参考資料

COSEL

TEST DATA OF STMGFW304812

Regulated DC Power Supply
January 29, 2013

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COSEL CO.,LTD.

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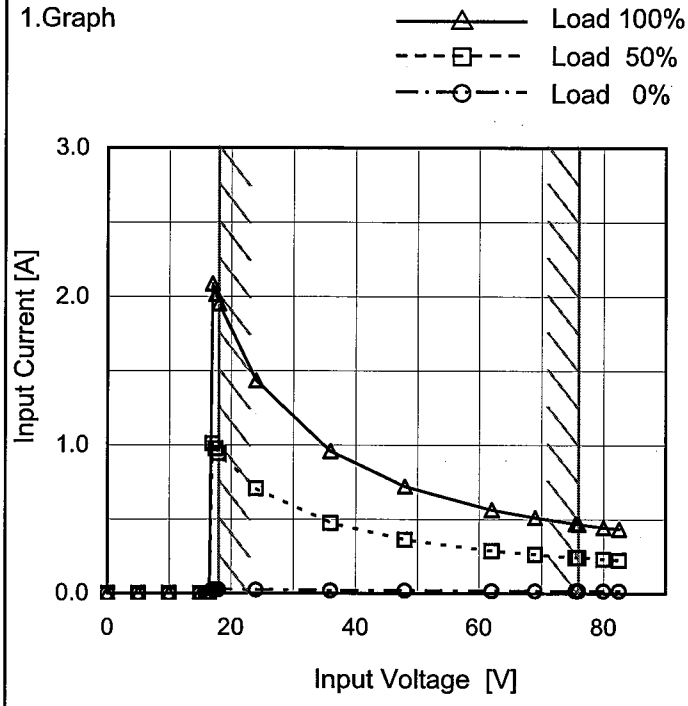
COSEL

Model	STMGFW304812
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

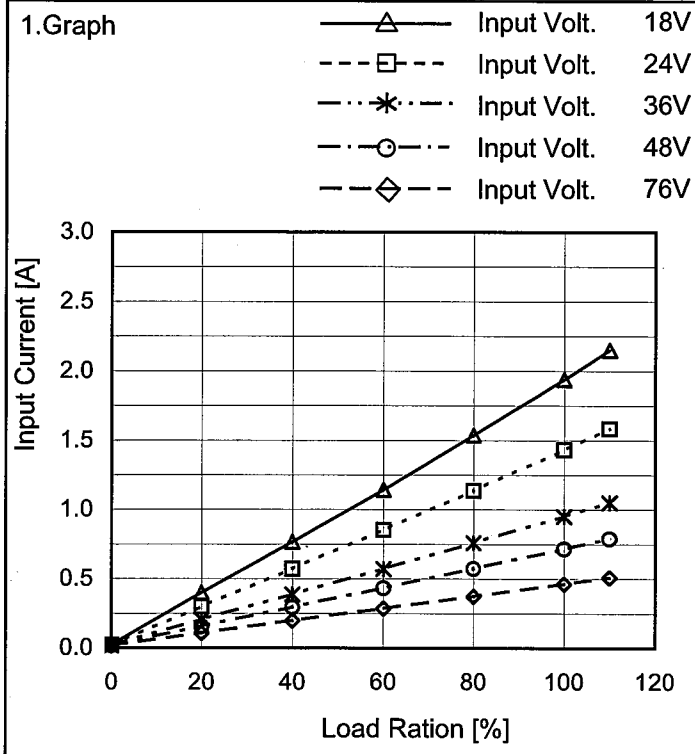
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
5.0	0.000	0.000	0.000
10.0	0.000	0.000	0.000
15.0	0.000	0.000	0.000
16.0	0.000	0.000	0.000
16.5	0.000	0.000	0.000
17.0	0.025	1.011	2.089
17.5	0.025	0.976	2.018
18.0	0.025	0.945	1.940
24.0	0.023	0.706	1.433
36.0	0.020	0.475	0.953
48.0	0.018	0.362	0.717
62.0	0.017	0.287	0.565
69.0	0.017	0.262	0.512
75.5	0.017	0.242	0.471
76.0	0.017	0.241	0.464
80.0	0.017	0.230	0.447
82.5	0.017	0.225	0.435

COSEL

Model	STMGFW304812
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

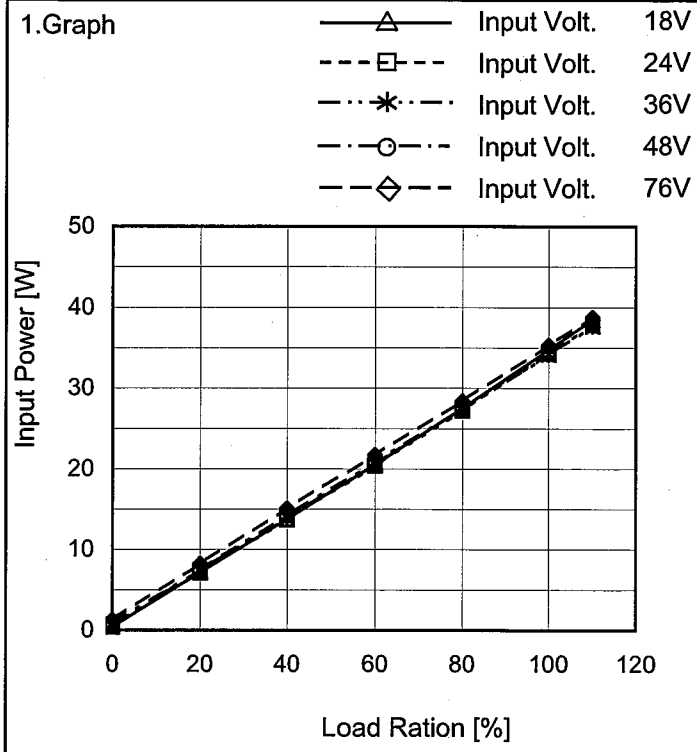
Load Ration [%]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.025	0.023	0.020	0.018	0.017
20	0.400	0.299	0.204	0.156	0.108
40	0.769	0.572	0.387	0.296	0.198
60	1.144	0.853	0.571	0.434	0.286
80	1.538	1.137	0.760	0.574	0.374
100	1.940	1.433	0.953	0.717	0.464
110	2.152	1.584	1.051	0.790	0.510
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW304812
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.45	0.56	0.72	0.89	1.32
20	7.18	7.16	7.36	7.50	8.22
40	13.78	13.69	13.92	14.21	15.09
60	20.54	20.38	20.57	20.81	21.73
80	27.53	27.23	27.31	27.53	28.44
100	34.80	34.27	34.20	34.39	35.30
110	38.50	37.85	37.70	37.85	38.80
--	-	-	-	-	-
--	-	-	-	-	-
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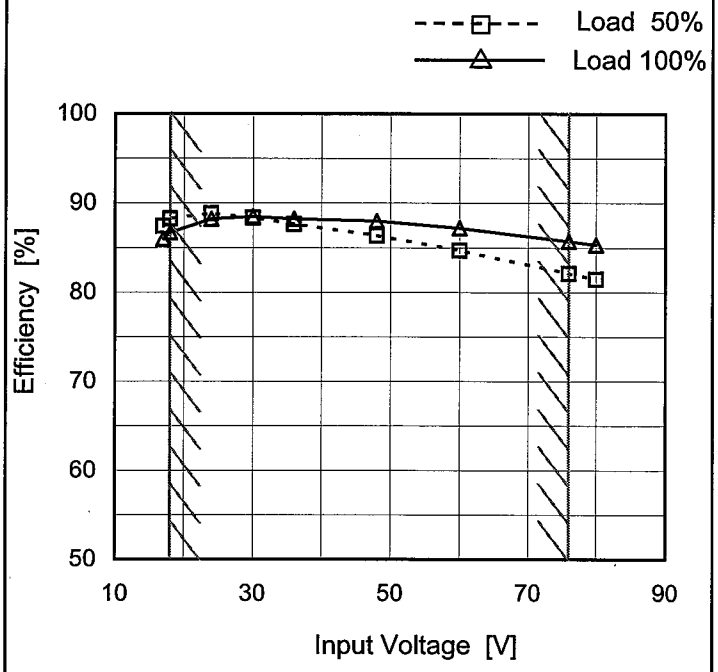
Model	STMGFW304812
Item	Efficiency (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

