参考資料

COSEL

TEST DATA OF MGS31212

Regulated DC Power Supply
March 24, 2016

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COSEL CO.,LTD.

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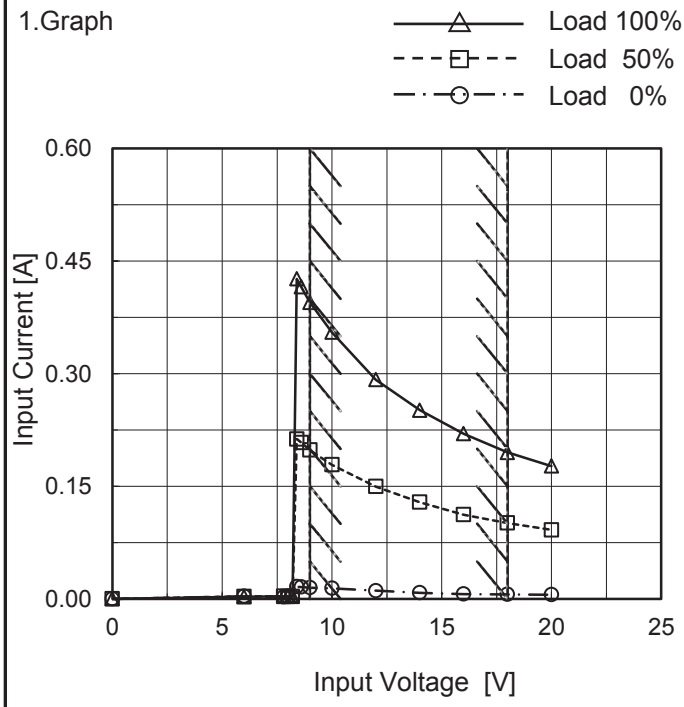

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
6.0	0.003	0.003	0.003
7.8	0.003	0.004	0.003
8.0	0.003	0.003	0.004
8.2	0.004	0.003	0.004
8.4	0.016	0.213	0.426
8.6	0.016	0.208	0.416
9.0	0.015	0.198	0.395
10.0	0.014	0.179	0.355
12.0	0.011	0.150	0.292
14.0	0.008	0.129	0.251
16.0	0.007	0.112	0.220
18.0	0.006	0.101	0.195
20.0	0.006	0.092	0.177
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-10980

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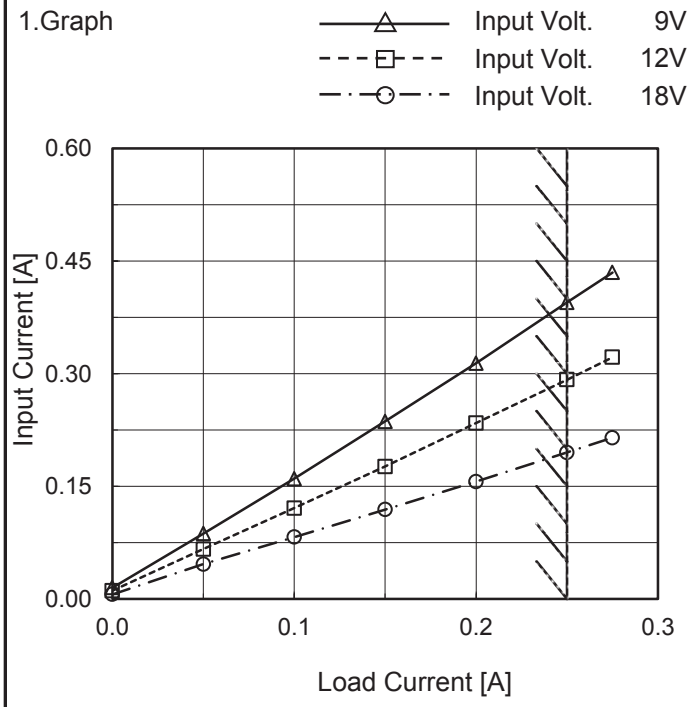
Model	MGS31212
Item	Input Current (by Load Current)
Object	————————

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]
0.000	0.015	0.011	0.006
0.050	0.087	0.066	0.046
0.100	0.160	0.121	0.082
0.150	0.237	0.176	0.119
0.200	0.314	0.234	0.156
0.250	0.395	0.292	0.195
0.275	0.435	0.322	0.215
--	-	-	-
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--	-	-	-
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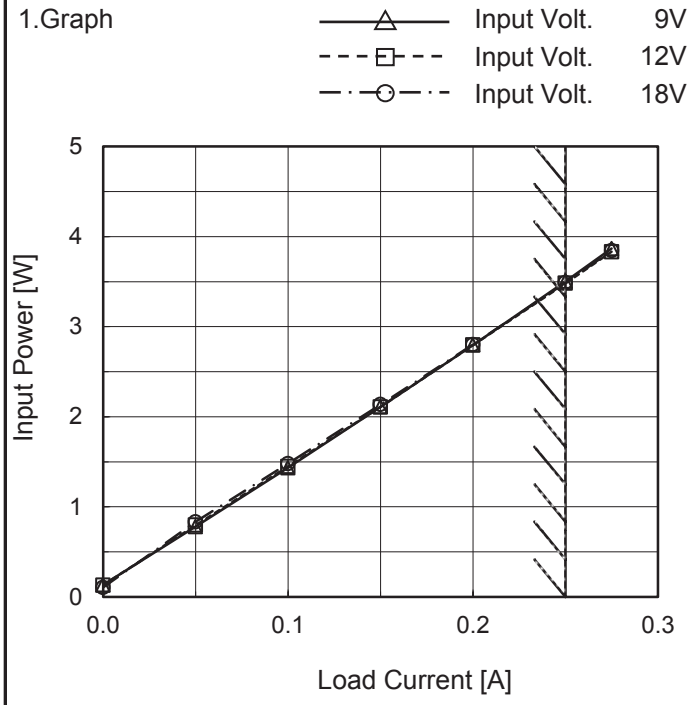
COSEL

