COSEL

参考資料

TEST DATA OF STMGFW154812

Regulated DC Power Supply
January 24, 2013

Approved by : Takahiro Yoneda

Takahiro Yoneda　　Design Manager

Prepared by : Satoshi Kinoshita

Satoshi Kinoshita　　Design Engineer

COSEL CO.,LTD.

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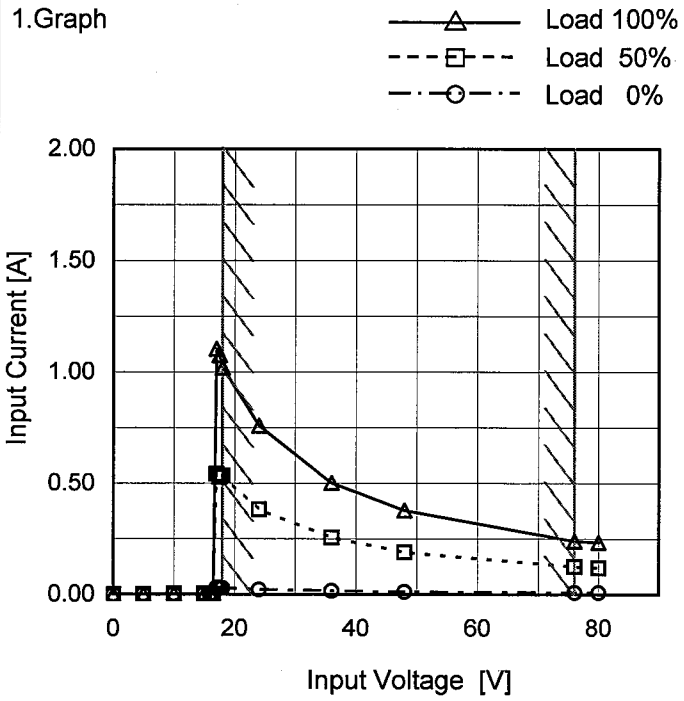
COSEL

Model	STMGFW154812
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

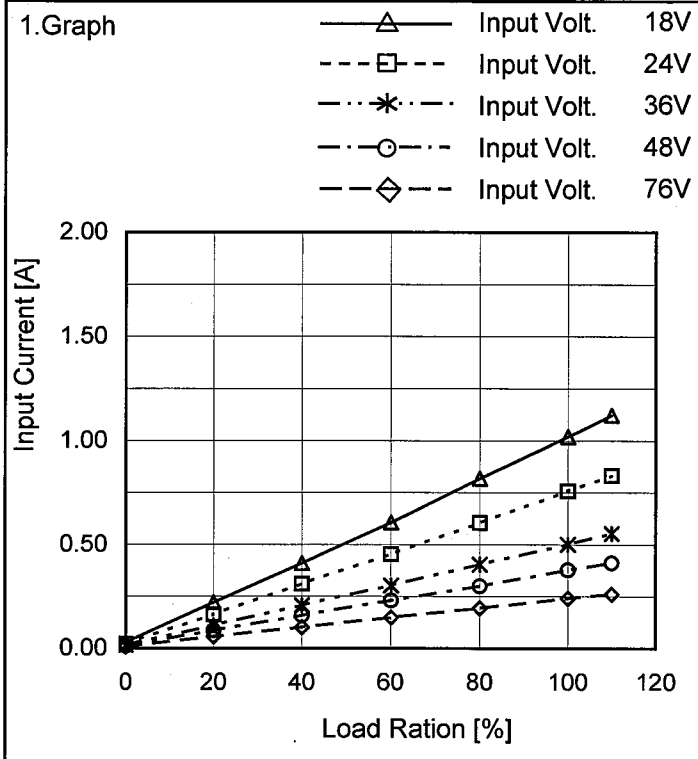
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
5.0	0.002	0.002	0.002
10.0	0.002	0.002	0.002
15.0	0.003	0.003	0.003
16.0	0.003	0.003	0.003
16.5	0.003	0.003	0.003
17.0	0.031	0.541	1.103
17.5	0.030	0.527	1.074
18.0	0.028	0.533	1.019
24.0	0.022	0.383	0.758
36.0	0.016	0.256	0.501
48.0	0.011	0.190	0.378
76.0	0.008	0.126	0.241
80.0	0.008	0.119	0.234
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	STMGFW154812
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	0.029	0.022	0.016	0.011	0.008
20	0.222	0.164	0.111	0.087	0.056
40	0.411	0.310	0.207	0.159	0.102
60	0.606	0.453	0.302	0.231	0.150
80	0.818	0.604	0.404	0.300	0.194
100	1.019	0.758	0.501	0.378	0.241
110	1.122	0.831	0.553	0.412	0.261
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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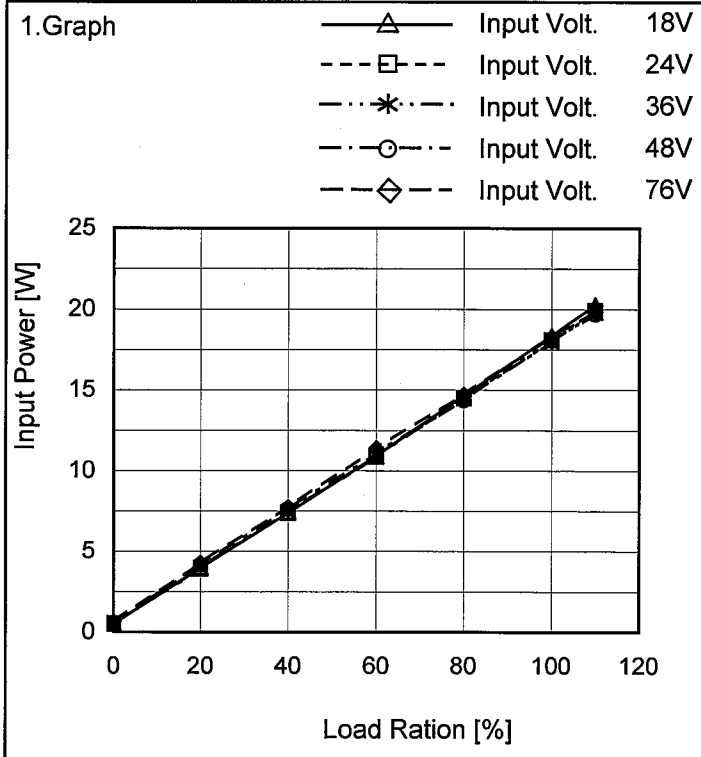
COSEL

Model	STMGFW154812
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

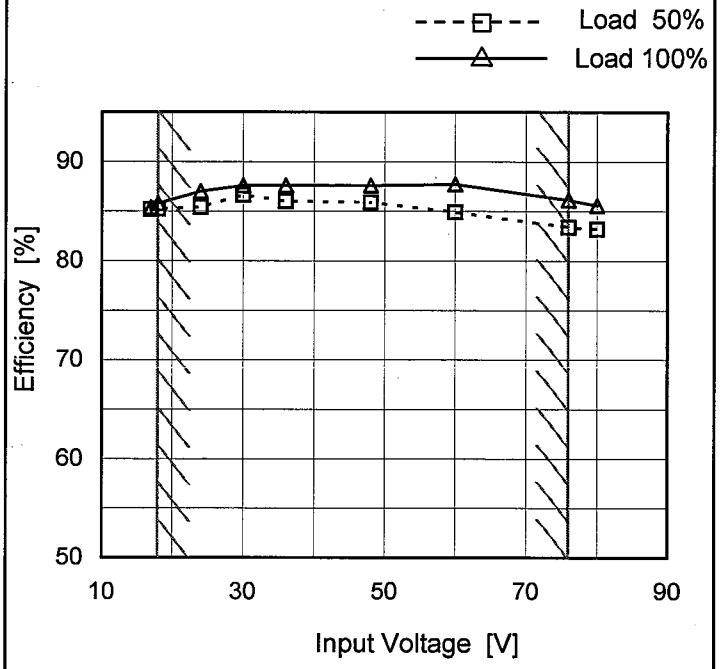
Load Ration [%]	Input Power [W]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.52	0.52	0.58	0.55	0.66
20	3.97	3.92	3.99	4.18	4.30
40	7.38	7.41	7.44	7.62	7.74
60	10.92	10.87	10.86	11.08	11.40
80	14.65	14.46	14.50	14.37	14.73
100	18.36	18.11	18.00	18.08	18.30
110	20.26	19.93	19.82	19.70	19.86
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW154812
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

