COSEL

参考資料

TEST DATA OF MGFS152415

Regulated DC Power Supply
September 15, 2010

Approved by : Kazunari Asano
Kazunari Asano Design Manager

Prepared by : Ryoko Ueda
Ryoko Ueda Design Engineer

COSEL CO.,LTD.

COSEL

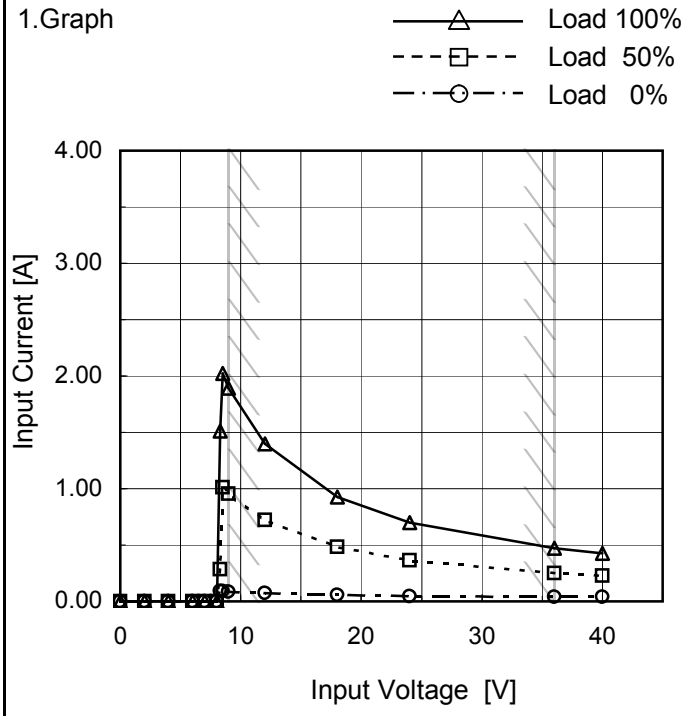
CONTENTS

COSEL

Model	MGFS152415
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

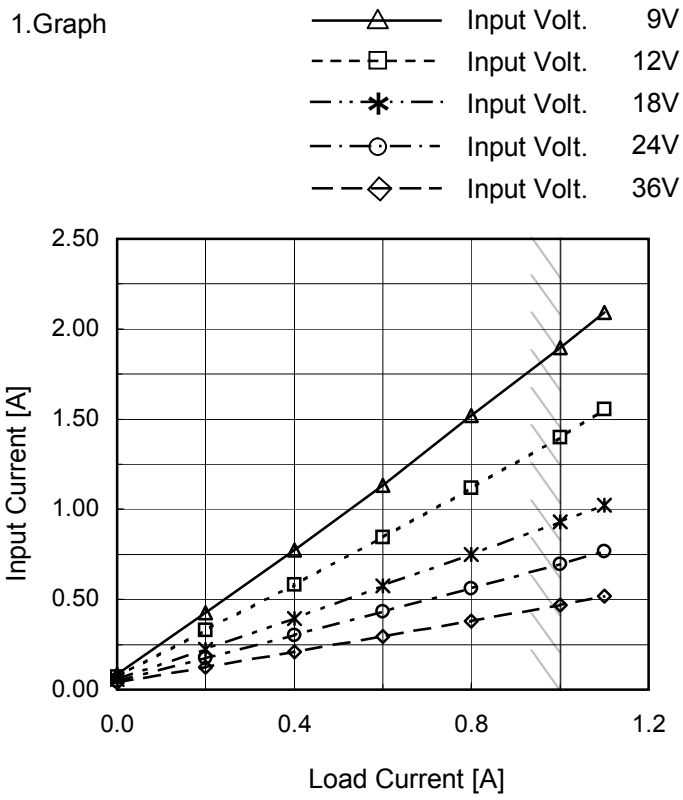
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.000	0.000	0.001
4.0	0.001	0.002	0.002
6.0	0.002	0.002	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.3	0.091	0.283	1.514
8.5	0.090	1.013	2.020
9.0	0.086	0.956	1.895
12.0	0.071	0.719	1.399
18.0	0.056	0.482	0.928
24.0	0.048	0.365	0.697
36.0	0.039	0.250	0.470
40.0	0.037	0.227	0.424
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGFS152415
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

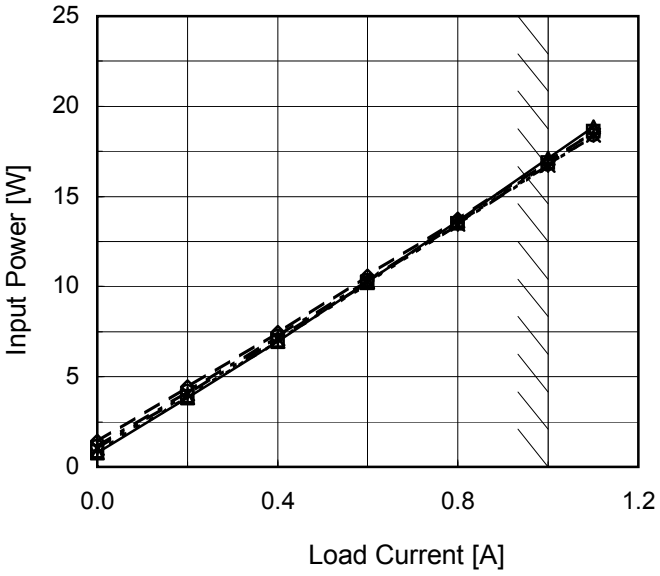
Load Current [A]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.086	0.072	0.057	0.048	0.039
0.2	0.427	0.329	0.225	0.175	0.123
0.4	0.776	0.582	0.395	0.301	0.208
0.6	1.134	0.845	0.576	0.433	0.295
0.8	1.521	1.120	0.749	0.563	0.381
1.0	1.896	1.399	0.929	0.697	0.470
1.1	2.090	1.556	1.021	0.768	0.517
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS152415
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

