参考資料

COSEL

TEST DATA OF STMGFW302412

Regulated DC Power Supply
January 30, 2013

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COSEL CO.,LTD.

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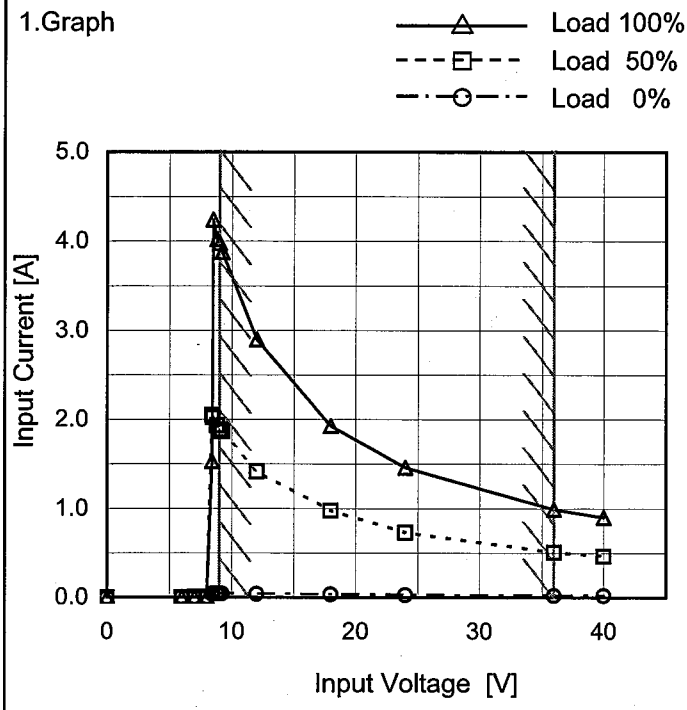
COSEL

Model	STMGFW302412
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

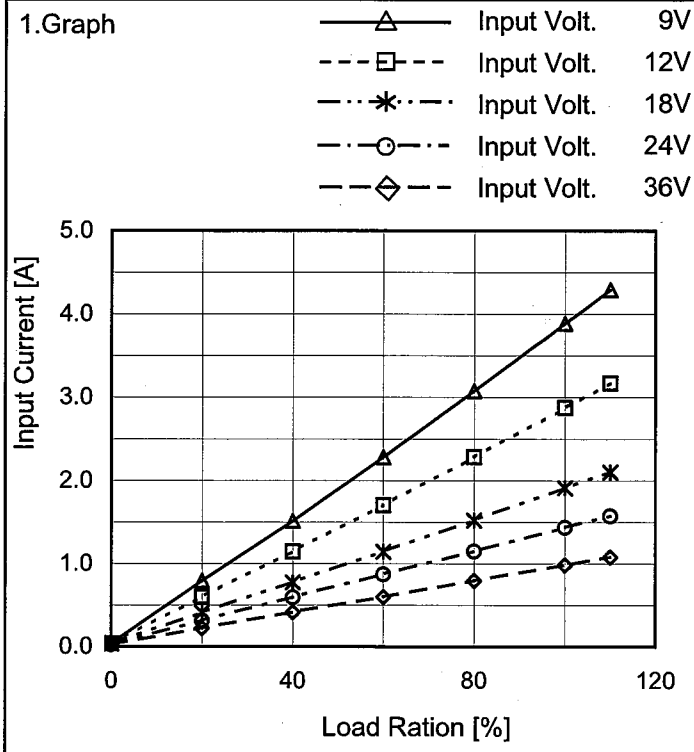
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
6.0	0.002	0.001	0.001
7.0	0.003	0.002	0.002
8.0	0.002	0.002	0.002
8.4	0.043	2.050	1.529
8.5	0.044	2.023	4.242
8.8	0.044	1.934	4.022
9.0	0.043	1.888	3.888
9.2	0.043	1.864	3.879
12.0	0.040	1.415	2.875
18.0	0.035	0.979	1.912
24.0	0.028	0.730	1.436
36.0	0.023	0.507	0.982
40.0	0.023	0.462	0.901
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	STMGFW302412
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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.044	0.039	0.035	0.028	0.024
20	0.794	0.599	0.411	0.314	0.224
40	1.514	1.143	0.778	0.594	0.416
60	2.282	1.704	1.146	0.872	0.601
80	3.079	2.281	1.521	1.147	0.794
100	3.888	2.875	1.912	1.436	0.982
110	4.293	3.170	2.102	1.576	1.080
--	-	-	-	-	-
--	-	-	-	-	-
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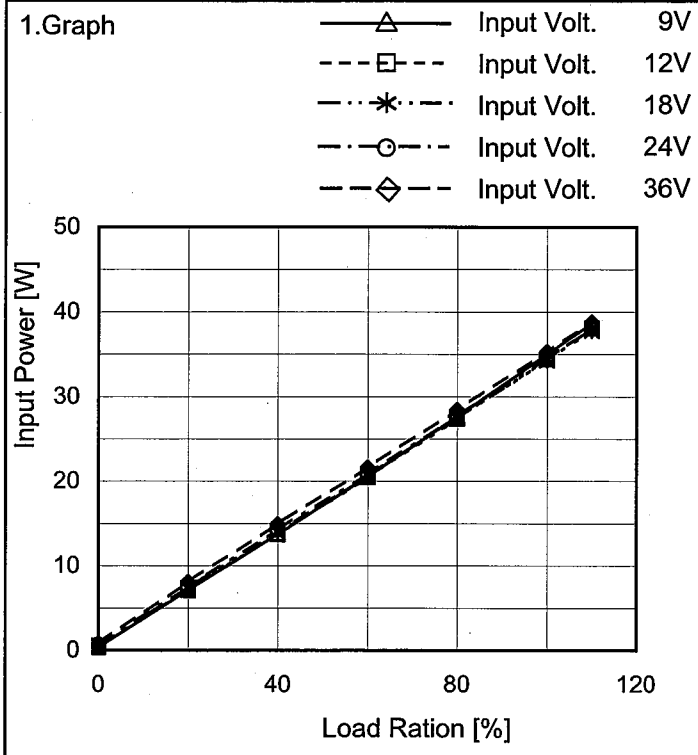
COSEL

Model	STMGFW302412
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

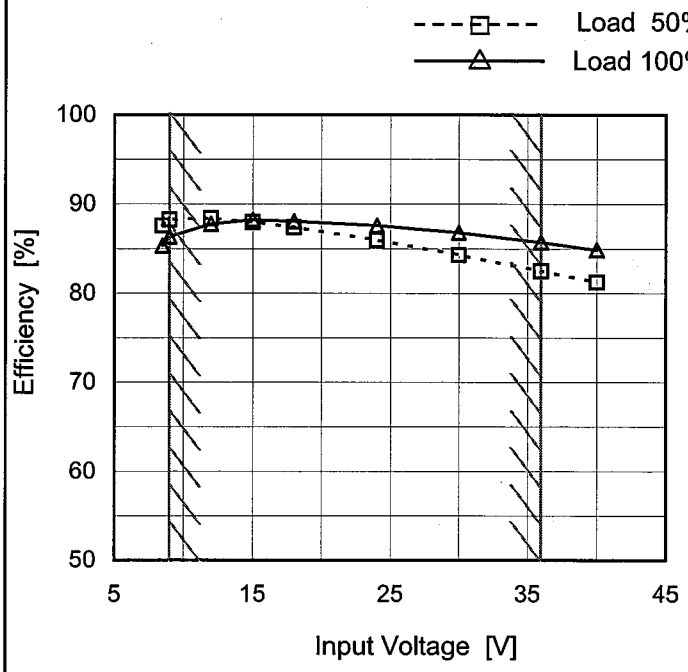
Load Ration [%]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.39	0.47	0.62	0.67	0.85
20	7.14	7.21	7.38	7.52	8.07
40	13.73	13.76	13.98	14.26	14.95
60	20.56	20.48	20.64	20.88	21.66
80	27.65	27.37	27.44	27.67	28.42
100	34.99	34.45	34.32	34.54	35.32
110	38.68	38.07	37.85	38.02	38.83
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW302412
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

