参考資料

COSEL

TEST DATA OF SFS302415/SFCS302415

Regulated DC Power Supply
May.29. 2007

Approved by : Toshiyuki Tsuri
Toshiyuki Tsuri — Design Manager

Prepared by : K. Shibutani
Kenichi Shibutani — Design Engineer

COSEL CO.,LTD.

COSEL

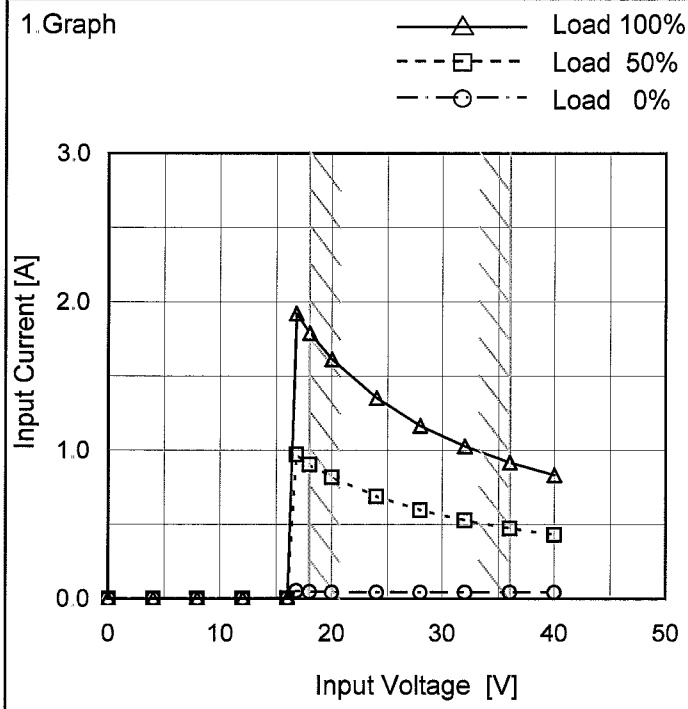
CONTENTS

COSEL

Model	SFS302415/SFCS302415
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	0.000	0.000	0.000
4	0.002	0.002	0.002
8	0.002	0.002	0.002
12	0.003	0.003	0.003
16	0.004	0.004	0.004
17	0.055	0.972	1.922
18	0.048	0.906	1.792
20	0.044	0.820	1.614
24	0.043	0.689	1.354
28	0.043	0.597	1.166
32	0.043	0.528	1.029
36	0.043	0.474	0.919
40	0.044	0.431	0.833
--	-	-	-
--	-	-	-
--	-	-	-

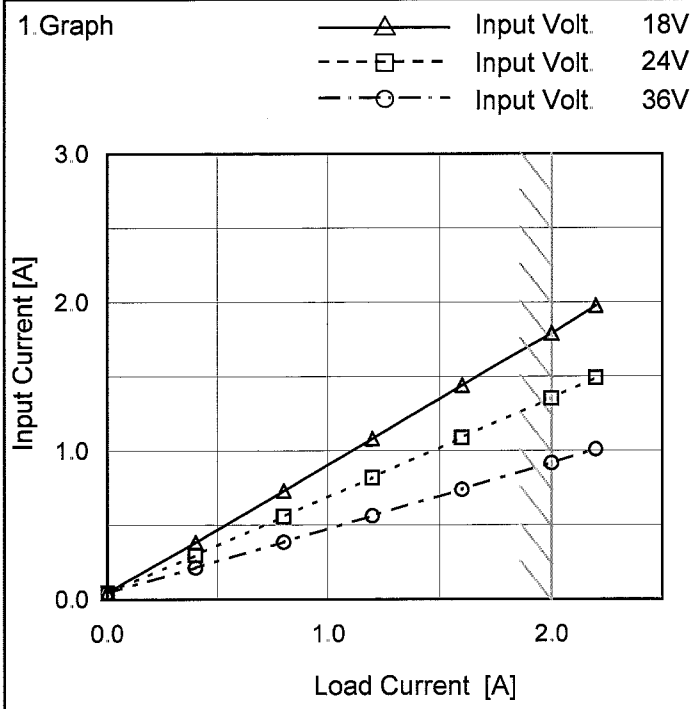
BC-10067

COSEL

Model	SFS302415/SFCS302415
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

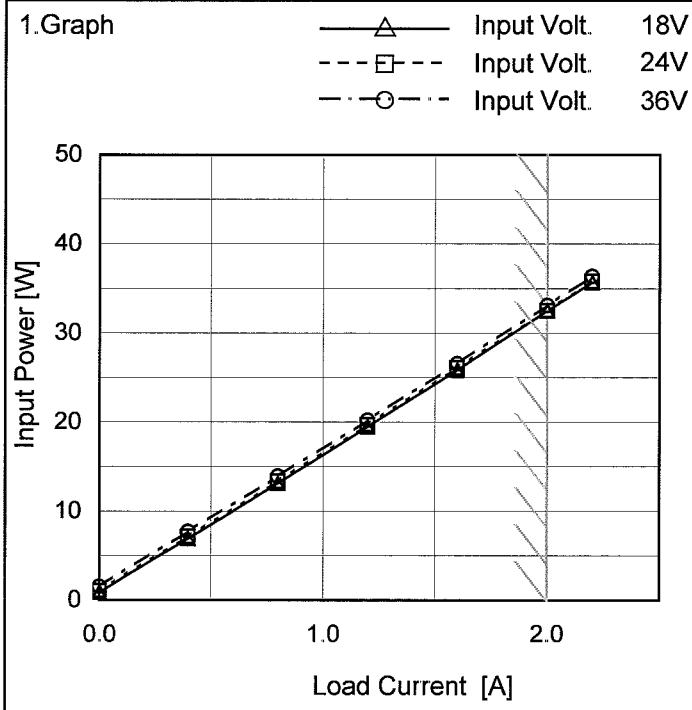
Load Current [A]	Input Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.048	0.043	0.043
0.4	0.383	0.297	0.213
0.8	0.731	0.558	0.386
1.2	1.081	0.820	0.562
1.6	1.441	1.088	0.739
2.0	1.792	1.354	0.919
2.2	1.978	1.491	1.010
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS302415/SFCS302415
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