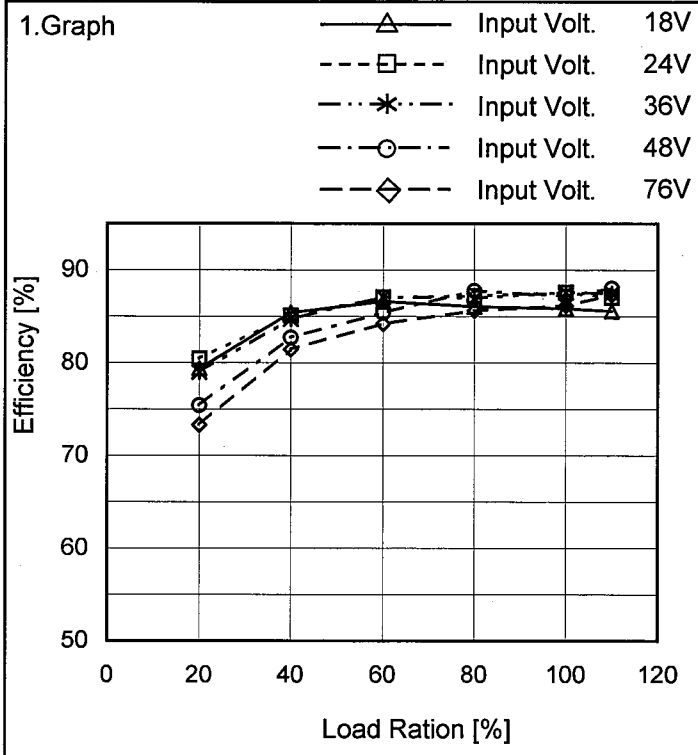
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	85.2	85.4
18	85.2	85.8
24	85.4	87.0
30	86.6	87.6
36	86.0	87.6
48	85.9	87.6
60	84.9	87.7
76	83.4	86.2
80	83.2	85.6

COSEL

Model	STMGFW154812
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	79.4	80.4	79.0	75.4	73.3
40	85.4	85.1	84.7	82.7	81.4
60	86.6	87.0	87.1	85.4	84.2
80	86.1	87.2	87.0	87.8	85.6
100	85.9	87.6	87.6	87.2	86.2
110	85.6	87.0	87.5	88.0	87.3
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

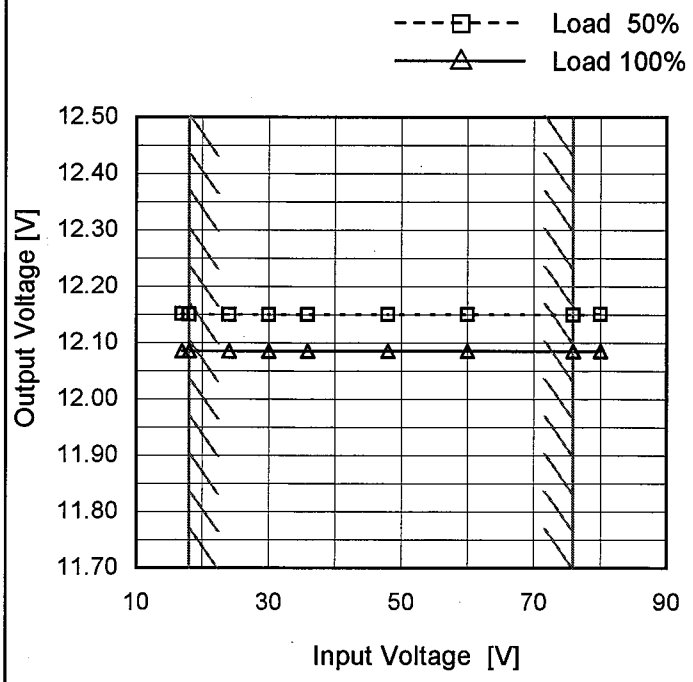
BC - 10730

COSEL

Model	STMGFW154812
Item	Line Regulation
Object	+12V0.65A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

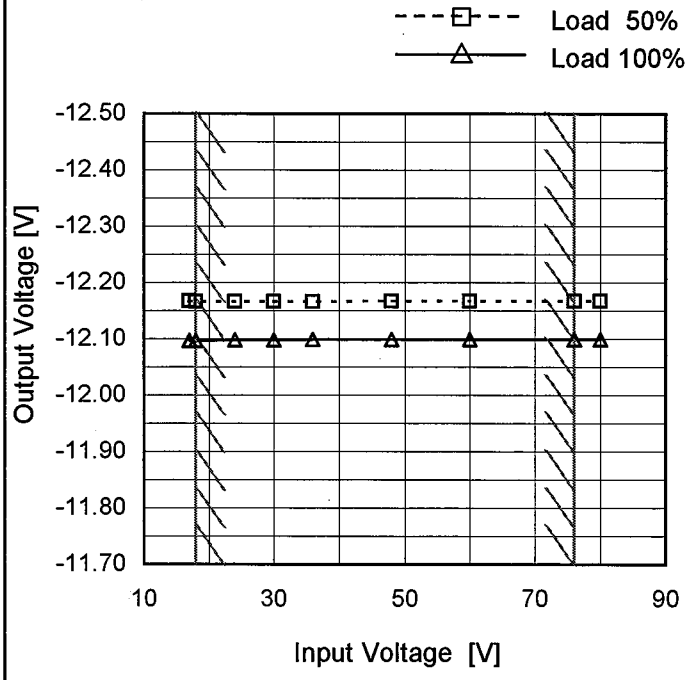


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	12.151	12.085
18	12.150	12.085
24	12.150	12.085
30	12.150	12.085
36	12.151	12.085
48	12.150	12.085
60	12.151	12.085
76	12.150	12.085
80	12.151	12.085

Object	-12V0.65A

1.Graph



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

2.Values

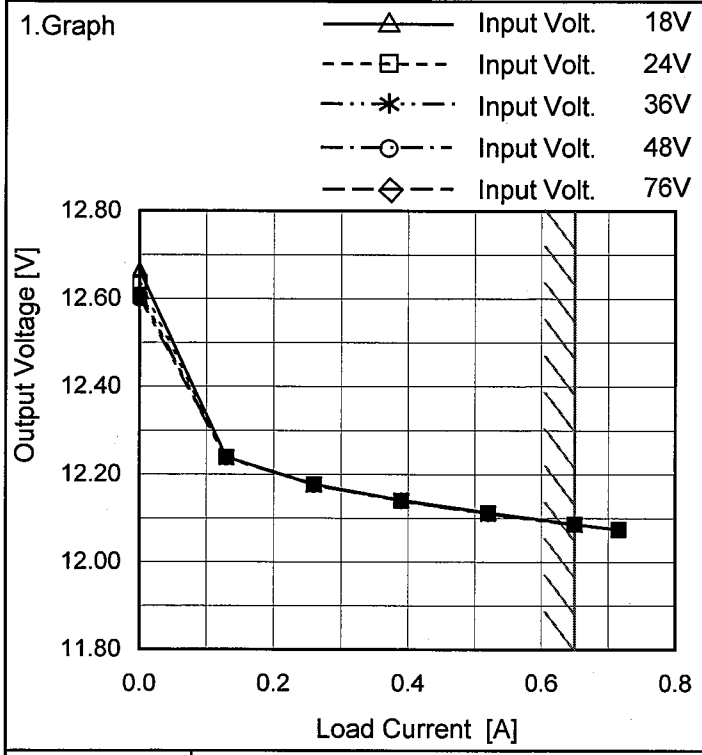
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	-12.167	-12.096
18	-12.166	-12.097
24	-12.166	-12.098
30	-12.166	-12.098
36	-12.166	-12.098
48	-12.167	-12.099
60	-12.167	-12.099
76	-12.167	-12.099
80	-12.167	-12.099