Model	MGS31212
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]
0.000	0.13	0.13	0.11
0.050	0.78	0.80	0.83
0.100	1.43	1.45	1.48
0.150	2.11	2.11	2.13
0.200	2.80	2.80	2.80
0.250	3.50	3.48	3.49
0.275	3.87	3.83	3.84
--	-	-	-
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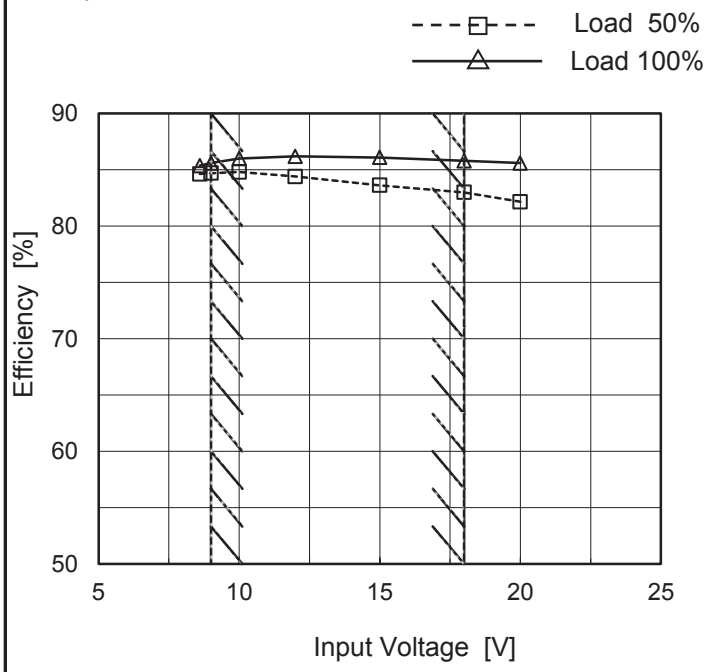
--	-	-	-

COSEL

Model	MGS31212
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

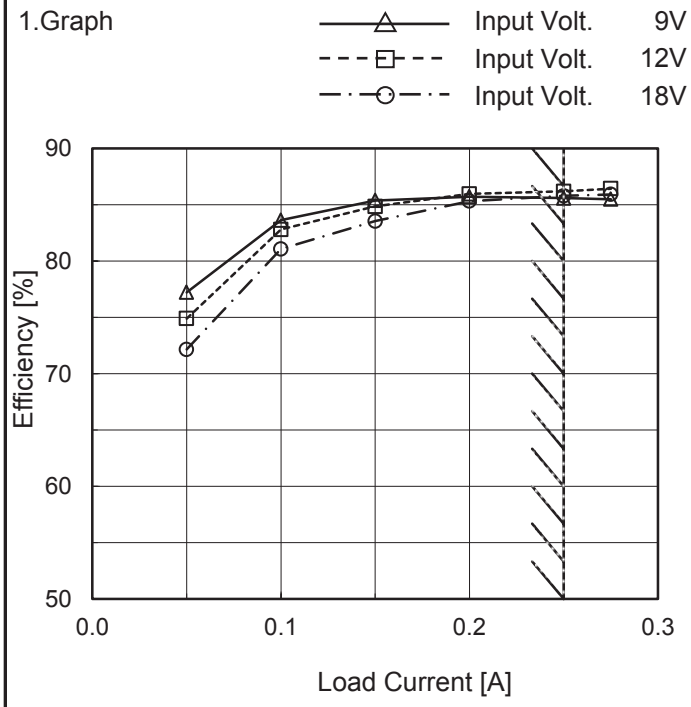
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.6	84.6	85.4
9.0	84.7	85.6
10.0	84.8	86.0
12.0	84.4	86.2
15.0	83.6	86.1
18.0	83.0	85.8
20.0	82.2	85.6
--	-	-
--	-	-

COSEL

Model	MGS31212
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]
0.000	-	-	-
0.050	77.2	74.9	72.2
0.100	83.6	82.8	81.1
0.150	85.4	84.9	83.5
0.200	85.7	86.0	85.3
0.250	85.6	86.2	85.8
0.275	85.5	86.4	85.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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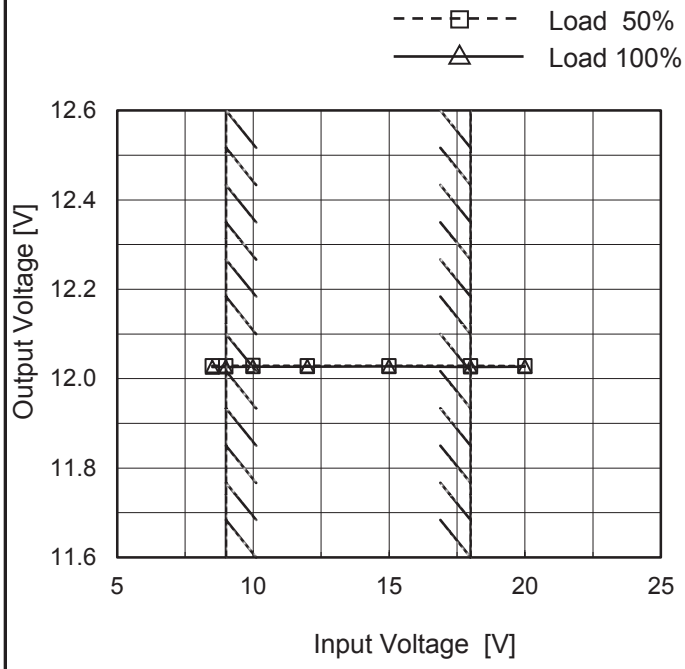
Model	MGS31212
Item	Line Regulation
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