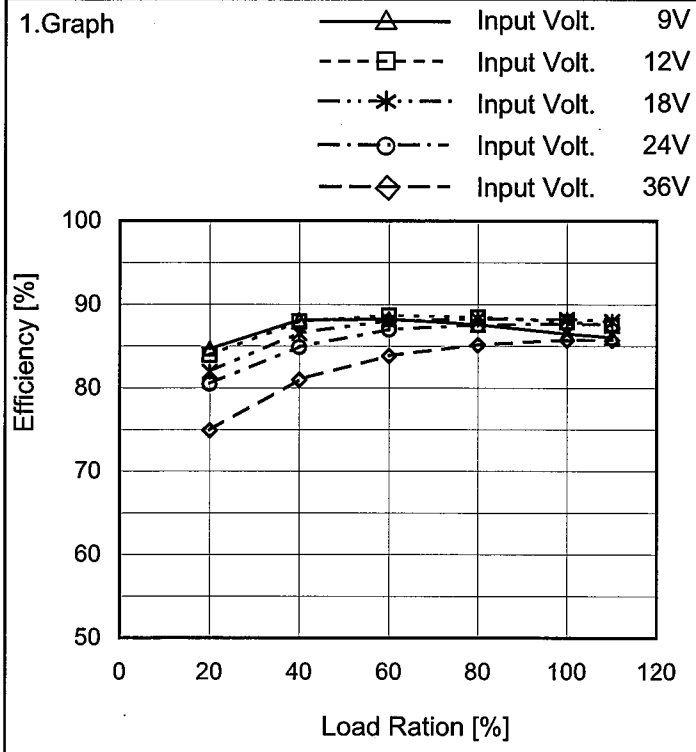
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	87.6	85.3
9.0	88.3	86.3
12.0	88.4	87.8
15.0	88.0	88.2
18.0	87.4	88.1
24.0	86.0	87.6
30.0	84.3	86.8
36.0	82.5	85.7
40.0	81.3	84.9

COSEL

Model	STMGFW302412
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

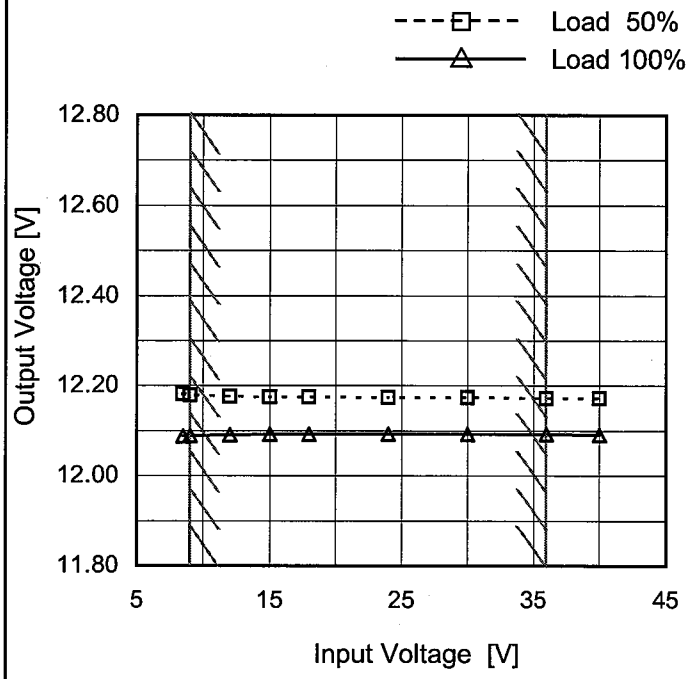
Load Ration [%]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-	-	-
20	84.7	83.9	82.0	80.5	74.9
40	88.1	87.9	86.6	84.9	81.0
60	88.3	88.7	88.0	87.0	83.9
80	87.6	88.5	88.3	87.5	85.2
100	86.5	87.9	88.2	87.7	85.7
110	86.1	87.5	88.0	87.6	85.8
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW302412
Item	Line Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

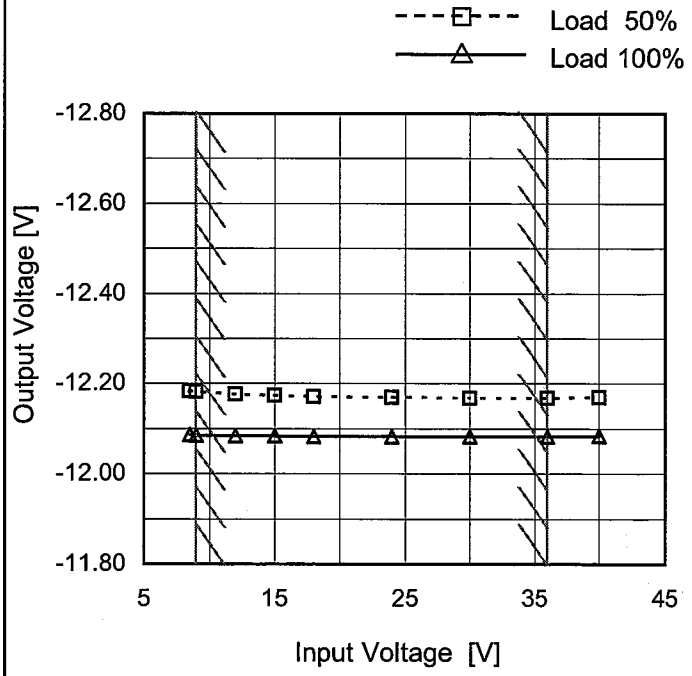


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	12.182	12.089
9.0	12.179	12.089
12.0	12.176	12.091
15.0	12.175	12.092
18.0	12.174	12.093
24.0	12.174	12.093
30.0	12.174	12.093
36.0	12.173	12.092
40.0	12.172	12.092

Object	-12V1.25A

1.Graph



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

2.Values

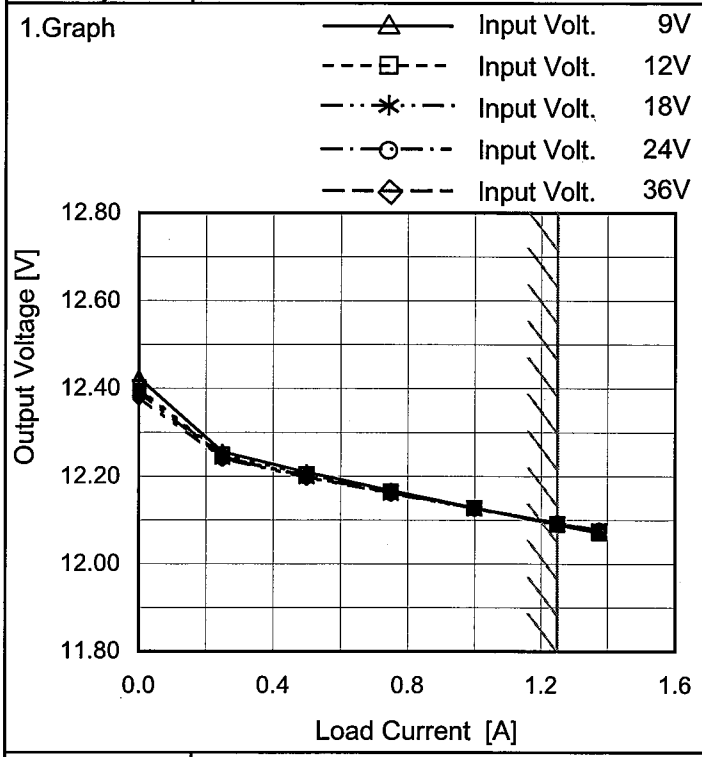
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	-12.184	-12.086
9.0	-12.182	-12.086
12.0	-12.176	-12.084
15.0	-12.173	-12.084
18.0	-12.171	-12.083
24.0	-12.169	-12.082
30.0	-12.168	-12.082
36.0	-12.168	-12.083
40.0	-12.169	-12.084

