参考資料

COSEL

TEST DATA OF MGS1R51212

Regulated DC Power Supply
April 1, 2016

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COSEL CO.,LTD.

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

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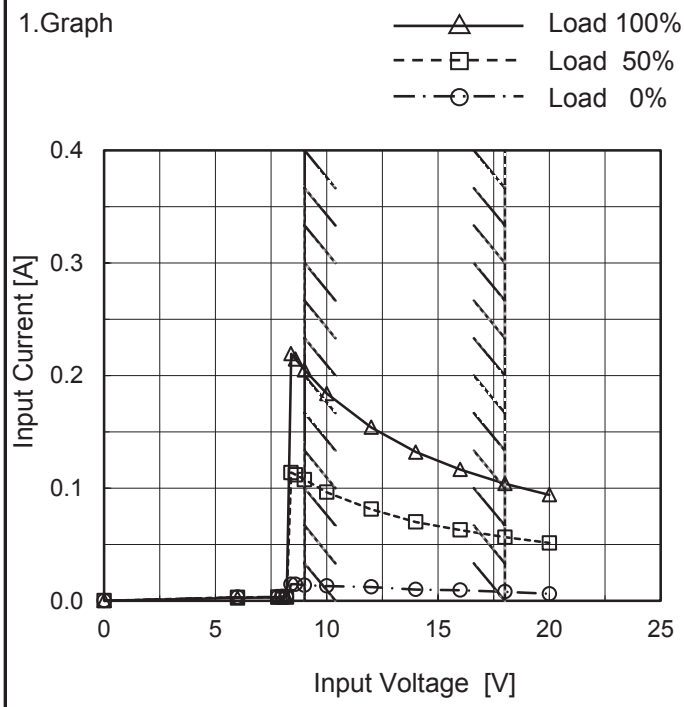


Note: Slanted line shows the range of the rated input voltage.

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	0.002
7.8	0.003	0.003	0.003
8.0	0.004	0.004	0.004
8.2	0.003	0.003	0.003
8.4	0.015	0.114	0.219
8.6	0.015	0.112	0.215
9.0	0.014	0.108	0.205
10.0	0.013	0.096	0.184
12.0	0.012	0.081	0.154
14.0	0.010	0.070	0.132
16.0	0.009	0.063	0.117
18.0	0.008	0.056	0.104
20.0	0.006	0.051	0.094
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

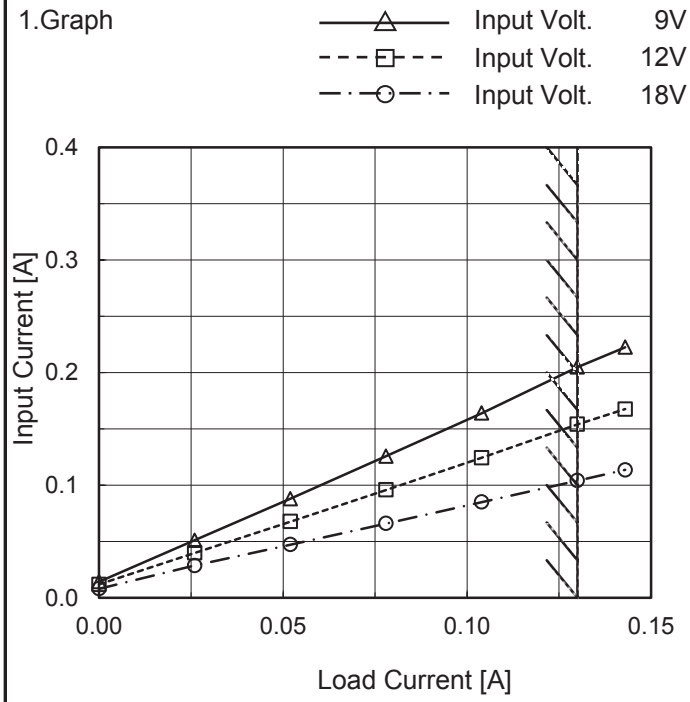
BC-10944

COSEL

Model	MGS1R51212
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	0.014	0.012	0.008
0.026	0.051	0.040	0.029
0.052	0.088	0.068	0.047
0.078	0.126	0.096	0.066
0.104	0.164	0.124	0.085
0.130	0.205	0.154	0.104
0.143	0.223	0.168	0.114
--	-	-	-
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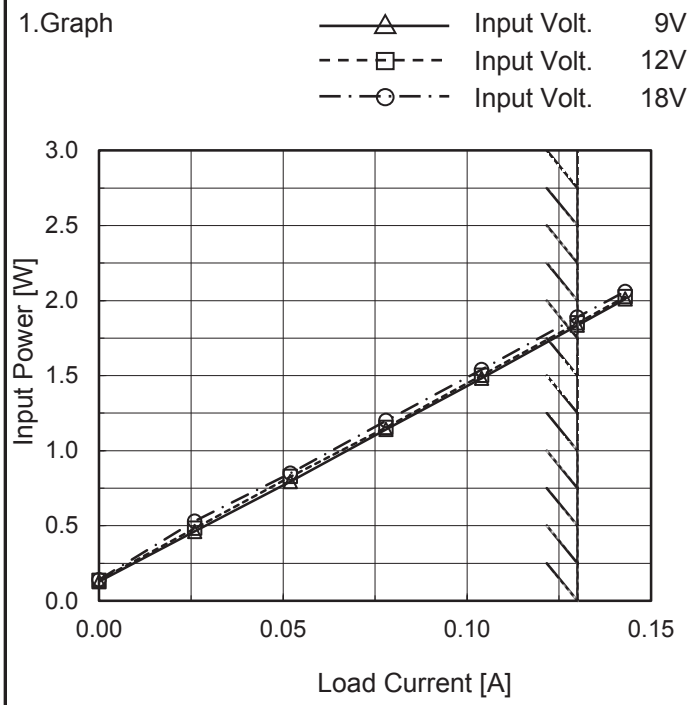
--	-	-	-
--	-	-	-

