COSEL

参考資料

TEST DATA OF SFS10481R5

Regulated DC Power Supply
Jul.9. 2004

Approved by : Isao Yasuda
Isao Yasuda — Design Manager

Prepared by : Tatsuya Mano
Tatsuya Mano — Design Engineer

COSEL CO.,LTD.

COSEL

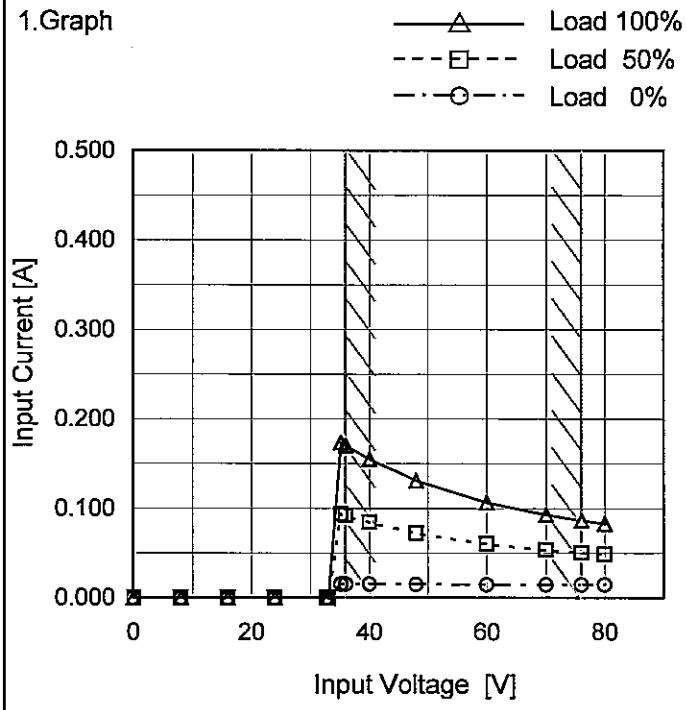
CONTENTS

COSEL

Model	SFS10481R5
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
8	0.001	0.001	0.001
16	0.001	0.001	0.001
24	0.002	0.002	0.002
33	0.002	0.002	0.002
33	0.002	0.002	0.002
35	0.016	0.094	0.174
36	0.015	0.092	0.170
40	0.015	0.084	0.155
48	0.015	0.072	0.132
60	0.015	0.060	0.107
70	0.015	0.053	0.093
76	0.015	0.050	0.087
80	0.015	0.048	0.083
--	-	-	-
--	-	-	-

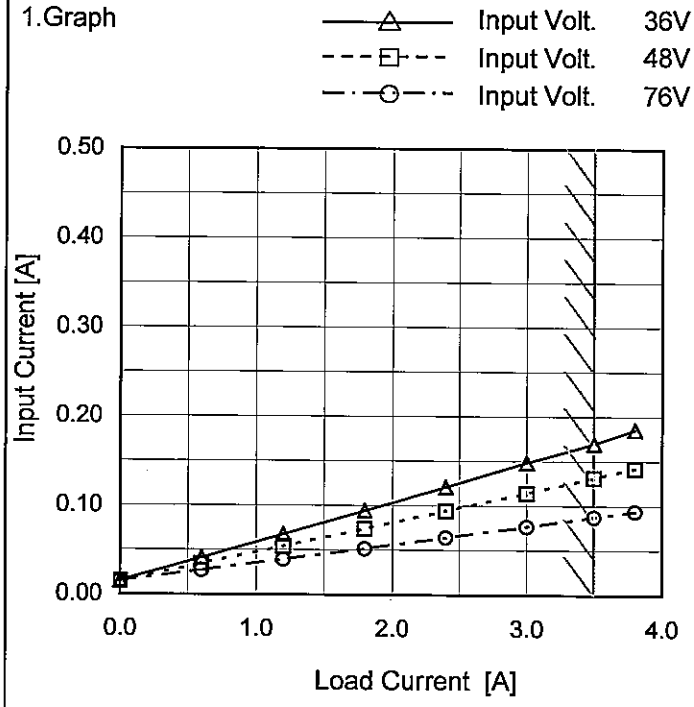
BC-3596

COSEL

Model	SFS10481R5
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

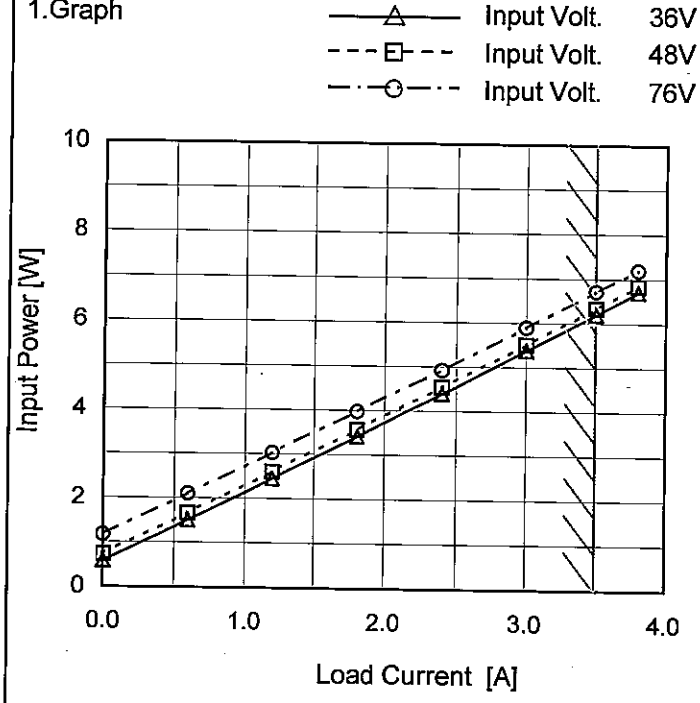
Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.015	0.015	0.015
0.6	0.041	0.034	0.027
1.2	0.067	0.054	0.039
1.8	0.094	0.074	0.051
2.4	0.121	0.094	0.064
3.0	0.149	0.114	0.077
3.5	0.170	0.132	0.087
3.8	0.186	0.142	0.094
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS10481R5
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