COSEL

Model	STMGFW302412
Item	Load Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

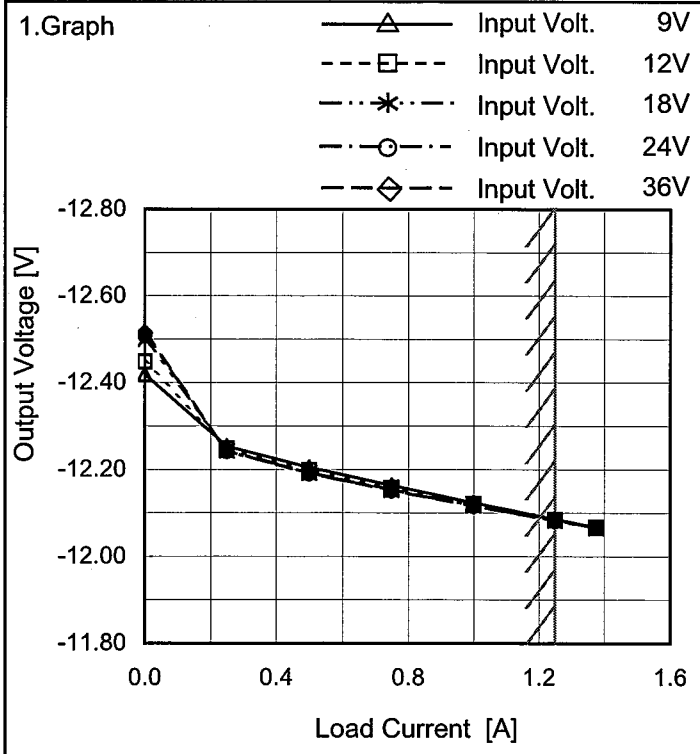


2.Values

Load Current [A]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	12.425	12.403	12.399	12.392	12.380
0.250	12.256	12.249	12.244	12.242	12.240
0.500	12.209	12.204	12.200	12.199	12.197
0.750	12.168	12.165	12.163	12.162	12.160
1.000	12.128	12.128	12.127	12.127	12.126
1.250	12.090	12.092	12.093	12.093	12.093
1.375	12.071	12.074	12.076	12.077	12.077
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-12V1.25A

1.Graph



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

2.Values

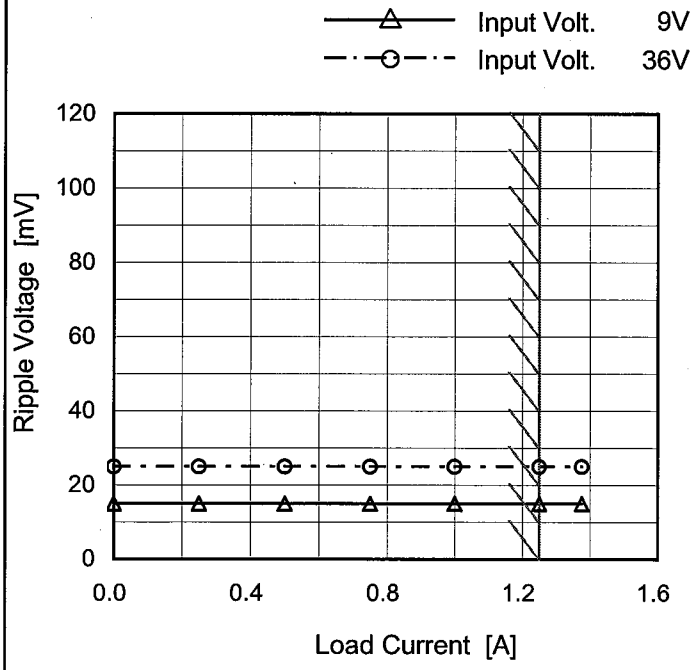
Load Current [A]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	-12.419	-12.448	-12.500	-12.511	-12.516
0.250	-12.254	-12.248	-12.243	-12.242	-12.243
0.500	-12.205	-12.198	-12.193	-12.191	-12.190
0.750	-12.164	-12.158	-12.154	-12.152	-12.151
1.000	-12.124	-12.121	-12.117	-12.116	-12.116
1.250	-12.086	-12.084	-12.083	-12.082	-12.083
1.375	-12.068	-12.067	-12.066	-12.066	-12.067
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW302412
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]

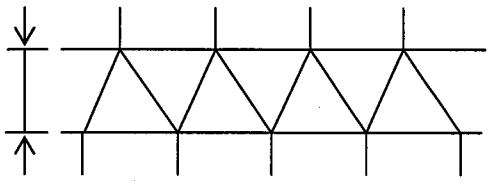


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	15	25
0.250	15	25
0.500	15	25
0.750	15	25
1.000	15	25
1.250	15	25
1.375	15	25
--	-	-
--	-	-
--	-	-
--	-	-

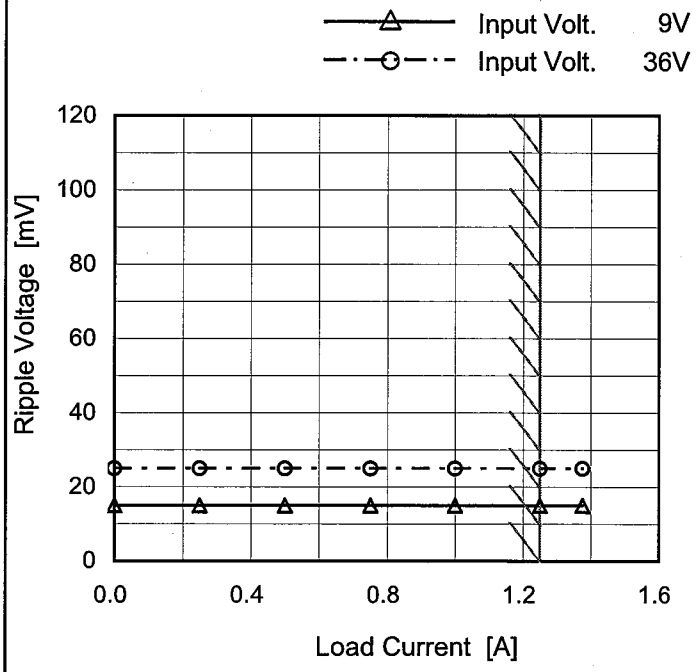
-12V: Rated output current

COSEL

Model	STMGFW302412
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]

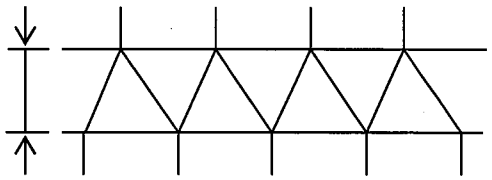


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	15	25
0.250	15	25
0.500	15	25
0.750	15	25
1.000	15	25
1.250	15	25
1.375	15	25
--	-	-
--	-	-
--	-	-
--	-	-

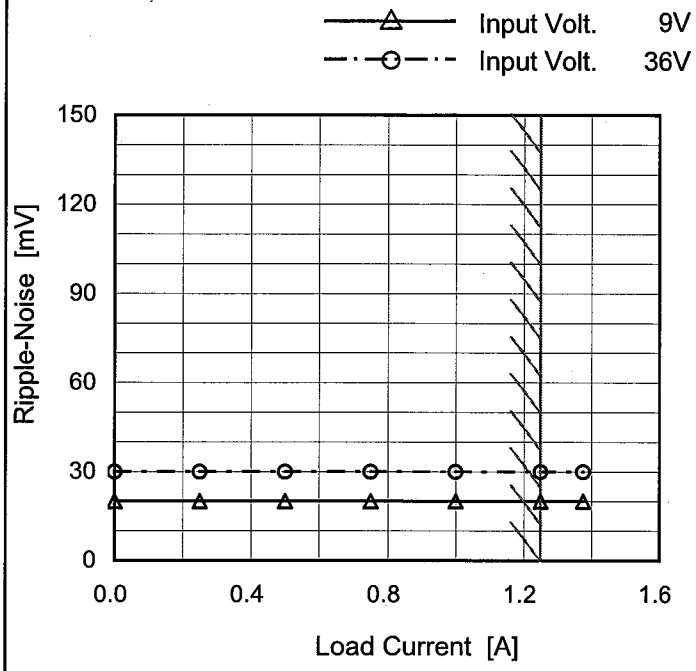
+12V: Rated output current

COSEL

Model	STMGFW302412
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.

