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TEST DATA OF MGFS304812

Regulated DC Power Supply
December 25, 2010

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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%

Input Current [A] vs Input Voltage [V]

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
5.0	0.000	0.000	0.000
10.0	0.000	0.000	0.000
15.0	0.000	0.000	0.002
16.0	0.002	0.002	0.002
16.5	0.041	0.998	2.014
17.0	0.040	0.968	1.955
17.5	0.040	0.940	1.898
18.0	0.040	0.913	1.846
24.0	0.036	0.689	1.383
36.0	0.032	0.468	0.931
48.0	0.030	0.358	0.705
76.0	0.029	0.240	0.462
80.0	0.029	0.230	0.442
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGFS304812
Item	Input Current (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

—△—	Input Volt.	18V
---☐---	Input Volt.	24V
—··✳··—	Input Volt.	36V
—·—○—·—	Input Volt.	48V
——◇——	Input Volt.	76V

Input Current [A] vs Load Current [A]

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	0.040	0.036	0.032	0.030	0.029
0.50	0.384	0.294	0.204	0.160	0.113
1.00	0.736	0.559	0.380	0.292	0.198
1.50	1.102	0.828	0.561	0.427	0.284
2.00	1.473	1.108	0.746	0.566	0.373
2.50	1.858	1.393	0.938	0.710	0.466
2.75	2.062	1.542	1.037	0.785	0.518
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS304812
Item	Input Power (by Load Current)
Object	————————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

—△— Input Volt. 18V
---⊟--- Input Volt. 24V
—··✳··—· 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 Power [W]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	0.72	0.86	1.16	1.45	2.24
0.50	6.89	7.04	7.36	7.67	8.59
1.00	13.22	13.36	13.67	14.02	15.03
1.50	19.73	19.84	20.16	20.50	21.60
2.00	26.42	26.50	26.78	27.16	28.35
2.50	33.40	33.38	33.60	34.03	35.40
2.75	37.00	36.91	37.20	37.61	39.40
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS304812
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%
17	91.3	89.4
18	91.4	90.0
24	90.8	90.1
30	90.0	89.6
36	89.0	89.5
48	87.4	88.5
60	85.4	86.9
76	82.4	85.0
80	81.7	84.0

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Model	MGFS304812

Item	Efficiency (by Load Current)

Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

	Input Volt.	18V
	Input Volt.	24V
	Input Volt.	36V
	Input Volt.	48V
	Input Volt.	76V

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	-	-	-	-	-
0.50	87.3	85.5	81.8	78.5	70.1
1.00	91.1	90.2	88.1	85.9	80.2
1.50	91.6	91.1	89.7	88.2	83.7
2.00	91.2	90.9	90.0	88.7	85.0
2.50	90.2	90.2	89.7	88.5	85.1
2.75	89.5	89.8	89.1	88.1	84.1
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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

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Model	MGFS304812
Item	Line Regulation
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

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

Output Voltage [V]

12.30
12.20
12.10
12.00
11.90
11.80
11.70
11.60

10   30   50   70   90

Input Voltage [V]

