COSEL

TEST DATA OF SFS30241R8

Regulated DC Power Supply
May 18, 2005

Approved by : _Isao Yasuda_

Isao Yasuda   Design Manager

Prepared by : _Tatsuya Mano_

Tatsuya Mano   Design Engineer

COSEL CO.,LTD.

COSEL

CONTENTS

(Final Page 19)

COSEL

Model	SFS30241R8
Item	Input Current (by Input Voltage)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

Load 100% ——△——
Load 50% ---□---
Load 0% —·—○—··

Input Current [A] vs Input Voltage [V]

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
4.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
12.0	0.003	0.003	0.003
16.0	0.004	0.004	0.004
16.8	0.032	0.540	1.087
18.0	0.031	0.511	1.028
20.0	0.030	0.460	0.919
24.0	0.028	0.386	0.765
28.0	0.027	0.332	0.652
32.0	0.026	0.292	0.571
36.0	0.026	0.262	0.509
40.0	0.026	0.237	0.459
--	-	-	-
--	-	-	-
--	-	--	--

BC-3817

COSEL

Model	SFS30241R8
Item	Input Current (by Load Current)
Object	
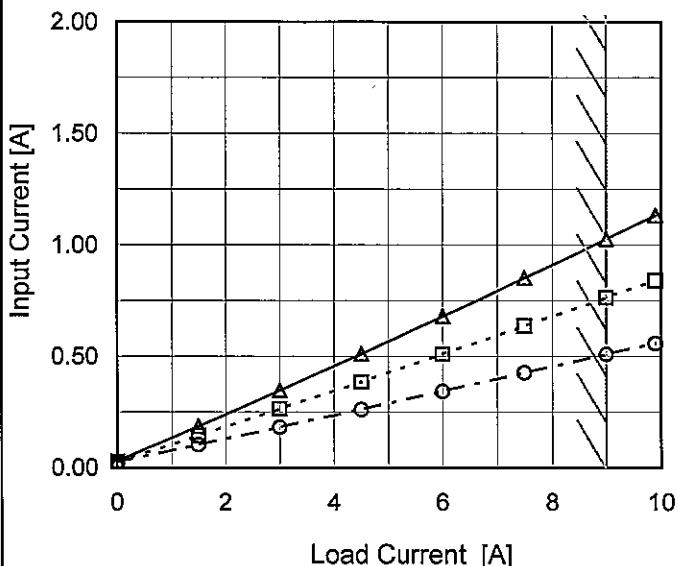
Temperature	25°C
Testing Circuitry	Figure A

1.Graph

—△—	Input Volt.	18V
- - -☐- - -	Input Volt.	24V
—·-○—·· -	Input Volt.	36V

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	0.031	0.028	0.026
1.5	0.187	0.144	0.103
3.0	0.348	0.264	0.182
4.5	0.511	0.386	0.262
6.0	0.679	0.509	0.343
7.5	0.852	0.636	0.426
9.0	1.028	0.765	0.509
9.9	1.133	0.841	0.559
--	-	-	-
--	-	-	-
--	-	-	-

BC-3817

COSEL

Model	SFS30241R8
Item	Input Power (by Load Current)
Object	————————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△—— Input Volt. 18V
- - -⊟- - - Input Volt. 24V
—·-○—·- Input Volt. 36V

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	0.56	0.67	0.79
1.5	3.35	3.45	3.57
3.0	6.24	6.33	6.43
4.5	9.16	9.23	9.32
6.0	12.15	12.18	12.24
7.5	15.22	15.21	15.24
9.0	18.35	18.26	18.25
9.9	20.20	20.07	20.04
--	-	-	-
--	-	-	-
--	-	-	-

