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参考資料

TEST DATA OF STMGFS302412

Regulated DC Power Supply
February 1, 2013

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COSEL CO.,LTD.

参考資料

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CONTENTS

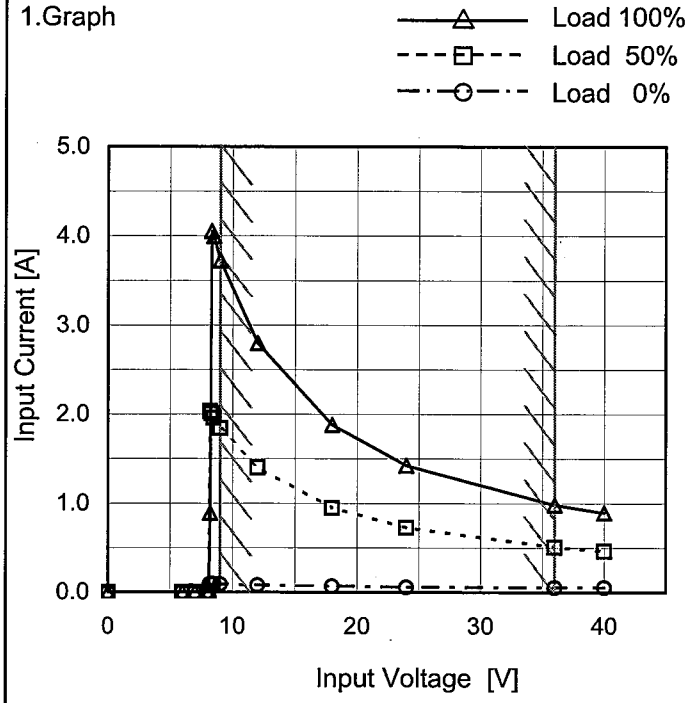
参考資料

COSEL

Model	STMGFS302412
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	0.002	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.1	0.002	0.002	0.002
8.2	0.095	2.032	0.891
8.3	0.093	2.006	4.057
8.5	0.092	1.957	3.998
9.0	0.089	1.843	3.726
12.0	0.079	1.400	2.797
18.0	0.067	0.949	1.883
24.0	0.059	0.725	1.427
36.0	0.055	0.507	0.984
40.0	0.053	0.465	0.894
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC - 10720

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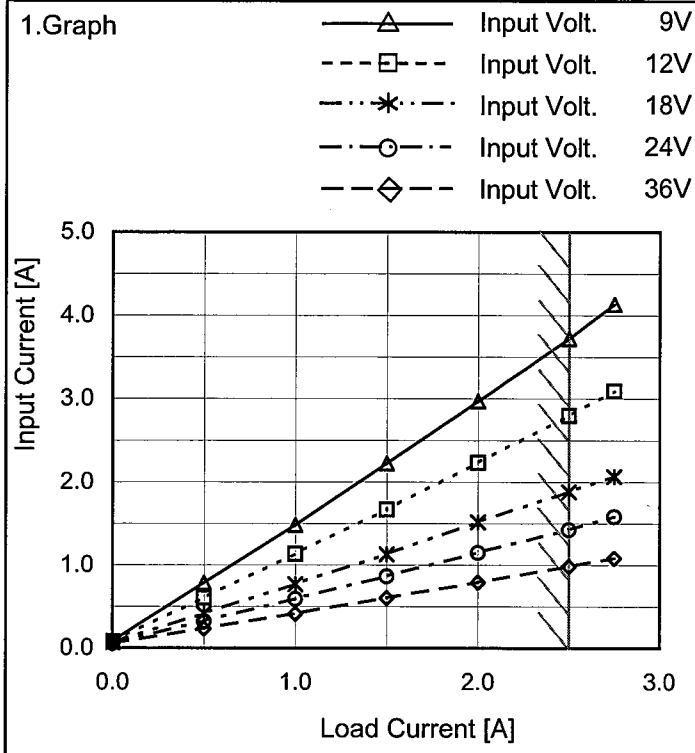
Model	STMGFS302412
Item	Input Current (by Load Current)
Object	――――――――

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]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.089	0.079	0.067	0.059	0.055
0.50	0.786	0.603	0.416	0.324	0.234
1.00	1.485	1.132	0.771	0.593	0.417
1.50	2.227	1.667	1.128	0.864	0.602
2.00	2.972	2.234	1.516	1.148	0.791
2.50	3.726	2.797	1.883	1.427	0.984
2.75	4.135	3.094	2.069	1.583	1.085
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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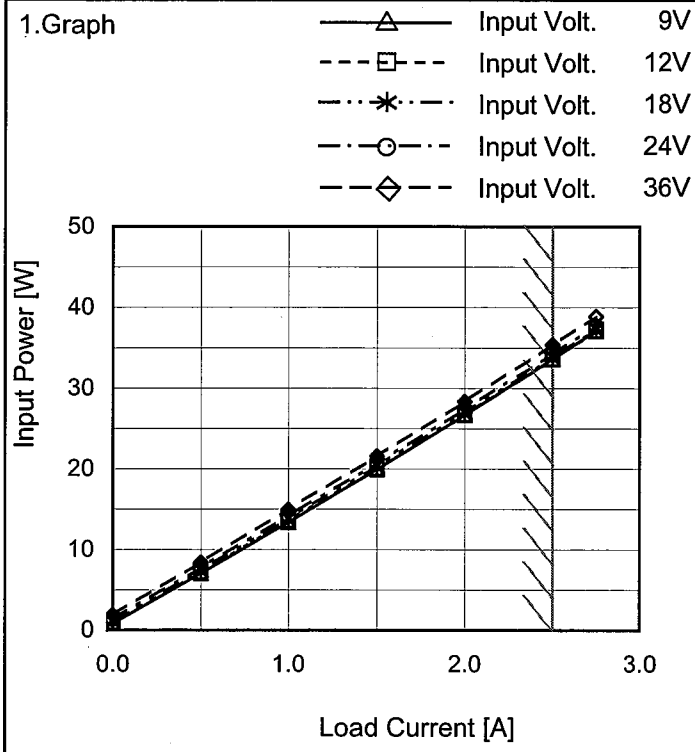
Model	STMGFS302412
Item	Input Power (by Load Current)
Object	――――――

