COSEL

参考資料

TEST DATA OF MGS151212

Regulated DC Power Supply
September 11, 2010

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Shintaro Mizukami Design Engineer

COSEL CO.,LTD.

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Item	Input Current (by Input Voltage)
Object	————————

Temperature 25°C
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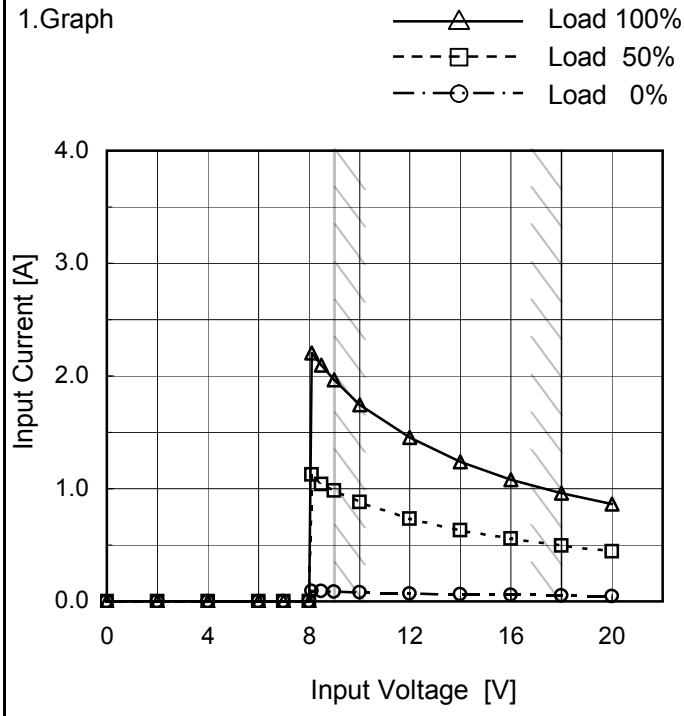


Note: Slanted line shows the range of the rated input voltage.

2.Values

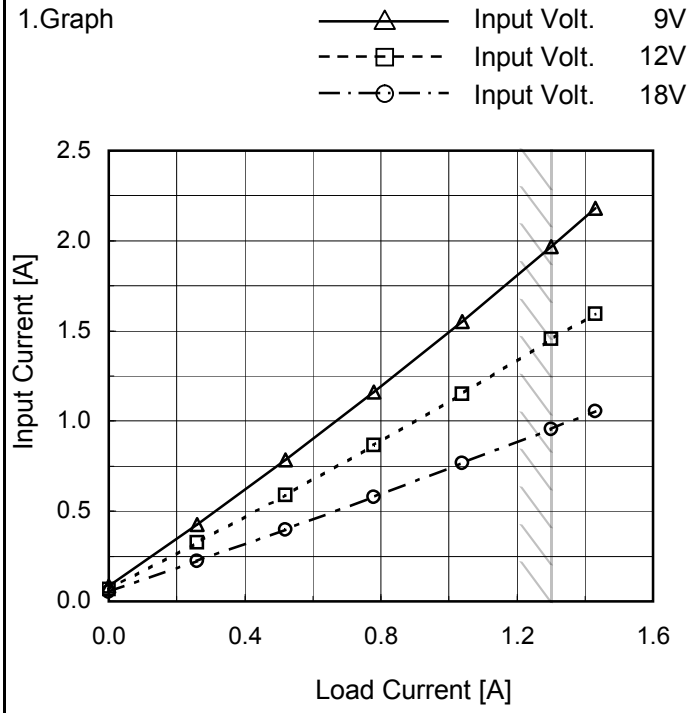
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.001	0.001	0.001
4.0	0.001	0.002	0.002
6.0	0.002	0.002	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.1	0.092	1.123	2.206
8.5	0.089	1.040	2.098
9.0	0.085	0.983	1.966
10.0	0.079	0.881	1.747
12.0	0.069	0.733	1.457
14.0	0.062	0.629	1.241
16.0	0.056	0.554	1.082
18.0	0.052	0.492	0.963
20.0	0.048	0.443	0.865
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGS151212
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

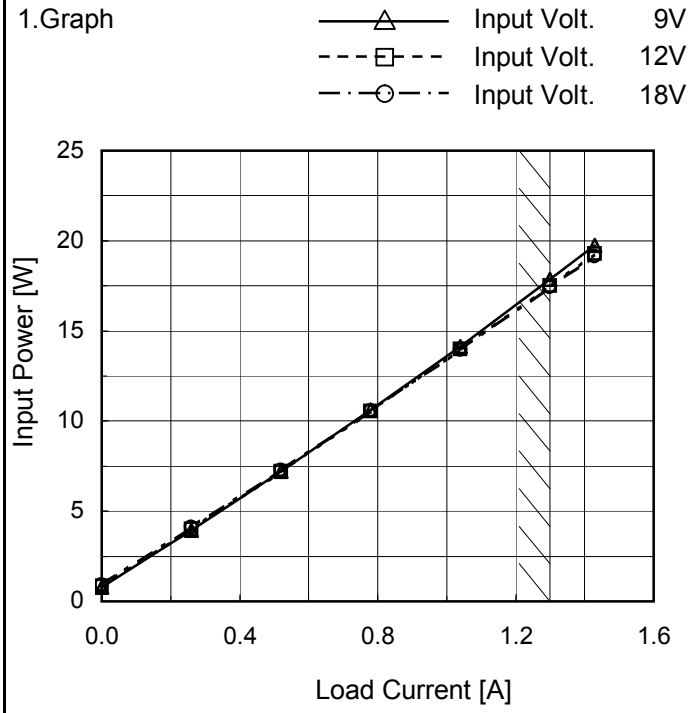
Load Current [A]	Input Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	0.084	0.069	0.052
0.26	0.428	0.326	0.224
0.52	0.785	0.590	0.399
0.78	1.161	0.865	0.580
1.04	1.553	1.150	0.767
1.30	1.968	1.457	0.957
1.43	2.182	1.593	1.054
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGS151212
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