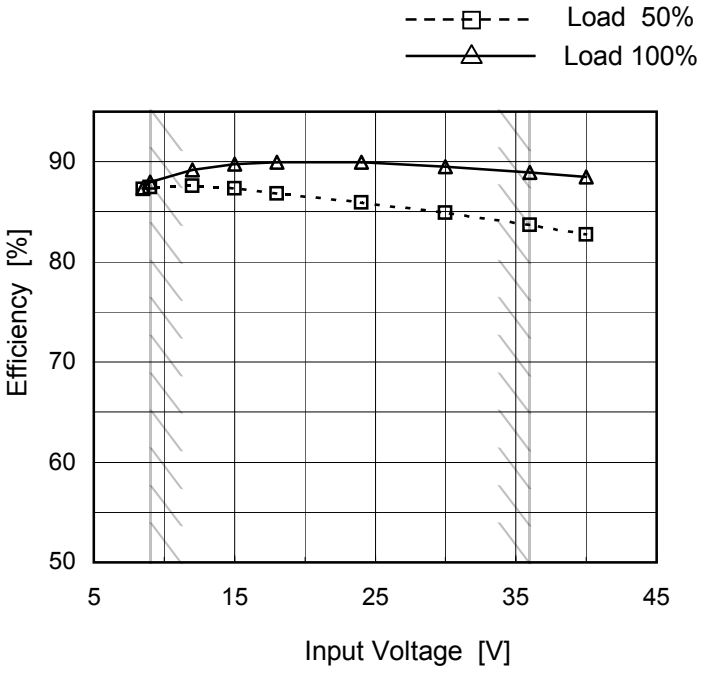
Load Current [A]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.77	0.86	1.02	1.15	1.41
0.2	3.84	3.91	4.05	4.18	4.42
0.4	6.97	7.01	7.11	7.24	7.46
0.6	10.25	10.20	10.25	10.34	10.57
0.8	13.64	13.49	13.46	13.52	13.74
1.0	17.12	16.87	16.74	16.76	16.94
1.1	18.85	18.61	18.41	18.40	18.60
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS152415
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

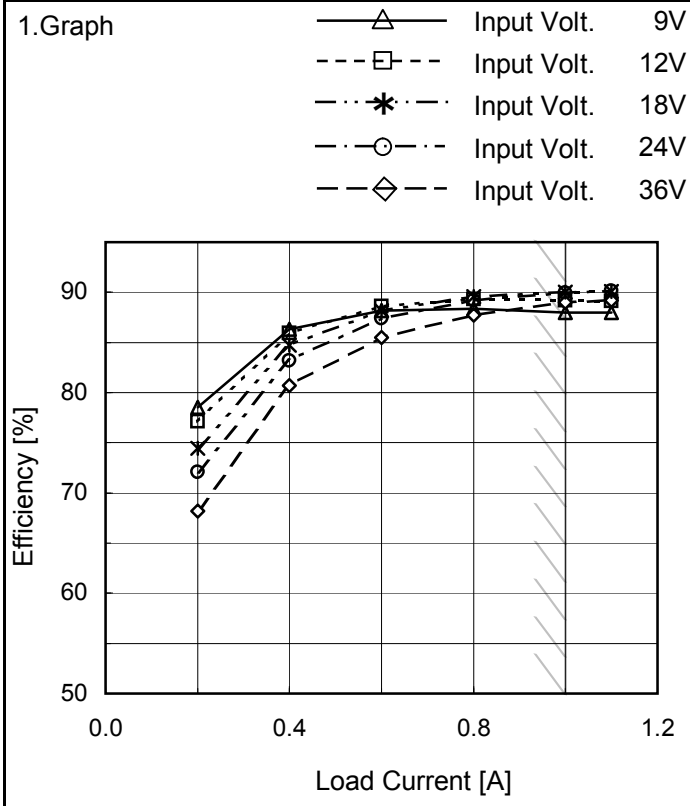
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	87.2	87.4
9.0	87.5	88.0
12.0	87.6	89.2
15.0	87.3	89.8
18.0	86.8	90.0
24.0	85.9	90.0
30.0	84.9	89.5
36.0	83.7	88.9
40.0	82.7	88.5