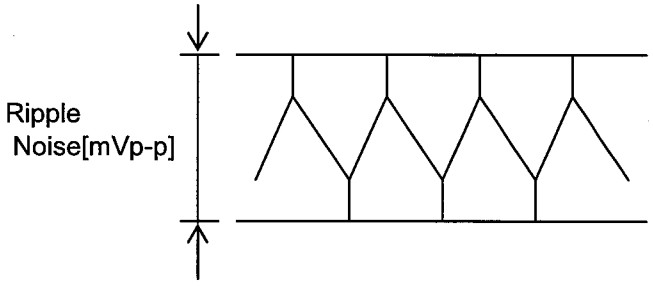


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	20	30
0.250	20	30
0.500	20	30
0.750	20	30
1.000	20	30
1.250	20	30
1.375	20	30
--	-	-
--	-	-
--	-	-
--	-	-

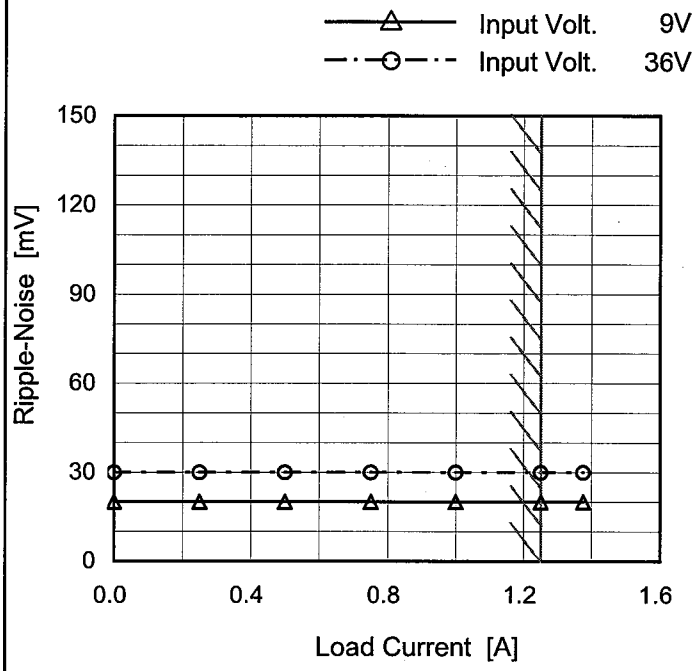
-12V: Rated output current

COSEL

Model	STMGFW302412
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.

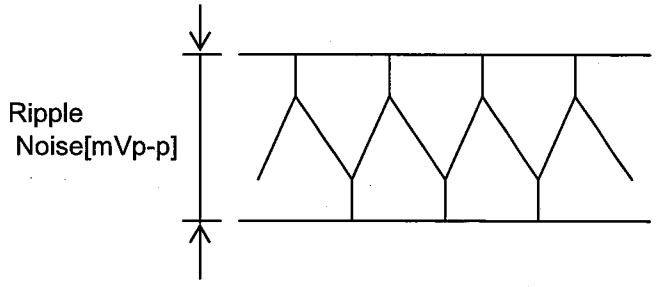


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	20	30
0.250	20	30
0.500	20	30
0.750	20	30
1.000	20	30
1.250	20	30
1.375	20	30
--	-	-
--	-	-
--	-	-
--	-	-

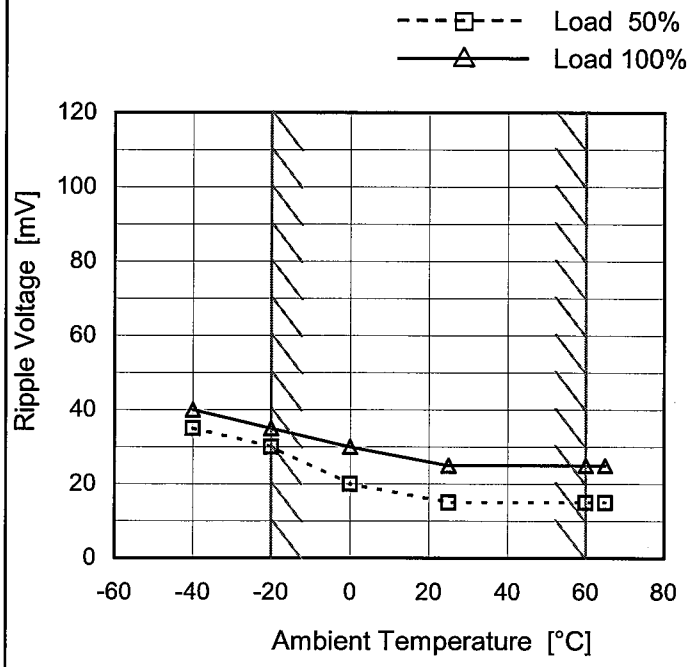
+12V: Rated output current

COSEL

Model	STMGFW302412
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.25A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

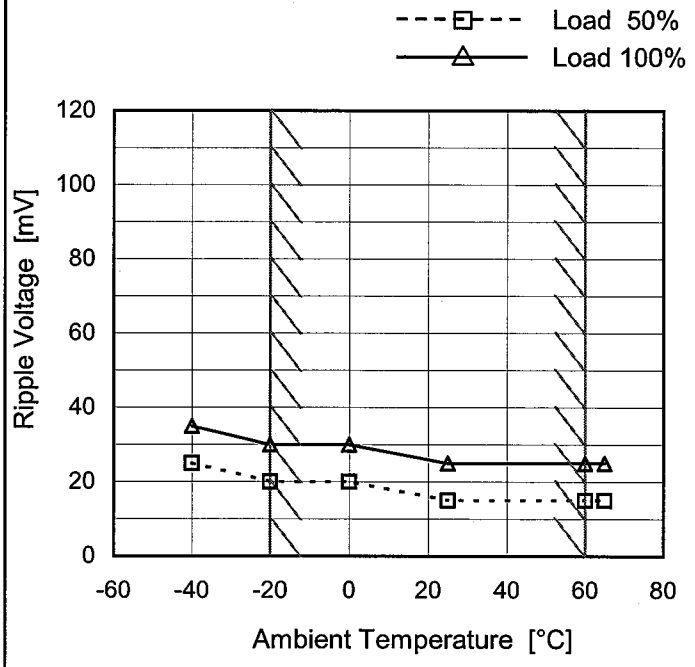
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	35	40
-20	30	35
0	20	30
25	15	25
60	15	25
65	15	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

