COSEL

参考資料

TEST DATA OF MGW304812

Regulated DC Power Supply
November 18, 2010

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COSEL CO.,LTD.

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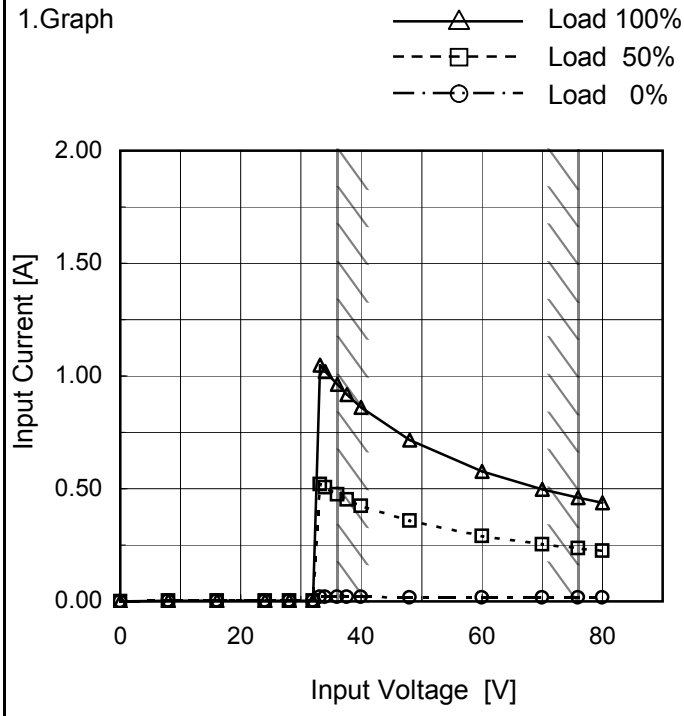
Model	MGW304812
Item	Input Current (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

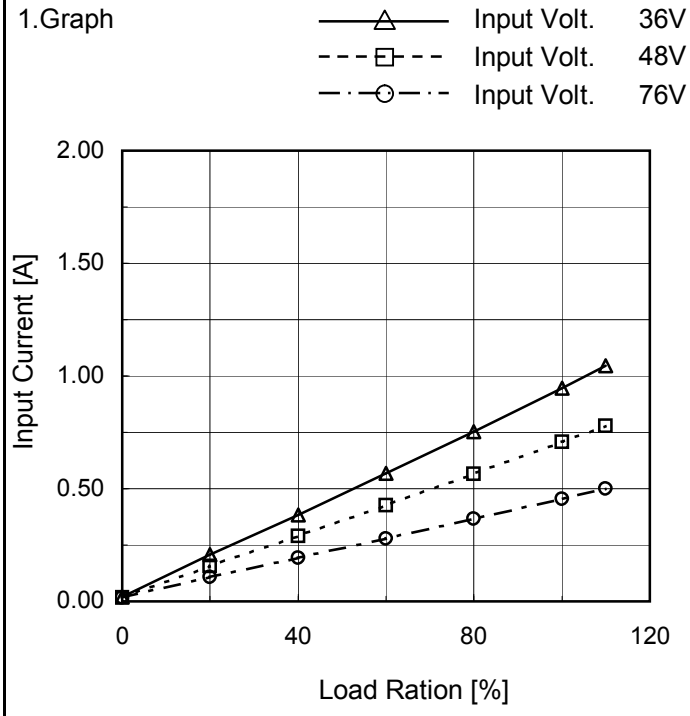
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.002	0.002	0.002
16.0	0.002	0.002	0.002
24.0	0.002	0.002	0.002
28.0	0.002	0.002	0.002
32.0	0.002	0.002	0.002
33.2	0.019	0.520	1.047
34.0	0.019	0.505	1.021
36.0	0.019	0.473	0.963
37.6	0.019	0.453	0.918
40.0	0.019	0.424	0.861
48.0	0.018	0.357	0.717
60.0	0.017	0.291	0.577
70.0	0.016	0.253	0.498
76.0	0.016	0.235	0.460
80.0	0.016	0.225	0.438
--	-	-	-
--	-	-	-

COSEL

Model	MGW304812
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

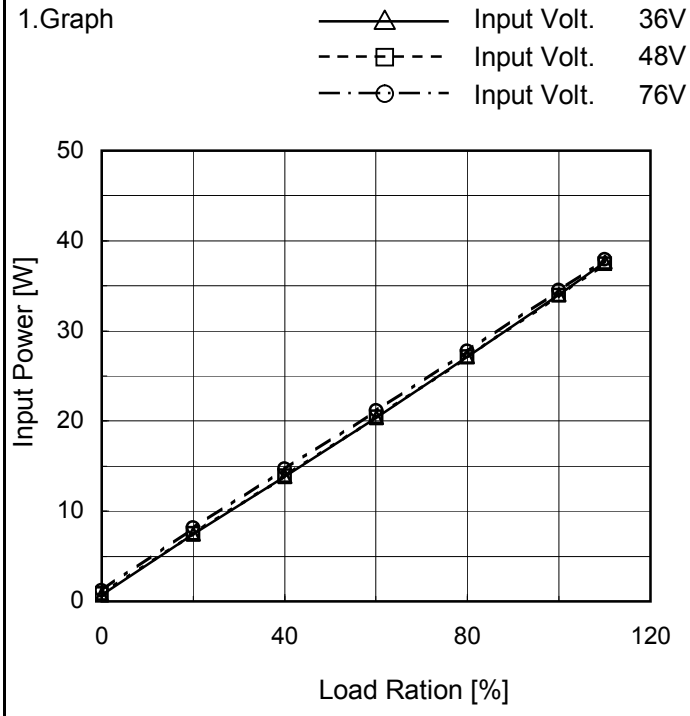
Load Ration [%]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.019	0.018	0.016
20	0.207	0.157	0.108
40	0.385	0.291	0.193
60	0.567	0.427	0.279
80	0.754	0.566	0.366
100	0.947	0.708	0.454
110	1.045	0.779	0.499
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW304812
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

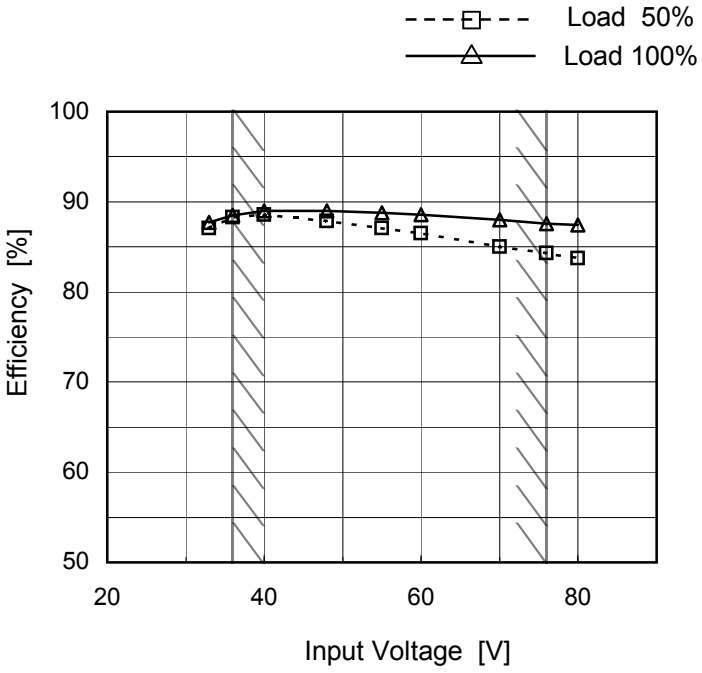
Load Ration [%]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.68	0.88	1.23
20	7.43	7.54	8.18
40	13.84	13.93	14.68
60	20.40	20.45	21.18
80	27.13	27.11	27.76
100	34.03	33.94	34.49
110	37.61	37.39	37.91
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW304812
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%
33	87.1	87.7
36	88.3	88.5
40	88.6	89.0
48	87.8	89.0
55	87.0	88.8
60	86.5	88.6
70	85.0	88.0
76	84.3	87.6
80	83.7	87.4