COSEL

Model	MGS1R51212
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	0.14	0.14
0.026	0.46	0.48	0.53
0.052	0.79	0.83	0.85
0.078	1.14	1.15	1.20
0.104	1.48	1.50	1.54
0.130	1.84	1.85	1.89
0.143	2.01	2.03	2.06
--	-	-	-
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--	-	-	-
--	-	-	-

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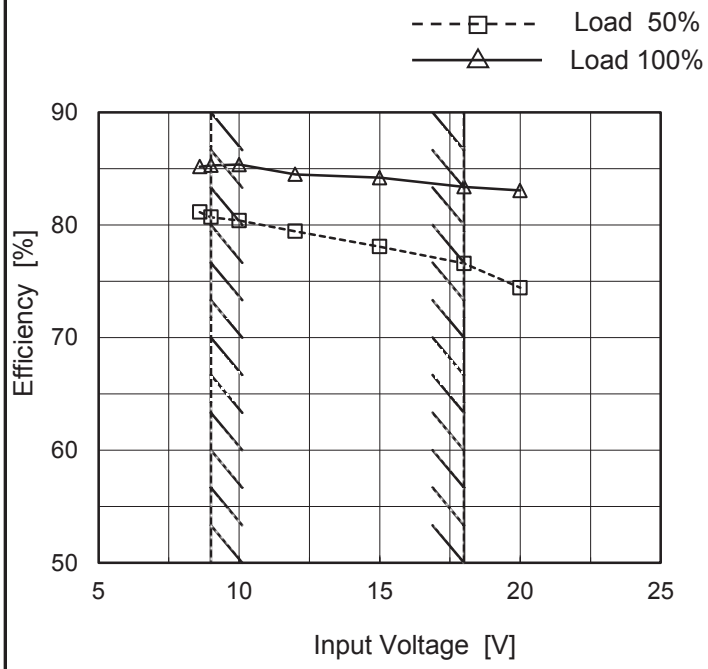
COSEL

Model	MGS1R51212
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	81.2	85.2
9.0	80.7	85.3
10.0	80.4	85.4
12.0	79.4	84.5
15.0	78.1	84.2
18.0	76.6	83.4
20.0	74.4	83.1
--	-	-
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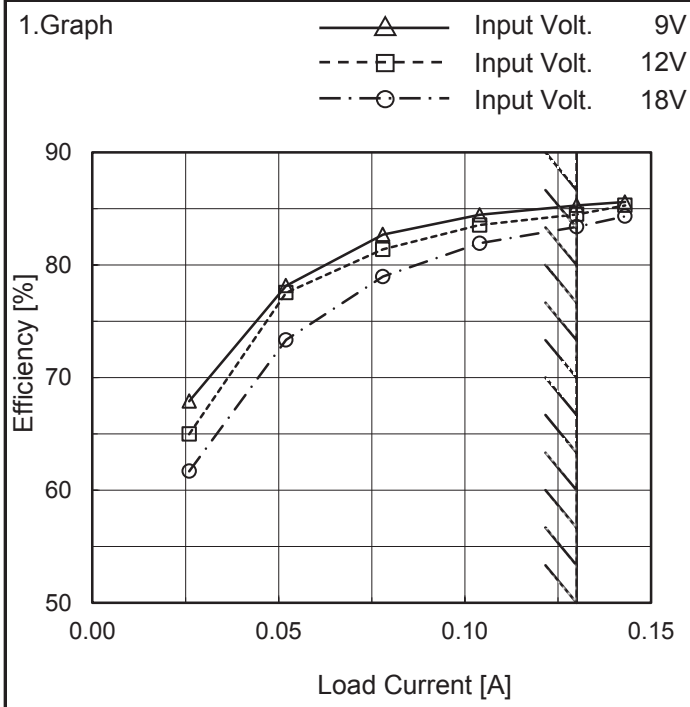
Model	MGS1R51212
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
0.026	67.9	65.0	61.7
0.052	78.2	77.5	73.4
0.078	82.7	81.4	79.0
0.104	84.5	83.6	81.9
0.130	85.3	84.5	83.4
0.143	85.6	85.3	84.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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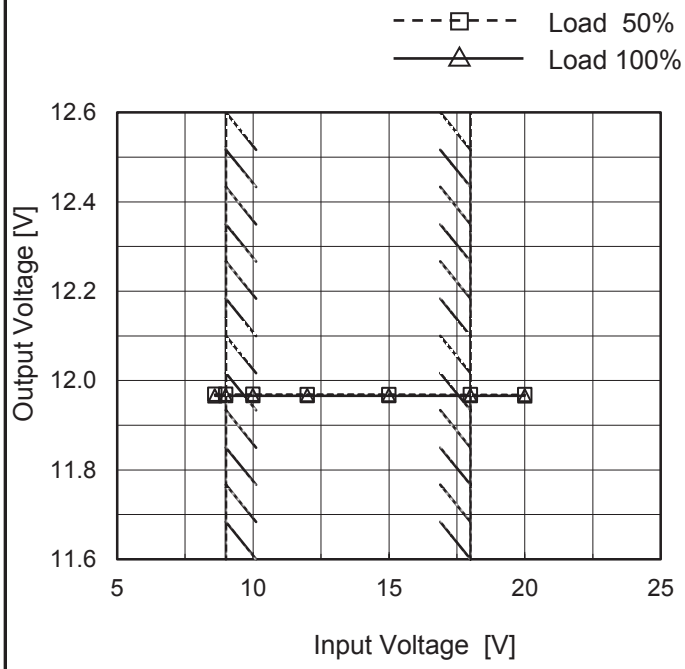
Model	MGS1R51212
Item	Line Regulation
Object	+12V0.13A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