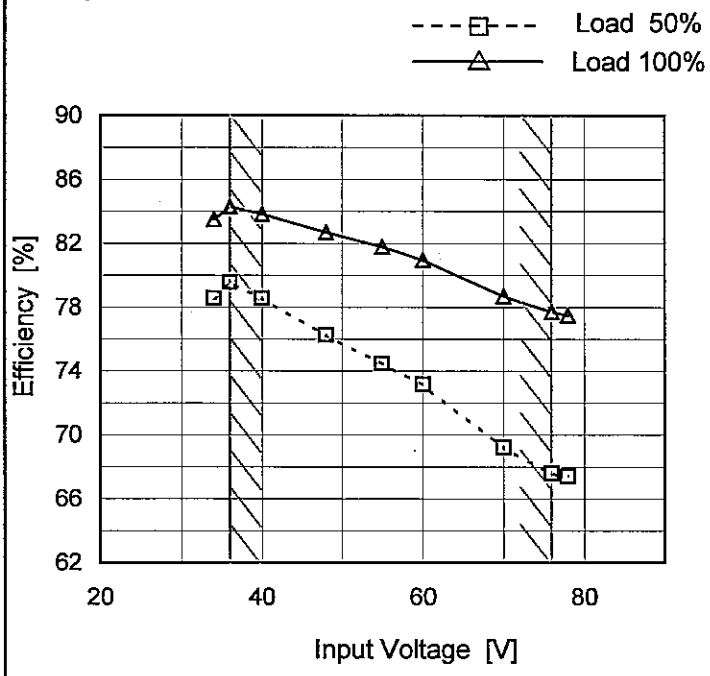
Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.58	0.73	1.17
0.6	1.50	1.66	2.10
1.2	2.45	2.60	3.03
1.8	3.41	3.56	3.98
2.4	4.39	4.54	4.92
3.0	5.38	5.51	5.90
3.5	6.20	6.34	6.72
3.8	6.71	6.84	7.20
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS10481R5
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

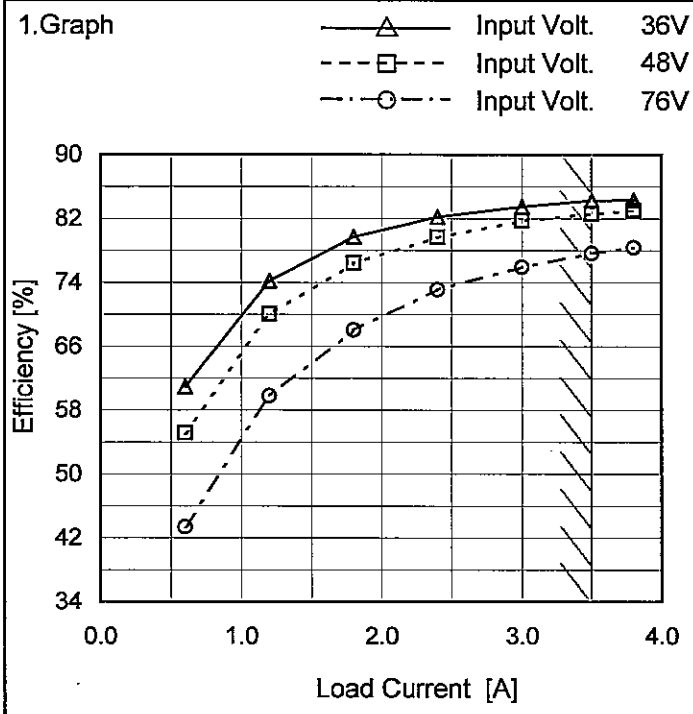
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
34	78.5	83.5
36	79.6	84.3
40	78.6	83.8
48	76.3	82.7
55	74.5	81.8
60	73.2	81.0
70	69.2	78.7
76	67.6	77.7
78	67.4	77.5

COSEL

Model	SFS10481R5
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

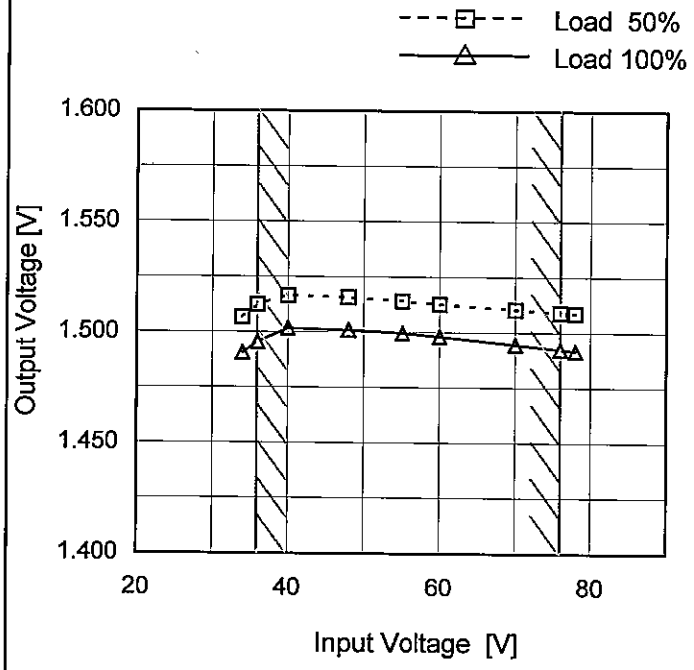
Load Current [A]	Efficiency [%] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	-	-	-
0.6	61.0	55.1	43.4
1.2	74.2	70.0	59.8
1.8	79.7	76.5	68.1
2.4	82.2	79.7	73.1
3.0	83.5	81.8	76.0
3.5	84.3	82.7	77.7
3.8	84.3	83.0	78.4
—	-	-	-
—	-	-	-
—	-	-	-