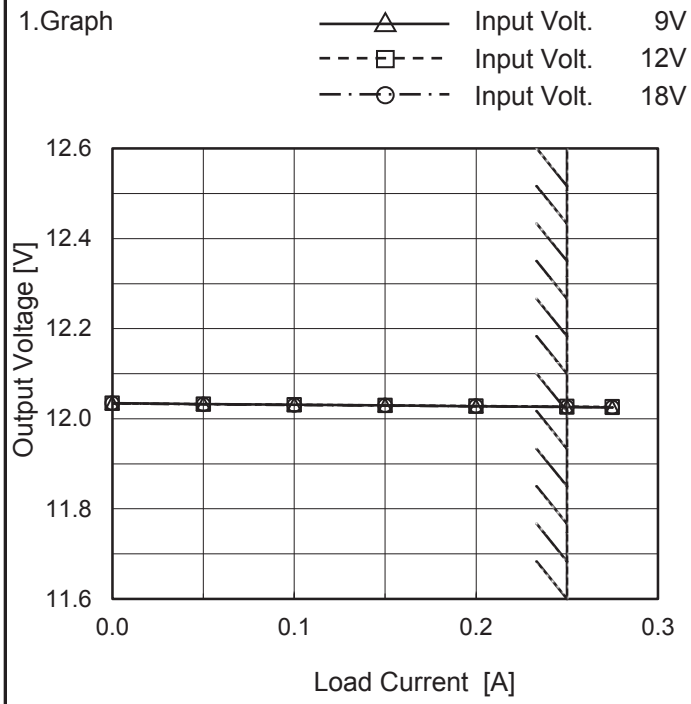
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	12.029	12.026
9.0	12.029	12.026
10.0	12.029	12.027
12.0	12.029	12.027
15.0	12.029	12.027
18.0	12.029	12.026
20.0	12.028	12.027
--	-	-
--	-	-

COSEL

Model	MGS31212
Item	Load Regulation
Object	+12V0.25A

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]
0.000	12.034	12.034	12.034
0.050	12.033	12.032	12.032
0.100	12.031	12.031	12.030
0.150	12.030	12.030	12.029
0.200	12.028	12.028	12.028
0.250	12.026	12.027	12.026
0.275	12.025	12.026	12.025
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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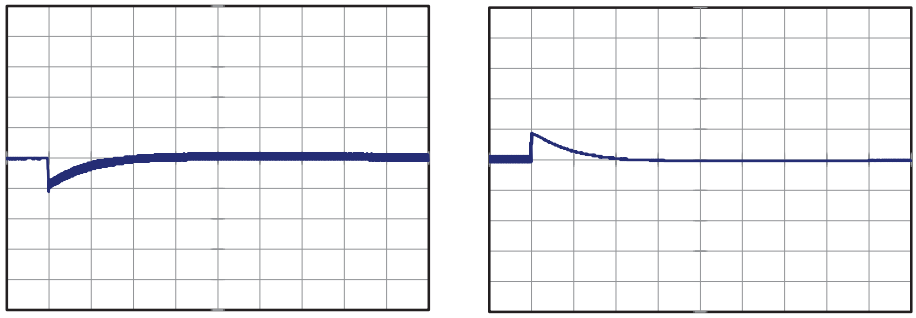
Model	MGS31212	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.25A	

Input Volt. 12 V
Cycle 1000 ms

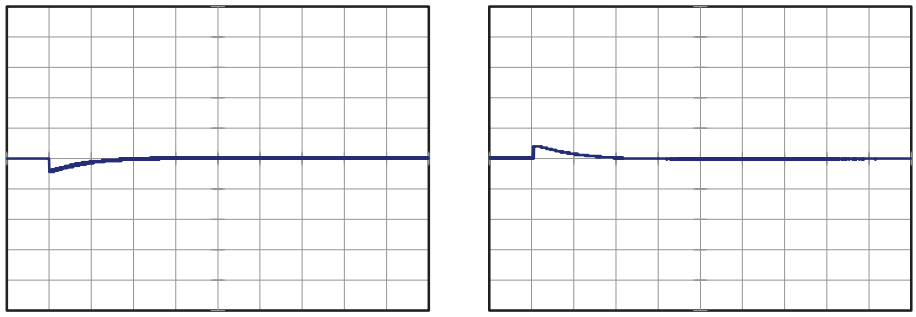
Min.Load (0A)⟷
Load 100% (0.25A)



