参考資料

COSEL

TEST DATA OF SFS30483R3/SFCS30483R3

Regulated DC Power Supply
Jun.1. 2007

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Kenichi Shibutani — Design Engineer

COSEL CO.,LTD.

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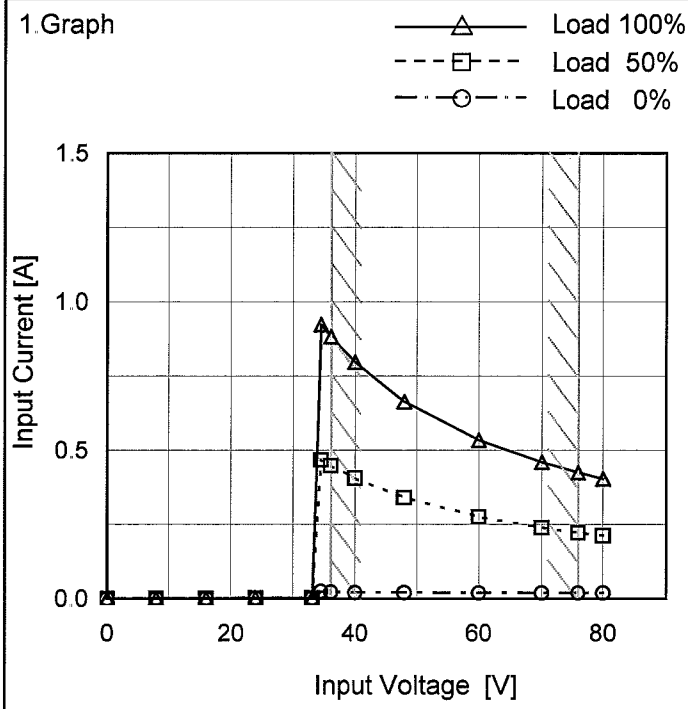
Model	SFS30483R3/SFCS30483R3
Item	Input Current (by Input Voltage)
Object	————————

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
34	0.025	0.468	0.923
36	0.023	0.448	0.883
40	0.021	0.406	0.797
48	0.020	0.340	0.664
60	0.019	0.275	0.534
70	0.019	0.239	0.460
76	0.019	0.222	0.425
80	0.019	0.212	0.404
--	-	-	-
--	-	-	-
--	-	-	-

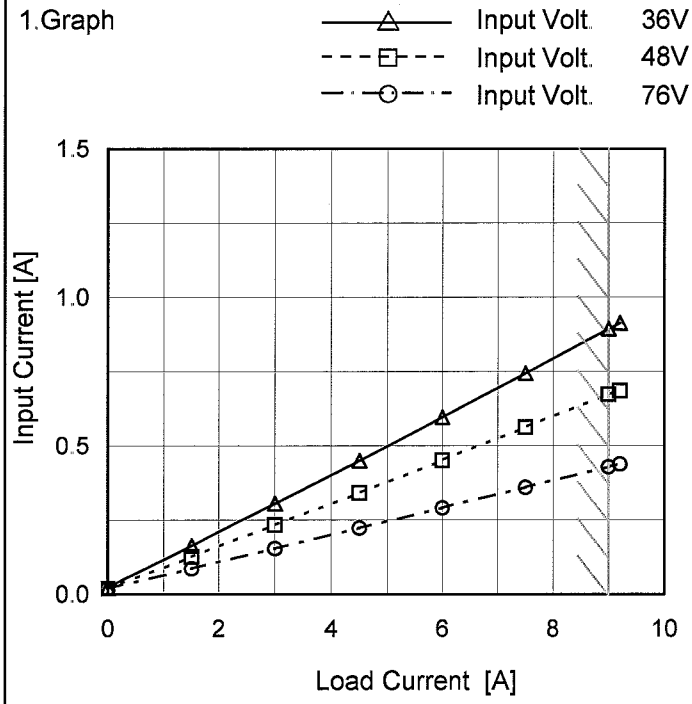
BC-10068

COSEL

Model	SFS30483R3/SFCS30483R3
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

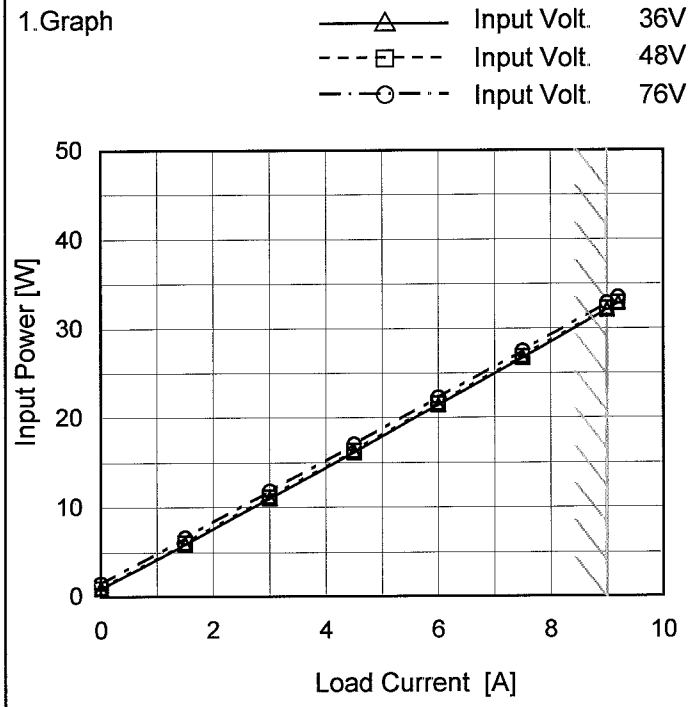
Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.023	0.020	0.019
1.5	0.163	0.126	0.086
3.0	0.306	0.234	0.154
4.5	0.450	0.342	0.223
6.0	0.597	0.452	0.291
7.5	0.745	0.562	0.360
9.0	0.894	0.673	0.429
9.2	0.914	0.685	0.439
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
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