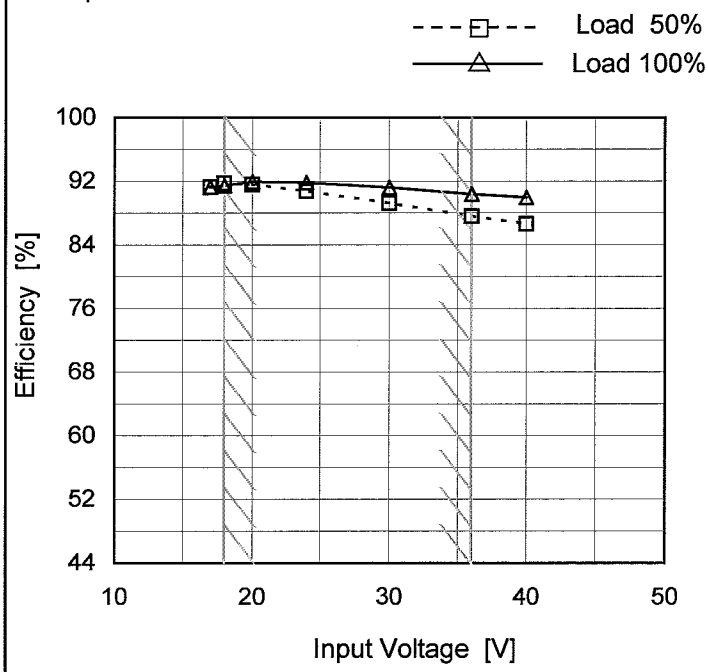
Load Current [A]	Input Power [W]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.89	1.06	1.56
0.4	6.93	7.14	7.72
0.8	13.16	13.38	13.92
1.2	19.51	19.72	20.23
1.6	25.87	26.10	26.59
2.0	32.50	32.55	33.10
2.2	35.70	35.80	36.40
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS302415/SFCS302415
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

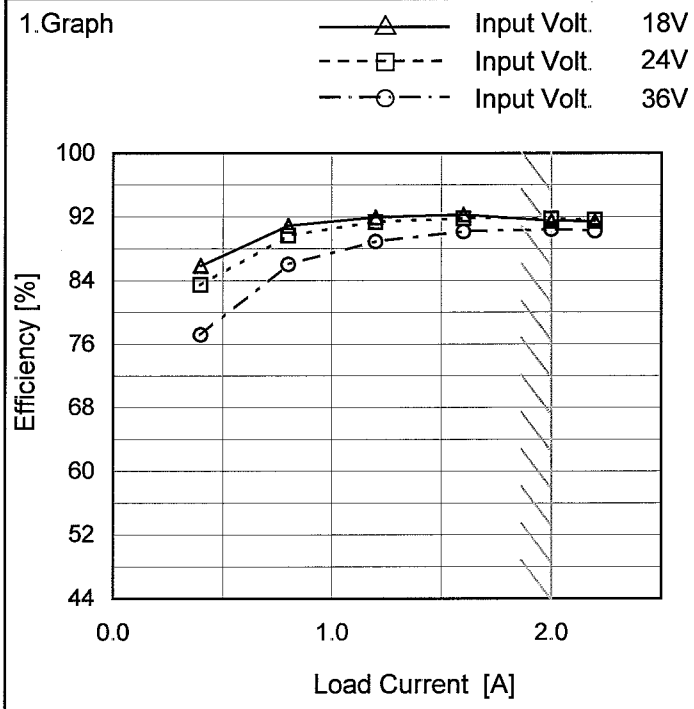
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	91.3	91.3
18	91.8	91.5
20	91.6	91.9
24	90.8	91.8
30	89.3	91.2
36	87.6	90.4
40	86.6	90.0
--	-	-
--	-	-

COSEL

Model	SFS302415/SFCS302415
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

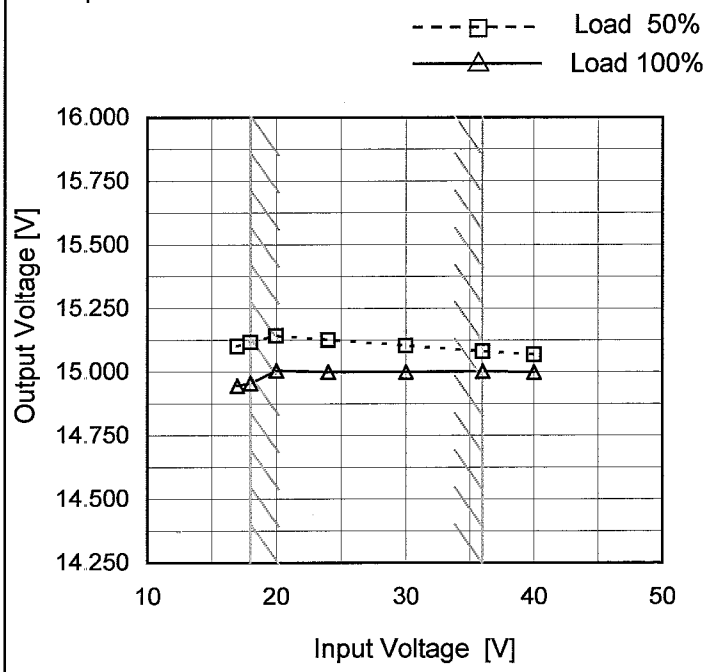
Load Current [A]	Efficiency [%]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-
0.4	85.9	83.5	77.2
0.8	90.9	89.7	86.1
1.2	92.0	91.3	88.9
1.6	92.3	91.8	90.2
2.0	91.5	91.8	90.4
2.2	91.5	91.6	90.2
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Line Regulation
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

