50%
—·— ○ —·— Load 0%

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
24.0	0.003	0.003	0.004
31.0	0.004	0.003	0.004
31.6	0.003	0.003	0.003
31.8	0.003	0.003	0.003
32.0	0.003	0.003	0.003
32.2	0.009	0.183	0.362
33.0	0.008	0.178	0.354
36.0	0.008	0.163	0.323
48.0	0.007	0.124	0.242
60.0	0.003	0.100	0.194
70.0	0.003	0.086	0.167
76.0	0.003	0.080	0.154
80.0	0.003	0.077	0.147
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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参考資料

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Model	MGS104815
Item	Input Current (by Load Current)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

— △ — Input Volt. 36V
--- ▣ --- Input Volt. 48V
—·— ○ —·— Input Volt. 76V

Load Current [A]

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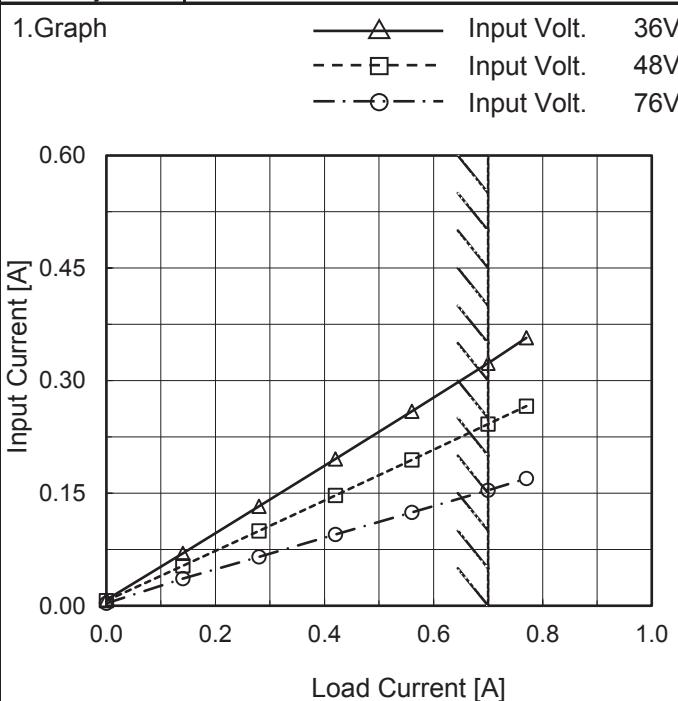
2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.008	0.007	0.003
0.14	0.070	0.053	0.036
0.28	0.132	0.100	0.065
0.42	0.196	0.147	0.095
0.56	0.259	0.194	0.125
0.70	0.323	0.242	0.154
0.77	0.357	0.266	0.170
--	-	-	-
--	-	-	-
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--	-	-	-

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Model	MGS104815
Item	Input Power (by Load Current)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

△———— Input Volt. 36V
---⊟--- Input Volt. 48V
—·—○—·— Input Volt. 76V

Input Power [W] vs Load Current [A]

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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.29	0.32	0.24
0.14	2.52	2.56	2.75
0.28	4.75	4.79	4.96
0.42	7.02	7.04	7.21
0.56	9.30	9.32	9.46
0.70	11.63	11.60	11.73
0.77	12.80	12.75	12.88
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGS104815
Item	Efficiency (by Input Voltage)
Object	
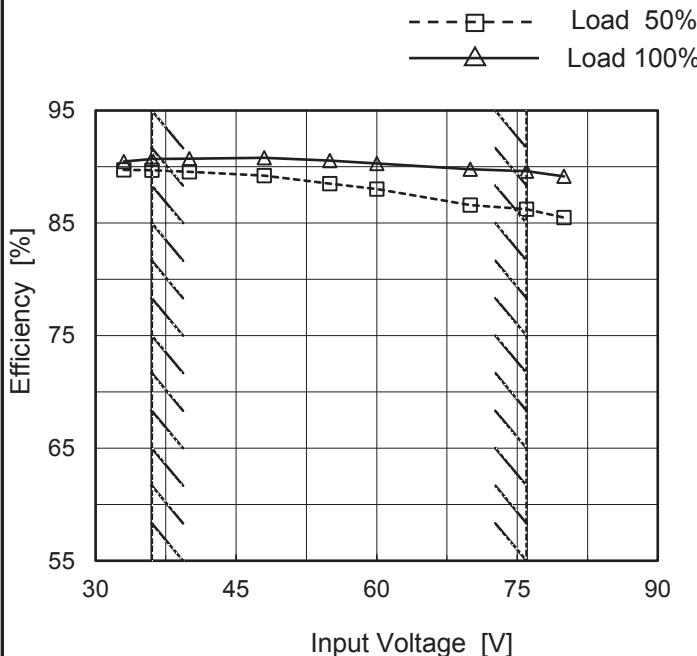
Temperature 25°C
Testing Circuitry Figure A