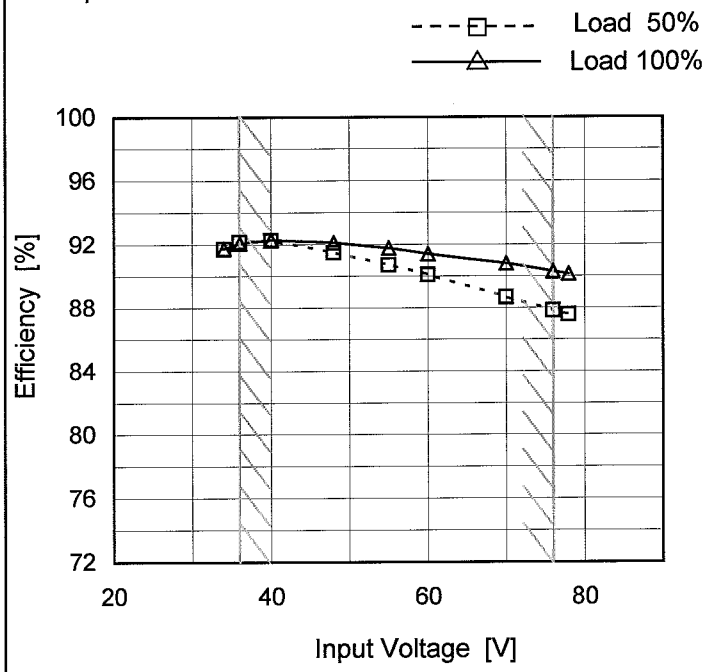
Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.92	0.96	1.50
1.5	5.93	6.06	6.64
3.0	11.02	11.20	11.84
4.5	16.22	16.39	17.05
6.0	21.44	21.61	22.27
7.5	26.75	26.90	27.52
9.0	32.11	32.26	32.82
9.2	32.85	32.92	33.53
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
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	91.7	91.8
36	92.2	92.1
40	92.3	92.3
48	91.5	92.1
55	90.7	91.8
60	90.1	91.4
70	88.7	90.8
76	87.8	90.3
78	87.6	90.1

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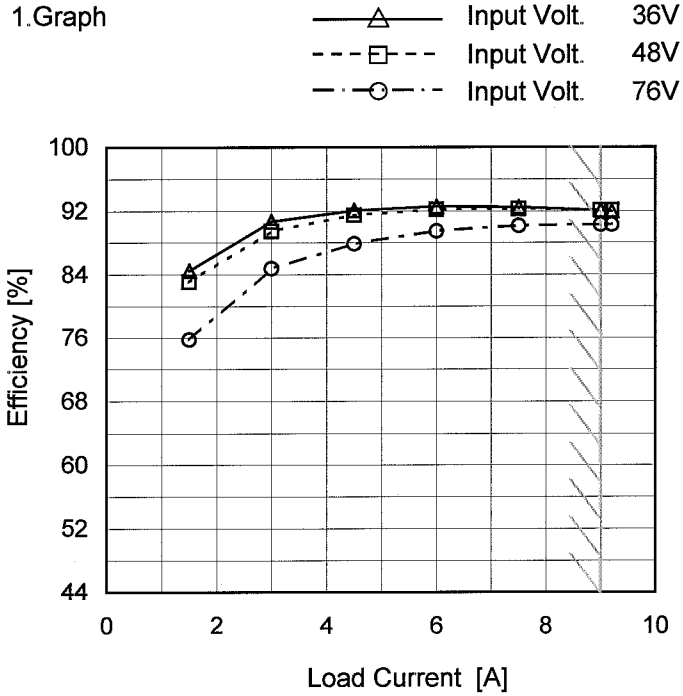
Model	SFS30483R3/SFCS30483R3
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
1.5	84.5	83.1	75.8
3.0	90.7	89.5	84.8
4.5	92.1	91.5	87.9
6.0	92.6	92.2	89.5
7.5	92.5	92.3	90.2
9.0	92.1	92.1	90.3
9.2	92.0	92.1	90.3
--	-	-	-
--	-	-	-
--	-	-	-

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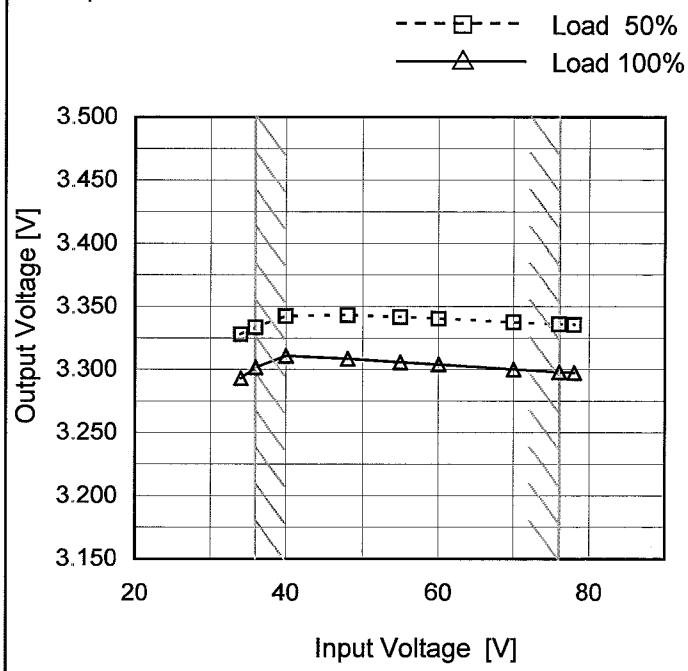
Model	SFS30483R3/SFCS30483R3
Item	Line Regulation
Object	+3.3V9A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