BC-3817

CO$EL

Model	SFS30241R8
Item	Efficiency (by Input Voltage)
Object	———————————

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

- - -□- - - Load 50%
———△——— Load 100%

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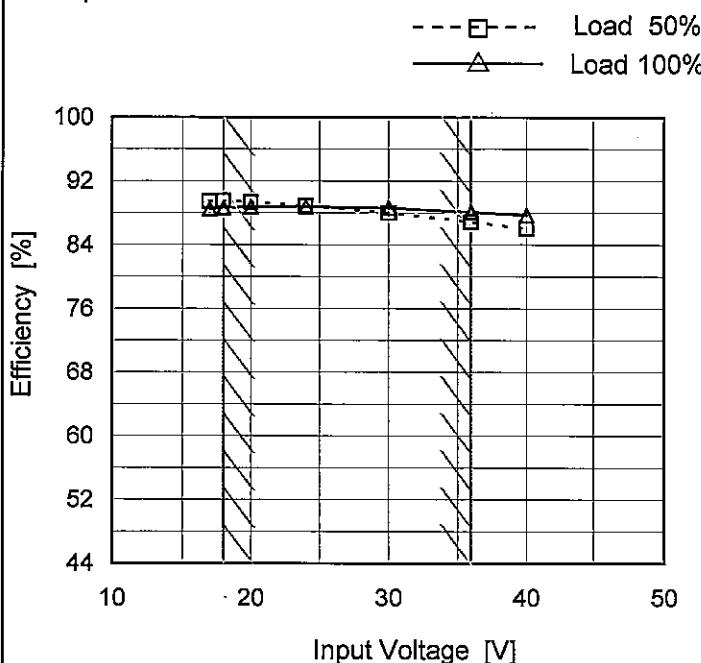
2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	89.5	88.5
18	89.5	88.7
20	89.3	88.8
24	88.9	88.8
30	88.0	88.6
36	86.9	88.1
40	86.0	87.7
--	-	-
--	-	-

BC-3817

COSEL

Model	SFS30241R8
Item	Efficiency (by Load Current)
Object	
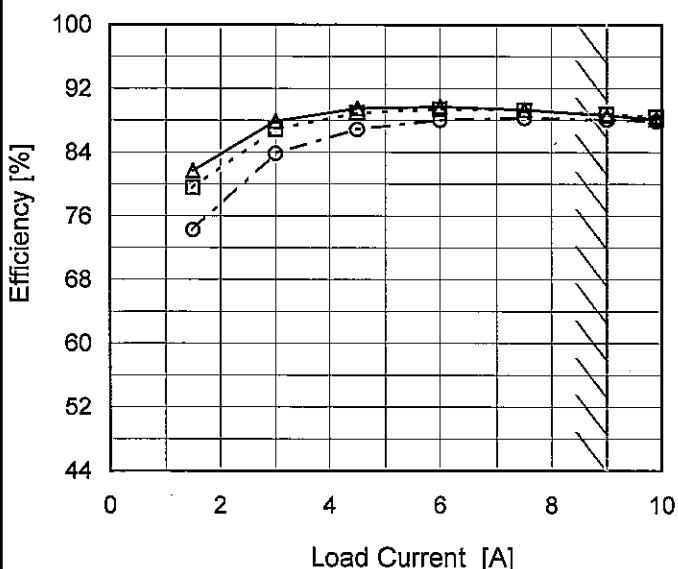
Temperature   25°C
Testing Circuitry   Figure A

1.Graph

—△—	Input Volt.	18V
---☐---	Input Volt.	24V
—·—○—··	Input Volt.	36V

Efficiency [%] vs Load Current [A]

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-
1.5	81.7	79.6	74.3
3.0	87.9	86.9	83.9
4.5	89.5	88.9	86.9
6.0	89.7	89.4	88.0
7.5	89.3	89.3	88.3
9.0	88.6	88.8	88.1
9.9	88.2	88.4	87.9
--	-	-	-
--	-	-	-
--	-	-	-