-12V: Rated output current

Object	-12V1.25A

1.Graph



Input Volt. 24V

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

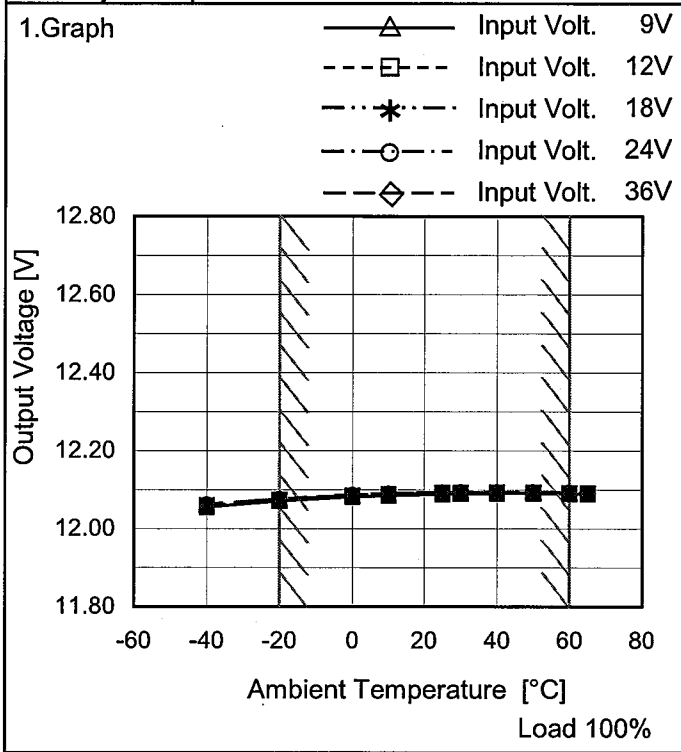
+12V: Rated output current

COSEL

Model	STMGFW302412
Item	Ambient Temperature Drift
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

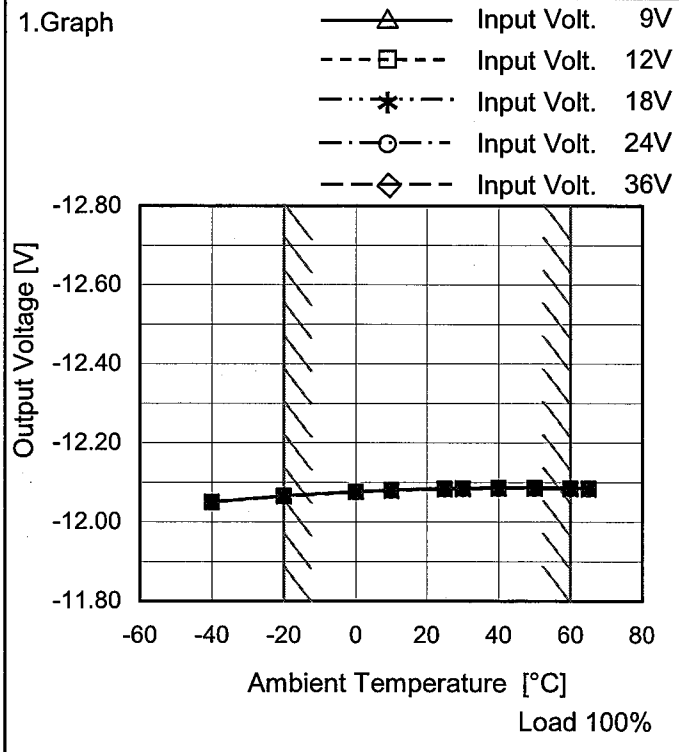


2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-40	12.056	12.058	12.061	12.062	12.063
-20	12.071	12.073	12.075	12.076	12.076
0	12.082	12.084	12.086	12.087	12.086
10	12.085	12.088	12.089	12.090	12.090
25	12.090	12.091	12.093	12.094	12.093
30	12.090	12.092	12.094	12.094	12.094
40	12.091	12.093	12.094	12.095	12.094
50	12.091	12.092	12.094	12.094	12.093
60	12.090	12.092	12.093	12.093	12.092
65	12.089	12.091	12.092	12.092	12.090
--	-	-	-	-	-

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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-40	-12.051	-12.050	-12.050	-12.049	-12.051
-20	-12.066	-12.065	-12.065	-12.064	-12.065
0	-12.077	-12.076	-12.075	-12.075	-12.075
10	-12.081	-12.080	-12.079	-12.078	-12.079
25	-12.086	-12.084	-12.083	-12.082	-12.083
30	-12.086	-12.085	-12.084	-12.083	-12.084
40	-12.087	-12.086	-12.084	-12.084	-12.085
50	-12.087	-12.086	-12.084	-12.084	-12.085
60	-12.087	-12.085	-12.084	-12.083	-12.084
65	-12.086	-12.084	-12.083	-12.082	-12.083
--	-	-	-	-	-

COSEL

Model	STMGFW302412	
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 : 9 - 36V
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	9	0	12.432	±181	±1.5
Minimum Voltage	-20	9	1.25	12.071		

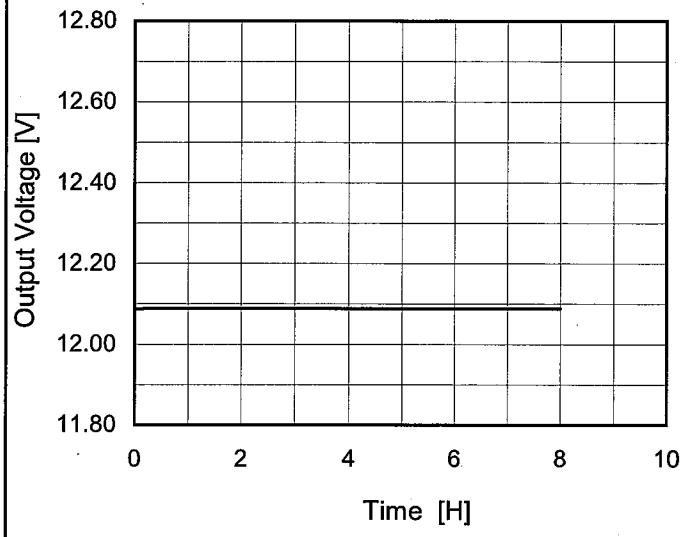
Object	-12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	36	0	-12.529	±233	±1.9
Minimum Voltage	-20	24	1.25	-12.064		

COSEL

Model	STMGFW302412
Item	Time Lapse Drift
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



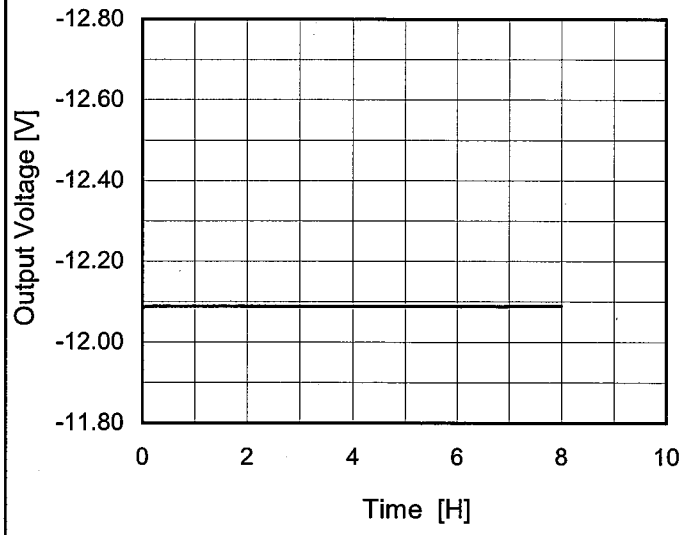
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.085
0.5	12.088
1.0	12.089
2.0	12.088
3.0	12.089
4.0	12.089
5.0	12.089
6.0	12.089
7.0	12.089
8.0	12.089

Object	-12V1.25A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.083
0.5	-12.089
1.0	-12.089
2.0	-12.089
3.0	-12.089
4.0	-12.089
5.0	-12.089
6.0	-12.089
7.0	-12.089
8.0	-12.089

