参考資料

COSEL

TEST DATA OF STMGFW304805

Regulated DC Power Supply
January 29, 2013

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COSEL CO.,LTD.

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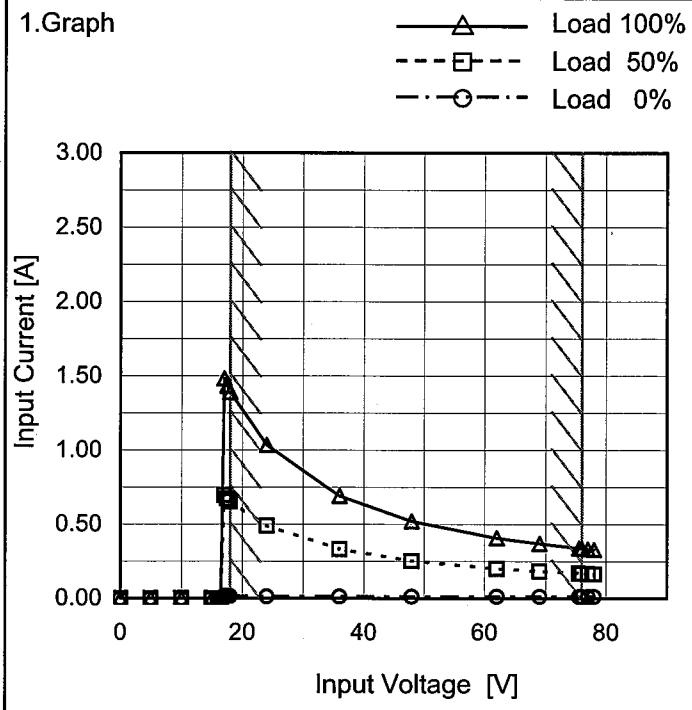


Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
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	0.016	0.696	1.482
17.5	0.016	0.673	1.433
18.0	0.015	0.652	1.329
24.0	0.014	0.490	0.985
36.0	0.012	0.332	0.658
48.0	0.012	0.253	0.496
62.0	0.012	0.201	0.408
69.0	0.012	0.183	0.370
75.5	0.012	0.170	0.340
76.0	0.012	0.169	0.322
77.0	0.012	0.167	0.334
78.0	0.012	0.165	0.330

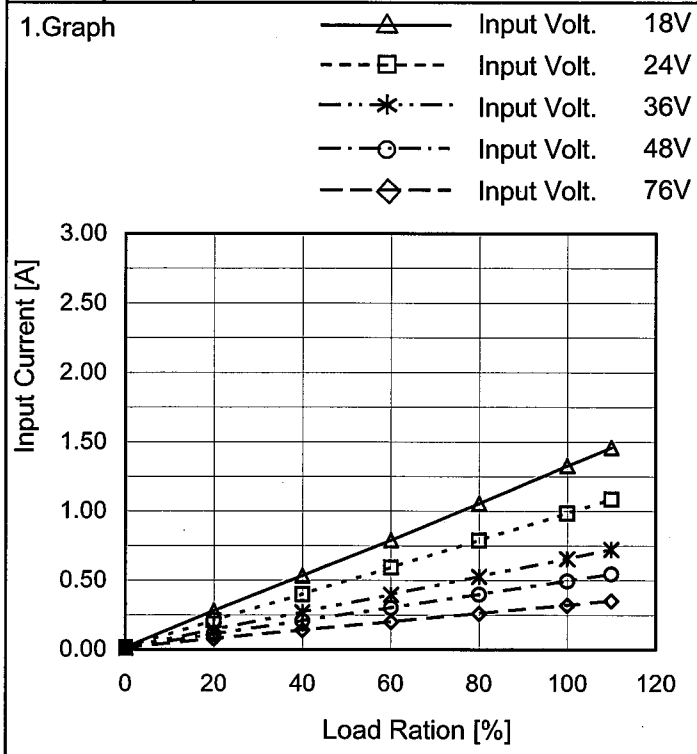
BC - 10735

COSEL

Model	STMGFW304805
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

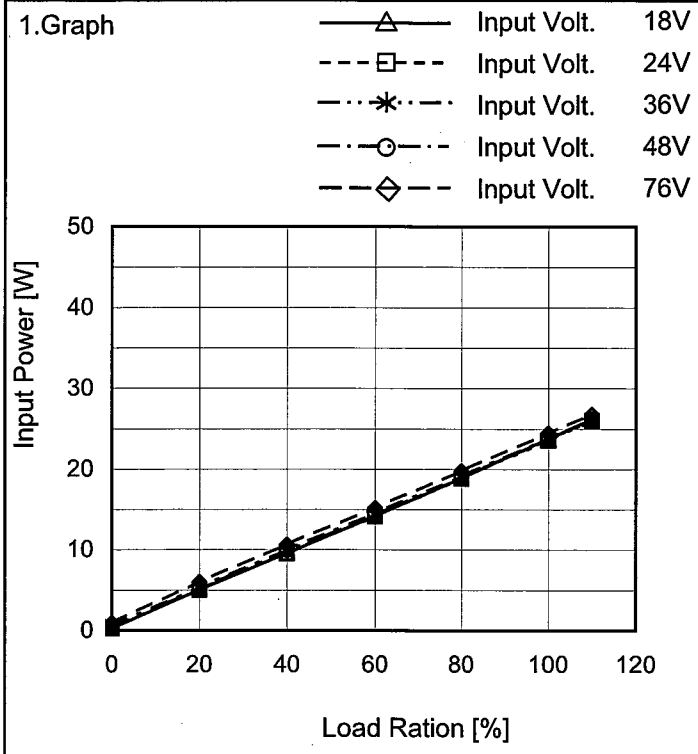
Load Ration [%]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.015	0.014	0.012	0.012	0.012
20	0.281	0.211	0.143	0.111	0.079
40	0.535	0.399	0.271	0.208	0.140
60	0.790	0.592	0.398	0.302	0.200
80	1.056	0.788	0.527	0.399	0.260
100	1.329	0.985	0.658	0.496	0.322
110	1.460	1.086	0.724	0.546	0.353
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW304805
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	0.28	0.33	0.46	0.60	0.96
20	5.05	5.06	5.16	5.36	6.00
40	9.59	9.56	9.76	9.97	10.65
60	14.21	14.15	14.31	14.52	15.21
80	18.94	18.83	18.96	19.13	19.80
100	23.78	23.60	23.66	23.82	24.47
110	26.26	26.02	26.04	26.18	26.81
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