COSEL

Model	SFS10481R5
Item	Line Regulation
Object	+1.5V3.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

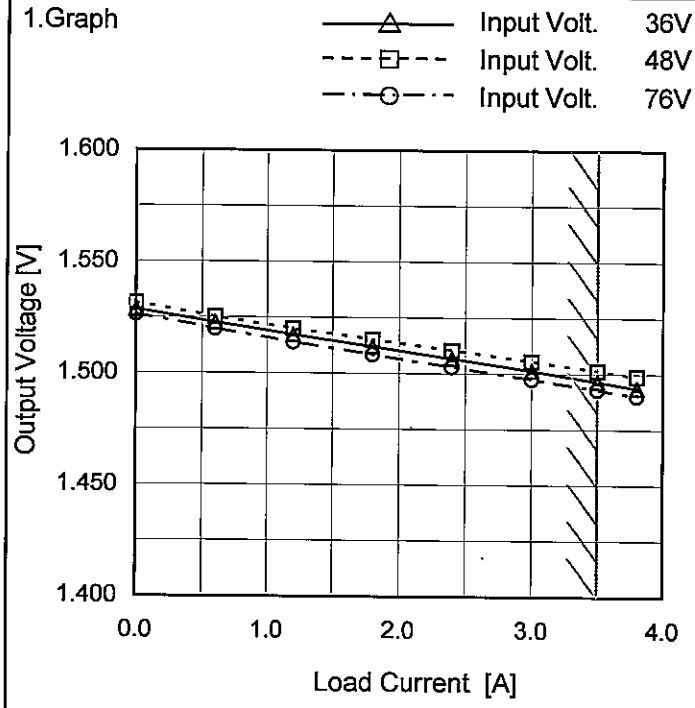
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
34	1.507	1.491
36	1.512	1.496
40	1.516	1.502
48	1.516	1.501
55	1.514	1.500
60	1.513	1.498
70	1.510	1.495
76	1.509	1.492
78	1.509	1.492

COSEL

Model	SFS10481R5
Item	Load Regulation
Object	+1.5V3.5A

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	1.528	1.531	1.526
0.6	1.523	1.525	1.520
1.2	1.517	1.520	1.514
1.8	1.512	1.515	1.509
2.4	1.507	1.511	1.503
3.0	1.502	1.506	1.498
3.5	1.497	1.501	1.493
3.8	1.494	1.499	1.490
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS10481R5
Item	Dynamic Load Response
Object	+1.5V3.5A

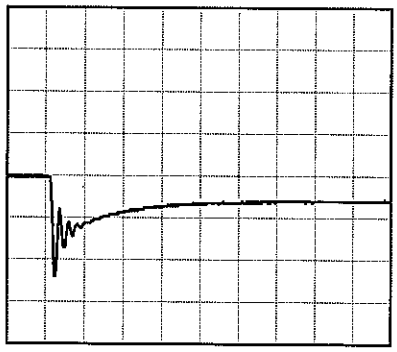
Temperature 25℃
Testing Circuitry Figure A

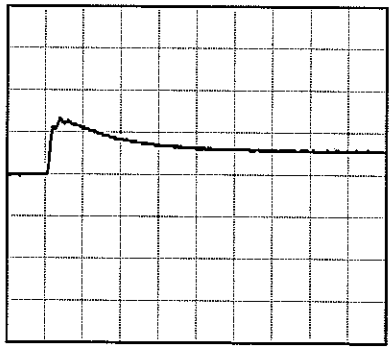
Input Volt. 48 V
Cycle 1000 ms

Load Current

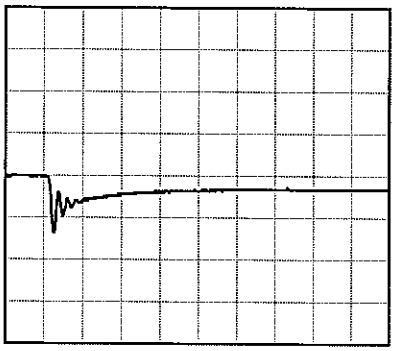
3.5A/200 μ sec

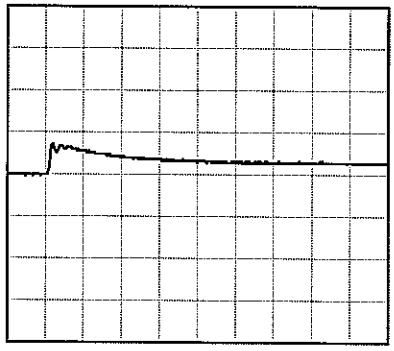
Min. Load (0A) ⟷
Load 100% (3.5A)



