参考資料

COSEL

TEST DATA OF SFS30241R5

Regulated DC Power Supply
Dec 28,2004

Approved by : Isao Yasuda
Isao Yasuda Design Manager

Prepared by : Tatsuya Mano
Tatsuya Mano Design Engineer

COSEL CO.,LTD.

COSEL

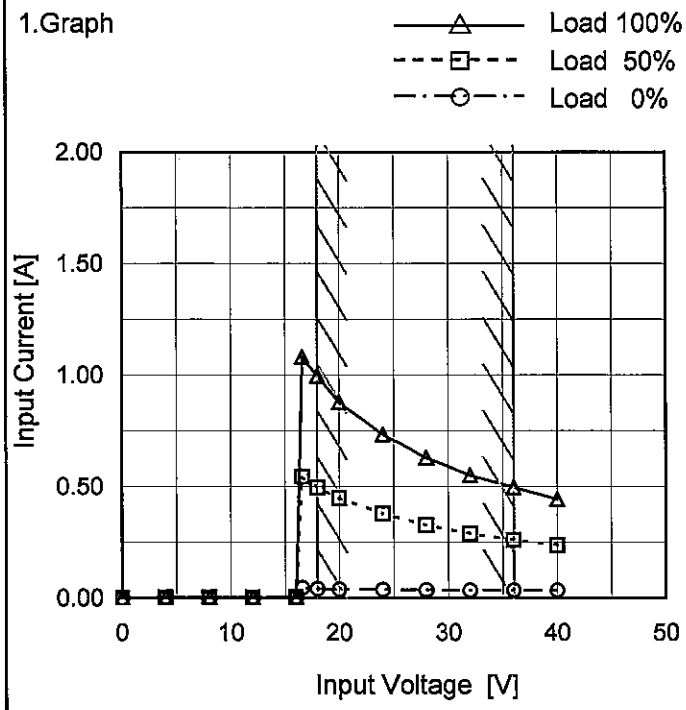
CONTENTS

COSEL

Model	SFS30241R5
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	0.045	0.544	1.082
18	0.041	0.496	0.997
20	0.039	0.448	0.878
24	0.037	0.378	0.734
28	0.035	0.327	0.629
32	0.035	0.289	0.550
36	0.034	0.260	0.497
40	0.034	0.236	0.443
--	-	-	-
--	-	-	-
--	-	-	-

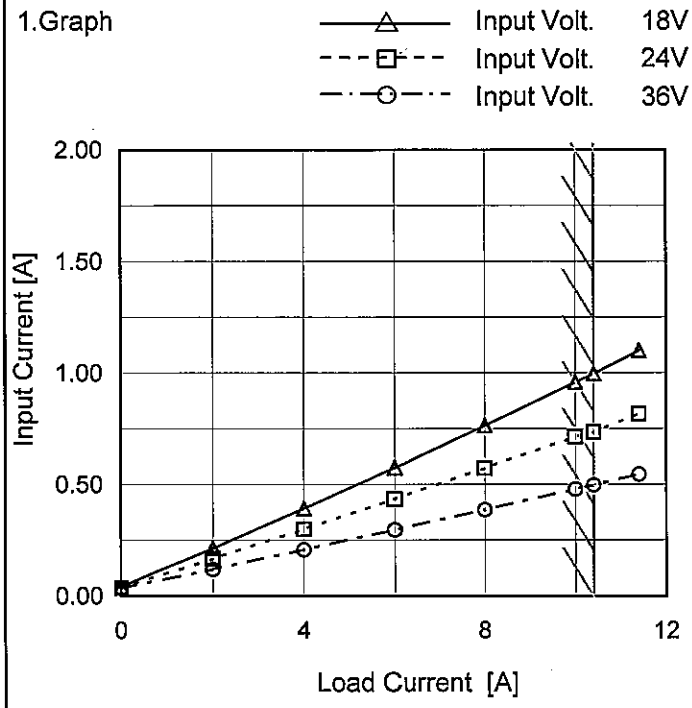
BC-3666

COSEL

Model	SFS30241R5
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

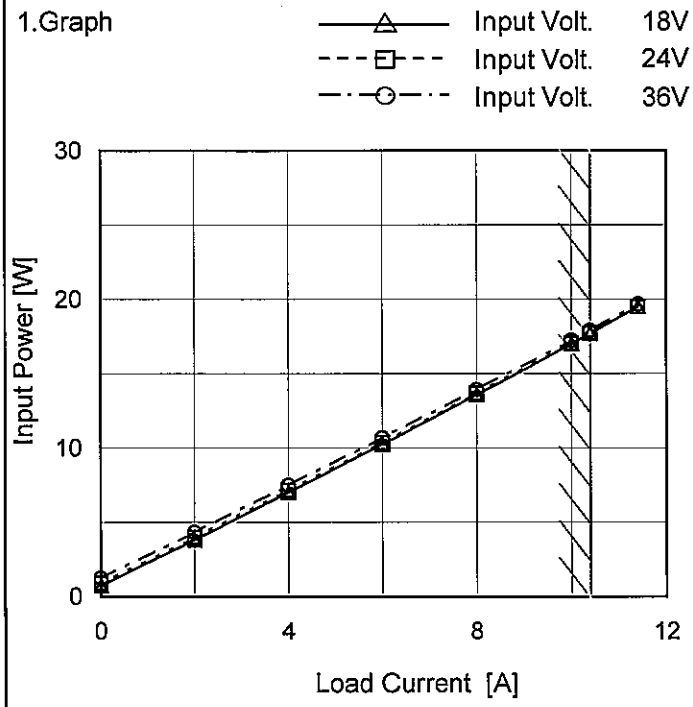
Load Current [A]	Input Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.041	0.037	0.034
2.0	0.214	0.166	0.120
4.0	0.392	0.298	0.207
6.0	0.575	0.434	0.296
8.0	0.764	0.573	0.386
10.0	0.958	0.714	0.478
10.4	0.997	0.734	0.497
11.4	1.100	0.818	0.546
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS30241R5
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