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]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.84	0.96	1.19	1.40	1.91
0.50	7.05	7.19	7.45	7.76	8.41
1.00	13.39	13.54	13.84	14.17	14.99
1.50	19.95	20.04	20.35	20.68	21.59
2.00	26.69	26.71	26.99	27.40	28.38
2.50	33.64	33.59	33.82	34.27	35.38
2.75	37.17	37.06	37.34	37.71	38.93
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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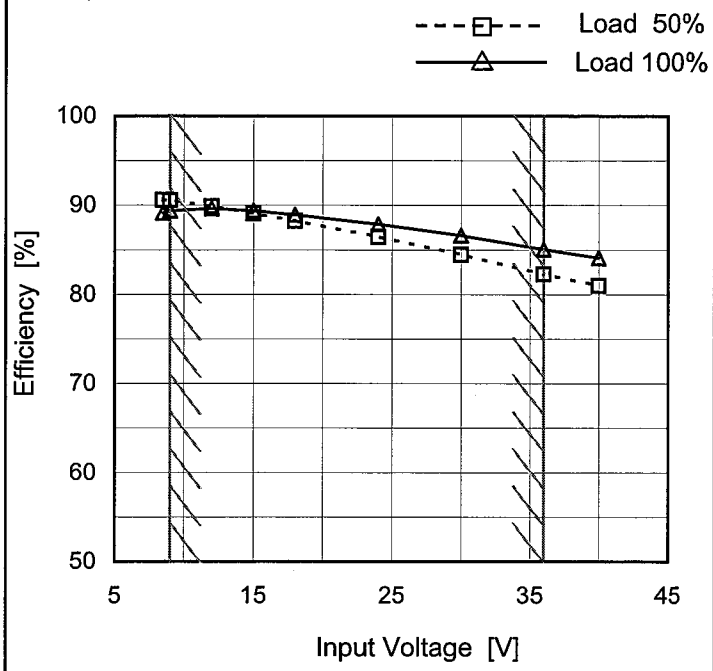
Model	STMGFS302412
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	90.6	89.1
9.0	90.5	89.4
12.0	89.9	89.7
15.0	89.1	89.4
18.0	88.3	89.0
24.0	86.5	87.9
30.0	84.5	86.6
36.0	82.3	85.1
40.0	81.0	84.1

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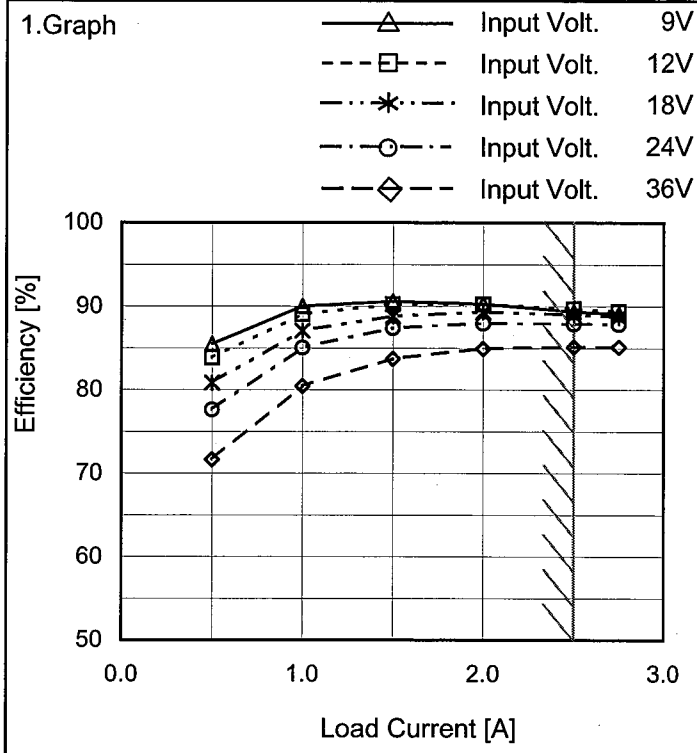
Model	STMGFS302412
Item	Efficiency (by Load Current)
Object	――――――