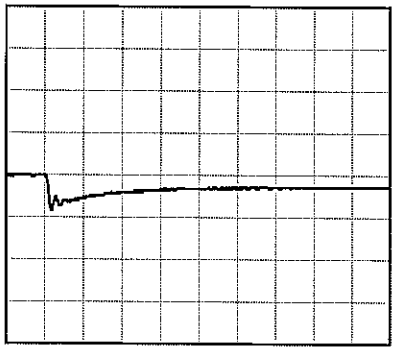


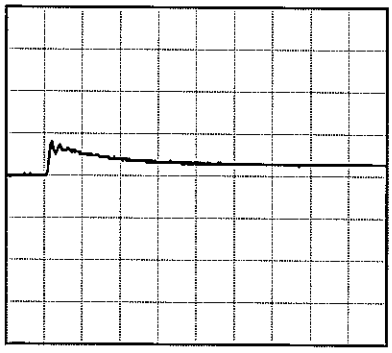
Min. Load (0A) ⟷
Load 50% (1.75A)





Load 50% (1.75A) ⟷
Load 100% (3.5A)



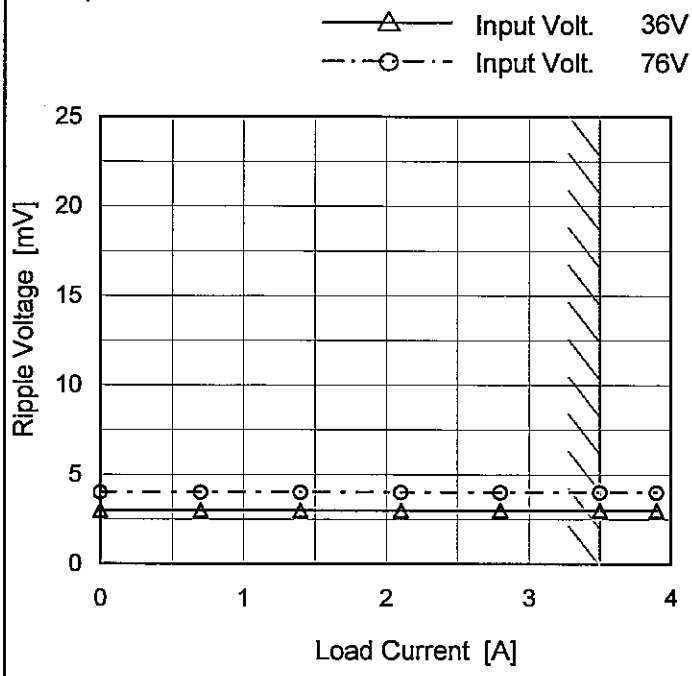


COSEL

Model	SFS10481R5
Item	Ripple Voltage (by Load Current)
Object	+1.5V3.5A

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.

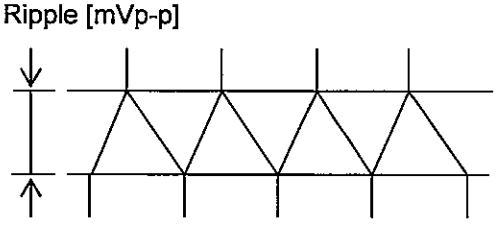


Fig.Complex Ripple Wave Form

2.Values

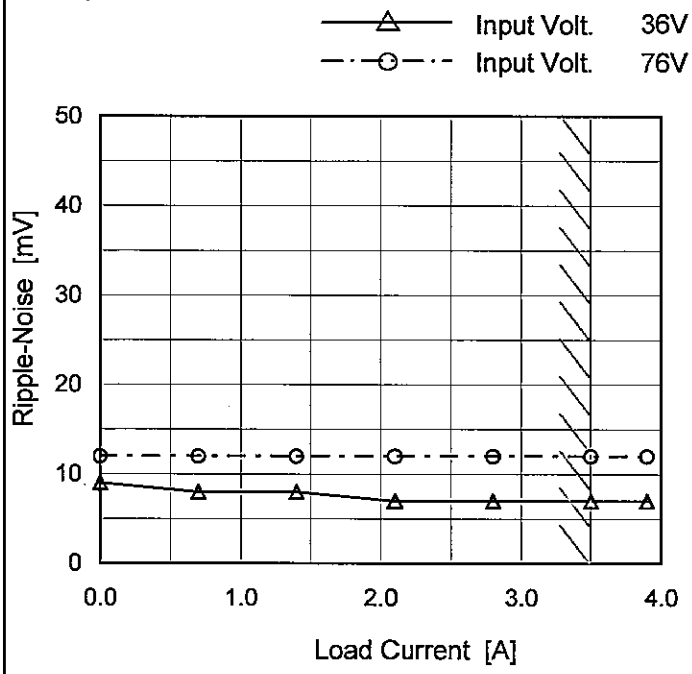
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	3	4
0.7	3	4
1.4	3	4
2.1	3	4
2.8	3	4
3.5	3	4
3.9	3	4
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS10481R5
Item	Ripple-Noise
Object	+1.5V3.5A

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.