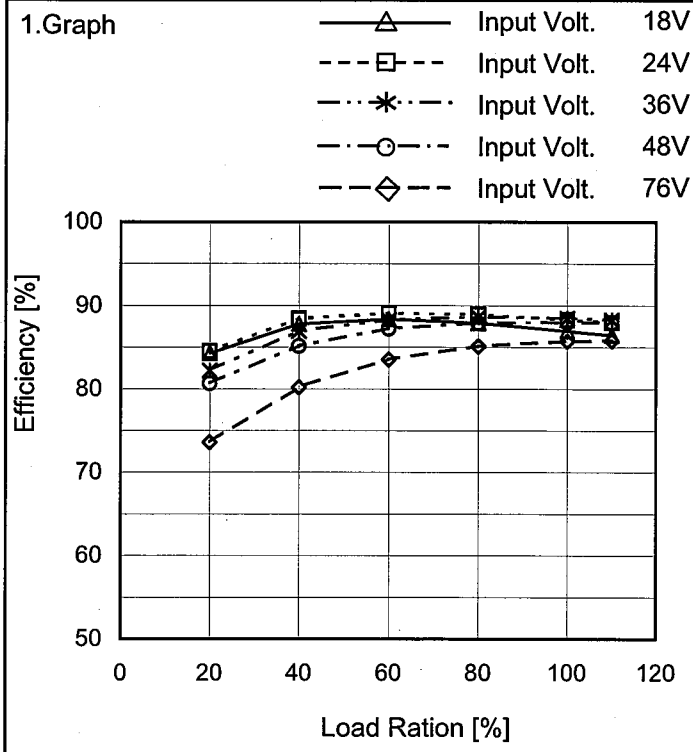
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	87.4	86.0
18	88.3	86.7
24	88.8	88.2
30	88.4	88.5
36	87.6	88.2
48	86.3	88.0
60	84.7	87.2
76	82.1	85.7
80	81.5	85.4

COSEL

Model	STMGFW304812
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

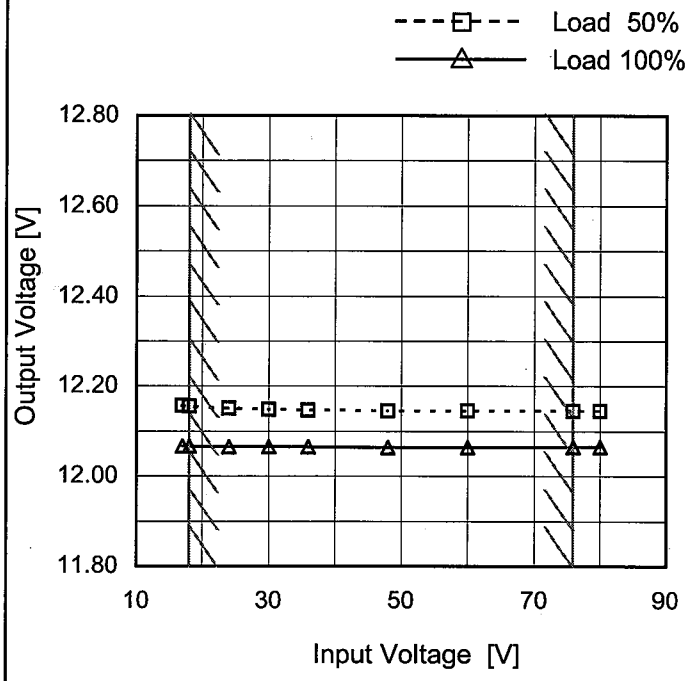
Load Ration [%]	Efficiency [%]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-	-	-
20	84.3	84.5	82.2	80.7	73.6
40	87.8	88.4	86.9	85.2	80.2
60	88.4	89.1	88.3	87.2	83.5
80	87.9	88.9	88.6	87.9	85.1
100	87.0	88.3	88.5	88.0	85.7
110	86.5	87.9	88.3	88.0	85.8
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW304812
Item	Line Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

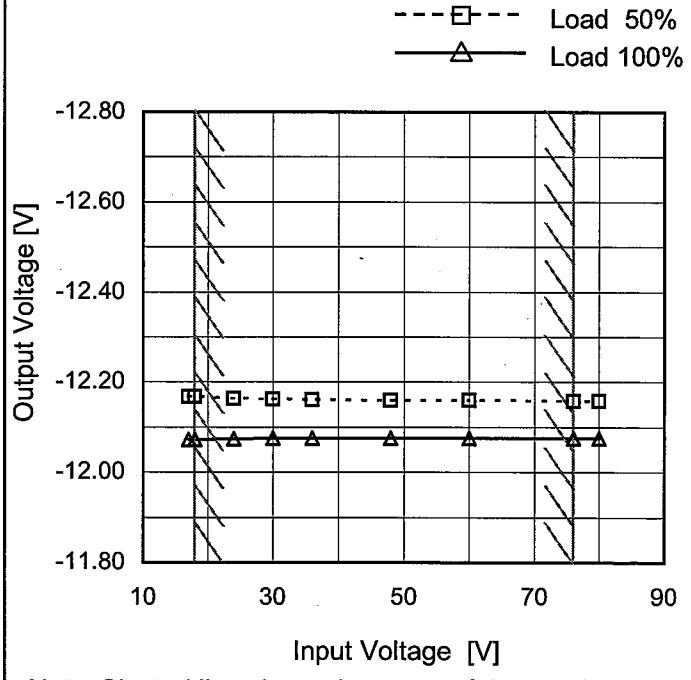


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	12.156	12.067
18	12.156	12.067
24	12.151	12.066
30	12.148	12.066
36	12.147	12.065
48	12.145	12.065
60	12.145	12.065
76	12.145	12.065
80	12.146	12.065

Object	-12V1.25A

1.Graph



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

2.Values

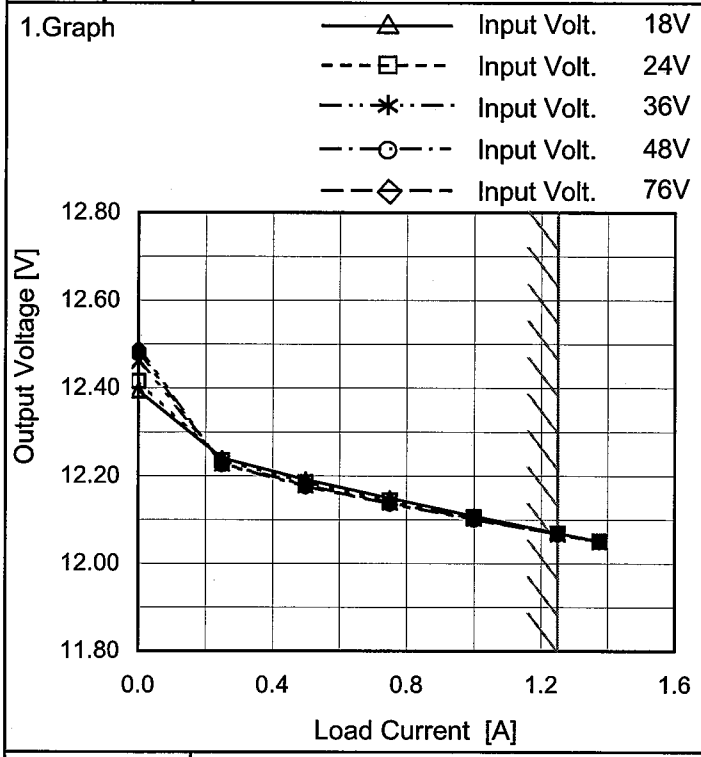
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	-12.168	-12.073
18	-12.168	-12.073
24	-12.164	-12.074
30	-12.162	-12.075
36	-12.161	-12.076
48	-12.160	-12.076
60	-12.159	-12.076
76	-12.158	-12.076
80	-12.158	-12.075