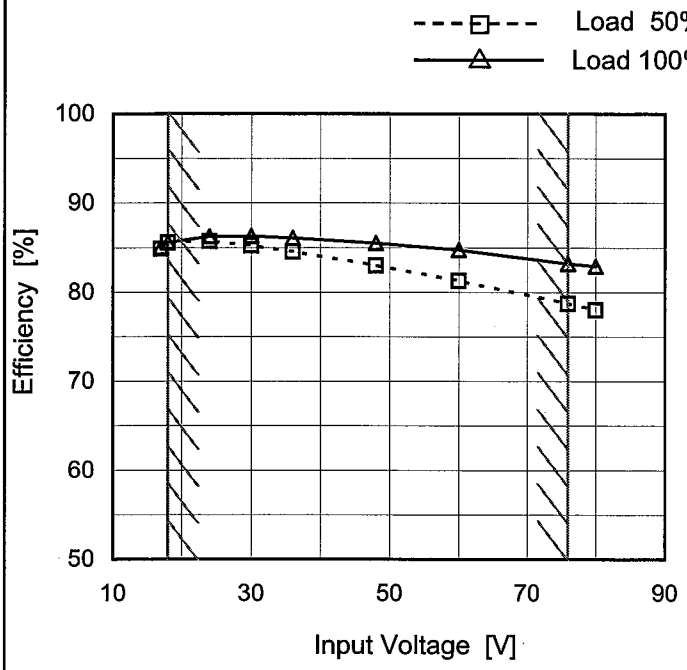
BC - 10735

COSEL

Model	STMGFW304805
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

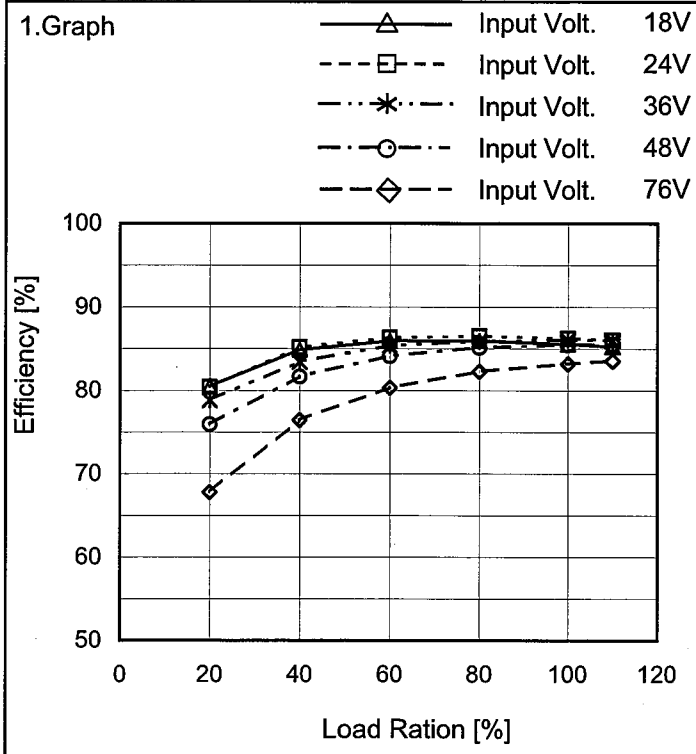
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	84.9	85.1
18	85.6	85.6
24	85.7	86.3
30	85.2	86.3
36	84.6	86.1
48	83.0	85.5
60	81.3	84.8
76	78.7	83.2
80	78.0	83.0

COSEL

Model	STMGFW304805
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	80.6	80.4	78.8	75.9	67.8
40	84.9	85.2	83.4	81.7	76.4
60	86.0	86.3	85.4	84.1	80.3
80	86.0	86.5	85.9	85.1	82.3
100	85.6	86.2	86.0	85.5	83.2
110	85.3	86.1	86.0	85.5	83.5
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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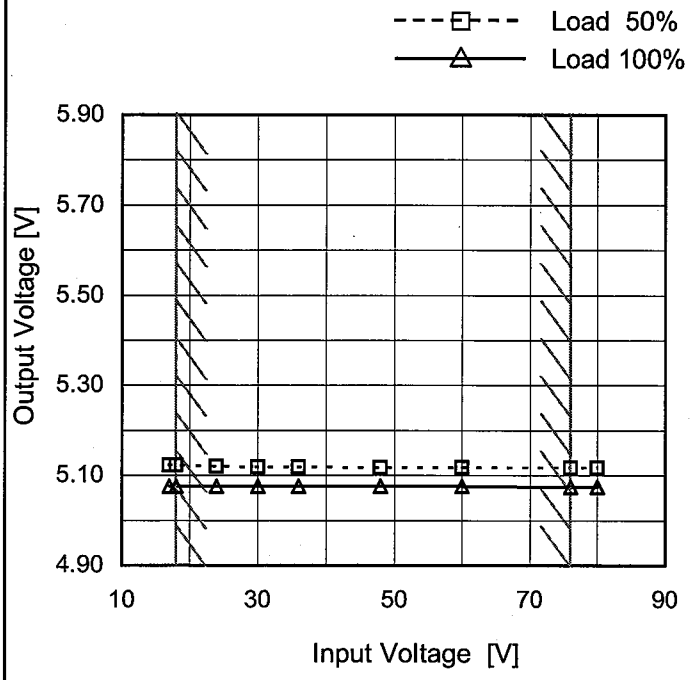
Model	STMGFW304805
Item	Line Regulation
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

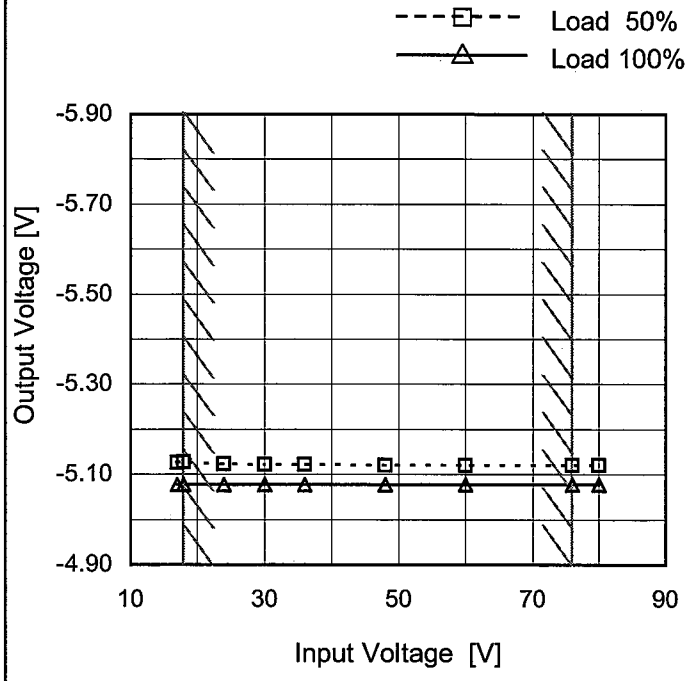


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.123	5.076
18	5.123	5.076
24	5.121	5.076
30	5.119	5.076
36	5.119	5.076
48	5.118	5.076
60	5.118	5.076
76	5.117	5.075
80	5.117	5.075

Object	-5V2A

1.Graph



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

2.Values

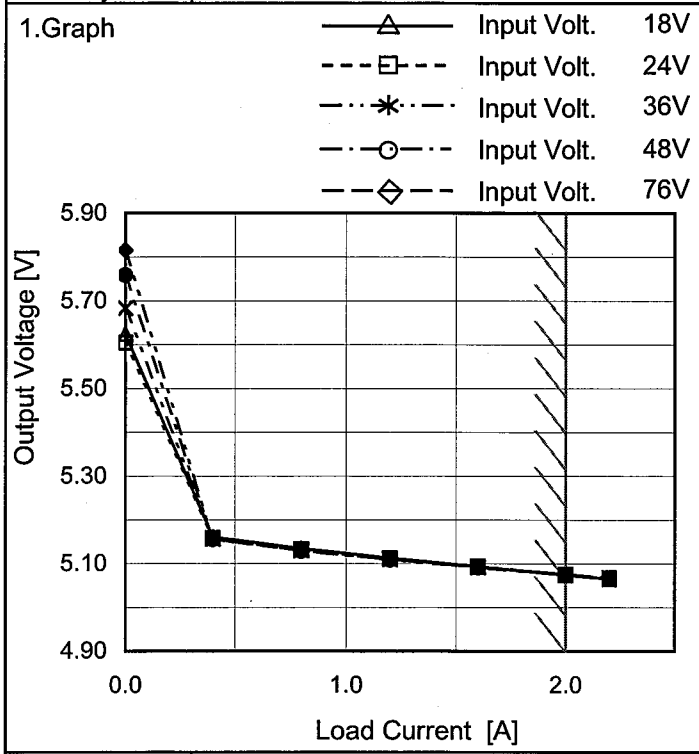
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	-5.127	-5.077
18	-5.127	-5.077
24	-5.123	-5.077
30	-5.122	-5.077
36	-5.122	-5.078
48	-5.121	-5.078
60	-5.121	-5.078
76	-5.120	-5.078
80	-5.120	-5.078

COSEL

Model	STMGFW304805
Item	Load Regulation
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