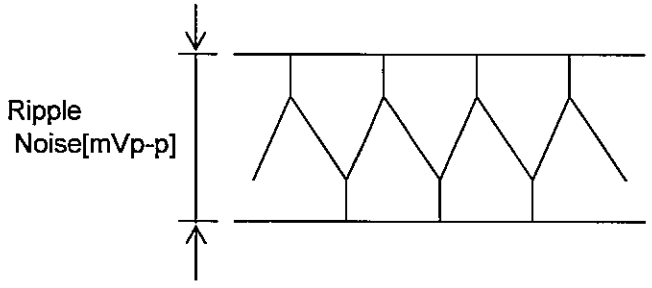


Fig.Complex Ripple Noise Wave Form

2.Values

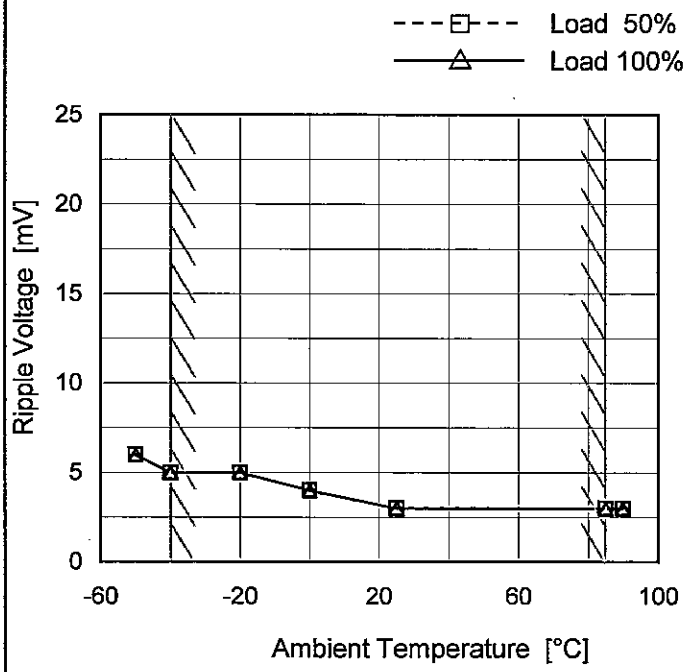
Load Current [A]	Ripple-Noise [mV] Input Volt. 36 [V]	Ripple-Noise [mV] Input Volt. 76 [V]
0.0	9	12
0.7	8	12
1.4	8	12
2.1	7	12
2.8	7	12
3.5	7	12
3.9	7	12
---	-	-
---	-	-
---	-	-
---	-	-

COSEL

Model	SFS10481R5
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.5V3.5A

Testing Circuitry Figure C

1.Graph



Input Volt. 48V

Measured by 100 MHz Oscilloscope.

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

2.Values

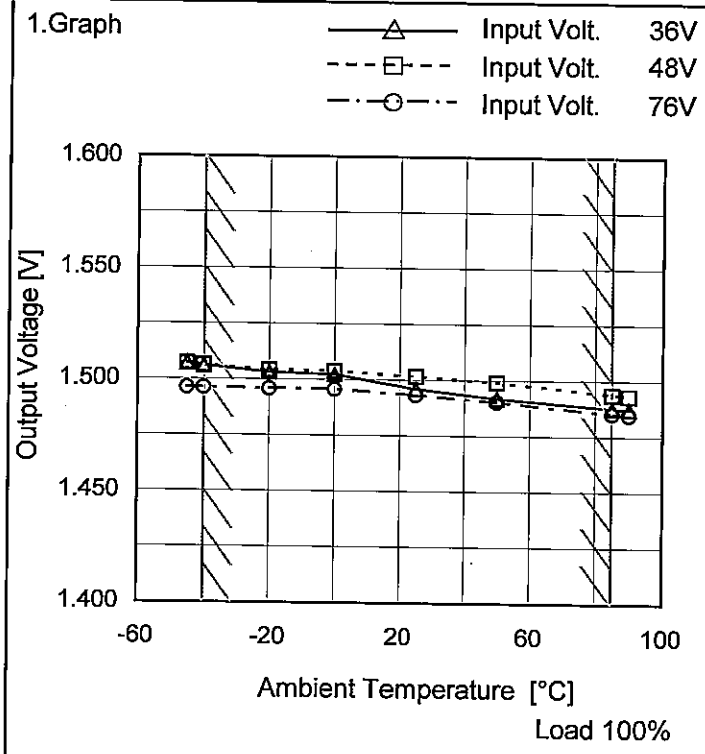
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	6	6
-40	5	5
-20	5	5
0	4	4
25	3	3
85	3	3
90	3	3
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS10481R5
Item	Ambient Temperature Drift
Object	+1.5V3.5A

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-45	1.507	1.507	1.496
-40	1.506	1.506	1.496
-20	1.503	1.504	1.496
0	1.502	1.504	1.496
25	1.496	1.502	1.493
50	1.492	1.499	1.490
85	1.488	1.494	1.485
90	1.487	1.493	1.485
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS10481R5
Item	Output Voltage Accuracy
Object	+1.5V3.5A

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 : -40 - 85°C
Input Voltage : 36 - 76V
Load Current : 0 - 3.5A

* 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

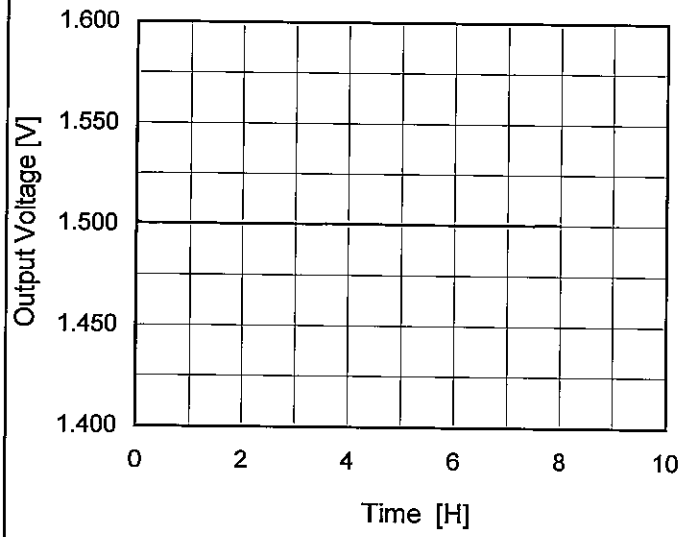
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	48	0	1.538	±27	±1.8
Minimum Voltage	85	76	3.5	1.485		

