TEST DATA OF MGFS30243R3

Regulated DC Power Supply
November 19, 2010

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COSEL CO.,LTD.

CONTENTS

(Final Page 19)

COSEL

Model	MGFS30243R3
Item	Input Current (by Input Voltage)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

— △ — Load 100%
--- ⊟ --- Load 50%
—·— ⊖ —·· Load 0%

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
2.0	0.000	0.000	0.001
4.0	0.001	0.001	0.001
6.0	0.002	0.002	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.1	0.103	1.741	0.002
8.3	0.101	1.693	3.429
8.5	0.099	1.653	3.371
9.0	0.095	1.565	3.172
12.0	0.082	1.180	2.351
18.0	0.067	0.795	1.577
24.0	0.059	0.606	1.184
36.0	0.053	0.418	0.803
40.0	0.052	0.381	0.728
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGFS30243R3

Item	Input Current (by Load Current)

Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

	Input Volt.	9V
	Input Volt.	12V
	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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.102	0.082	0.066	0.058	0.053
1.50	0.670	0.507	0.351	0.274	0.197
3.00	1.259	0.945	0.644	0.491	0.344
4.50	1.857	1.407	0.946	0.719	0.494
6.00	2.484	1.876	1.258	0.949	0.648
7.50	3.159	2.340	1.575	1.190	0.807
8.25	3.477	2.598	1.741	1.314	0.887
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS30243R3
Item	Input Power (by Load Current)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

——△——	Input Volt.	9V
- - -□- - -	Input Volt.	12V
—··✳··—·	Input Volt.	18V
—·—○—·-	Input Volt.	24V
— —◇— —	Input Volt.	36V

Load Current [A]

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

2.Values

Load Current [A]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.91	0.98	1.18	1.39	1.89
1.50	6.03	6.11	6.32	6.54	7.07
3.00	11.31	11.36	11.58	11.80	12.34
4.50	16.81	16.81	17.01	17.23	17.76
6.00	22.48	22.43	22.60	22.78	23.31
7.50	28.34	28.22	28.36	28.54	29.04
8.25	31.36	31.18	31.28	31.47	31.94
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS30243R3
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%
8	89.2	88.2
9	89.8	88.8
12	89.2	89.1
15	88.6	88.9
18	87.9	88.4
24	86.5	88.1
30	85.1	87.2
36	83.5	86.7
40	82.4	86.0

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Model	MGFS30243R3
Item	Efficiency (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

	Input Volt.	9V
	Input Volt.	12V
	Input Volt.	18V
	Input Volt.	24V
	Input Volt.	36V

Efficiency [%]

Load Current [A]

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

2.Values

Load Current	Efficiency [%]				
	Input Volt.	Input Volt.	Input Volt.	Input Volt.	Input Volt.
[A]	9[V]	12[V]	18[V]	24[V]	36[V]
0.00	-	-	-	-	-
1.50	83.8	82.6	79.8	77.1	71.4
3.00	88.8	88.4	86.7	85.0	81.3
4.50	89.8	89.7	88.7	87.5	84.9
6.00	89.5	89.7	89.0	88.3	86.3
7.50	88.8	89.2	88.7	88.1	86.6
8.25	88.3	88.8	88.5	87.9	86.6
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	MGFS30243R3
Item	Line Regulation
Object	+3.3V7.5A

Temperature　　25°C
Testing Circuitry　Figure A

1.Graph

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--- ⊟ --- Load 50%
——— △ ——— Load 100%
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Output Voltage [V] vs Input Voltage [V]

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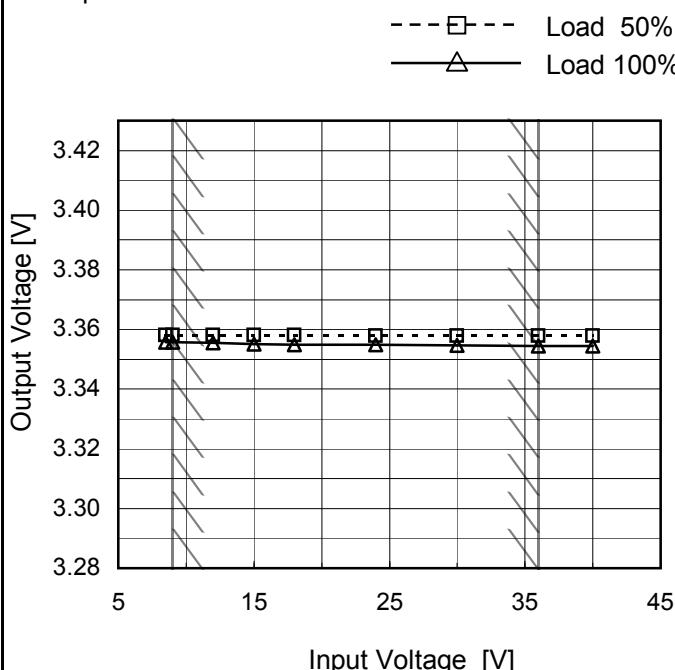
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	3.358	3.356
9.0	3.358	3.356
12.0	3.358	3.356
15.0	3.358	3.355
18.0	3.358	3.355
24.0	3.358	3.355
30.0	3.358	3.355
36.0	3.358	3.354
40.0	3.358	3.354

