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参考資料

TEST DATA OF STMGFW152415

Regulated DC Power Supply
January 26, 2013

Approved by : Takahiro Yoneda

Takahiro Yoneda　　Design Manager

Prepared by : Satoshi Kinoshita

Satoshi Kinoshita　　Design Engineer

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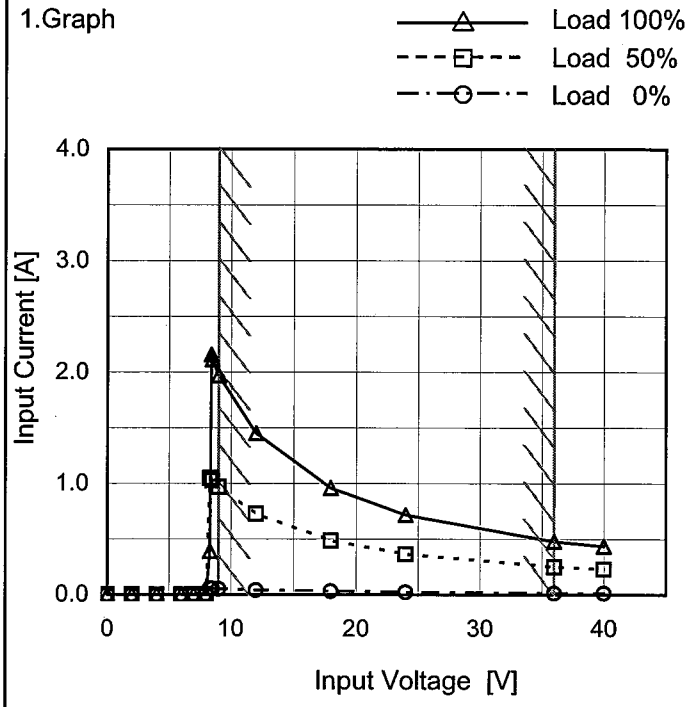
Model	STMGFW152415
Item	Input Current (by Input Voltage)
Object	————————

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
2.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
6.0	0.000	0.000	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.3	0.057	1.048	0.391
8.4	0.056	1.048	2.157
8.5	0.055	1.026	2.114
9.0	0.051	0.969	1.968
12.0	0.040	0.727	1.450
18.0	0.031	0.485	0.960
24.0	0.023	0.364	0.717
36.0	0.016	0.250	0.479
40.0	0.015	0.230	0.437
--	-	-	-
--	-	-	-
--	-	-	-

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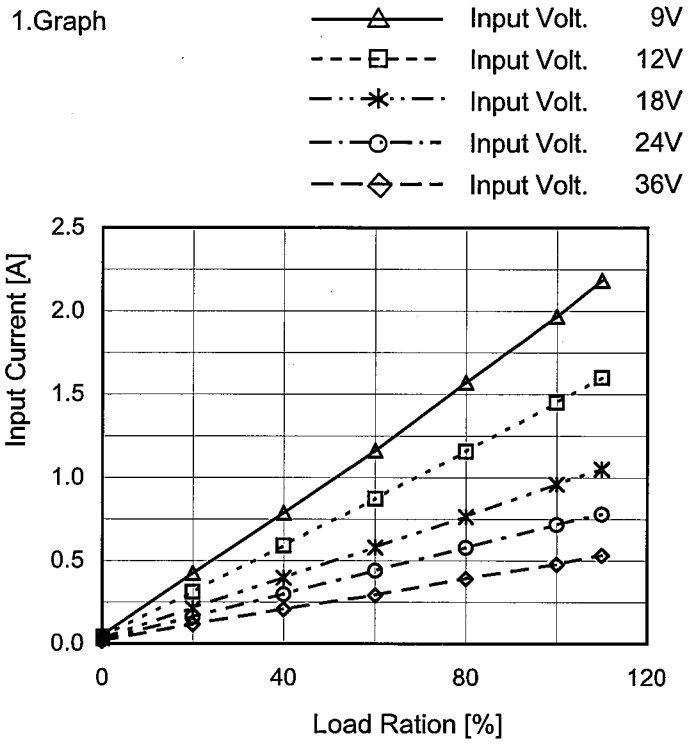
Model	STMGFW152415
Item	Input Current (by Load Current)
Object	――――――

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	0.051	0.041	0.031	0.023	0.016
20	0.426	0.312	0.214	0.161	0.117
40	0.787	0.590	0.398	0.298	0.207
60	1.162	0.872	0.580	0.441	0.293
80	1.572	1.156	0.765	0.578	0.392
100	1.968	1.450	0.960	0.717	0.479
110	2.184	1.600	1.052	0.781	0.532
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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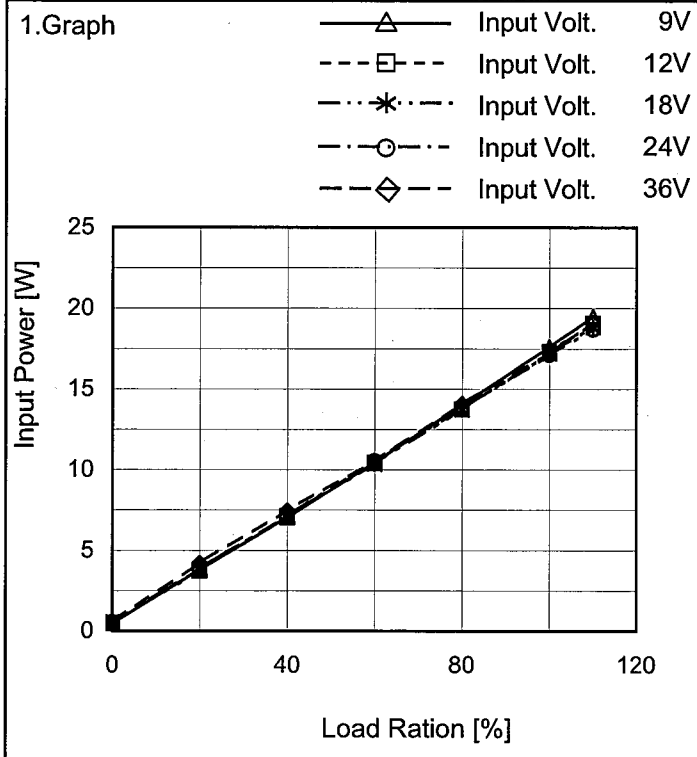
COSEL

Model	STMGFW152415
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

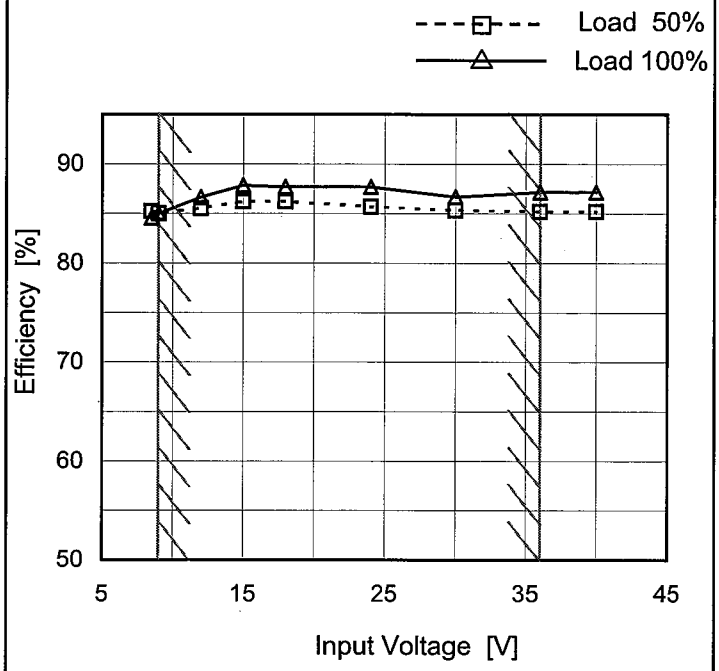
Load Ration [%]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.48	0.49	0.56	0.55	0.57
20	3.81	3.73	3.84	3.86	4.22
40	7.05	7.08	7.13	7.13	7.46
60	10.46	10.42	10.38	10.55	10.54
80	14.03	13.75	13.74	13.81	14.10
100	17.64	17.32	17.23	17.13	17.23
110	19.50	19.08	18.86	18.71	19.13
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW152415
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