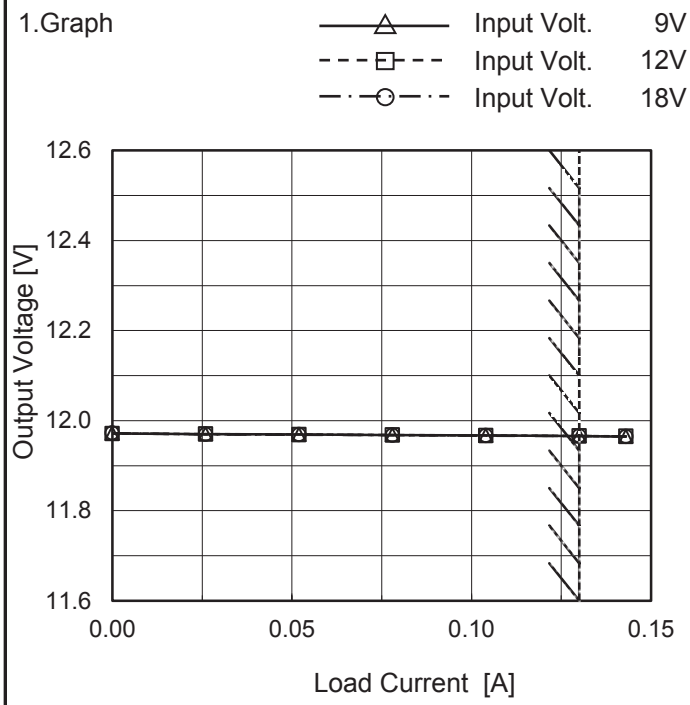
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	11.969	11.966
9.0	11.969	11.966
10.0	11.969	11.966
12.0	11.969	11.966
15.0	11.969	11.966
18.0	11.968	11.966
20.0	11.968	11.966
--	-	-
--	-	-

COSEL

Model	MGS1R51212
Item	Load Regulation
Object	+12V0.13A

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	11.972	11.971	11.972
0.026	11.970	11.970	11.970
0.052	11.969	11.969	11.969
0.078	11.968	11.968	11.968
0.104	11.967	11.967	11.967
0.130	11.966	11.966	11.966
0.143	11.965	11.965	11.965
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGS1R51212
Item	Dynamic Load Response
Object	+12V0.13A

Temperature 25°C
Testing Circuitry Figure A

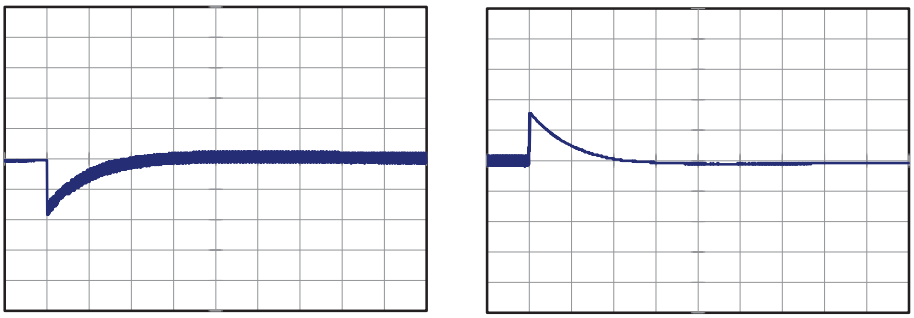
Input Volt. 12 V
Cycle 1000 ms

t1,t2 = 50 μ s

Load Current

t1 t2

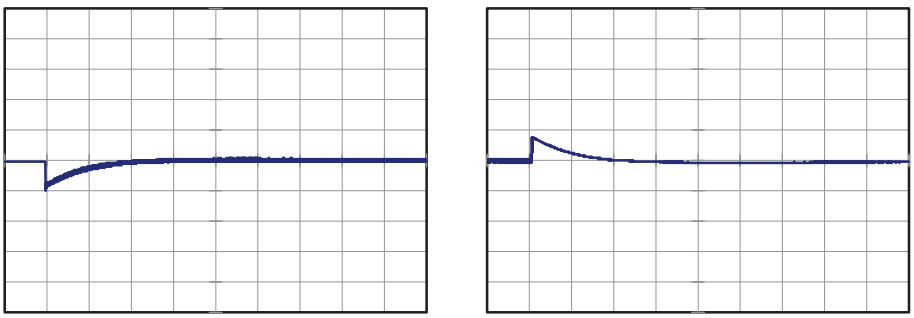
Min.Load (0A)←→
Load 100% (0.13A)