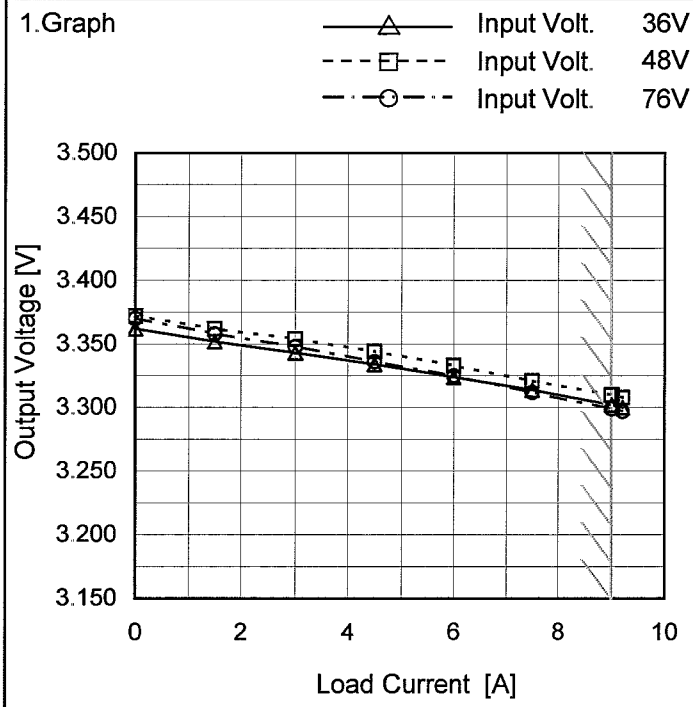
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
34	3.328	3.293
36	3.334	3.302
40	3.342	3.311
48	3.343	3.309
55	3.342	3.306
60	3.340	3.304
70	3.338	3.300
76	3.336	3.298
78	3.336	3.298

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Load Regulation
Object	+3.3V9A

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	3.362	3.372	3.370
1.5	3.352	3.362	3.358
3.0	3.343	3.354	3.348
4.5	3.334	3.344	3.336
6.0	3.324	3.333	3.325
7.5	3.314	3.321	3.312
9.0	3.302	3.310	3.299
9.2	3.300	3.308	3.297
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

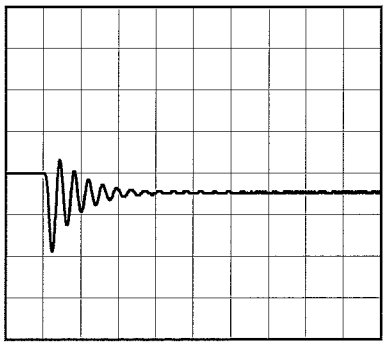
Model	SFS30483R3/SFCS30483R3
Item	Dynamic Load Response
Object	+3.3V9A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
Cycle 1000 mS

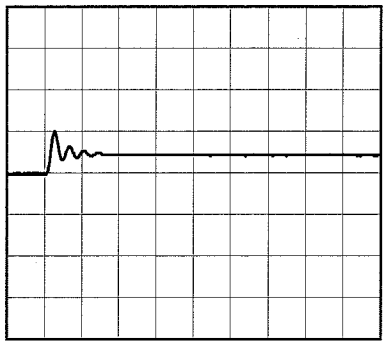
Load Current
9A / 200 μ sec

Min. Load (0A) ⟷ Load 100% (9A)



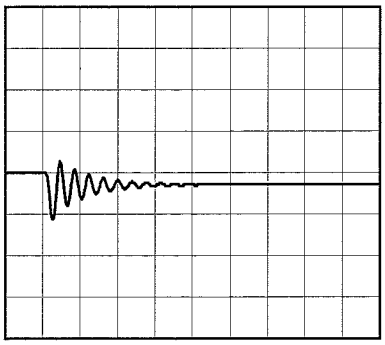
200mV/div

200 μs/div



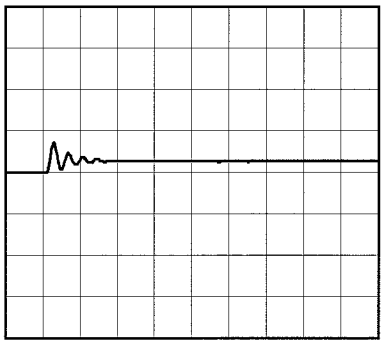
200 μs/div

Min. Load (0A) ⟷ Load 50% (4.5A)