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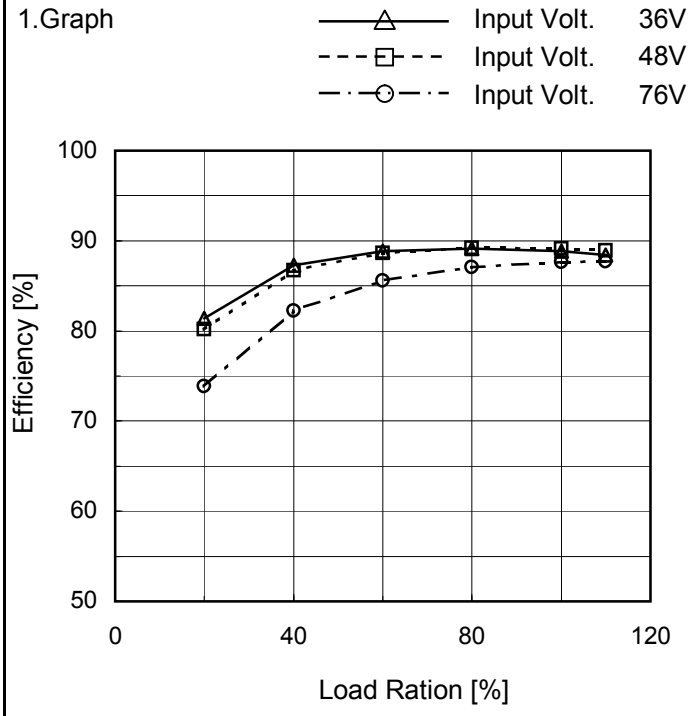
Model	MGW304812
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-
20	81.4	80.2	73.9
40	87.3	86.7	82.3
60	88.9	88.6	85.6
80	89.1	89.2	87.1
100	88.8	89.1	87.7
110	88.4	88.9	87.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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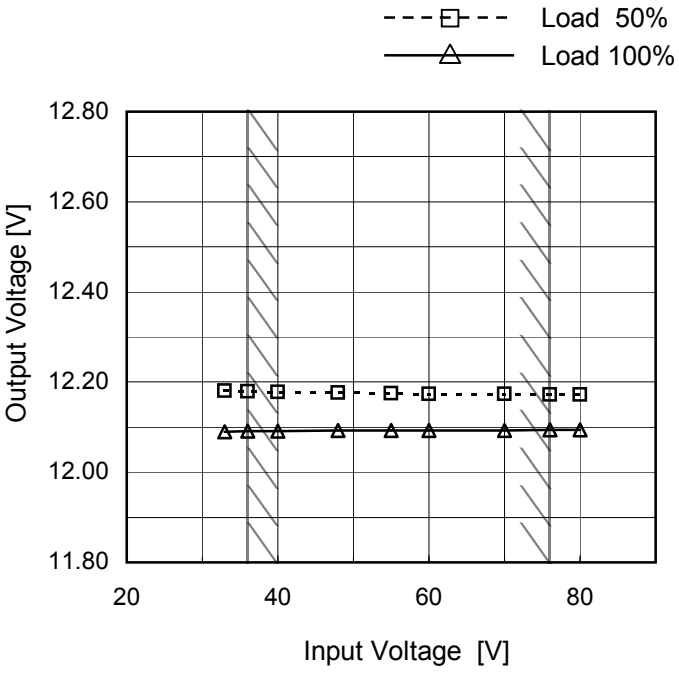
Model	MGW304812
Item	Line Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



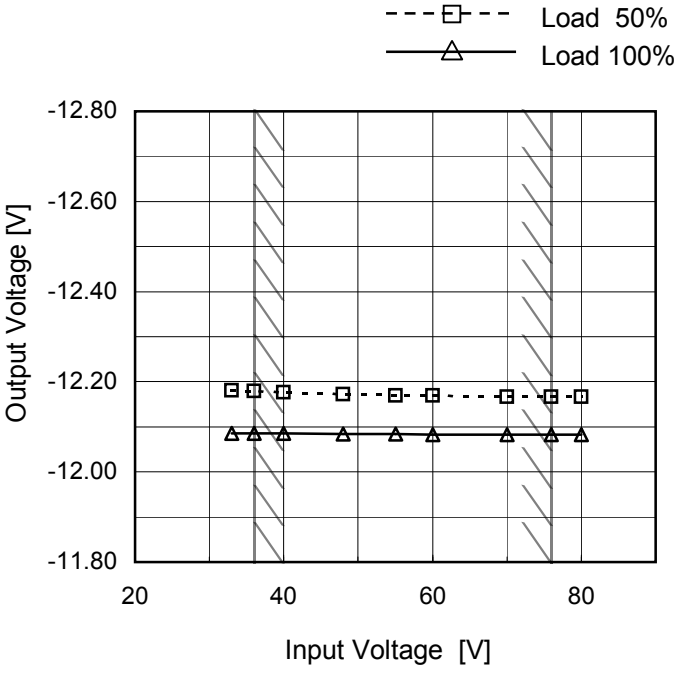
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	12.180	12.090
36	12.179	12.091
40	12.178	12.092
48	12.176	12.092
55	12.175	12.093
60	12.174	12.093
70	12.173	12.093
76	12.173	12.094
80	12.172	12.094

-12V: Rated output current

Object	-12V1.25A

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%
33	-12.181	-12.086
36	-12.179	-12.085
40	-12.176	-12.085
48	-12.172	-12.084
55	-12.169	-12.084
60	-12.169	-12.083
70	-12.167	-12.083
76	-12.166	-12.082
80	-12.166	-12.083

+12V: Rated output current

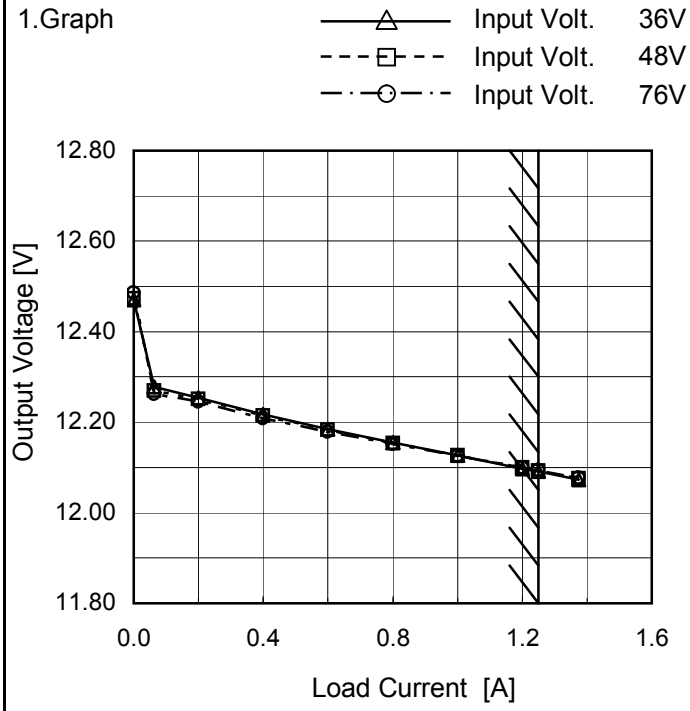
COSEL

Model	MGW304812
Item	Load Regulation

Temperature 25°C
Testing Circuitry Figure A

Object +12V1.25A

1.Graph



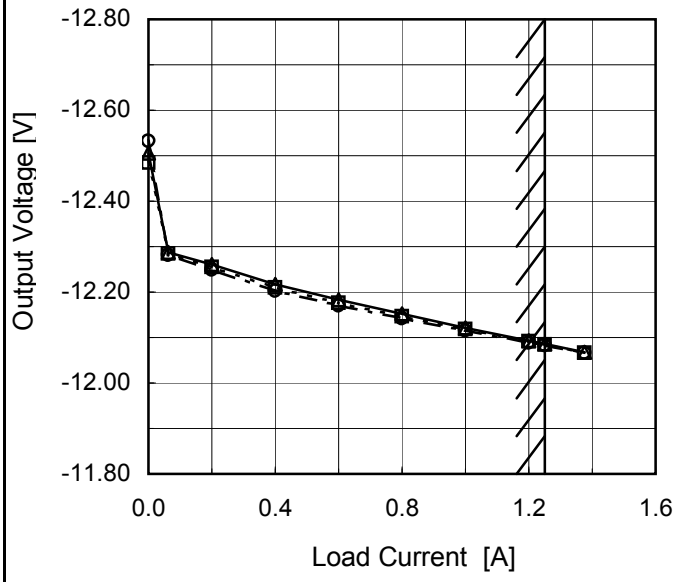
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	12.471	12.474	12.487
0.063	12.278	12.269	12.263
0.200	12.254	12.251	12.246
0.400	12.217	12.214	12.209
0.600	12.185	12.183	12.180
0.800	12.155	12.154	12.152
1.000	12.126	12.127	12.126
1.200	12.098	12.099	12.100
1.250	12.091	12.093	12.094
1.375	12.073	12.076	12.078
--	-	-	-

-12V: Rated output current

Object -12V1.25A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	-12.505	-12.485	-12.532
0.063	-12.287	-12.284	-12.282
0.200	-12.261	-12.255	-12.250
0.400	-12.217	-12.210	-12.203
0.600	-12.184	-12.177	-12.171
0.800	-12.152	-12.147	-12.143
1.000	-12.122	-12.118	-12.115
1.200	-12.092	-12.091	-12.089
1.250	-12.086	-12.084	-12.083
1.375	-12.068	-12.067	-12.066
--	-	-	-