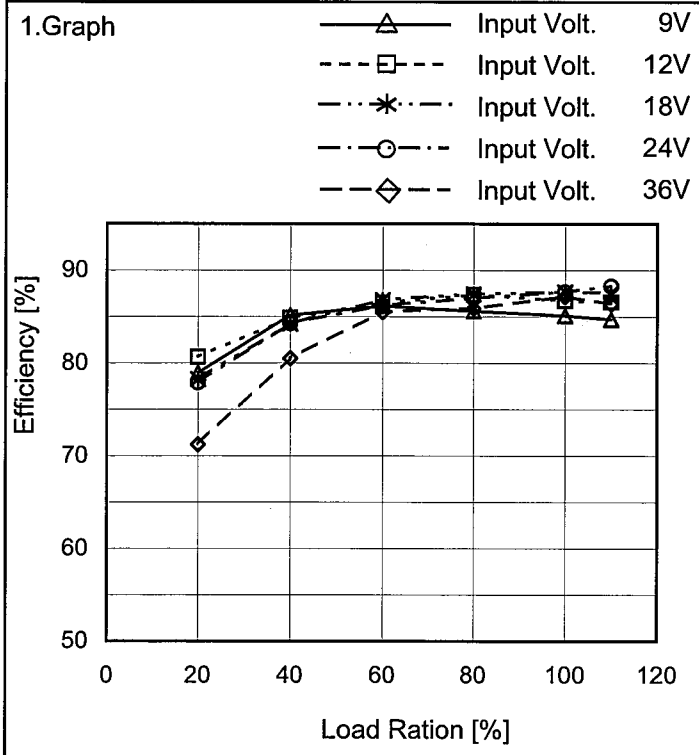
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	85.2	84.6
9.0	85.0	85.0
12.0	85.5	86.7
15.0	86.2	87.8
18.0	86.2	87.7
24.0	85.7	87.7
30.0	85.3	86.7
36.0	85.2	87.2
40.0	85.2	87.2

COSEL

Model	STMGFW152415
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

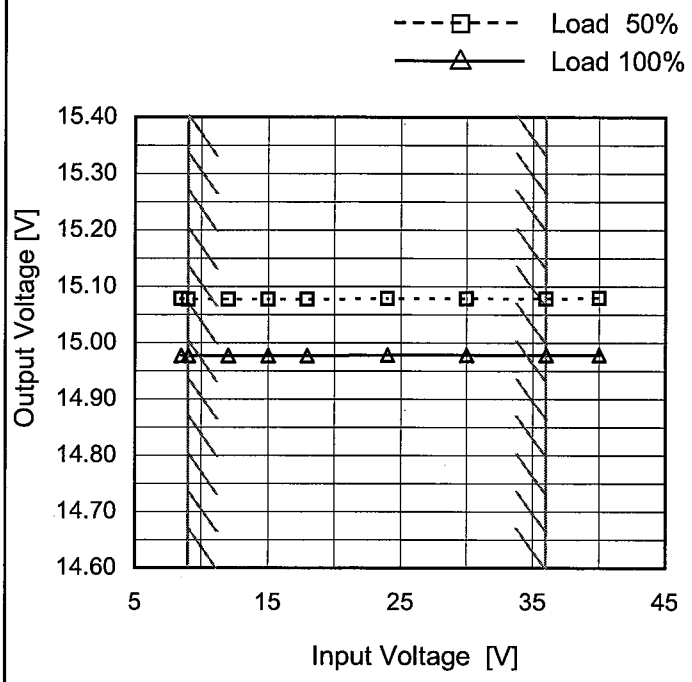
Load Ration [%]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-	-	-
20	79.0	80.6	78.3	77.9	71.2
40	85.2	84.9	84.2	84.3	80.5
60	86.2	86.5	86.8	86.2	85.5
80	85.6	87.4	87.5	87.0	85.9
100	85.1	86.7	87.7	87.7	87.2
110	84.7	86.6	87.6	88.3	86.4
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW152415
Item	Line Regulation
Object	+15V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

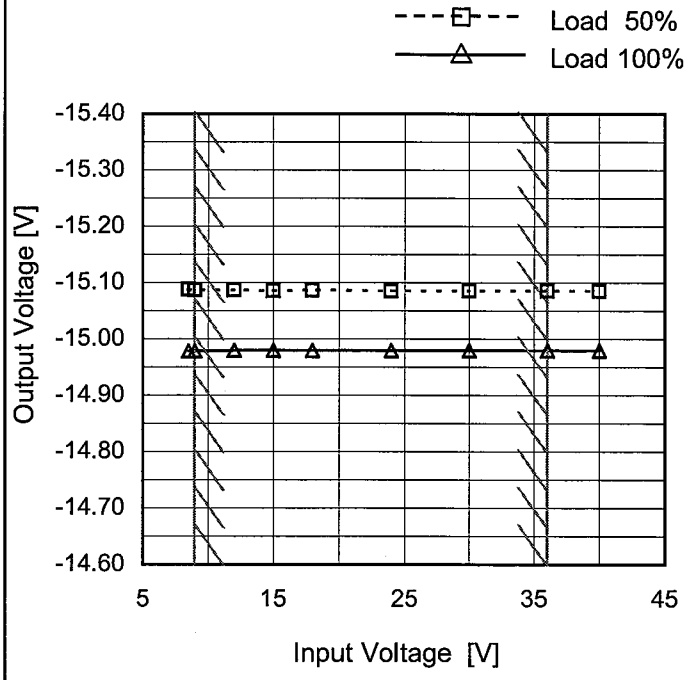


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	15.078	14.977
9.0	15.077	14.977
12.0	15.077	14.977
15.0	15.077	14.978
18.0	15.078	14.978
24.0	15.078	14.978
30.0	15.078	14.978
36.0	15.079	14.978
40.0	15.079	14.978

Object	-15V0.5A

1.Graph



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

2.Values

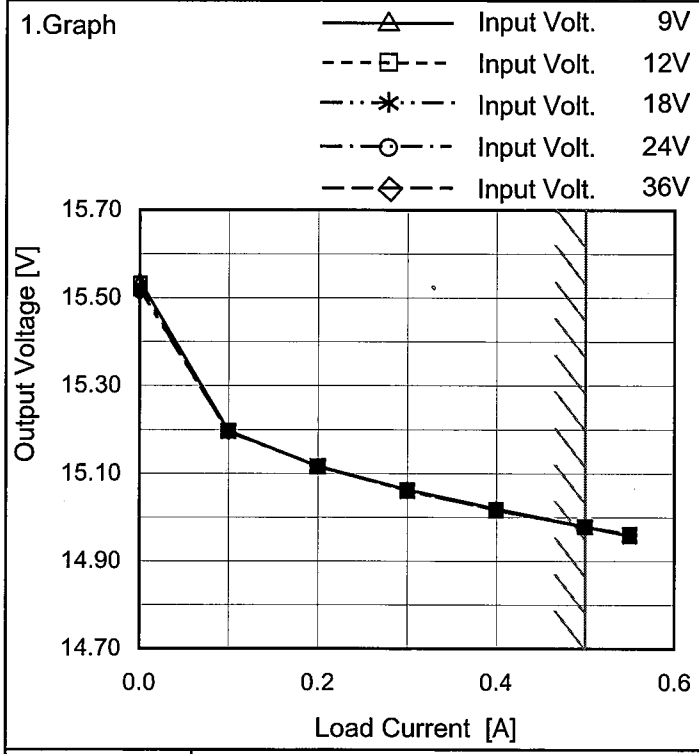
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	-15.088	-14.978
9.0	-15.086	-14.979
12.0	-15.086	-14.979
15.0	-15.086	-14.980
18.0	-15.086	-14.980
24.0	-15.086	-14.980
30.0	-15.086	-14.980
36.0	-15.085	-14.980
40.0	-15.085	-14.980