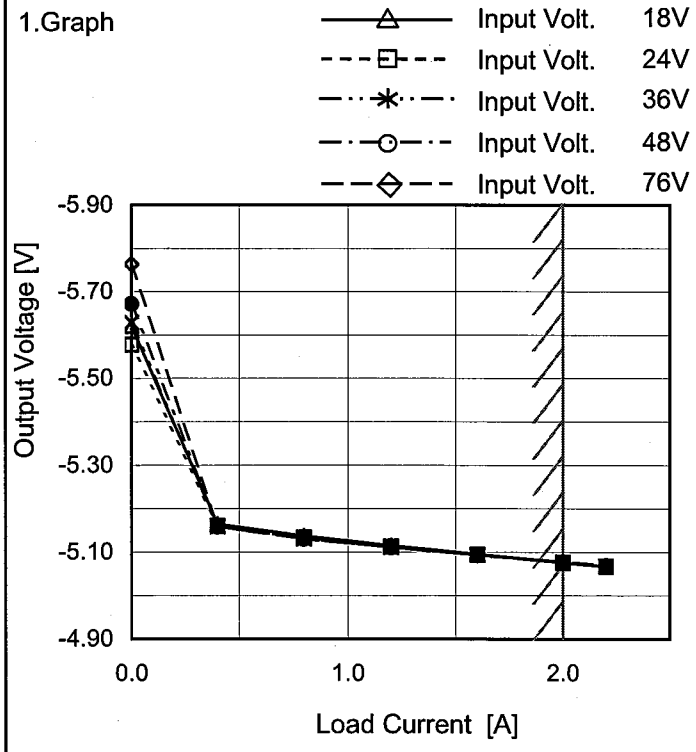


2.Values

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]
0.0	5.625	5.604	5.684	5.759	5.816
0.4	5.162	5.159	5.157	5.156	5.156
0.8	5.135	5.132	5.130	5.129	5.129
1.2	5.113	5.112	5.110	5.110	5.109
1.6	5.094	5.093	5.092	5.092	5.091
2.0	5.075	5.075	5.075	5.075	5.075
2.2	5.066	5.067	5.067	5.067	5.067
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-5V2A

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]
0.0	-5.621	-5.578	-5.630	-5.672	-5.764
0.4	-5.165	-5.161	-5.160	-5.159	-5.159
0.8	-5.138	-5.133	-5.132	-5.131	-5.130
1.2	-5.116	-5.113	-5.112	-5.111	-5.111
1.6	-5.096	-5.094	-5.094	-5.094	-5.093
2.0	-5.077	-5.076	-5.077	-5.077	-5.077
2.2	-5.067	-5.067	-5.068	-5.069	-5.070
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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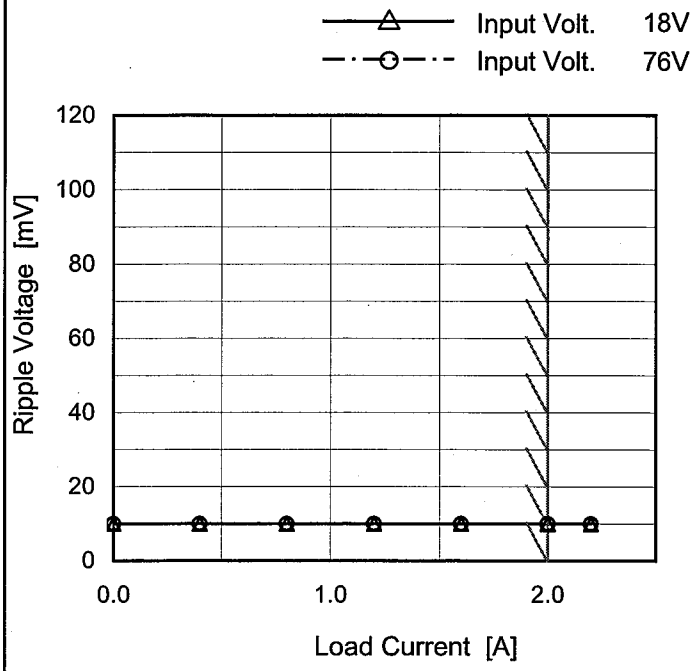
Model	STMGFW304805
Item	Ripple Voltage (by Load Current)
Object	+5V2A

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.

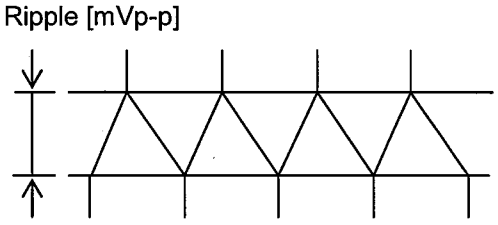


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.0	10	10
0.4	10	10
0.8	10	10
1.2	10	10
1.6	10	10
2.0	10	10
2.2	10	10
--	-	-
--	-	-
--	-	-
--	-	-

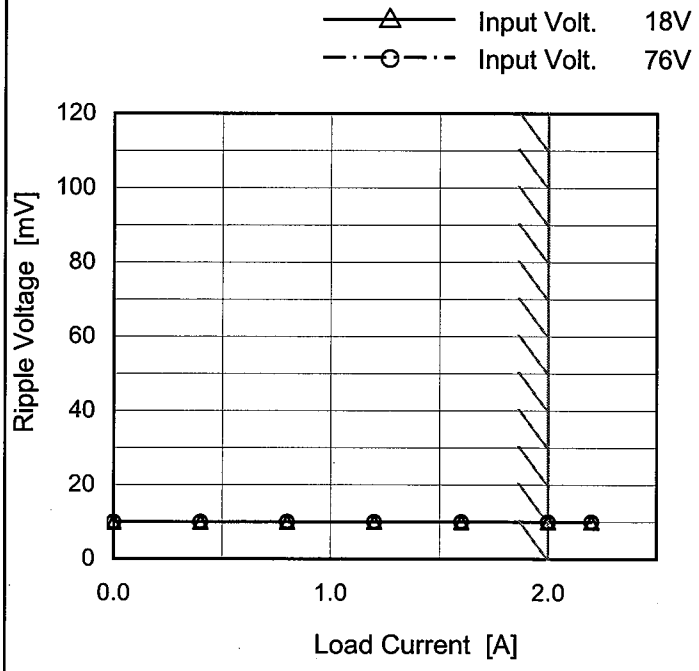
-5V: Rated output current

COSEL

Model	STMGFW304805
Item	Ripple Voltage (by Load Current)
Object	-5V2A

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]

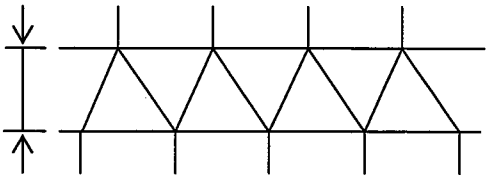


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.0	10	10
0.4	10	10
0.8	10	10
1.2	10	10
1.6	10	10
2.0	10	10
2.2	10	10
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

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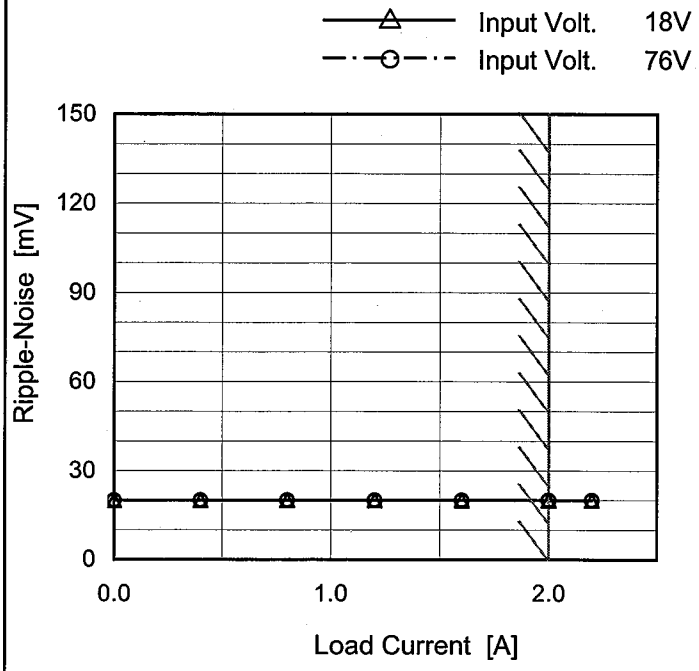
Model	STMGFW304805
Item	Ripple-Noise
Object	+5V2A

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.