COSEL

Model	MGFS152415
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

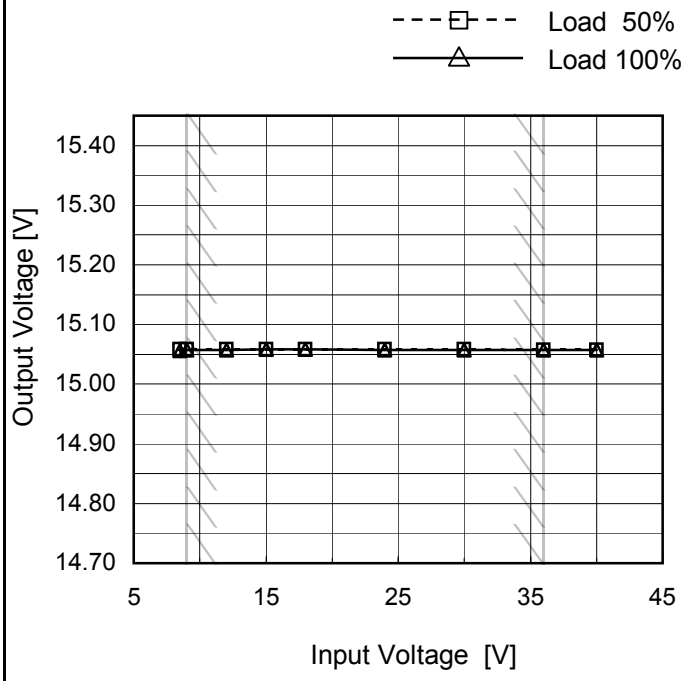
Load Current [A]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-	-	-
0.2	78.5	77.1	74.4	72.1	68.2
0.4	86.3	85.9	84.7	83.2	80.7
0.6	88.2	88.6	88.2	87.4	85.5
0.8	88.4	89.3	89.6	89.2	87.7
1.0	88.0	89.2	90.0	90.0	89.0
1.1	88.0	89.1	90.1	90.2	89.2
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS152415
Item	Line Regulation
Object	+15V1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

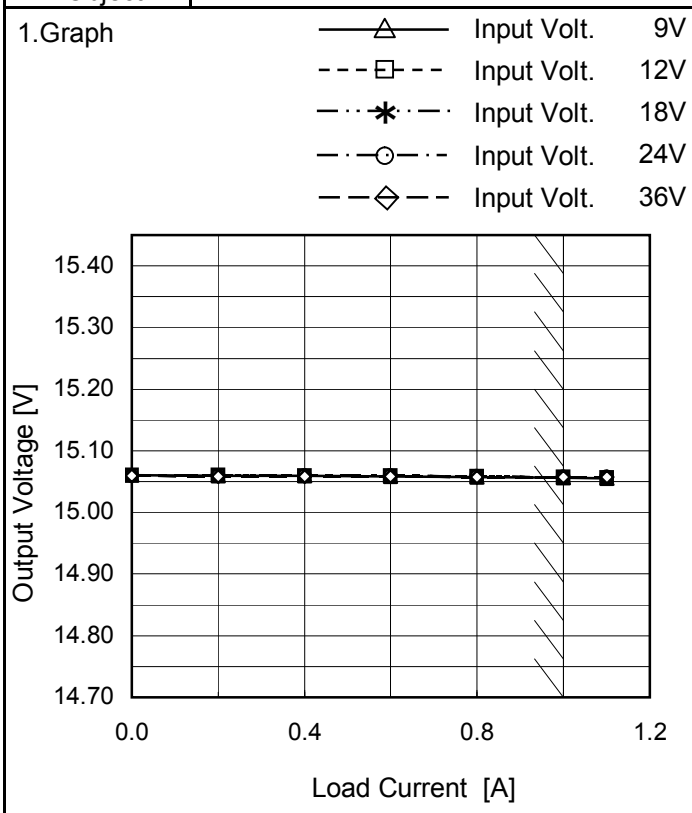
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	15.059	15.057
9.0	15.059	15.057
12.0	15.059	15.057
15.0	15.058	15.058
18.0	15.059	15.058
24.0	15.058	15.058
30.0	15.058	15.058
36.0	15.058	15.058
40.0	15.057	15.058

COSEL

Model	MGFS152415
Item	Load Regulation
Object	+15V1A

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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	15.060	15.060	15.060	15.060	15.059
0.2	15.060	15.060	15.060	15.060	15.058
0.4	15.059	15.060	15.059	15.059	15.058
0.6	15.059	15.059	15.059	15.059	15.058
0.8	15.058	15.059	15.059	15.058	15.058
1.0	15.056	15.057	15.058	15.057	15.057
1.1	15.055	15.056	15.057	15.057	15.057
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