100 mV/div

4 ms/div 4 ms/div

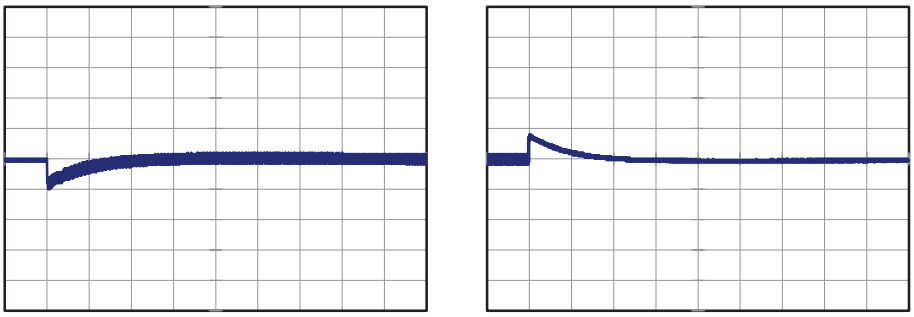
Min.Load (0A)←→
Load 50% (0.065A)



100 mV/div

4 ms/div 4 ms/div

Load 50% (0.065A)←→
Load 100% (0.13A)



100 mV/div

4 ms/div 4 ms/div

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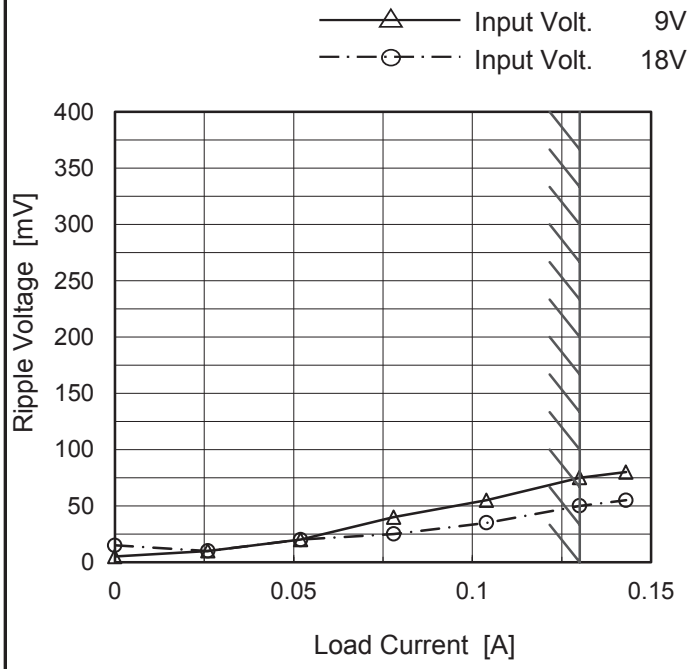
Model	MGS1R51212
Item	Ripple Voltage (by Load Current)
Object	+12V0.13A

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.

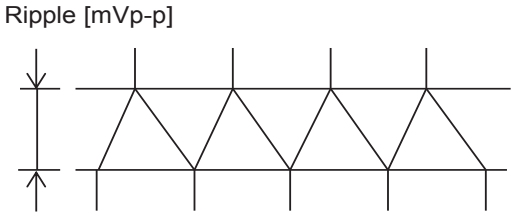


Fig.Complex Ripple Wave Form

2.Values

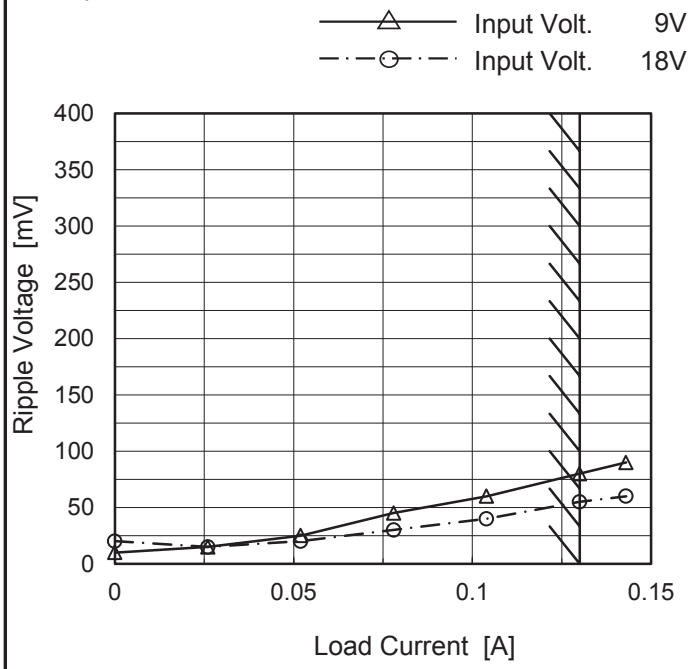
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.000	5	15
0.026	10	10
0.052	20	20
0.078	40	25
0.104	55	35
0.130	75	50
0.143	80	55
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS1R51212
Item	Ripple-Noise
Object	+12V0.13A

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.