+12V: Rated output current

BC-10528

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Model	MGW304812
Item	Dynamic Load Response
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

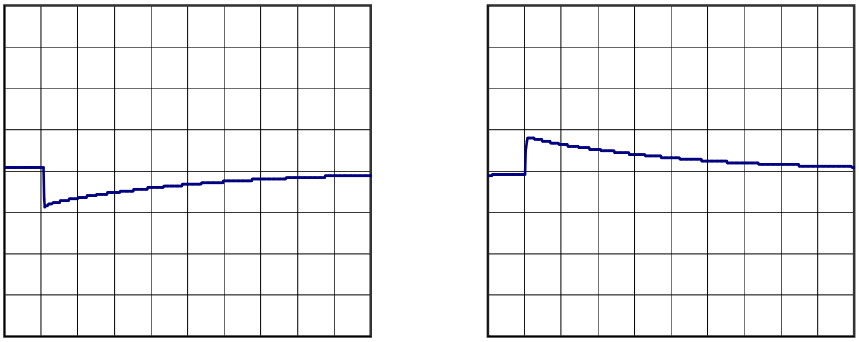
Input Volt. 48 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

Load Current

Min. Load (0A) ⟷
Load 100% (1.25A)

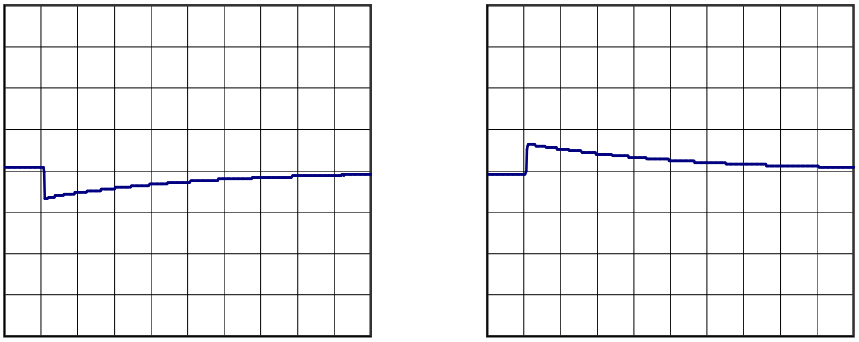
500mV/div



50ms/div 50ms/div

Min. Load (0A) ⟷
Load 50% (0.625A)

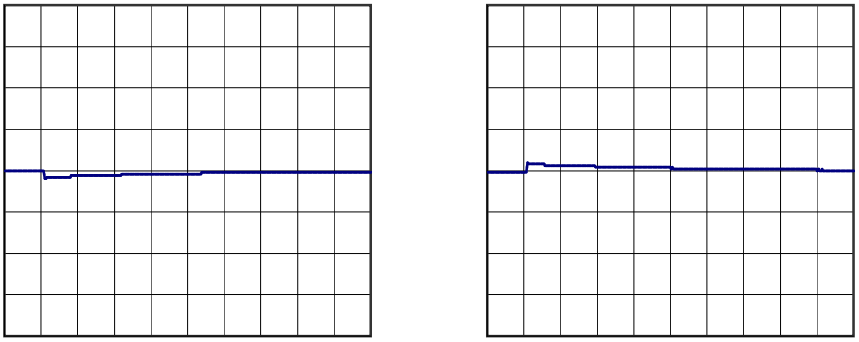
500mV/div



50ms/div 50ms/div

Load 50% (0.625A) ⟷
Load 100% (1.25A)

500mV/div



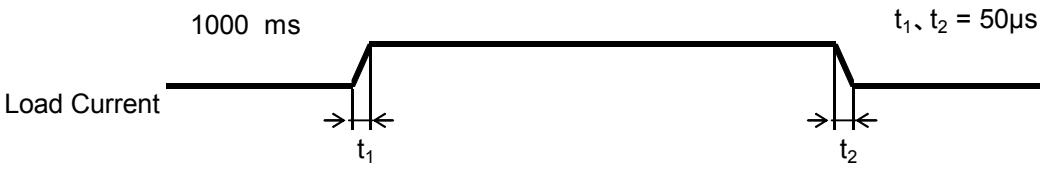
50ms/div 50ms/div

COSEL

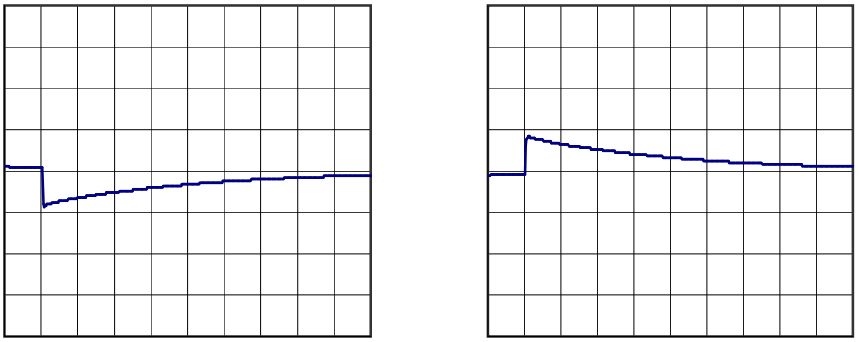
Model	MGW304812
Item	Dynamic Load Response
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure A

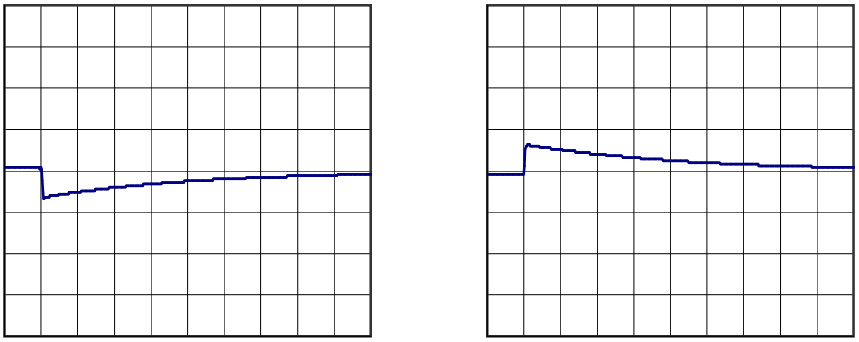
Input Volt. 48 V
Other output current rated
Cycle 1000 ms



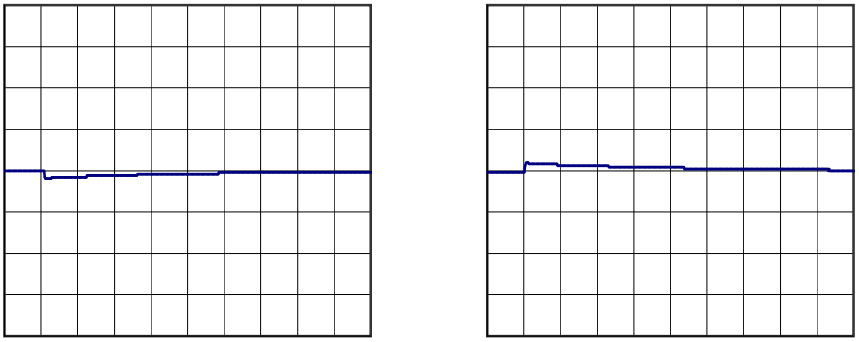
Min. Load (0A) ⟷
Load 100% (1.25A)



Min. Load (0A) ⟷
Load 50% (0.625A)



Load 50% (0.625A) ⟷
Load 100% (1.25A)

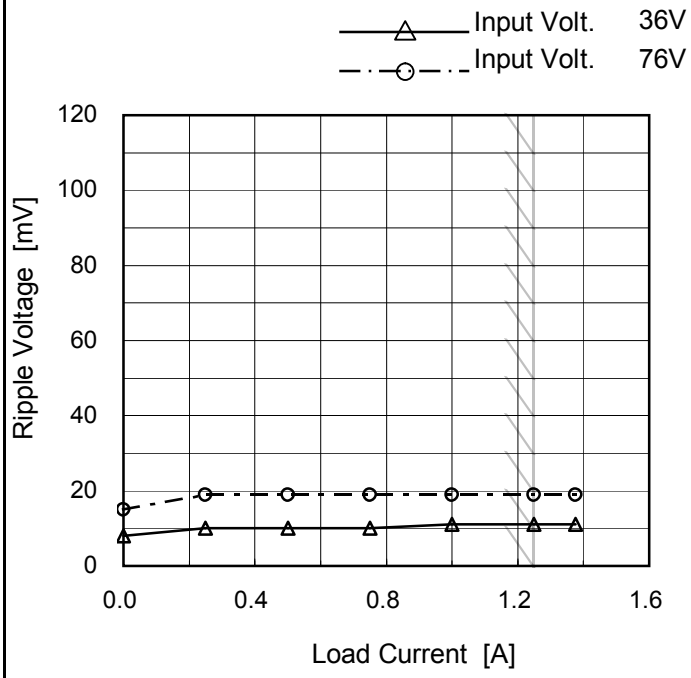


COSEL

Model	MGW304812
Item	Ripple Voltage (by Load Current)
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