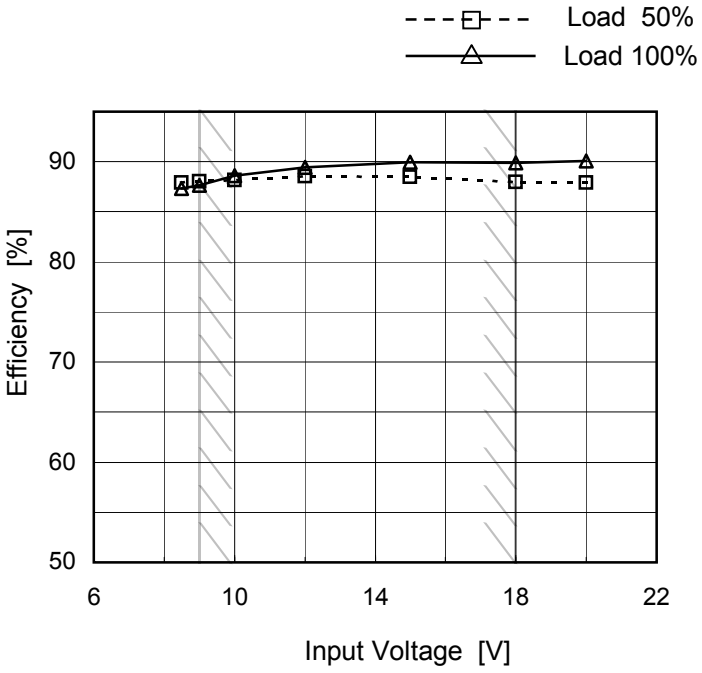
Load Current [A]	Input Power [W]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	0.78	0.84	0.94
0.26	3.94	4.00	4.11
0.52	7.21	7.22	7.29
0.78	10.62	10.56	10.59
1.04	14.13	13.99	13.96
1.30	17.85	17.49	17.42
1.43	19.73	19.28	19.13
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGS151212
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	87.9	87.3
9.0	88.1	87.7
10.0	88.2	88.6
12.0	88.5	89.4
15.0	88.5	89.9
18.0	88.0	89.9
20.0	87.9	90.1
--	-	-
--	-	-

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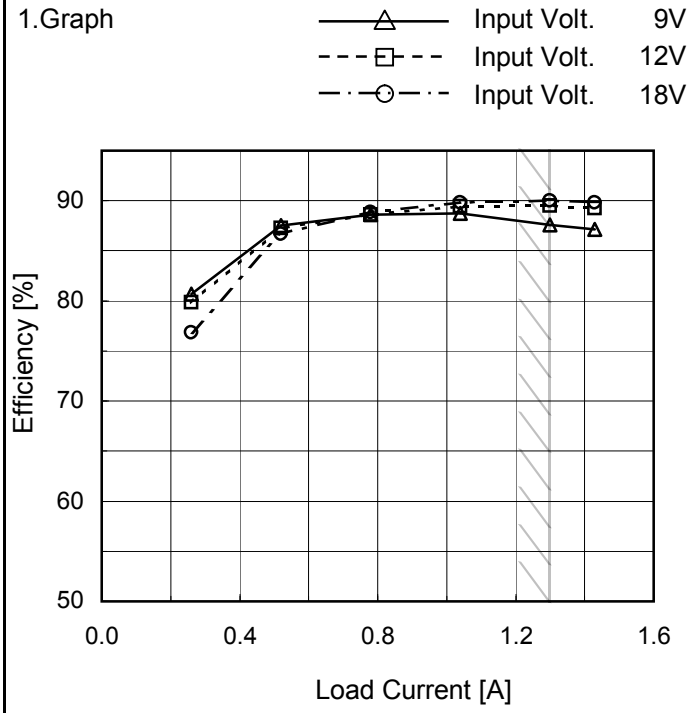
Model	MGS151212
Item	Efficiency (by Load Current)
Object	————————