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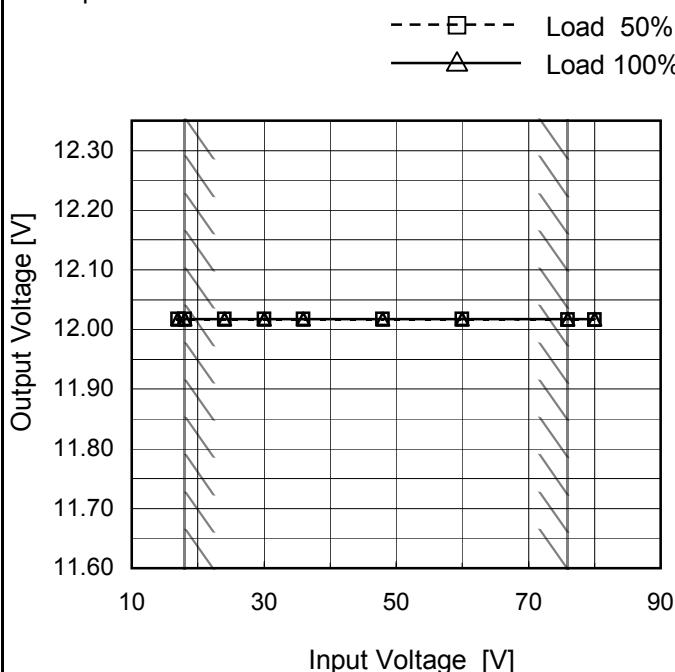
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	12.018	12.017
18	12.018	12.018
24	12.018	12.018
30	12.018	12.018
36	12.018	12.018
48	12.017	12.018
60	12.017	12.017
76	12.017	12.017
80	12.017	12.017

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Model	MGFS304812
Item	Load Regulation
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

——△—— Input Volt. 18V
- - -⊟- - - Input Volt. 24V
—··✳··—· 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]	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	12.020	12.020	12.020	12.020	12.020
0.50	12.019	12.020	12.020	12.020	12.020
1.00	12.019	12.019	12.019	12.019	12.019
1.50	12.018	12.019	12.019	12.019	12.018
2.00	12.018	12.018	12.018	12.018	12.018
2.50	12.017	12.018	12.018	12.018	12.017
2.75	12.017	12.017	12.017	12.017	12.017
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS304812
Item	Dynamic Load Response
Object	+12V2.5A

Temperature   25°C
Testing Circuitry   Figure A

Input Volt.   48   V
Cycle   1000 ms

t_1、t_2 = 50μs

Load Current

t_1 t_2

Min. Load (0A) ←→
   Load 100% (2.5A)

200mV/div

1ms/div   1ms/div

Min. Load (0A) ←→
   Load 50% (1.25A)

200mV/div

1ms/div   1ms/div

Load 50% (1.25A) ←→
   Load 100% (2.5A)

200mV/div

1ms/div   1ms/div

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Model	MGFS304812
Item	Ripple Voltage (by Load Current)
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

2.Values

_____△_____ Input Volt. 18V
— . —○— . . Input Volt. 76V

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	16	24
0.50	15	24
1.00	15	24
1.50	15	24
2.00	15	24
2.50	15	24
2.75	15	24
--	-	-
--	-	-
--	-	-
--	-	-

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	MGFS304812
Item	Ripple-Noise
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

—△— Input Volt. 18V
—·—○—·· Input Volt. 76V

Ripple Voltage [mV] vs Load Current [A]

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	20	30
0.50	20	30
1.00	20	30
1.50	20	30
2.00	20	30
2.50	20	30
2.75	20	30
--	-	-
--	-	-
--	-	-
--	-	-

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	MGFS304812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V2.5A

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.
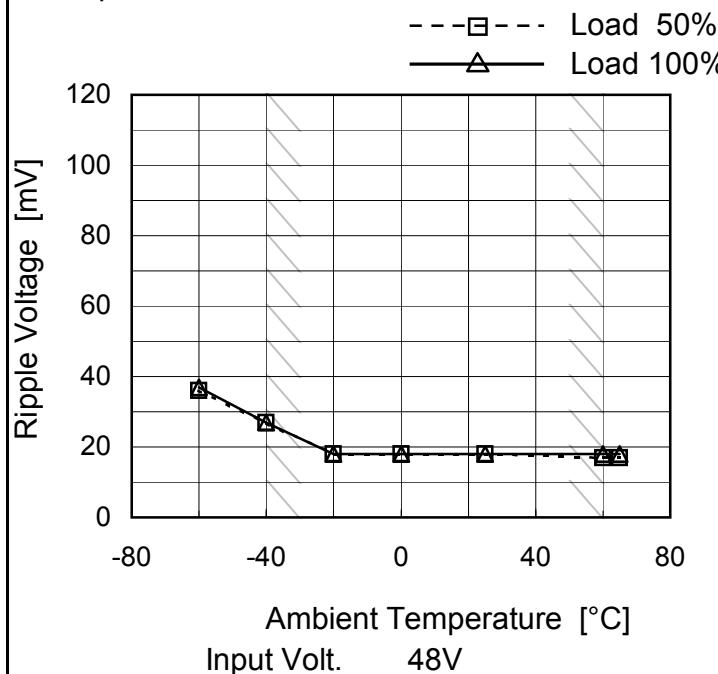
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	36	37
-40	27	27
-20	18	18
0	18	18
25	18	18
60	17	18
65	17	18
--	-	-
--	-	-
--	-	-
--	-	-