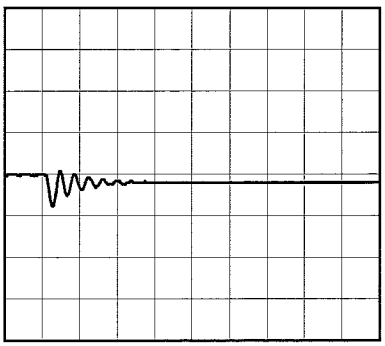
200mV/div

200 μs/div



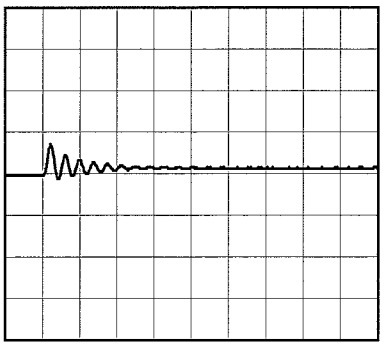
200 μs/div

Load 50% (4.5A) ⟷ Load 100% (9A)



200mV/div

200 μs/div



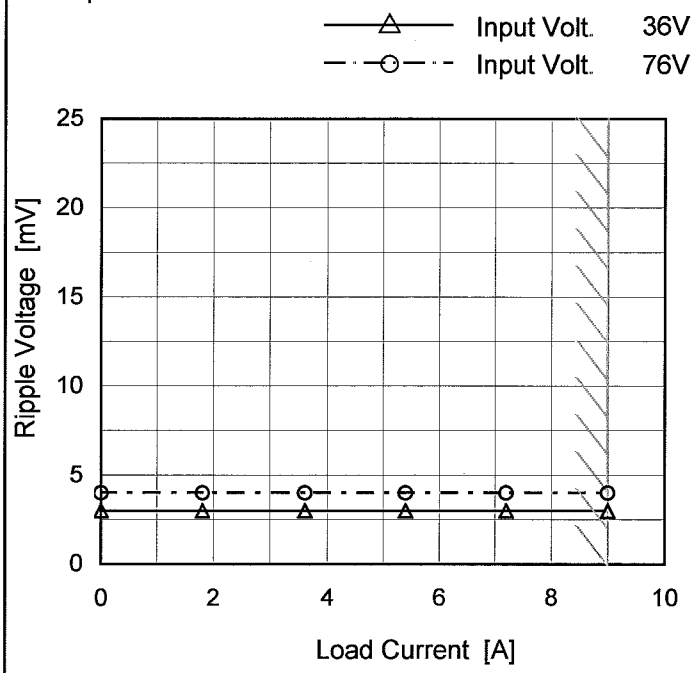
200 μs/div

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V9A

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.

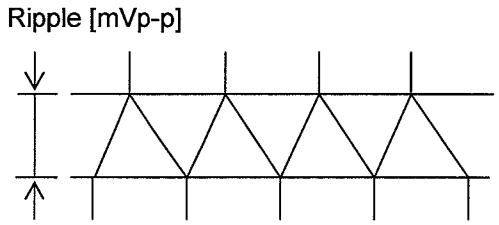


Fig.Complex Ripple Wave Form

2.Values

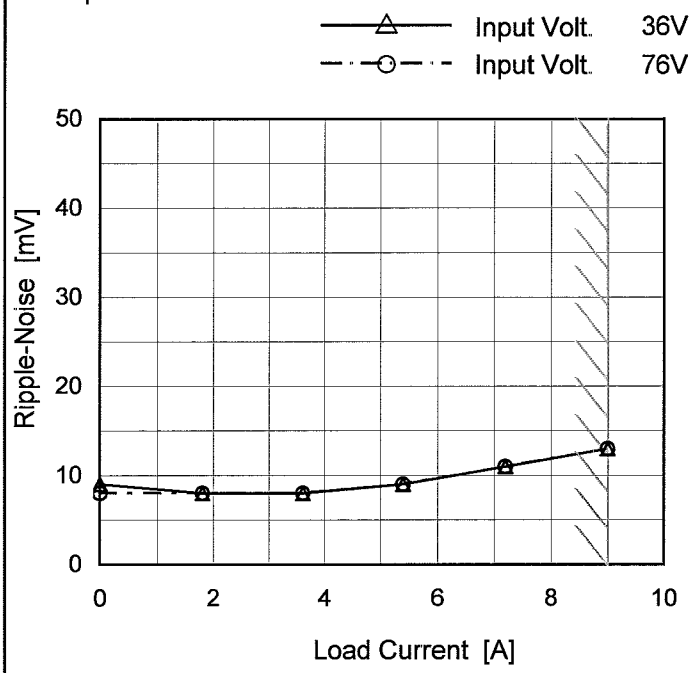
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	3	4
1.8	3	4
3.6	3	4
5.4	3	4
7.2	3	4
9.0	3	4
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Ripple-Noise
Object	+3.3V9A

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.