COSEL

Model	STMGFW154812
Item	Load Regulation
Object	+12V0.65A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

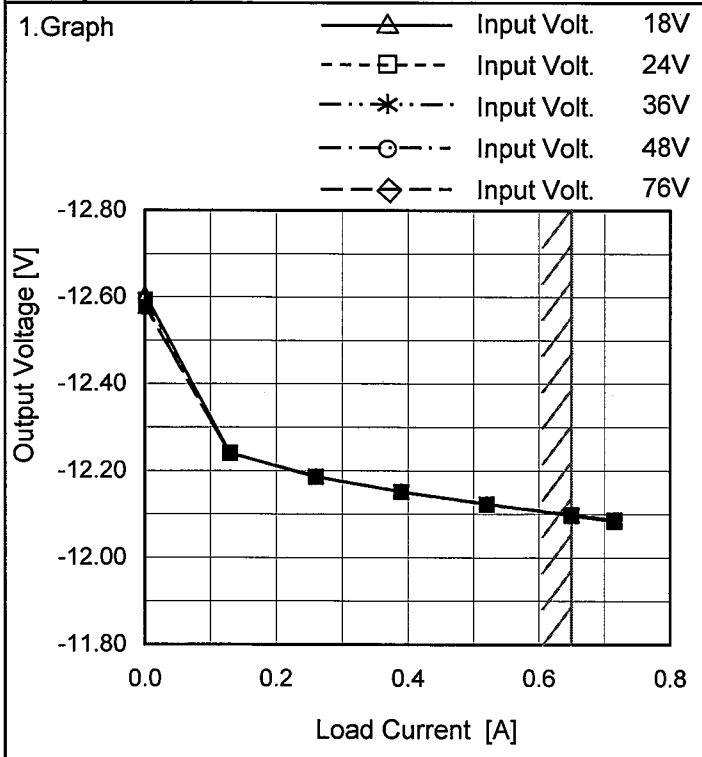


2.Values

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	12.665	12.637	12.607	12.599	12.613
0.130	12.239	12.239	12.239	12.238	12.238
0.260	12.177	12.177	12.177	12.176	12.176
0.390	12.141	12.140	12.140	12.139	12.139
0.520	12.113	12.111	12.111	12.111	12.110
0.650	12.087	12.086	12.086	12.086	12.085
0.715	12.074	12.075	12.074	12.074	12.074
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-12V0.65A

1.Graph



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

2.Values

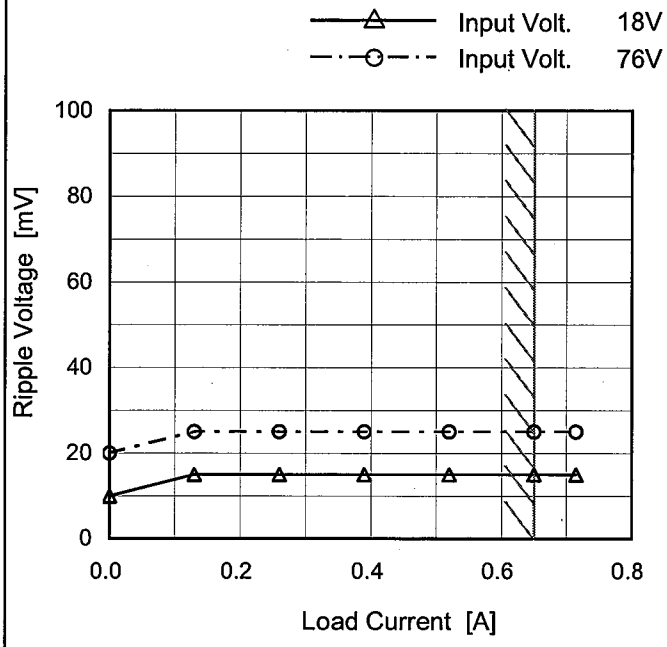
Load Current [A]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	-12.607	-12.593	-12.579	-12.576	-12.575
0.130	-12.240	-12.241	-12.241	-12.241	-12.240
0.260	-12.186	-12.186	-12.186	-12.186	-12.186
0.390	-12.152	-12.151	-12.151	-12.152	-12.151
0.520	-12.123	-12.123	-12.123	-12.123	-12.123
0.650	-12.097	-12.098	-12.098	-12.099	-12.099
0.715	-12.084	-12.086	-12.087	-12.087	-12.087
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW154812
Item	Ripple Voltage (by Load Current)
Object	+12V0.65A

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.

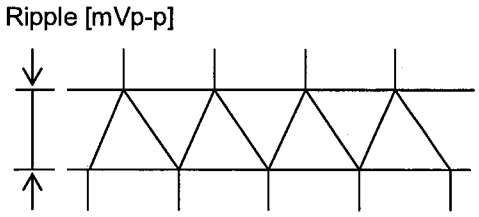


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.000	10	20
0.130	15	25
0.260	15	25
0.390	15	25
0.520	15	25
0.650	15	25
0.715	15	25
--	-	-
--	-	-
--	-	-
--	-	-

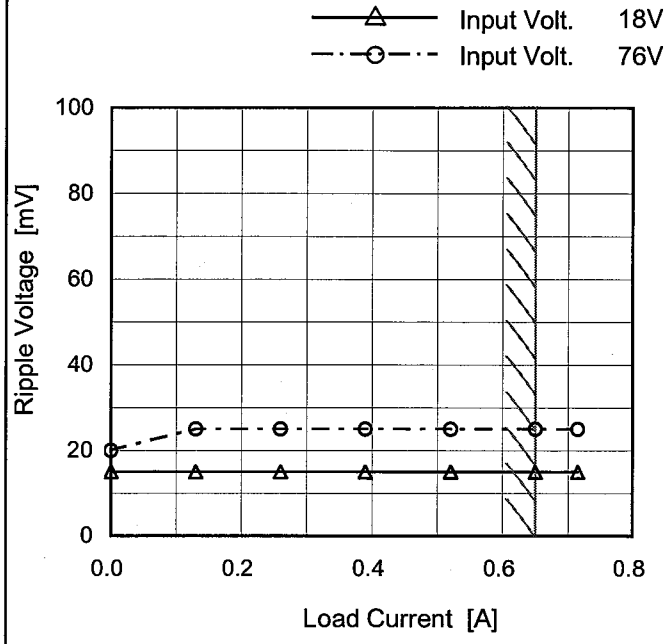
-12V: Rated output current

COSEL

Model	STMGFW154812
Item	Ripple Voltage (by Load Current)
Object	-12V0.65A

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.