COSEL

Model	SFS10481R5
Item	Time Lapse Drift
Object	+1.5V3.5A

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	1.502
0.5	1.501
1.0	1.500
2.0	1.500
3.0	1.500
4.0	1.500
5.0	1.500
6.0	1.500
7.0	1.500
8.0	1.500

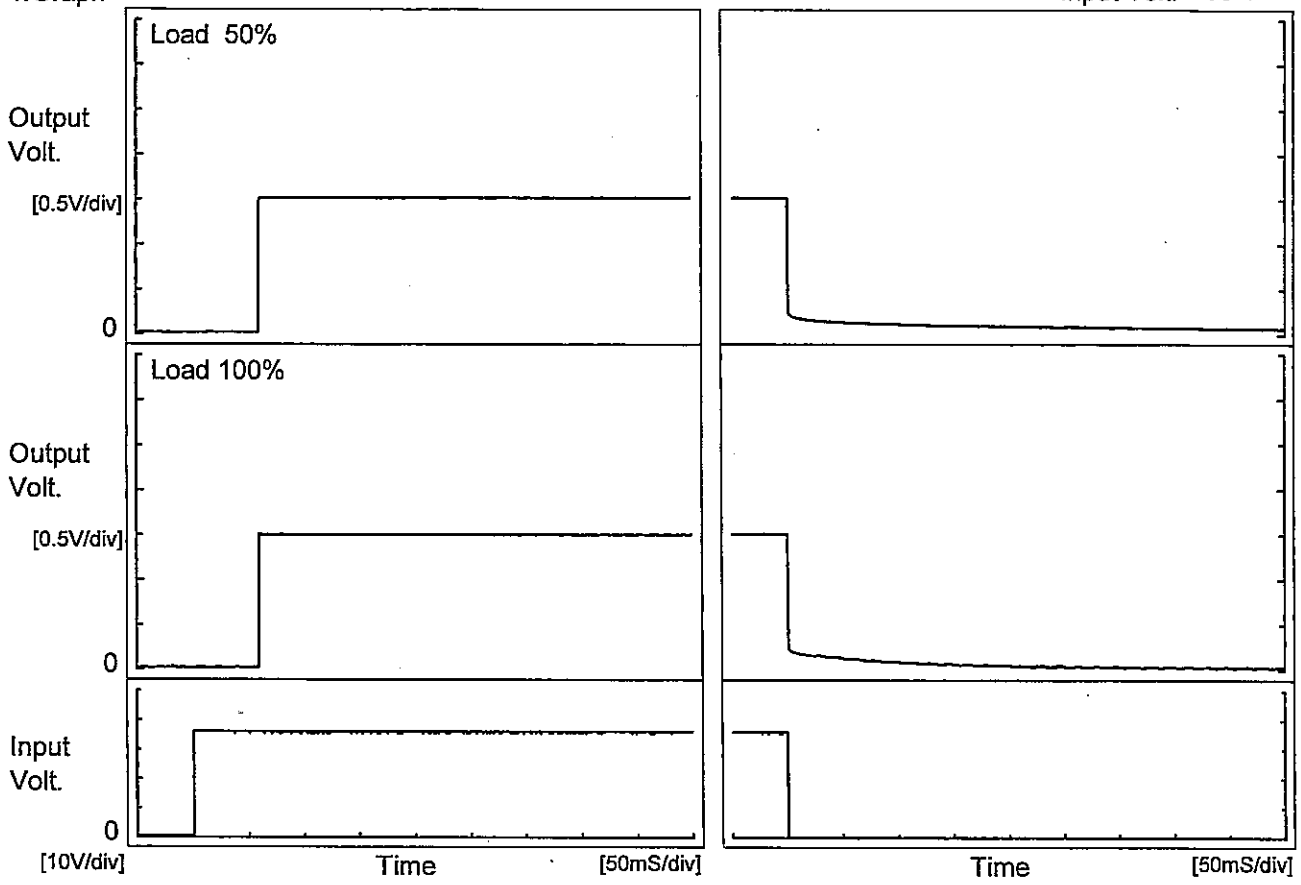
COSEL

Model	SFS10481R5
Item	Rise and Fall Time
Object	+1.5V3.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

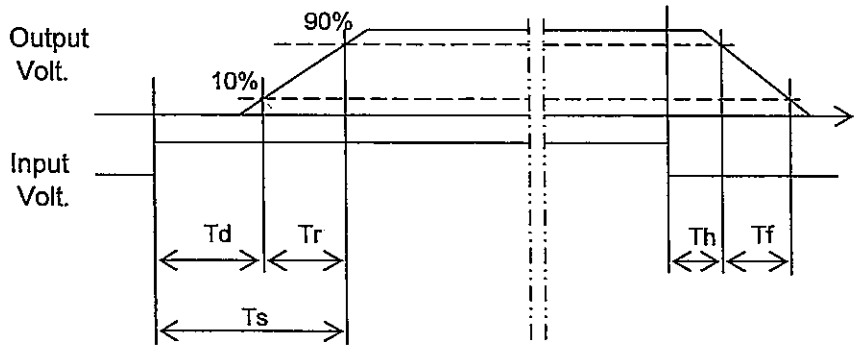
Input Volt. 36 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	58.8	0.4	59.2	0.3	17.3
100 %	59.0	0.5	59.5	0.3	17.8