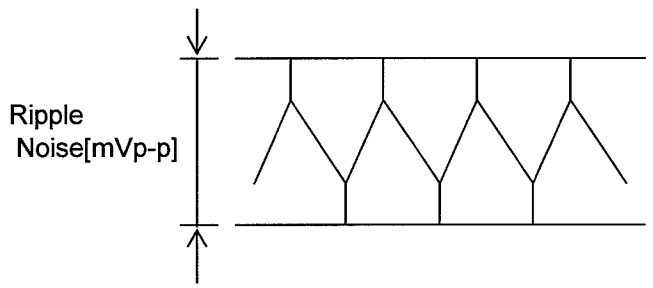


Fig.Complex Ripple Noise Wave Form

2.Values

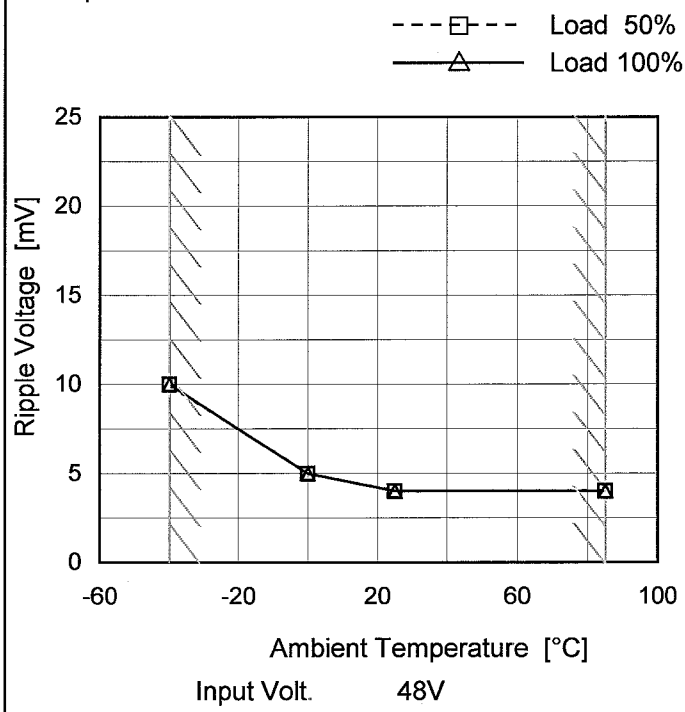
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	9	8
1.8	8	8
3.6	8	8
5.4	9	9
7.2	11	11
9.0	13	13
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V9A

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

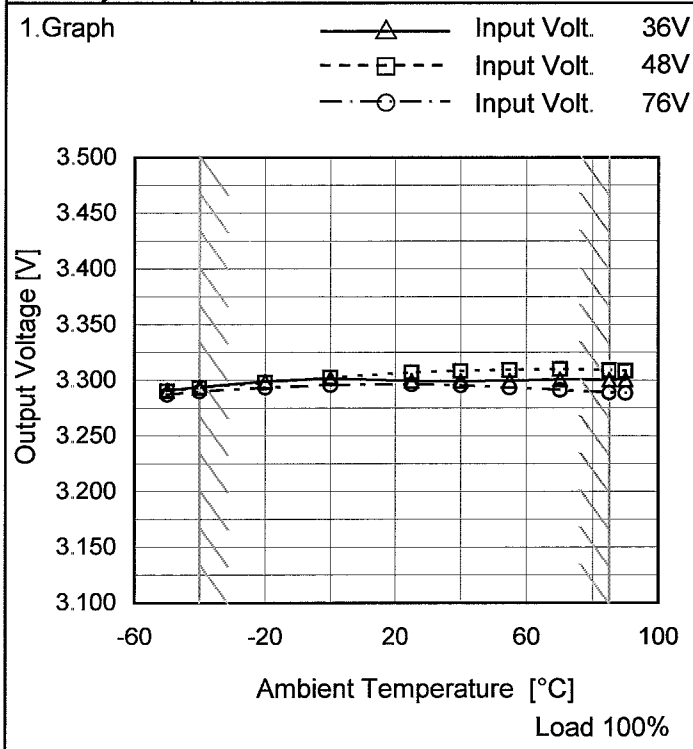
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	10	10
0	5	5
25	4	4
85	4	4
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Ambient Temperature Drift
Object	+3.3V9A

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]
-50	3.291	3.290	3.287
-40	3.294	3.293	3.290
-20	3.299	3.298	3.293
0	3.302	3.303	3.296
25	3.299	3.307	3.296
40	3.300	3.308	3.295
55	3.300	3.309	3.293
70	3.301	3.310	3.291
85	3.301	3.309	3.289
90	3.301	3.308	3.289
--	-	-	-

COSEL

Model	SFS30483R3/SFCS30483R3	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V9A	

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 - 9A

* 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

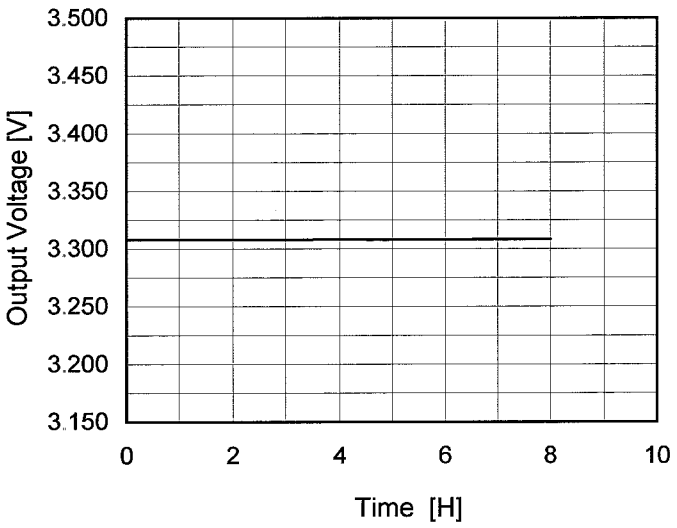
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	48	0	3.386	±49	±1.5
Minimum Voltage	85	76	9	3.289		

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Time Lapse Drift
Object	+3.3V9A