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]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	-	-	-	-	-
0.50	85.5	83.8	80.8	77.6	71.6
1.00	90.0	89.1	87.1	85.0	80.5
1.50	90.6	90.2	88.8	87.4	83.7
2.00	90.3	90.2	89.3	88.0	84.9
2.50	89.4	89.7	89.0	87.9	85.1
2.75	89.1	89.4	88.7	87.9	85.1
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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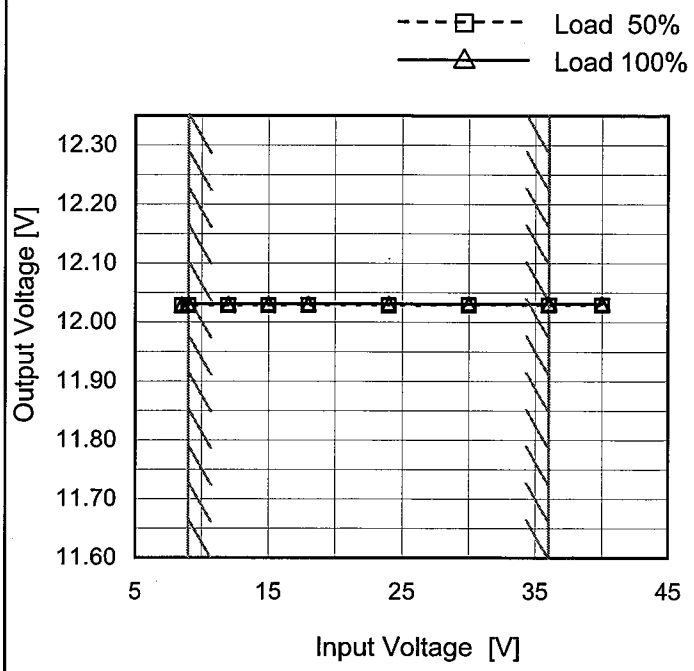
Model	STMGFS302412
Item	Line Regulation
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

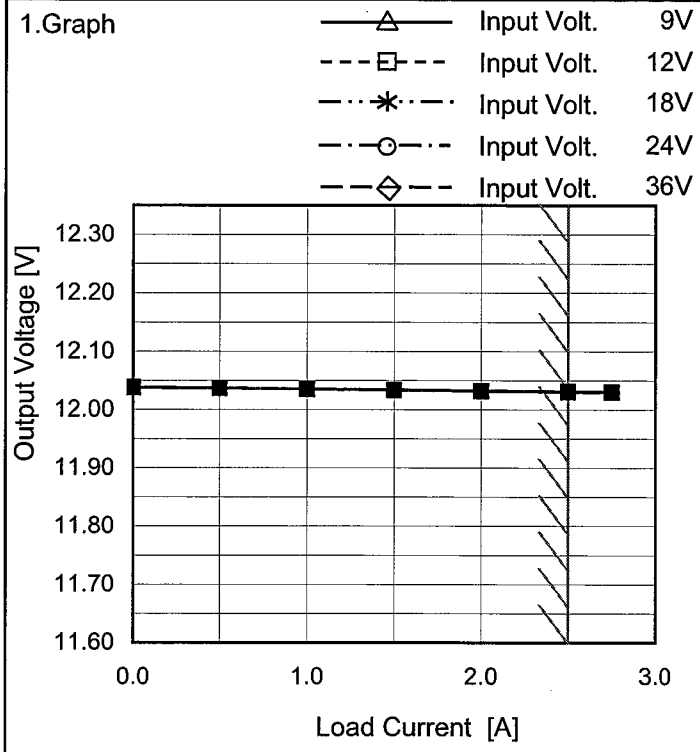
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	12.028	12.030
9.0	12.028	12.031
12.0	12.028	12.031
15.0	12.029	12.031
18.0	12.029	12.031
24.0	12.029	12.031
30.0	12.029	12.031
36.0	12.029	12.031
40.0	12.029	12.031

COSEL

Model	STMGFS302412
Item	Load Regulation
Object	+12V2.5A

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]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	12.039	12.038	12.038	12.038	12.038
0.50	12.037	12.037	12.037	12.037	12.036
1.00	12.036	12.035	12.035	12.035	12.035
1.50	12.034	12.034	12.034	12.034	12.034
2.00	12.032	12.032	12.032	12.033	12.032
2.50	12.031	12.031	12.031	12.031	12.031
2.75	12.030	12.030	12.030	12.030	12.030
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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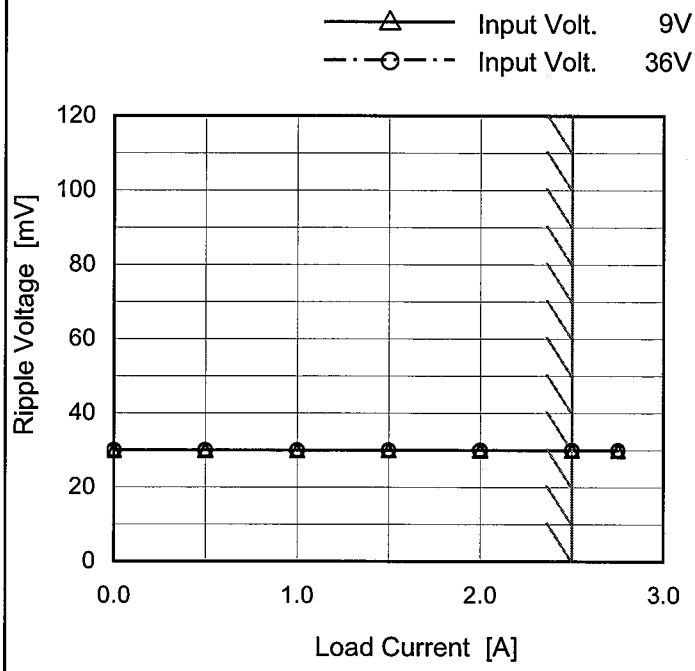
Model	STMGFS302412
Item	Ripple Voltage (by Load Current)
Object	+12V2.5A