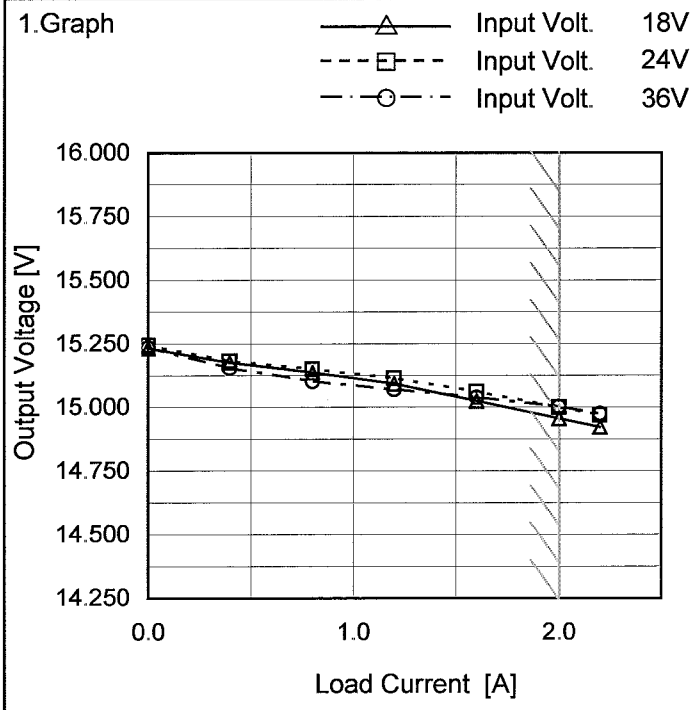
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	15.101	14.946
18	15.118	14.956
20	15.143	15.005
24	15.126	15.001
30	15.103	15.000
36	15.081	15.003
40	15.068	14.999
--	-	-
--	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Load Regulation
Object	+15V2A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	15.233	15.244	15.236
0.4	15.176	15.183	15.155
0.8	15.138	15.150	15.102
1.2	15.094	15.115	15.071
1.6	15.026	15.062	15.040
2.0	14.956	15.001	15.003
2.2	14.923	14.970	14.975
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-10067

COSEL

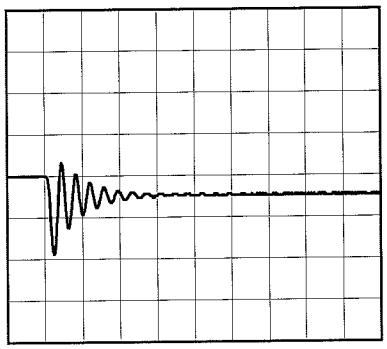
Model	SFS302415/SFCS302415
Item	Dynamic Load Response
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 1000 mS

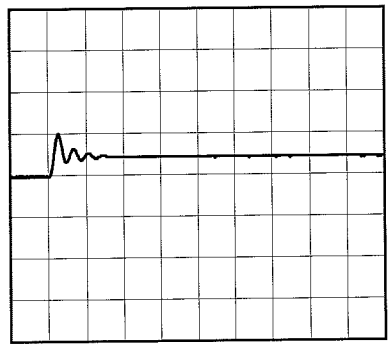
Load Current 2A / 200 μ sec

Min. Load (0A) ⟷ Load 100% (2A)



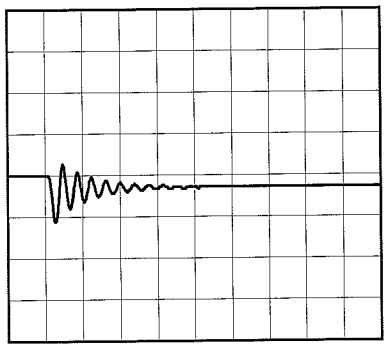
500mV/div

200 μs/div



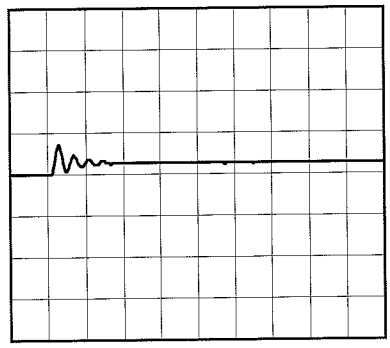
200 μs/div

Min. Load (0A) ⟷ Load 50% (1A)