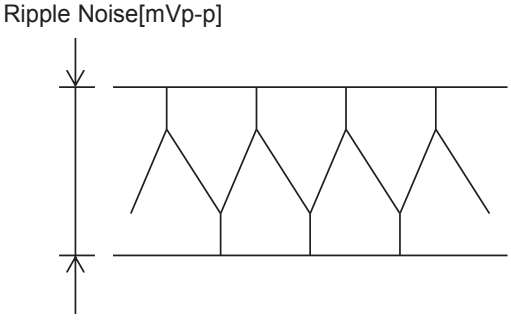


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.000	10	20
0.026	15	15
0.052	25	20
0.078	45	30
0.104	60	40
0.130	80	55
0.143	90	60
--	-	-
--	-	-
--	-	-
--	-	-

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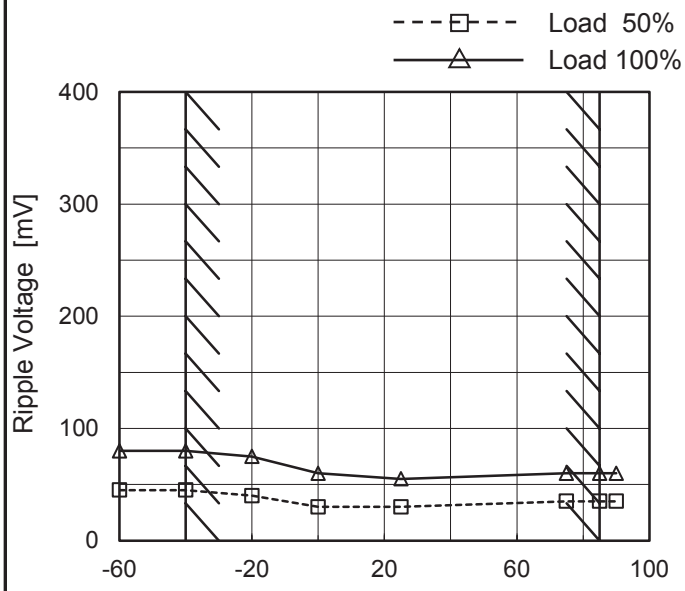
Model	MGS1R51212
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.13A

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

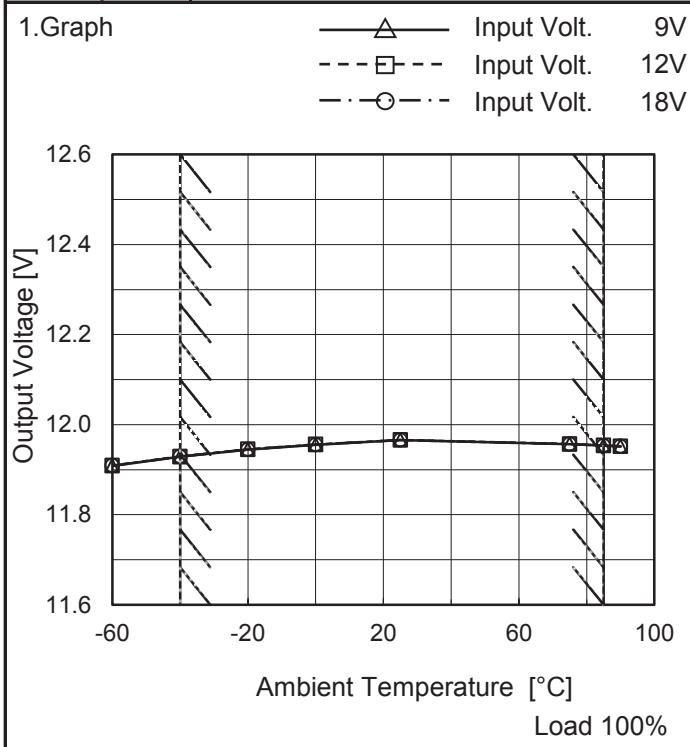
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	45	80
-40	45	80
-20	40	75
0	30	60
25	30	55
75	35	60
85	35	60
90	35	60
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS1R51212
Item	Ambient Temperature Drift
Object	+12V0.13A

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	11.909	11.909	11.909
-40	11.929	11.929	11.929
-20	11.945	11.945	11.945
0	11.955	11.956	11.956
25	11.966	11.966	11.966
75	11.957	11.957	11.957
85	11.953	11.954	11.954
90	11.952	11.952	11.952
--	-	-	-
--	-	-	-
--	-	-	-

Model	MGS1R51212	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V0.13A	

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 - 0.13A

* 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

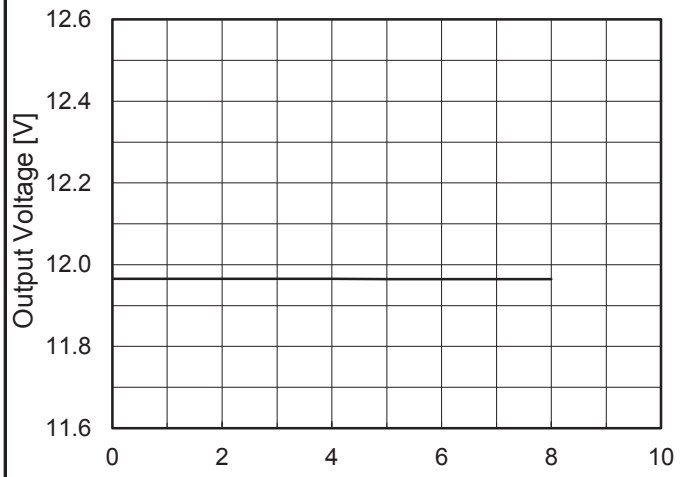
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	25	18	0	11.969	±20	±0.2
Minimum Voltage	-40	9	0.13	11.929		