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]

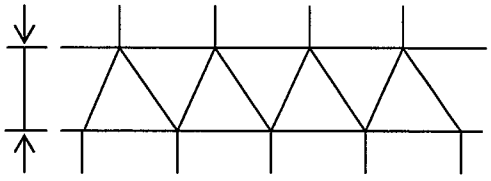


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	30	30
0.50	30	30
1.00	30	30
1.50	30	30
2.00	30	30
2.50	30	30
2.75	30	30
--	-	-
--	-	-
--	-	-
--	-	-

BC - 10720

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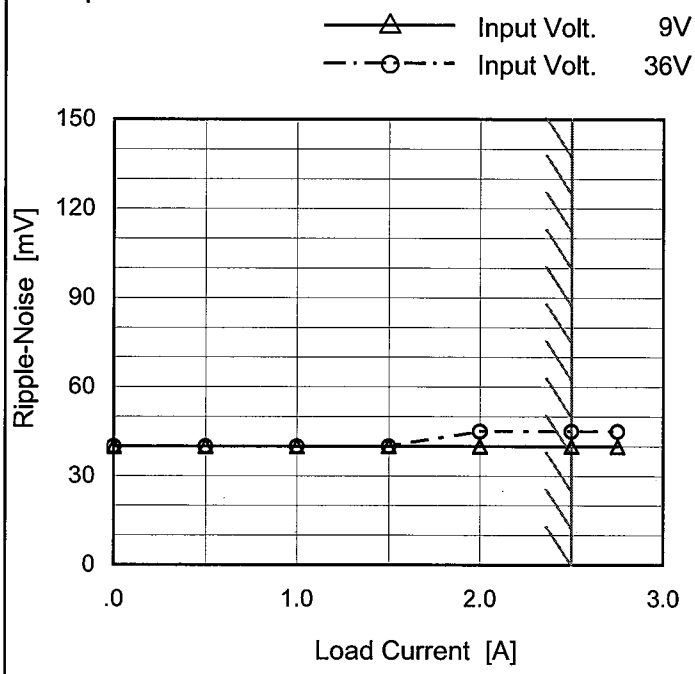
Model	STMGFS302412
Item	Ripple-Noise
Object	+12V2.5A

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.

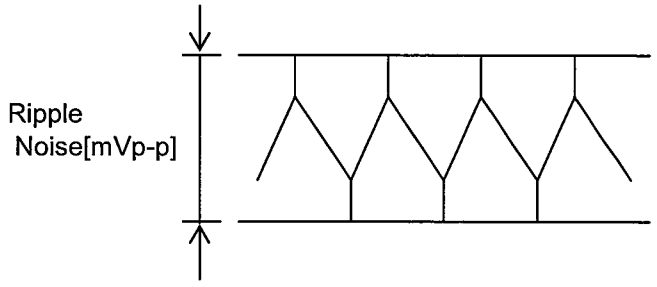


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	40	40
0.50	40	40
1.00	40	40
1.50	40	40
2.00	40	45
2.50	40	45
2.75	40	45
--	-	-
--	-	-
--	-	-
--	-	-

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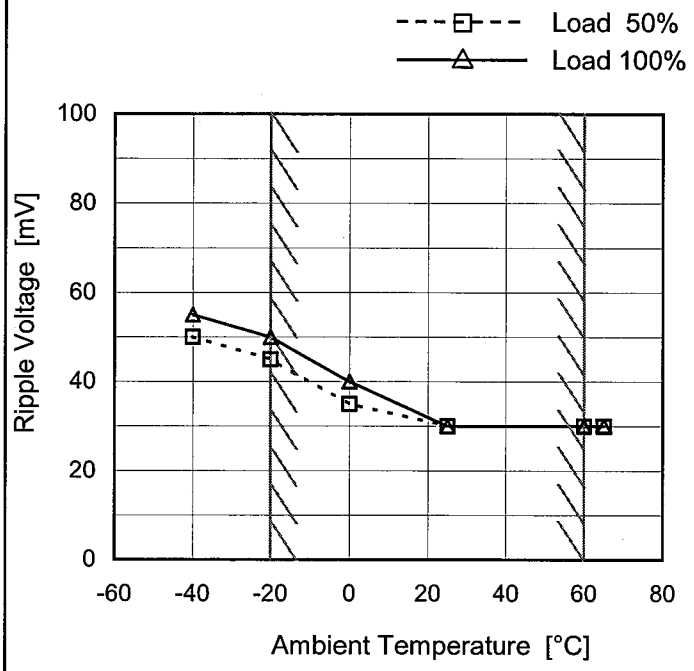
Model	STMGFS302412
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V2.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