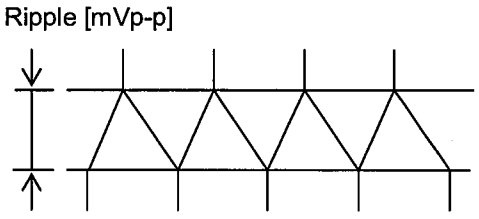


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.000	15	20
0.130	15	25
0.260	15	25
0.390	15	25
0.520	15	25
0.650	15	25
0.715	15	25
--	-	-
--	-	-
--	-	-
--	-	-

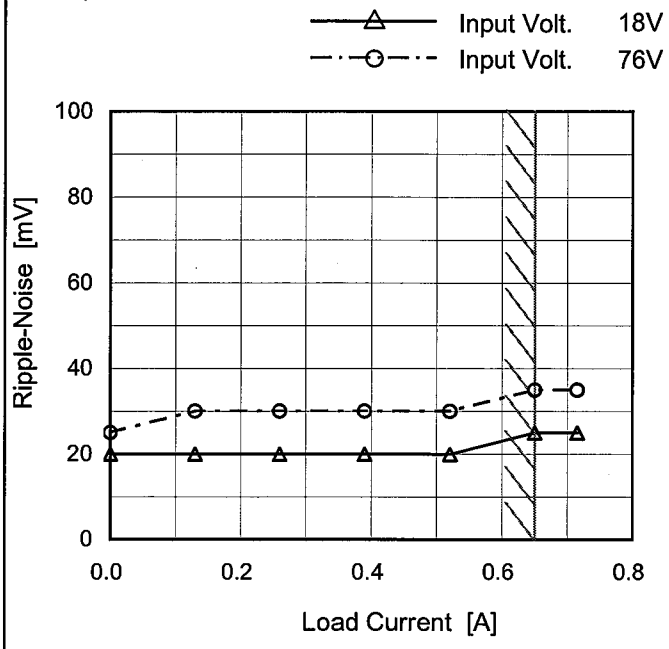
+12V: Rated output current

COSEL

Model	STMGFW154812
Item	Ripple-Noise
Object	+12V0.65A

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.

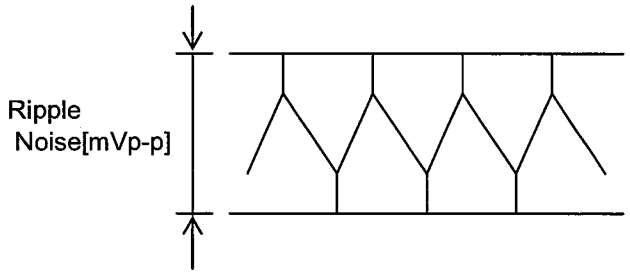


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.000	20	25
0.130	20	30
0.260	20	30
0.390	20	30
0.520	20	30
0.650	25	35
0.715	25	35
--	-	-
--	-	-
--	-	-
--	-	-

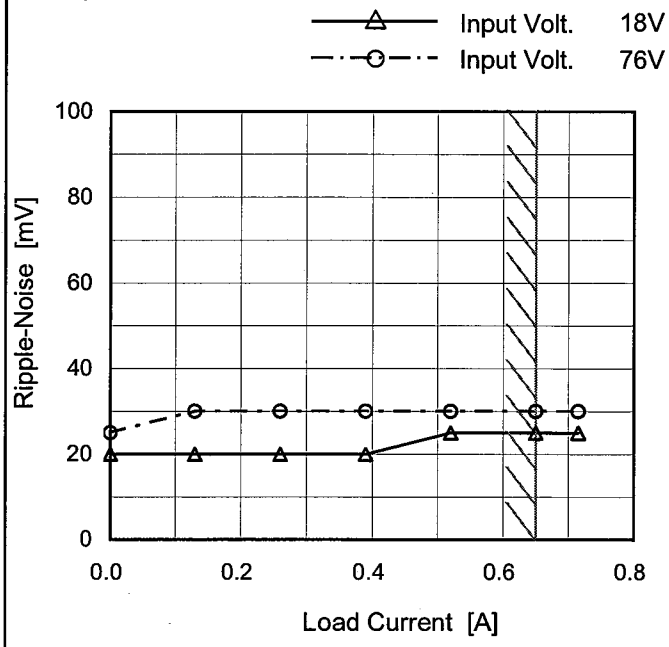
-12V: Rated output current

COSEL

Model	STMGFW154812
Item	Ripple-Noise
Object	-12V0.65A

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.

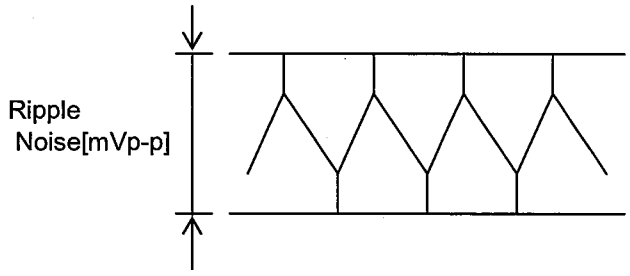


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 18 [V]	Ripple-Noise [mV] Input Volt. 76 [V]
0.000	20	25
0.130	20	30
0.260	20	30
0.390	20	30
0.520	25	30
0.650	25	30
0.715	25	30
--	-	-
--	-	-
--	-	-
--	-	-

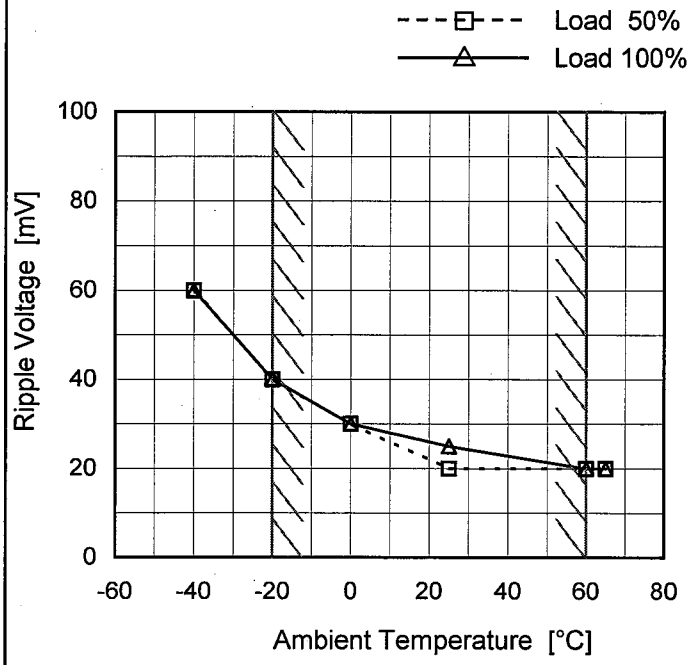
+12V: Rated output current

COSEL

Model	STMGFW154812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V0.65A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

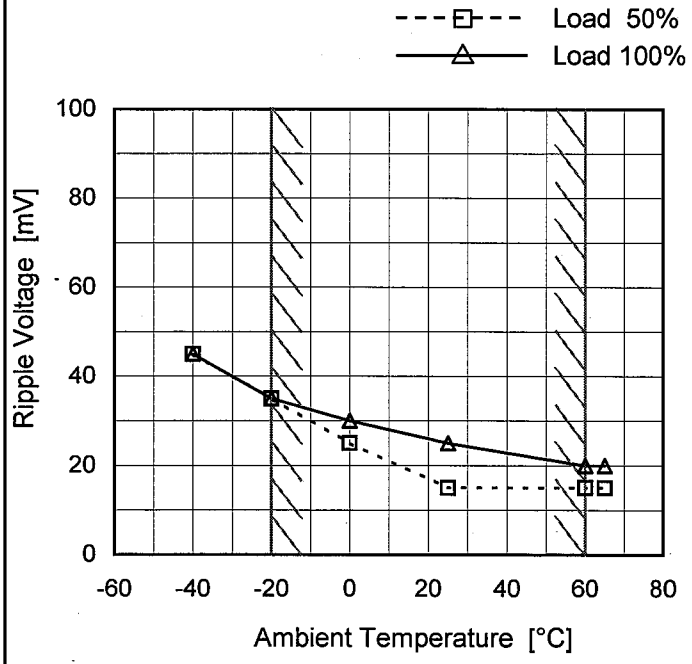
2.Values

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

-12V: Rated output current

Object	-12V0.65A

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	45	45
-20	35	35
0	25	30
25	15	25
60	15	20
65	15	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