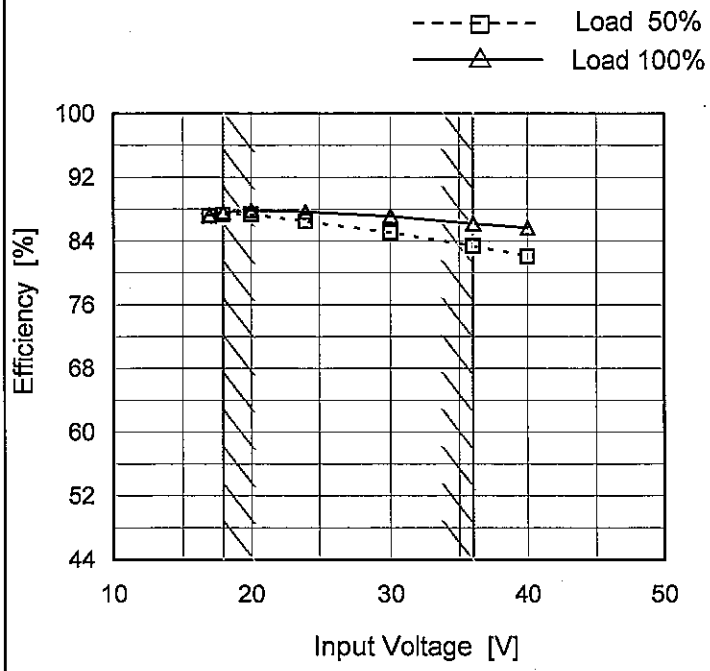
Load Current [A]	Input Power [W]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.75	0.88	1.25
2.0	3.84	3.99	4.33
4.0	7.02	7.15	7.49
6.0	10.28	10.37	10.69
8.0	13.60	13.69	13.92
10.0	17.02	17.04	17.25
10.4	17.71	17.72	17.92
11.4	19.52	19.50	19.67
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS30241R5
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

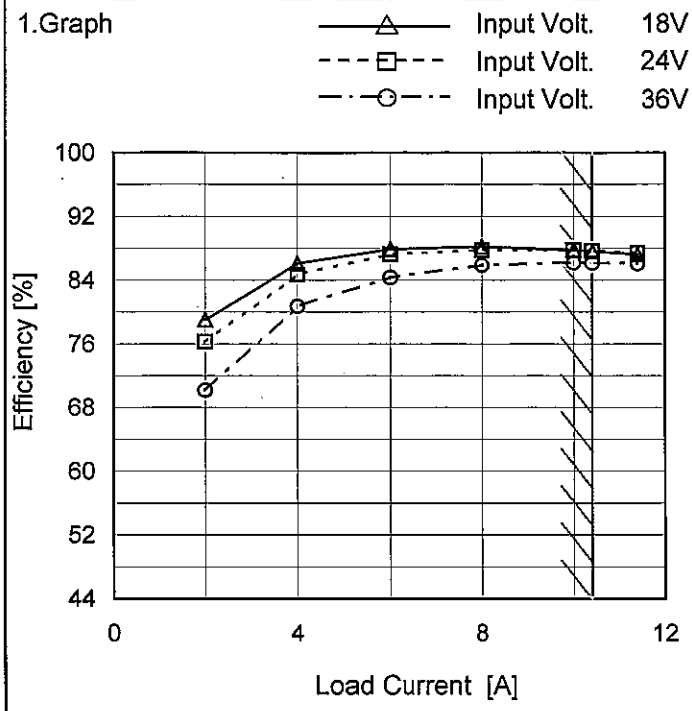
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	87.2	87.3
18	87.3	87.6
20	87.3	87.9
24	86.5	87.7
30	85.1	87.1
36	83.4	86.2
40	82.1	85.7
--	-	-
--	-	-

COSEL

Model	SFS30241R5
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

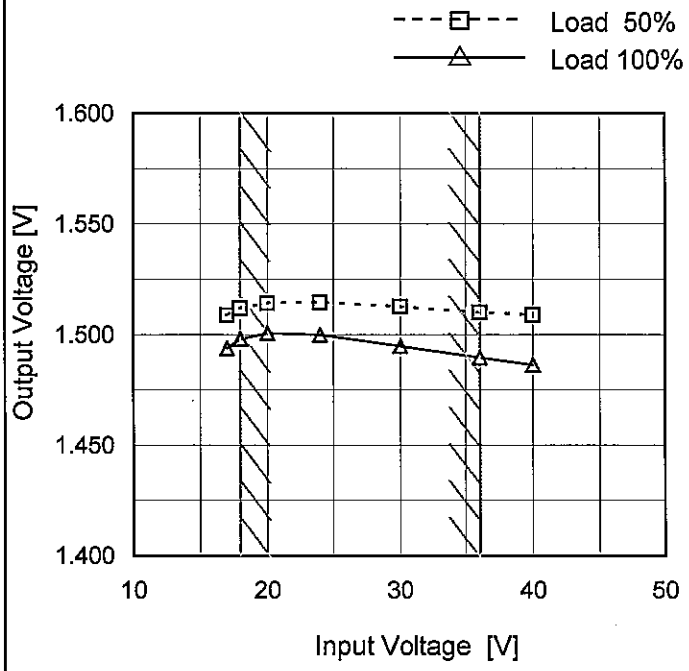
Load Current [A]	Efficiency [%]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-
2.0	79.0	76.3	70.2
4.0	86.1	84.7	80.7
6.0	87.9	87.3	84.3
8.0	88.2	87.8	85.9
10.0	87.8	87.8	86.2
10.4	87.6	87.7	86.2
11.4	87.2	87.5	86.1
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS30241R5
Item	Line Regulation
Object	+1.5V10.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