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]
0.00	-	-	-
0.26	80.7	79.9	76.9
0.52	87.5	87.3	86.7
0.78	88.6	88.6	88.9
1.04	88.7	89.4	89.8
1.30	87.6	89.5	90.0
1.43	87.1	89.3	89.8
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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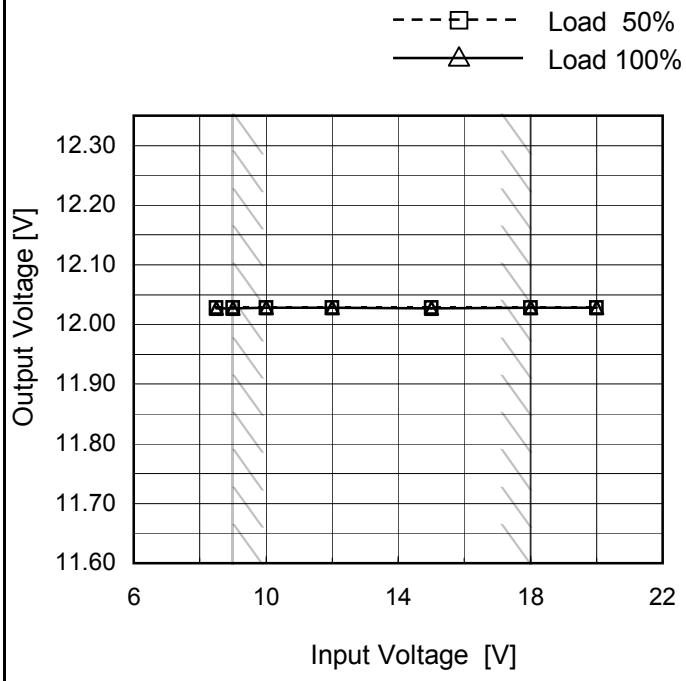
Model	MGS151212
Item	Line Regulation
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

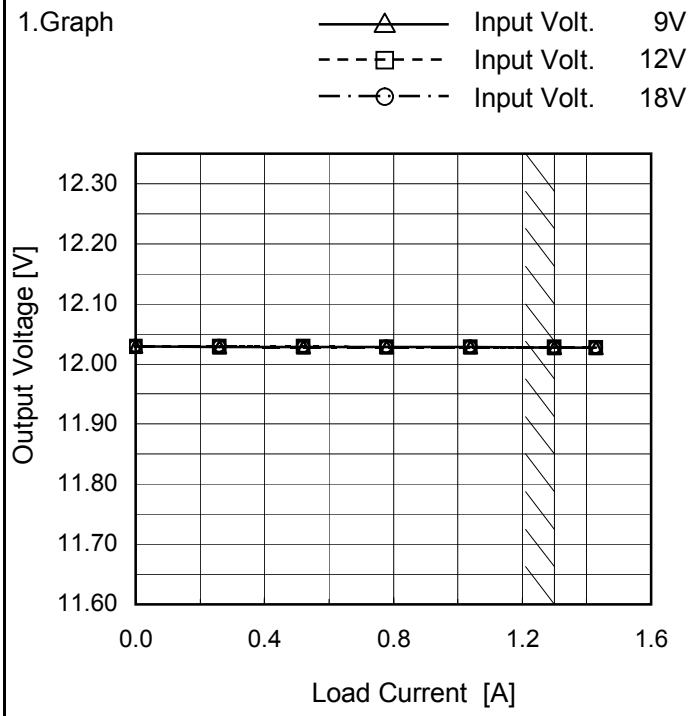
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	12.028	12.027
9.0	12.028	12.027
10.0	12.028	12.028
12.0	12.028	12.028
15.0	12.028	12.027
18.0	12.028	12.028
20.0	12.028	12.028
--	-	-
--	-	-

COSEL

Model	MGS151212
Item	Load Regulation
Object	+12V1.3A

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]
0.00	12.029	12.029	12.029
0.26	12.029	12.029	12.029
0.52	12.029	12.029	12.029
0.78	12.028	12.028	12.029
1.04	12.028	12.028	12.028
1.30	12.028	12.028	12.028
1.43	12.027	12.027	12.028
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

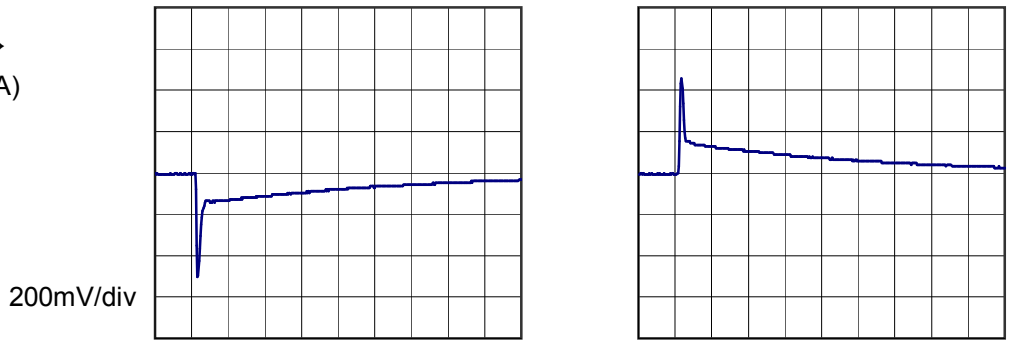
COSEL

Model	MGS151212
Item	Dynamic Load Response
Object	+12V1.3A

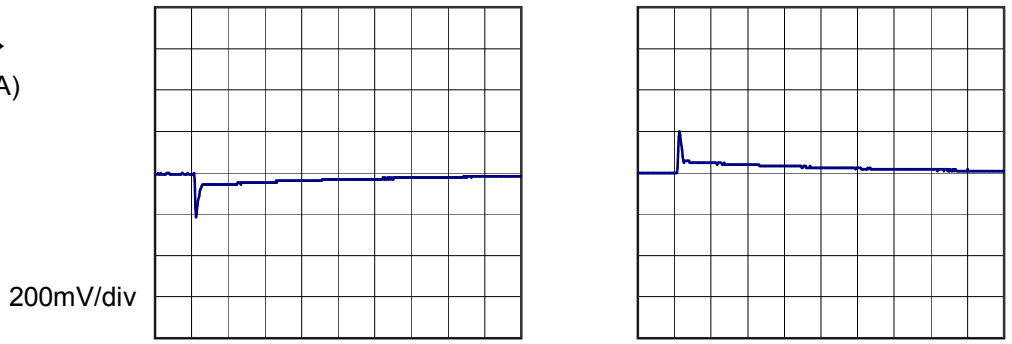
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 12 V
Cycle 1000 ms