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]

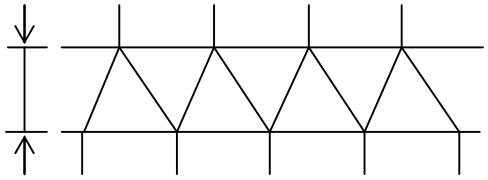


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.000	8	15
0.250	10	19
0.500	10	19
0.750	10	19
1.000	11	19
1.250	11	19
1.375	11	19
--	-	-
--	-	-
--	-	-
--	-	-

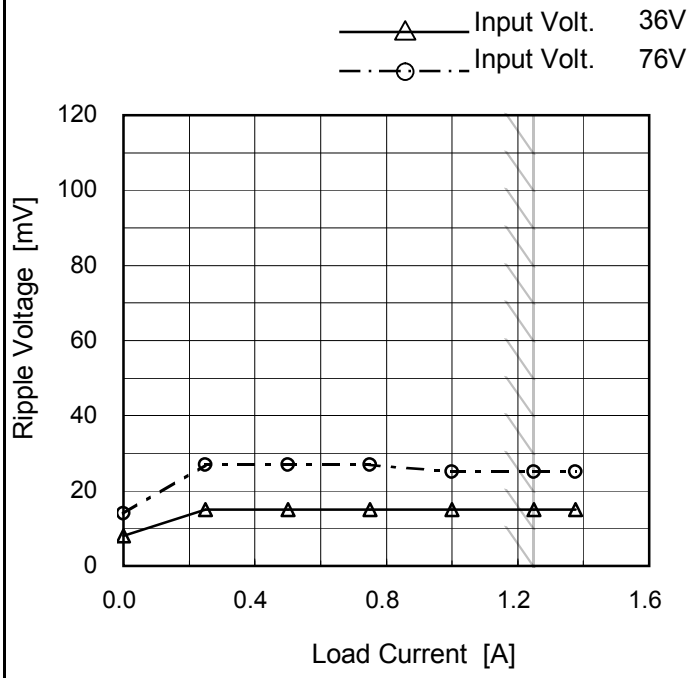
-12V: Rated output current

COSEL

Model	MGW304812
Item	Ripple Voltage (by Load Current)
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

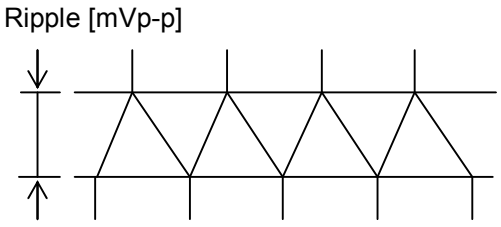


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.000	8	14
0.250	15	27
0.500	15	27
0.750	15	27
1.000	15	25
1.250	15	25
1.375	15	25
--	-	-
--	-	-
--	-	-
--	-	-

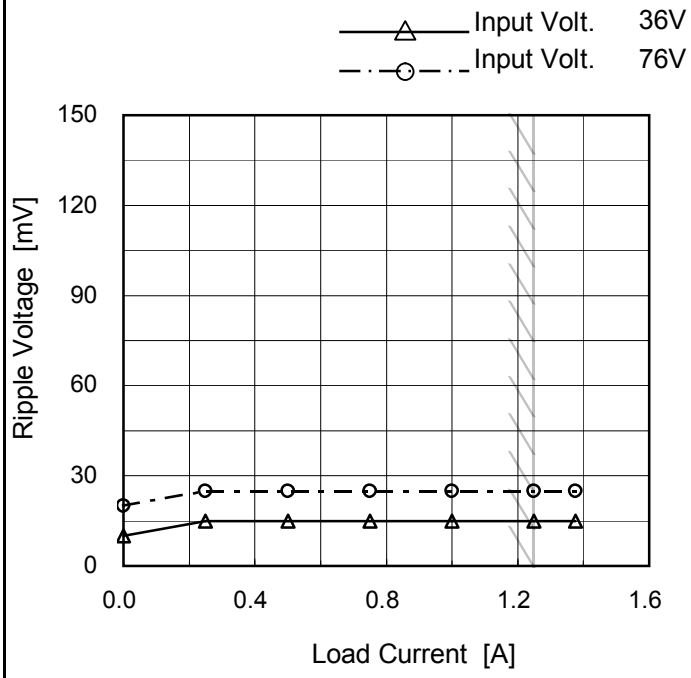
+12V: Rated output current

COSEL

Model	MGW304812
Item	Ripple-Noise
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

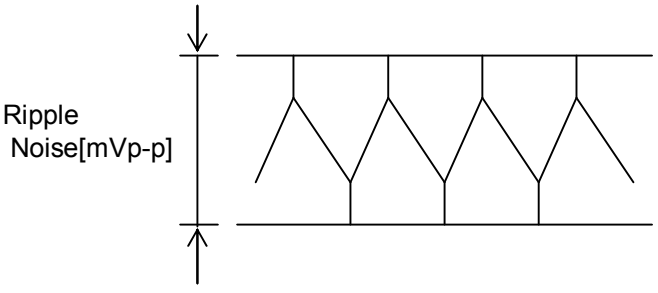


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.000	10	20
0.250	15	25
0.500	15	25
0.750	15	25
1.000	15	25
1.250	15	25
1.375	15	25
--	-	-
--	-	-
--	-	-
--	-	-

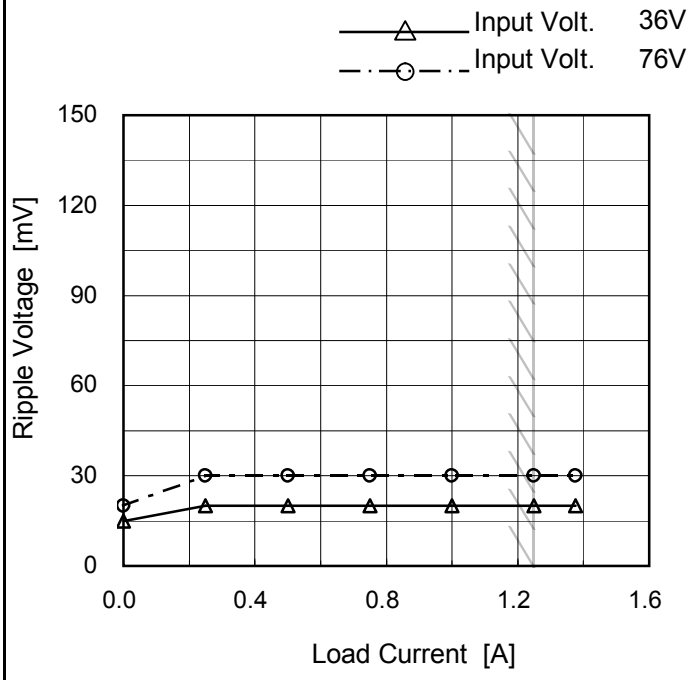
-12V: Rated output current

COSEL

Model	MGW304812
Item	Ripple-Noise
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

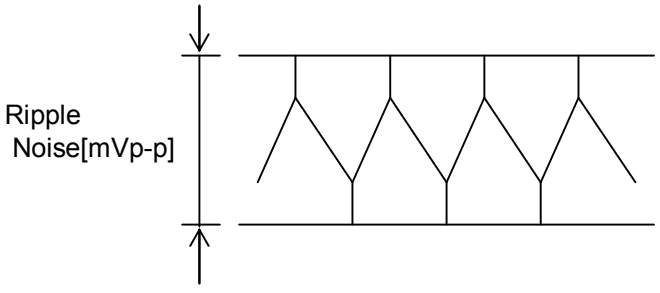


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.000	15	20
0.250	20	30
0.500	20	30
0.750	20	30
1.000	20	30
1.250	20	30
1.375	20	30
--	-	-
--	-	-
--	-	-
--	-	-