1.Graph

- - -⊟- - - Load 50%
———△——— Load 100%

Efficiency [%] vs Input Voltage [V]

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

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
33	89.7	90.5
36	89.7	90.7
40	89.5	90.7
48	89.2	90.8
55	88.5	90.5
60	88.0	90.3
70	86.6	89.8
76	86.2	89.6
80	85.5	89.1

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Model	MGS104815
Item	Efficiency (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

△ Input Volt. 36V
□ Input Volt. 48V
○ Input Volt. 76V

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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	-	-	-
0.140	83.5	82.3	76.1
0.280	88.6	87.8	84.1
0.420	90.0	89.7	87.1
0.560	90.7	90.4	88.8
0.700	90.7	90.8	89.6
0.770	90.6	90.9	89.8
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGS104815
Item	Line Regulation
Object	+15V0.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

- - -⊟- - - Load 50%
—△— Load 100%

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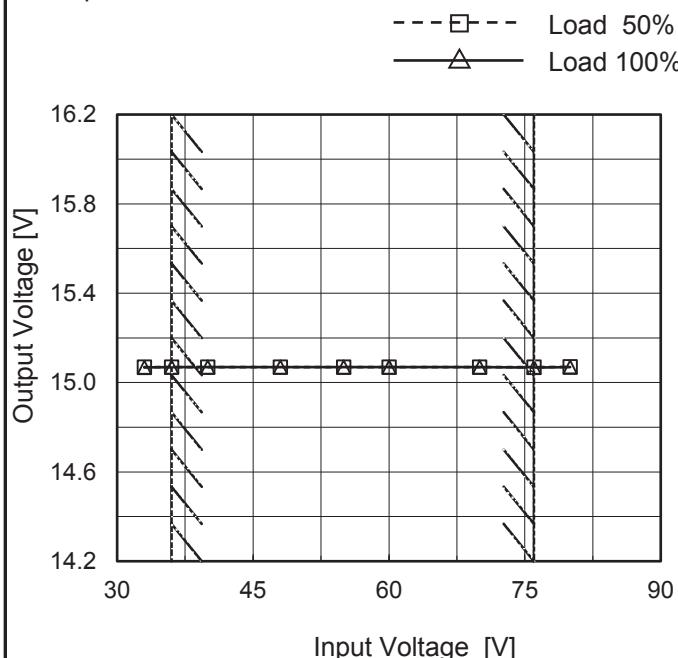
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	15.070	15.068
36	15.069	15.069
40	15.070	15.069
48	15.070	15.069
55	15.070	15.069
60	15.070	15.069
70	15.069	15.069
76	15.069	15.067
80	15.070	15.069