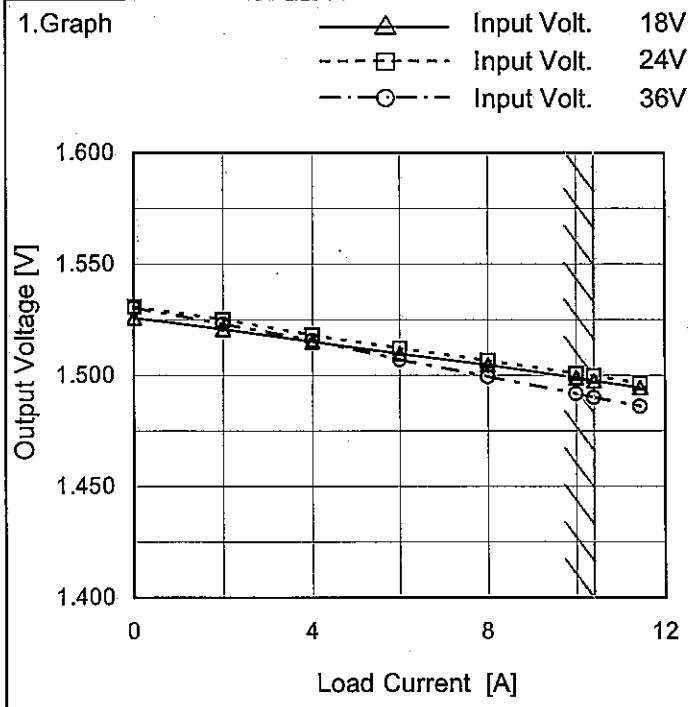
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	1.509	1.494
18	1.512	1.498
20	1.514	1.501
24	1.515	1.500
30	1.513	1.495
36	1.510	1.490
40	1.509	1.486
---	-	-
--	-	-

COSEL

Model	SFS30241R5
Item	Load Regulation
Object	+1.5V10.4A

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]
0.00	1.526	1.531	1.530
2.00	1.521	1.525	1.523
4.00	1.515	1.518	1.516
6.00	1.510	1.512	1.507
8.00	1.505	1.507	1.499
10.00	1.499	1.501	1.492
10.40	1.498	1.500	1.490
11.44	1.495	1.496	1.486
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

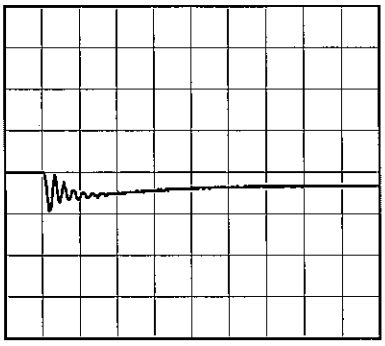
Model	SFS30241R5
Item	Dynamic Load Response
Object	+1.5V10.4A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 1000 mS

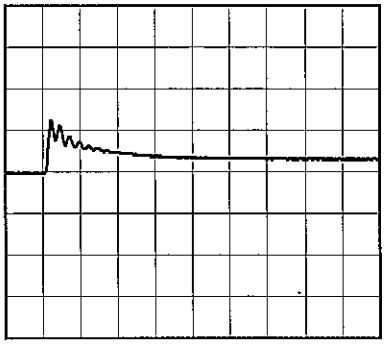
Load Current
10.4A / 200 μ sec

Min. Load (0A) ⟷
Load 100% (10.4A)



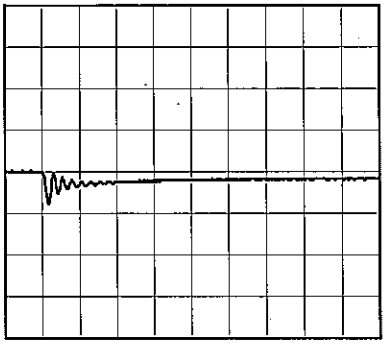
100mV/div

200 μs/div



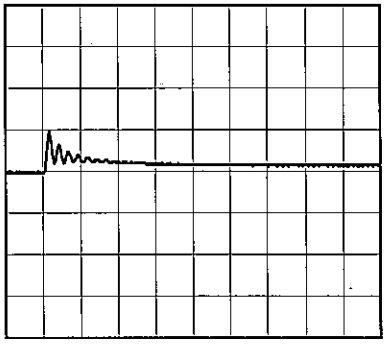
200 μs/div

Min. Load (0A) ⟷
Load 50% (5.2A)