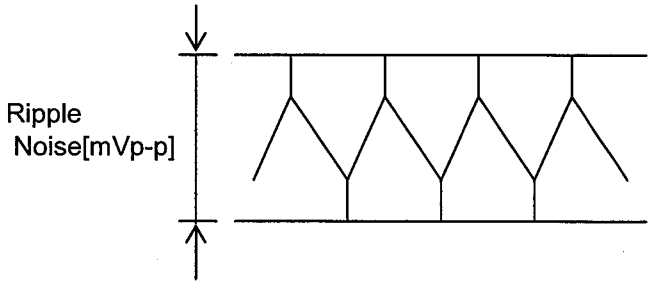


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.0	20	20
0.4	20	20
0.8	20	20
1.2	20	20
1.6	20	20
2.0	20	20
2.2	20	20
--	-	-
--	-	-
--	-	-
--	-	-

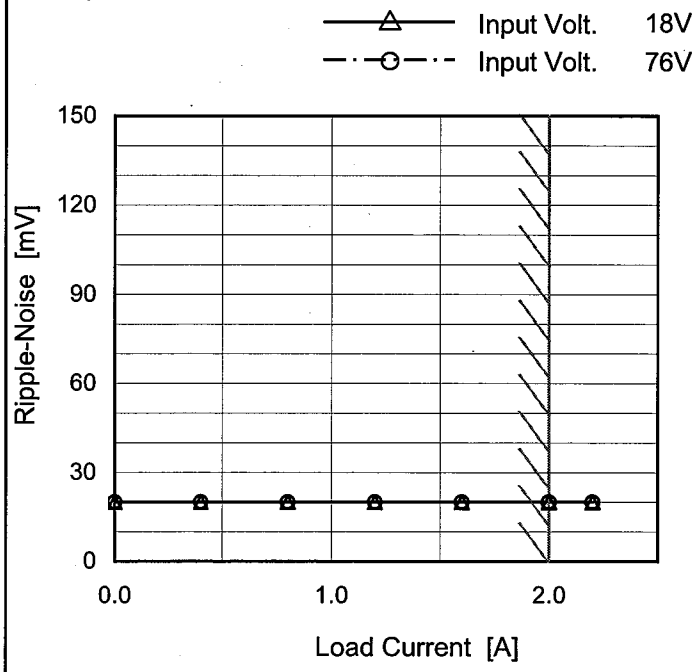
-5V: Rated output current

COSEL

Model	STMGFW304805
Item	Ripple-Noise
Object	-5V2A

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.

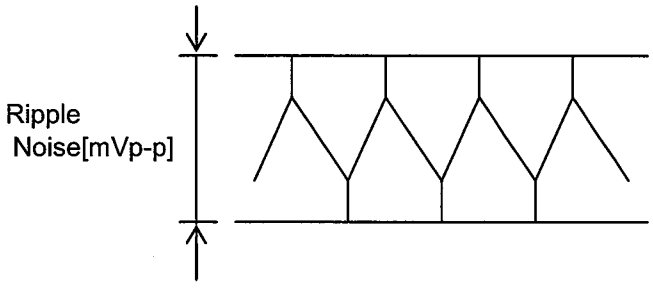


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.0	20	20
0.4	20	20
0.8	20	20
1.2	20	20
1.6	20	20
2.0	20	20
2.2	20	20
--	-	-
--	-	-
--	-	-
--	-	-

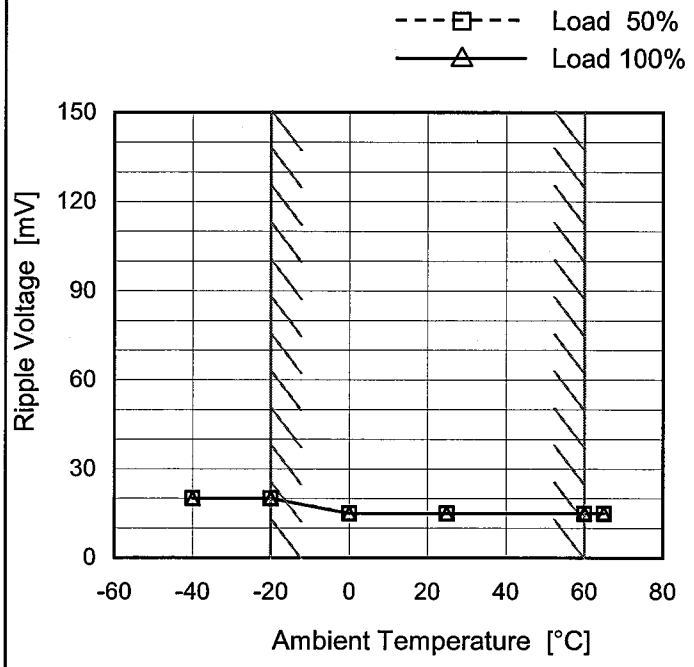
+5V: Rated output current

COSEL

Model	STMGFW304805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V2A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

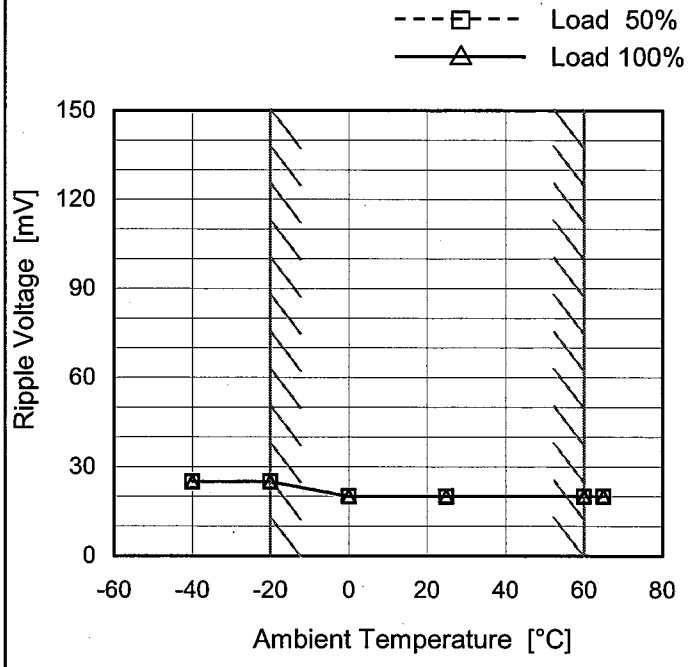
2.Values

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

-5V: Rated output current

Object	-5V2A

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	25	25
-20	25	25
0	20	20
25	20	20
60	20	20
65	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