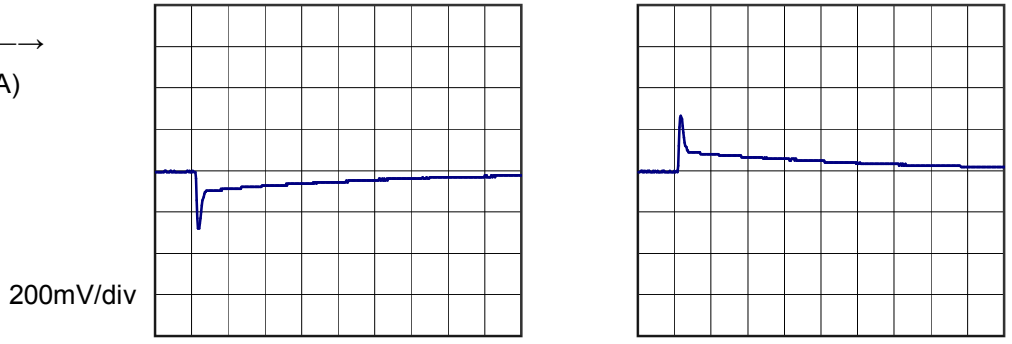
Min. Load (0A) ←→
Load 100% (1.3A)



Min. Load (0A) ←→
Load 50% (0.65A)



Load 50% (0.65A) ←→
Load 100% (1.3A)



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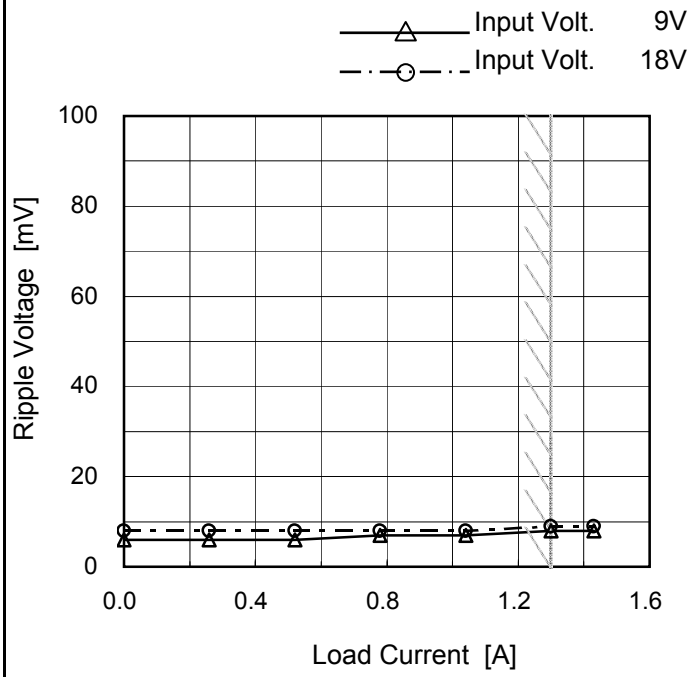
Model	MGS151212
Item	Ripple Voltage (by Load Current)
Object	+12V1.3A

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]

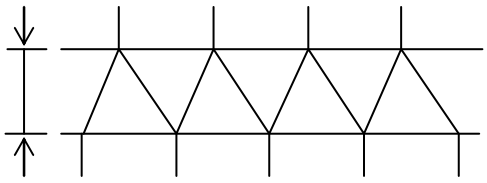


Fig.Complex Ripple Wave Form

2.Values

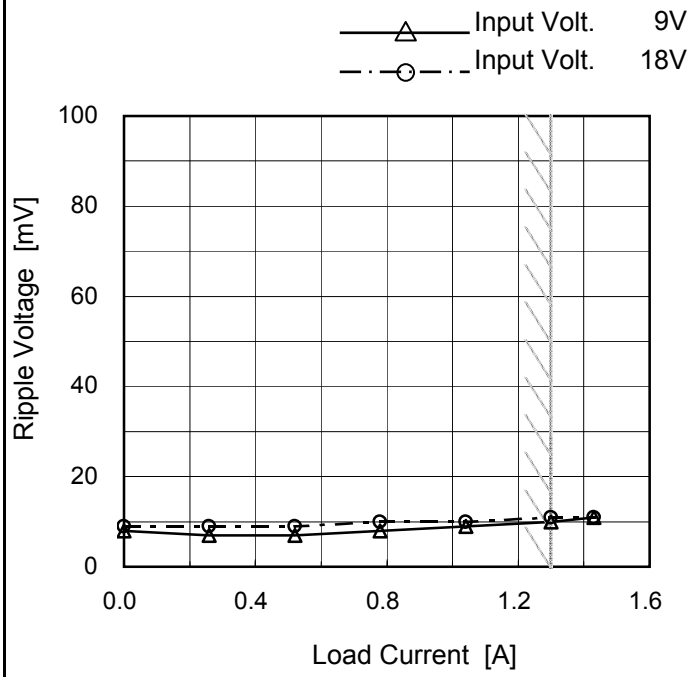
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	6	8
0.26	6	8
0.52	6	8
0.78	7	8
1.04	7	8
1.30	8	9
1.43	8	9
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS151212
Item	Ripple-Noise
Object	+12V1.3A

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.