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（参考資料 — top right corner）

参考資料

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Model	MGFS304812
Item	Ambient Temperature Drift
Object	+12V2.5A

Testing Circuitry   Figure A

1.Graph

		Input Volt.	18V
—△—		Input Volt.	18V
---□---		Input Volt.	24V
—··✳··—		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.
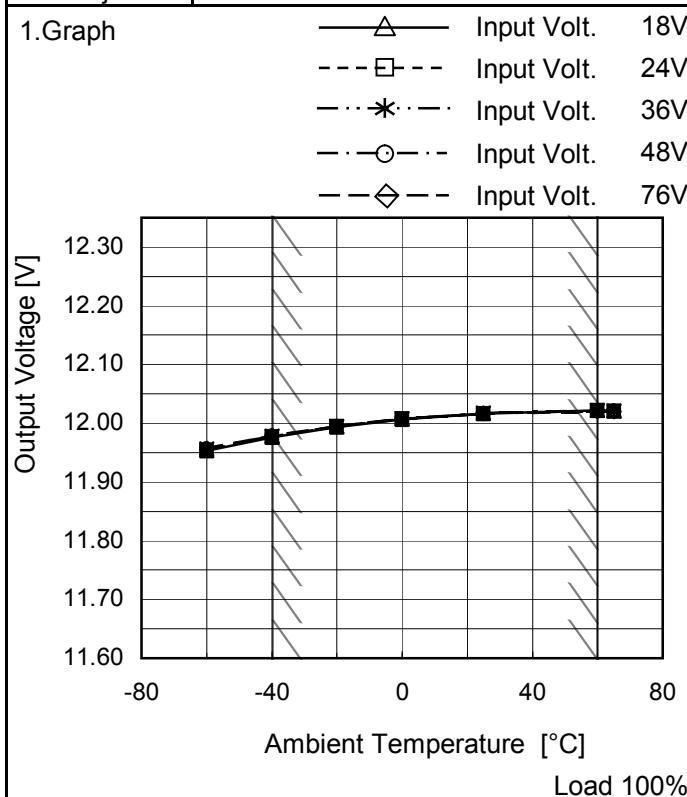
2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	11.954	11.954	11.956	11.956	11.957
-40	11.977	11.977	11.978	11.978	11.979
-20	11.994	11.994	11.995	11.995	11.995
0	12.007	12.007	12.007	12.008	12.007
25	12.017	12.017	12.017	12.017	12.016
60	12.022	12.021	12.021	12.021	12.020
65	12.021	12.021	12.021	12.021	12.020
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS304812		
Item	Output Voltage Accuracy	Testing Circuitry	Figure A
Object	+12V2.5A		

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 - 60°C

Input Voltage : 18 - 76V

Load Current : 0 - 2.5A

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

* Output Voltage Accuracy (Ration) = $\dfrac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}}$ × 100

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	36	0	12.025	±25	±0.2
Minimum Voltage	-40	76	0	11.976		

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Model	MGFS304812
Item	Time Lapse Drift
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

Output Voltage [V]