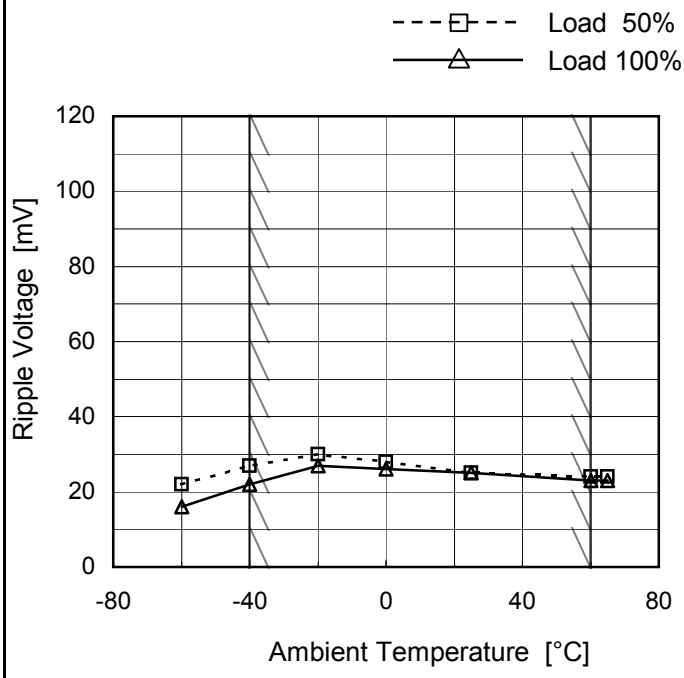
+12V: Rated output current

COSEL

Model	MGW304812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph



Input Volt. 48V

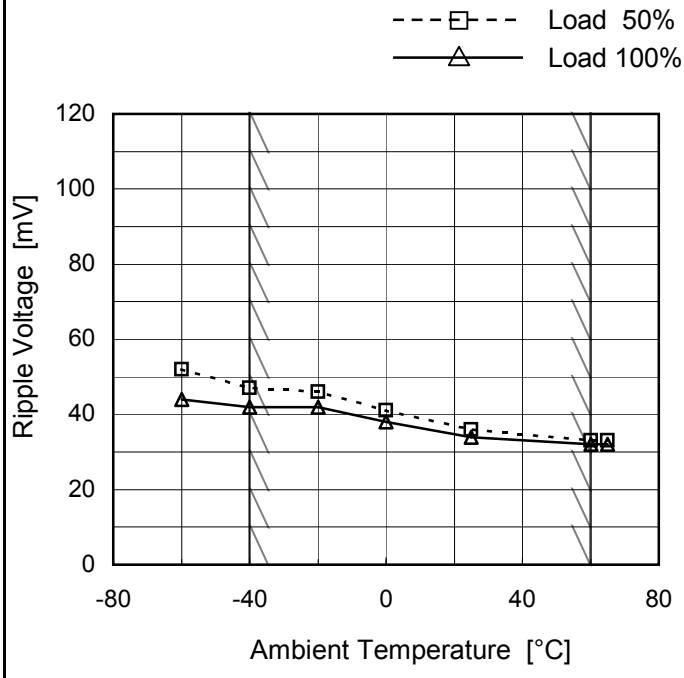
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	22	16
-40	27	22
-20	30	27
0	28	26
25	25	25
60	24	23
65	24	23
--	-	-
--	-	-
--	-	-
--	-	-

-12V: Rated output current

Object	-12V1.25A

1.Graph



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	52	44
-40	47	42
-20	46	42
0	41	38
25	36	34
60	33	32
65	33	32
--	-	-
--	-	-
--	-	-
--	-	-

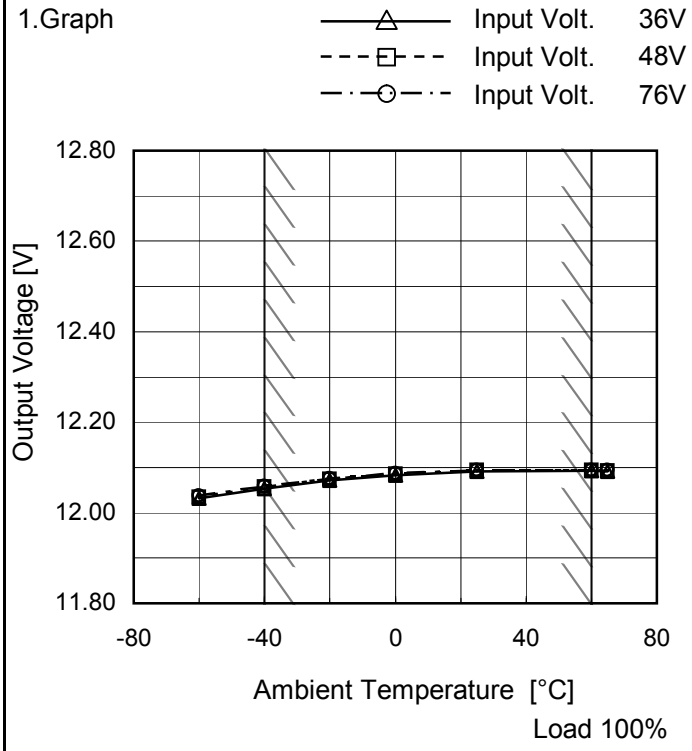
+12V: Rated output current

COSEL

Model	MGW304812
Item	Ambient Temperature Drift
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

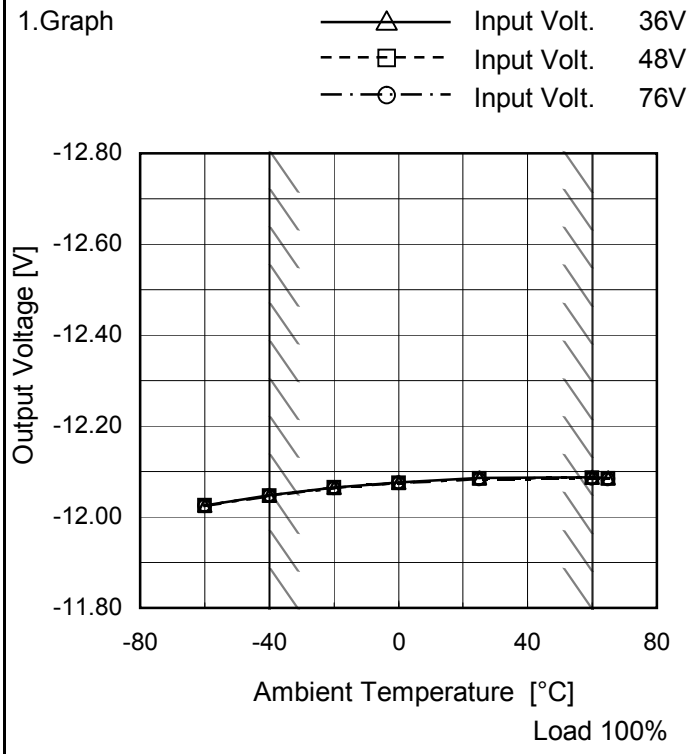


2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	12.032	12.035	12.037
-40	12.054	12.057	12.059
-20	12.072	12.074	12.076
0	12.083	12.085	12.087
25	12.091	12.094	12.094
60	12.093	12.094	12.095
65	12.092	12.093	12.094
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-12V1.25A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	-12.025	-12.025	-12.025
-40	-12.048	-12.047	-12.047
-20	-12.065	-12.064	-12.064
0	-12.077	-12.075	-12.075
25	-12.085	-12.084	-12.083
60	-12.087	-12.086	-12.084
65	-12.086	-12.085	-12.083
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW304812	
Item	Output Voltage Accuracy	Testing Circuitry Figure A

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 : 36 - 76V
Load Current (AVR 1) : 0 - 1.25A (AVR 2) : 0 - 1.25A

* Other Output : Rated Load

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

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

2.Values

Object	+12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	76	0	12.495	±221	±1.8
Minimum Voltage	-40	36	1.25	12.054		

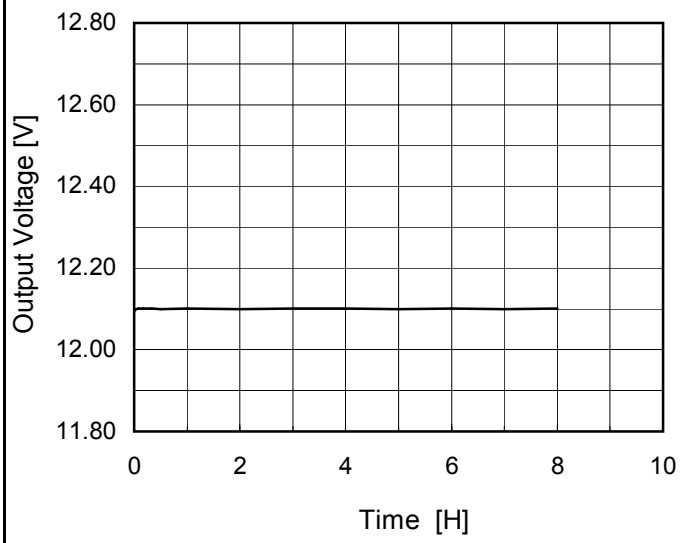
Object	-12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	76	0	-12.538	±246	±2.1
Minimum Voltage	-40	76	1.25	-12.047		