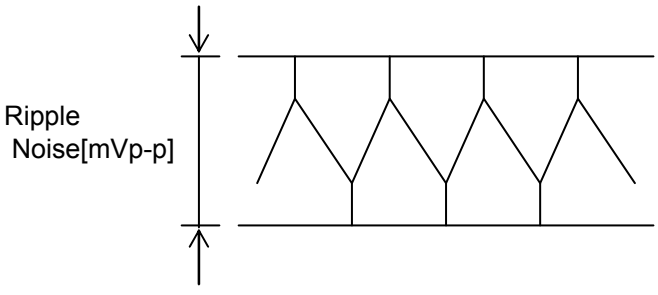


Fig.Complex Ripple Noise Wave Form

2.Values

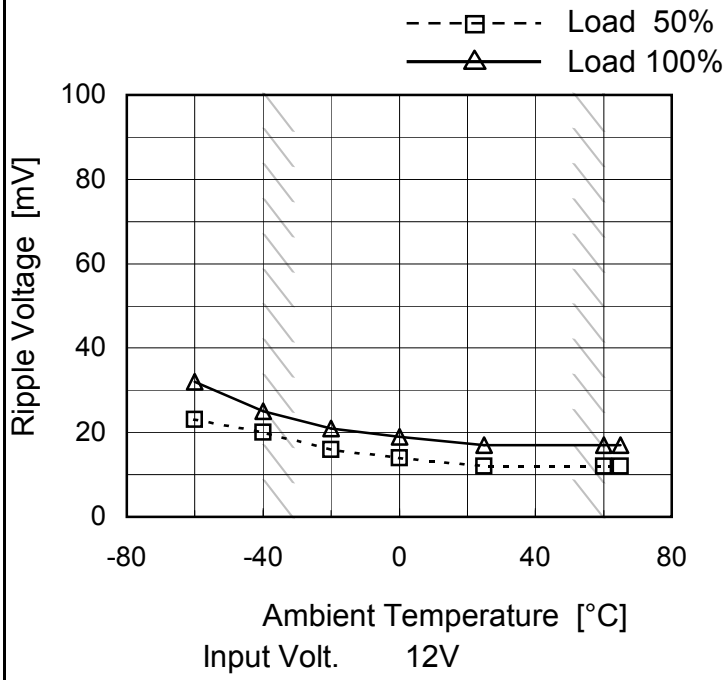
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	8	9
0.26	7	9
0.52	7	9
0.78	8	10
1.04	9	10
1.30	10	11
1.43	11	11
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS151212
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.3A

Testing Circuitry Figure B

1.Graph



Input Volt. 12V

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

2.Values

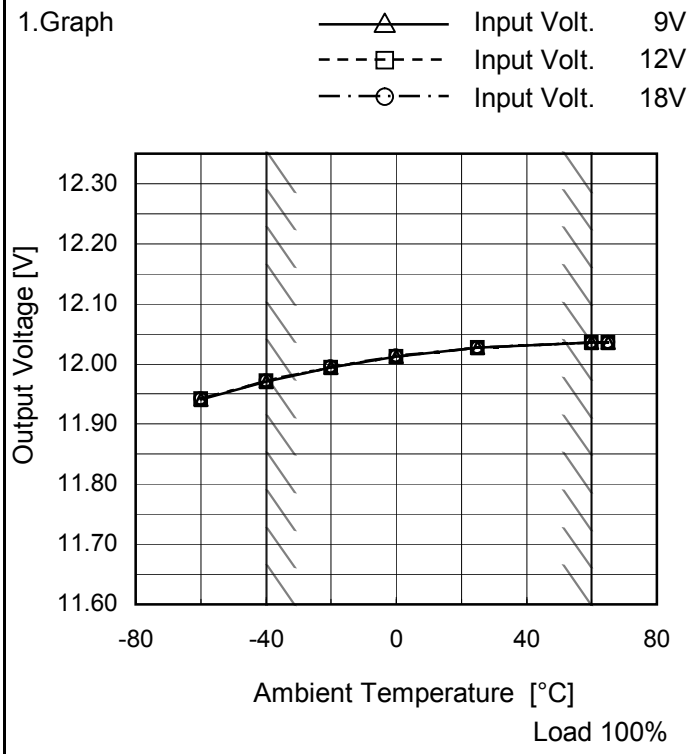
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	23	32
-40	20	25
-20	16	21
0	14	19
25	12	17
60	12	17
65	12	17
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS151212
Item	Ambient Temperature Drift
Object	+12V1.3A