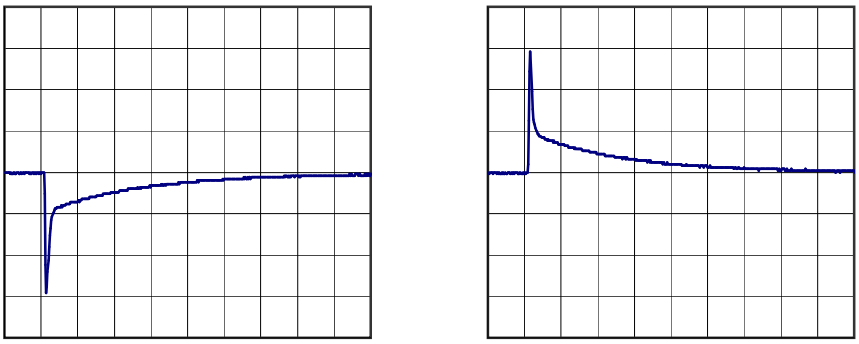
COSEL

Model	MGFS152415
Item	Dynamic Load Response
Object	+15V1A

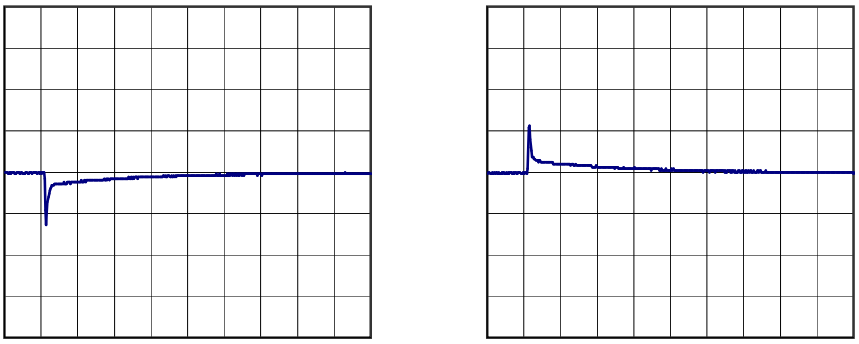
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 1000 ms

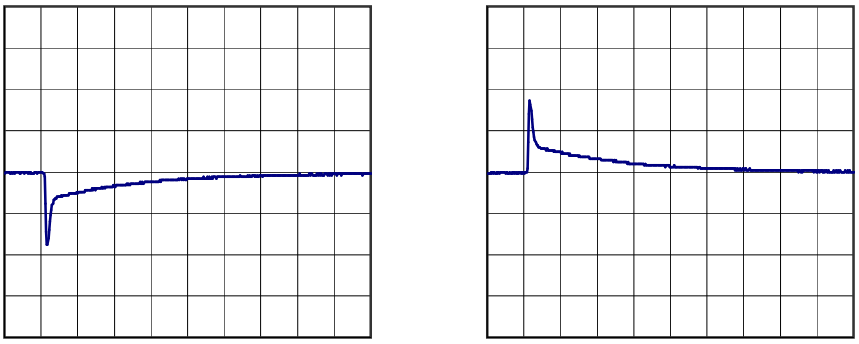
Min. Load (0A) ⟷ Load 100% (1A)



Min. Load (0A) ⟷ Load 50% (0.5A)



Load 50% (0.5A) ⟷ Load 100% (1A)

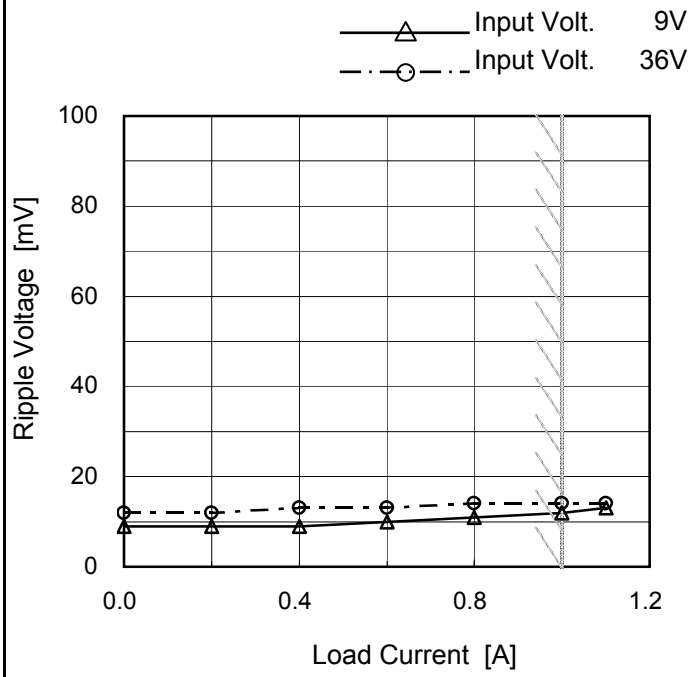


COSEL

Model	MGFS152415
Item	Ripple Voltage (by Load Current)
Object	+15V1A

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]

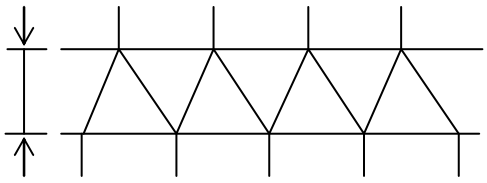


Fig.Complex Ripple Wave Form

2.Values

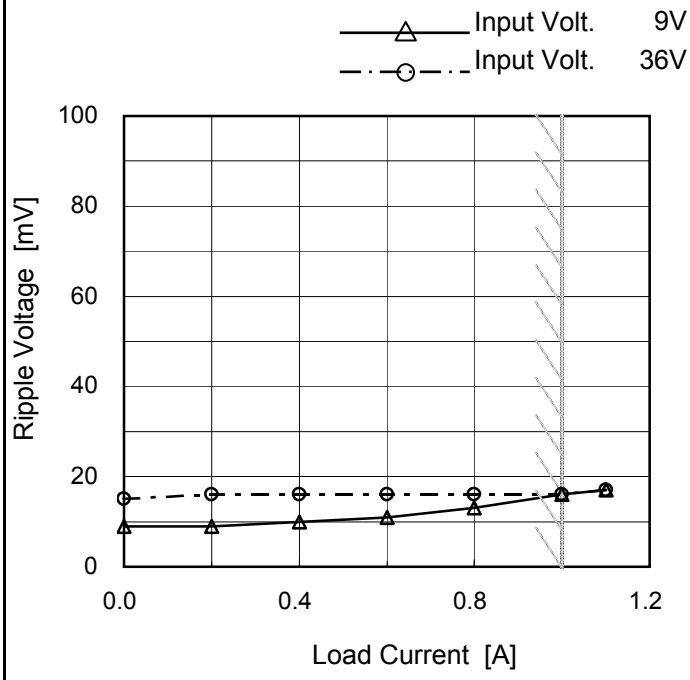
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	9	12
0.2	9	12
0.4	9	13
0.6	10	13
0.8	11	14
1.0	12	14
1.1	13	14
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS152415
Item	Ripple-Noise
Object	+15V1A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	9	15
0.2	9	16
0.4	10	16
0.6	11	16
0.8	13	16
1.0	16	16
1.1	17	17
--	-	-
--	-	-
--	-	-
--	-	-

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.