COSEL

Model	STMGFW152415
Item	Load Regulation
Object	+15V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

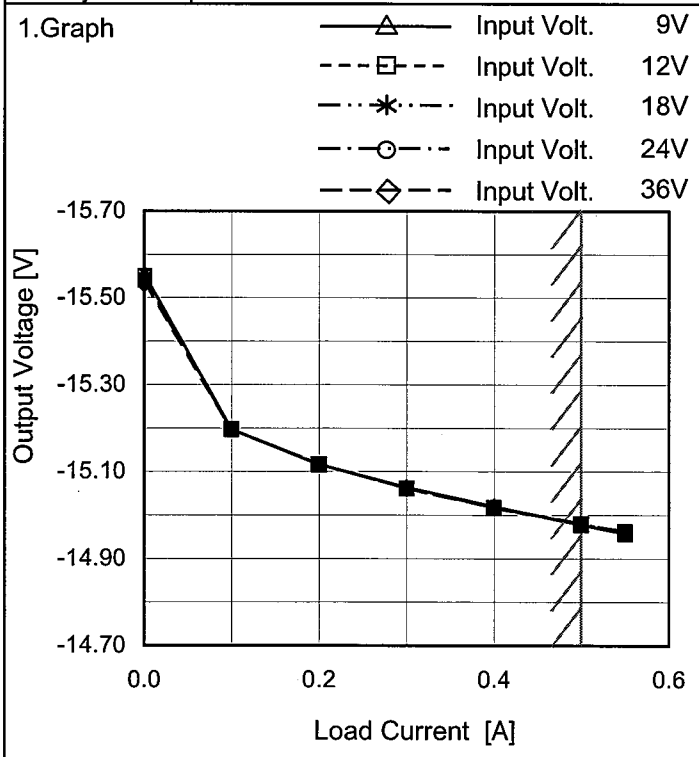


2.Values

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]
0.00	15.539	15.531	15.522	15.516	15.514
0.10	15.197	15.197	15.196	15.196	15.196
0.20	15.116	15.116	15.116	15.116	15.115
0.30	15.064	15.061	15.061	15.061	15.060
0.40	15.020	15.016	15.016	15.017	15.016
0.50	14.979	14.979	14.979	14.979	14.979
0.55	14.958	14.961	14.961	14.961	14.961
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-15V0.5A

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	-15.556	-15.550	-15.543	-15.538	-15.532
0.10	-15.198	-15.198	-15.198	-15.197	-15.197
0.20	-15.116	-15.117	-15.117	-15.117	-15.116
0.30	-15.064	-15.061	-15.062	-15.061	-15.061
0.40	-15.020	-15.017	-15.018	-15.017	-15.017
0.50	-14.979	-14.979	-14.980	-14.980	-14.979
0.55	-14.958	-14.961	-14.962	-14.962	-14.962
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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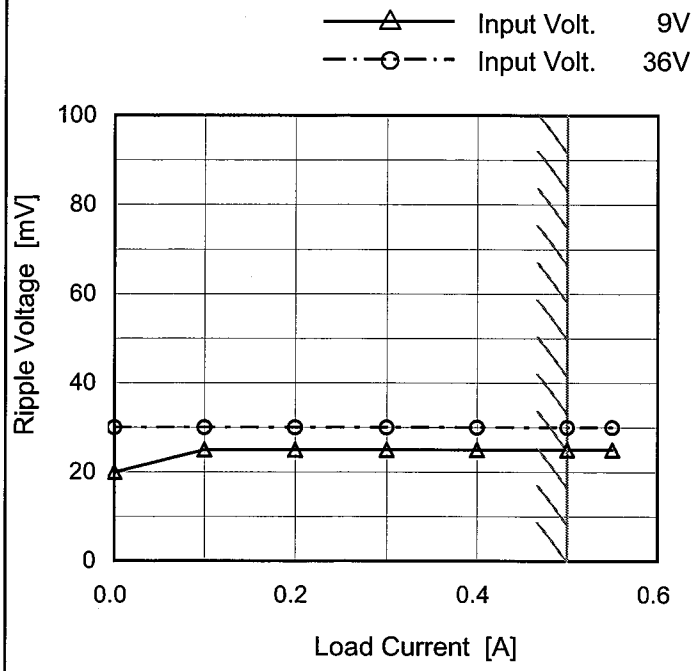
Model	STMGFW152415
Item	Ripple Voltage (by Load Current)
Object	+15V0.5A

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]

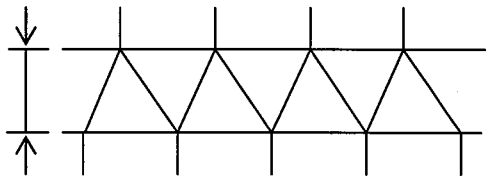


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	20	30
0.100	25	30
0.200	25	30
0.300	25	30
0.400	25	30
0.500	25	30
0.550	25	30
--	-	-
--	-	-
--	-	-
--	-	-

-15V: Rated output current

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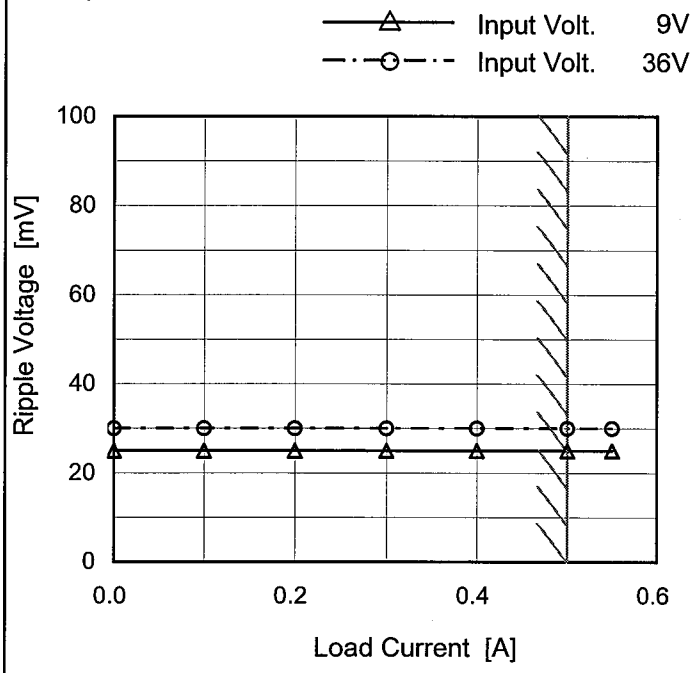
Model	STMGFW152415
Item	Ripple Voltage (by Load Current)
Object	-15V0.5A

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]

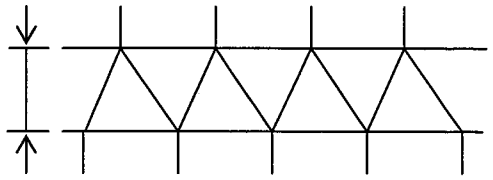


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	25	30
0.100	25	30
0.200	25	30
0.300	25	30
0.400	25	30
0.500	25	30
0.550	25	30
--	-	-
--	-	-
--	-	-
--	-	-