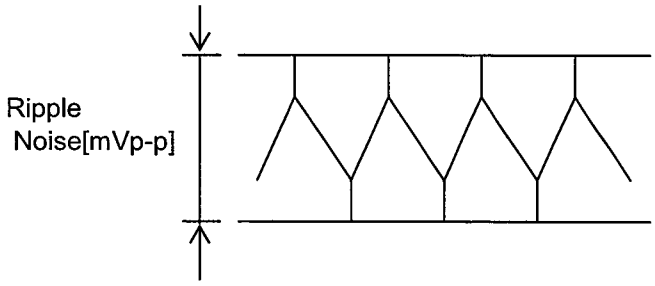


Fig.Complex Ripple Noise Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	50	55
-20	45	50
0	35	40
25	30	30
60	30	30
65	30	30
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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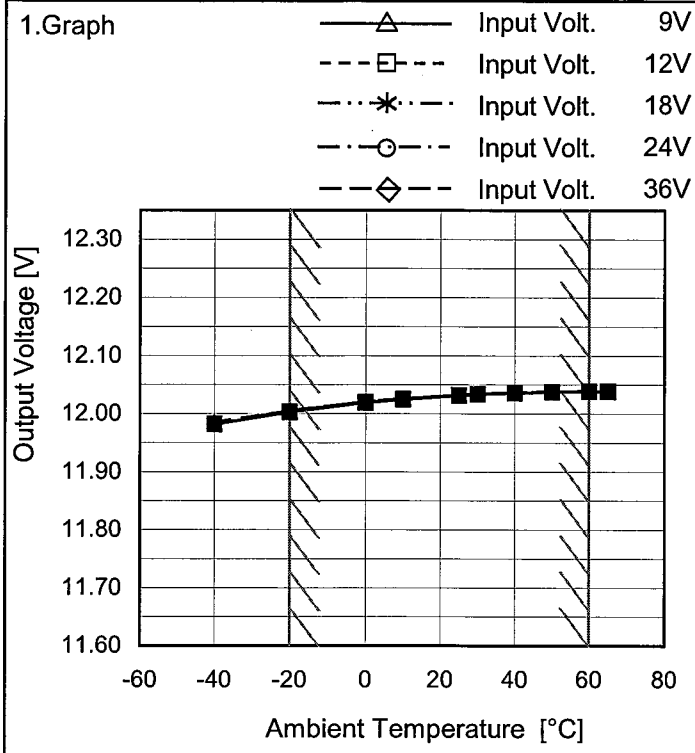
Model	STMGFS302412
Item	Ambient Temperature Drift
Object	+12V2.5A

Testing Circuitry Figure A

1.Graph



Load 100%

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	11.982	11.982	11.983	11.984	11.985
-20	12.003	12.004	12.004	12.005	12.005
0	12.019	12.020	12.020	12.020	12.021
10	12.025	12.025	12.026	12.026	12.026
25	12.031	12.032	12.032	12.032	12.032
30	12.034	12.034	12.034	12.034	12.034
40	12.036	12.036	12.037	12.037	12.036
50	12.038	12.038	12.038	12.038	12.038
60	12.039	12.039	12.039	12.039	12.039
65	12.039	12.039	12.039	12.039	12.039
--	-	-	-	-	-

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Model	STMGFS302412	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V2.5A	

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 : 0 - 2.5A

* 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

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	24	0	12.046	±22	±0.2
Minimum Voltage	-20	9	2.5	12.003		

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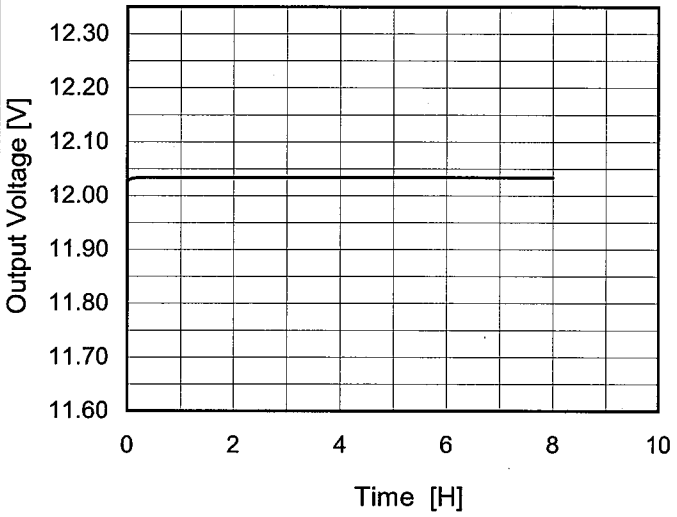
Model	STMGFS302412
Item	Time Lapse Drift
Object	+12V2.5A

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	12.026
0.5	12.034
1.0	12.034
2.0	12.034
3.0	12.034
4.0	12.034
5.0	12.034
6.0	12.034
7.0	12.034
8.0	12.034