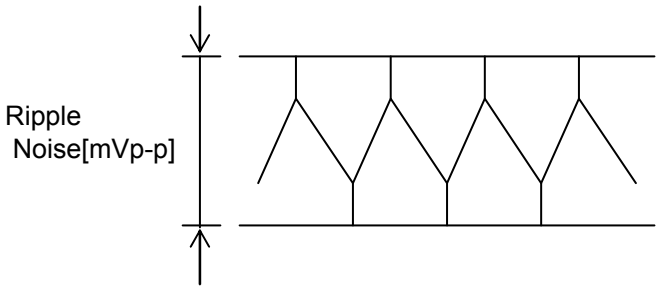
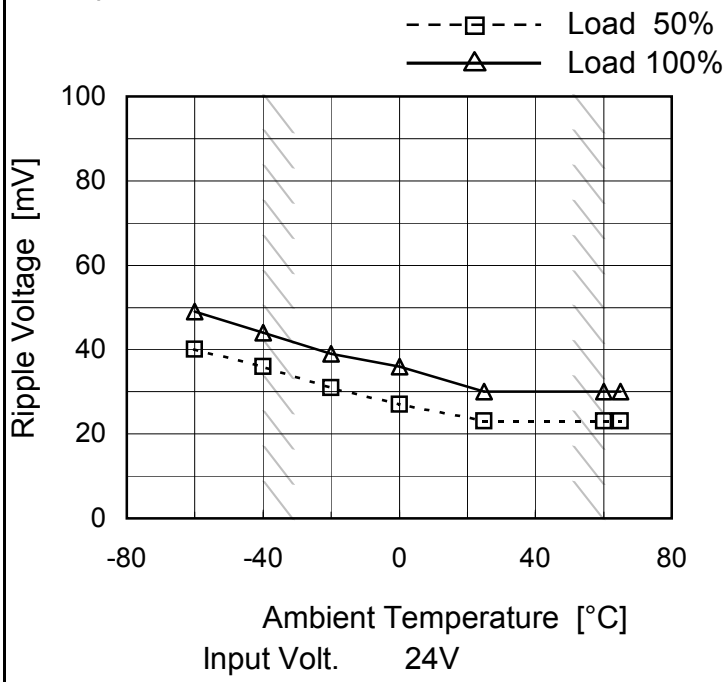


Fig.Complex Ripple Noise Wave Form

Model	MGFS152415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V1A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

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

2.Values

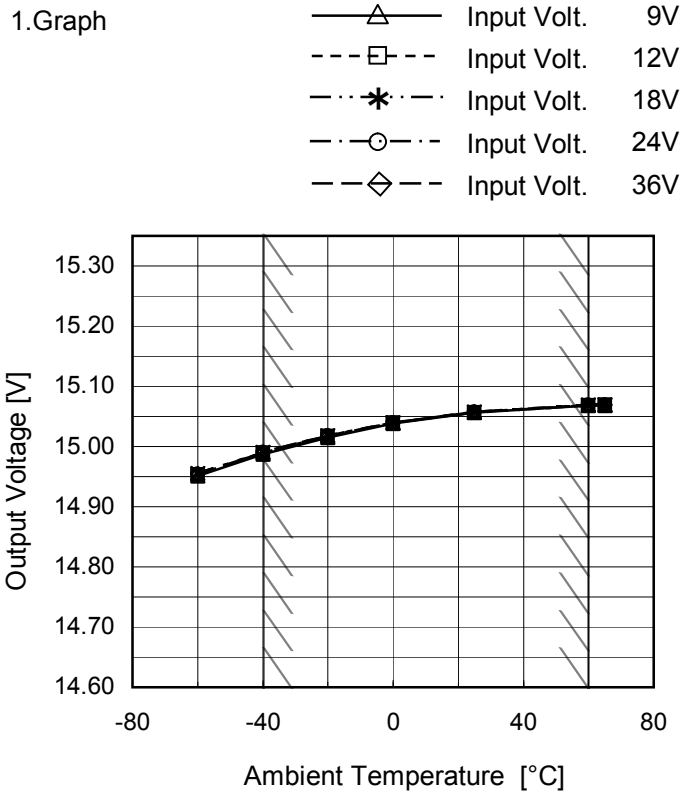
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	40	49
-40	36	44
-20	31	39
0	27	36
25	23	30
60	23	30
65	23	30
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS152415
Item	Ambient Temperature Drift
Object	+15V1A

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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	14.951	14.953	14.955	14.954	14.954
-40	14.987	14.989	14.991	14.991	14.990
-20	15.015	15.017	15.018	15.018	15.018
0	15.038	15.039	15.039	15.040	15.039
25	15.056	15.057	15.058	15.058	15.057
60	15.068	15.069	15.069	15.069	15.069
65	15.068	15.069	15.069	15.069	15.069
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFS152415	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V1A	