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COSEL

Model	MGFS30243R3
Item	Load Regulation
Object	+3.3V7.5A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

		Input Volt.	9V
—△—		Input Volt.	9V
- - -⊟- - -		Input Volt.	12V
—··✳··—		Input Volt.	18V
—·—○—·—		Input Volt.	24V
— —◇— —		Input Volt.	36V

2.Values

Load Current [A]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	3.360	3.359	3.359	3.359	3.359
1.50	3.359	3.358	3.358	3.358	3.358
3.00	3.358	3.358	3.358	3.357	3.357
4.50	3.358	3.357	3.357	3.356	3.356
6.00	3.357	3.356	3.356	3.355	3.355
7.50	3.355	3.355	3.355	3.354	3.354
8.25	3.355	3.354	3.354	3.354	3.354
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Output Voltage [V] vs Load Current [A]

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

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参考資料

Model	MGFS30243R3
Item	Dynamic Load Response
Object	+3.3V7.5A

Temperature   25°C
Testing Circuitry   Figure A

Input Volt.   24   V
Cycle   1000 ms

t_1、t_2 = 50μs

Load Current

t_1 t_2

Min. Load (0A) ←→
    Load 100% (7.5A)

200mV/div

100μs/div   100μs/div

Min. Load (0A) ←→
    Load 50% (3.75A)

200mV/div

100μs/div   100μs/div

Load 50% (3.75A) ←→
    Load 100% (7.5A)

200mV/div

100μs/div   100μs/div

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参考資料

COSEL

Model	MGFS30243R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V7.5A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

Input Volt.   9V
Input Volt.   36V

Ripple Voltage [mV] vs Load Current [A]

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. 9 [V]	Input Volt. 36 [V]
0.00	5	6
1.50	4	6
3.00	4	6
4.50	4	6
6.00	4	6
7.50	4	6
8.25	4	6
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFS30243R3
Item	Ripple-Noise
Object	+3.3V7.5A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

——△—— Input Volt.   9V
—·—○—·— Input Volt.   36V

Ripple Voltage [mV] vs Load Current [A]

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. 9 [V]	Input Volt. 36 [V]
0.00	10	10
1.50	10	10
3.00	10	10
4.50	10	10
6.00	10	10
7.50	10	10
8.25	10	10
--	-	-
--	-	-
--	-	-
--	-	-

Ripple
Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

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COSEL

Model	MGFS30243R3

Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B

Object	+3.3V7.5A

1.Graph

2.Values

- - -☐- - -   Load 50%
———△———   Load 100%

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

Input Volt.   24V

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

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	6	6
-40	5	5
-20	4	4
0	4	4
25	4	4
60	3	3
65	3	3
--	-	-
--	-	-
--	-	-
--	-	-

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COSEL

Model	MGFS30243R3
Item	Ambient Temperature Drift
Object	+3.3V7.5A

Testing Circuitry   Figure A

1.Graph

—△—	Input Volt.	9V
- - -□- - -	Input Volt.	12V
—··✳··—·	Input Volt.	18V
—·—○—·—	Input Volt.	24V
—◇—	Input Volt.	36V

2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	3.362	3.362	3.362	3.362	3.362
-40	3.361	3.361	3.360	3.360	3.360
-20	3.359	3.358	3.358	3.358	3.358
0	3.358	3.358	3.358	3.357	3.357
25	3.357	3.356	3.356	3.356	3.356
60	3.352	3.351	3.351	3.351	3.350
65	3.350	3.350	3.349	3.349	3.348
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Load 100%