BC - 10720

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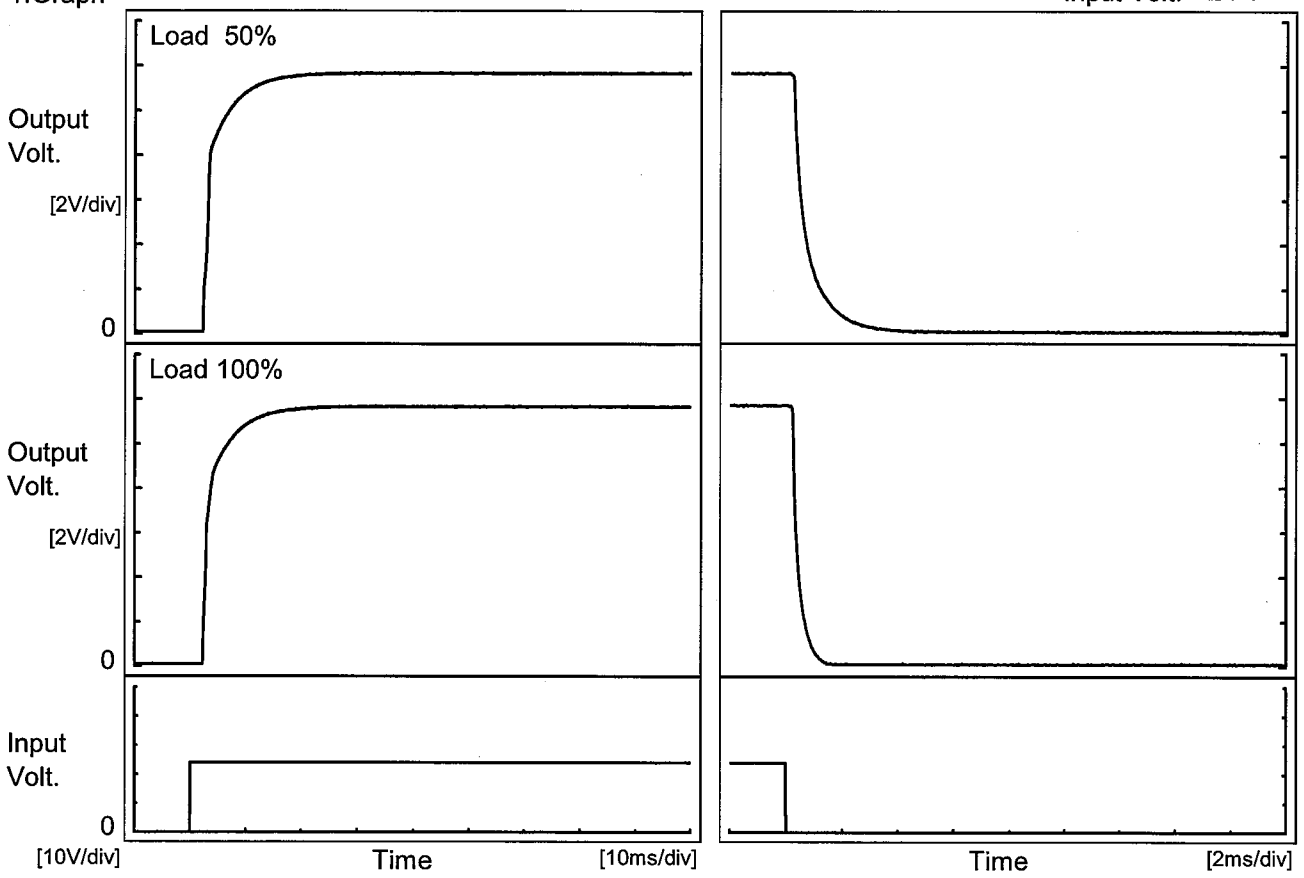
Model	STMGFS302412
Item	Rise and Fall Time
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

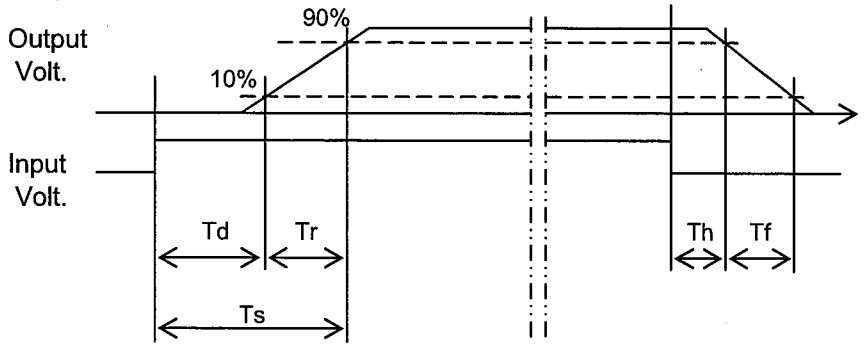
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.4	8.1	10.5	0.2	1.3
100 %	2.4	7.9	10.3	0.2	0.6