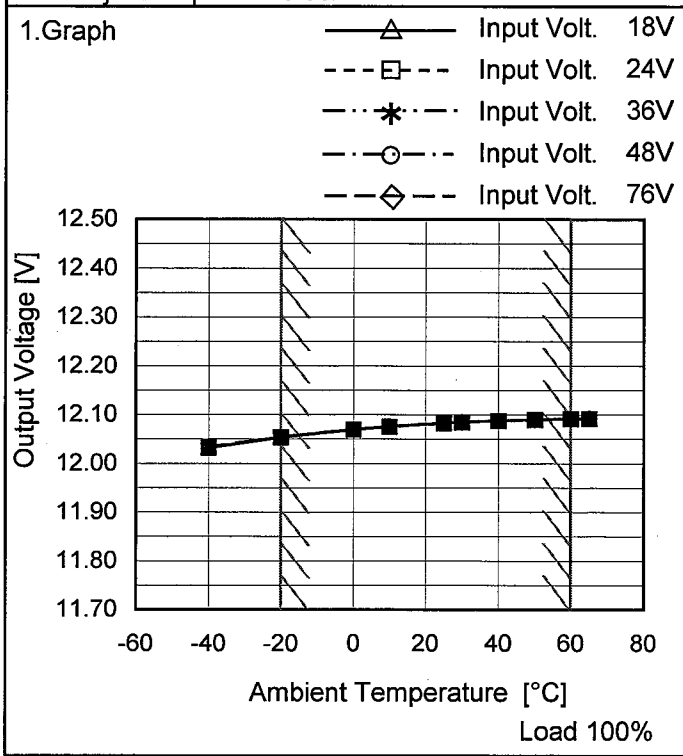
+12V: Rated output current

COSEL

Model	STMGFW154812
Item	Ambient Temperature Drift
Object	+12V0.65A

Testing Circuitry Figure A

1.Graph

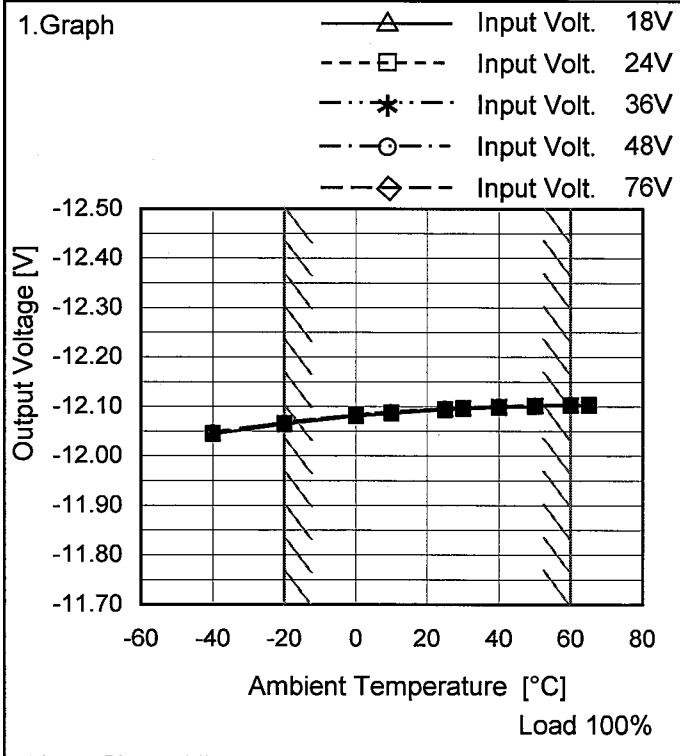


2.Values

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	12.032	12.032	12.033	12.033	12.034
-20	12.053	12.053	12.054	12.054	12.054
0	12.070	12.069	12.070	12.069	12.070
10	12.076	12.075	12.075	12.076	12.076
25	12.083	12.083	12.083	12.083	12.083
30	12.085	12.085	12.084	12.085	12.085
40	12.088	12.087	12.087	12.088	12.087
50	12.090	12.090	12.090	12.090	12.090
60	12.092	12.092	12.092	12.092	12.091
65	12.093	12.092	12.092	12.092	12.092
--	-	-	-	-	-

Object	-12V0.65A

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	-12.044	-12.046	-12.047	-12.047	-12.048
-20	-12.065	-12.066	-12.067	-12.067	-12.068
0	-12.080	-12.082	-12.083	-12.083	-12.084
10	-12.087	-12.088	-12.089	-12.089	-12.090
25	-12.094	-12.095	-12.095	-12.096	-12.096
30	-12.096	-12.097	-12.097	-12.098	-12.098
40	-12.098	-12.099	-12.100	-12.100	-12.101
50	-12.101	-12.102	-12.102	-12.103	-12.103
60	-12.102	-12.103	-12.104	-12.105	-12.105
65	-12.103	-12.104	-12.104	-12.105	-12.105
--	-	-	-	-	-

COSEL

Model	STMGFW154812	
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 - 0.65A (AVR 2) : 0 - 0.65A

* 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	+12V0.65A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	18	0	12.663	±305	±2.5
Minimum Voltage	-20	18	0.65	12.053		

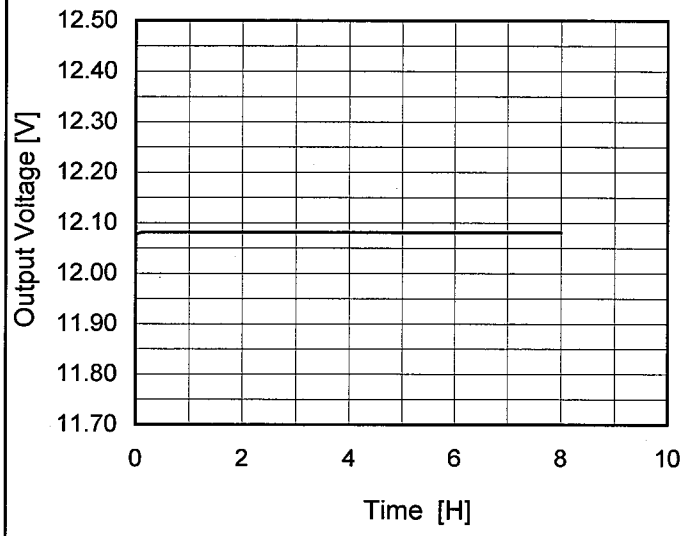
Object	-12V0.65A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	18	0	-12.614	±275	±2.3
Minimum Voltage	-20	18	0.65	-12.065		

COSEL

Model	STMGFW154812
Item	Time Lapse Drift
Object	+12V0.65A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



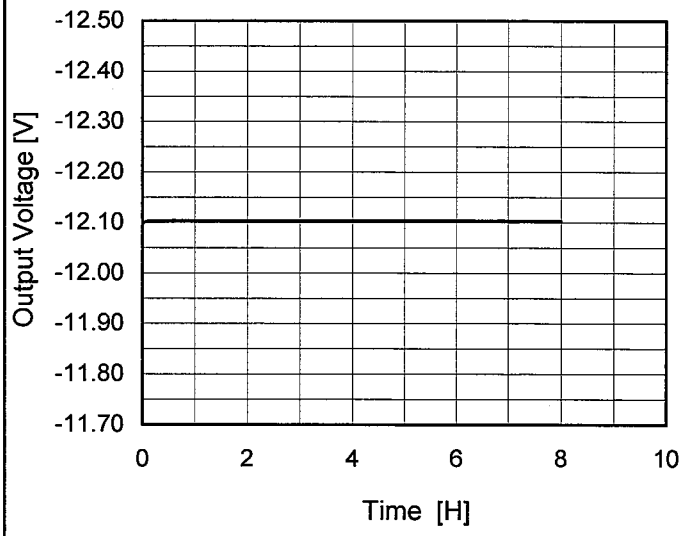
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.073
0.5	12.081
1.0	12.081
2.0	12.081
3.0	12.081
4.0	12.081
5.0	12.081
6.0	12.081
7.0	12.081
8.0	12.081