COSEL

Model	STMGFW304812
Item	Load Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

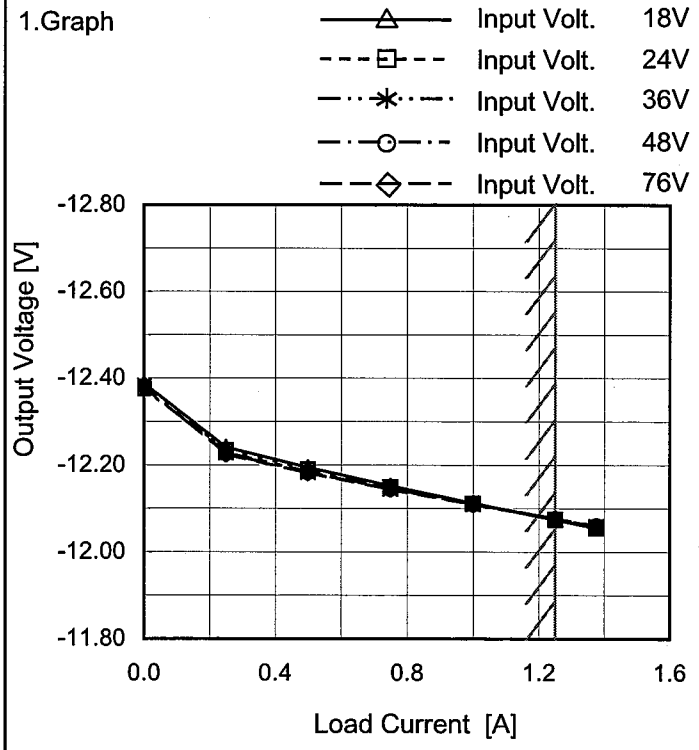


2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	12.395	12.416	12.461	12.479	12.489
0.250	12.241	12.235	12.228	12.226	12.227
0.500	12.192	12.185	12.179	12.177	12.175
0.750	12.149	12.145	12.139	12.137	12.137
1.000	12.109	12.106	12.103	12.101	12.101
1.250	12.070	12.069	12.067	12.067	12.067
1.375	12.051	12.051	12.051	12.050	12.051
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-12V1.25A

1.Graph



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

2.Values

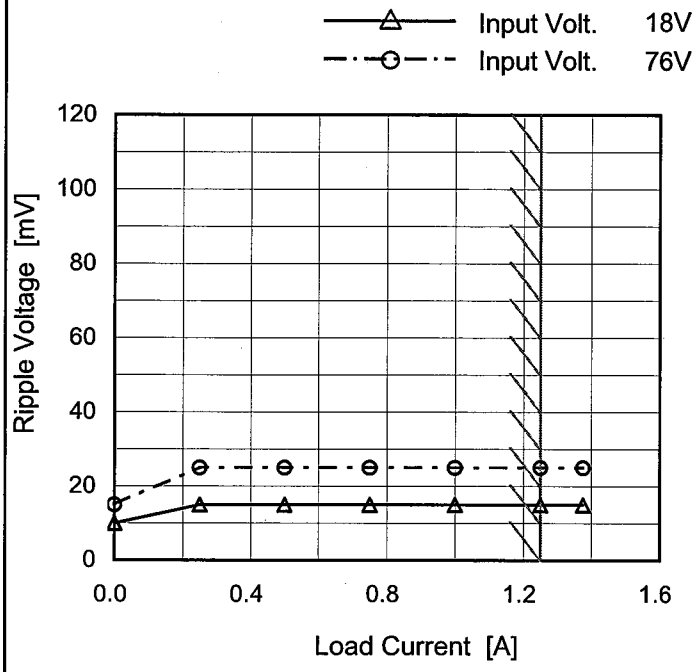
Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	-12.388	-12.376	-12.384	-12.381	-12.382
0.250	-12.241	-12.234	-12.228	-12.226	-12.224
0.500	-12.194	-12.189	-12.185	-12.183	-12.181
0.750	-12.152	-12.149	-12.146	-12.145	-12.144
1.000	-12.113	-12.111	-12.110	-12.110	-12.109
1.250	-12.074	-12.075	-12.076	-12.077	-12.076
1.375	-12.056	-12.057	-12.059	-12.061	-12.060
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW304812
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]

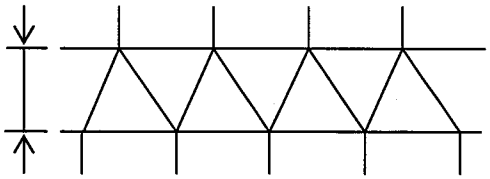


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.000	10	15
0.250	15	25
0.500	15	25
0.750	15	25
1.000	15	25
1.250	15	25
1.375	15	25
--	-	-
--	-	-
--	-	-
--	-	-

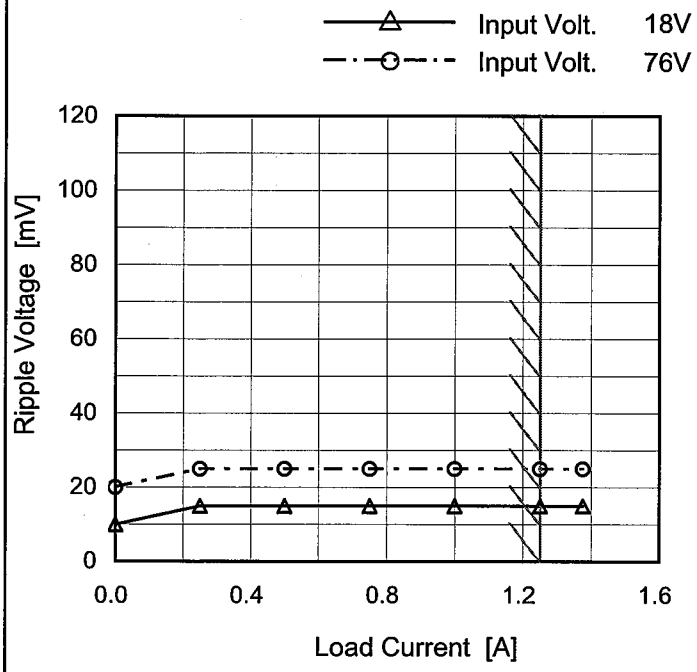
-12V: Rated output current

COSEL

Model	STMGFW304812
Item	Ripple Voltage (by Load Current)
Object	-12V1.25A

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.

Ripple [mVp-p]

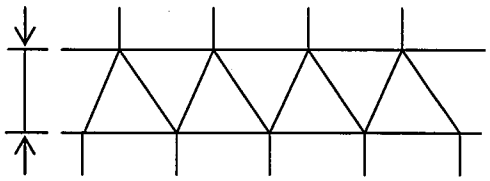


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [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
--	-	-
--	-	-
--	-	-
--	-	-

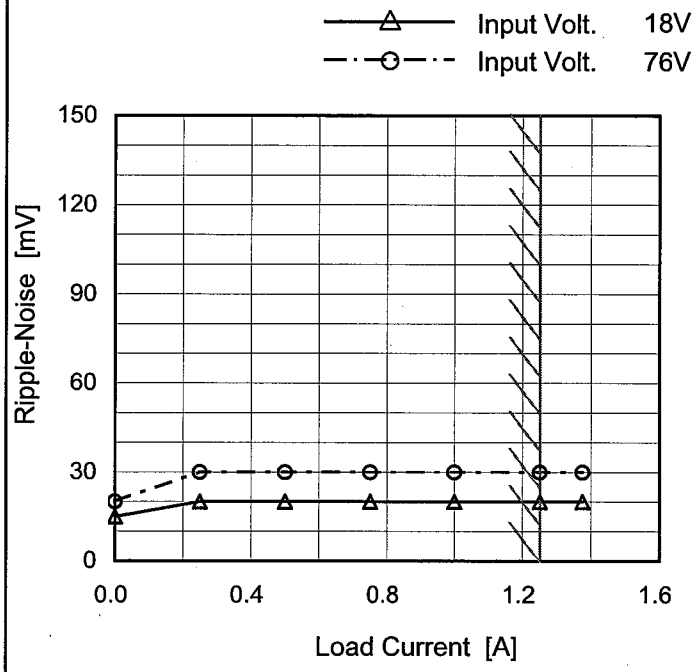
+12V: Rated output current

COSEL

Model	STMGFW304812
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.