BC - 10720

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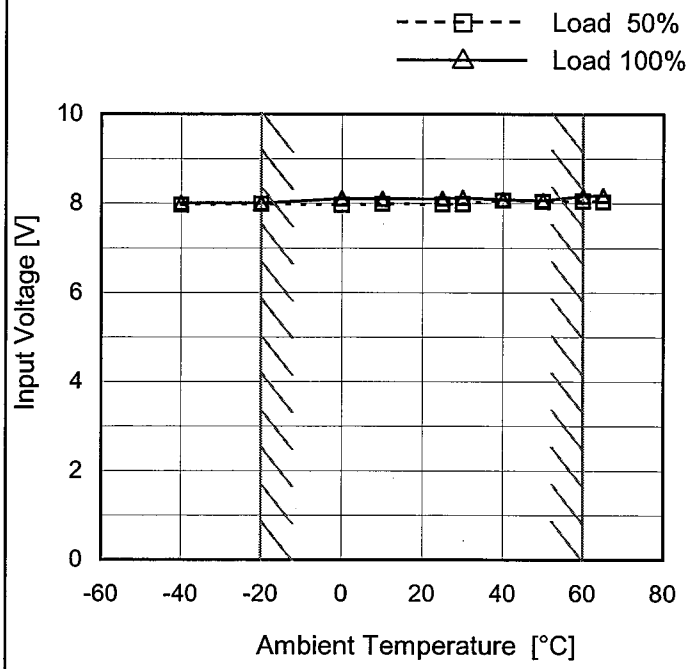
Model	STMGFS302412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V2.5A

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%
-40	8.0	8.1
-20	8.0	8.1
0	8.0	8.2
10	8.0	8.1
25	8.0	8.2
30	8.0	8.2
40	8.1	8.1
50	8.1	8.1
60	8.1	8.2
65	8.1	8.2
--	-	-

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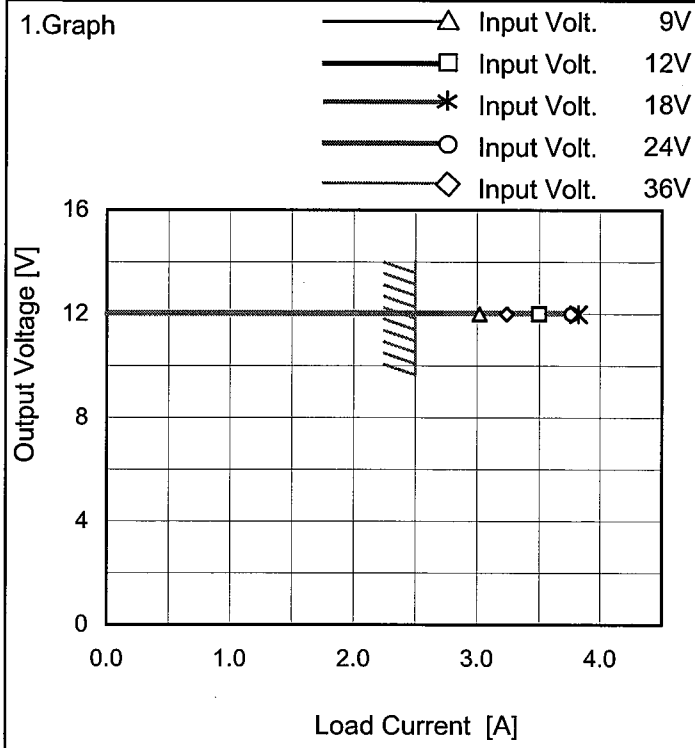
Model	STMGFS302412
Item	Overcurrent Protection
Object	+12V2.5A

Temperature 25°C
Testing Circuitry Figure A

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	3.022	3.501	3.822	3.768	3.239
11.4	-	-	-	-	-
10.8	-	-	-	-	-
9.6	-	-	-	-	-
8.4	-	-	-	-	-
7.2	-	-	-	-	-
6.0	-	-	-	-	-
4.8	-	-	-	-	-
3.6	-	-	-	-	-
2.4	-	-	-	-	-
1.2	-	-	-	-	-
0.0	-	-	-	-	-

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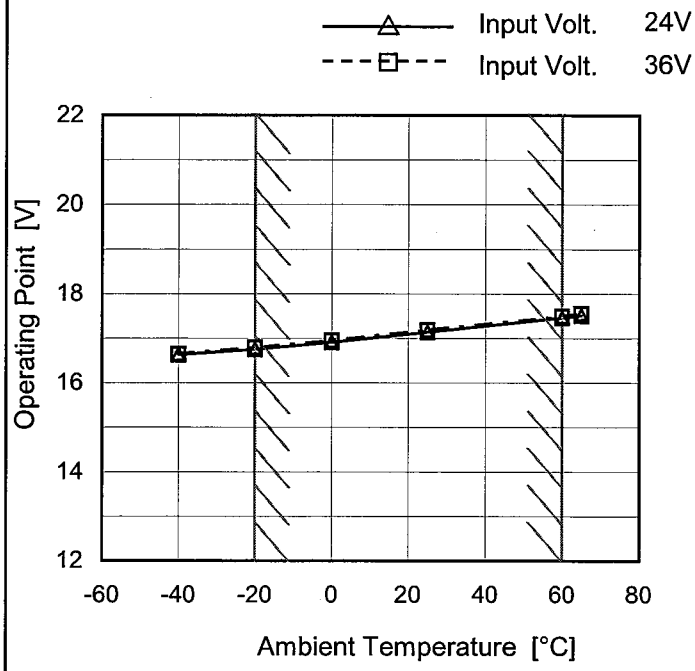
Model	STMGFS302412
Item	Overvoltage Protection
Object	+12V2.5A