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

BC-3817

COSEL

Model	SFS30241R8
Item	Line Regulation
Object	+1.8V9A
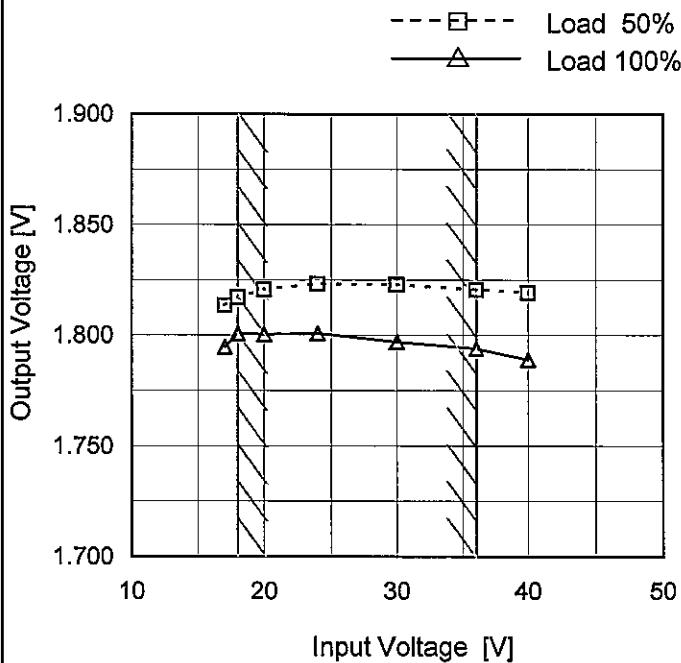
Temperature 25°C
Testing Circuitry Figure A

1.Graph

--- ⊡ --- Load 50%
——△—— Load 100%

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

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	1.814	1.795
18	1.817	1.801
20	1.821	1.801
24	1.823	1.801
30	1.823	1.797
36	1.821	1.794
40	1.819	1.789
--	-	-
--	-	-

BC-3817

CO$EL

Model	SFS30241R8
Item	Load Regulation
Object	+1.8V9A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△—— Input Volt. 18V
– – –⊟– – – Input Volt. 24V
—·–⊙—·· Input Volt. 36V

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	1.837	1.843	1.840
1.5	1.831	1.839	1.838
3.0	1.823	1.831	1.831
4.5	1.817	1.823	1.821
6.0	1.812	1.816	1.812
7.5	1.806	1.808	1.802
9.0	1.801	1.801	1.794
9.9	1.794	1.794	1.785
---	-	-	-
--	-	-	-
--	-	-	-

BC-3817

COSEL

Model	SFS30241R8
Item	Dynamic Load Response
Object	+1.8V9A

Temperature	25°C
Testing Circuitry	Figure A

Input Volt. 24 V

Cycle 1000 mS

Load Current 9A / 200 μ sec

Min. Load (0A) ←→
Load 100% (9A)

100mV/div

200 μs/div
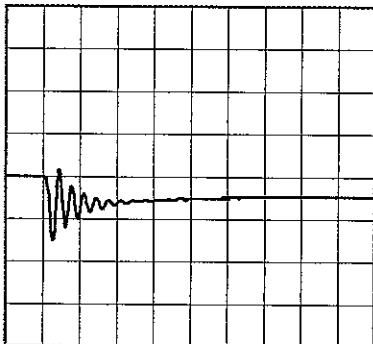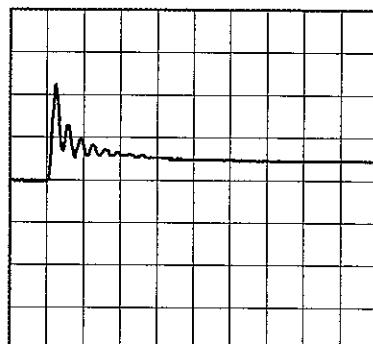
200 μs/div

Min. Load (0A) ←→
Load 50% (4.5A)

100mV/div

200 μs/div
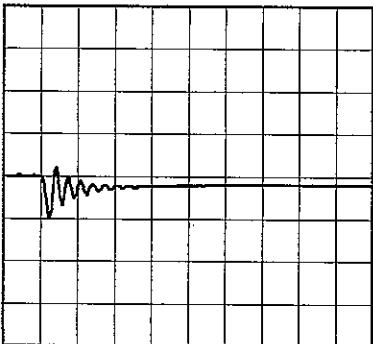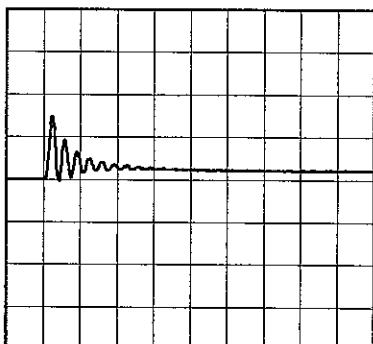
200 μs/div

Load 50% (4.5A) ←→
Load 100% (9A)