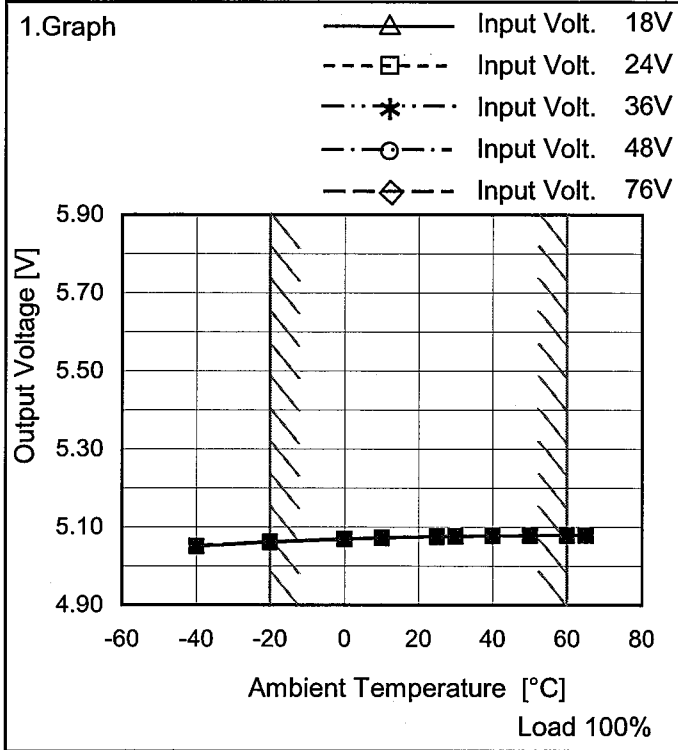
+5V: Rated output current

COSEL

Model	STMGFW304805
Item	Ambient Temperature Drift
Object	+5V2A

Testing Circuitry Figure A

1.Graph

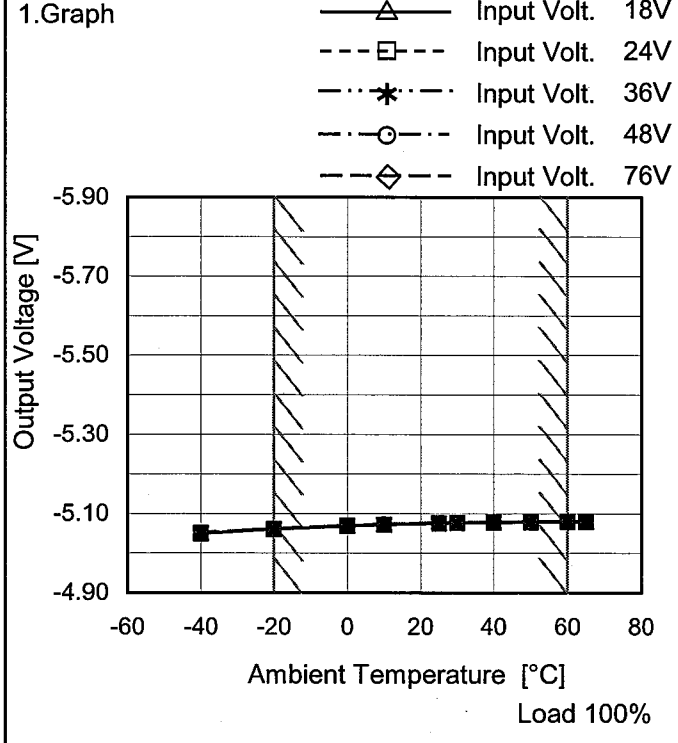


2.Values

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	5.051	5.052	5.052	5.052	5.053
-20	5.061	5.062	5.062	5.062	5.062
0	5.069	5.070	5.070	5.069	5.069
10	5.072	5.073	5.072	5.072	5.072
25	5.076	5.076	5.076	5.075	5.075
30	5.076	5.077	5.077	5.076	5.076
40	5.078	5.078	5.078	5.077	5.077
50	5.079	5.079	5.078	5.078	5.078
60	5.079	5.079	5.079	5.078	5.078
65	5.079	5.079	5.079	5.078	5.078
--	-	-	-	-	-

Object	-5V2A

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	-5.050	-5.050	-5.051	-5.052	-5.052
-20	-5.061	-5.061	-5.061	-5.062	-5.062
0	-5.069	-5.069	-5.069	-5.070	-5.070
10	-5.072	-5.072	-5.073	-5.073	-5.073
25	-5.076	-5.075	-5.076	-5.077	-5.077
30	-5.077	-5.076	-5.077	-5.077	-5.078
40	-5.078	-5.078	-5.079	-5.079	-5.079
50	-5.079	-5.079	-5.080	-5.080	-5.080
60	-5.080	-5.080	-5.080	-5.081	-5.081
65	-5.080	-5.080	-5.080	-5.081	-5.081
--	-	-	-	-	-

COSEL

Model	STMGFW304805	
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 - 2A (AVR 2) : 0 - 2A

* 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	+5V2A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-20	76	0	5.853	±396	±7.9
Minimum Voltage	-20	18	2	5.061		

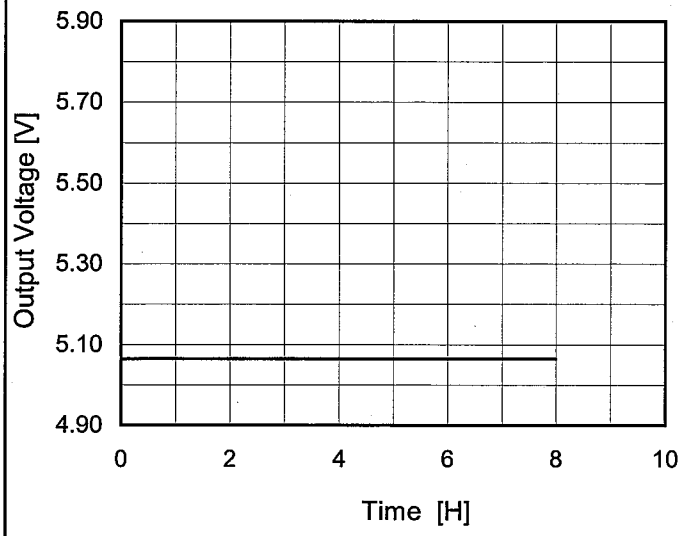
Object	-5V2A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-20	76	0	-5.778	±359	±7.2
Minimum Voltage	-20	18	2	-5.061		

COSEL

Model	STMGFW304805
Item	Time Lapse Drift
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



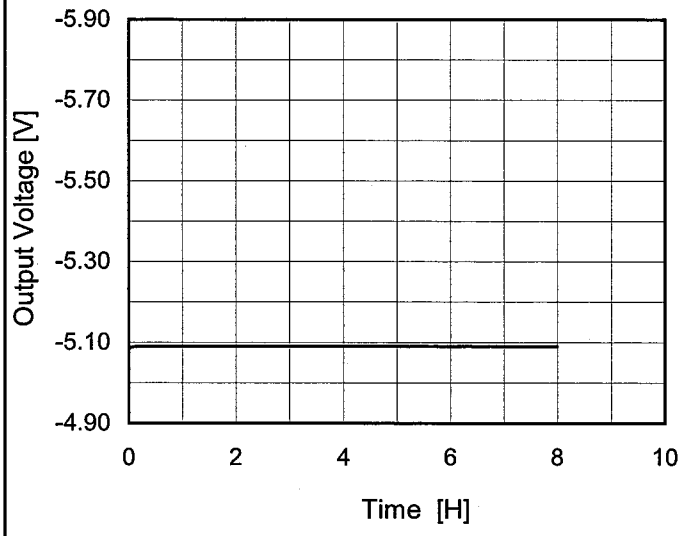
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.062
0.5	5.065
1.0	5.065
2.0	5.065
3.0	5.065
4.0	5.065
5.0	5.065
6.0	5.065
7.0	5.065
8.0	5.065

Object	-5V2A

1.Graph



Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-5.084
0.5	-5.090
1.0	-5.090
2.0	-5.090
3.0	-5.090
4.0	-5.090
5.0	-5.090
6.0	-5.090
7.0	-5.090
8.0	-5.090