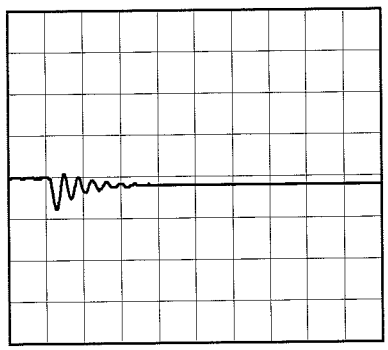
500mV/div

200 μs/div



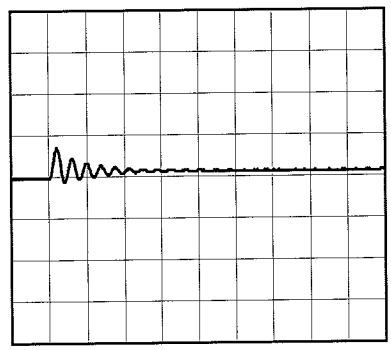
200 μs/div

Load 50% (1A) ⟷ Load 100% (2A)



500mV/div

200 μs/div



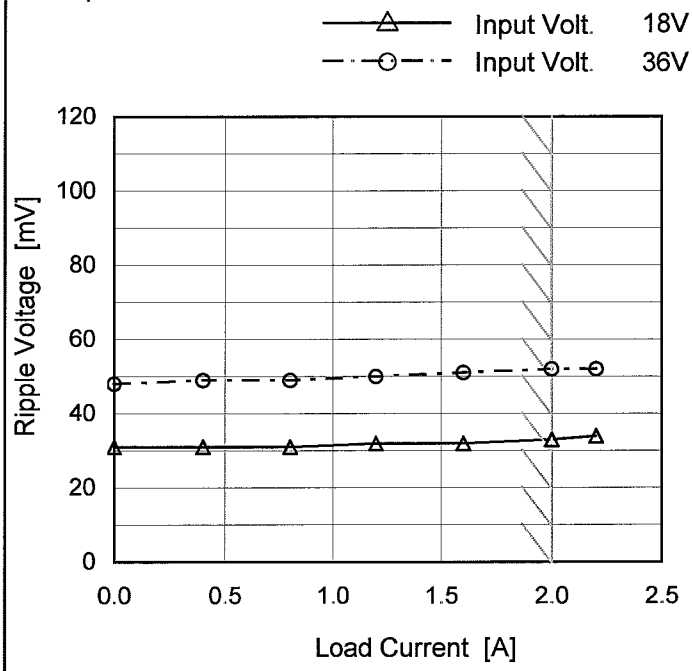
200 μs/div

COSEL

Model	SFS302415/SFCS302415
Item	Ripple Voltage (by Load Current)
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure C

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]

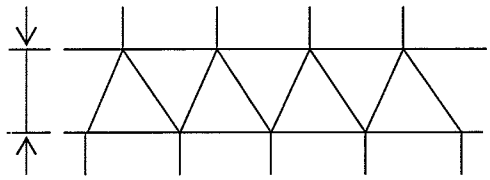


Fig.Complex Ripple Wave Form

2.Values

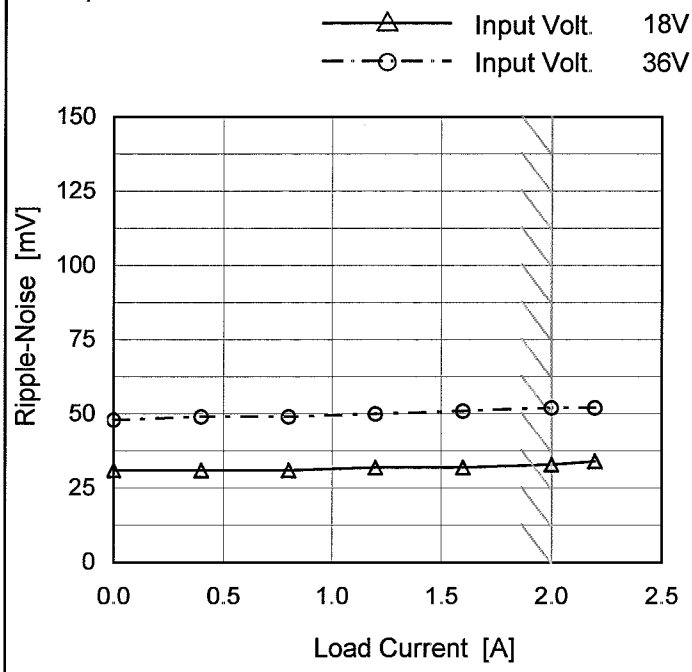
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	31	48
0.4	31	49
0.8	31	49
1.2	32	50
1.6	32	51
2.0	33	52
2.2	34	52
---	-	-
---	-	-
---	-	-
---	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Ripple-Noise
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure C

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.