12.30
12.20
12.10
12.00
11.90
11.80
11.70
11.60

0   2   4   6   8   10

Time [H]

Input Volt. 48V
Load 100%
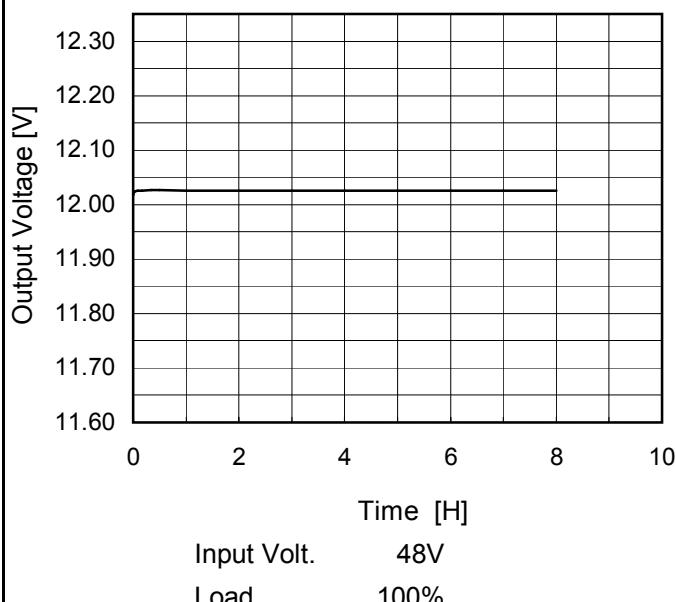
2.Values

Time since start [H]	Output Voltage [V]
0.0	12.017
0.5	12.026
1.0	12.026
2.0	12.026
3.0	12.026
4.0	12.026
5.0	12.026
6.0	12.026
7.0	12.026
8.0	12.026