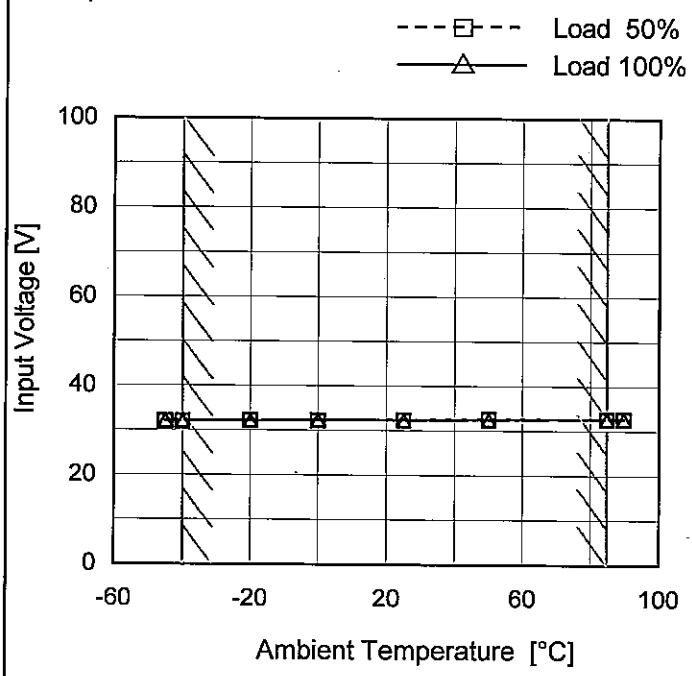


COSEL

Model	SFS10481R5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.5V3.5A

Testing Circuitry Figure A

1.Graph



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

2.Values

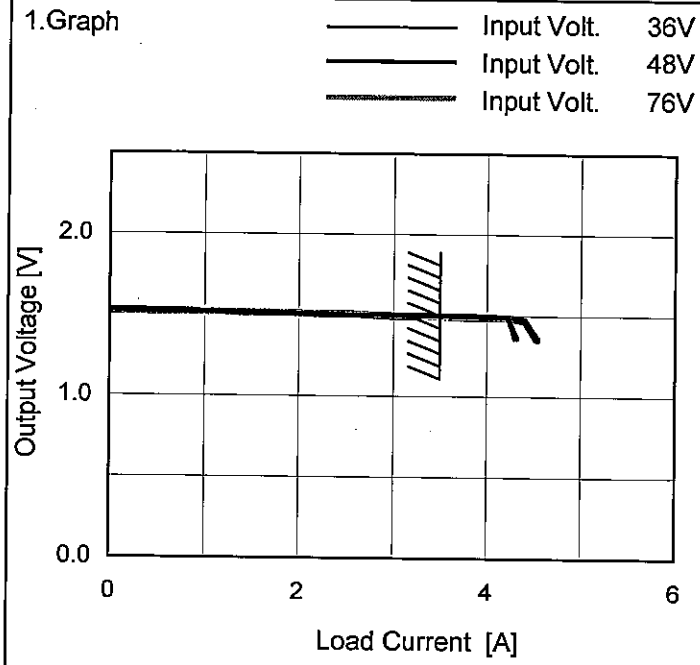
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-45	32.1	32.2
-40	32.1	32.3
-20	32.3	32.2
0	32.3	32.4
25	32.5	32.4
50	32.6	32.6
85	32.7	32.8
90	32.8	32.8
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS10481R5
Item	Overcurrent Protection
Object	+1.5V3.5A

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

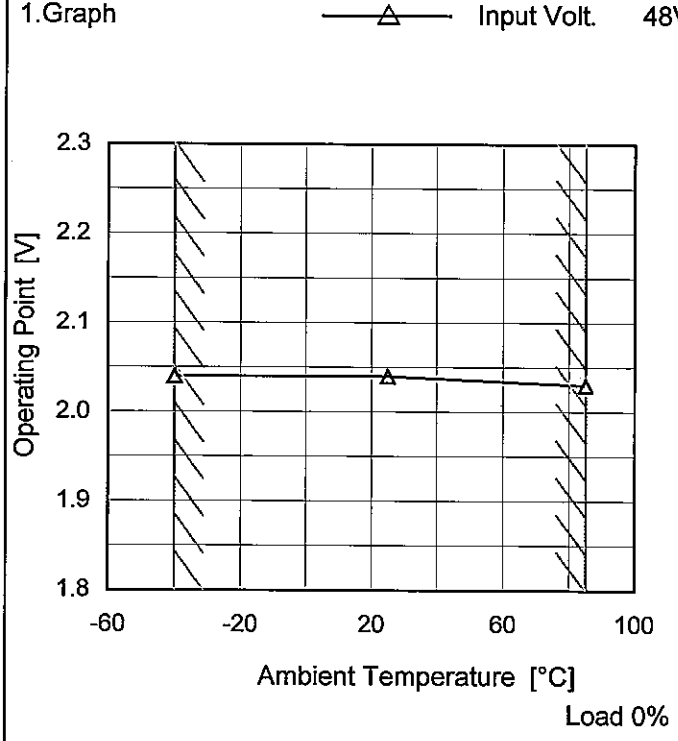
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
1.50	3.53	3.59	3.52
1.43	4.25	4.27	4.46
1.35	4.29	4.33	4.54
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS10481R5
Item	Overvoltage Protection
Object	+1.5V3.5A

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.	Input Volt.
-40	2.04	-	-
25	2.04	-	-
85	2.03	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