200 mV/div

4 ms/div 4 ms/div

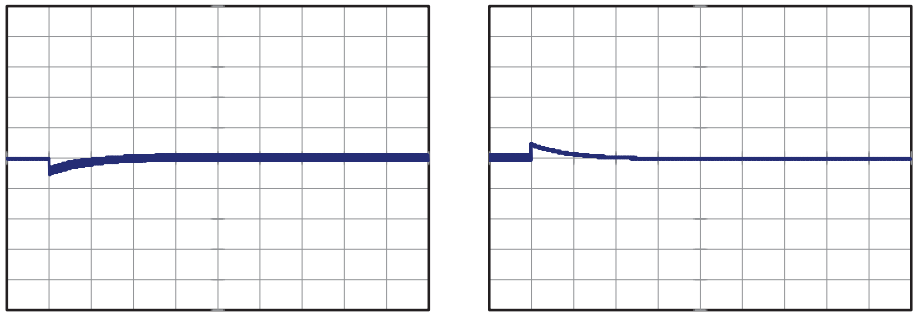
Min.Load (0A)⟷
Load 50% (0.125A)



200 mV/div

4 ms/div 4 ms/div

Load 50% (0.125A)⟷
Load 100% (0.25A)



200 mV/div

4 ms/div 4 ms/div

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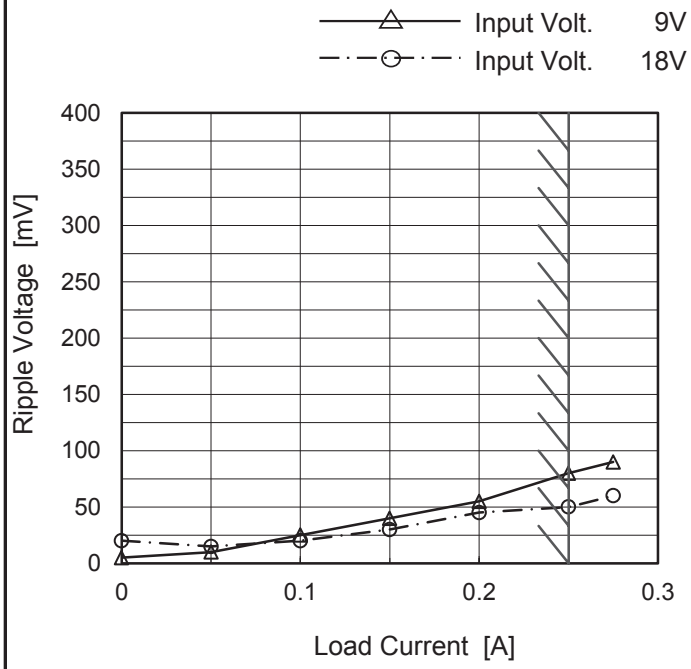
Model	MGS31212
Item	Ripple Voltage (by Load Current)
Object	+12V0.25A

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.

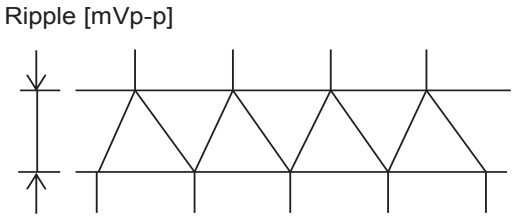


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.000	5	20
0.050	10	15
0.100	25	20
0.150	40	30
0.200	55	45
0.250	80	50
0.275	90	60
--	-	-
--	-	-
--	-	-
--	-	-

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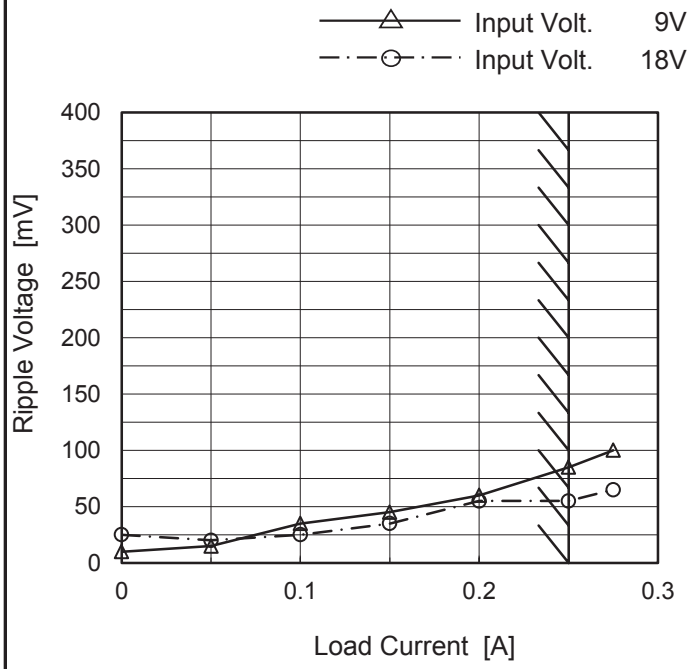
Model	MGS31212
Item	Ripple-Noise
Object	+12V0.25A

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.