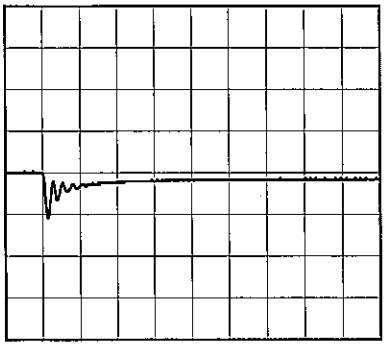
100mV/div

200 μs/div



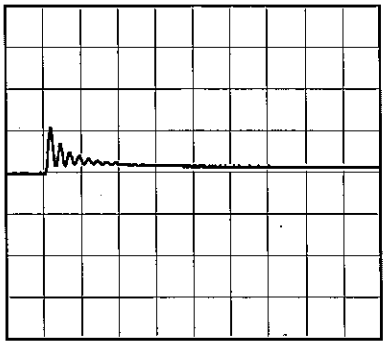
200 μs/div

Load 50% (5.2A) ⟷
Load 100% (10.4A)



100mV/div

200 μs/div



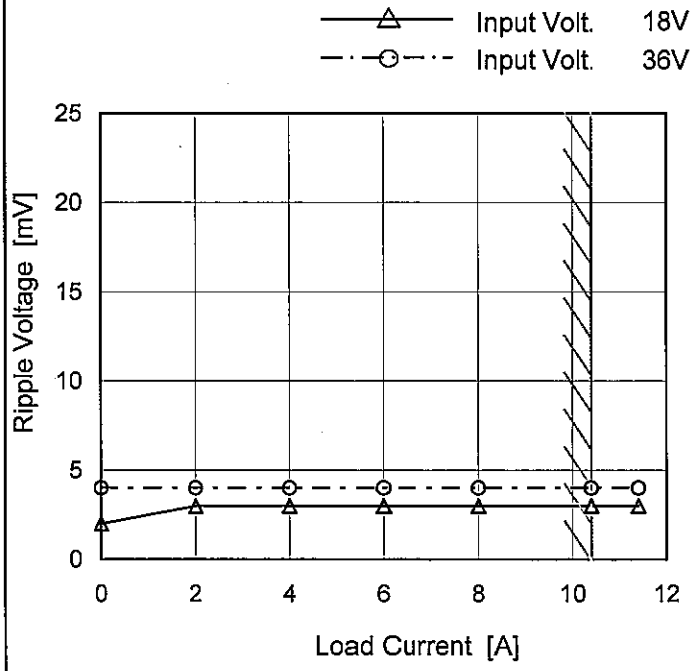
200 μs/div

COSEL

Model	SFS30241R5
Item	Ripple Voltage (by Load Current)
Object	+1.5V10.4A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 100MHz Ossiloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	2	4
2.0	3	4
4.0	3	4
6.0	3	4
8.0	3	4
10.4	3	4
11.4	3	4
--	-	-
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]

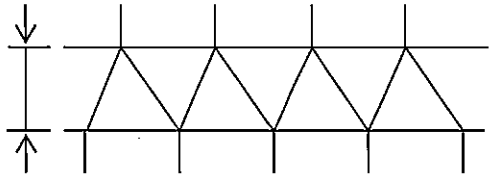


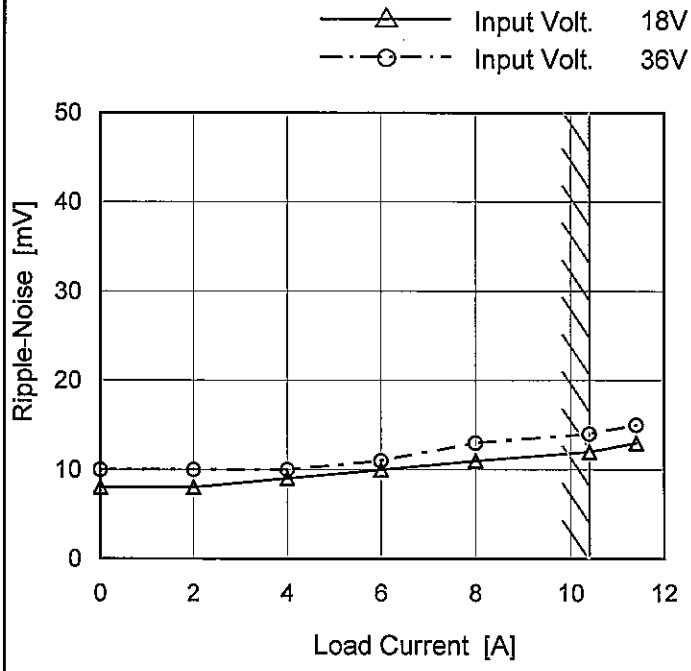
Fig.Complex Ripple Wave Form

COSEL

Model	SFS30241R5
Item	Ripple-Noise
Object	+1.5V10.4A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 100MHz Ossiloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