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	3.308
0.5	3.308
1.0	3.308
2.0	3.308
3.0	3.308
4.0	3.308
5.0	3.308
6.0	3.308
7.0	3.308
8.0	3.308

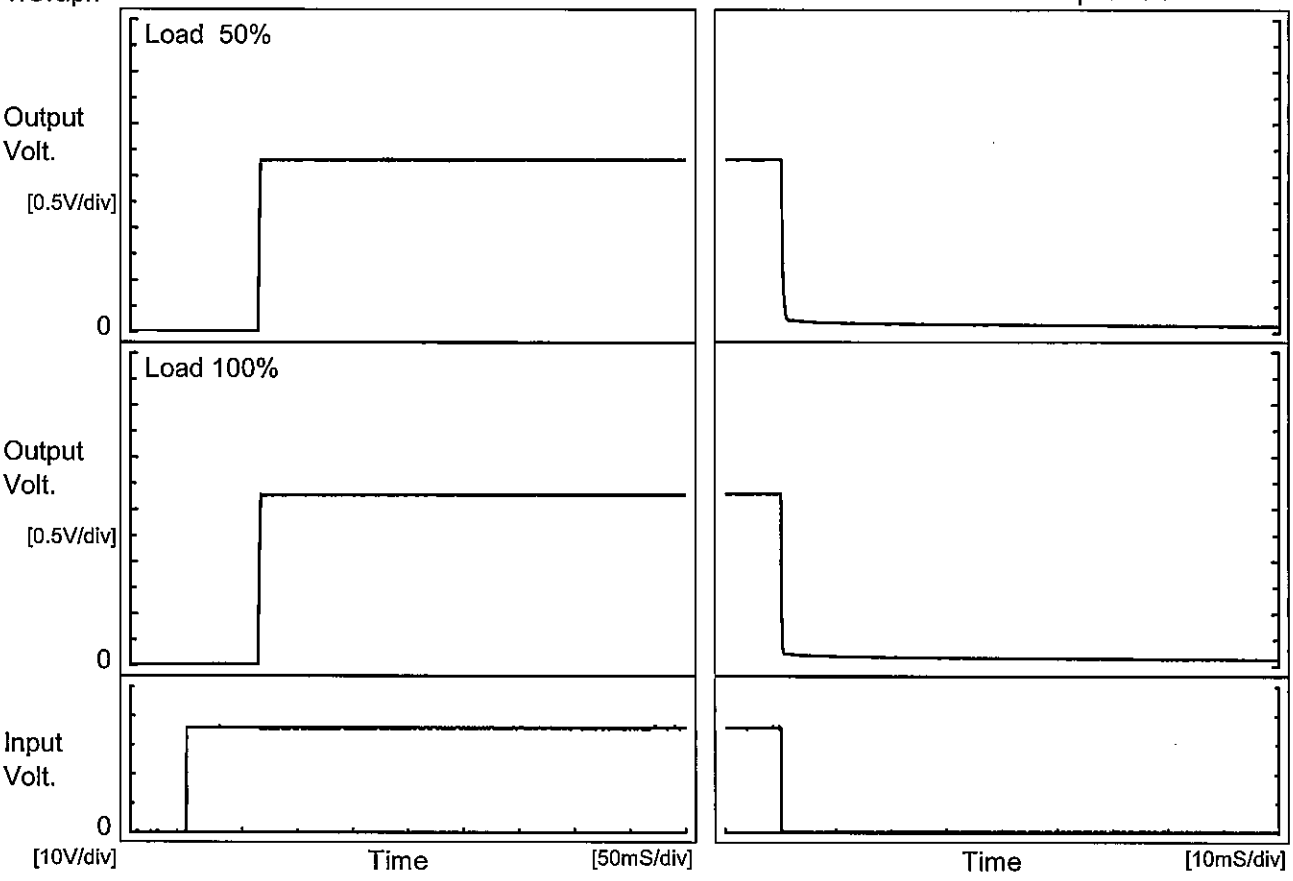
COSEL

Model	SFS30483R3/SFCS30483R3
Item	Rise and Fall Time
Object	+3.3V9A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

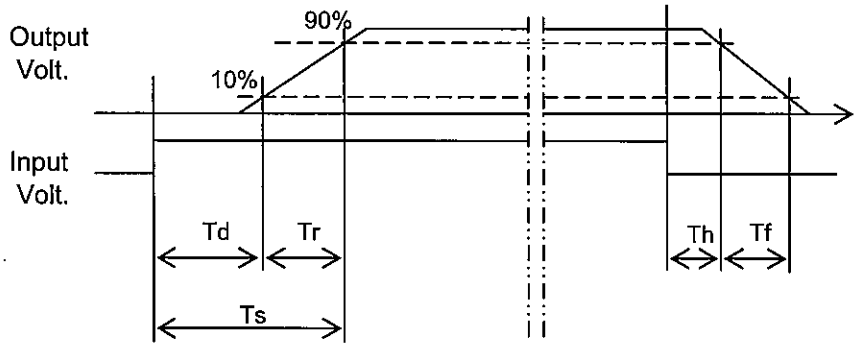
Input Volt. 36 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	65.0	0.5	65.5	0.1	0.8
100 %	65.0	0.5	65.5	0.1	0.4