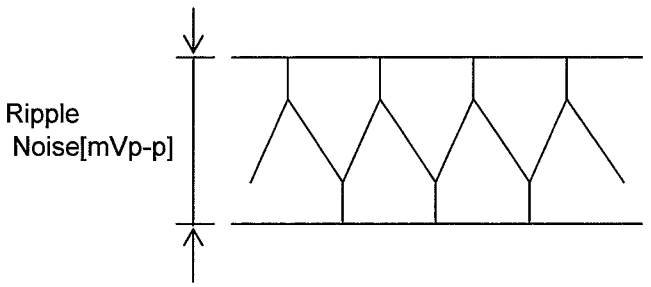


Fig.Complex Ripple Noise Wave Form

2.Values

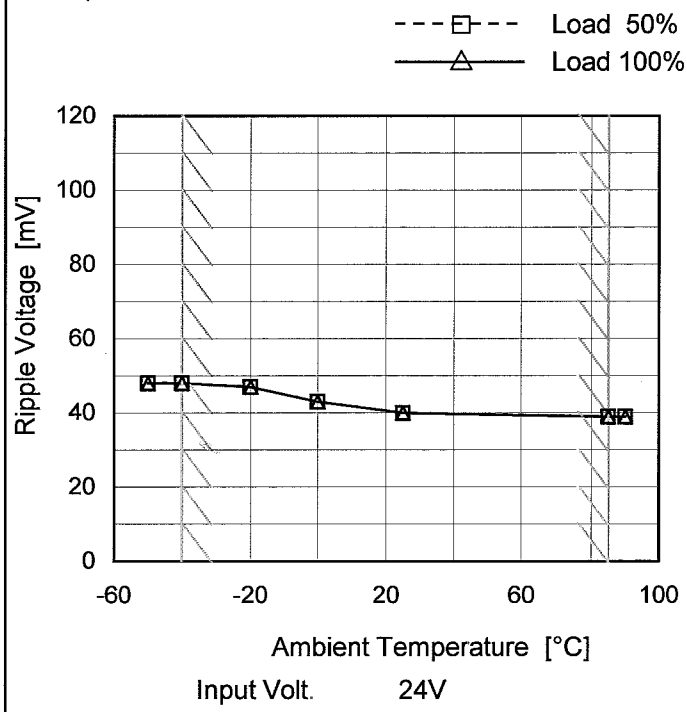
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	31	48
0.4	31	49
0.8	31	49
1.2	32	50
1.6	32	51
2.0	33	52
2.2	34	52
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V2A

Testing Circuitry Figure C

1.Graph



Input Volt. 24V

Measured by 100 MHz Oscilloscope.

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

2.Values

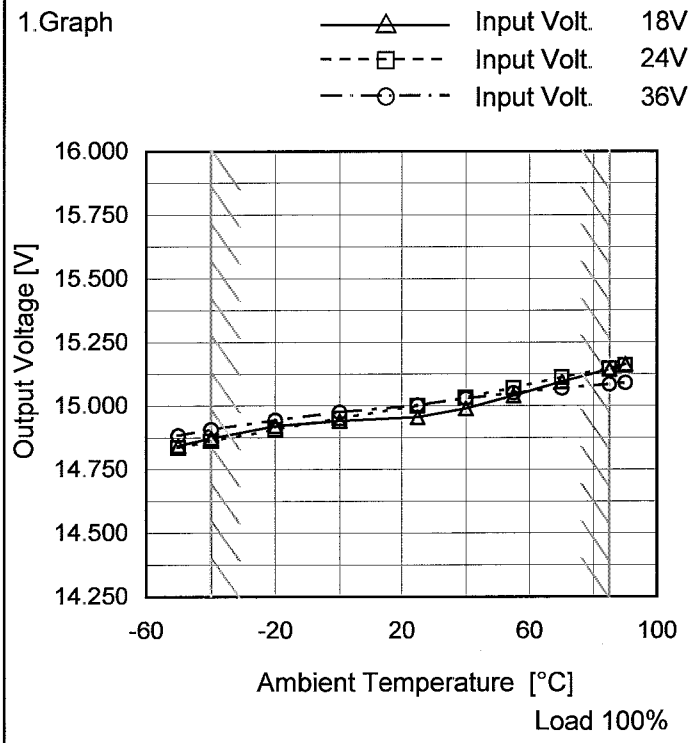
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	48	48
-40	48	48
-20	47	47
0	43	43
25	40	40
85	39	39
90	39	39
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Ambient Temperature Drift
Object	+15V2A

Testing Circuitry Figure A

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]
-50	14.845	14.836	14.883
-40	14.873	14.862	14.907
-20	14.921	14.908	14.944
0	14.942	14.951	14.976
25	14.956	15.001	15.003
40	14.990	15.033	15.029
55	15.041	15.071	15.051
70	15.096	15.113	15.070
85	15.144	15.147	15.085
90	15.164	15.159	15.091
--	-	-	-

COSEL

Model	SFS302415/SFCS302415	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V2A	

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 : -40 - 85°C
Input Voltage : 18 - 36V
Load Current : 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

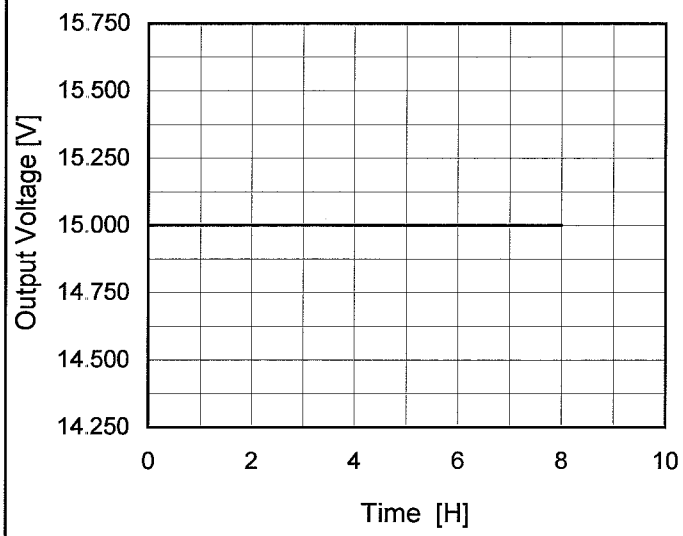
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	18	0	15.447	±293	±2.0
Minimum Voltage	-40	24	2.5	14.862		