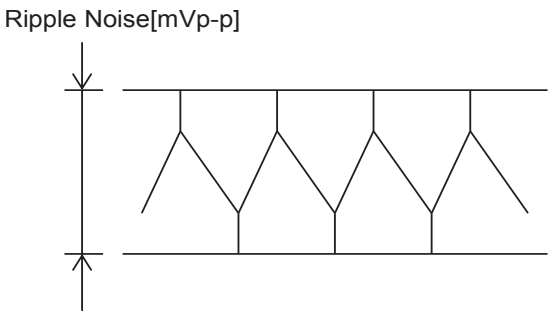


Fig.Complex Ripple Noise Wave Form

2.Values

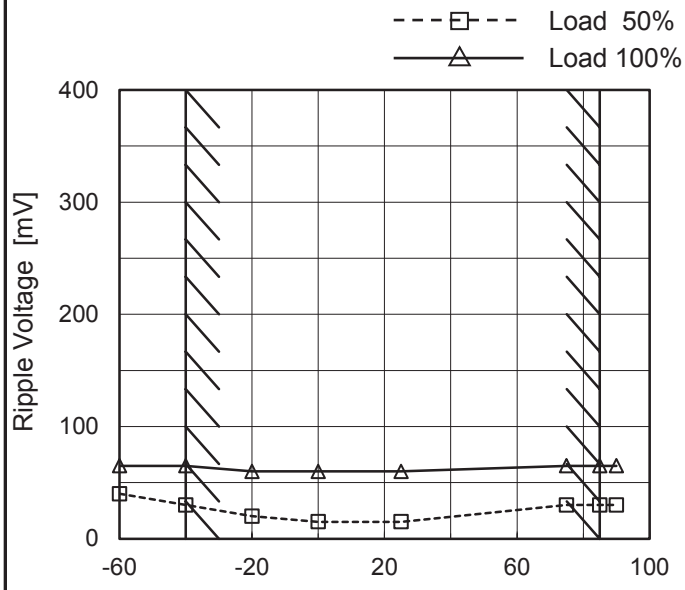
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.000	10	25
0.050	15	20
0.100	35	25
0.150	45	35
0.200	60	55
0.250	85	55
0.275	100	65
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS31212
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.25A

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	40	65
-40	30	65
-20	20	60
0	15	60
25	15	60
75	30	65
85	30	65
90	30	65
--	-	-
--	-	-
--	-	-

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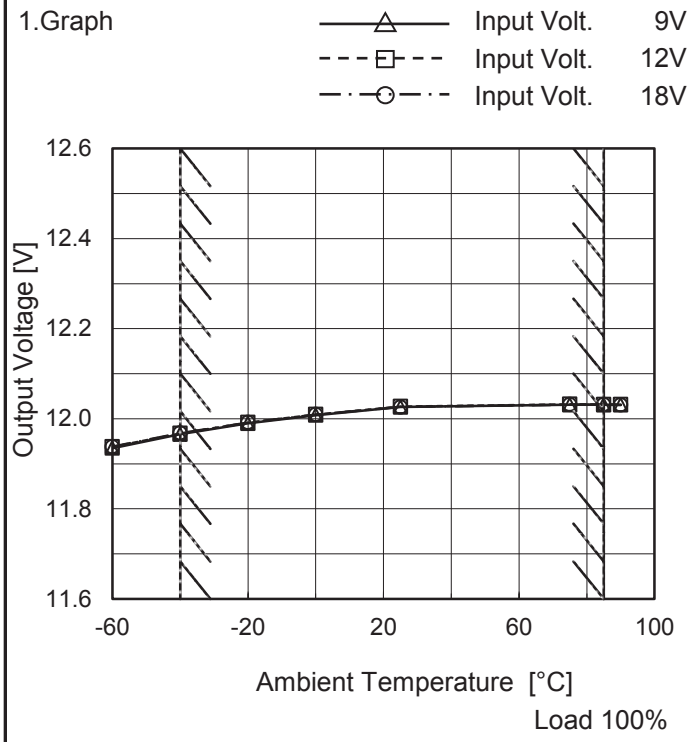
Model	MGS31212
Item	Ambient Temperature Drift
Object	+12V0.25A

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	11.935	11.937	11.938
-40	11.966	11.968	11.968
-20	11.990	11.991	11.992
0	12.008	12.009	12.009
25	12.026	12.027	12.026
75	12.031	12.032	12.032
85	12.031	12.032	12.031
90	12.031	12.031	12.031
--	-	-	-
--	-	-	-
--	-	-	-

Model	MGS31212	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V0.25A	

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 - 85°C
Input Voltage : 9 - 18V
Load Current : 0 - 0.25A

* 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	85	18	0	12.042	±38	±0.3
Minimum Voltage	-40	9	0.25	11.966		

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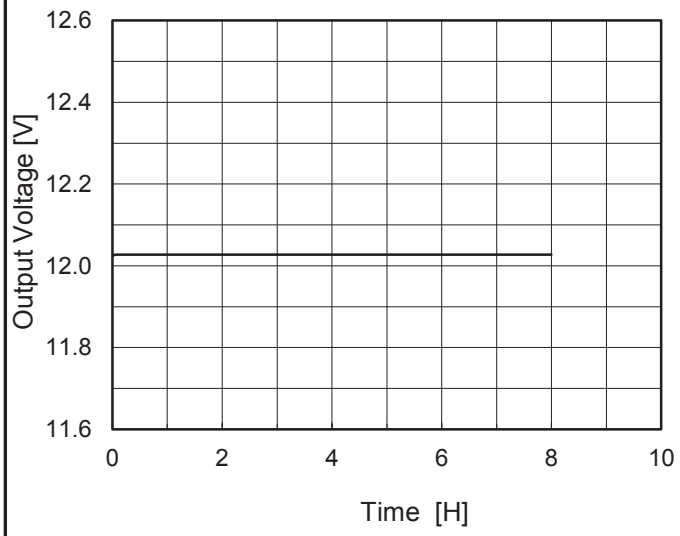
Model	MGS31212
Item	Time Lapse Drift
Object	+12V0.25A