COSEL

Model	MGW304812
Item	Time Lapse Drift
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



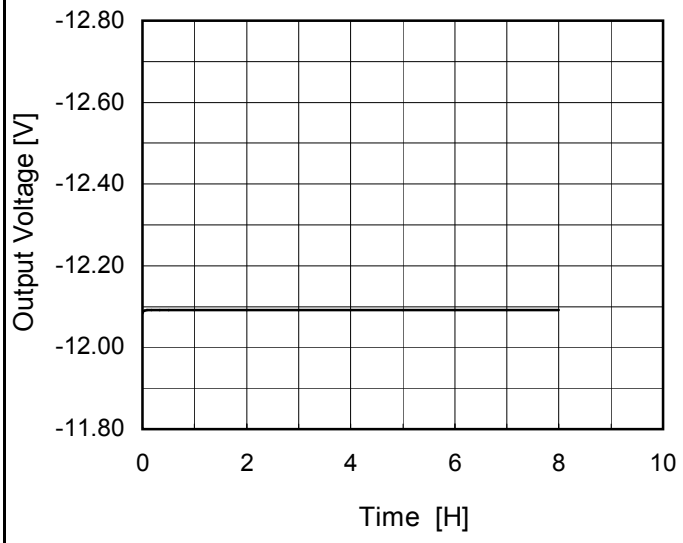
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.093
0.5	12.100
1.0	12.100
2.0	12.100
3.0	12.100
4.0	12.100
5.0	12.100
6.0	12.100
7.0	12.100
8.0	12.100

Object	-12V1.25A

1.Graph



Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.084
0.5	-12.092
1.0	-12.092
2.0	-12.092
3.0	-12.092
4.0	-12.092
5.0	-12.092
6.0	-12.092
7.0	-12.092
8.0	-12.092

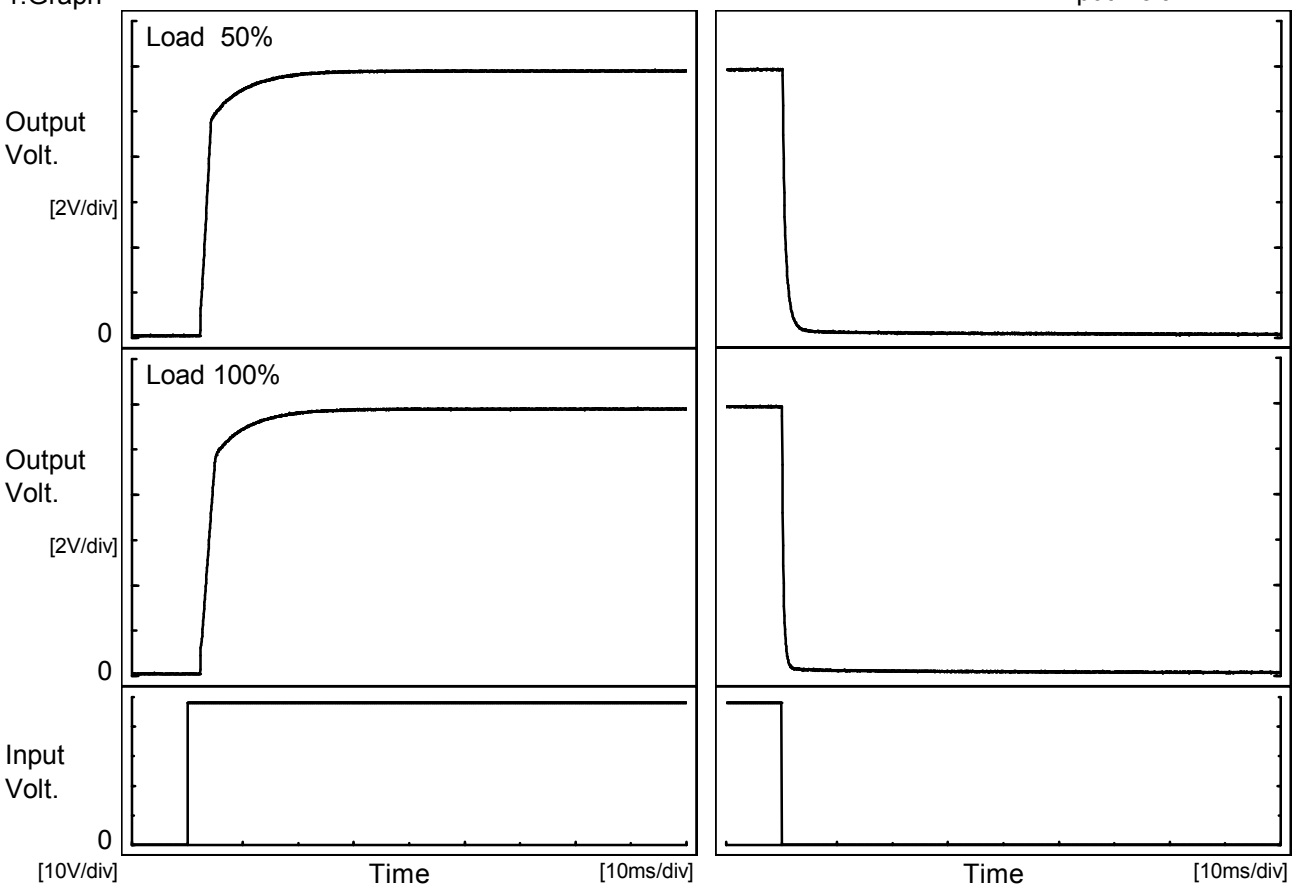
COSEL

Model	MGW304812
Item	Rise and Fall Time
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

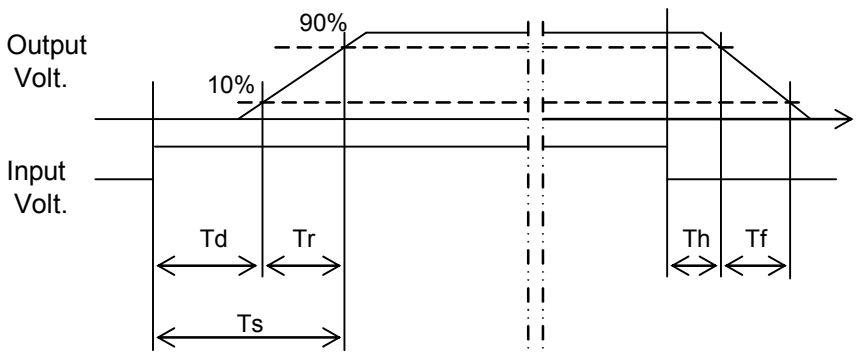
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.4	7.0	9.4	0.1	1.4
100 %	2.5	7.4	9.9	0.1	0.7



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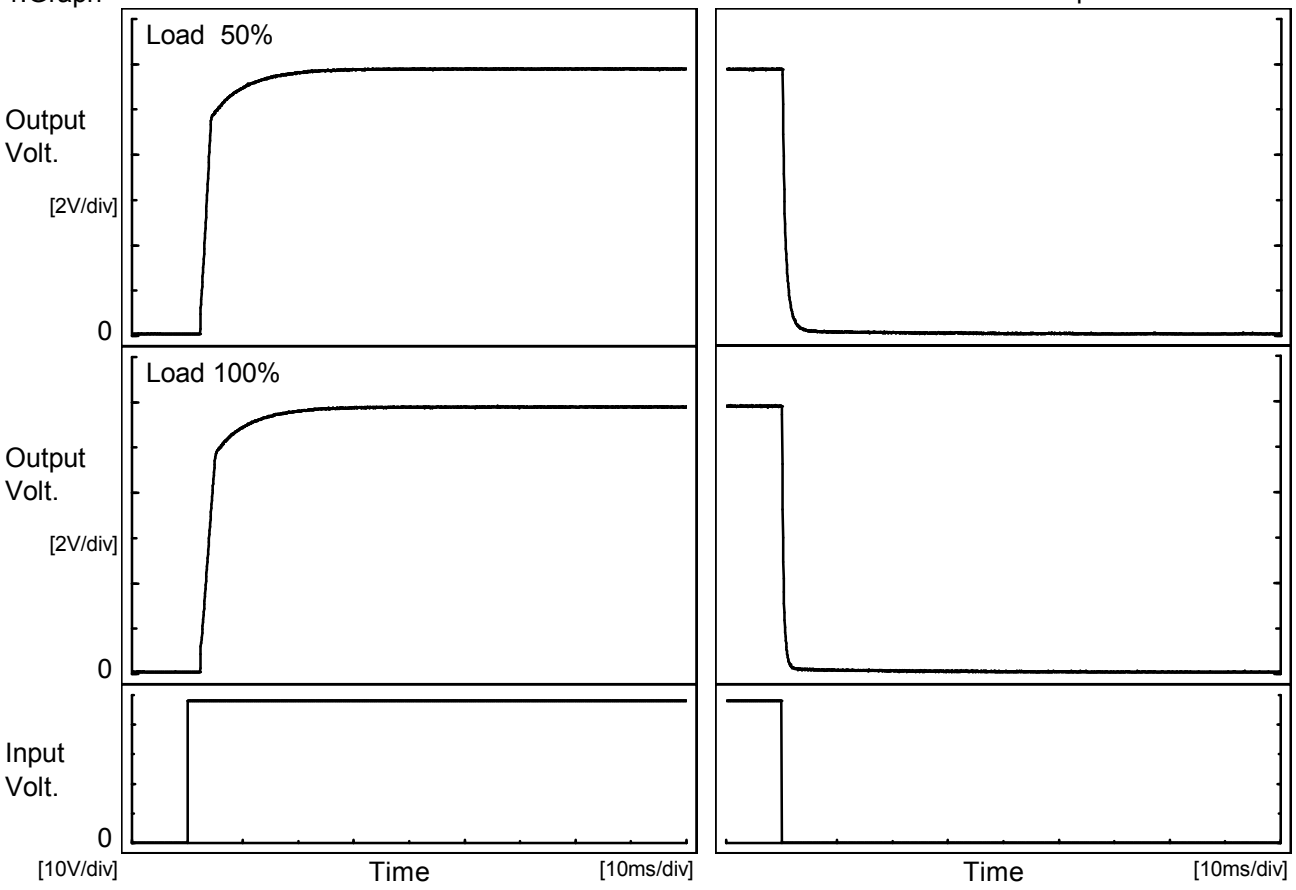
COSEL