COSEL

Model	SFS302415/SFCS302415
Item	Time Lapse Drift
Object	+15V2A

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	15.004
0.5	15.001
1.0	15.001
2.0	15.001
3.0	15.001
4.0	15.001
5.0	15.001
6.0	15.001
7.0	15.001
8.0	15.001

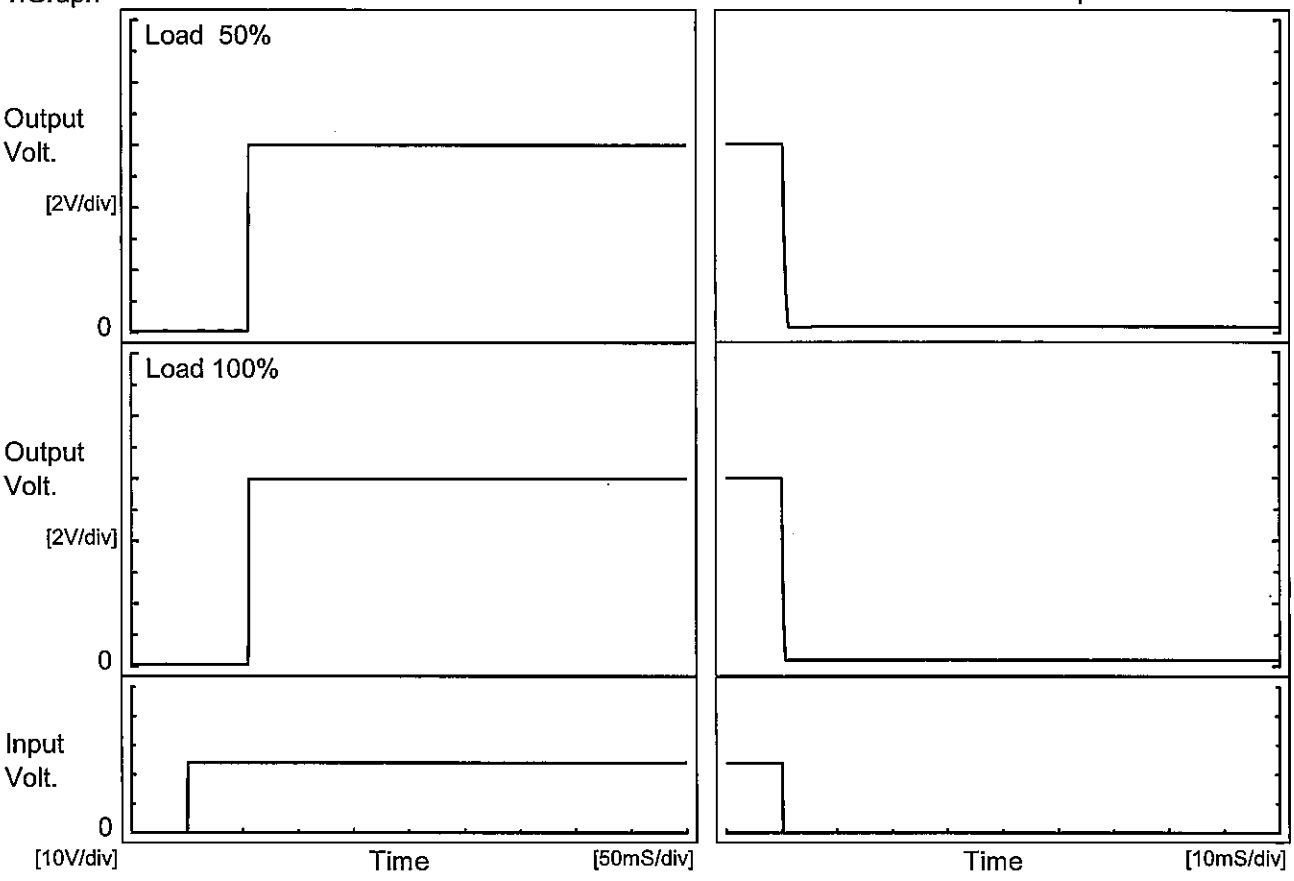
COSEL

Model	SFS302415/SFCS302415
Item	Rise and Fall Time
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

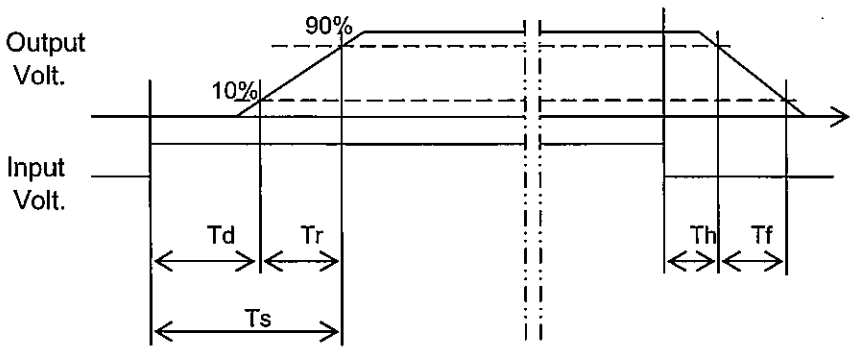
Input Volt. 24 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	55.3	0.5	55.8	0.1	0.8
100 %	54.5	0.5	55.0	0.1	0.5