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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	11.941	11.942	11.943
-40	11.971	11.972	11.972
-20	11.994	11.995	11.995
0	12.012	12.013	12.013
25	12.027	12.027	12.027
60	12.036	12.036	12.036
65	12.036	12.036	12.036
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGS151212	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V1.3A	

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 - 18V
Load Current : 0 - 1.3A

* 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

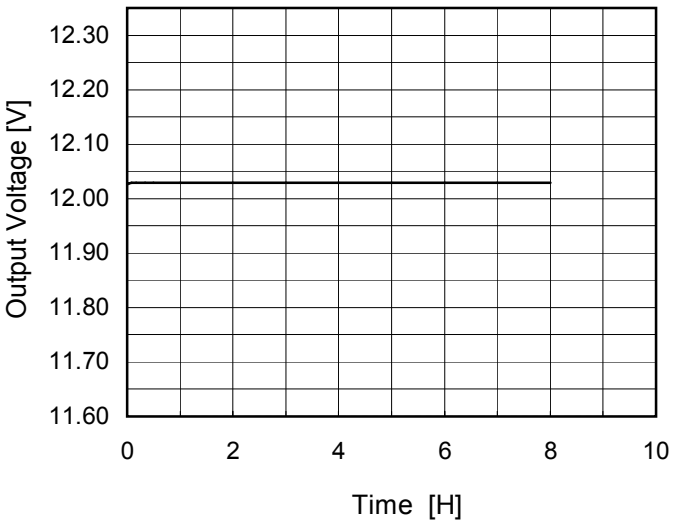
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	12.038	±34	±0.3
Minimum Voltage	-40	9	1.3	11.971		

COSEL

Model	MGS151212
Item	Time Lapse Drift
Object	+12V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 12V
Load 100%

2.Values

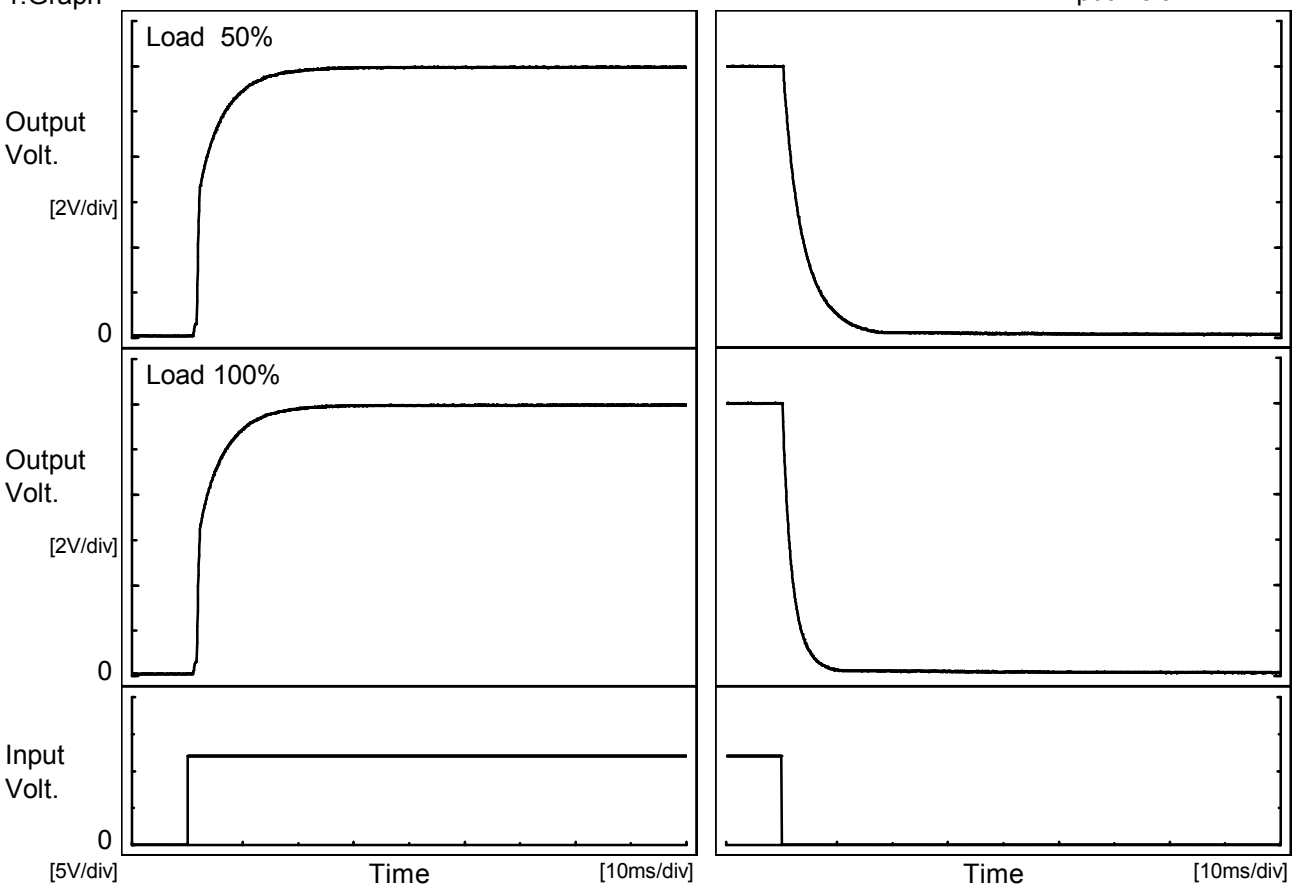
Time since start [H]	Output Voltage [V]
0.0	12.025
0.5	12.029
1.0	12.029
2.0	12.029
3.0	12.029
4.0	12.029
5.0	12.029
6.0	12.029
7.0	12.029
8.0	12.029