Model	MGW304812	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-12V1.25A	

1.Graph

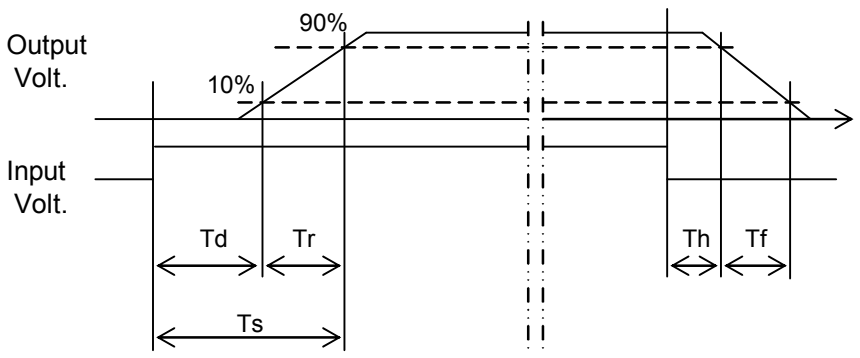
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.5	6.9	9.4	0.1	1.4
100 %	2.5	7.4	9.9	0.1	0.7

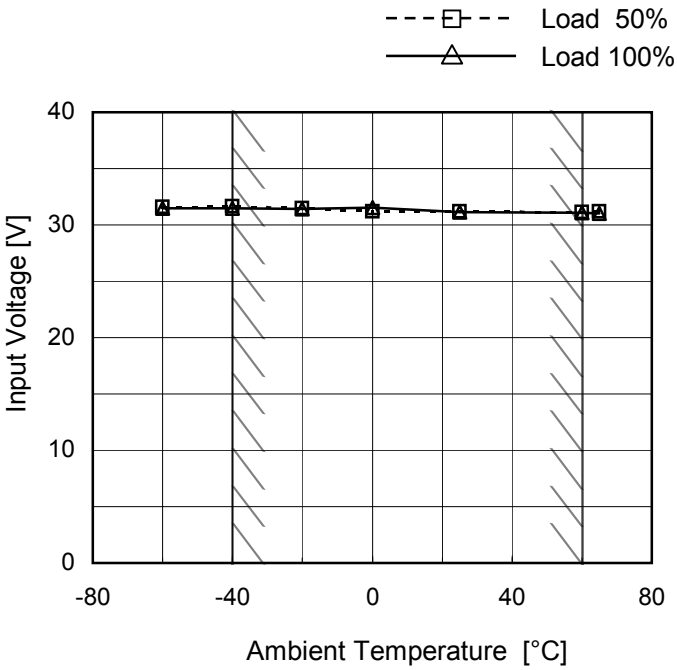


COSEL

Model	MGW304812
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

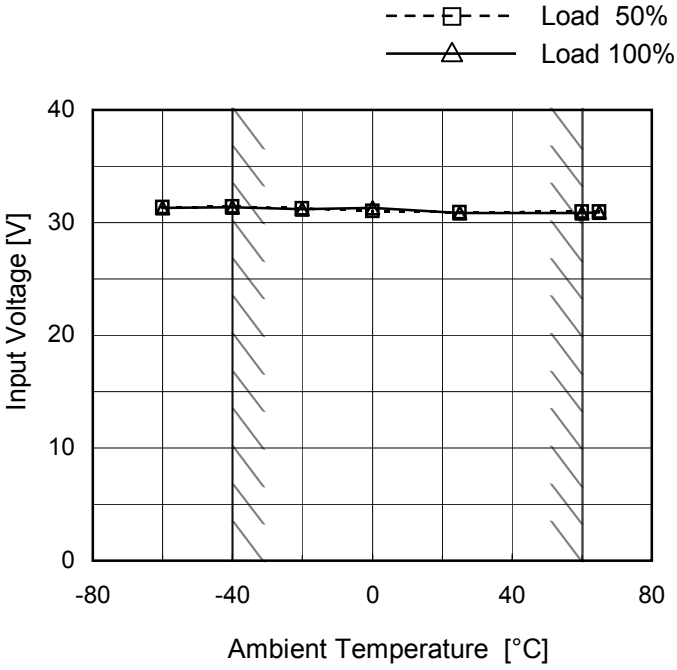


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	31.6	31.5
-40	31.7	31.5
-20	31.5	31.5
0	31.2	31.6
25	31.2	31.2
60	31.2	31.1
65	31.2	31.1
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V1.25A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	31.4	31.4
-40	31.5	31.4
-20	31.3	31.2
0	31.1	31.4
25	31.0	30.9
60	31.0	30.9
65	31.0	30.9
--	-	-
--	-	-
--	-	-
--	-	-

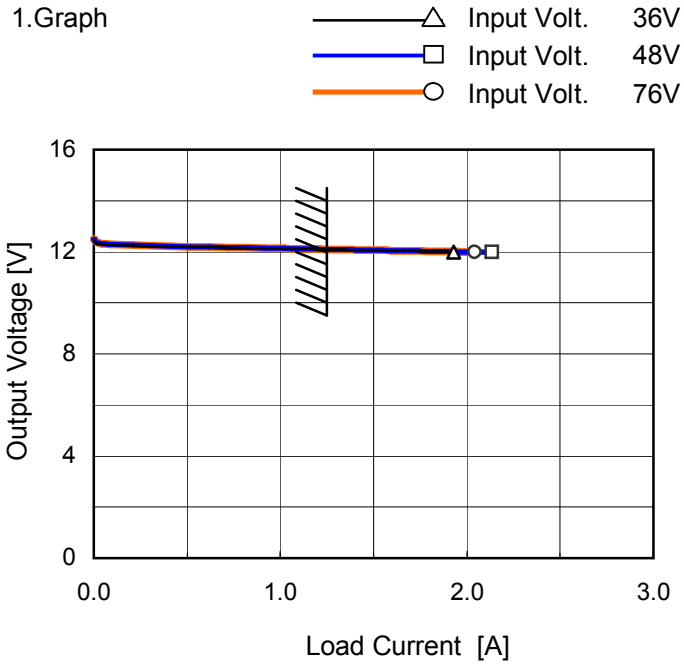
Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	MGW304812
Item	Overcurrent Protection
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