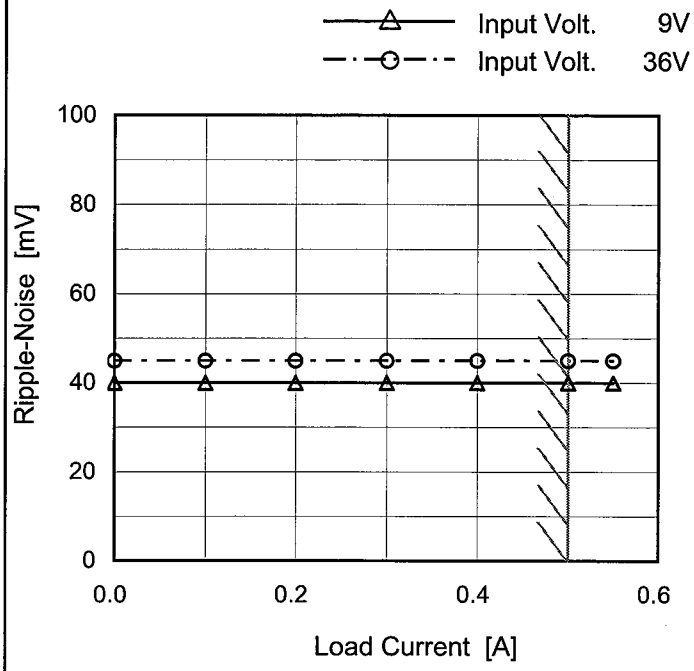
+15V: Rated output current

COSEL

Model	STMGFW152415
Item	Ripple-Noise
Object	+15V0.5A

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.

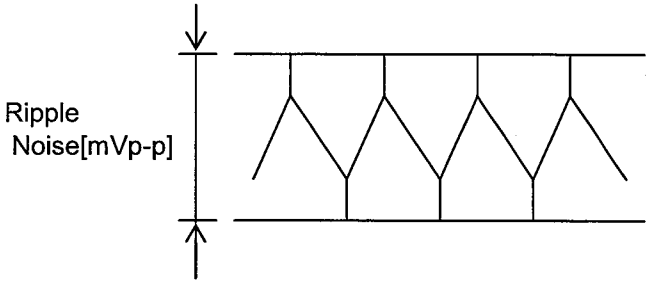


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	40	45
0.100	40	45
0.200	40	45
0.300	40	45
0.400	40	45
0.500	40	45
0.550	40	45
--	-	-
--	-	-
--	-	-
--	-	-

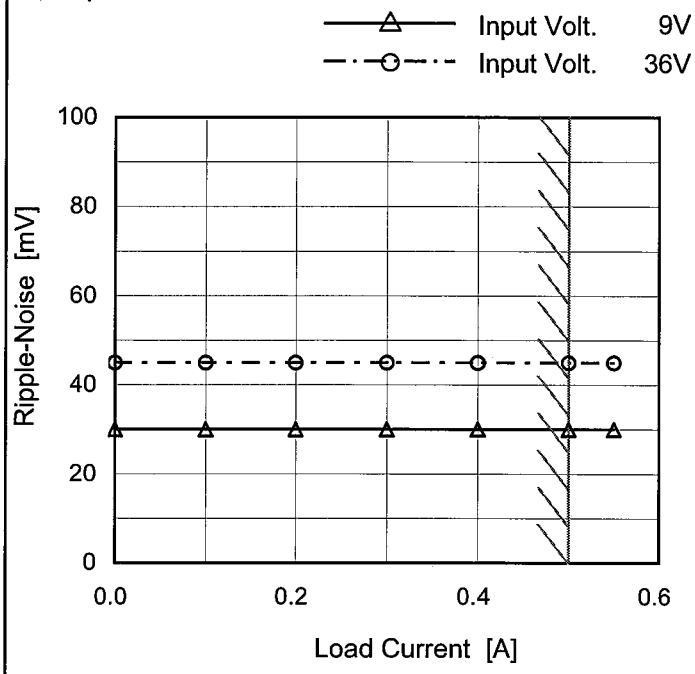
-15V: Rated output current

COSEL

Model	STMGFW152415
Item	Ripple-Noise
Object	-15V0.5A

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.

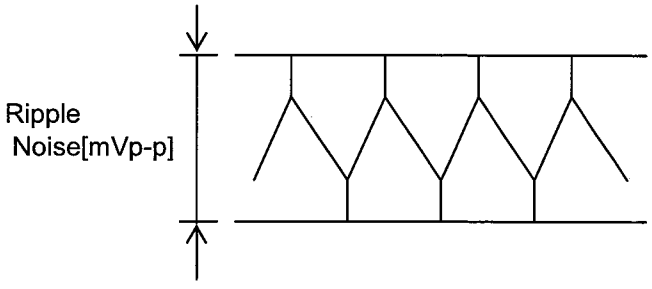


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	30	45
0.100	30	45
0.200	30	45
0.300	30	45
0.400	30	45
0.500	30	45
0.550	30	45
--	-	-
--	-	-
--	-	-
--	-	-

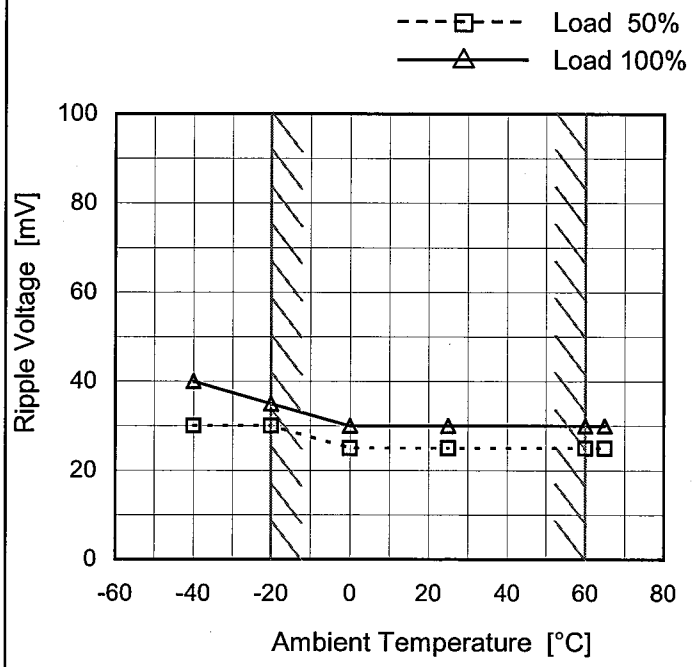
+15V: Rated output current

COSEL

Model	STMGFW152415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

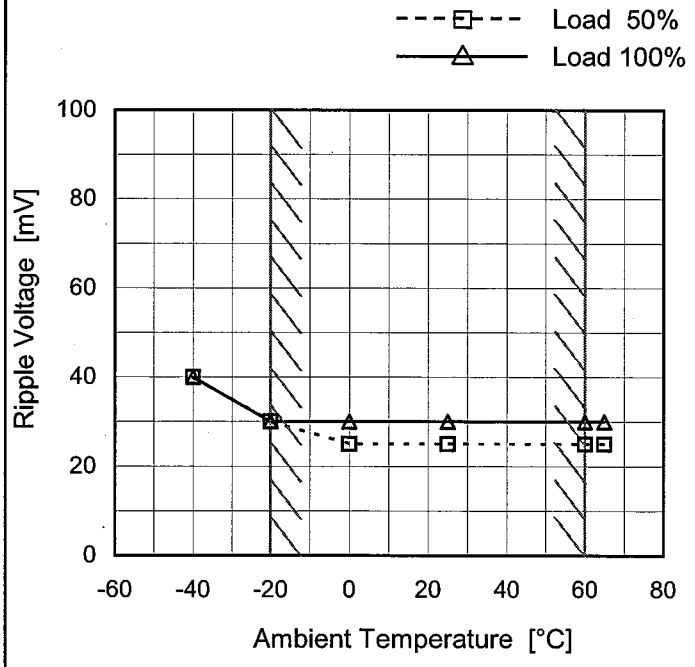
2.Values

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

-15V: Rated output current

Object	-15V0.5A

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	40	40
-20	30	30
0	25	30
25	25	30
60	25	30
65	25	30
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