Object	-12V0.65A

1.Graph



Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.096
0.5	-12.104
1.0	-12.104
2.0	-12.103
3.0	-12.104
4.0	-12.104
5.0	-12.104
6.0	-12.104
7.0	-12.104
8.0	-12.103

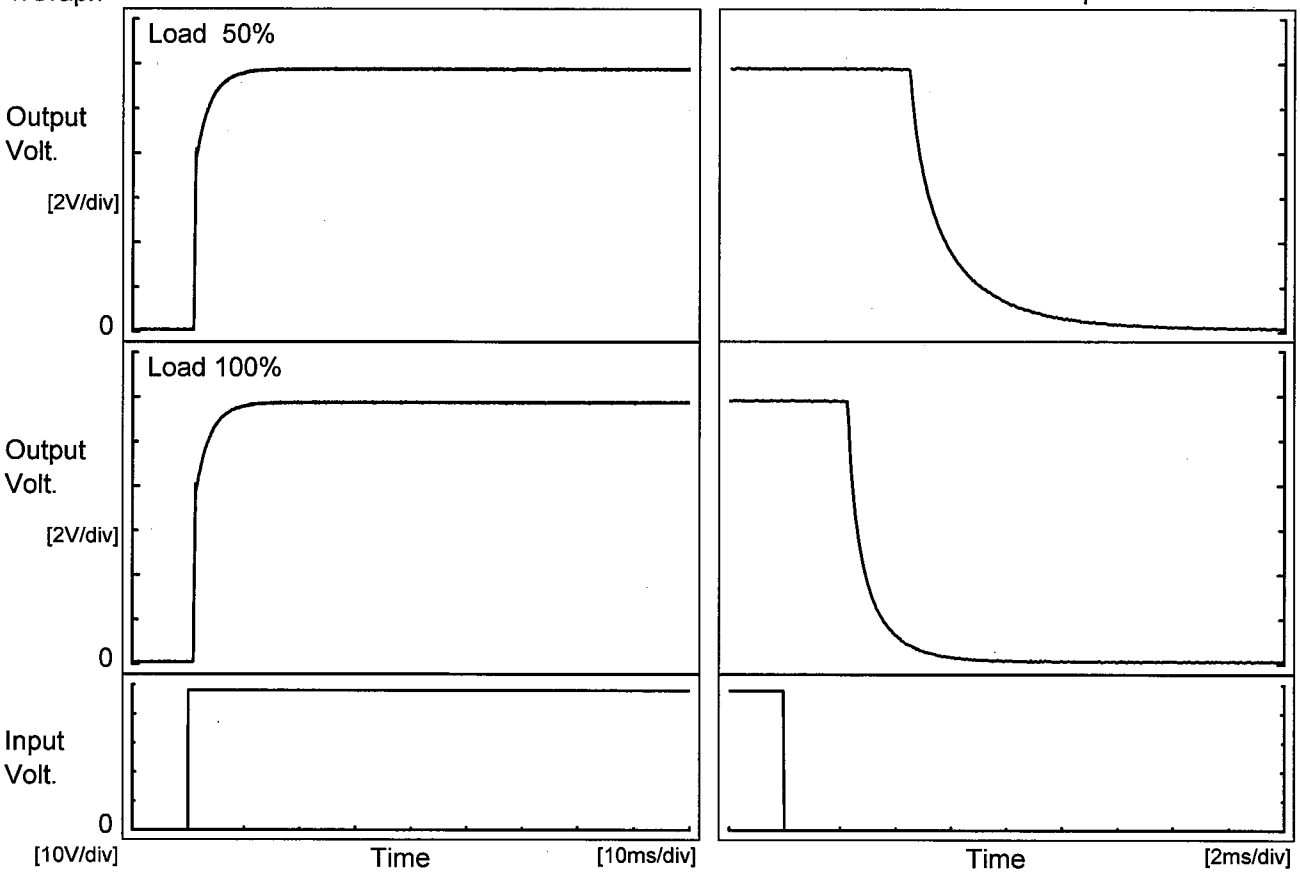
COSEL

Model	STMGFW154812
Item	Rise and Fall Time
Object	+12V0.65A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

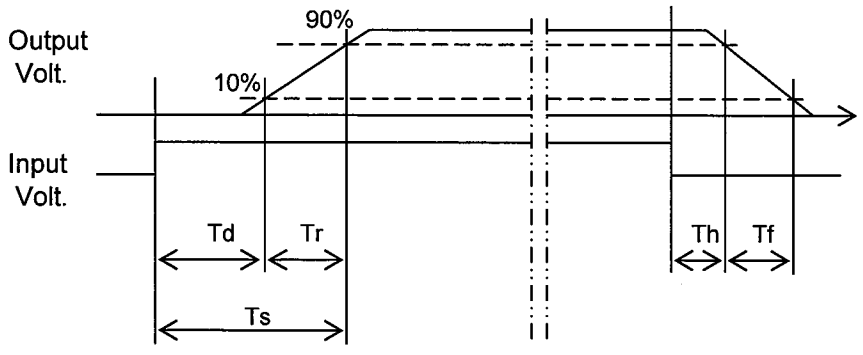
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.0	4.3	5.3	4.5	3.6
100 %	1.0	4.4	5.4	2.3	1.7