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Model	MGS104815
Item	Load Regulation
Object	+15V0.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph
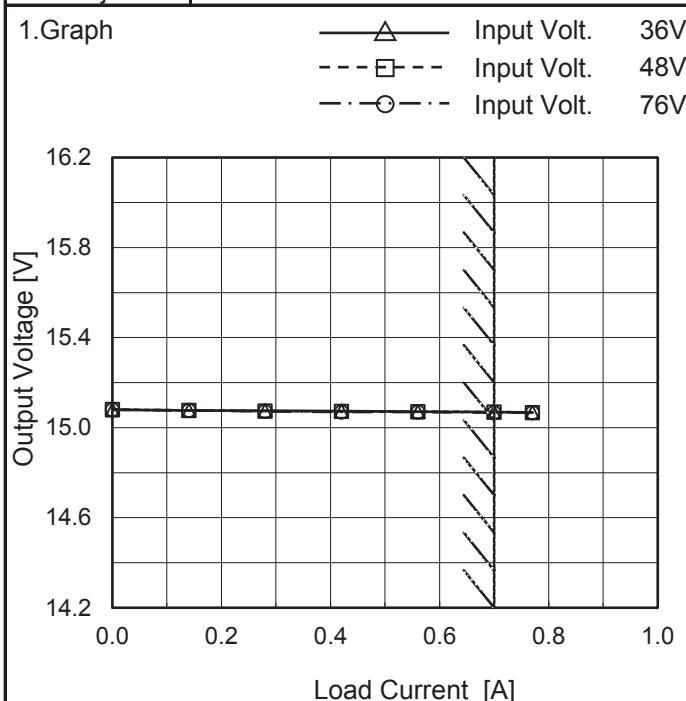
—△—	Input Volt. 36V
- - -⊟- - -	Input Volt. 48V
—·—○—·—	Input Volt. 76V

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	15.080	15.080	15.080
0.14	15.077	15.077	15.076
0.28	15.075	15.074	15.072
0.42	15.073	15.072	15.070
0.56	15.071	15.070	15.069
0.70	15.069	15.069	15.067
0.77	15.068	15.067	15.066
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	MGS104815		
Item	Dynamic Load Response	Temperature	25°C
Object	+15V0.7A	Testing Circuitry	Figure A

Input Volt. 48 V

Cycle 100 ms

t1,t2 = 100 μs

Load Current

t1　　　　　　　　t2

Min.Load (0A)←→
　Load 100% (0.7A)

500 mV/div

2 ms/div　　　　　　　2 ms/div

Min.Load (0A)←→
　Load 50% (0.35A)

500 mV/div

2 ms/div　　　　　　　2 ms/div

Load 50% (0.35A)←→
　Load 100% (0.7A)

500 mV/div

2 ms/div　　　　　　　2 ms/div

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Model	MGS104815
Item	Ripple Voltage (by Load Current)
Object	+15V0.7A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

    ━△━ Input Volt.   36V
    ━·━○━·━ Input Volt.   76V

Ripple Voltage [mV] (vertical axis)
Load Current [A] (horizontal axis)

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	10	40
0.14	10	15
0.28	10	15
0.42	10	15
0.56	15	15
0.70	25	15
0.77	30	15
--	-	-
--	-	-
--	-	-
--	-	-

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

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Model	MGS104815
Item	Ripple-Noise
Object	+15V0.7A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

————△———— Input Volt. 36V
—·—○—·— Input Volt. 76V

Ripple Voltage [mV] vs Load Current [A]
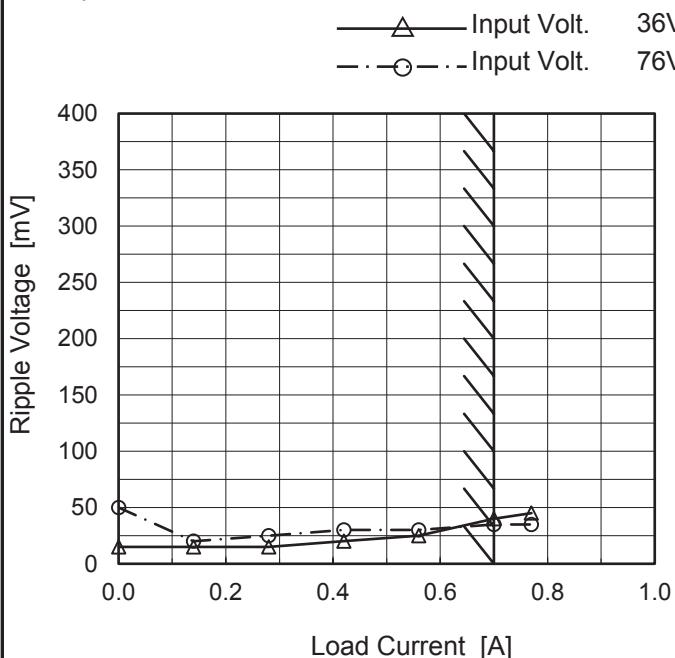
2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	15	50
0.14	15	20
0.28	15	25
0.42	20	30
0.56	25	30
0.70	40	35
0.77	45	35
--	-	-
--	-	-
--	-	-
--	-	-