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Model	MGFS304812
Item	Rise and Fall Time
Object	+12V2.5A

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 [10ms/div] Time [10ms/div]
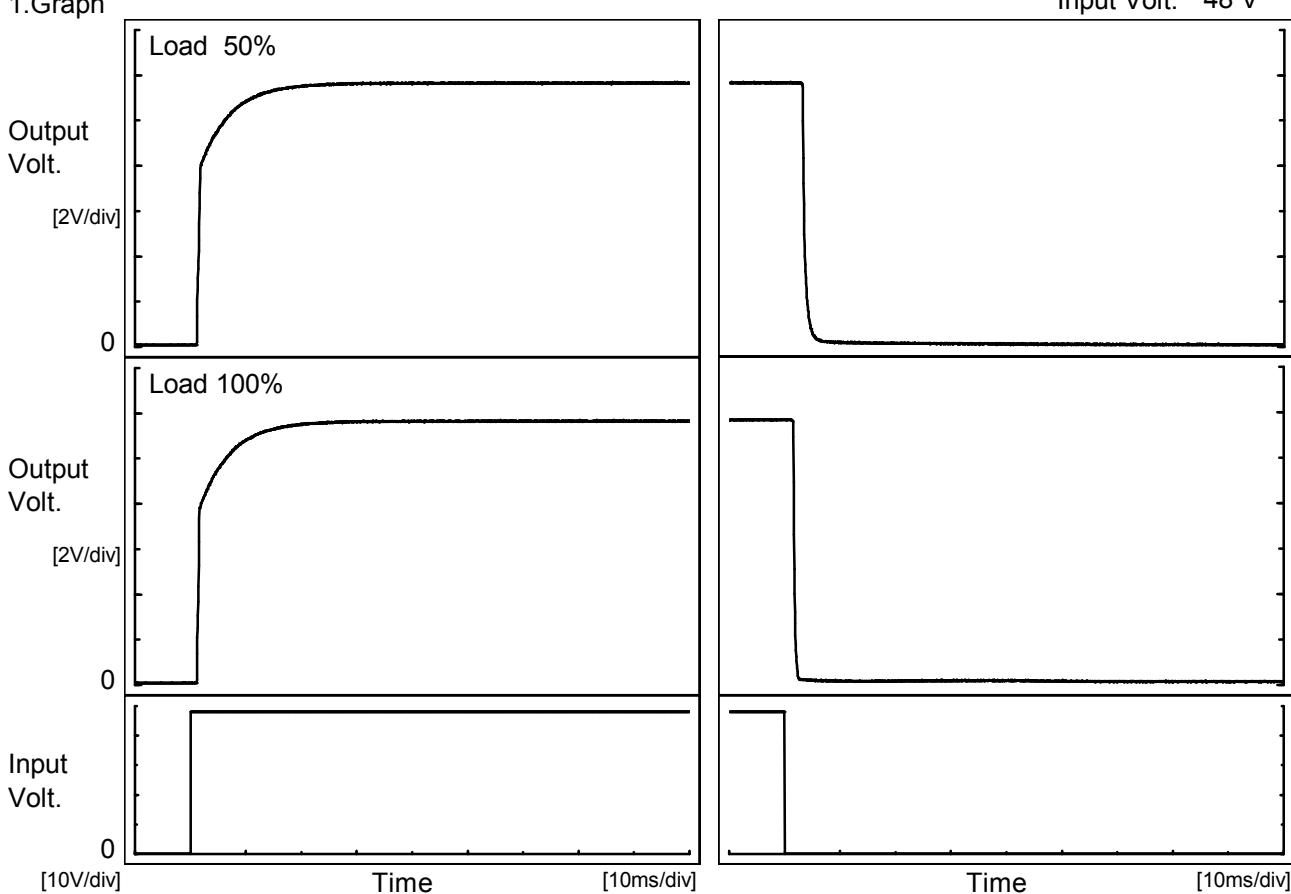
2.Values [ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	9.1	10.3	3.2	1.1
100 %	1.2	9.2	10.4	1.6	0.4