COSEL

Model	MGS1R51212
Item	Time Lapse Drift
Object	+12V0.13A

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	11.965
0.5	11.965
1.0	11.965
2.0	11.965
3.0	11.965
4.0	11.965
5.0	11.965
6.0	11.965
7.0	11.965
8.0	11.965

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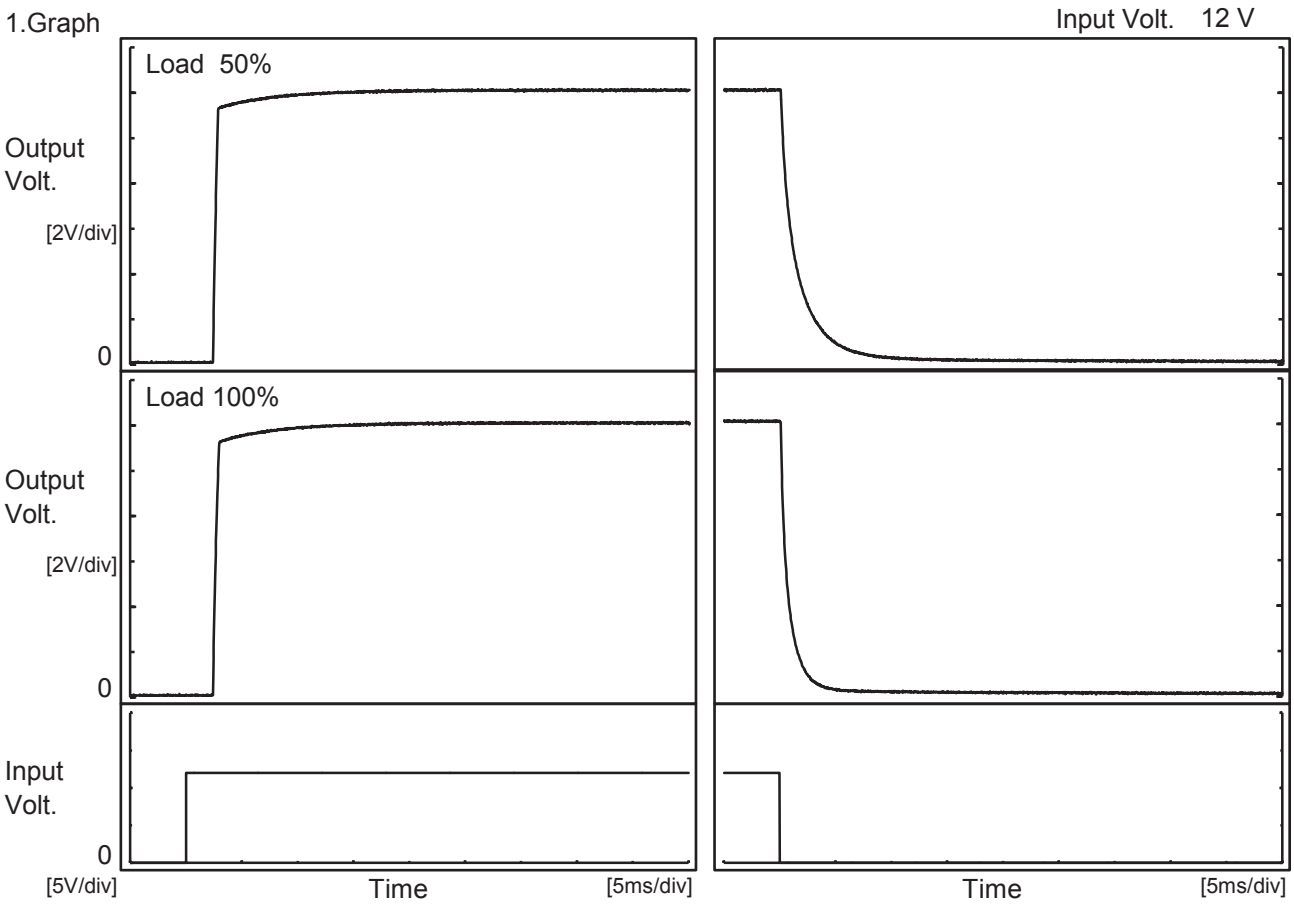
Model	MGS1R51212
Item	Rise and Fall Time
Object	+12V0.13A

Temperature 25°C
Testing Circuitry Figure A

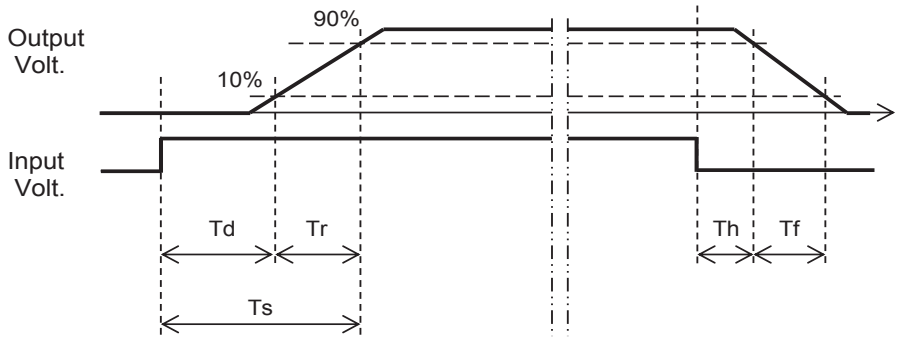
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.5	0.4	2.9	0.2	4.0
100 %	2.5	0.5	3.0	0.1	2.0