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]
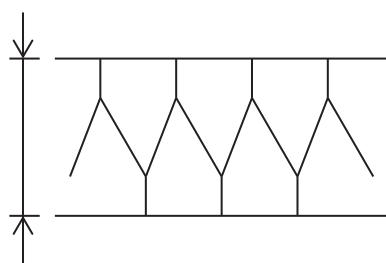
Fig.Complex Ripple Noise Wave
Form

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Model	MGS104815
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.7A

Testing Circuitry   Figure B

1.Graph

Load 50%
Load 100%

Ambient Temperature [°C]

Input Volt.   48V
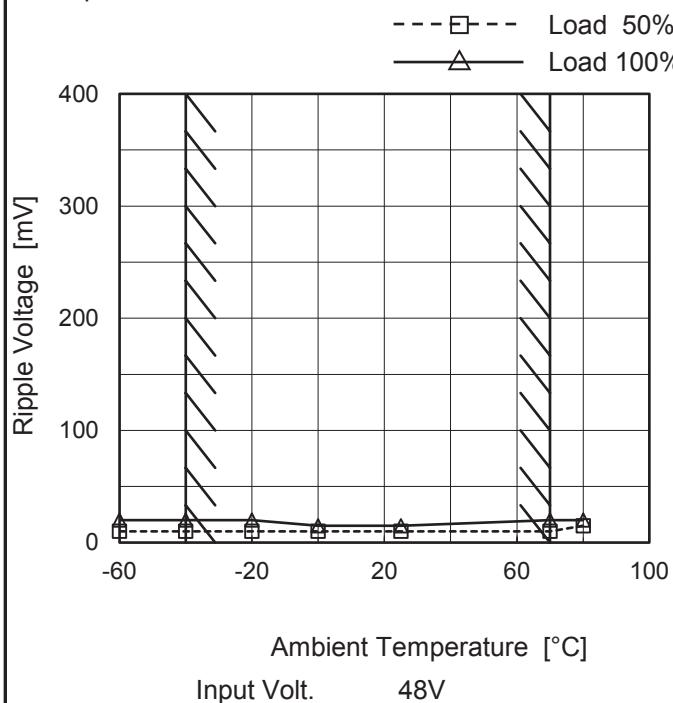
Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated
       ambient temperature.

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	20
-40	10	20
-20	10	20
0	10	15
25	10	15
70	10	20
80	15	20
--	-	-
--	-	-
--	-	-
--	-	-

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Model	MGS104815
Item	Ambient Temperature Drift
Object	+15V0.7A

Testing Circuitry   Figure A

1.Graph

— △ —   Input Volt.   36V
--- ⊟ ---   Input Volt.   48V
—·— ○ —·—   Input Volt.   76V

Ambient Temperature [°C]

Load 100%

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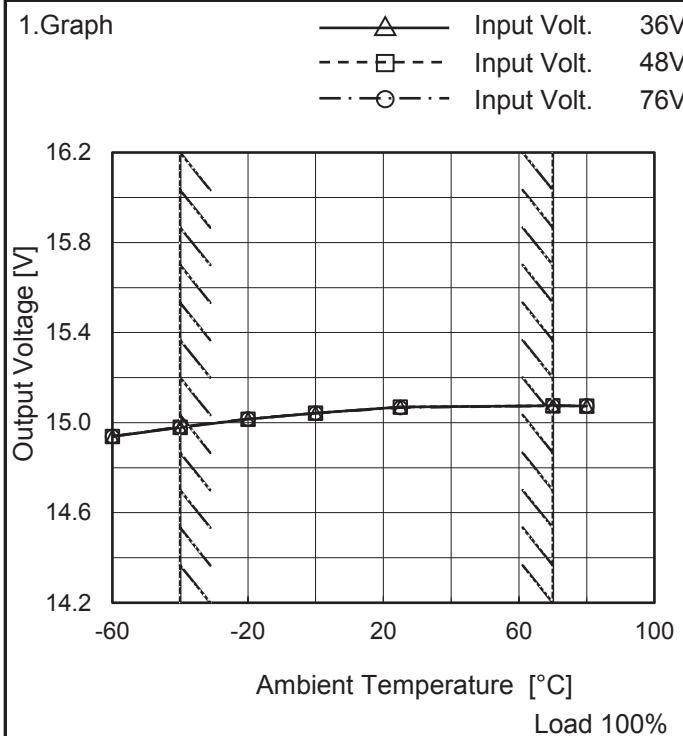
2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	14.938	14.939	14.939
-40	14.979	14.980	14.981
-20	15.015	15.016	15.016
0	15.042	15.043	15.043
25	15.069	15.069	15.067
70	15.075	15.075	15.075
80	15.074	15.074	15.075
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGS104815		
Item	Output Voltage Accuracy	Testing Circuitry	Figure A
Object	+15V0.7A		