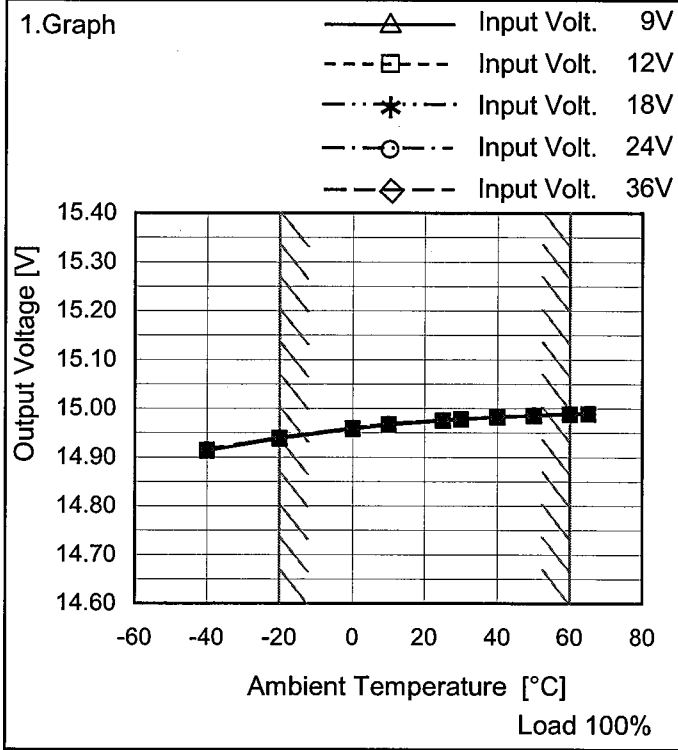
+15V: Rated output current

COSEL

Model	STMGFW152415
Item	Ambient Temperature Drift
Object	+15V0.5A

Testing Circuitry Figure A

1.Graph

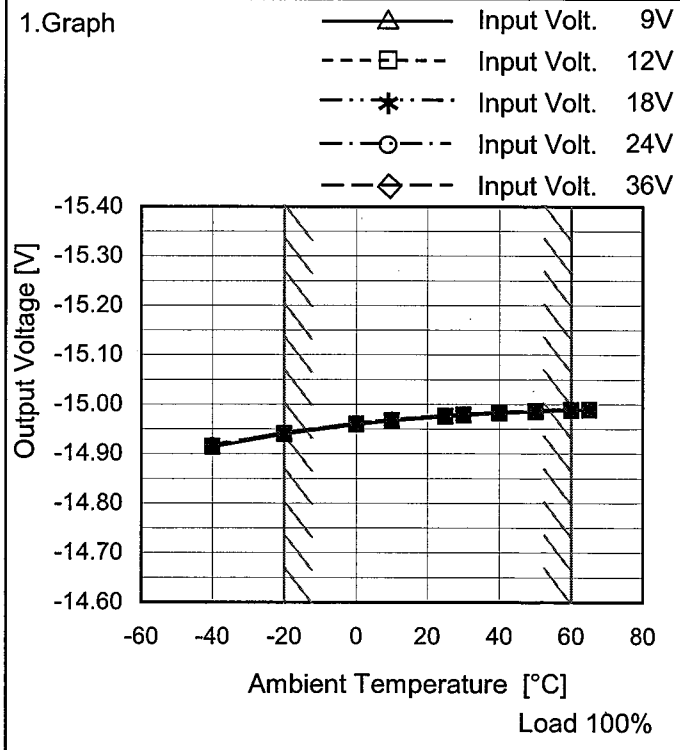


2.Values

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	14.913	14.914	14.915	14.916	14.916
-20	14.939	14.939	14.940	14.941	14.941
0	14.958	14.959	14.960	14.960	14.960
10	14.967	14.967	14.968	14.968	14.968
25	14.975	14.975	14.976	14.977	14.977
30	14.978	14.978	14.979	14.979	14.979
40	14.982	14.982	14.983	14.983	14.983
50	14.986	14.986	14.986	14.987	14.987
60	14.988	14.989	14.989	14.989	14.989
65	14.989	14.989	14.990	14.990	14.990
--	-	-	-	-	-

Object	-15V0.5A

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	-14.914	-14.916	-14.917	-14.917	-14.918
-20	-14.940	-14.941	-14.942	-14.942	-14.943
0	-14.960	-14.960	-14.961	-14.962	-14.962
10	-14.967	-14.968	-14.969	-14.969	-14.969
25	-14.975	-14.976	-14.977	-14.978	-14.978
30	-14.978	-14.979	-14.980	-14.980	-14.980
40	-14.982	-14.983	-14.984	-14.985	-14.984
50	-14.986	-14.987	-14.987	-14.988	-14.987
60	-14.989	-14.989	-14.990	-14.990	-14.990
65	-14.989	-14.990	-14.990	-14.991	-14.991
--	-	-	-	-	-

COSEL

Model	STMGFW152415	
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 - 0.5A (AVR 2) : 0 - 0.5A

* 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

Object	+15V0.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	15.564	±314	±2.1
Minimum Voltage	-20	9	0.5	14.936		

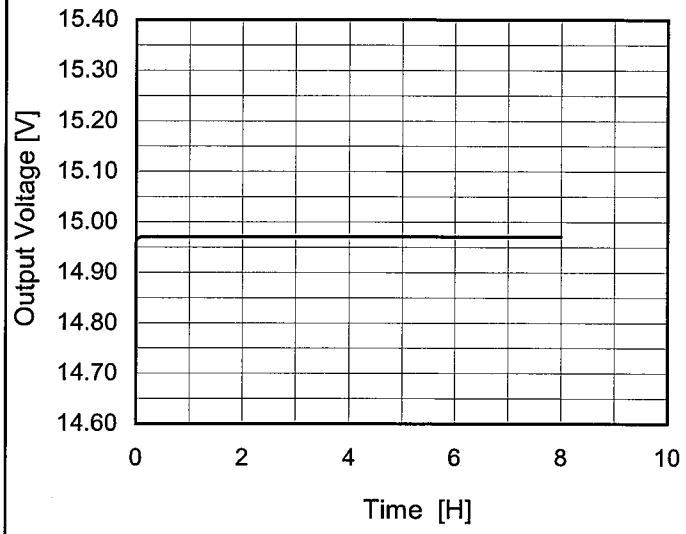
Object	-15V0.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	-15.586	±323	±2.2
Minimum Voltage	-20	9	0.5	-14.940		

COSEL

Model	STMGFW152415
Item	Time Lapse Drift
Object	+15V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



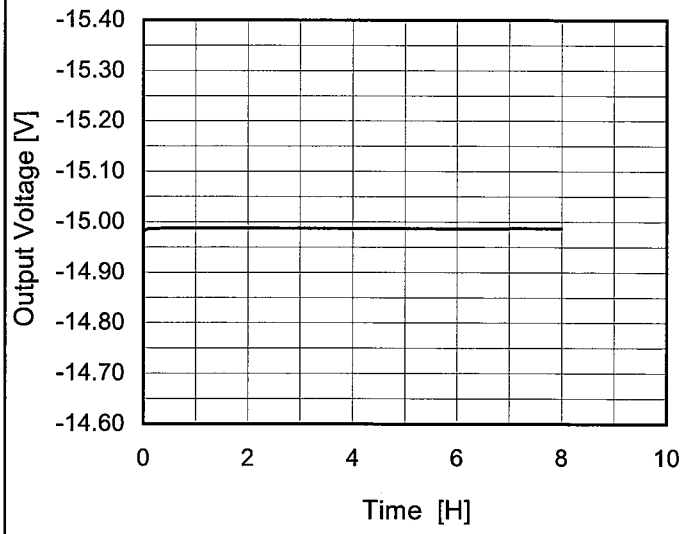
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	14.963
0.5	14.971
1.0	14.971
2.0	14.971
3.0	14.971
4.0	14.971
5.0	14.971
6.0	14.971
7.0	14.971
8.0	14.971