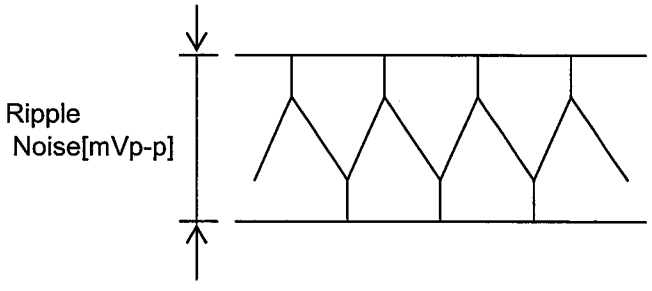


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [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
--	-	-
--	-	-
--	-	-
--	-	-

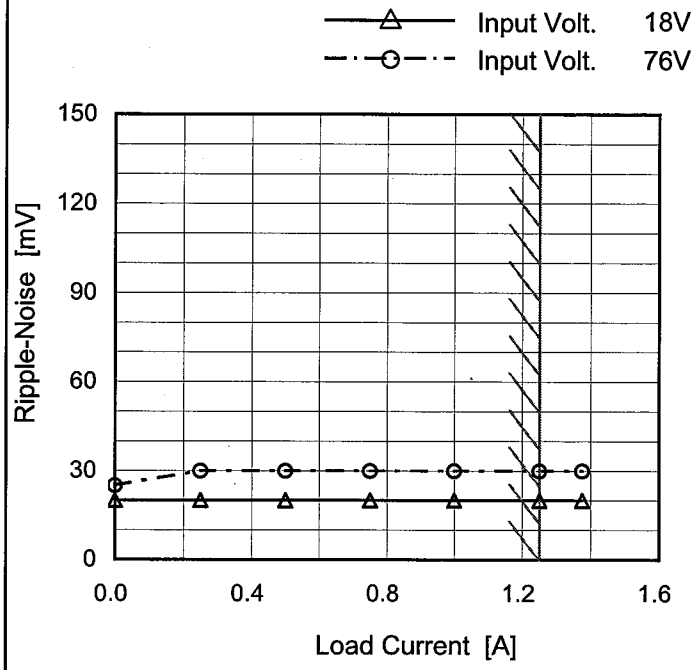
-12V: Rated output current

COSEL

Model	STMGFW304812
Item	Ripple-Noise
Object	-12V1.25A

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.

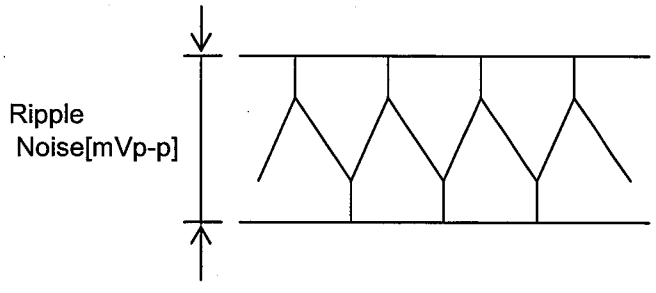


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.000	20	25
0.250	20	30
0.500	20	30
0.750	20	30
1.000	20	30
1.250	20	30
1.375	20	30
--	-	-
--	-	-
--	-	-
--	-	-

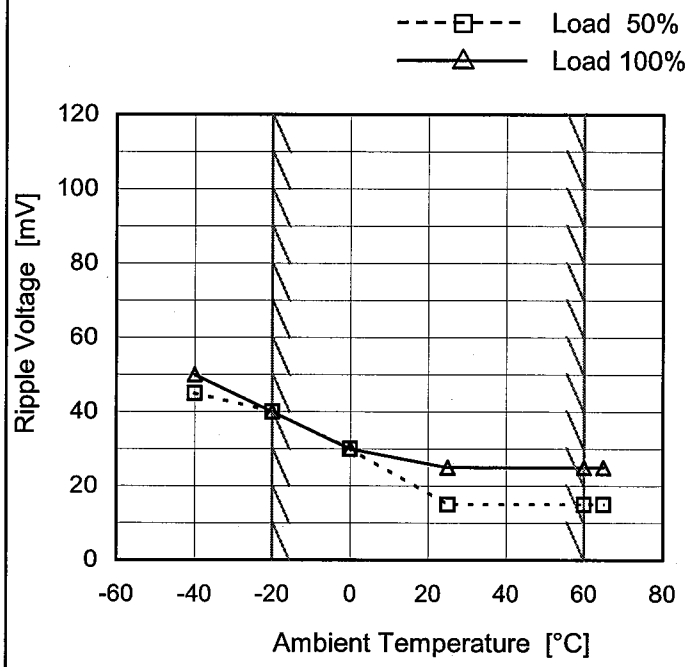
+12V: Rated output current

COSEL

Model	STMGFW304812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.25A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

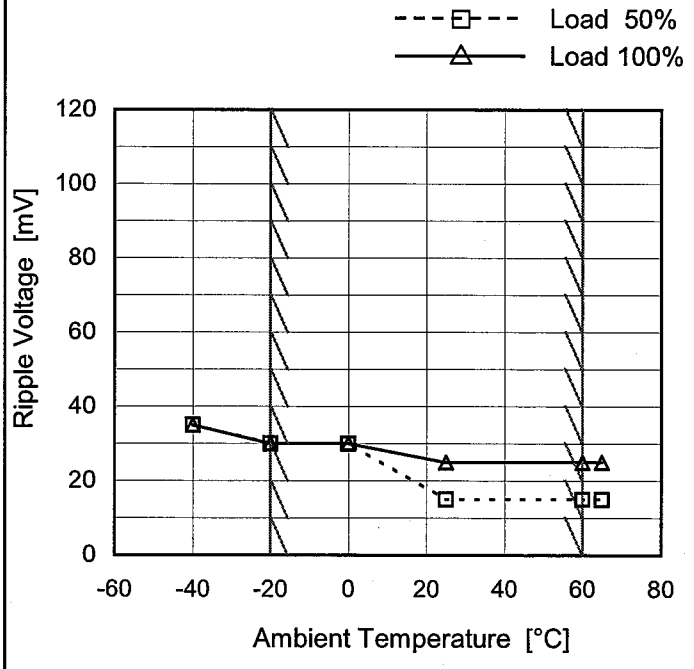
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	45	50
-20	40	40
0	30	30
25	15	25
60	15	25
65	15	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

-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%
-40	35	35
-20	30	30
0	30	30
25	15	25
60	15	25
65	15	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

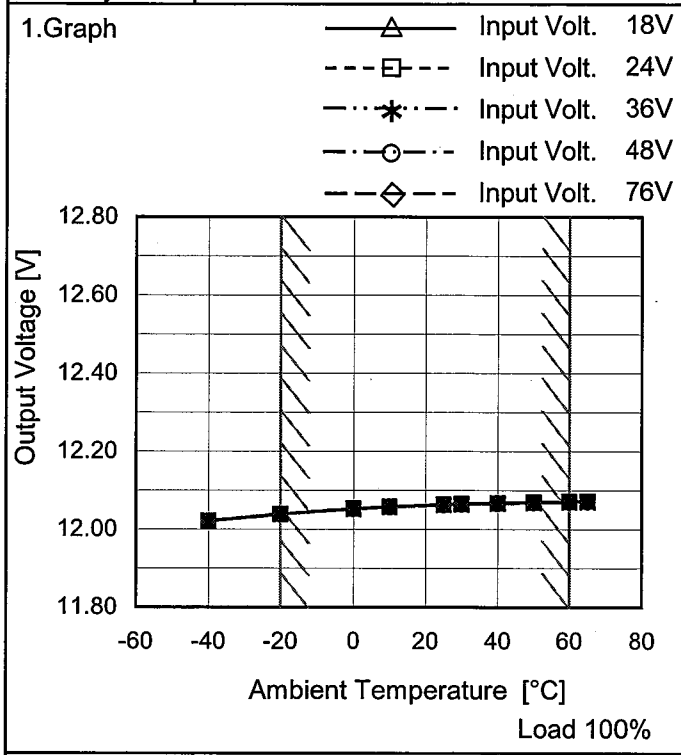
+12V: Rated output current

COSEL

Model	STMGFW304812
Item	Ambient Temperature Drift
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