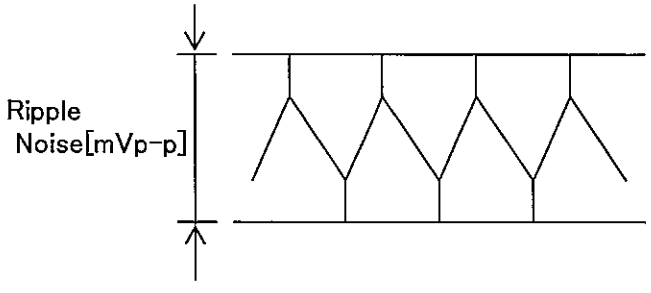


Fig.Complex Ripple Noise Wave Form

2.Values

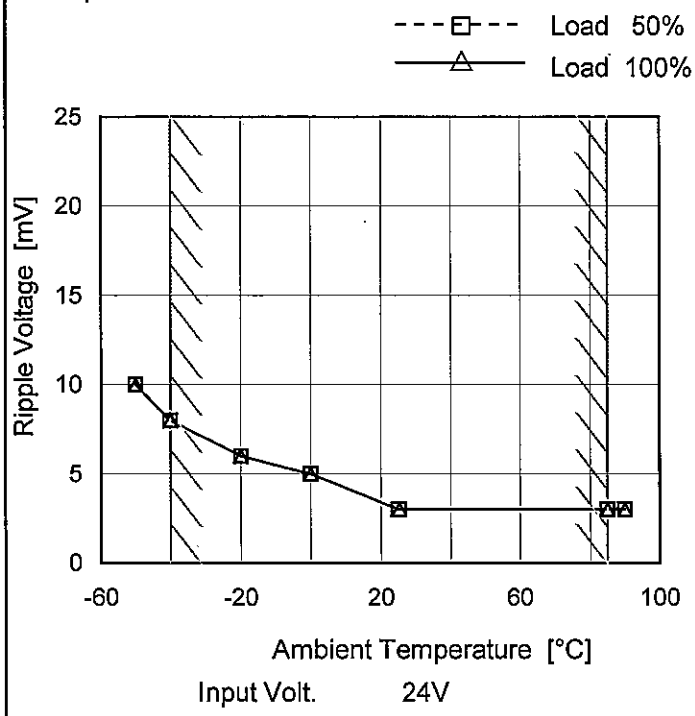
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	8	10
2.0	8	10
4.0	9	10
6.0	10	11
8.0	11	13
10.4	12	14
11.4	13	15
---	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS30241R5
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.5V10.4A

Testing Circuitry Figure C

1.Graph



Input Volt. 24V

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

2.Values

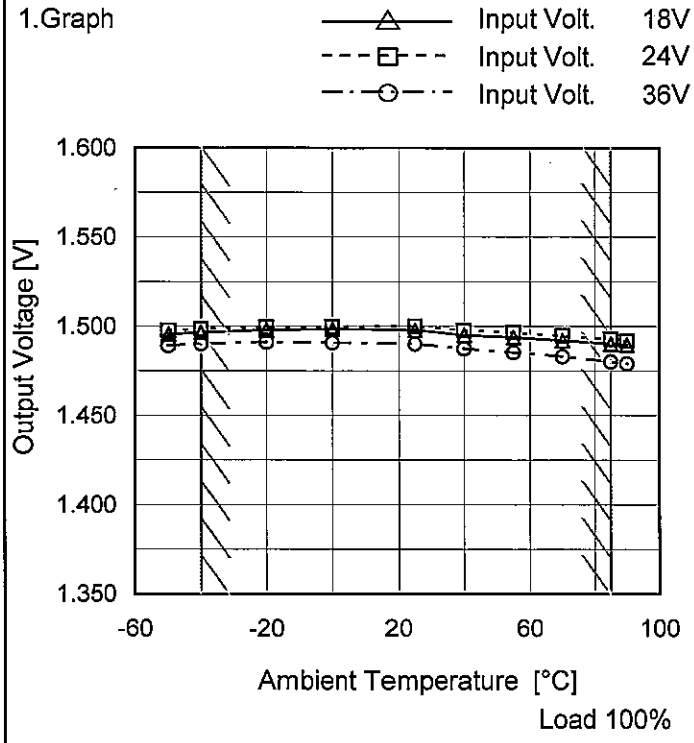
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	10	10
-40	8	8
-20	6	6
0	5	5
25	3	3
85	3	3
90	3	3
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS30241R5
Item	Ambient Temperature Drift
Object	+1.5V10.4A

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	1.496	1.498	1.489
-40	1.497	1.499	1.490
-20	1.498	1.500	1.491
0	1.499	1.500	1.491
25	1.498	1.500	1.490
40	1.495	1.498	1.488
55	1.494	1.497	1.486
70	1.492	1.495	1.483
85	1.490	1.493	1.480
90	1.490	1.492	1.479
--	-	-	-

COSEL

Model	SFS30241R5	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+1.5V10.4A	

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 - 10.4A

* 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

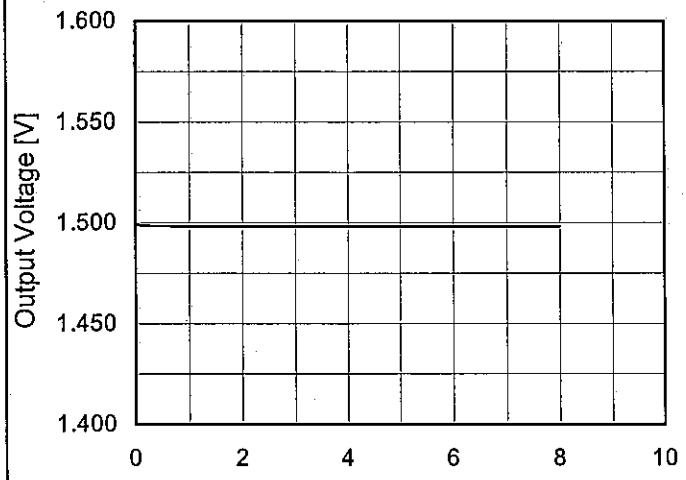
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	24	0	1.541	±31	±2.1
Minimum Voltage	85	36	10.4	1.480		