Object	-15V0.5A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-14.978
0.5	-14.987
1.0	-14.987
2.0	-14.987
3.0	-14.987
4.0	-14.987
5.0	-14.987
6.0	-14.987
7.0	-14.987
8.0	-14.987

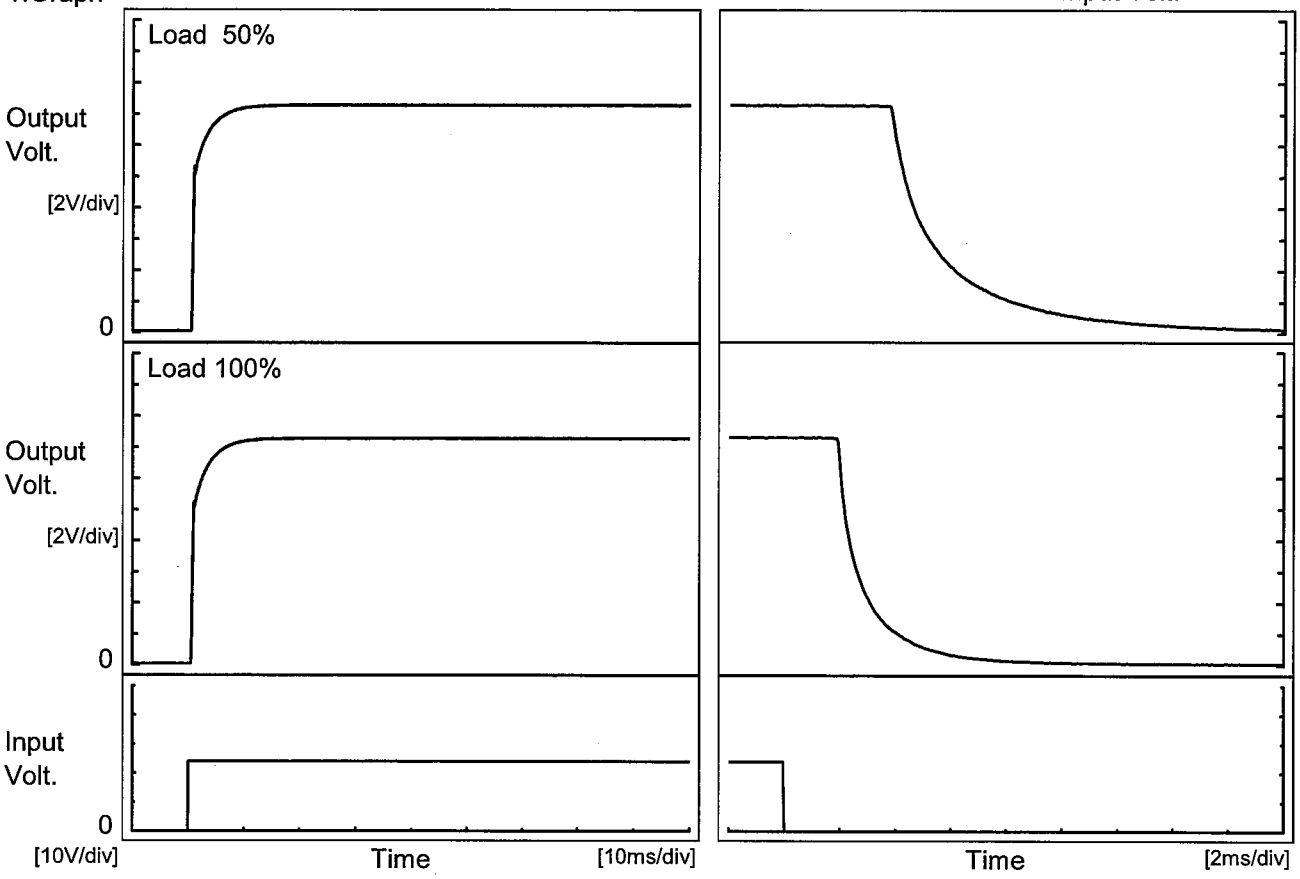
COSEL

Model	STMGFW152415
Item	Rise and Fall Time
Object	+15V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

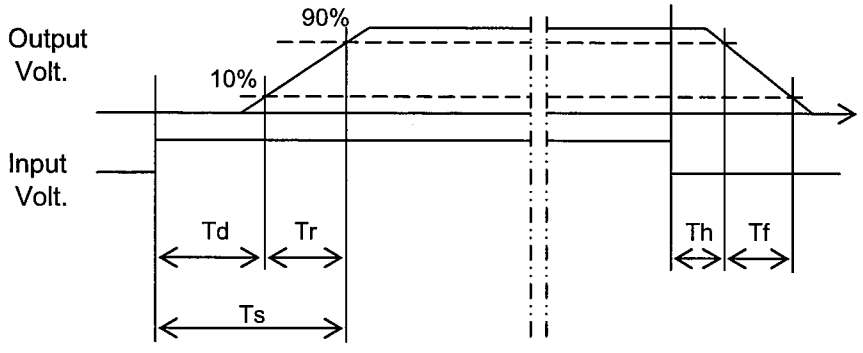
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	4.6	5.3	3.9	5.2
100 %	0.6	4.6	5.2	2.0	2.6