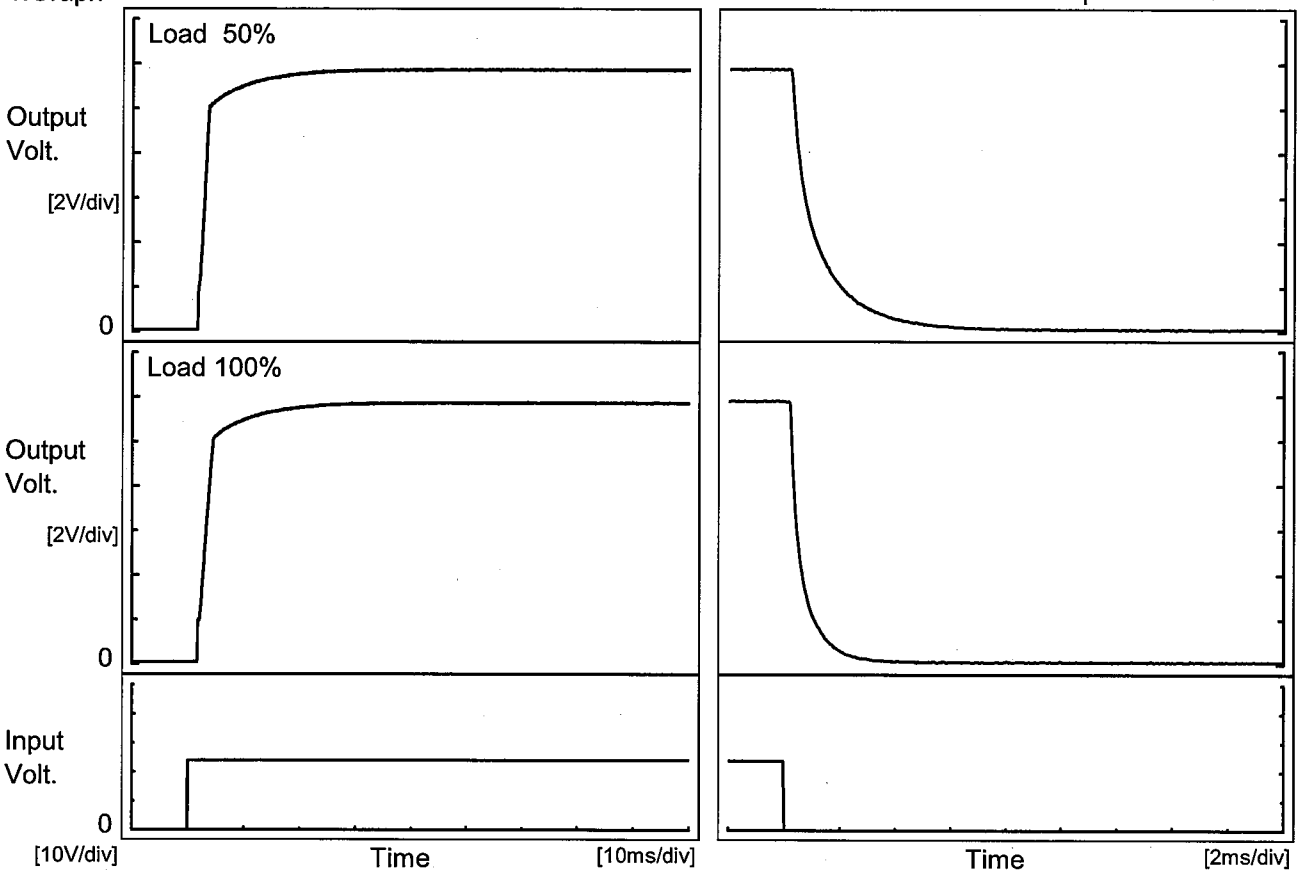
COSEL

Model	STMGFW302412
Item	Rise and Fall Time
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

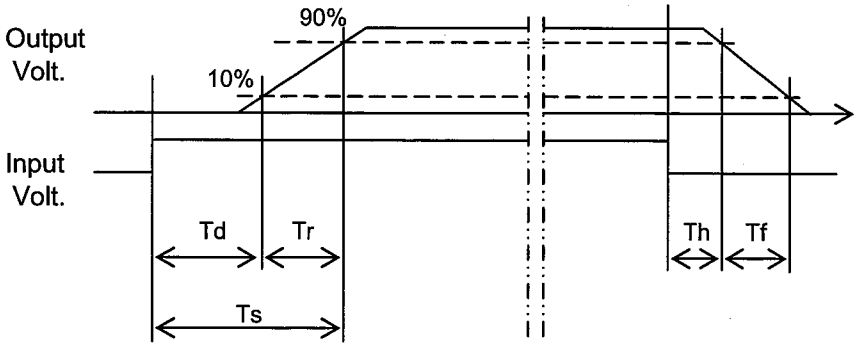
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.8	6.6	8.4	0.3	2.5
100 %	1.8	7.3	9.1	0.2	1.2



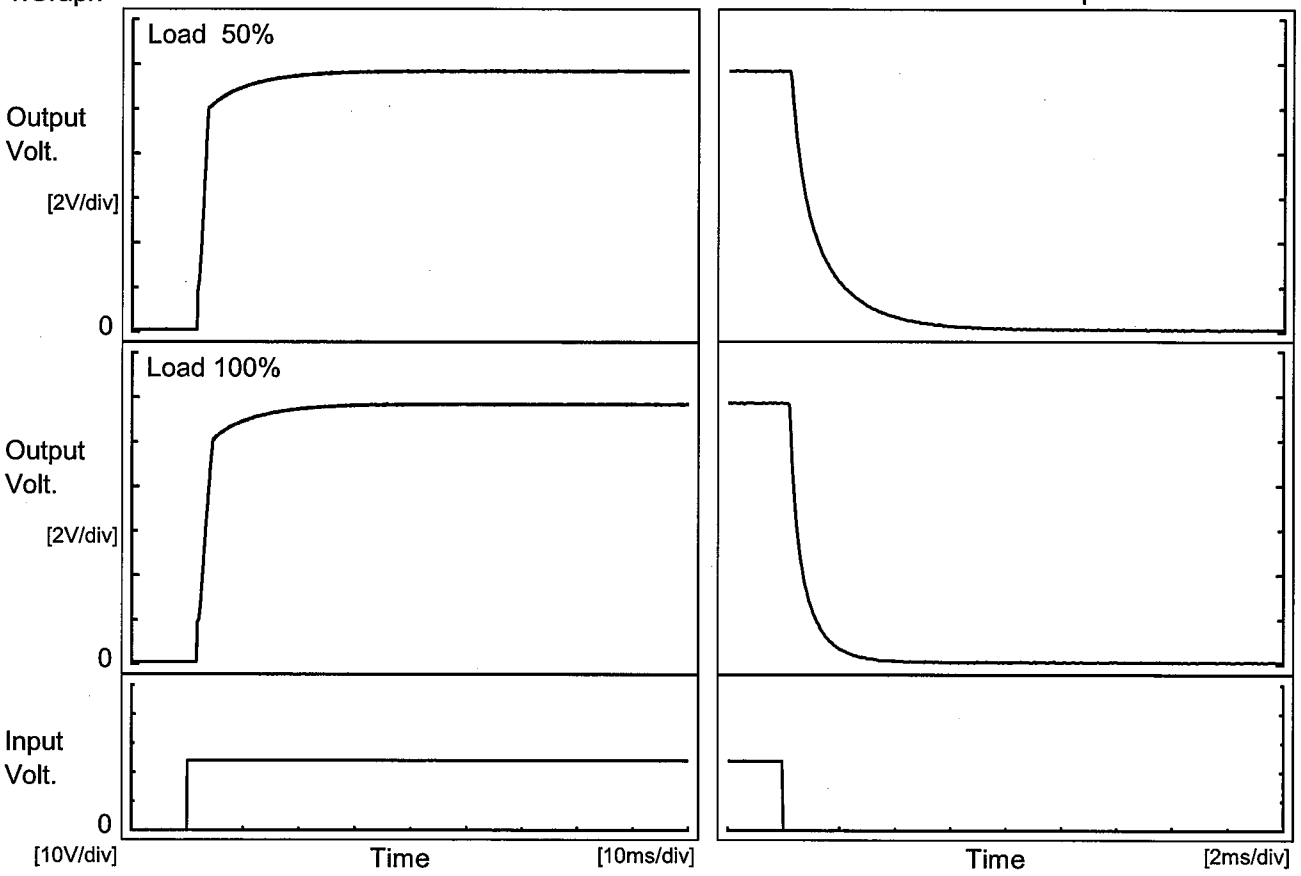
COSEL

Model	STMGFW302412
Item	Rise and Fall Time
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