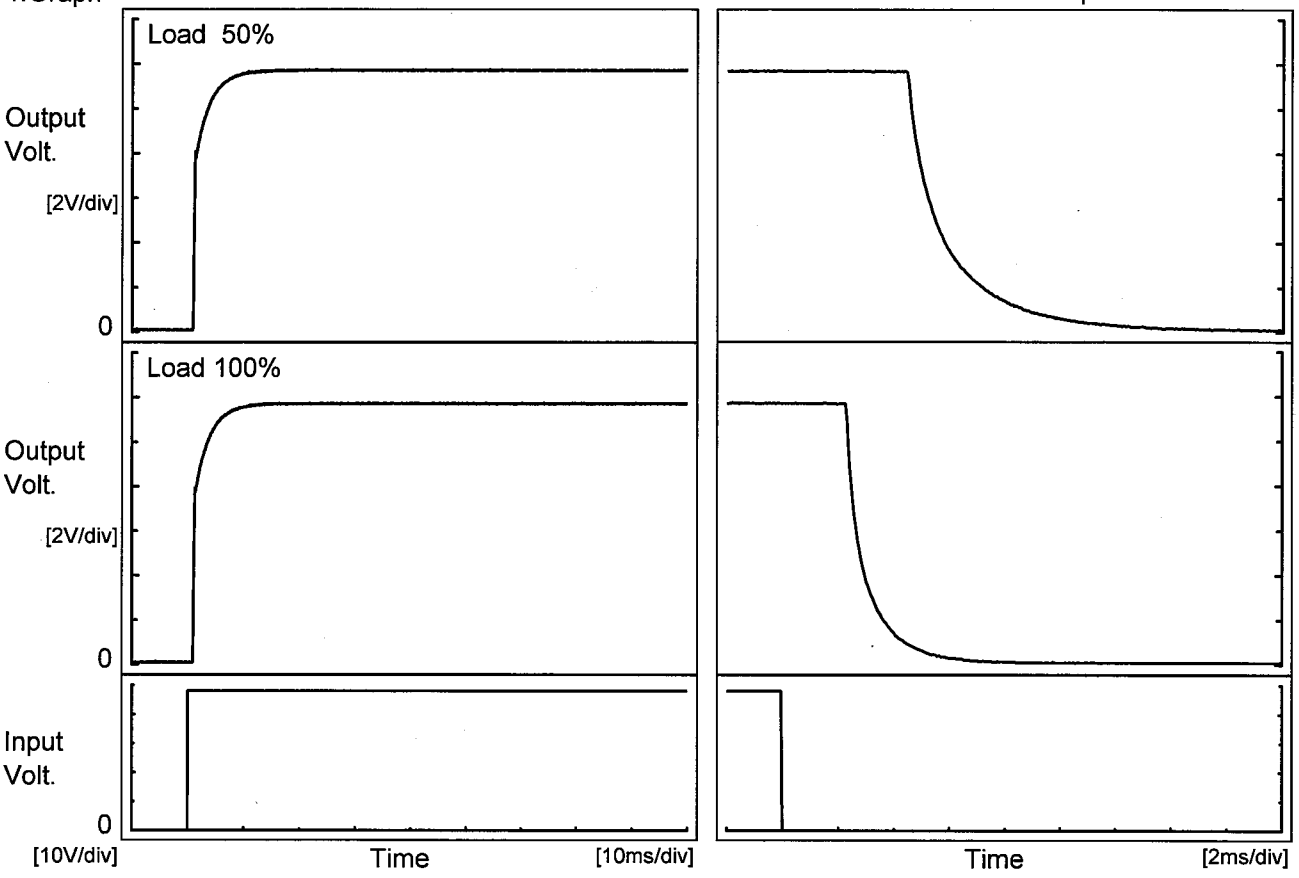
COSEL

Model	STMGFW154812
Item	Rise and Fall Time
Object	-12V0.65A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

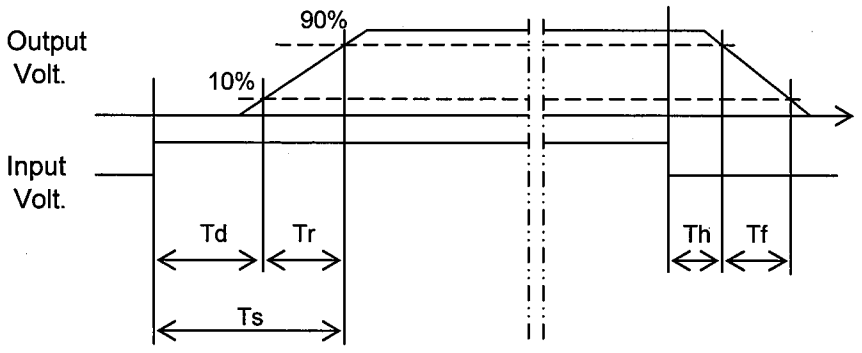
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.0	4.4	5.4	4.5	3.6
100 %	1.0	4.3	5.3	2.3	1.8

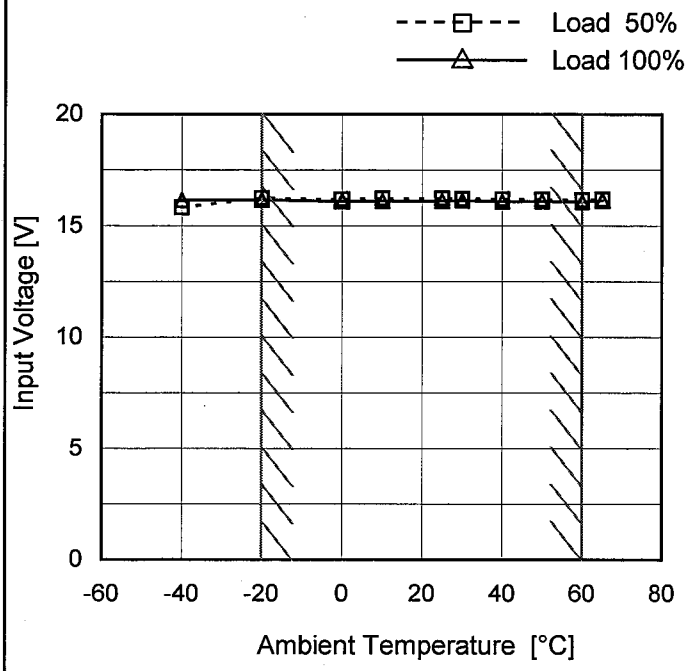


COSEL

Model	STMGFW154812
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.65A

Testing Circuitry Figure A

1.Graph

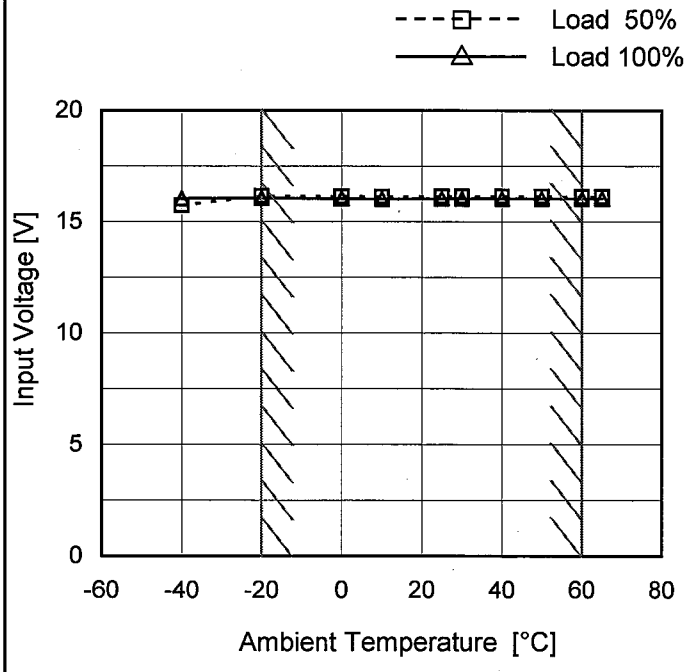


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.9	16.2
-20	16.3	16.2
0	16.2	16.1
10	16.3	16.2
25	16.3	16.2
30	16.3	16.2
40	16.2	16.1
50	16.2	16.2
60	16.2	16.1
65	16.2	16.2
--	-	-

Object	-12V0.65A

1.Graph



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

2.Values

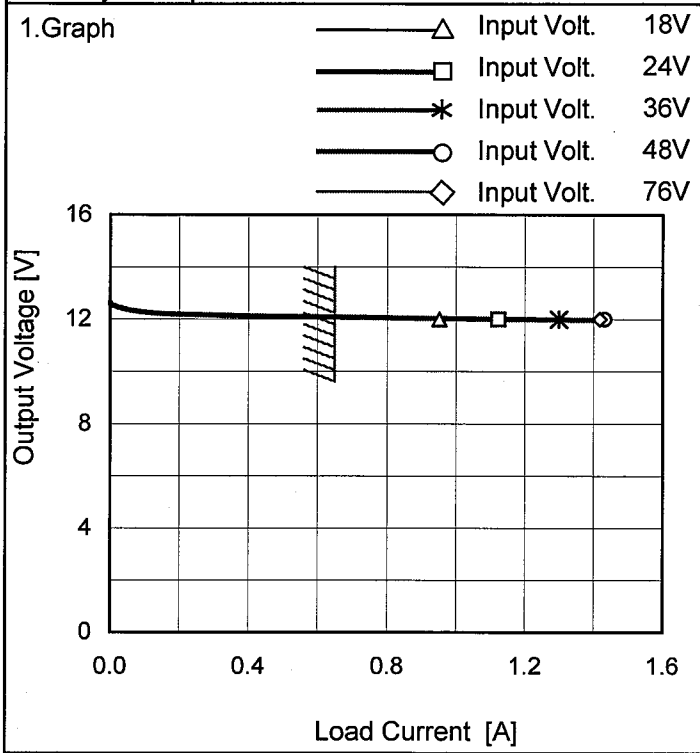
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.8	16.1
-20	16.2	16.1
0	16.2	16.1
10	16.2	16.1
25	16.2	16.1
30	16.2	16.1
40	16.2	16.1
50	16.2	16.1
60	16.2	16.1
65	16.2	16.1
--	-	-