COSEL

Model	SFS30241R5
Item	Time Lapse Drift
Object	+1.5V10.4A

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	1.500
0.5	1.499
1.0	1.498
2.0	1.498
3.0	1.498
4.0	1.498
5.0	1.498
6.0	1.498
7.0	1.498
8.0	1.498

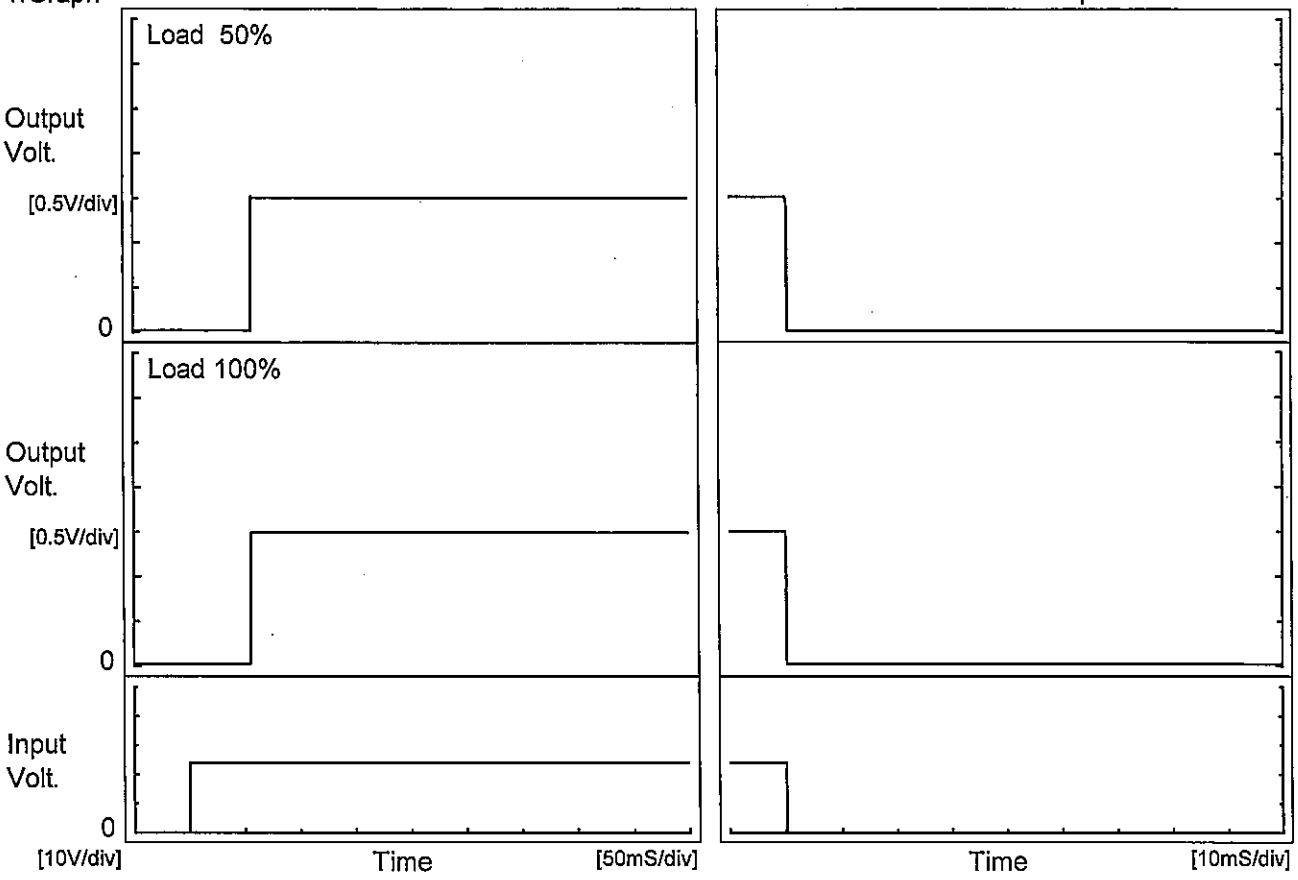
COSEL

Model	SFS30241R5
Item	Rise and Fall Time
Object	+1.5V10.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

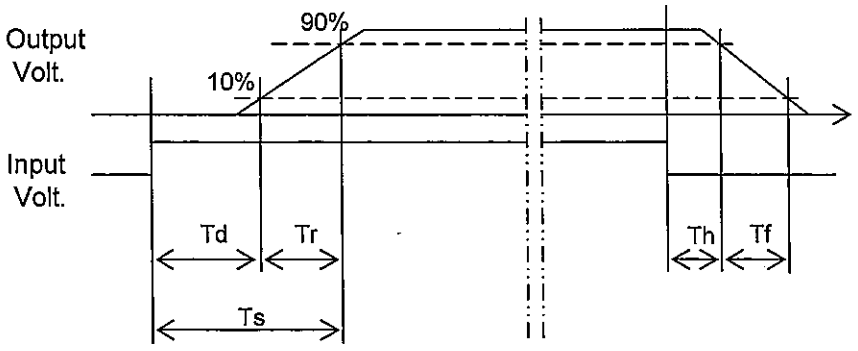
Input Volt. 24 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	55.8	0.5	56.3	0.4	0.2
100 %	55.8	0.5	56.3	0.2	0.2