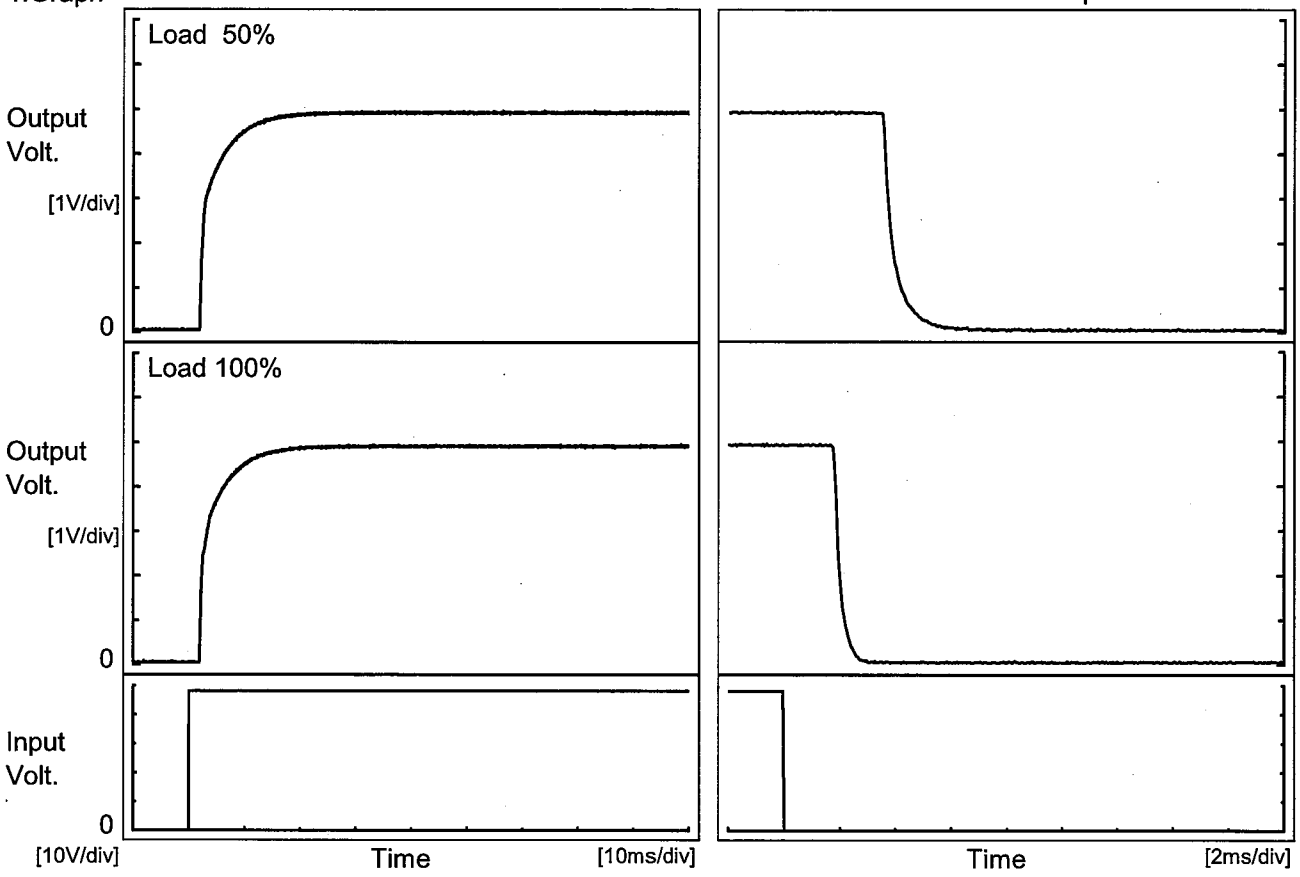
COSEL

Model	STMGFW304805
Item	Rise and Fall Time
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

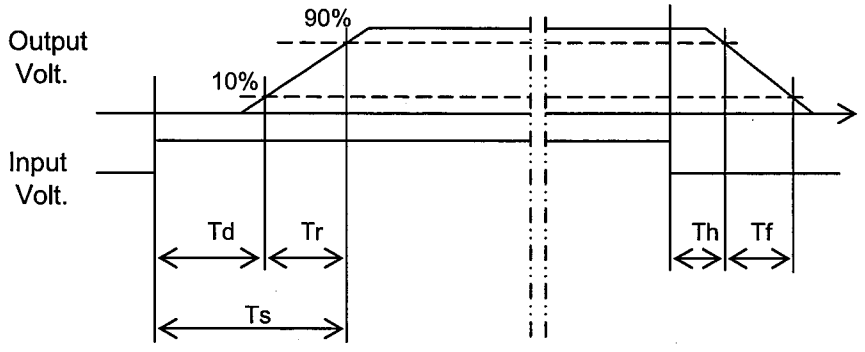
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.0	8.4	10.4	3.5	1.0
100 %	2.0	8.5	10.5	1.8	0.5



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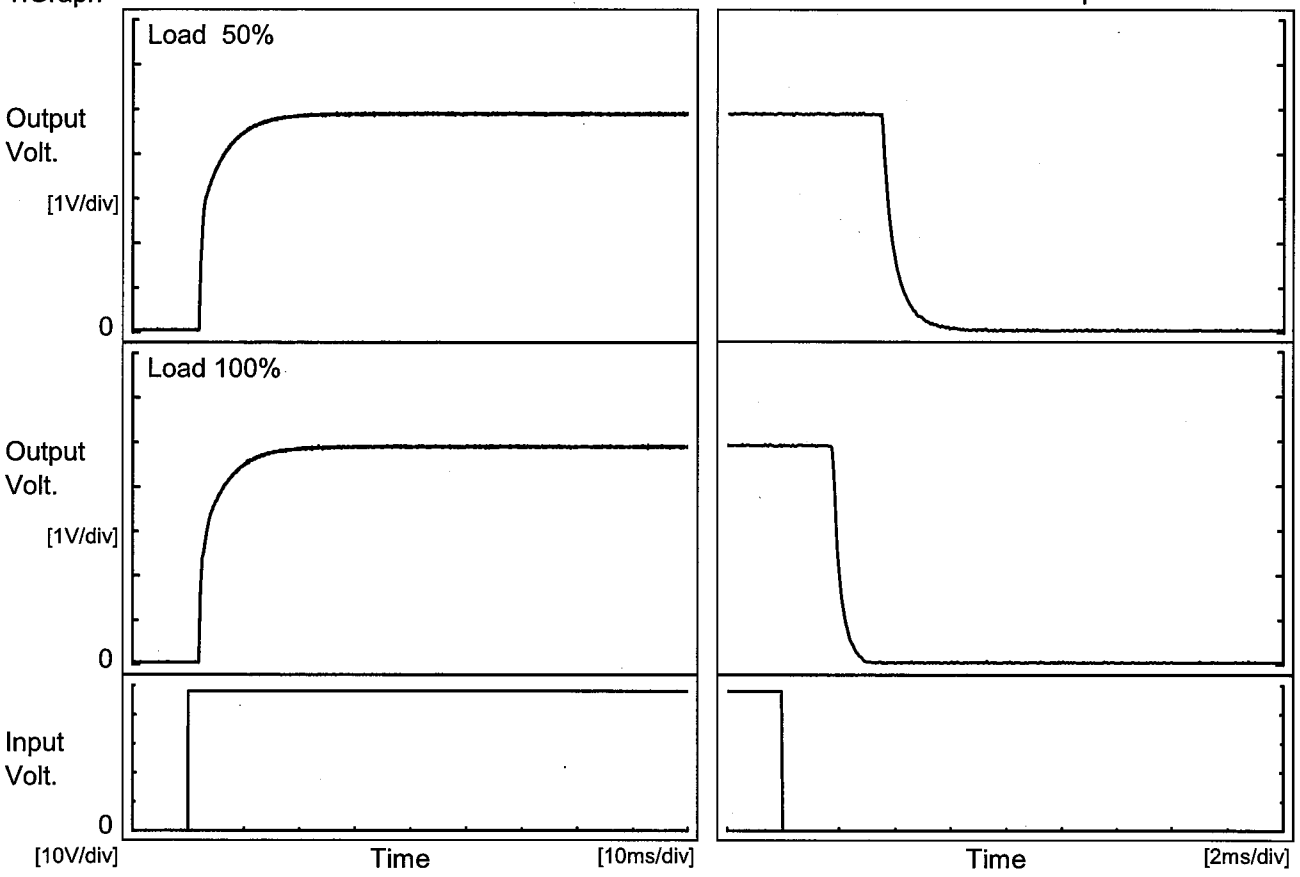
COSEL

Model	STMGFW304805
Item	Rise and Fall Time
Object	-5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