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 : 9 - 36V
Load Current : 0 - 1A

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

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2.Values

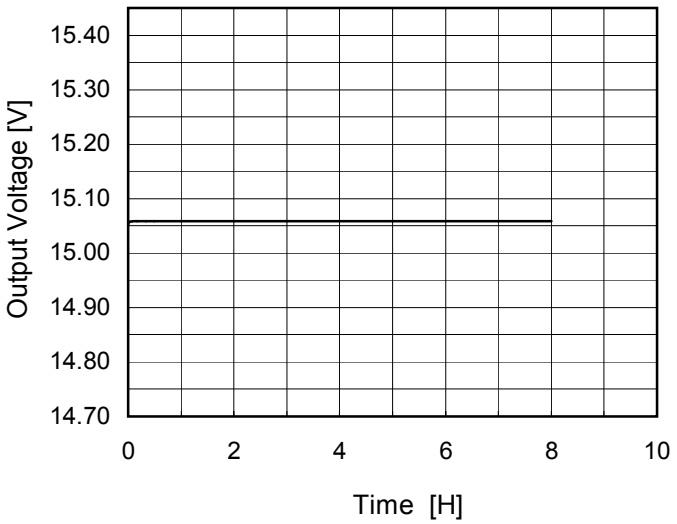
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	15.072	±43	±0.3
Minimum Voltage	-40	9	1	14.987		

COSEL

Model	MGFS152415
Item	Time Lapse Drift
Object	+15V1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	15.053
0.5	15.059
1.0	15.058
2.0	15.059
3.0	15.059
4.0	15.058
5.0	15.058
6.0	15.058
7.0	15.058
8.0	15.058

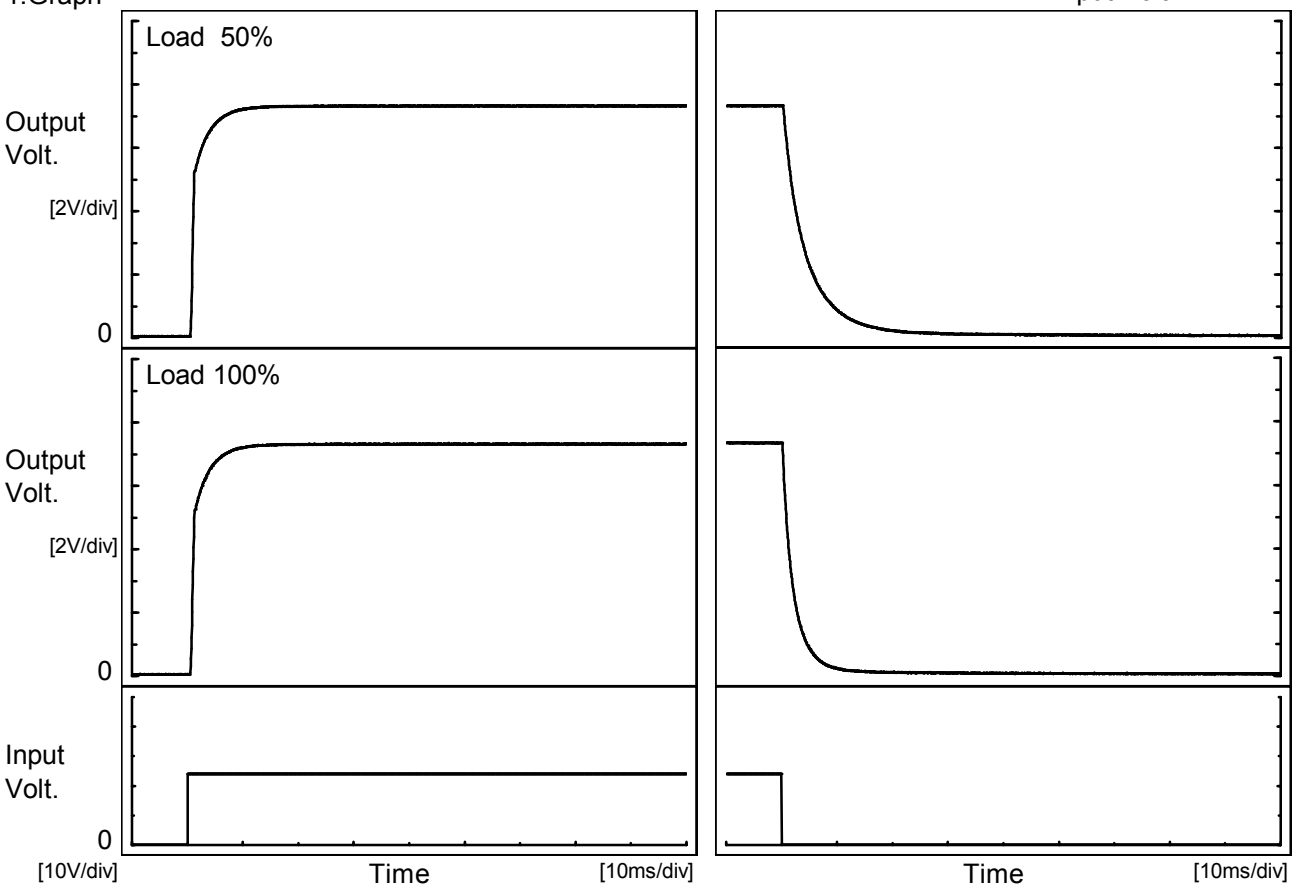
COSEL

Model	MGFS152415
Item	Rise and Fall Time
Object	+15V1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