100mV/div

200 μs/div

200 μs/div

BC-3817

CO$EL
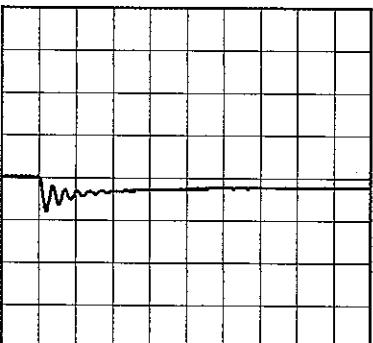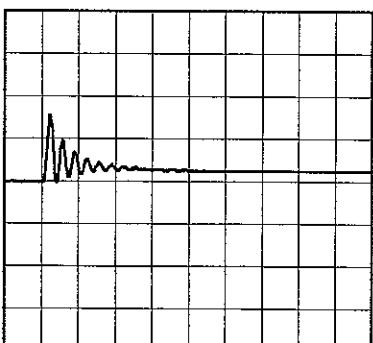
Model	SFS30241R8
Item	Ripple Voltage (by Load Current)
Object	+1.8V9A

Temperature   25°C
Testing Circuitry   Figure C

1.Graph

———△——— Input Volt.   18V
—·—○—·— Input Volt.   36V

Load Current [A]

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.
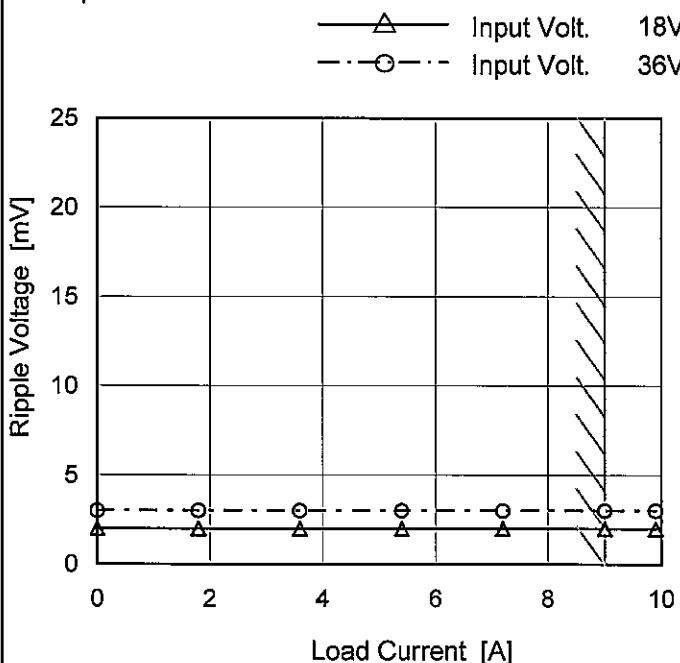
2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	2	3
1.8	2	3
3.6	2	3
5.4	2	3
7.2	2	3
9.0	2	3
9.9	2	3
--	-	-
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]
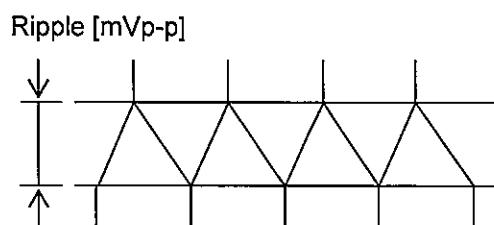
Fig.Complex Ripple Wave Form

BC-3817

COSEL

Model	SFS30241R8
Item	Ripple-Noise
Object	+1.8V9A

Temperature 25°C
Testing Circuitry Figure C

1.Graph

— △ — Input Volt. 18V
— ○ — Input Volt. 36V

Load Current [A]

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.

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	3	3
1.8	3	3
3.6	4	4
5.4	5	5
7.2	5	5
9.0	6	6
9.9	7	7
--	-	-
--	-	--
--	-	-
--	-	-

Ripple
Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

BC-3817

COSEL

Model	SFS30241R8		
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry	Figure C
Object	+1.8V9A		

1.Graph

```
--- ⊟ --- Load 50%
—— △ —— Load 100%
```


Ripple Voltage [mV] vs Ambient Temperature [°C]

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	8	8
-40	7	7
-20	5	5
0	3	3
25	2	2
85	2	2
90	2	2
--	-	-
--	-	-
--	-	-
--	-	-