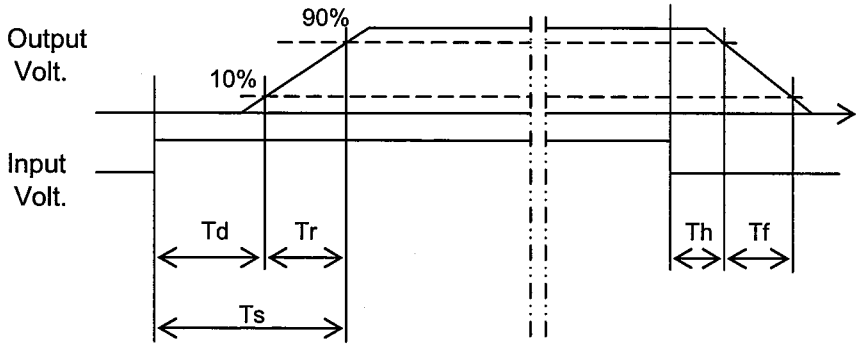
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.8	7.3	9.1	0.3	2.6
100 %	1.8	7.7	9.5	0.2	1.3

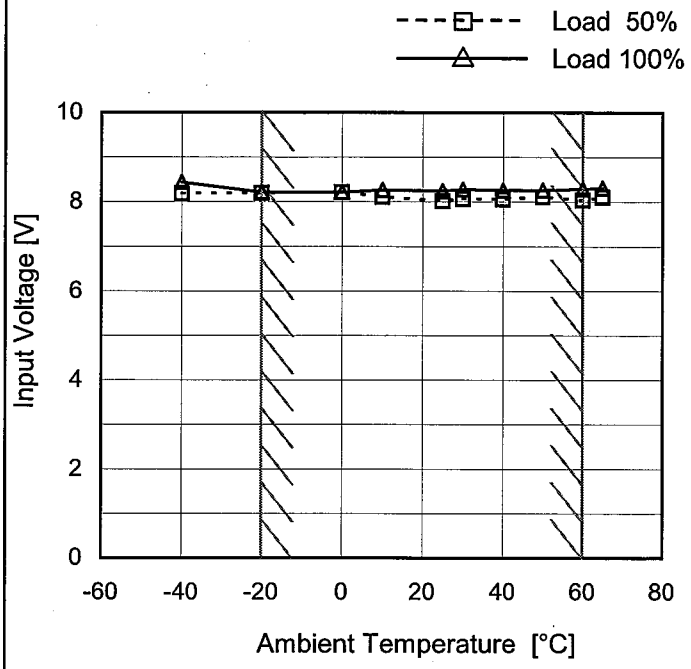


COSEL

Model	STMGFW302412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

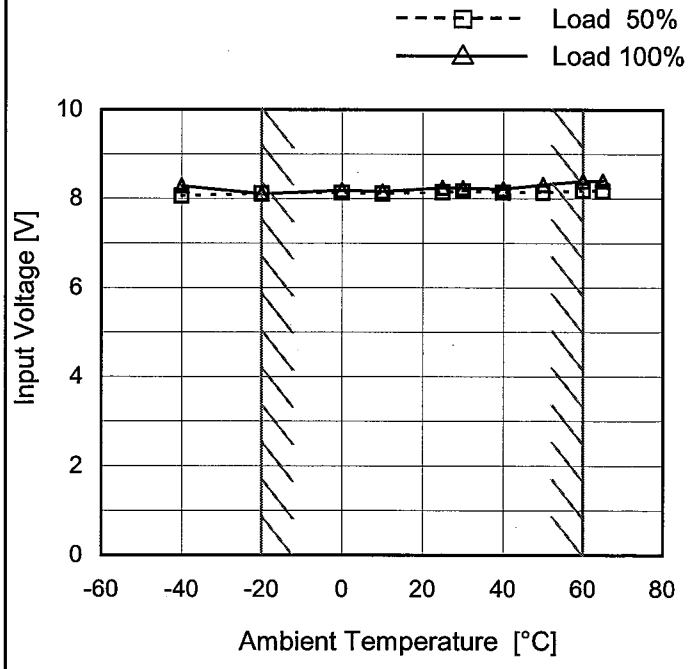


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	8.2	8.5
-20	8.2	8.3
0	8.3	8.3
10	8.2	8.3
25	8.1	8.3
30	8.1	8.3
40	8.1	8.3
50	8.2	8.3
60	8.1	8.3
65	8.1	8.4
--	-	-

Object	-12V1.25A

1.Graph



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

2.Values

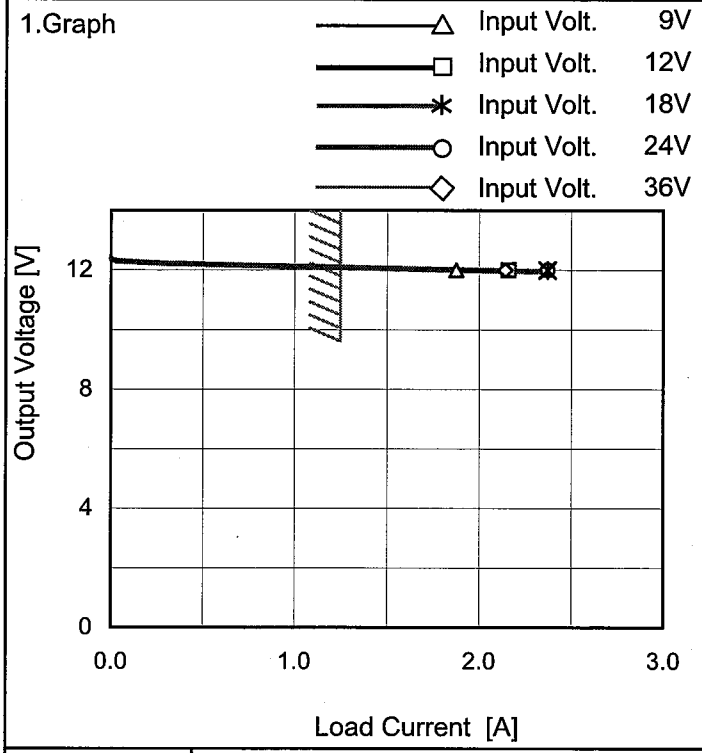
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	8.1	8.3
-20	8.2	8.2
0	8.2	8.2
10	8.2	8.2
25	8.2	8.3
30	8.2	8.3
40	8.2	8.3
50	8.2	8.4
60	8.2	8.4
65	8.2	8.4
--	-	-

COSEL

Model	STMGFW302412
Item	Overcurrent Protection
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

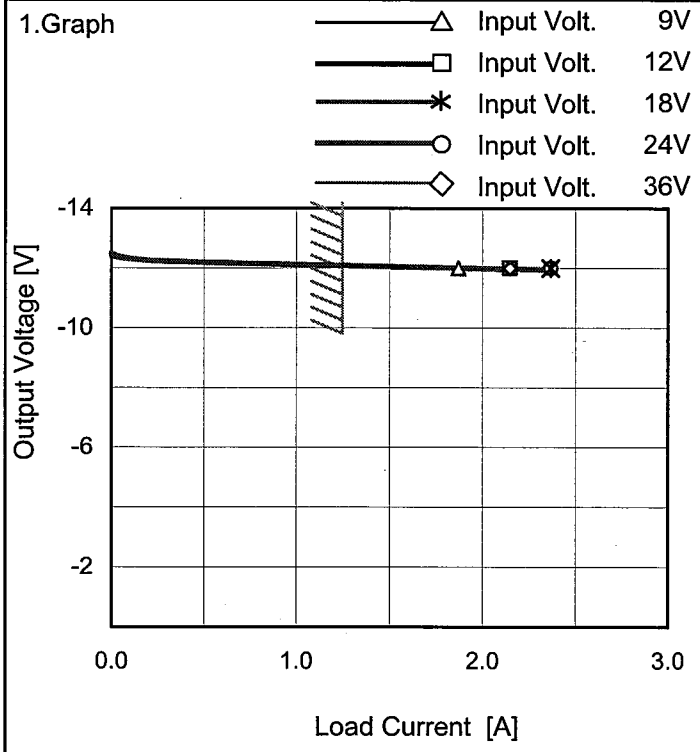


2.Values

Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
12.0	1.877	2.158	2.370	2.370	2.141
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