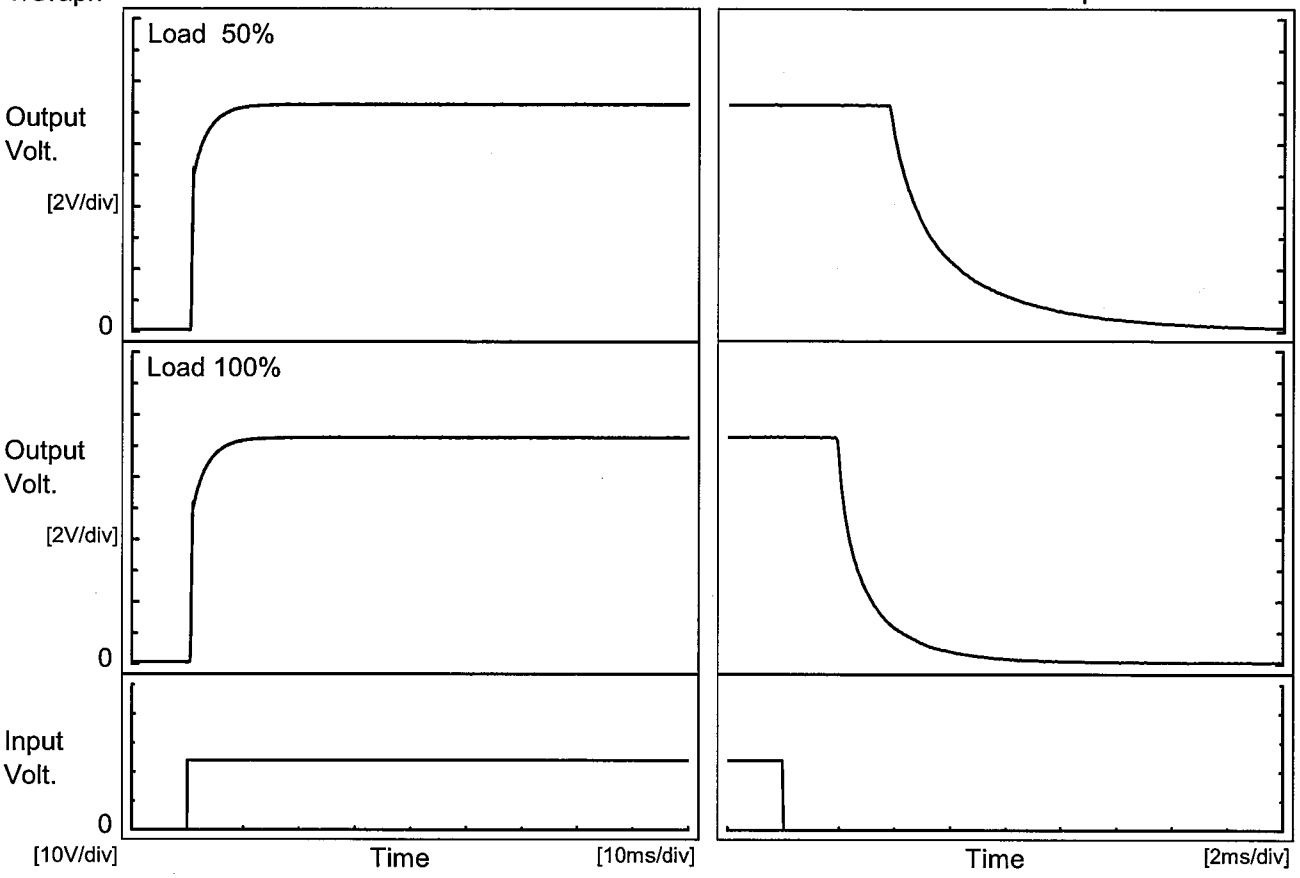
COSEL

Model	STMGFW152415
Item	Rise and Fall Time
Object	-15V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

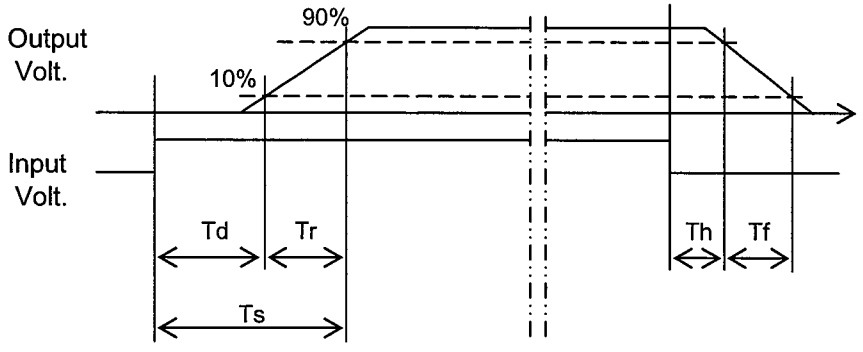
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	4.7	5.4	3.9	5.5
100 %	0.7	4.7	5.4	2.0	2.7

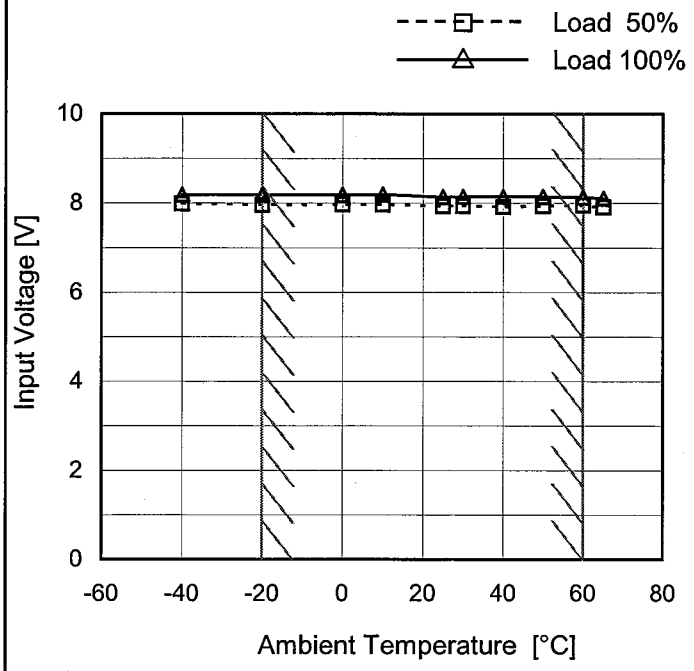


COSEL

Model	STMGFW152415
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.5A

Testing Circuitry Figure A

1.Graph

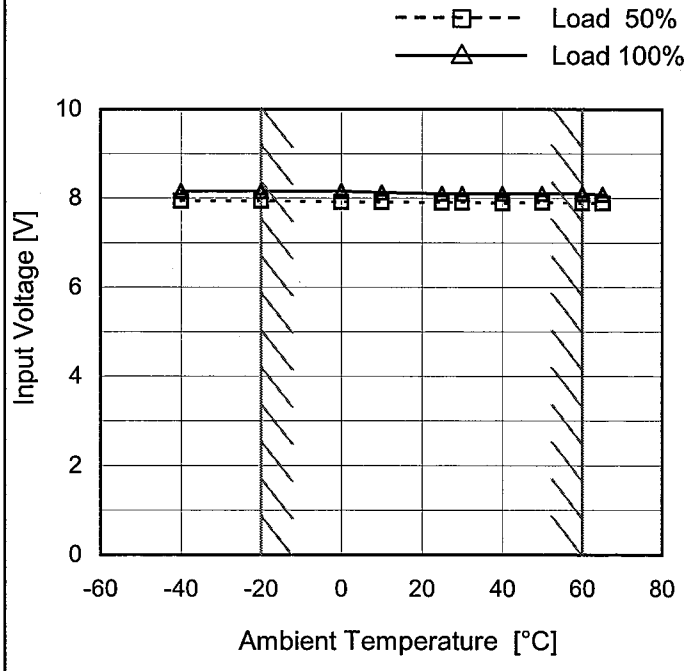


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	8.0	8.2
-20	8.0	8.2
0	8.0	8.2
10	8.0	8.2
25	8.0	8.2
30	8.0	8.2
40	8.0	8.2
50	8.0	8.2
60	8.0	8.2
65	8.0	8.2
--	-	-

Object	-15V0.5A

1.Graph



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

2.Values

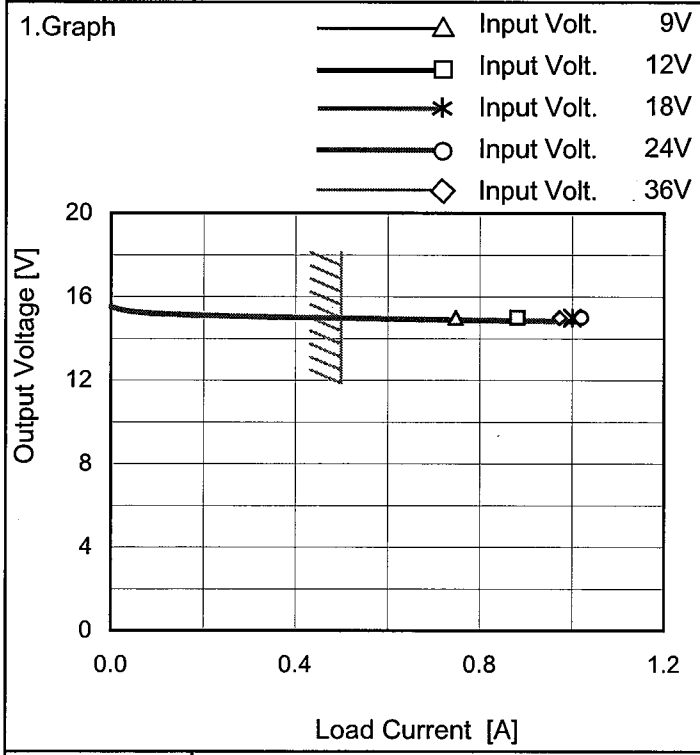
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	8.0	8.2
-20	8.0	8.2
0	8.0	8.2
10	8.0	8.2
25	7.9	8.1
30	7.9	8.1
40	7.9	8.1
50	7.9	8.1
60	7.9	8.1
65	7.9	8.1
--	-	-