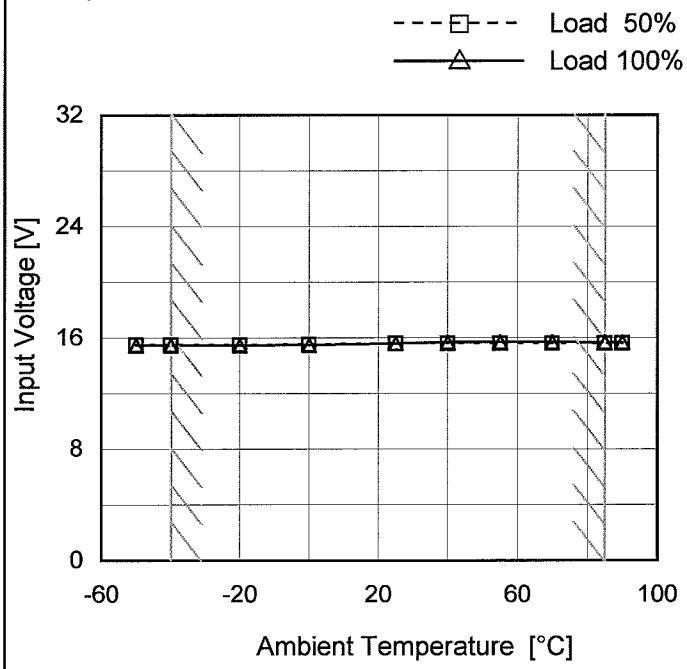


COSEL

Model	SFS302415/SFCS302415
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V2A

Testing Circuitry Figure A

1.Graph



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

2.Values

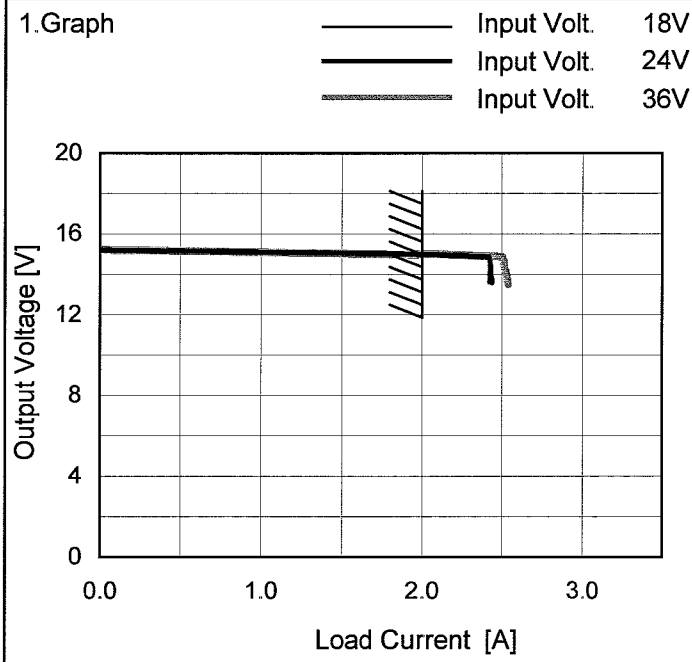
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	15.5	15.5
-40	15.5	15.5
-20	15.5	15.5
0	15.6	15.5
25	15.7	15.6
40	15.7	15.7
55	15.7	15.7
70	15.7	15.7
85	15.7	15.7
90	15.7	15.7
--	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Overcurrent Protection
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

When the output voltage fell to less than 13.5V,the unit shuts off the output by operating low voltage protection.

2.Values

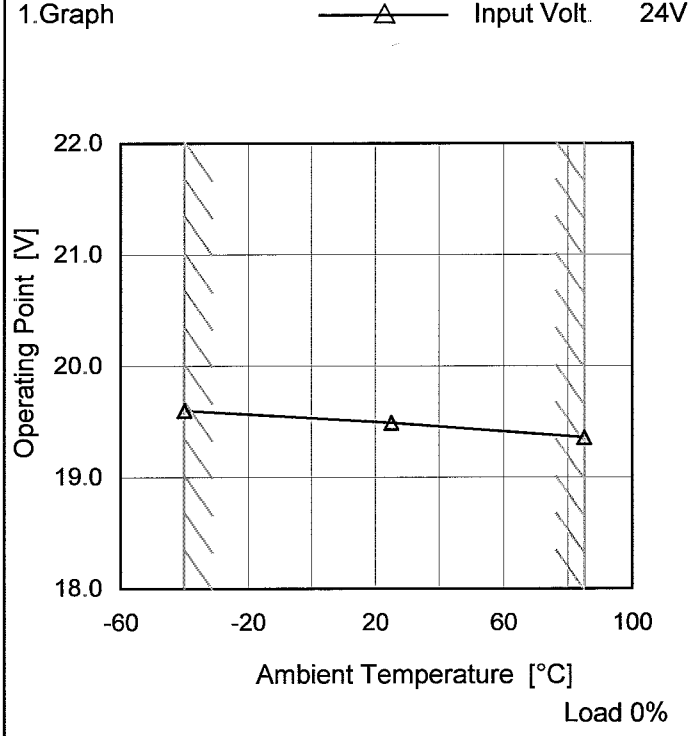
Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
15.0	2.00	2.00	2.01
14.3	2.42	2.43	2.52
13.5	2.41	2.44	2.54
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS302415/SFCS302415
Item	Overvoltage Protection
Object	+15V2A

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.	Input Volt.
-40	19.60	-	-
25	19.49	-	-
85	19.36	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