BC-3817

COSEL

Model	SFS30241R8
Item	Ambient Temperature Drift
Object	+1.8V9A

Testing Circuitry   Figure A

1.Graph

———△——— Input Volt. 18V
– – –⊟– – – Input Volt. 24V
—·—○—·— Input Volt. 36V

Output Voltage [V] (vertical axis)

Ambient Temperature [°C]
Load 100%

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	1.801	1.800	1.795
-40	1.802	1.801	1.796
-20	1.803	1.802	1.796
0	1.804	1.802	1.796
25	1.801	1.801	1.794
40	1.799	1.800	1.792
55	1.796	1.798	1.789
70	1.793	1.795	1.785
85	1.790	1.791	1.780
90	1.788	1.789	1.778
--	-	-	-

BC-3817

COSEL

Model	SFS30241R8		
Item	Output Voltage Accuracy	Testing Circuitry	Figure A
Object	+1.8V9A		

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 - 9A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

* Output Voltage Accuracy (Ration) = $\dfrac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	24	0	1.852	±36	±2.0
Minimum Voltage	85	36	9	1.780		

BC-3817

COSEL

Model	SFS30241R8
Item	Time Lapse Drift
Object	+1.8V9A

Temperature 25°C
Testing Circuitry Figure A

1.Graph
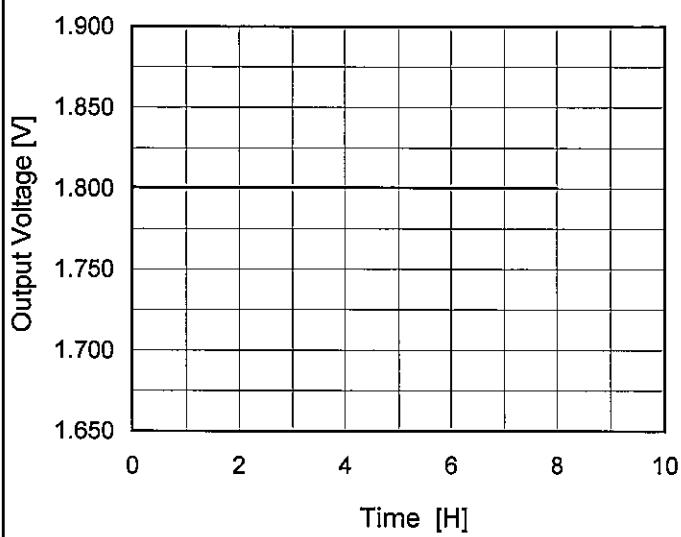
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	1.802
0.5	1.801
1.0	1.801
2.0	1.801
3.0	1.801
4.0	1.801
5.0	1.801
6.0	1.801
7.0	1.801
8.0	1.801

BC-3817

CO$EL

Model	SFS30241R8		
Item	Rise and Fall Time	Temperature	25°C
		Testing Circuitry	Figure A
Object	+1.8V9A		

1.Graph   Input Volt.   24 V

Load 50%

Output
Volt.

[0.5V/div]

0

Load 100%

Output
Volt.

[0.5V/div]

0

Input
Volt.