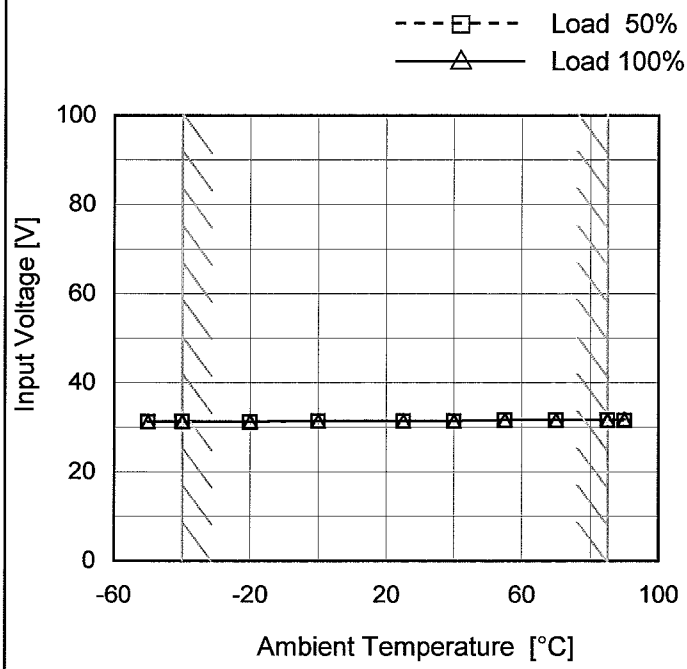


COSEL

Model	SFS30483R3/SFCS30483R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V9A

Testing Circuitry Figure A

1.Graph



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

2.Values

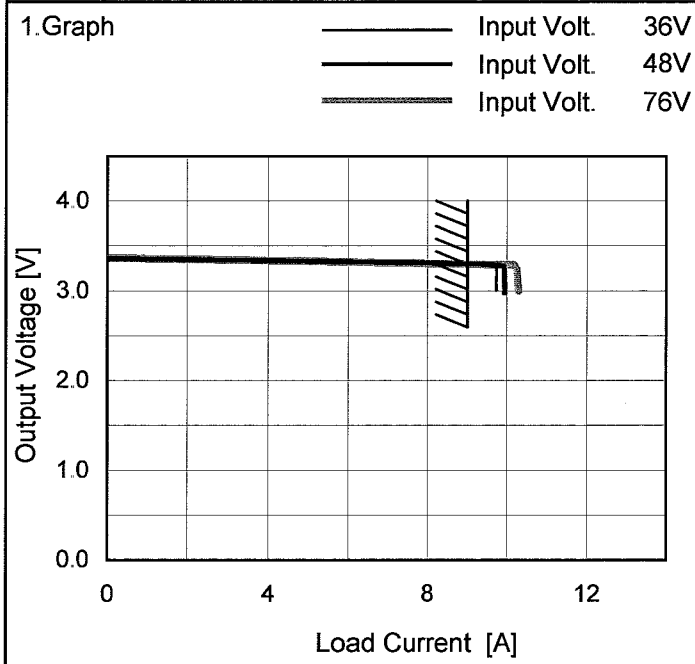
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	31.3	31.4
-40	31.3	31.4
-20	31.3	31.4
0	31.5	31.5
25	31.5	31.5
40	31.4	31.5
55	31.6	31.7
70	31.7	31.7
85	31.6	31.7
90	31.6	31.9
--	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Overcurrent Protection
Object	+3.3V9A

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 2.97V,the unit shuts off the output by operating low voltage protection.

2.Values

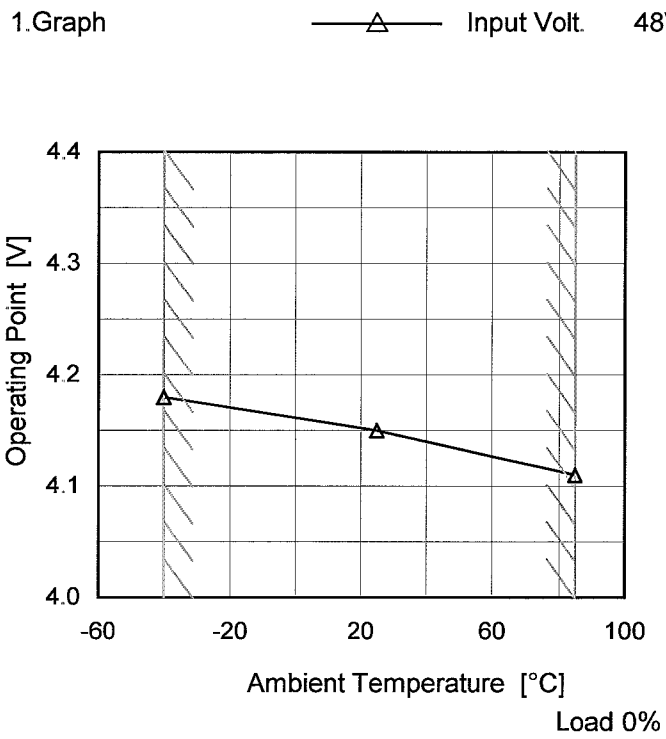
Output Voltage [V]	Load Current [A] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.30	9.43	9.60	9.17
3.14	9.72	9.93	10.27
2.97	9.72	9.93	10.30
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SFS30483R3/SFCS30483R3
Item	Overvoltage Protection
Object	+3.3V9A

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	4.18	-	-
25	4.15	-	-
85	4.11	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