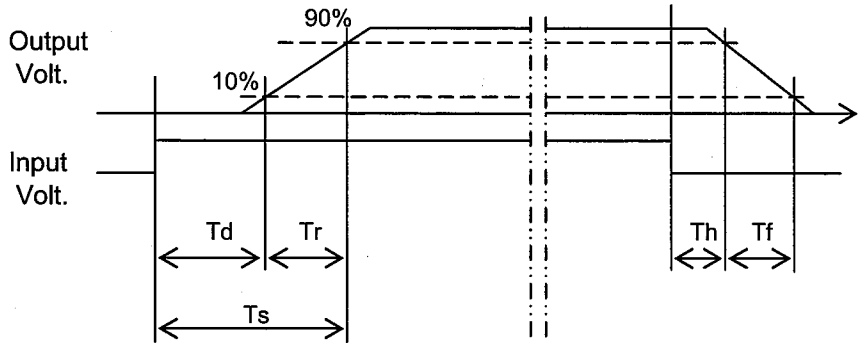
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.1	8.7	10.8	3.5	1.1
100 %	2.1	8.5	10.6	1.8	0.7

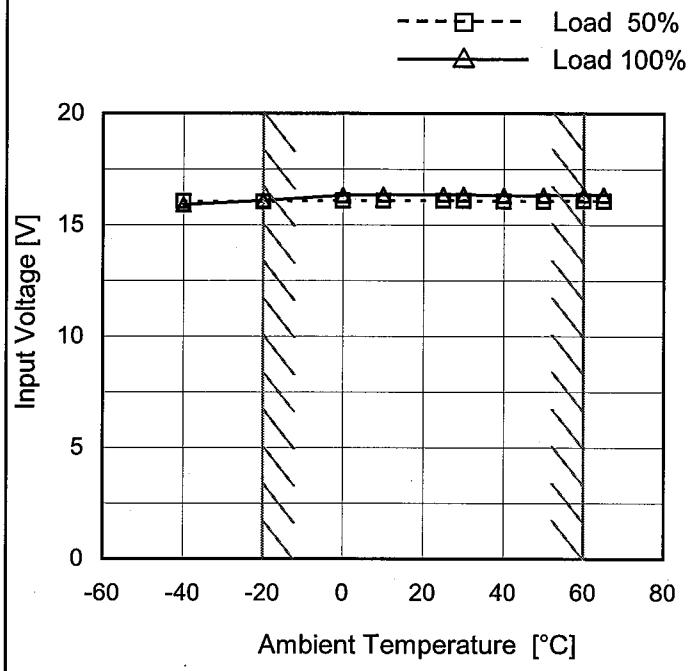


COSEL

Model	STMGFW304805
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V2A

Testing Circuitry Figure A

1.Graph

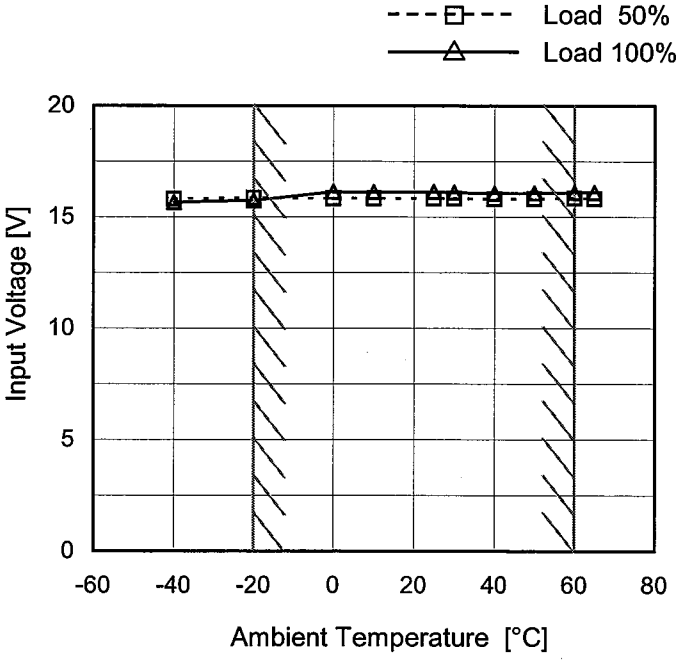


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	16.1	16.0
-20	16.1	16.2
0	16.1	16.4
10	16.1	16.4
25	16.1	16.4
30	16.1	16.4
40	16.1	16.4
50	16.1	16.4
60	16.1	16.4
65	16.1	16.4
--	-	-

Object	-5V2A

1.Graph



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

2.Values

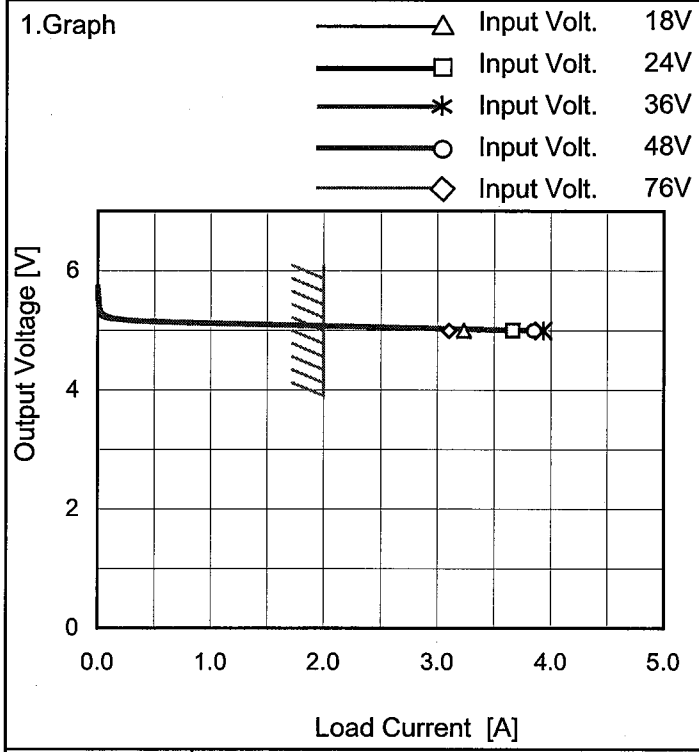
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.8	15.7
-20	15.9	15.8
0	15.9	16.2
10	15.9	16.2
25	15.9	16.2
30	15.9	16.2
40	15.8	16.1
50	15.9	16.1
60	15.9	16.1
65	15.9	16.1
--	-	-

COSEL

Model	STMGFW304805
Item	Overcurrent Protection
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

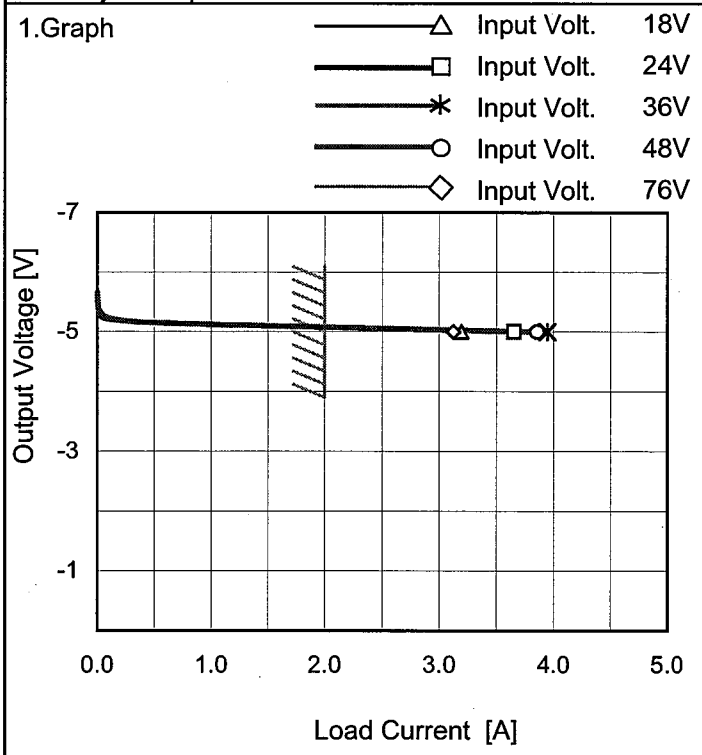


2.Values

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]
5.00	3.235	3.666	3.931	3.853	3.104
4.75	-	-	-	-	-
4.50	-	-	-	-	-
4.00	-	-	-	-	-
3.50	-	-	-	-	-
3.00	-	-	-	-	-
2.50	-	-	-	-	-
2.00	-	-	-	-	-
1.50	-	-	-	-	-
1.00	-	-	-	-	-
0.50	-	-	-	-	-
0.00	-	-	-	-	-