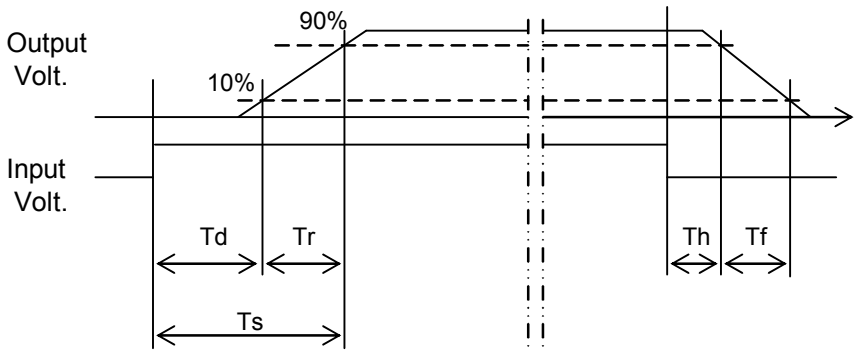
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	4.5	5.2	0.4	10.2
100 %	0.7	4.6	5.3	0.3	5.0

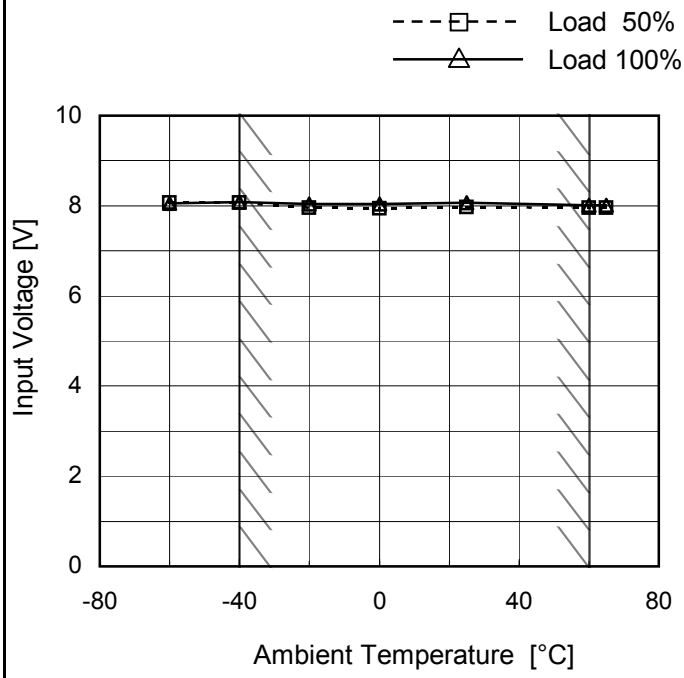


COSEL

Model	MGFS152415
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V1A

Testing Circuitry Figure A

1.Graph



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

2.Values

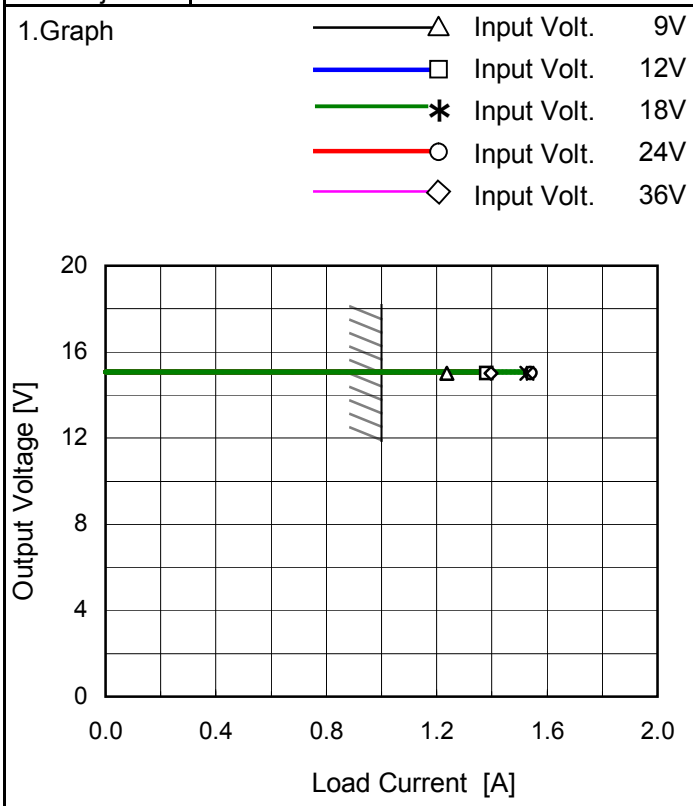
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.1
-40	8.1	8.1
-20	8.0	8.1
0	8.0	8.1
25	8.0	8.1
60	8.0	8.1
65	8.0	8.1
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS152415
Item	Overcurrent Protection
Object	+15V1A

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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
15.0	1.237	1.381	1.526	1.540	1.396
14.3	-	-	-	-	-
13.5	-	-	-	-	-
12.0	-	-	-	-	-
10.5	-	-	-	-	-
9.0	-	-	-	-	-
7.5	-	-	-	-	-
6.0	-	-	-	-	-
4.5	-	-	-	-	-
3.0	-	-	-	-	-
1.5	-	-	-	-	-
0.0	-	-	-	-	-