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	12.024
0.5	12.027
1.0	12.028
2.0	12.027
3.0	12.027
4.0	12.027
5.0	12.027
6.0	12.027
7.0	12.027
8.0	12.027

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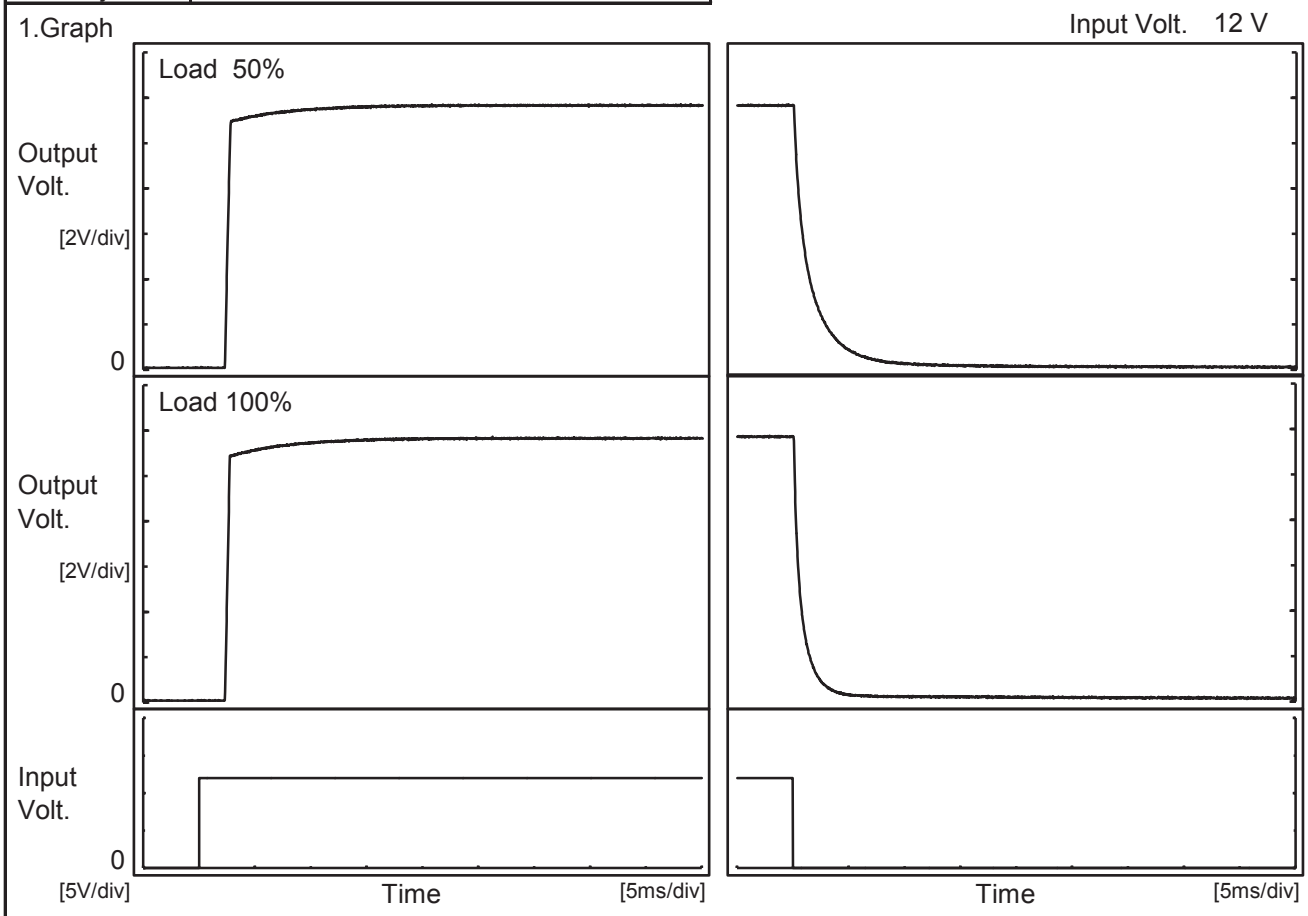
Model	MGS31212	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.25A	

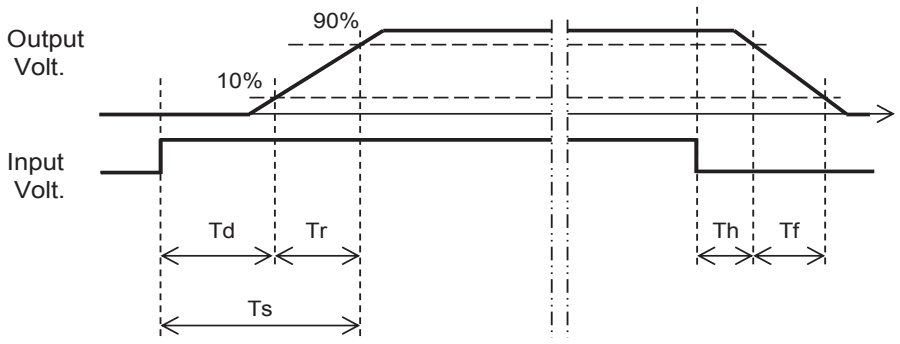
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.4	0.5	2.9	0.2	3.8
100 %	2.4	0.4	2.8	0.1	1.9