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

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Model	MGFS30243R3		
Item	Output Voltage Accuracy	Testing Circuitry	Figure A
Object	+3.3V7.5A		

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 - 60°C
Input Voltage : 9 - 36V
Load Current : 0 - 7.5A

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

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-40	9	0	3.366	±8	±0.2
Minimum Voltage	60	36	7.5	3.350		

BC-10513

COSEL

Model	MGFS30243R3
Item	Time Lapse Drift
Object	+3.3V7.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

Input Volt. 24V
Load 100%
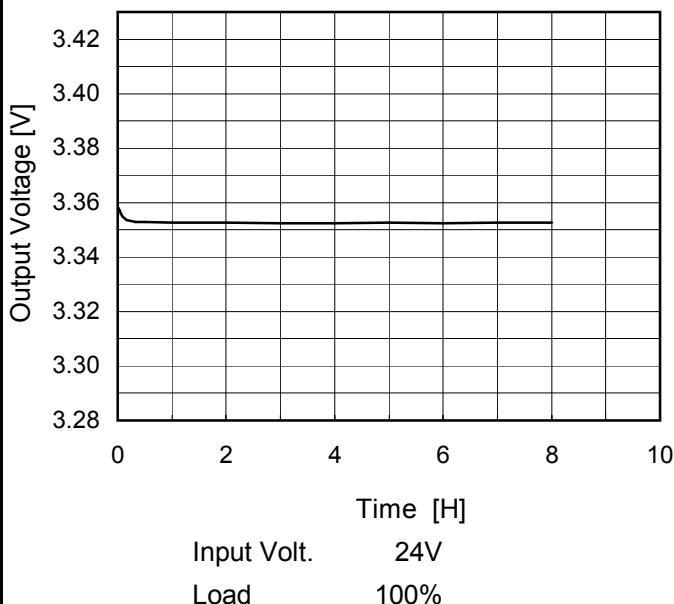
2.Values

Time since start [H]	Output Voltage [V]
0.0	3.354
0.5	3.353
1.0	3.353
2.0	3.353
3.0	3.353
4.0	3.353
5.0	3.353
6.0	3.353
7.0	3.353
8.0	3.353

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COSEL

Model	MGFS30243R3
Item	Rise and Fall Time
Object	+3.3V7.5A

Temperature	25°C
Testing Circuitry	Figure A

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   [10ms/div]   Time   [10ms/div]
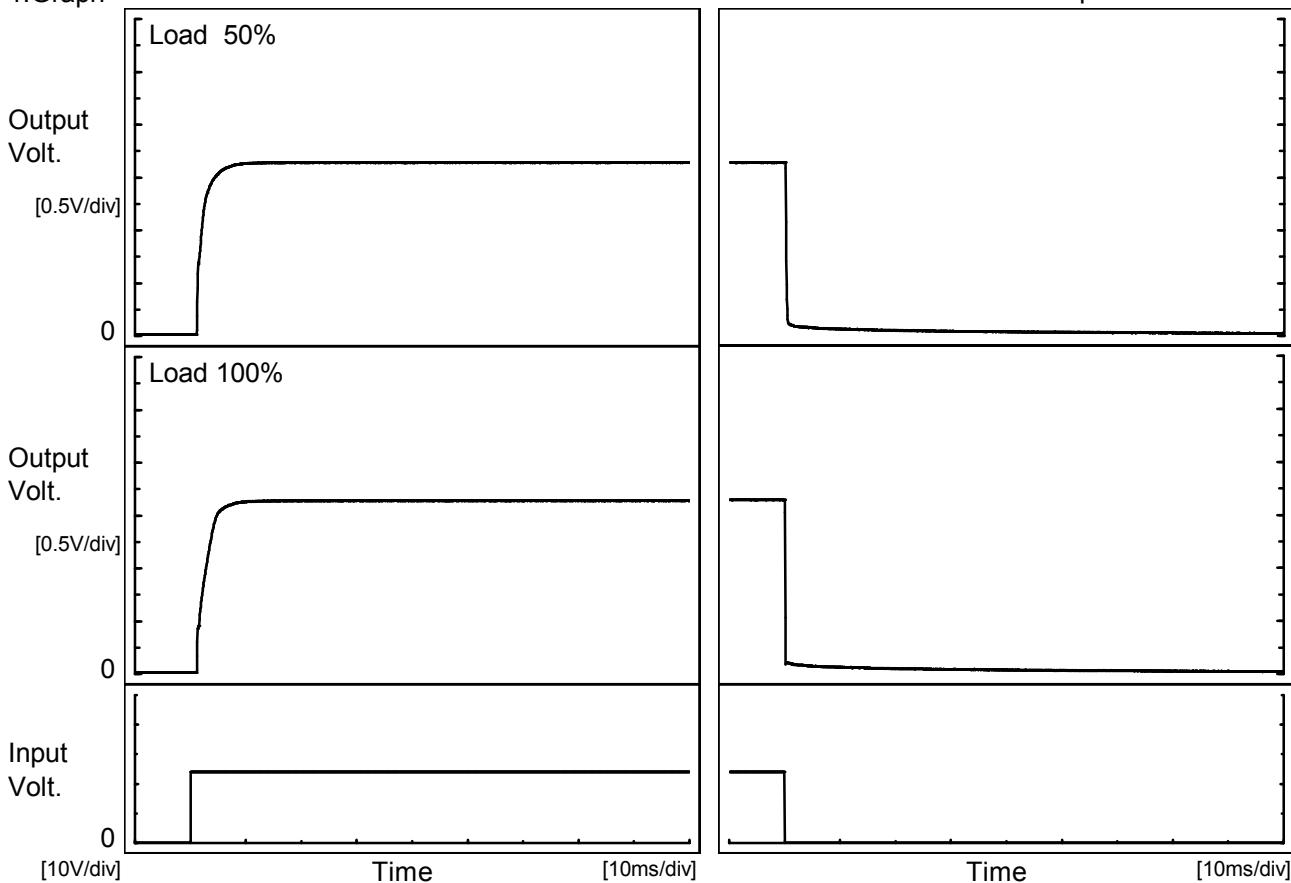
2.Values   [ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	3.2	4.4	0.1	0.3
100 %	1.3	3.5	4.8	0.1	0.1