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 - 70°C

Input Voltage : 36 - 76V

Load Current : 0 - 0.7A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

* Output Voltage Accuracy (Ratio) = $\dfrac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}}$ × 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	15.088	±55	±0.4
Minimum Voltage	-40	36	0.7	14.979		

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Model	MGS104815
Item	Time Lapse Drift
Object	+15V0.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph
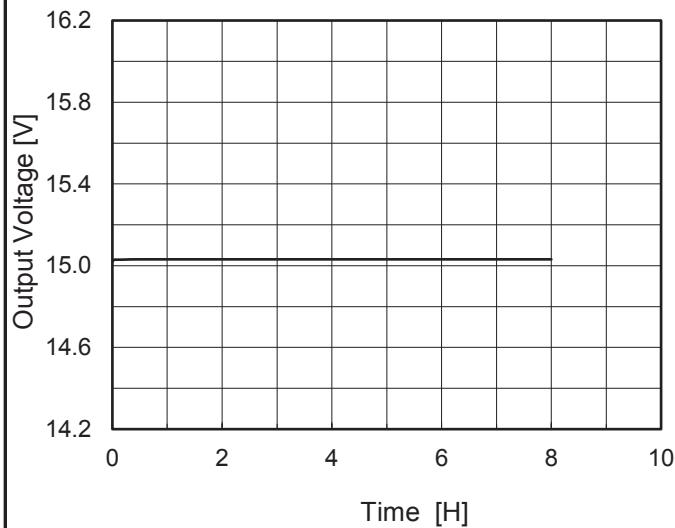
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	15.020
0.5	15.031
1.0	15.031
2.0	15.031
3.0	15.031
4.0	15.031
5.0	15.031
6.0	15.031
7.0	15.031
8.0	15.031

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Model	MGS104815
Item	Rise and Fall Time
Object	+15V0.7A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

Input Volt.   48 V

Load 50%

Output Volt.

[2V/div]

0

Load 100%

Output Volt.

[2V/div]

0

Input Volt.