Output
Volt.

90%

10%

Input
Volt.

Td Tr Th Tf

Ts

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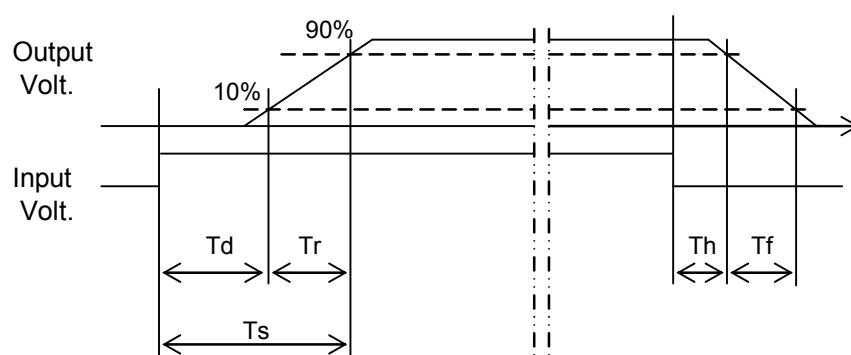
Model	MGFS304812
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V2.5A

Testing Circuitry   Figure A

1.Graph

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

Input Voltage [V]

Ambient Temperature [°C]

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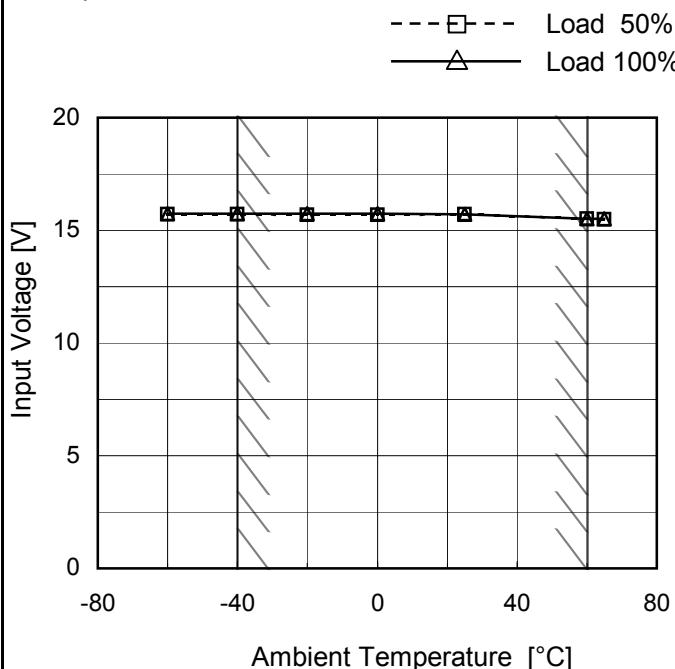
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.7	15.8
-40	15.7	15.8
-20	15.7	15.8
0	15.7	15.8
25	15.8	15.8
60	15.5	15.6
65	15.5	15.5
--	-	-
--	-	-
--	-	-
--	-	-

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Model	MGFS304812
Item	Overcurrent Protection
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

——————△	Input Volt.	18V
——————□	Input Volt.	24V
——————∗	Input Volt.	36V
——————○	Input Volt.	48V
——————◇	Input Volt.	76V

Output Voltage [V] vs Load Current [A]

Load Current [A]

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]
12.0	3.208	3.365	3.521	3.465	3.202
11.4	-	-	-	-	-
10.8	-	-	-	-	-
9.6	-	-	-	-	-
8.4	-	-	-	-	-
7.2	-	-	-	-	-
6.0	-	-	-	-	-
4.8	-	-	-	-	-
3.6	-	-	-	-	-
2.4	-	-	-	-	-
1.2	-	-	-	-	-
0.0	-	-	-	-	-

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Model	MGFS304812
Item	Overvoltage Protection
Object	+12V2.5A

Testing Circuitry　　Figure A

1.Graph

—△— Input Volt.　48V
---⊟--- Input Volt.　76V

Operating Point [V] vs Ambient Temperature [°C]

Load 0%

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

2.Values

| Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 48[V]	Input Volt. 76[V]
-60	16.49	16.49
-40	16.58	16.58
-20	16.70	16.72
0	16.86	16.88
25	17.10	17.12
60	17.42	17.43
65	17.47	17.49
--	-	-
--	-	-
--	-	-
--	-	-