Output Volt.

90%

10%

Input Volt.

Td   Tr   Th   Tf

Ts

BC-10513

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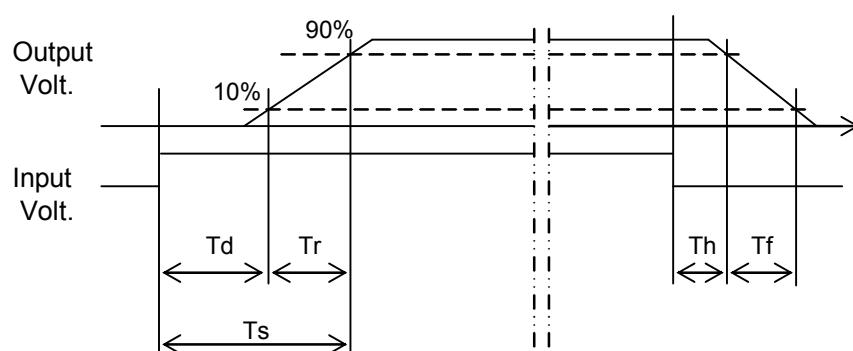
Model	MGFS30243R3	
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+3.3V7.5A	
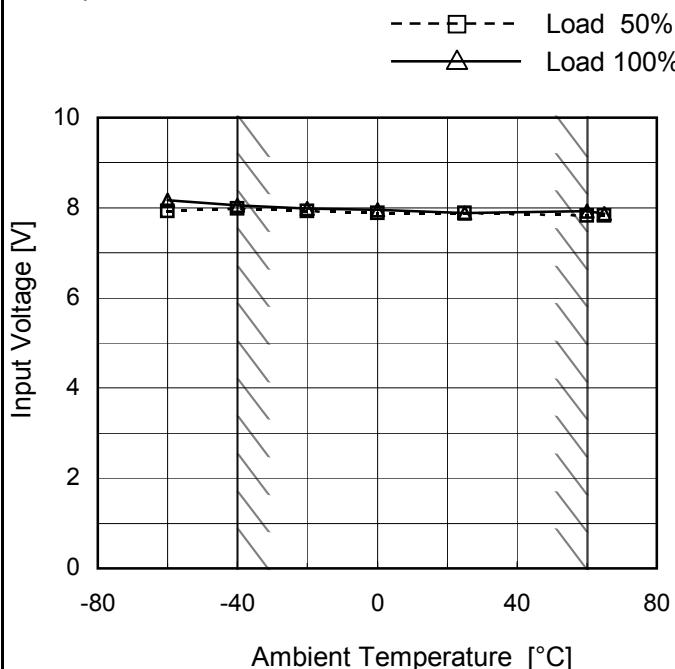
1.Graph