Object	-5V2A

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]
-5.00	3.195	3.654	3.946	3.856	3.124
-4.75	-	-	-	-	-
-4.50	-	-	-	-	-
-4.00	-	-	-	-	-
-3.50	-	-	-	-	-
-3.00	-	-	-	-	-
-2.50	-	-	-	-	-
-2.00	-	-	-	-	-
-1.50	-	-	-	-	-
-1.00	-	-	-	-	-
-0.50	-	-	-	-	-
0.00	-	-	-	-	-

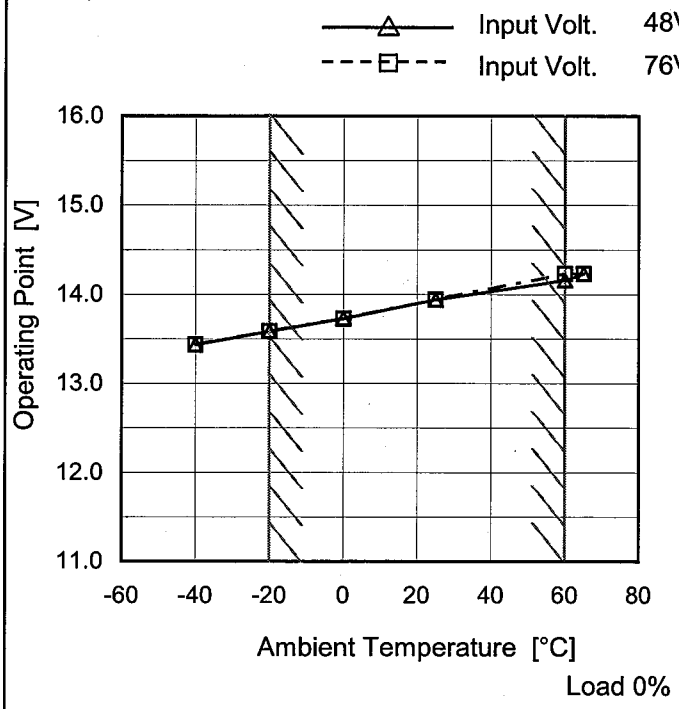
Note: Slanted line shows the range of the rated load current.
Intermittent operation occurs when overcurrent protection is activated.

COSEL

Model	STMGFW304805
Item	Overvoltage Protection
Object	+10V2A

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	13.44	13.44
-20	13.59	13.59
0	13.73	13.73
25	13.94	13.94
60	14.16	14.23
65	14.23	14.23
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

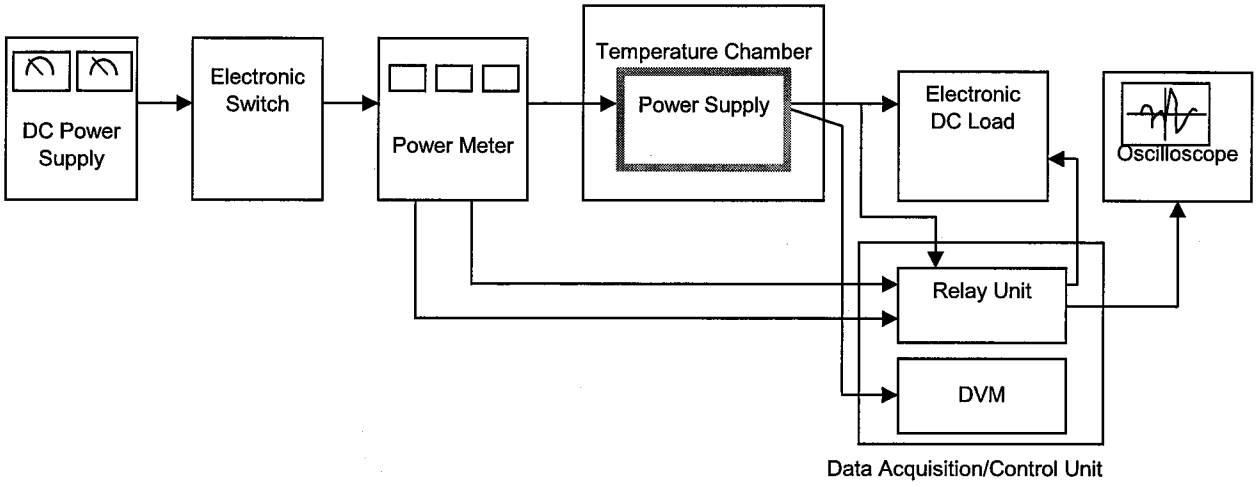


Figure A

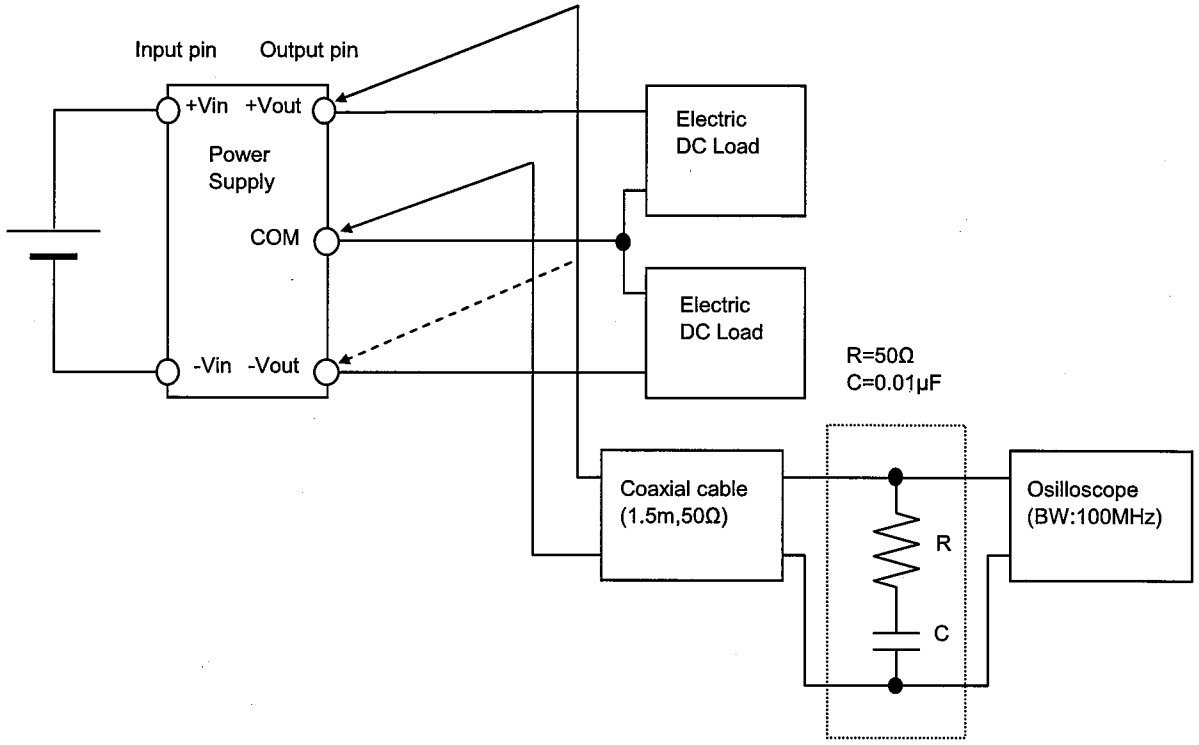


Figure B (Ripple and Ripple noise Characteristic)