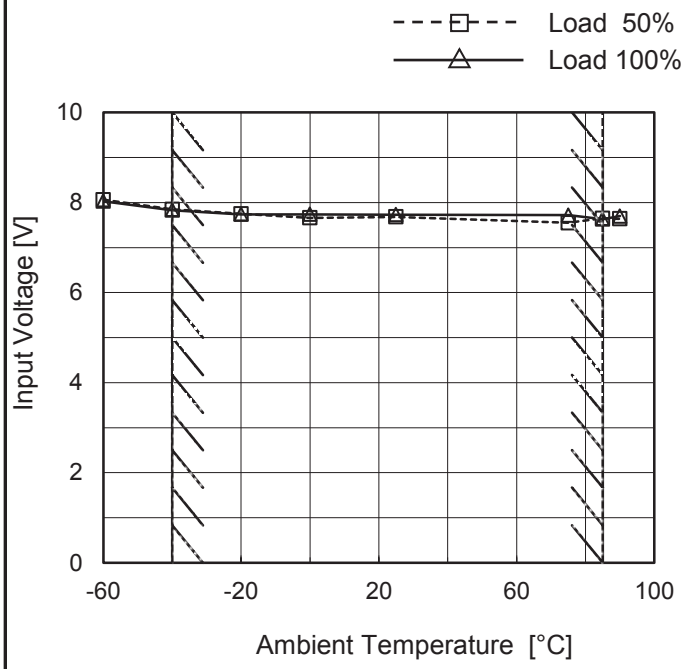


COSEL

Model	MGS1R51212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.13A

Testing Circuitry Figure A

1.Graph



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

2.Values

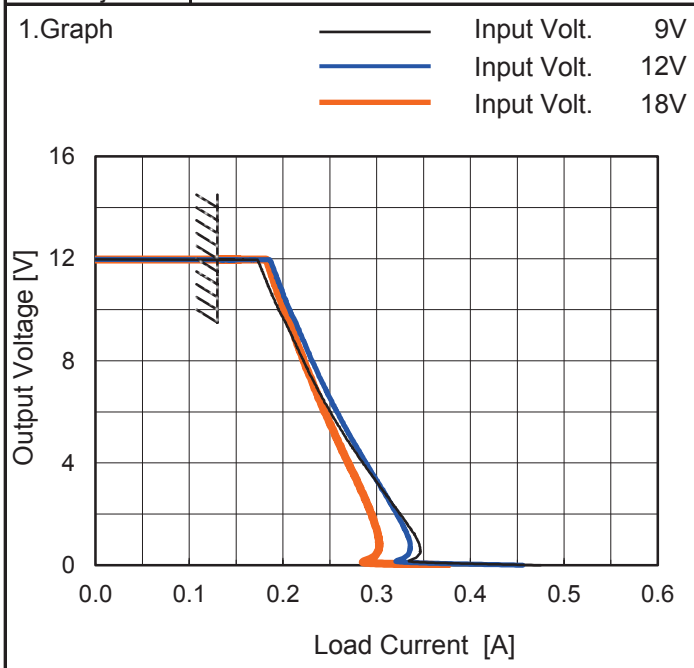
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.1
-40	7.9	7.9
-20	7.8	7.8
0	7.7	7.8
25	7.7	7.8
75	7.6	7.8
85	7.7	7.7
90	7.7	7.7
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS1R51212
Item	Overcurrent Protection
Object	+12V0.13A

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	0.13	0.13	0.13
11.4	0.18	0.19	0.19
10.8	0.19	0.20	0.19
9.6	0.20	0.21	0.21
8.4	0.22	0.23	0.22
7.2	0.23	0.24	0.23
6.0	0.25	0.26	0.24
4.8	0.27	0.28	0.26
3.6	0.29	0.30	0.27
2.4	0.32	0.32	0.29
1.2	0.34	0.33	0.30
0.0	0.48	0.46	0.38

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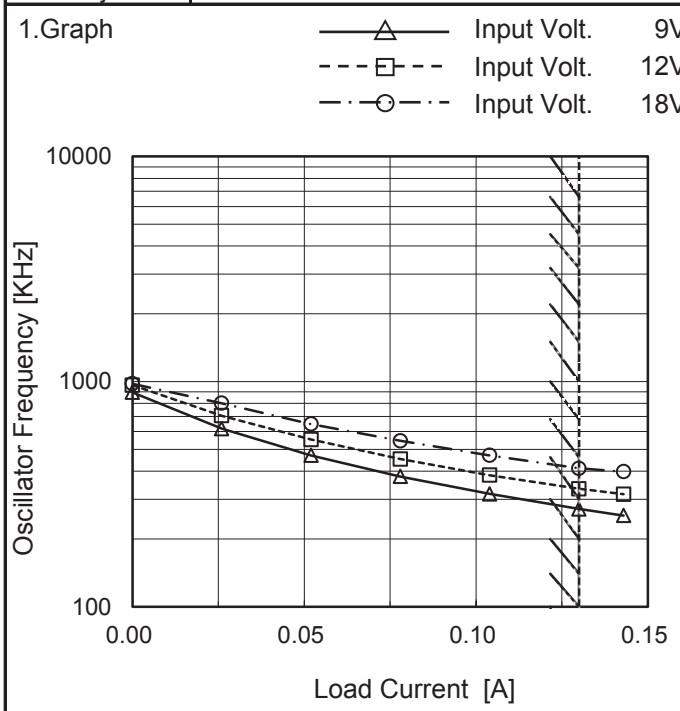
Model	MGS1R51212
Item	Switching frequency (by Load Current)
Object	+12V0.13A