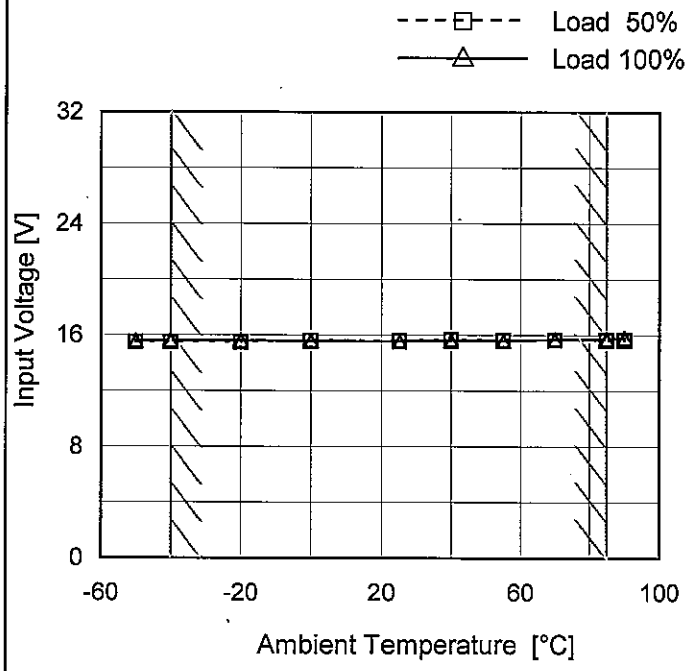


COSEL

Model	SFS30241R5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.5V10.4A

Testing Circuitry Figure A

1.Graph



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

2.Values

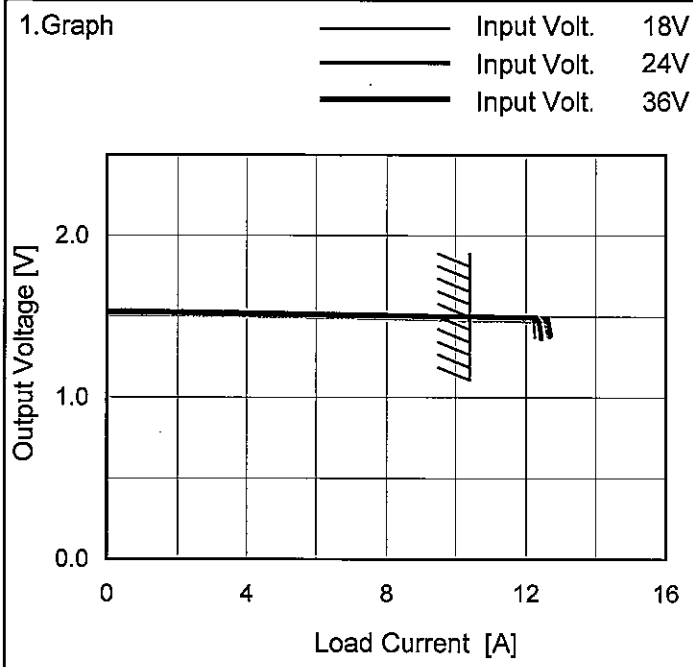
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	15.5	15.6
-40	15.5	15.6
-20	15.5	15.6
0	15.6	15.6
25	15.6	15.6
40	15.7	15.7
55	15.7	15.7
70	15.7	15.8
85	15.7	15.8
90	15.7	15.9
--	-	-

COSEL

Model	SFS30241R5
Item	Overcurrent Protection
Object	+1.5V10.4A

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 1.35V ,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]
1.50	11.35	11.34	11.16
1.43	12.24	12.40	12.63
1.35	12.25	12.45	12.71
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

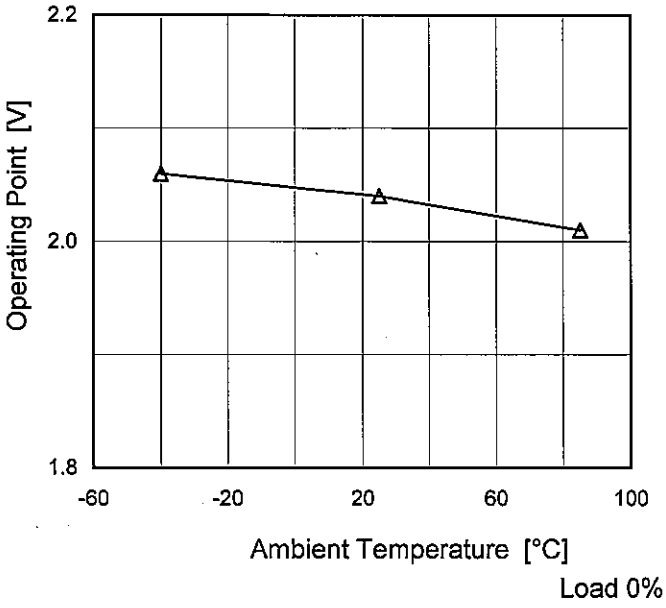
COSEL

Model	SFS30241R5
Item	Overvoltage Protection
Object	+1.5V10.4A

Testing Circuitry Figure A

1.Graph

Input Volt. 24V



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	2.06	-	-
25	2.04	-	-
85	2.01	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