COSEL

Model	STMGFW154812
Item	Overcurrent Protection
Object	+12V0.65A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

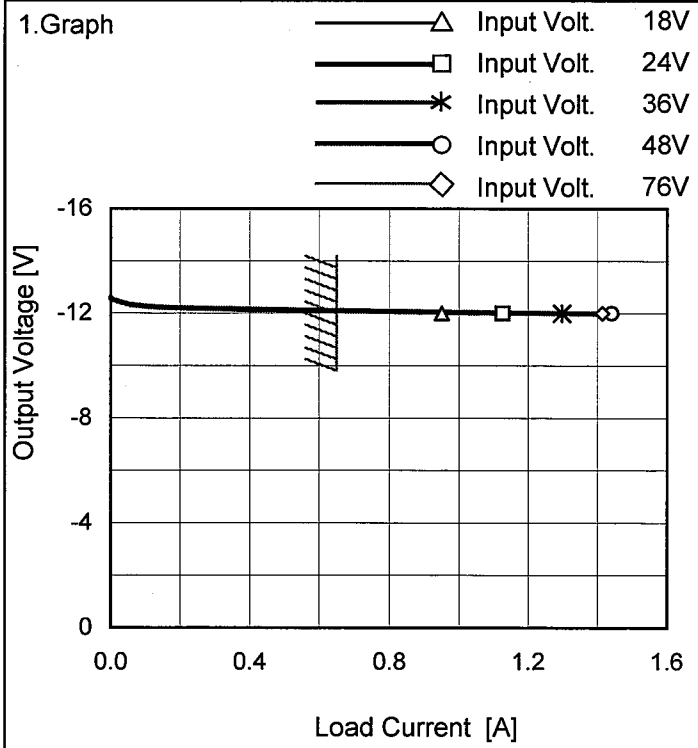


2.Values

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	0.951	1.122	1.300	1.433	1.418
11.4	-	-	-	-	-
10.8	-	-	-	-	-
9.6	-	-	-	-	-
8.4	-	-	-	-	-
7.2	-	-	-	-	-
6.0	-	-	-	-	-
4.8	-	-	-	-	-
3.6	-	-	-	-	-
2.4	-	-	-	-	-
1.2	-	-	-	-	-
0.0	-	-	-	-	-

Object	-12V0.65A

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	0.950	1.126	1.298	1.441	1.414
-11.4	-	-	-	-	-
-10.8	-	-	-	-	-
-9.6	-	-	-	-	-
-8.4	-	-	-	-	-
-7.2	-	-	-	-	-
-6.0	-	-	-	-	-
-4.8	-	-	-	-	-
-3.6	-	-	-	-	-
-2.4	-	-	-	-	-
-1.2	-	-	-	-	-
0.0	-	-	-	-	-

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

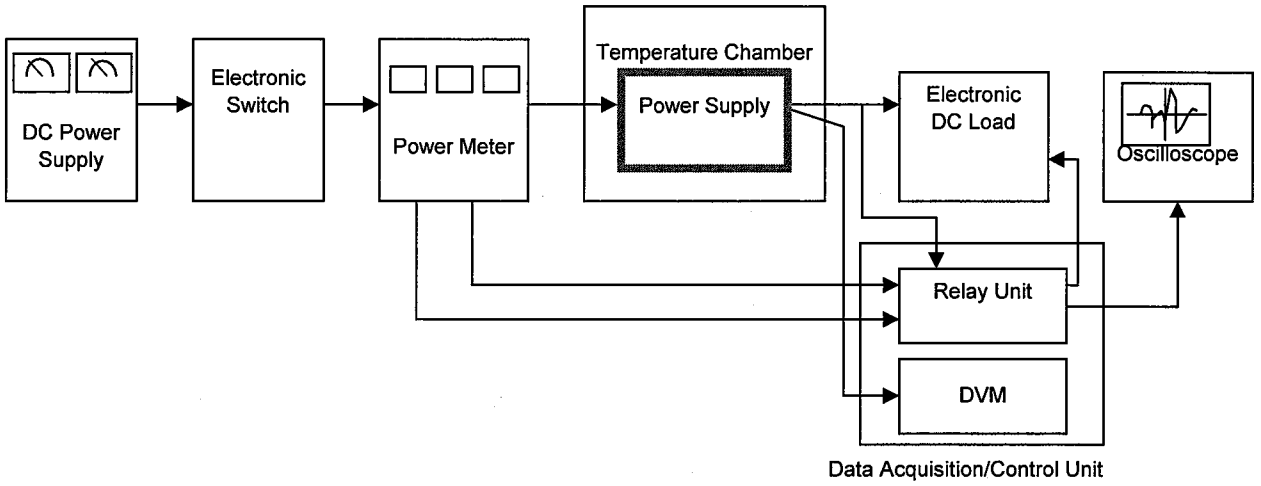


Figure A

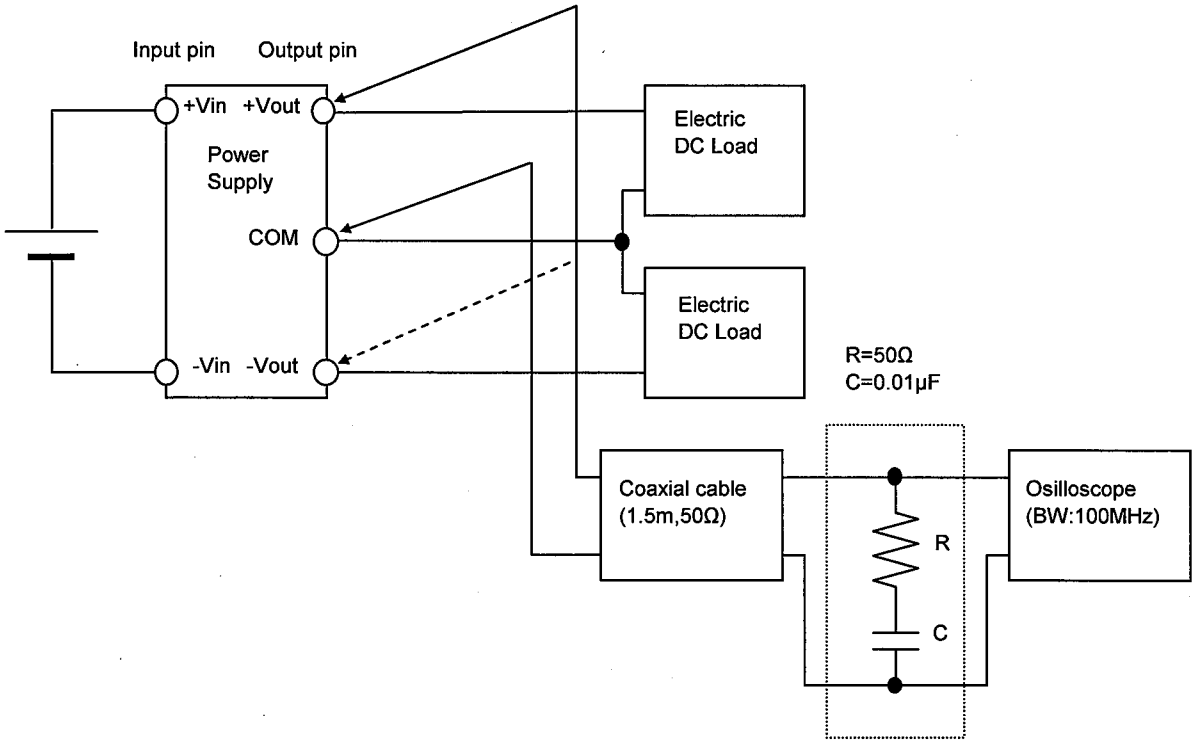


Figure B（Ripple and Ripple noise Characteristic）