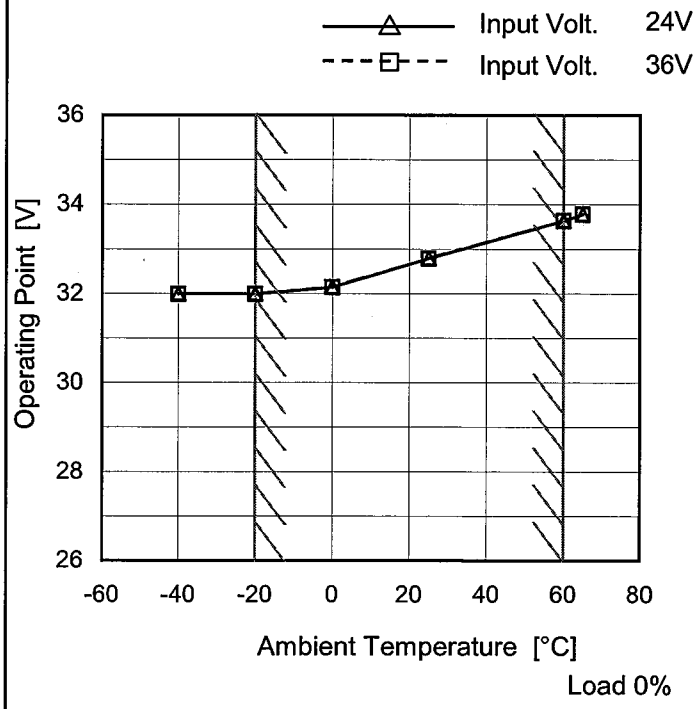
Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-12.0	1.872	2.147	2.367	2.368	2.149
-11.4	-	-	-	-	-
-10.8	-	-	-	-	-
-9.6	-	-	-	-	-
-8.4	-	-	-	-	-
-7.2	-	-	-	-	-
-6.0	-	-	-	-	-
-4.8	-	-	-	-	-
-3.6	-	-	-	-	-
-2.4	-	-	-	-	-
-1.2	-	-	-	-	-
0.0	-	-	-	-	-

COSEL

Model	STMGFW302412
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. 24[V]	Input Volt. 36[V]
-40	31.99	31.99
-20	31.99	31.99
0	32.14	32.14
25	32.79	32.79
60	33.64	33.64
65	33.78	33.78
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

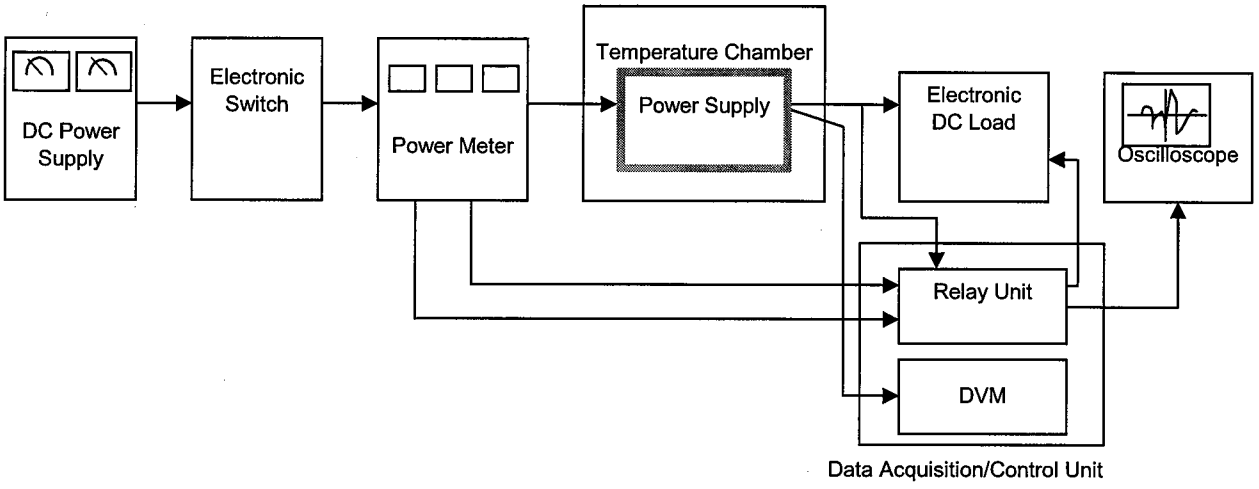


Figure A

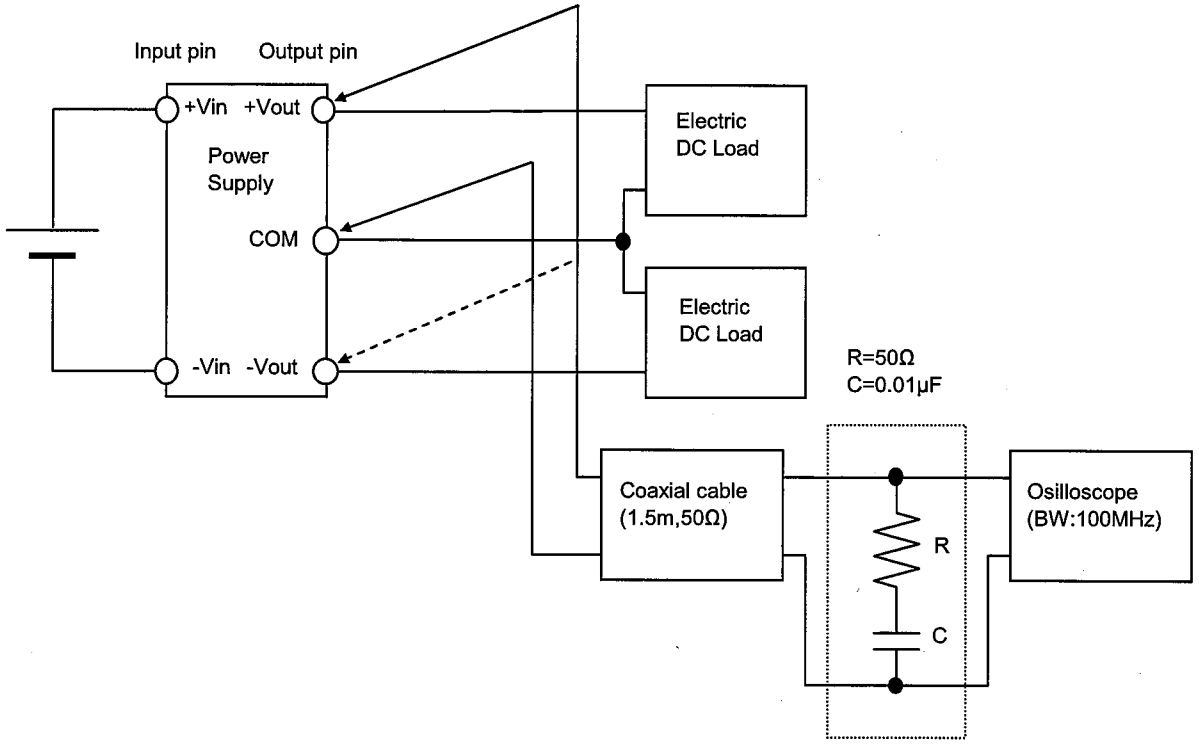


Figure B (Ripple and Ripple noise Characteristic)