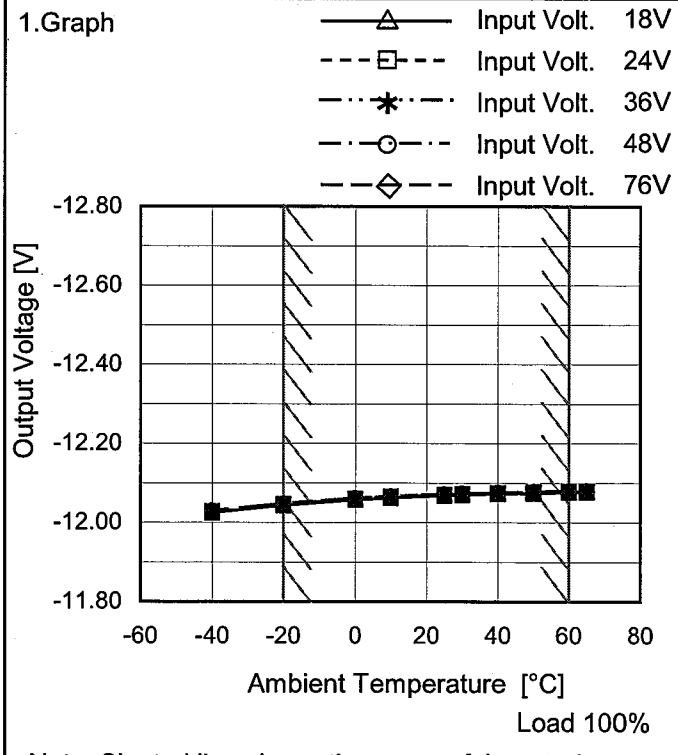


2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	12.022	12.021	12.021	12.020	12.021
-20	12.040	12.040	12.039	12.038	12.039
0	12.054	12.053	12.052	12.051	12.052
10	12.059	12.058	12.057	12.057	12.057
25	12.065	12.064	12.063	12.062	12.062
30	12.066	12.065	12.064	12.064	12.064
40	12.069	12.068	12.067	12.066	12.066
50	12.071	12.070	12.068	12.068	12.068
60	12.072	12.071	12.070	12.070	12.070
65	12.073	12.072	12.071	12.070	12.070
--	-	-	-	-	-

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	-12.025	-12.027	-12.029	-12.030	-12.030
-20	-12.044	-12.045	-12.047	-12.048	-12.048
0	-12.057	-12.059	-12.060	-12.061	-12.061
10	-12.063	-12.064	-12.066	-12.066	-12.066
25	-12.069	-12.070	-12.071	-12.072	-12.072
30	-12.070	-12.071	-12.073	-12.073	-12.073
40	-12.073	-12.074	-12.075	-12.076	-12.076
50	-12.075	-12.076	-12.078	-12.078	-12.077
60	-12.077	-12.078	-12.079	-12.080	-12.079
65	-12.077	-12.078	-12.080	-12.080	-12.080
--	-	-	-	-	-

COSEL

Model	STMGFW304812	
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 : -20 - 60°C
Input Voltage : 18 - 76V
Load Current (AVR 1) : 0 - 1.25A (AVR 2) : 0 - 1.25A

* 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

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	12.501	±232	±1.9
Minimum Voltage	-20	48	1.25	12.038		

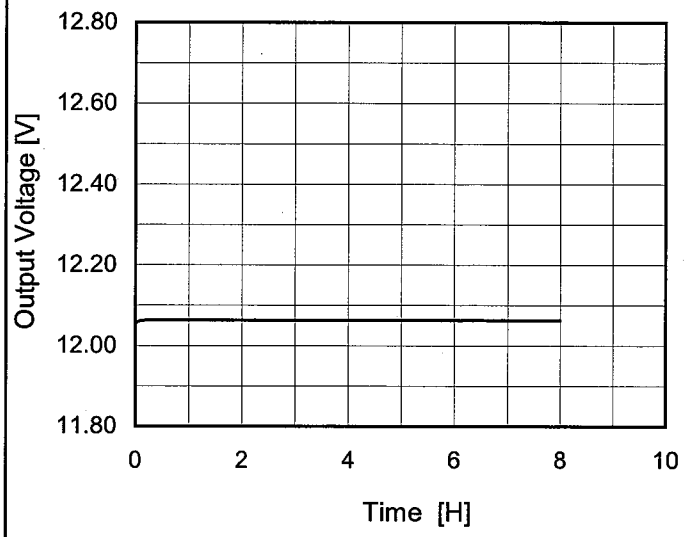
Object	-12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	18	0	-12.404	±180	±1.5
Minimum Voltage	-20	18	1.25	-12.044		

COSEL

Model	STMGFW304812
Item	Time Lapse Drift
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



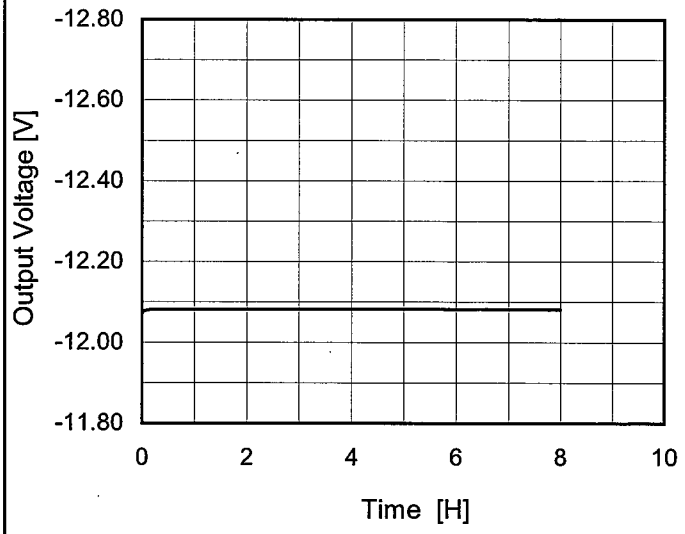
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.055
0.5	12.063
1.0	12.063
2.0	12.063
3.0	12.063
4.0	12.063
5.0	12.063
6.0	12.063
7.0	12.063
8.0	12.063

Object	-12V1.25A

1.Graph



Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.072
0.5	-12.082
1.0	-12.082
2.0	-12.082
3.0	-12.082
4.0	-12.082
5.0	-12.082
6.0	-12.082
7.0	-12.082
8.0	-12.082