Testing Circuitry Figure A

1.Graph



Load 0%

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	16.63	16.65
-20	16.75	16.79
0	16.91	16.95
25	17.15	17.18
60	17.47	17.50
65	17.52	17.56
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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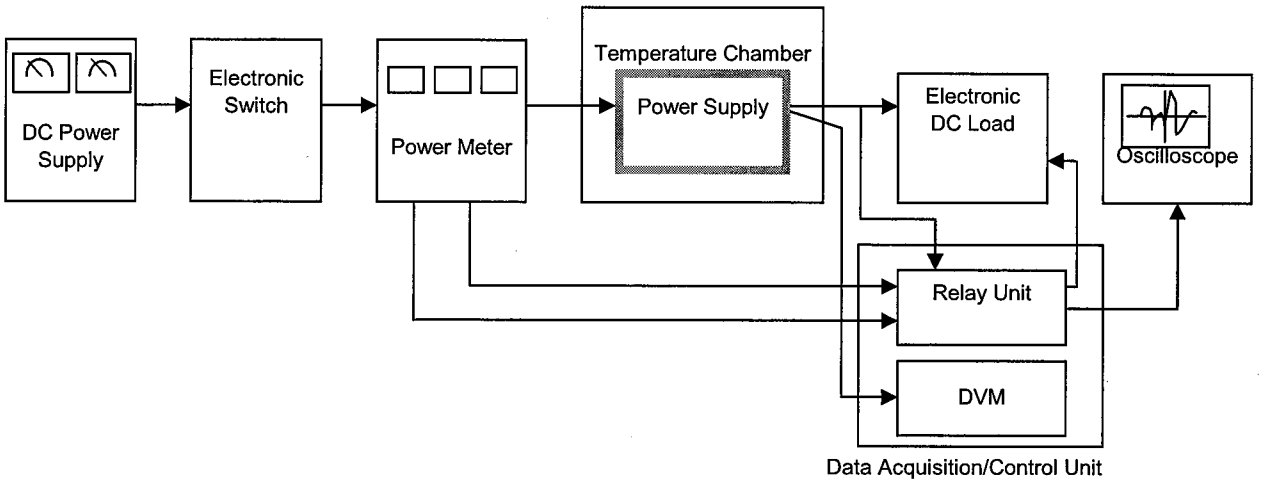

Figure A

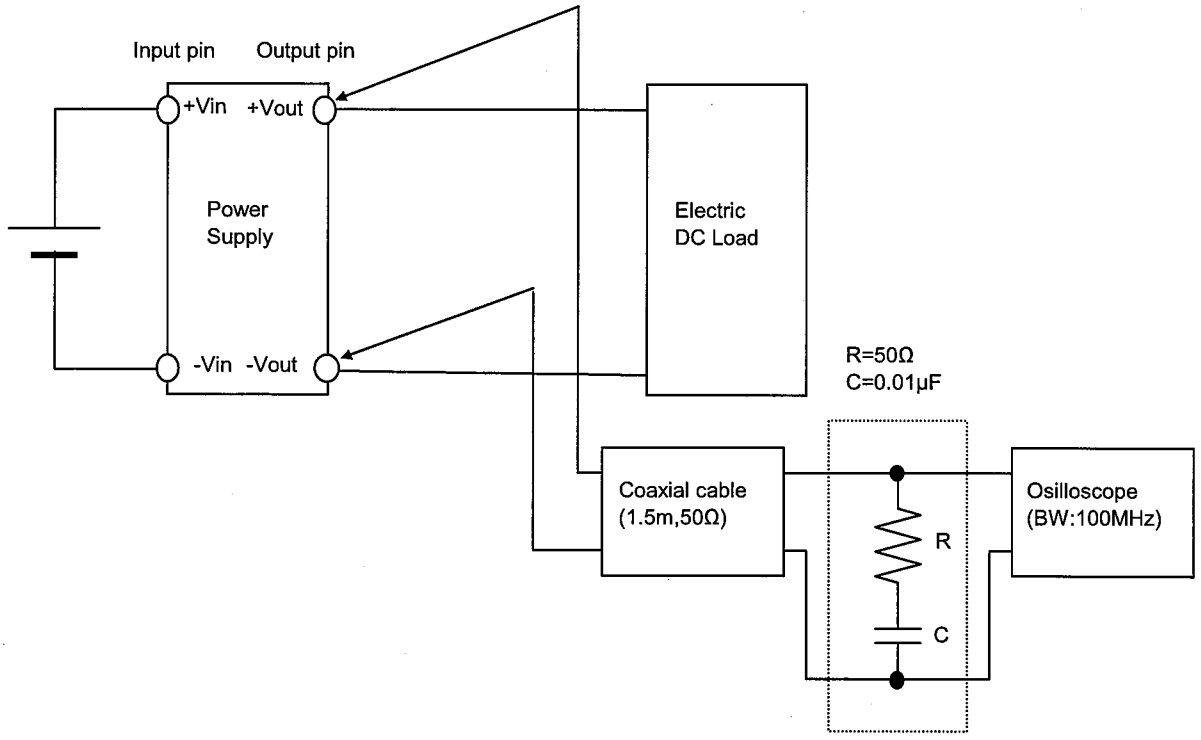

Figure B（Ripple and Ripple noise Characteristic）