COSEL

Model	STMGFW152415
Item	Overcurrent Protection
Object	+15V0.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

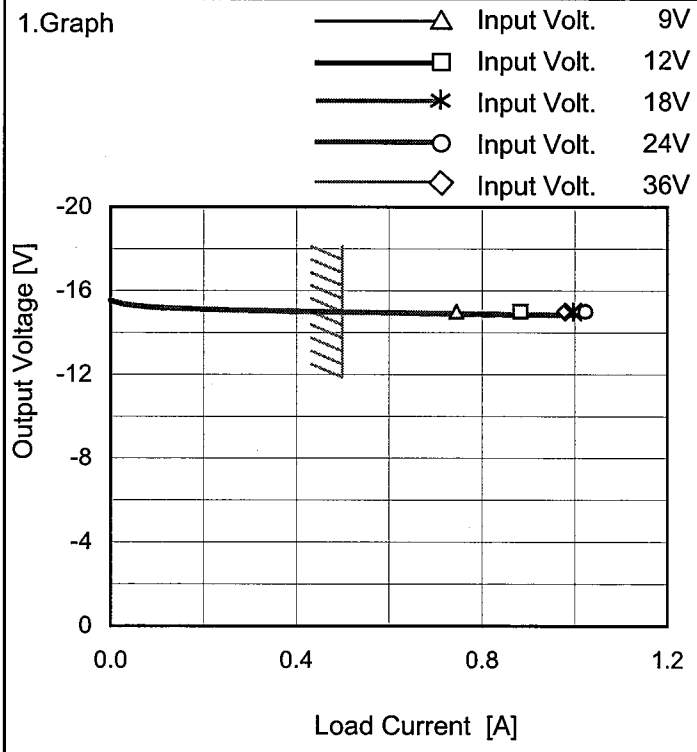


2.Values

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]
15.0	0.748	0.882	1.001	1.021	0.974
14.3	-	-	-	-	-
13.5	-	-	-	-	-
12.0	-	-	-	-	-
10.5	-	-	-	-	-
9.0	-	-	-	-	-
7.5	-	-	-	-	-
6.0	-	-	-	-	-
4.5	-	-	-	-	-
3.0	-	-	-	-	-
1.5	-	-	-	-	-
0.0	-	-	-	-	-

Object	-15V0.5A

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]
-15.0	0.745	0.883	0.996	1.023	0.977
-14.3	-	-	-	-	-
-13.5	-	-	-	-	-
-12.0	-	-	-	-	-
-10.5	-	-	-	-	-
-9.0	-	-	-	-	-
-7.5	-	-	-	-	-
-6.0	-	-	-	-	-
-4.5	-	-	-	-	-
-3.0	-	-	-	-	-
-1.5	-	-	-	-	-
0.0	-	-	-	-	-

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

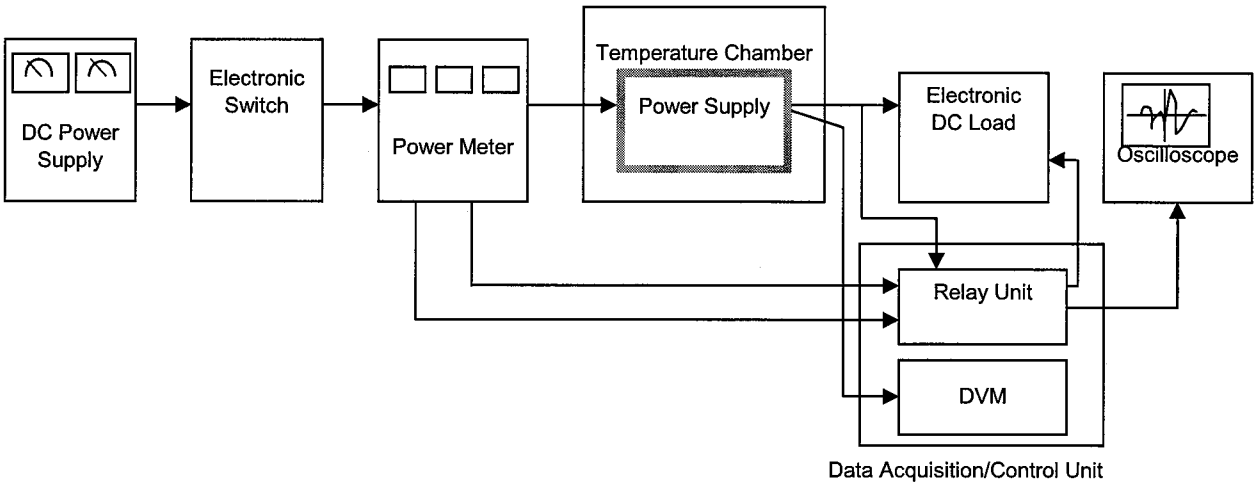


Figure A

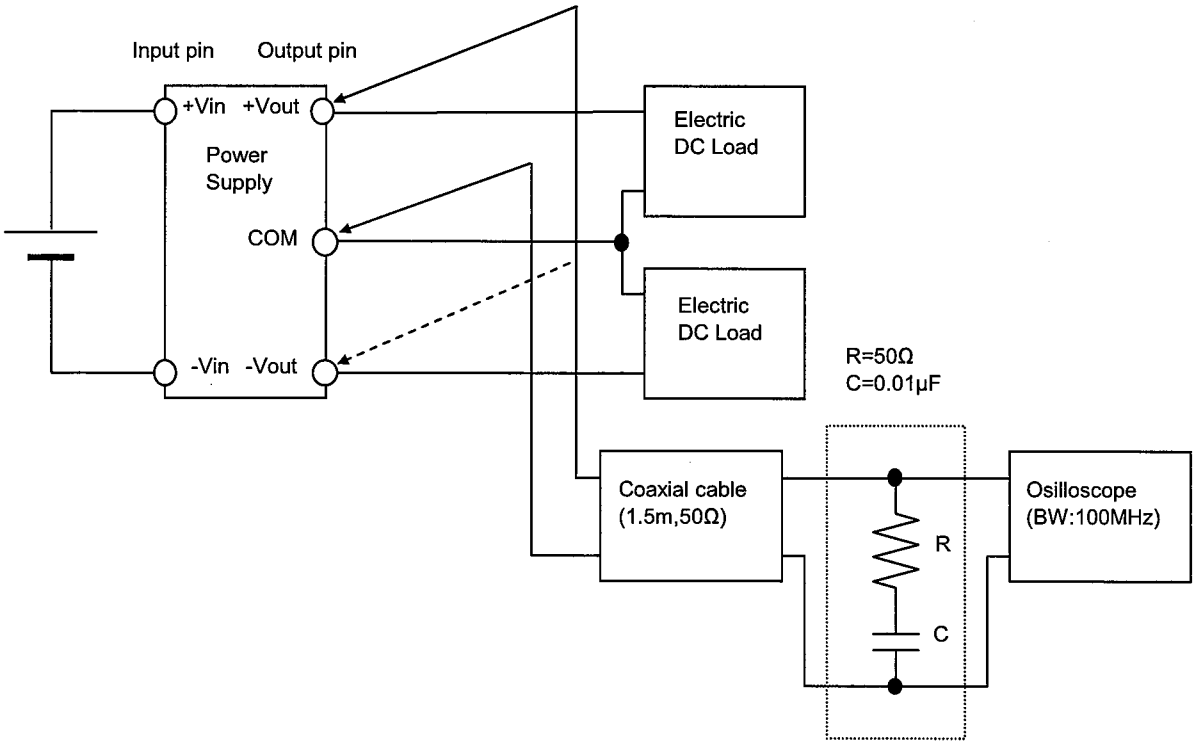


Figure B（Ripple and Ripple noise Characteristic）