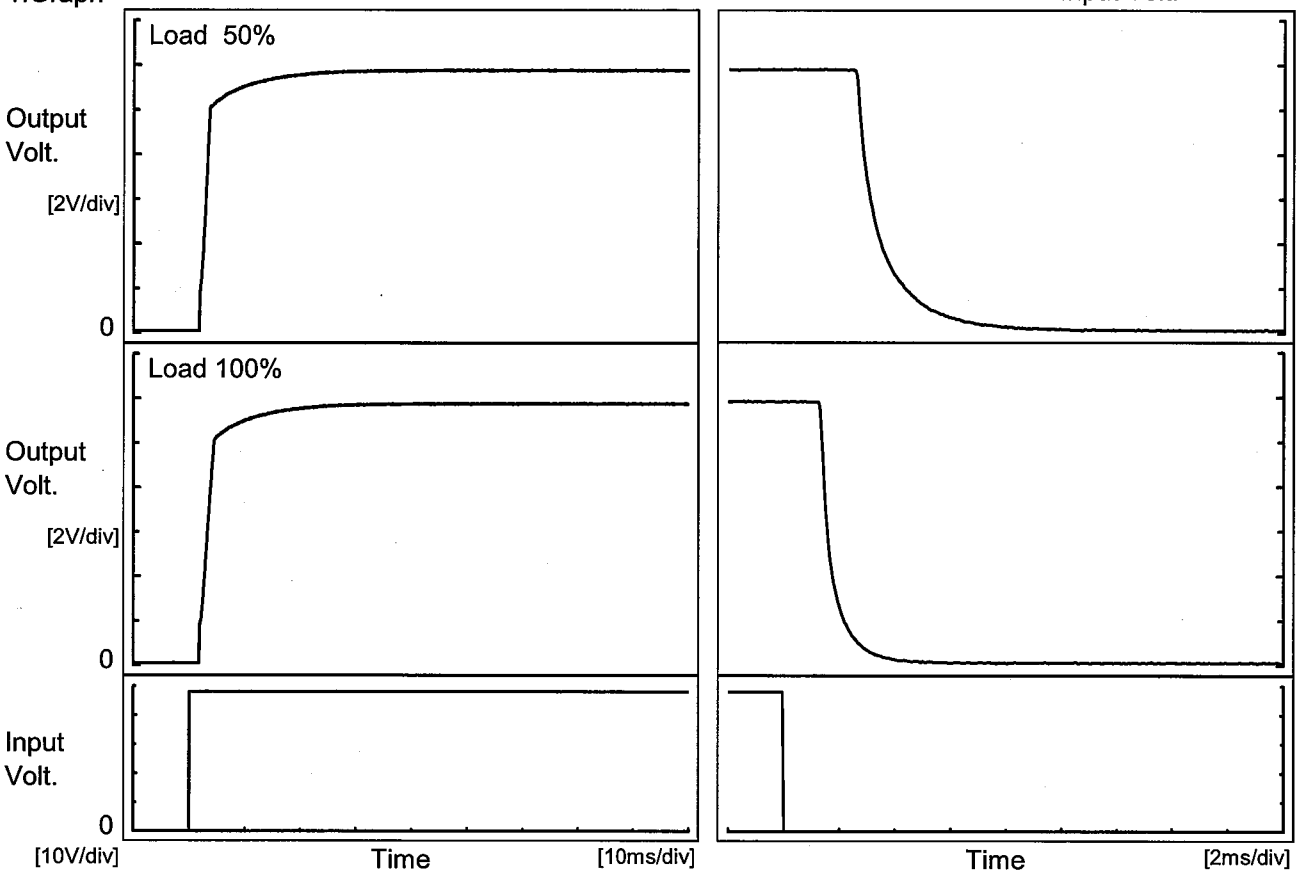
COSEL

Model	STMGFW304812
Item	Rise and Fall Time
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

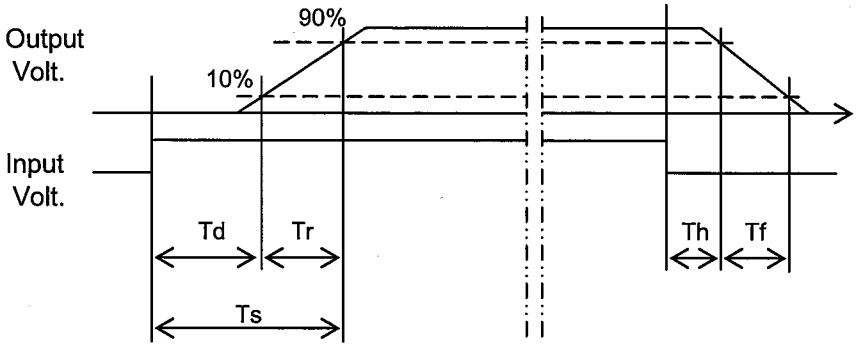
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.9	6.4	8.3	2.7	2.4
100 %	1.9	6.9	8.8	1.3	1.2



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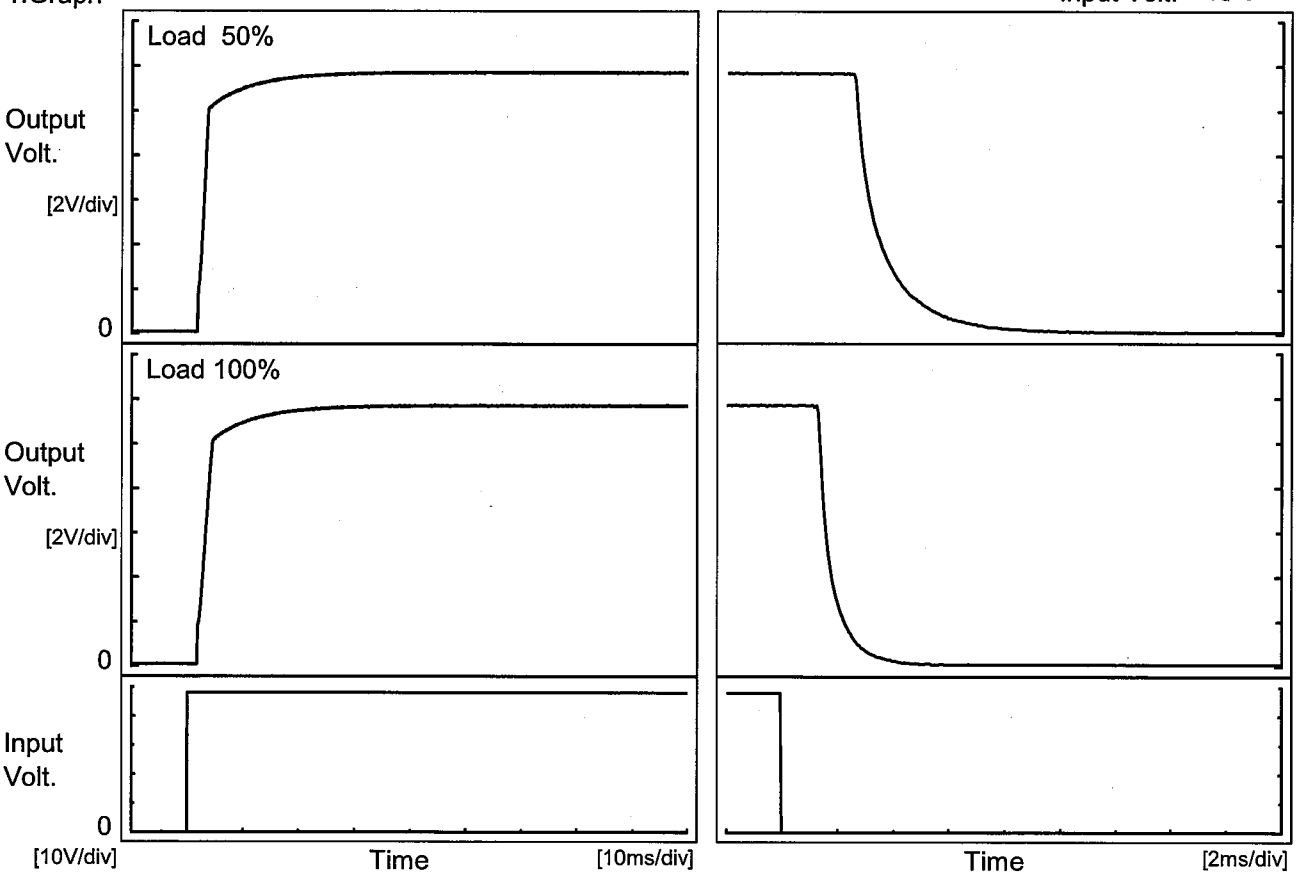
COSEL

Model	STMGFW304812
Item	Rise and Fall Time
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