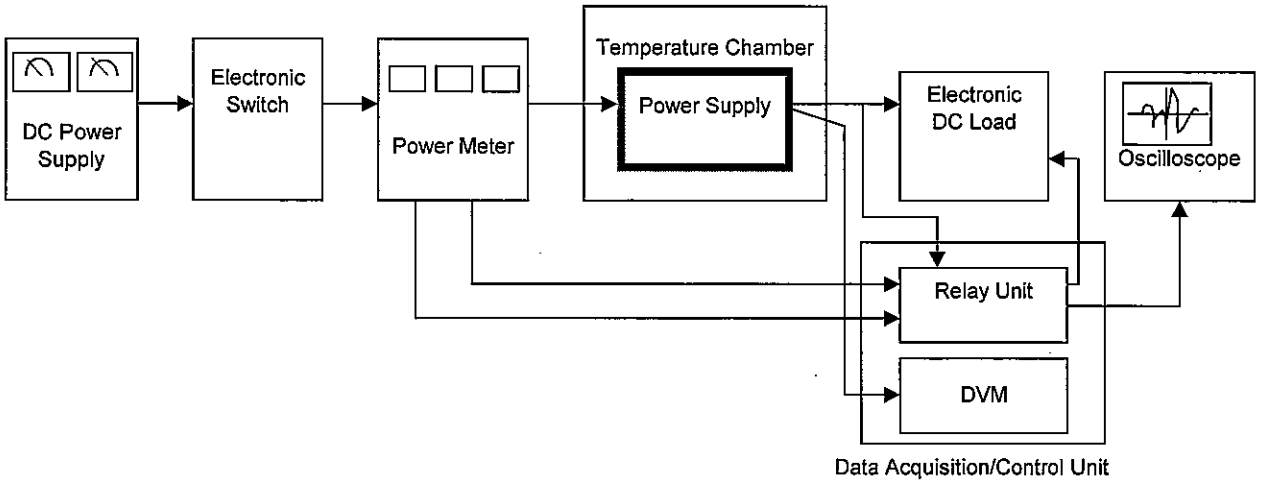


Figure A

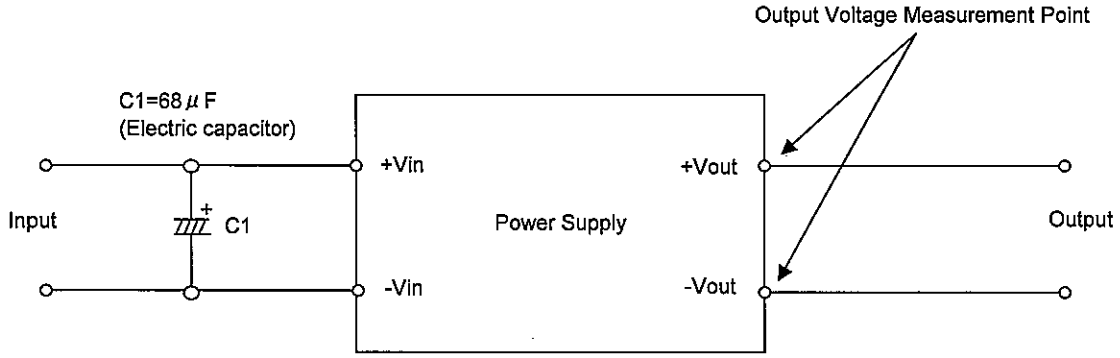


Figure B (General Electric Characteristic)

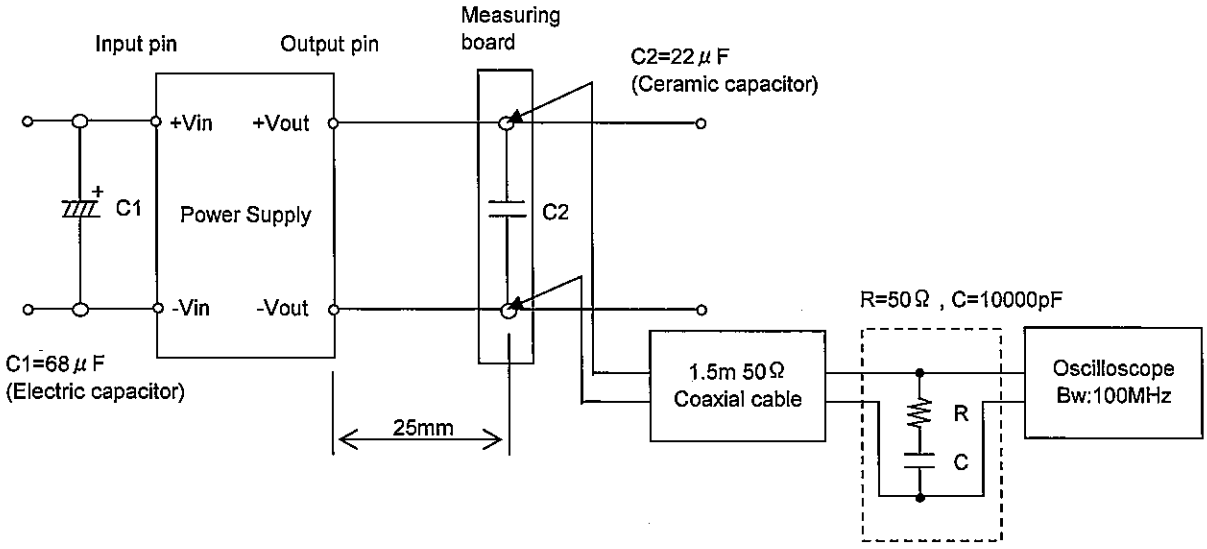


Figure C (Ripple and Ripple noise Characteristic)