0

[10V/div]   Time   [5ms/div]   Time   [1ms/div]
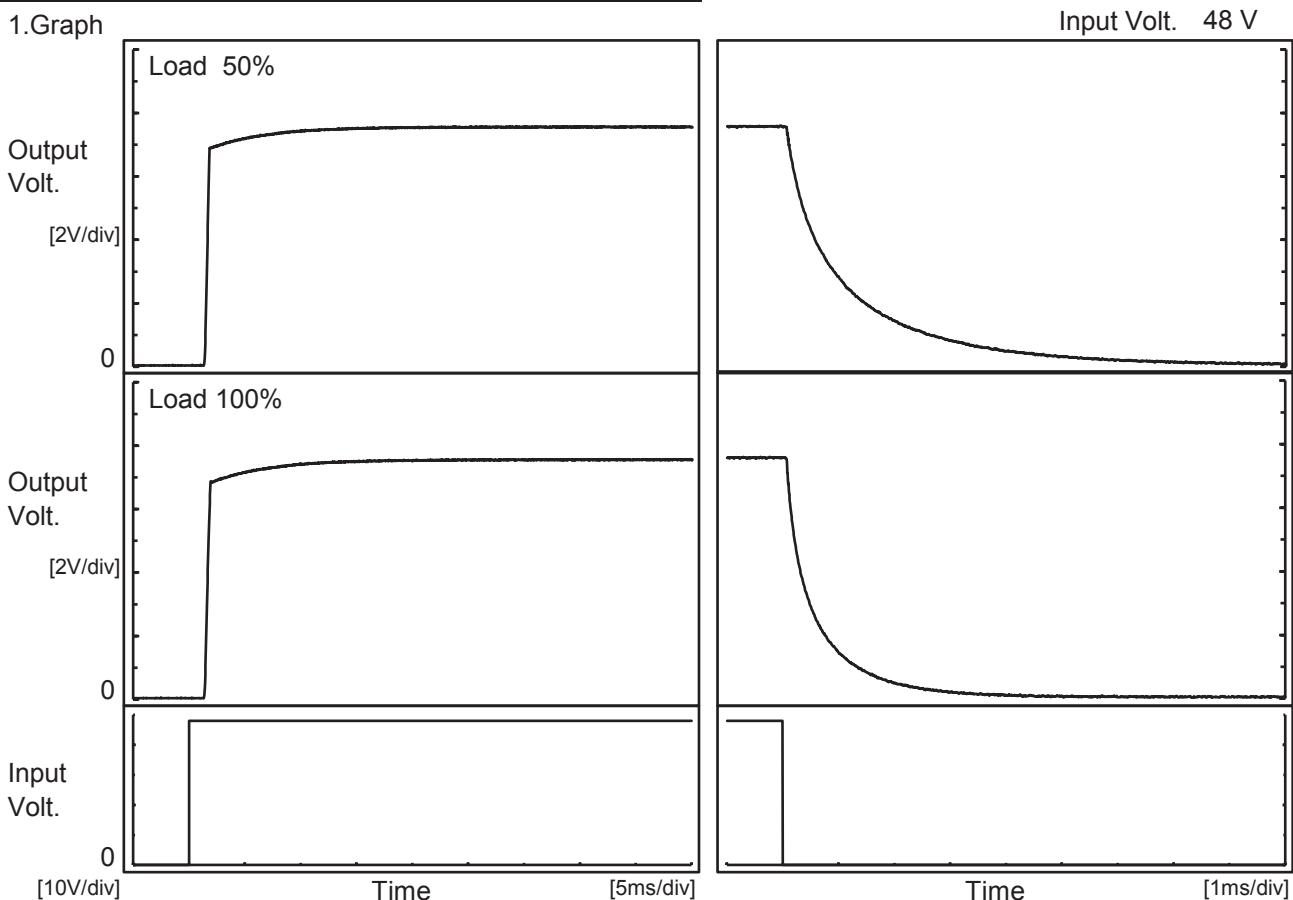
2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.5	0.4	1.9	0.1	3.0
100 %	1.5	0.5	2.0	0.1	1.5

Output Volt.

90%

10%

Input Volt.

Td   Tr   Th Tf

Ts

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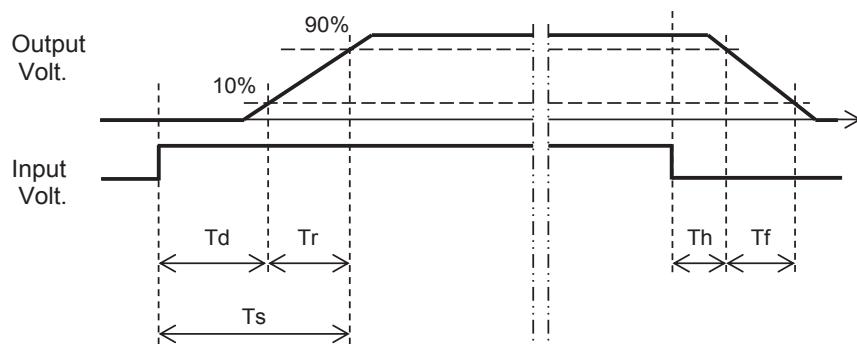
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Model	MGS104815
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.7A