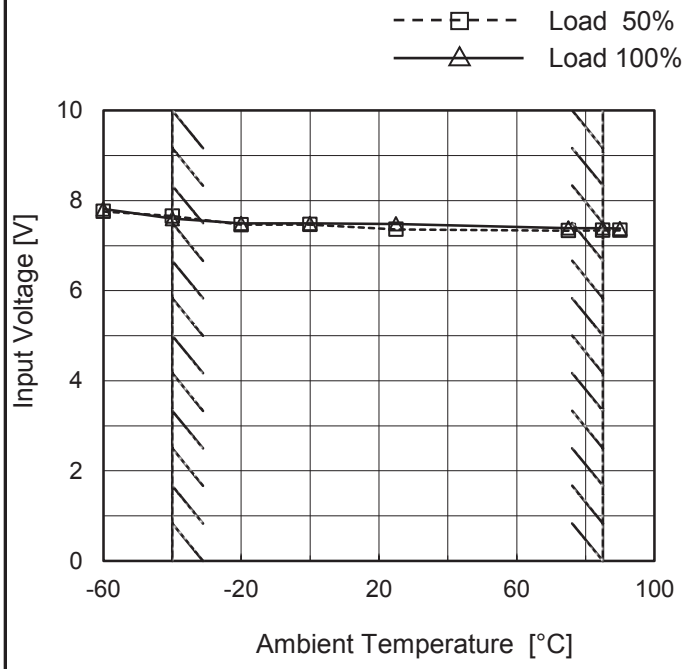


COSEL

Model	MGS31212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.25A

Testing Circuitry Figure A

1.Graph



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

2.Values

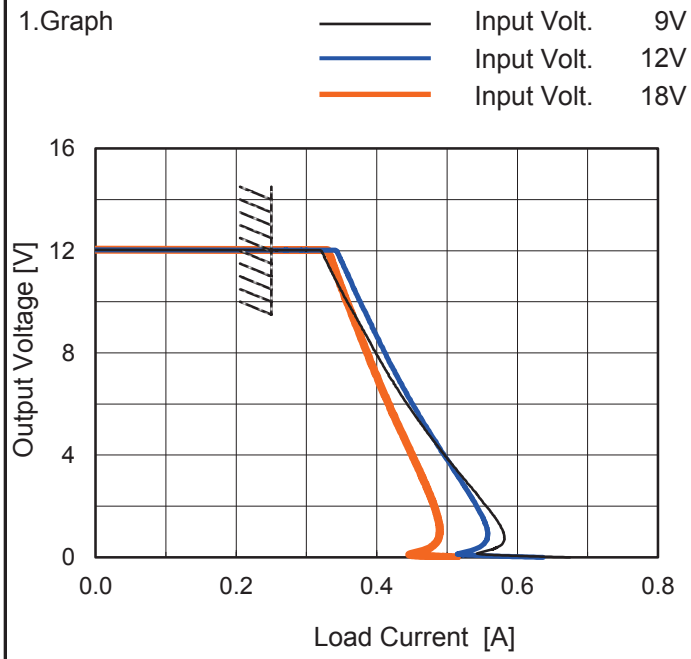
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	7.8	7.9
-40	7.7	7.6
-20	7.5	7.5
0	7.5	7.5
25	7.4	7.5
75	7.4	7.4
85	7.4	7.4
90	7.4	7.4
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS31212
Item	Overcurrent Protection
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
12.0	0.25	0.25	0.25
11.4	0.33	0.35	0.34
10.8	0.34	0.36	0.35
9.6	0.37	0.38	0.36
8.4	0.39	0.40	0.38
7.2	0.41	0.43	0.40
6.0	0.44	0.45	0.42
4.8	0.47	0.48	0.44
3.6	0.51	0.51	0.46
2.4	0.54	0.53	0.48
1.2	0.58	0.56	0.49
0.0	0.68	0.64	0.51

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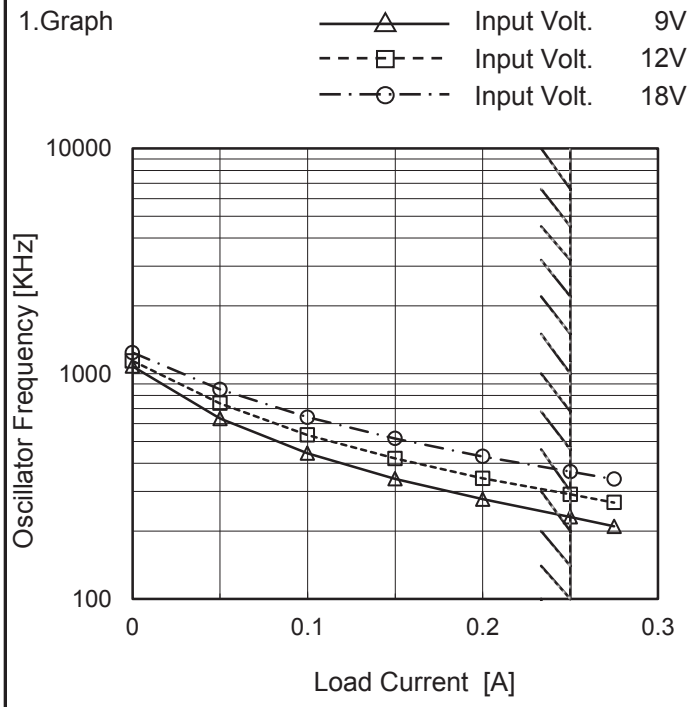
Model	MGS31212
Item	Switching frequency (by Load Current)
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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.