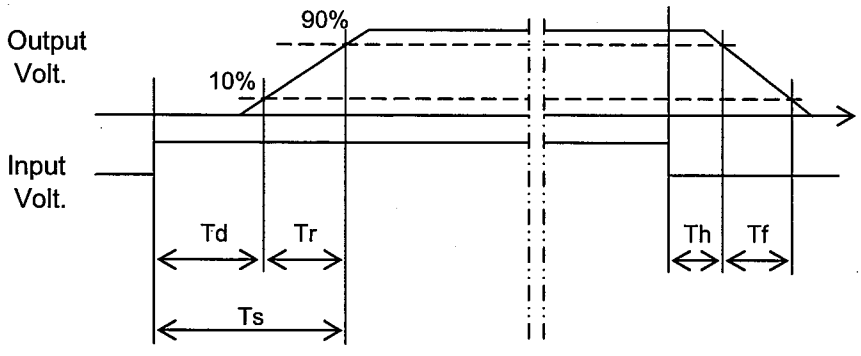
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.9	6.8	8.7	2.6	2.5
100 %	1.9	7.4	9.3	1.3	1.2

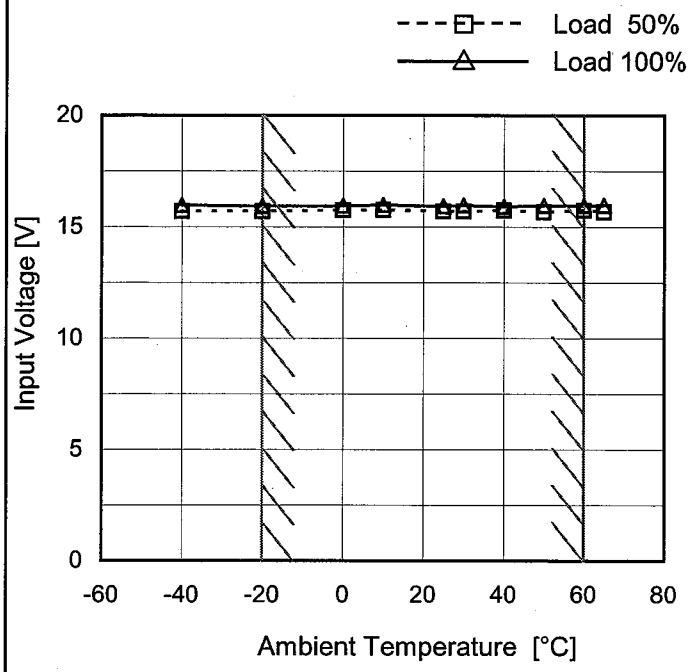


COSEL

Model	STMGFW304812
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

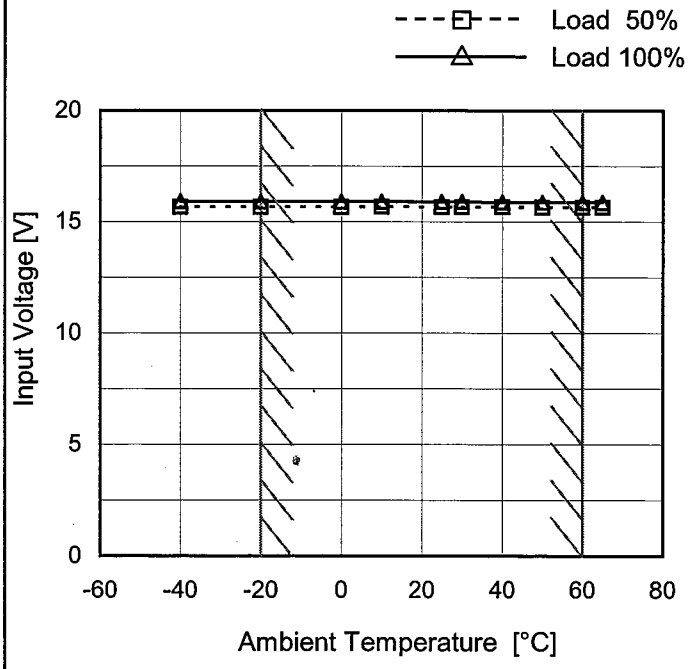


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.7	16.0
-20	15.7	16.0
0	15.8	16.0
10	15.8	16.0
25	15.8	16.0
30	15.7	16.0
40	15.8	16.0
50	15.7	16.0
60	15.8	16.0
65	15.7	16.0
--	-	-

Object	-12V1.25A

1.Graph



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

2.Values

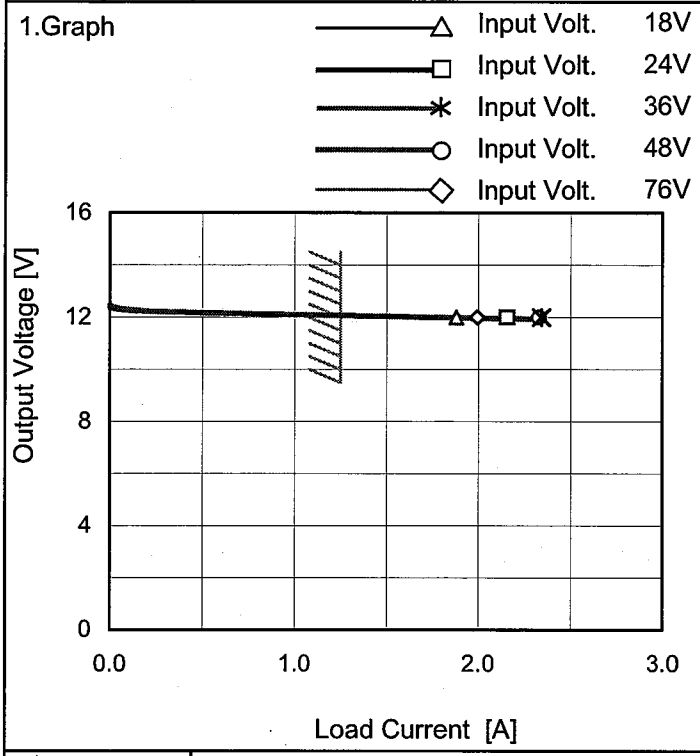
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.7	16.0
-20	15.7	16.0
0	15.7	16.0
10	15.7	16.0
25	15.7	15.9
30	15.7	15.9
40	15.7	15.9
50	15.7	15.9
60	15.7	15.9
65	15.7	15.9
--	-	-

COSEL

Model	STMGFW304812
Item	Overcurrent Protection
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

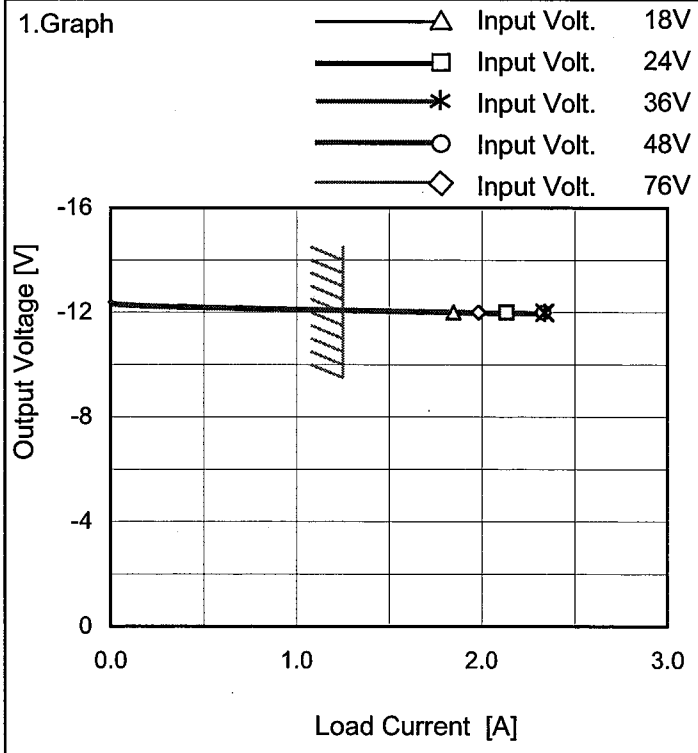


2.Values

Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
12.0	1.882	2.157	2.344	2.330	1.994
11.4	-	-	-	-	-
10.8	-	-	-	-	-
9.6	-	-	-	-	-
8.4	-	-	-	-	-
7.2	-	-	-	-	-
6.0	-	-	-	-	-
4.8	-	-	-	-	-
3.6	-	-	-	-	-
2.4	-	-	-	-	-
1.2	-	-	-	-	-
0.0	-	-	-	-	-