Testing Circuitry   Figure A

1.Graph

--□-- Load 50%
—△— Load 100%

Input Voltage [V] vs Ambient Temperature [°C]
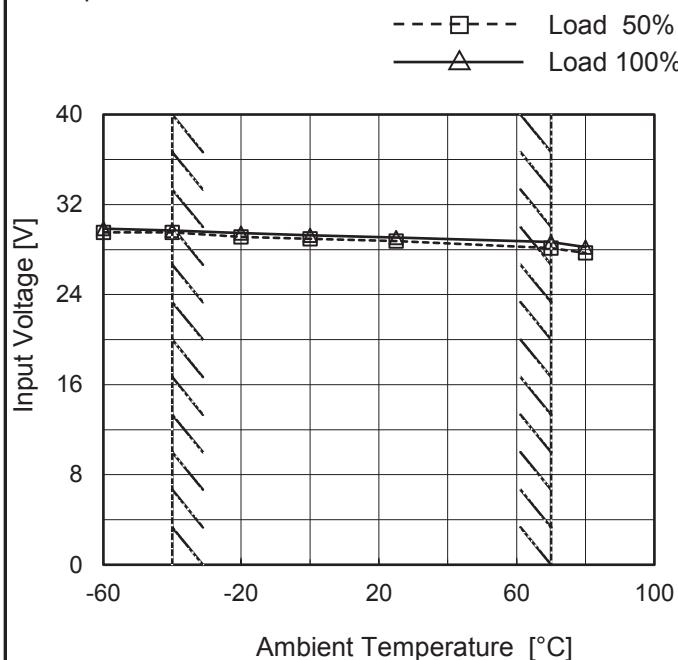
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	29.6	29.9
-40	29.6	29.7
-20	29.2	29.5
0	29.0	29.3
25	28.8	29.1
70	28.2	28.7
80	27.7	28.3
--	-	-
--	-	-
--	-	-
--	-	-

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

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Model	MGS104815
Item	Overcurrent Protection
Object	+15V0.7A
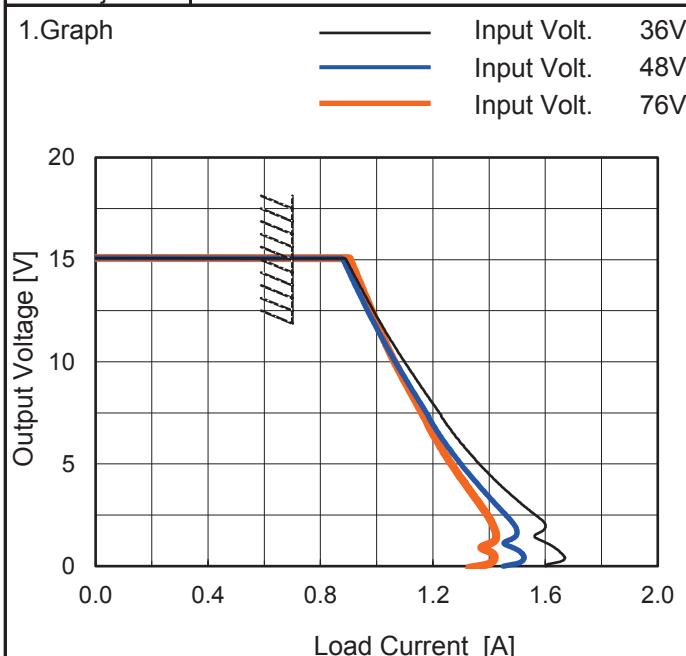
Temperature 25°C
Testing Circuitry Figure A

1.Graph

————	Input Volt.	36V
————	Input Volt.	48V
————	Input Volt.	76V

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

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
15.0	0.70	0.70	0.70
14.3	0.92	0.91	0.93
13.5	0.95	0.93	0.95
12.0	1.01	0.99	1.00
10.5	1.07	1.05	1.04
9.0	1.15	1.11	1.10
7.5	1.22	1.18	1.16
6.0	1.30	1.24	1.22
4.5	1.40	1.33	1.29
3.0	1.52	1.42	1.37
1.5	1.57	1.50	1.43
0.0	1.60	1.45	1.33

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Model	MGS104815
Item	Switching Frequency (by Load Current)
Object	+15V0.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

— △ — Input Volt. 36V
--- ☐ --- Input Volt. 48V
—·— ○ —·— Input Volt. 76V

Switching Frequency [kHz] vs Load Current [A]

2.Values

Load Current [A]	Frequency [kHz]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	603	639	645
0.14	421	471	526
0.28	325	371	429
0.35	291	336	393
0.42	264	307	363
0.56	222	261	315
0.70	192	228	278
0.77	180	214	263
--	-	-	-
--	-	-	-
--	-	-	-

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.

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Figure A

Figure B（Ripple and Ripple noise Characteristic）

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