2.Values

Load Current [A]	Frequency [kHz]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.000	1080	1140	1240
0.050	632	739	851
0.100	443	534	641
0.150	341	420	515
0.200	277	343	429
0.250	231	291	367
0.275	210	268	340
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

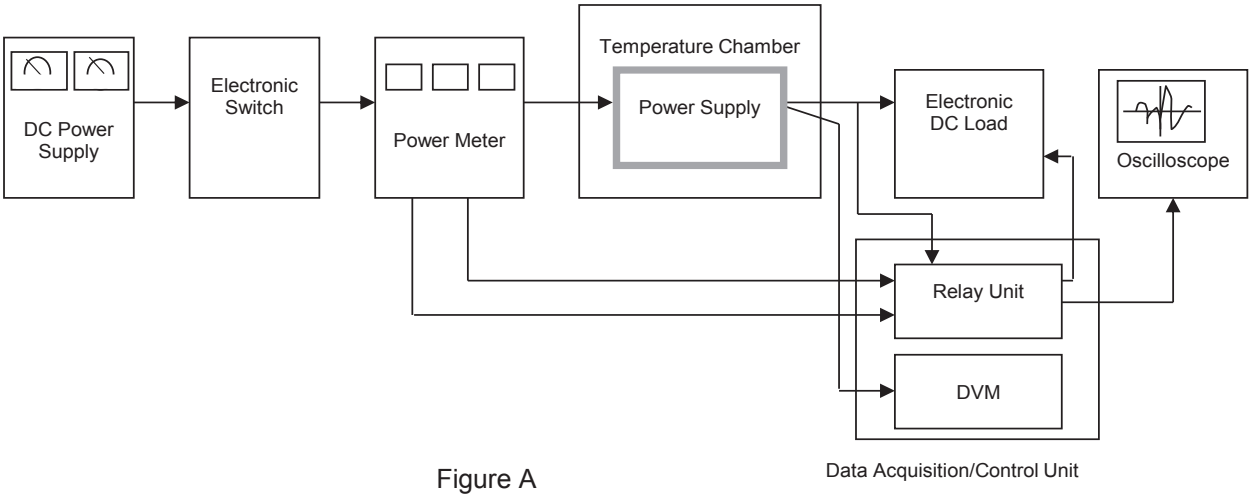


Figure A

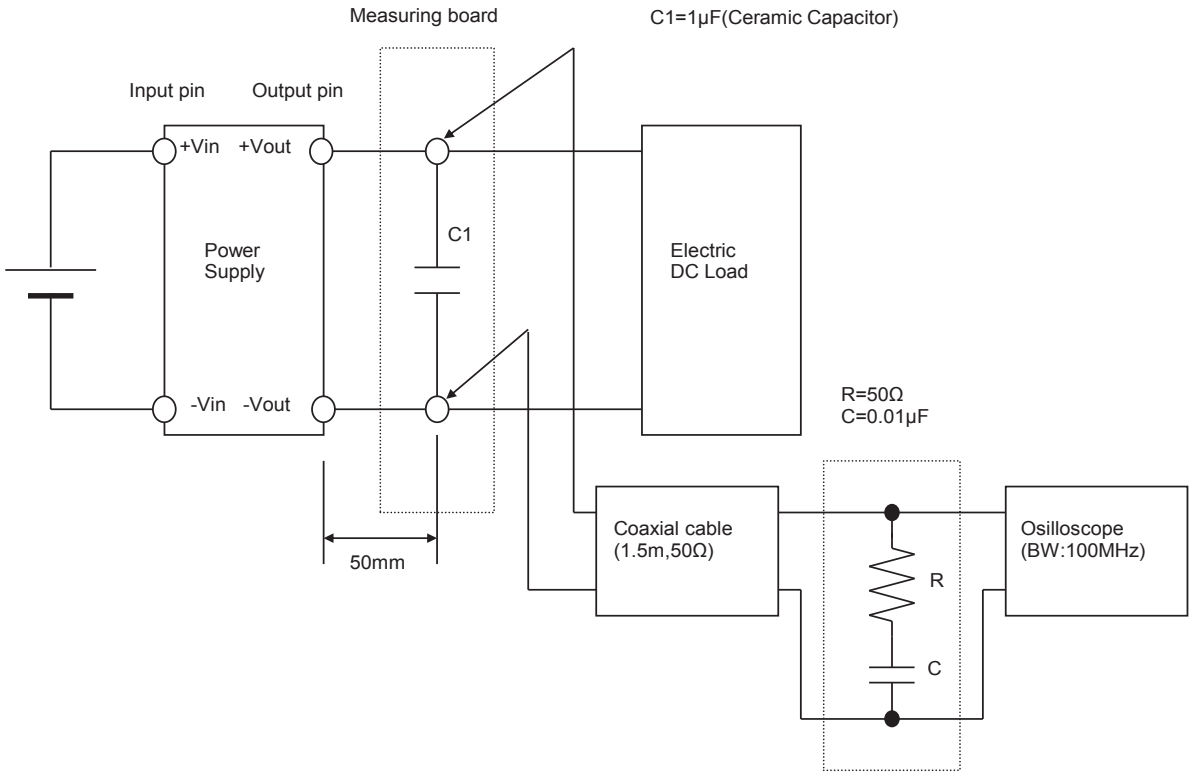


Figure B（Ripple and Ripple noise Characteristic）