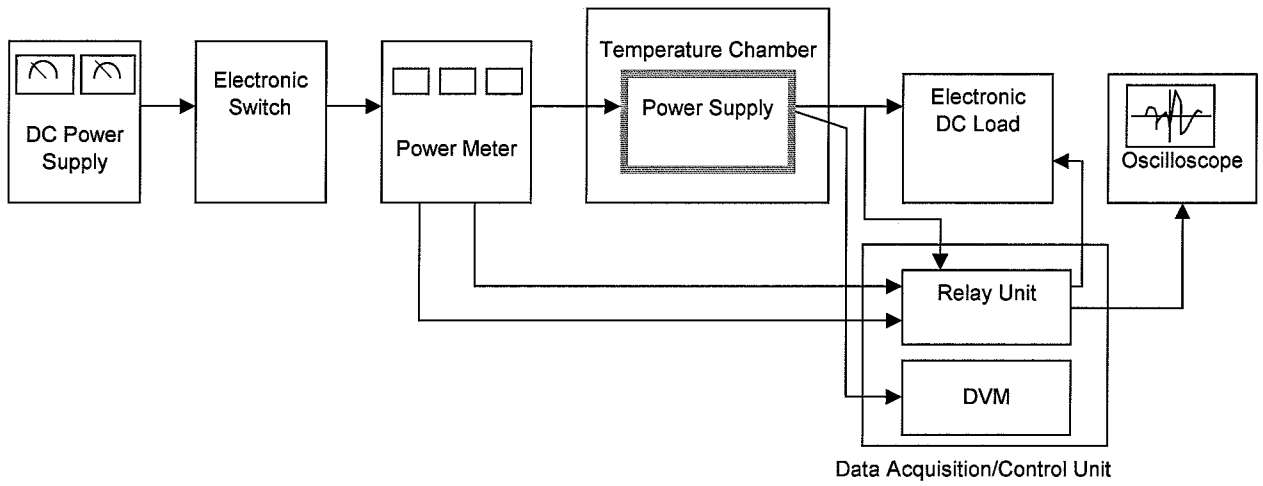


Figure A

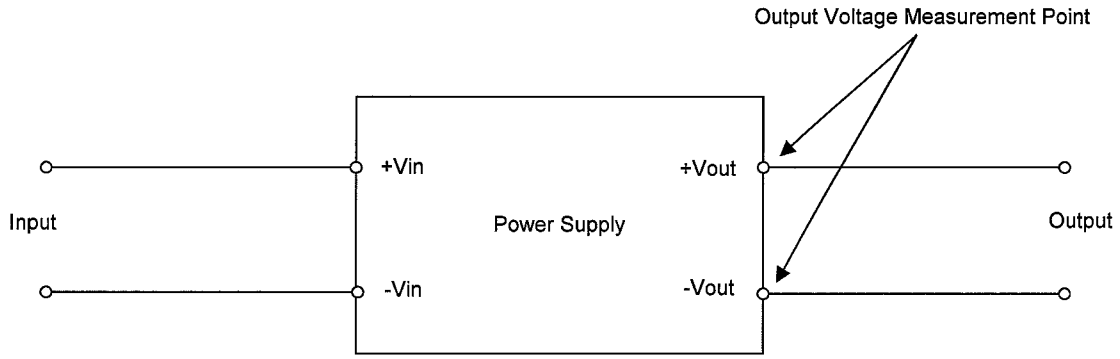


Figure B (General Electric Characteristic)

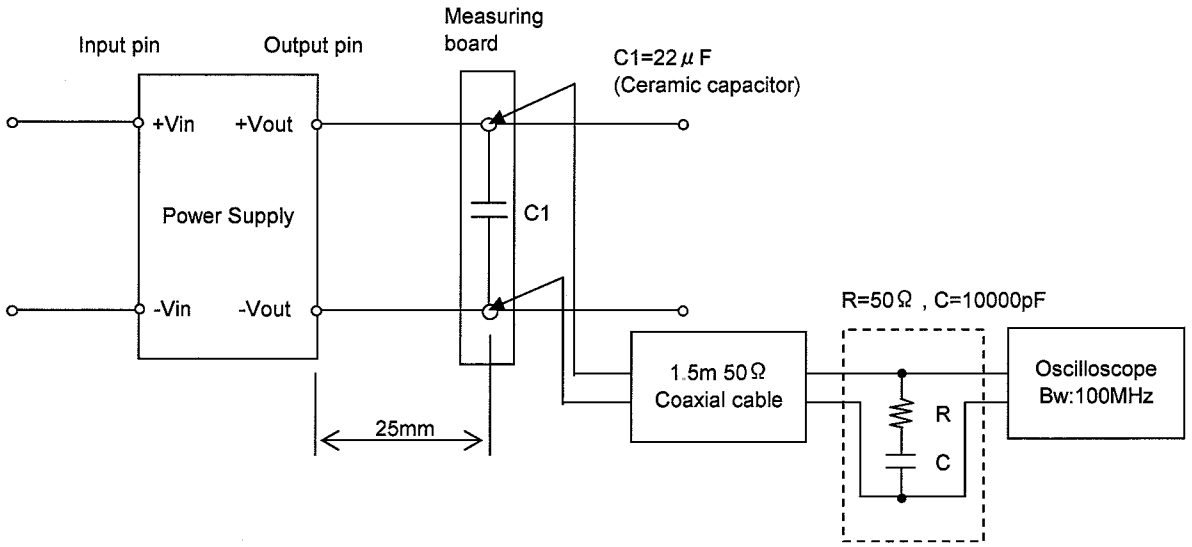


Figure C (Ripple and Ripple noise Characteristic)