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

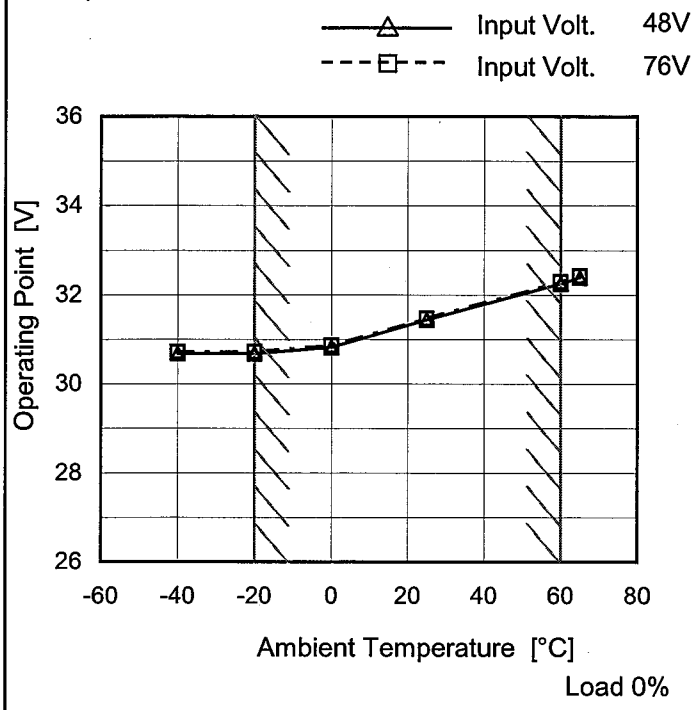
Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-12.0	1.848	2.136	2.340	2.333	1.983
-11.4	-	-	-	-	-
-10.8	-	-	-	-	-
-9.6	-	-	-	-	-
-8.4	-	-	-	-	-
-7.2	-	-	-	-	-
-6.0	-	-	-	-	-
-4.8	-	-	-	-	-
-3.6	-	-	-	-	-
-2.4	-	-	-	-	-
-1.2	-	-	-	-	-
0.0	-	-	-	-	-

COSEL

Model	STMGFW304812
Item	Overvoltage Protection
Object	+24V1.25A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 48[V]	Input Volt. 76[V]
-40	30.68	30.72
-20	30.68	30.72
0	30.83	30.86
25	31.44	31.48
60	32.26	32.29
65	32.40	32.43
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

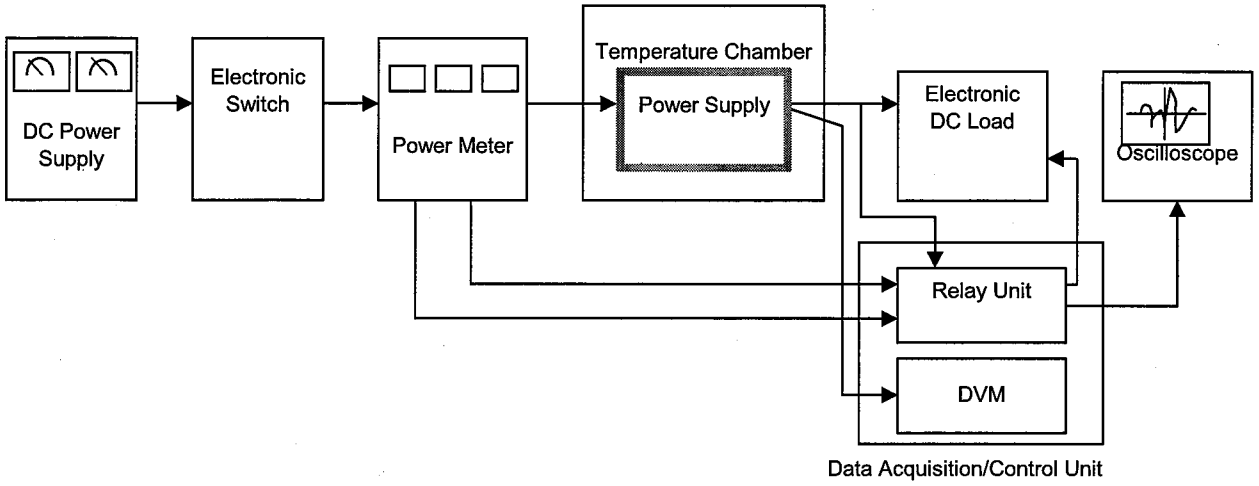


Figure A

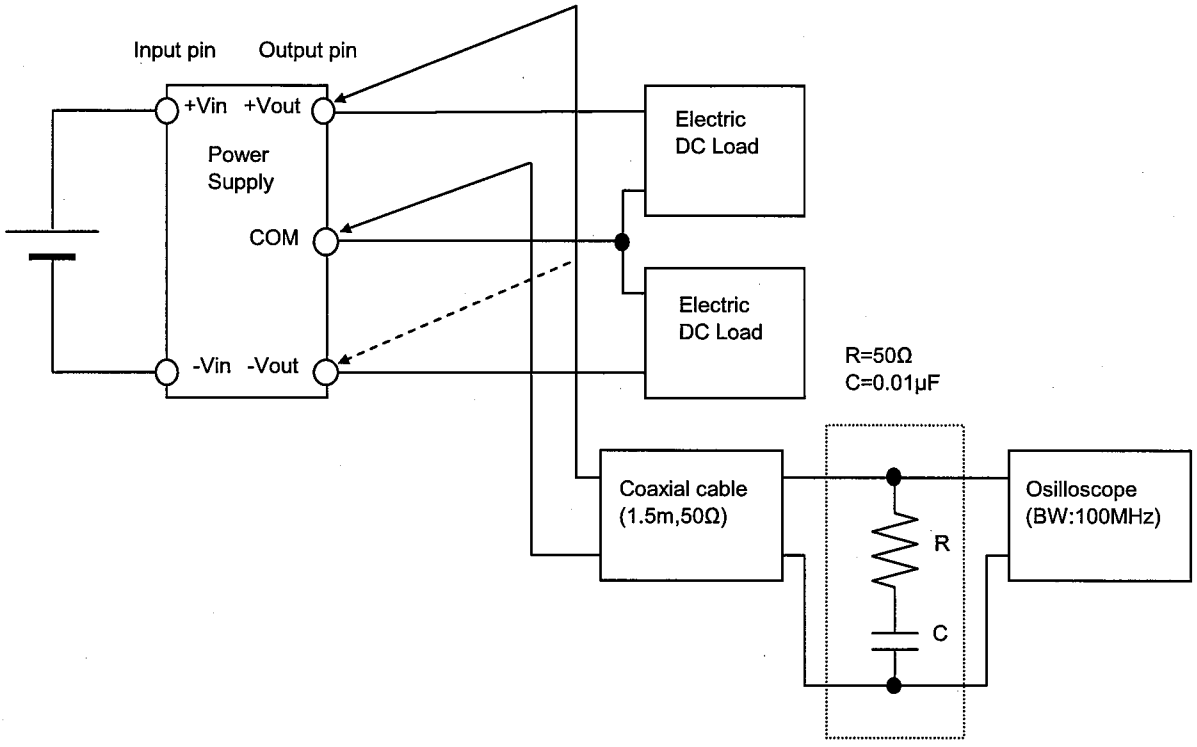


Figure B（Ripple and Ripple noise Characteristic）