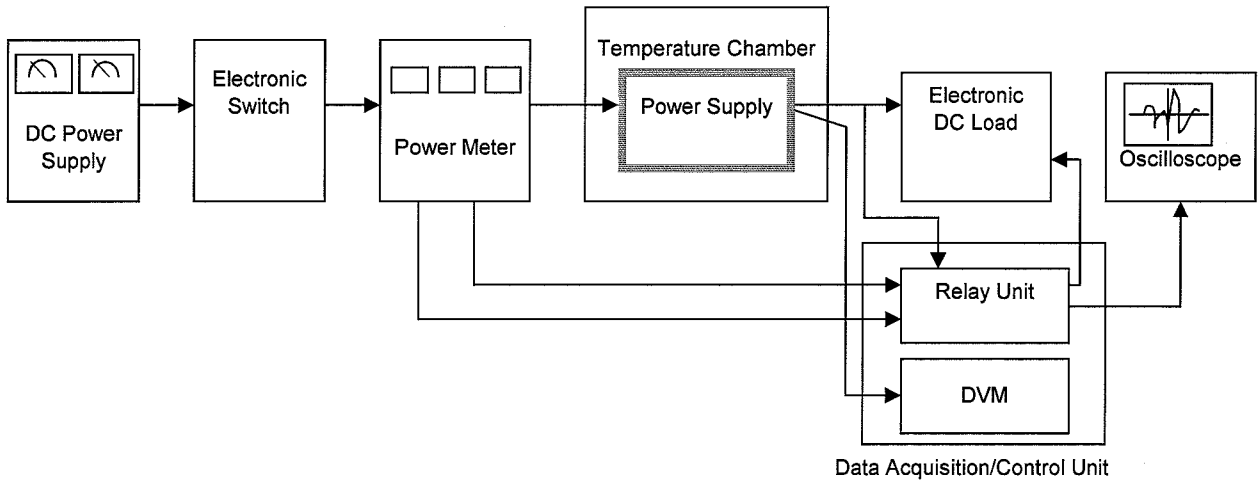


Figure A

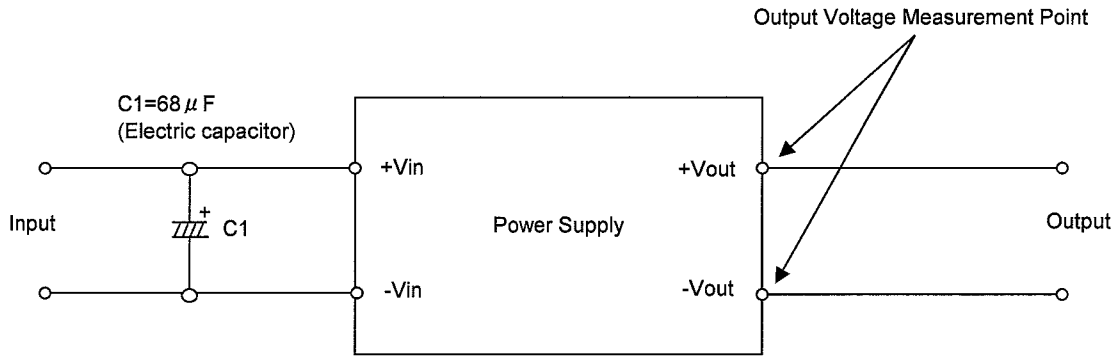


Figure B (General Electric Characteristic)

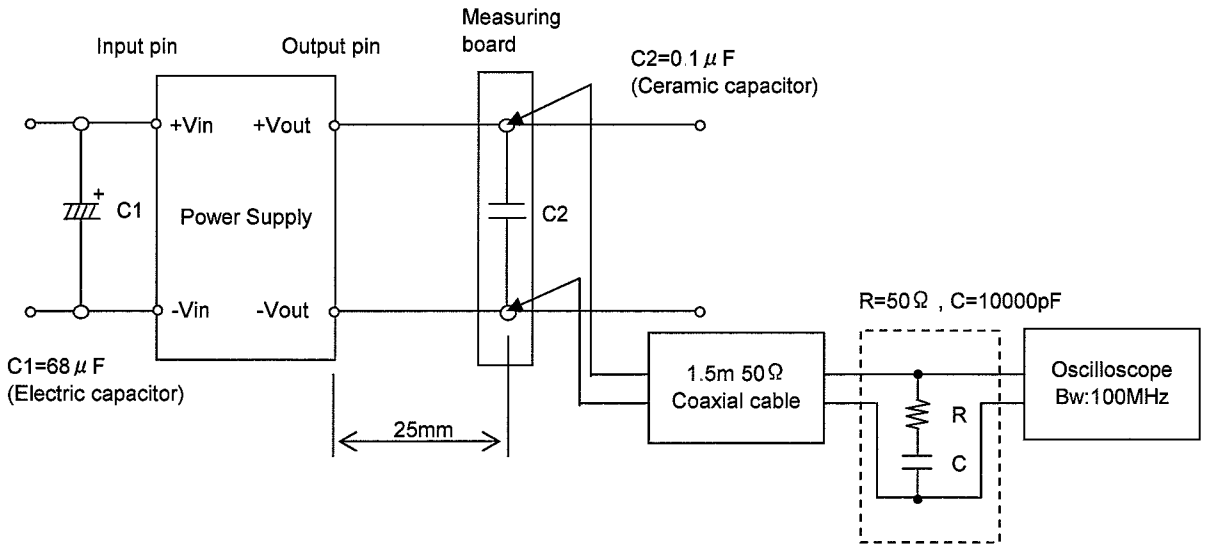


Figure C (Ripple and Ripple noise Characteristic)