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


Input Voltage [V] vs 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%
-60	8.0	8.2
-40	8.0	8.1
-20	8.0	8.0
0	7.9	8.0
25	7.9	7.9
60	7.9	8.0
65	7.9	7.9
--	-	-
--	-	-
--	-	-
--	-	-

BC-10513

COSEL

Model	MGFS30243R3
Item	Overcurrent Protection
Object	+3.3V7.5A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

△	Input Volt.	9V
□	Input Volt.	12V
✳	Input Volt.	18V
○	Input Volt.	24V
◇	Input Volt.	36V

Output Voltage [V] vs Load Current [A]

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

Intermittent operation occurs when overcurrent protection is activated.
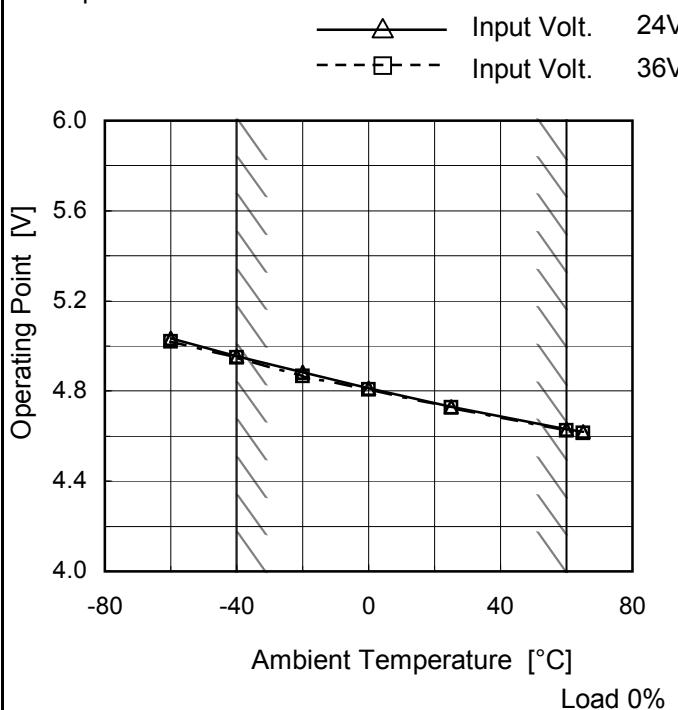
2.Values

Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
3.30	9.065	9.057	9.161	9.158	9.048
3.14	-	-	-	-	-
2.97	-	-	-	-	-
2.64	-	-	-	-	-
2.31	-	-	-	-	-
1.98	-	-	-	-	-
1.65	-	-	-	-	-
1.32	-	-	-	-	-
0.99	-	-	-	-	-
0.66	-	-	-	-	-
0.33	-	-	-	-	-
0.00	-	-	-	-	-

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COSEL

Model	MGFS30243R3
Item	Overvoltage Protection
Object	+3.3V7.5A

Testing Circuitry   Figure A

1.Graph

———△——— Input Volt.   24V
- - -⊟- - - Input Volt.   36V

Operating Point [V]

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. 36[V]
-60	5.03	5.02
-40	4.95	4.95
-20	4.88	4.87
0	4.81	4.81
25	4.73	4.73
60	4.63	4.62
65	4.62	4.61
--	-	-
--	-	-
--	-	-
--	-	-

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Figure A

C1=22μF(Ceramic Capacitor)