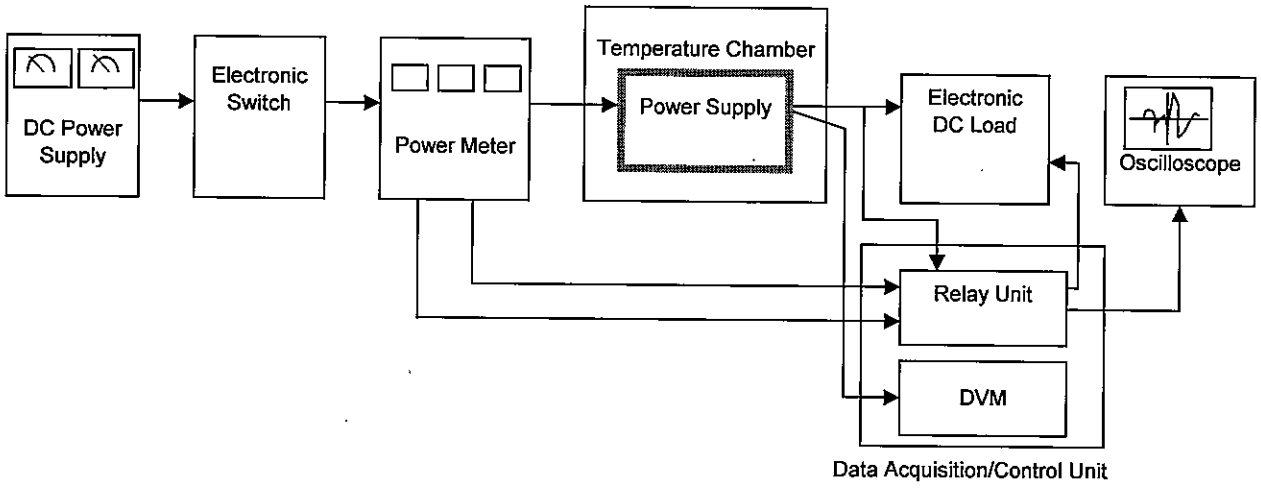


Figure A

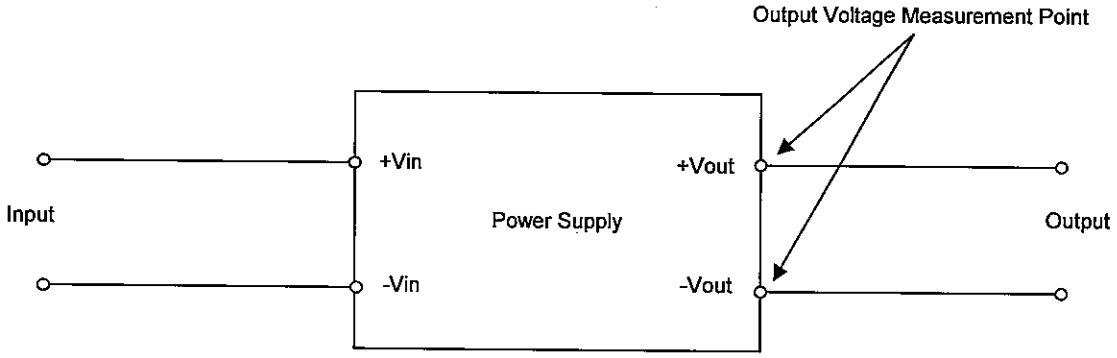


Figure B (General Electric Characteristic)

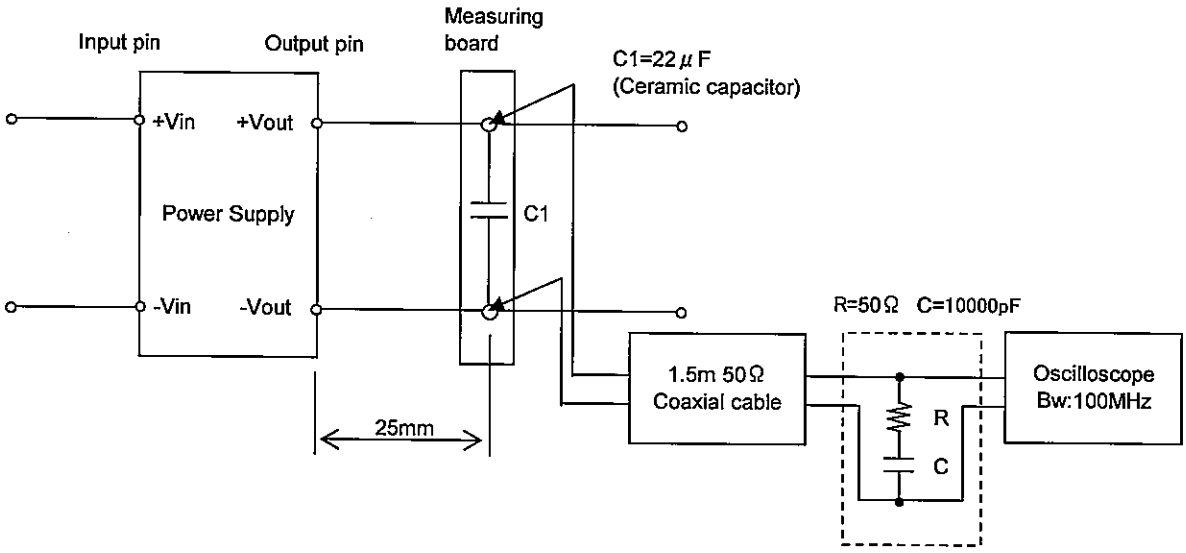


Figure C (Ripple and Ripple noise Characteristic)