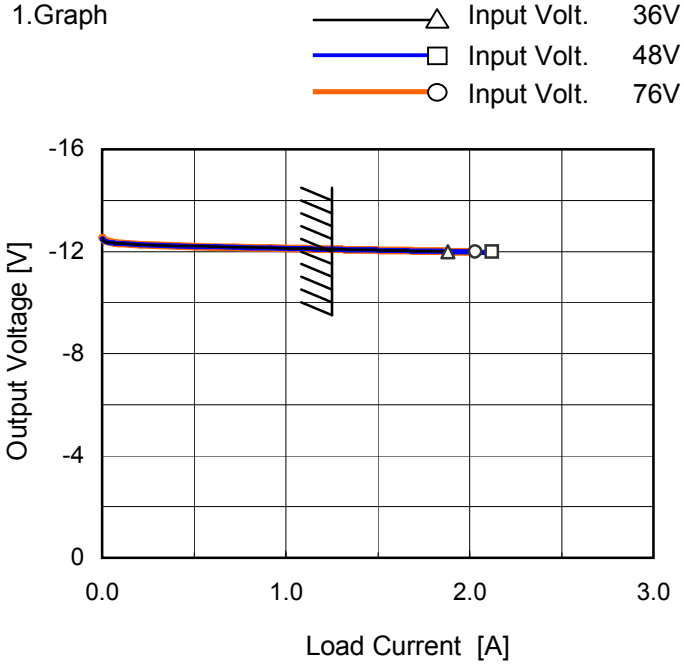


2.Values

Output Voltage [V]	Load Current [A] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
12.00	1.93	2.13	2.04
11.40	-	-	-
10.80	-	-	-
9.60	-	-	-
8.40	-	-	-
7.20	-	-	-
6.00	-	-	-
4.80	-	-	-
3.60	-	-	-
2.40	-	-	-
1.20	-	-	-
0.00	-	-	-

Object	-12V1.25A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

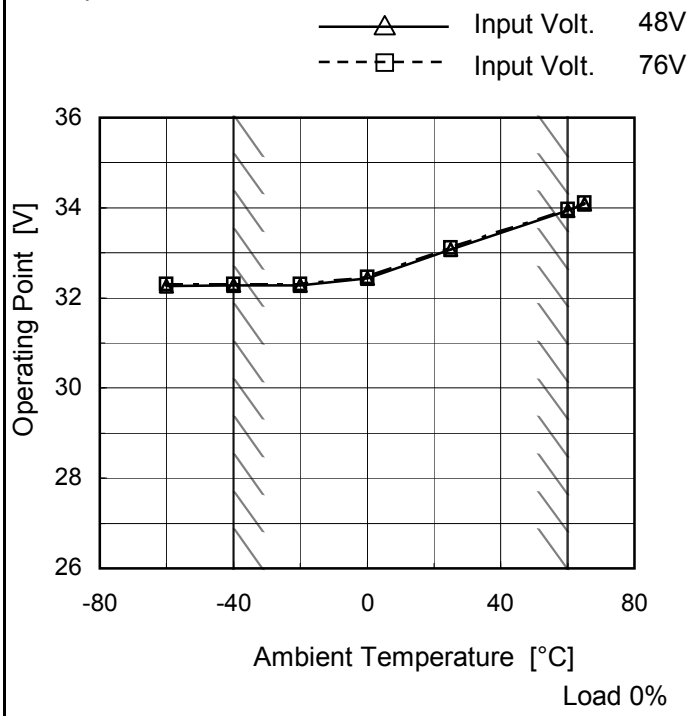
Output Voltage [V]	Load Current [A] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-12.00	1.88	2.12	2.03
-11.40	-	-	-
-10.80	-	-	-
-9.60	-	-	-
-8.40	-	-	-
-7.20	-	-	-
-6.00	-	-	-
-4.80	-	-	-
-3.60	-	-	-
-2.40	-	-	-
-1.20	-	-	-
0.00	-	-	-

COSEL

Model	MGW304812
Item	Overvoltage Protection
Object	+24V1.25A

Testing Circuitry Figure A

1.Graph



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

Measured as a single output(+24V).

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 48[V]	Input Volt. 76[V]
-60	32.27	32.30
-40	32.28	32.31
-20	32.28	32.31
0	32.43	32.46
25	33.08	33.11
60	33.94	33.97
65	34.08	34.11
--	-	-
--	-	-
--	-	-
--	-	-

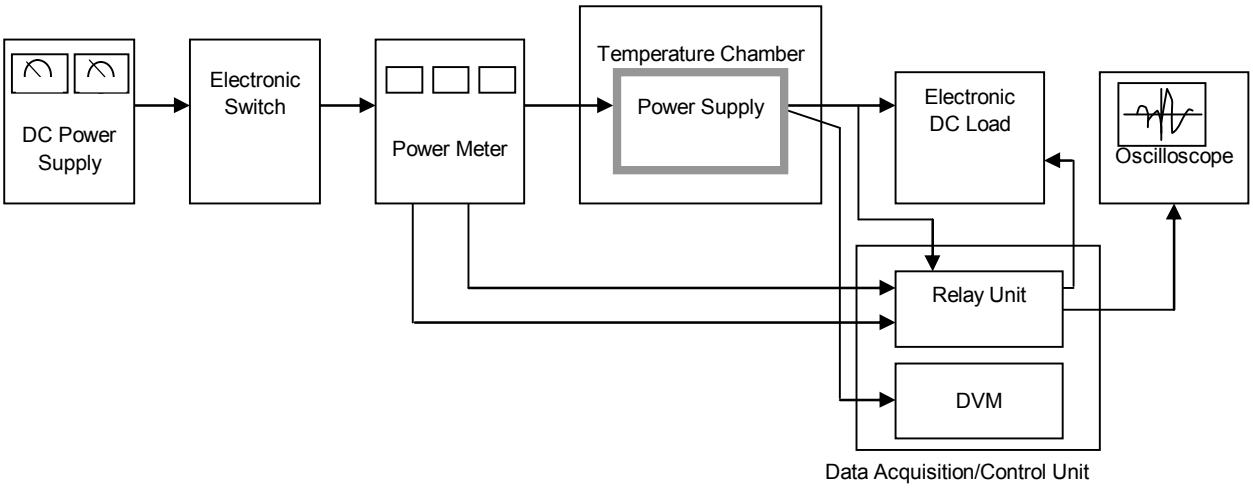


Figure A

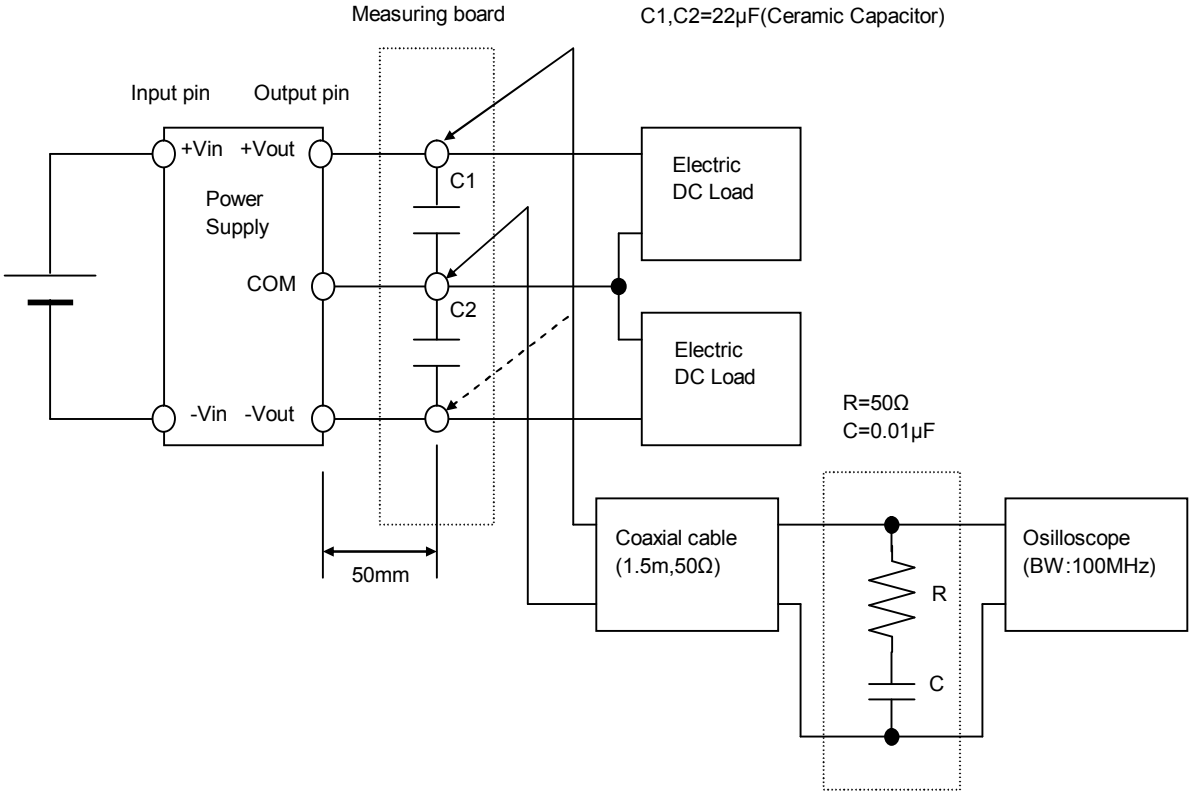


Figure B（Ripple and Ripple noise Characteristic）