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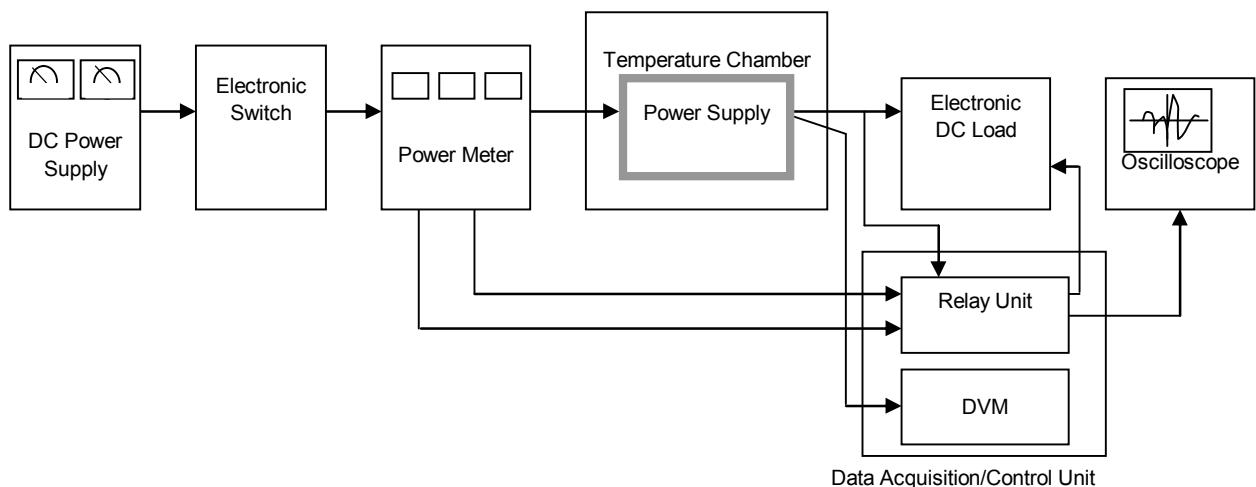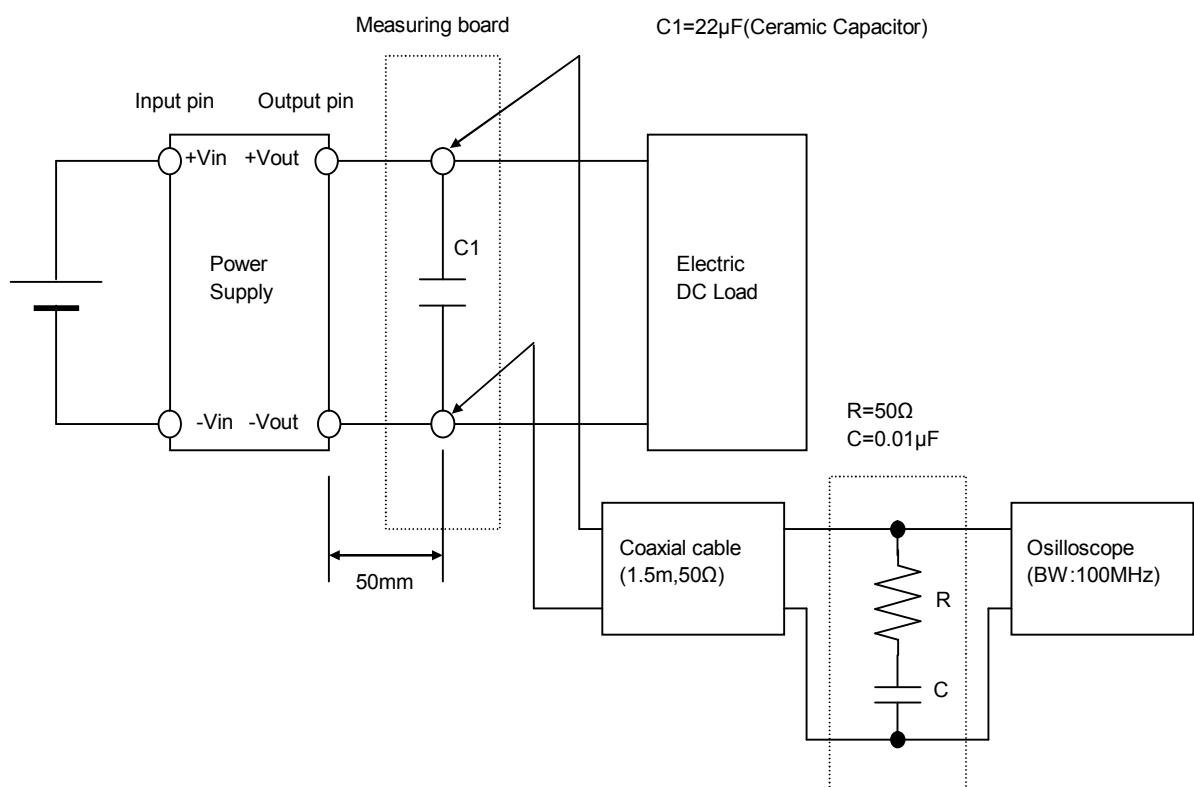
Figure A

Figure B（Ripple and Ripple noise Characteristic）

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