COSEL

Model	MGS151212	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V1.3A	

1.Graph

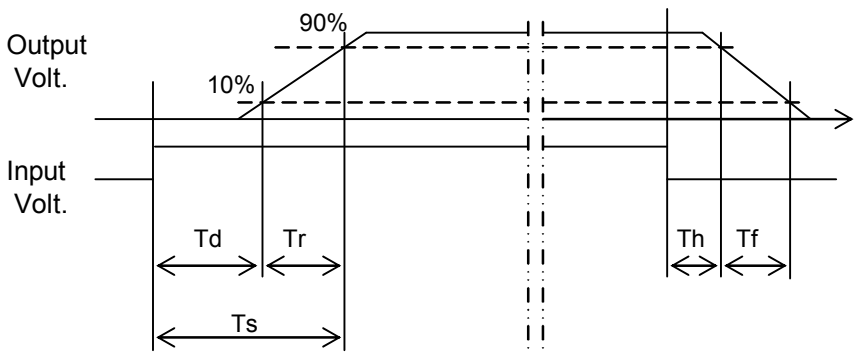
Input Volt. 12 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.8	8.1	9.9	0.4	8.5
100 %	1.8	8.2	10.0	0.3	4.3

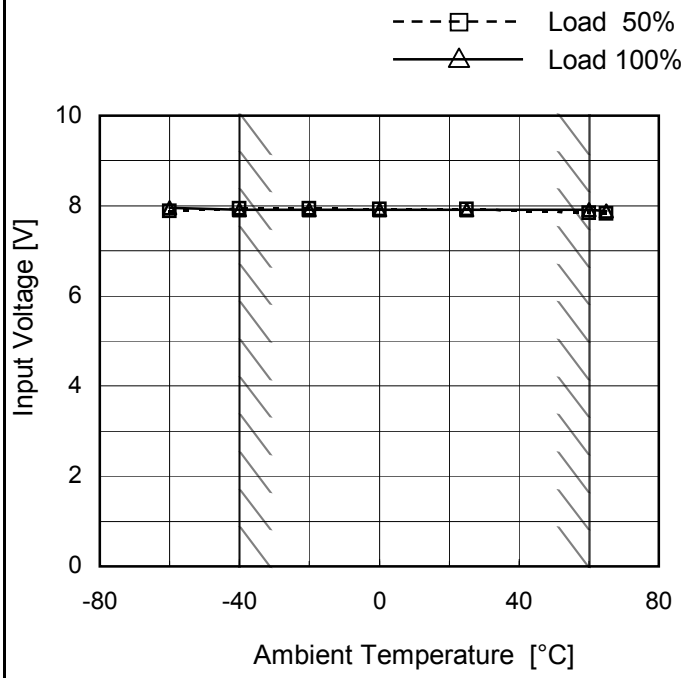


COSEL

Model	MGS151212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.3A

Testing Circuitry Figure A

1.Graph



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

2.Values

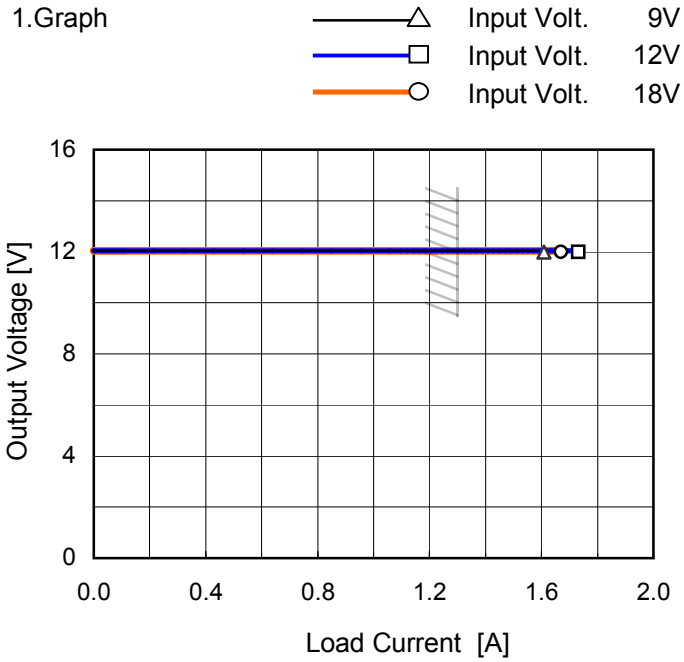
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	7.9	8.0
-40	8.0	8.0
-20	8.0	8.0
0	8.0	8.0
25	8.0	8.0
60	7.9	8.0
65	7.9	7.9
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS151212
Item	Overcurrent Protection
Object	+12V1.3A

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]
12.0	1.61	1.73	1.67
11.4	-	-	-
10.8	-	-	-
9.6	-	-	-
8.4	-	-	-
7.2	-	-	-
6.0	-	-	-
4.8	-	-	-
3.6	-	-	-
2.4	-	-	-
1.2	-	-	-
0.0	-	-	-