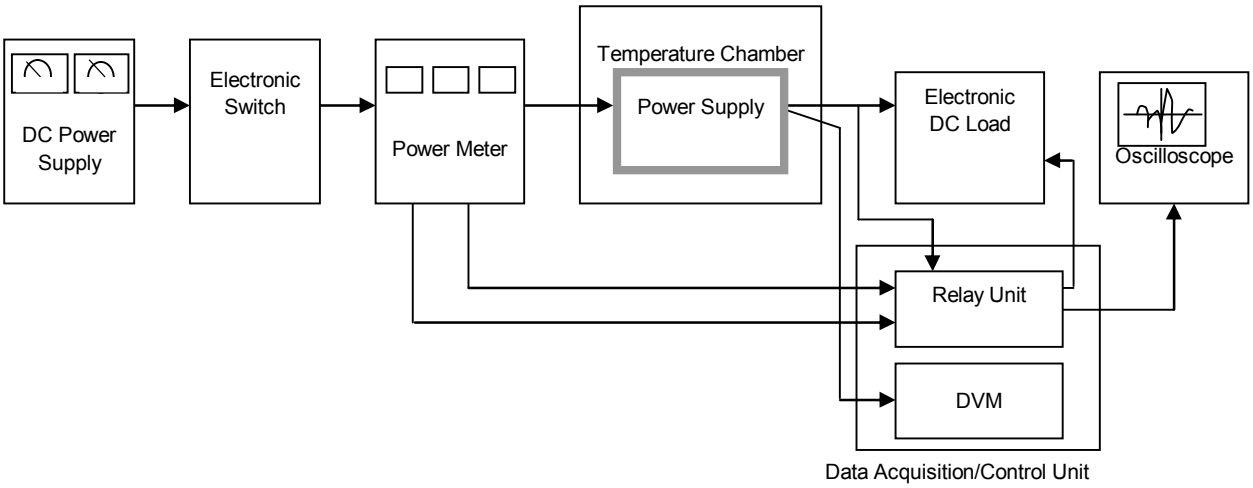


Figure A

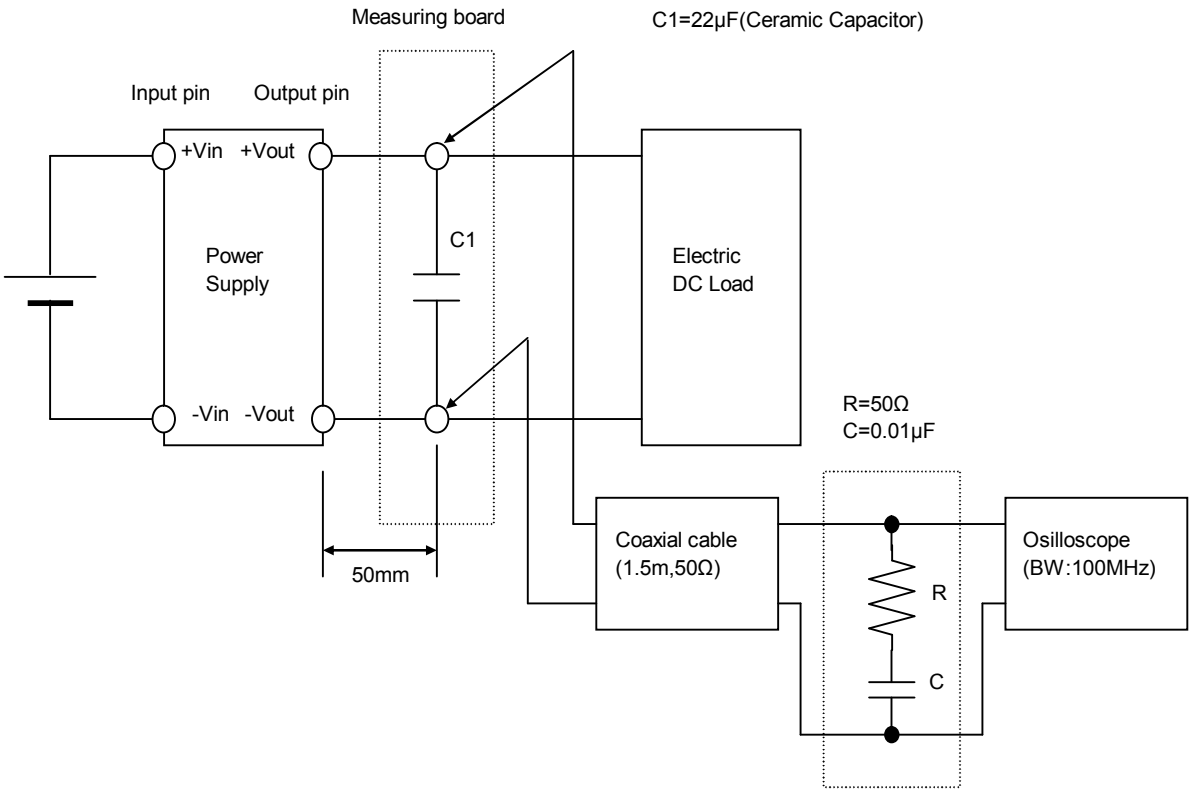


Figure B（Ripple and Ripple noise Characteristic）