0

[10V/div]   Time   [50mS/div]   Time   [10mS/div]
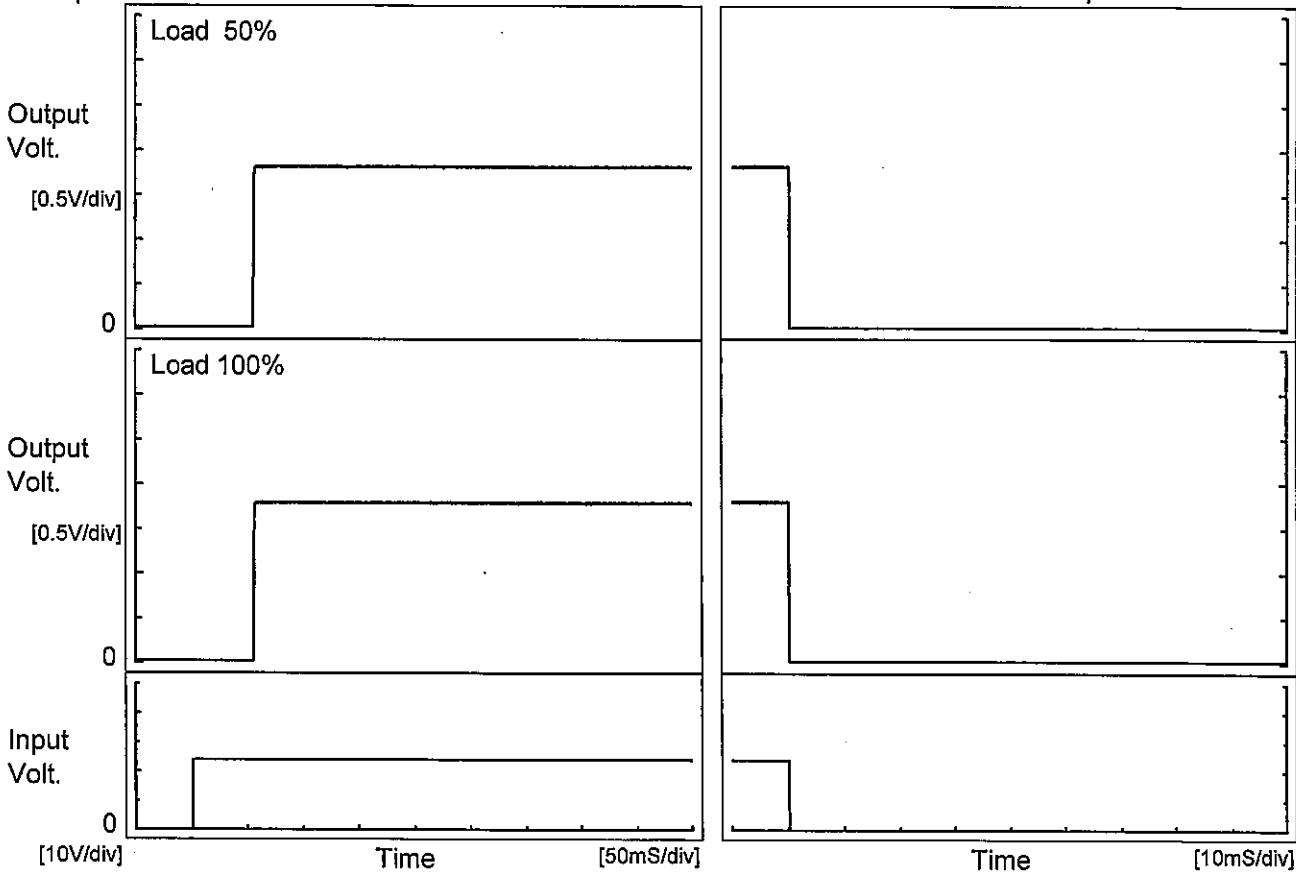
2.Values   [mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	55.8	0.4	56.2	0.1	0.2
100 %	55.8	0.4	56.2	0.1	0.2

Output
Volt.

90%

10%

Input
Volt.

Td   Tr   Th Tf

Ts

BC-3817

COSEL
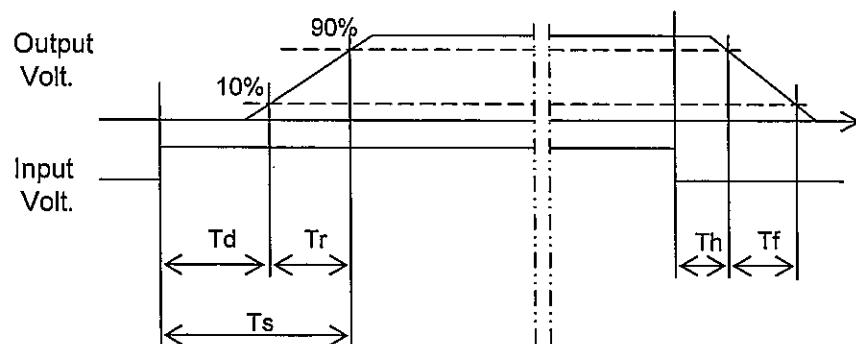
Model	SFS30241R8
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.8V9A