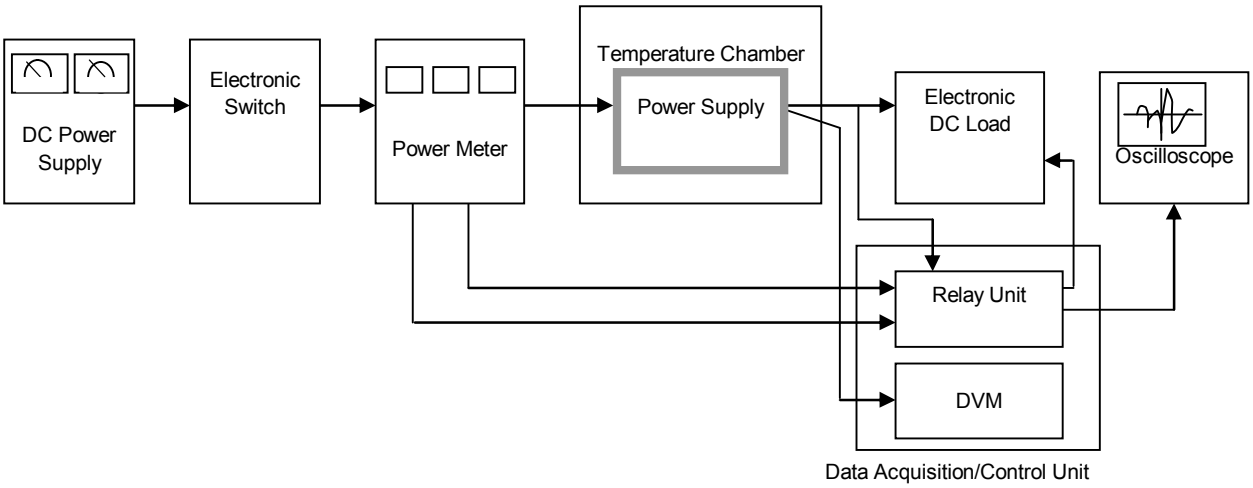


Figure A

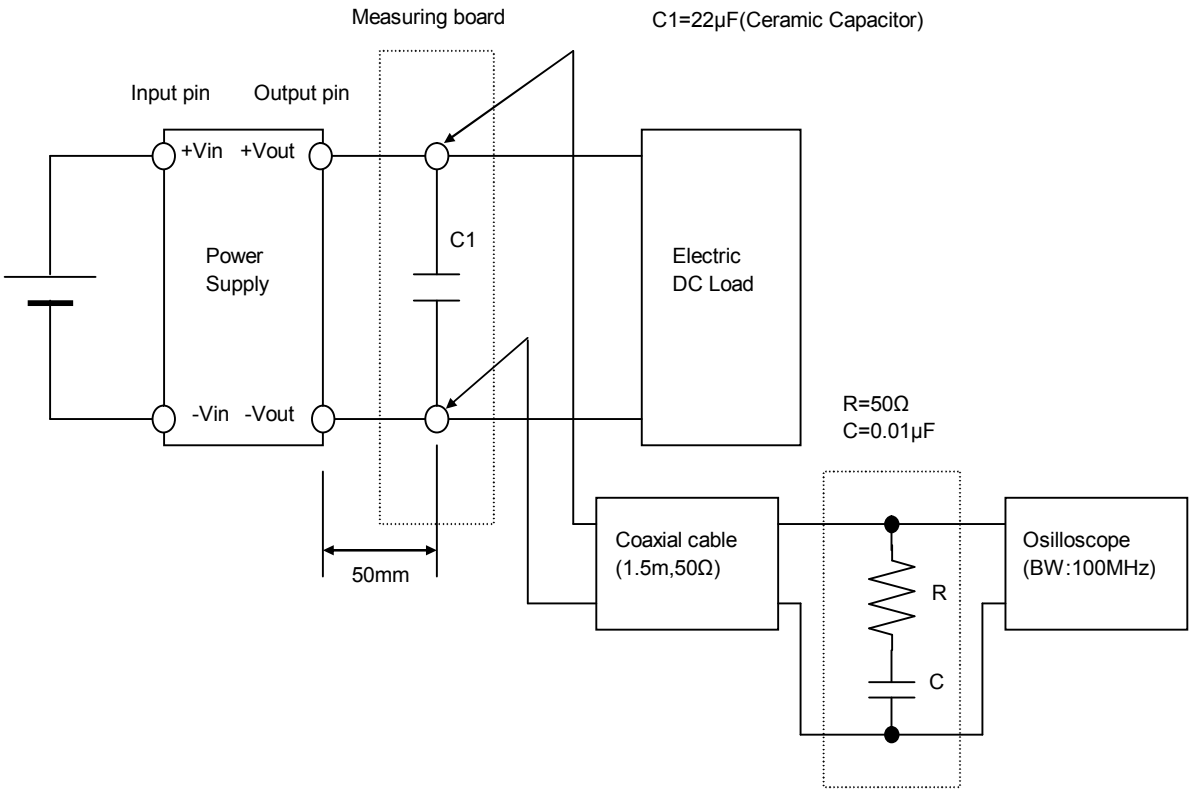


Figure B（Ripple and Ripple noise Characteristic）