R=50Ω
C=0.01μF
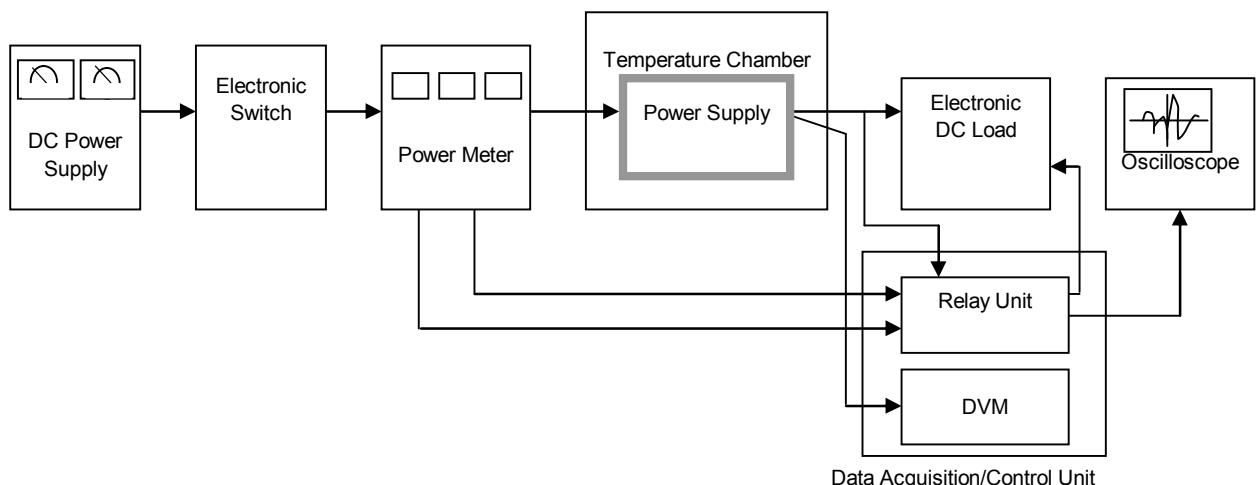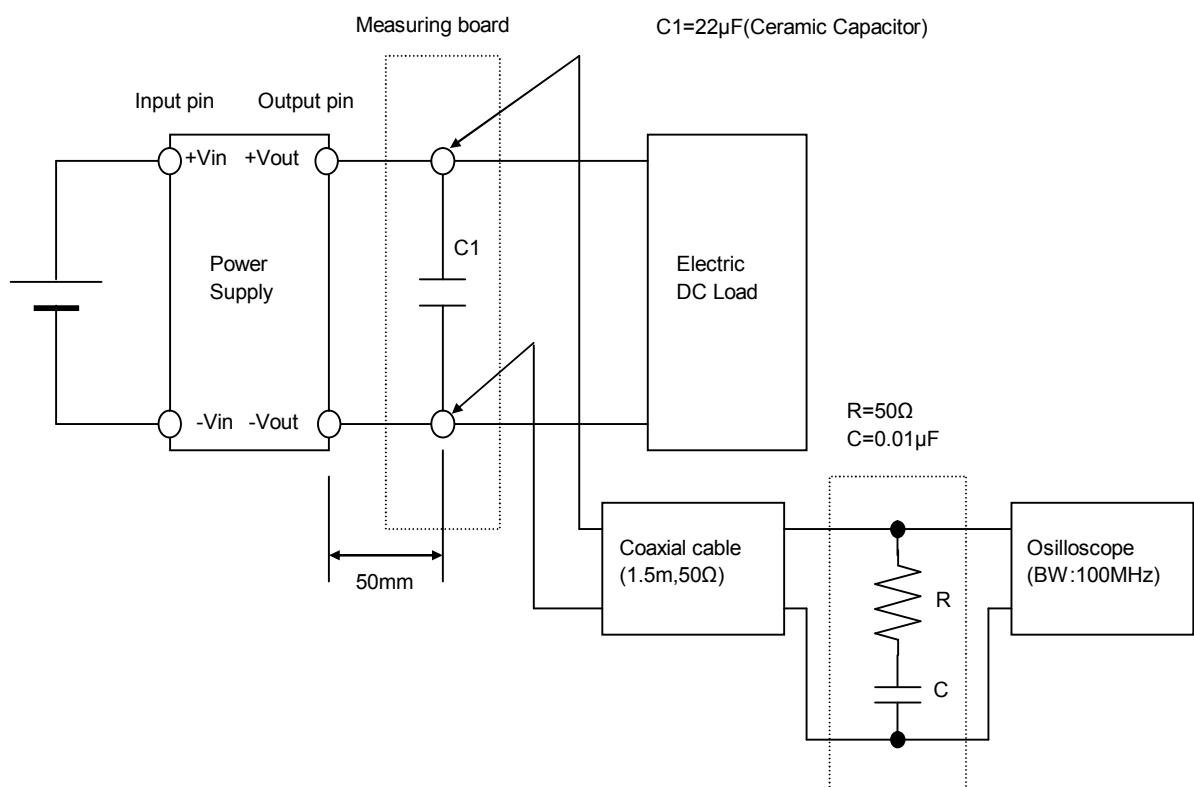
Figure B（Ripple and Ripple noise Characteristic）