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	896	965	978
0.026	618	706	801
0.052	470	553	648
0.078	379	453	546
0.104	317	384	470
0.130	272	334	412
0.143	254	316	398
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

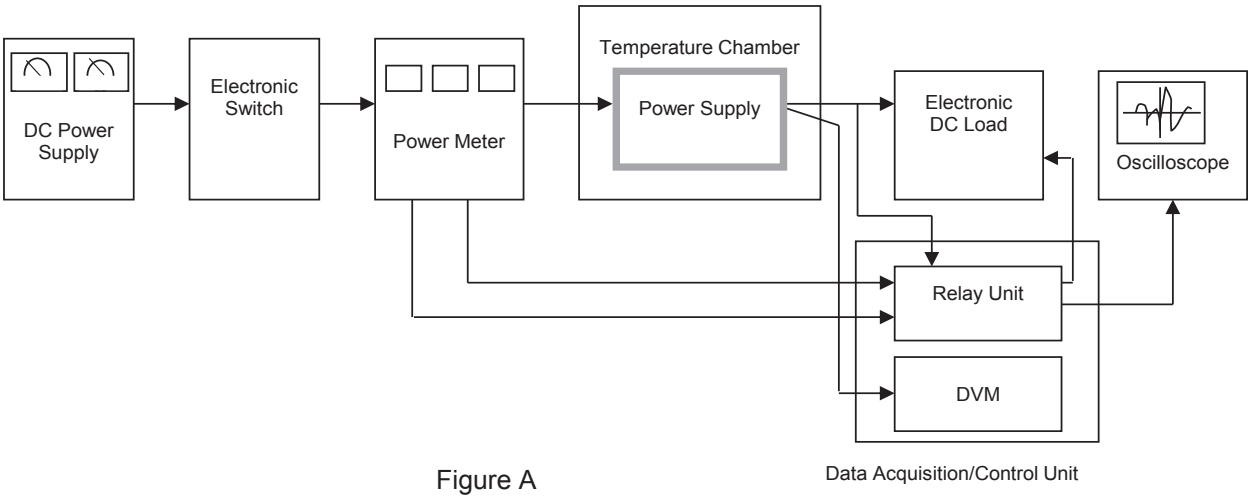


Figure A

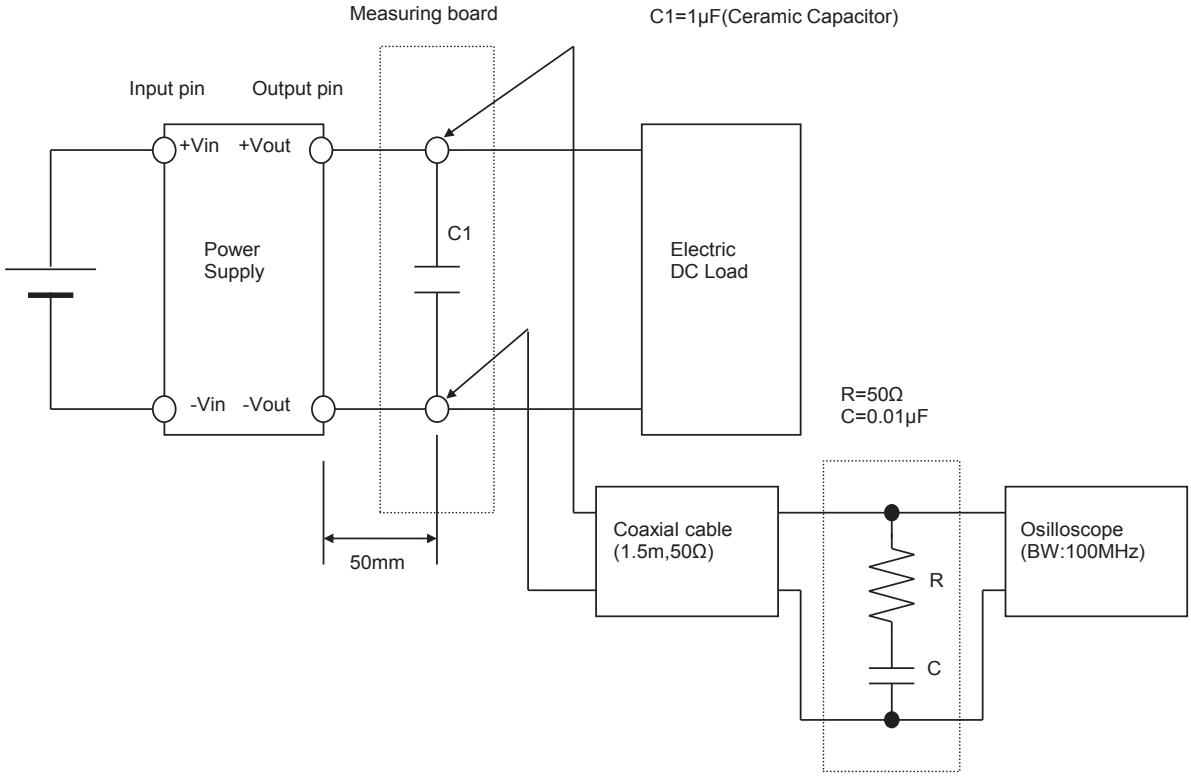


Figure B（Ripple and Ripple noise Characteristic）