Testing Circuitry Figure A
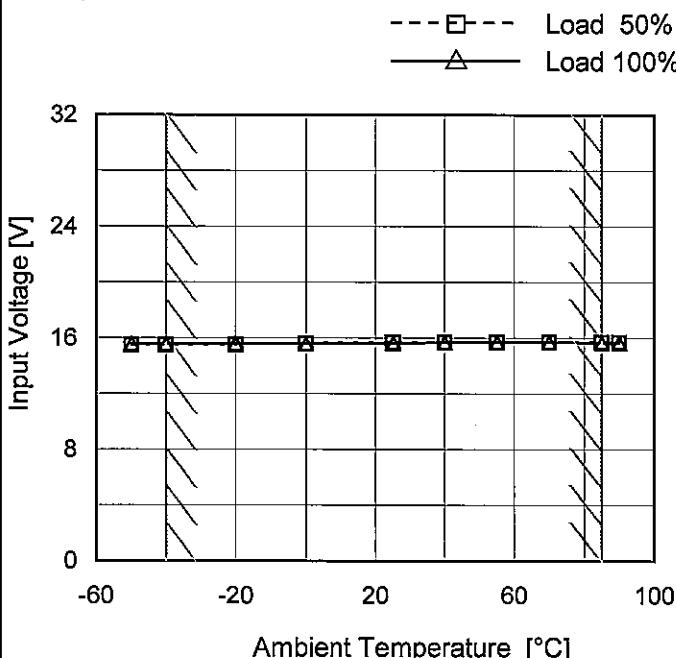
1.Graph

--- ⊟ --- Load 50%

——△—— Load 100%

Input Voltage [V]

Ambient Temperature [°C]

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	15.6	15.6
0	15.6	15.6
25	15.8	15.7
40	15.8	15.7
55	15.8	15.7
70	15.8	15.7
85	15.8	15.7
90	15.8	15.7
--	-	-

BC-3817

COSEL

Model	SFS30241R8
Item	Overcurrent Protection
Object	+1.8V9A

Temperature　　25°C
Testing Circuitry　Figure A

1.Graph

———— Input Volt. 18V
———— Input Volt. 24V
———— Input Volt. 36V

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

When the output voltage fell to less than 1.62V ,the unit shuts off the output by operating low voltage protection .
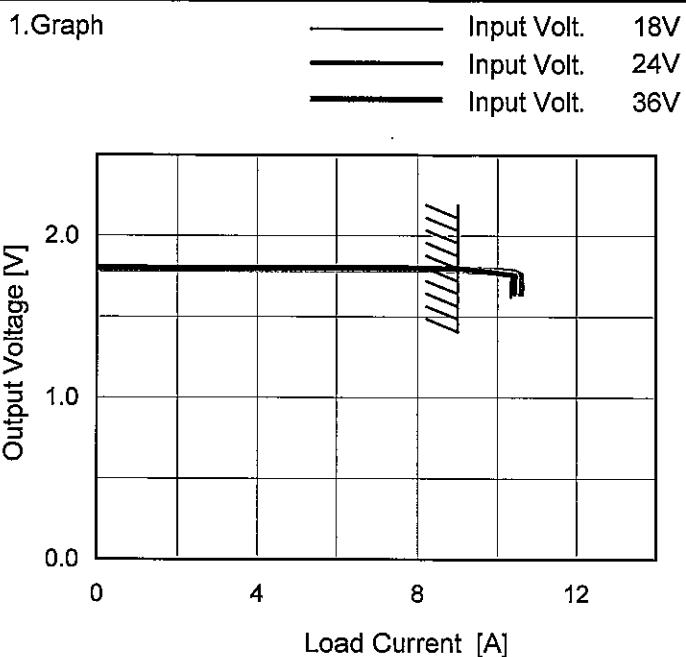
2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
1.80	9.04	9.04	9.03
1.71	10.35	10.44	10.59
1.62	10.34	10.42	10.59
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-3817

COSEL

Model	SFS30241R8
Item	Overvoltage Protection
Object	+1.8V9A

Testing Circuitry   Figure A

1.Graph ————△———— Input Volt.   24V

Operating Point [V] vs Ambient Temperature [°C]

Load 0%

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	2.43	-	-
25	2.41	-	-
85	2.38	-	-
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-

BC-3817

COSEL

Figure A

Figure B (General Electric Characteristic)

Figure C (Ripple and Ripple noise Characteristic)

BC-3817