TEST DATA OF MGFS302405

Regulated DC Power Supply
January 6, 2011

Approved by : _Kazunari Asano_

Kazunari Asano   Design Manager

Prepared by : _Masashi Ueda_

Masashi Ueda   Design Engineer

COSEL CO.,LTD.

CO$EL

CONTENTS

(Final Page 19)

COSEL

Model	MGFS302405
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
2.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
6.0	0.000	0.000	0.000
7.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
8.2	0.109	2.040	4.120
8.5	0.100	1.960	3.955
9.0	0.093	1.866	3.726
12.0	0.079	1.395	2.796
18.0	0.068	0.951	1.865
24.0	0.062	0.723	1.410
36.0	0.058	0.502	0.959
40.0	0.058	0.459	0.872
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-10514

COSEL

Model	MGFS302405
Item	Input Current (by Load Current)
Object	———————

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

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

2.Values

Load Current	Input Current [A]				
	Input Volt.	Input Volt.	Input Volt.	Input Volt.	Input Volt.
[A]	9[V]	12[V]	18[V]	24[V]	36[V]
0.0	0.091	0.077	0.067	0.061	0.058
1.2	0.784	0.601	0.418	0.325	0.235
2.4	1.498	1.136	0.773	0.593	0.414
3.6	2.230	1.677	1.130	0.860	0.594
4.8	2.962	2.238	1.504	1.139	0.779
6.0	3.748	2.812	1.882	1.420	0.969
6.6	4.180	3.120	2.080	1.566	1.063
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

BC-10514

COSEL

Model	MGFS302405
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

Input Power [W]

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]
0.0	0.82	0.92	1.21	1.47	2.10
1.2	7.07	7.19	7.48	7.78	8.47
2.4	13.48	13.58	13.87	14.17	14.89
3.6	20.01	20.06	20.32	20.59	21.34
4.8	26.73	26.79	26.95	27.22	27.95
6.0	33.67	33.63	33.80	34.00	34.80
6.6	37.22	37.14	37.30	37.46	38.20
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

BC-10514

COSEL

Model	MGFS302405
Item	Efficiency (by Input Voltage)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

--□-- Load 50%
—△— Load 100%

Efficiency [%] vs Input Voltage [V]

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

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	90.6	89.9
9.0	90.6	89.9
12.0	90.3	90.0
15.0	89.6	89.9
18.0	88.9	89.7
24.0	87.4	89.0
30.0	85.8	88.2
36.0	83.9	87.1
40.0	82.7	86.5

BC-10514

COSEL

Model	MGFS302405
Item	Efficiency (by Load Current)
Object	

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

Load Current [A]

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

2.Values

Load Current [A]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-	-	-
1.2	86.0	84.5	81.3	78.1	71.8
2.4	90.2	89.5	87.7	85.8	81.7
3.6	90.8	90.6	89.4	88.3	85.2
4.8	90.7	90.5	90.0	89.1	86.8
6.0	90.0	90.1	89.7	89.2	87.1
6.6	89.6	89.8	89.4	89.0	87.3
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

    BC-10514

COSEL

Model	MGFS302405
Item	Line Regulation
Object	+5V6A

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

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

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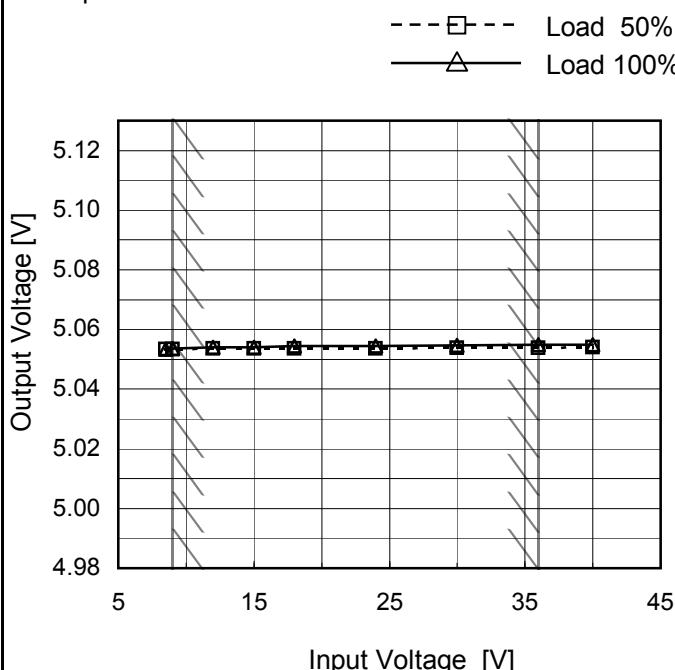
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	5.053	5.053
9.0	5.053	5.054
12.0	5.054	5.054
15.0	5.054	5.054
18.0	5.054	5.054
24.0	5.054	5.054
30.0	5.054	5.055
36.0	5.054	5.055
40.0	5.054	5.055

BC-10514

COSEL

Model	MGFS302405
Item	Load Regulation
Object	+5V6A

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.

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]
0.0	5.059	5.059	5.059	5.059	5.059
1.2	5.059	5.058	5.058	5.058	5.058
2.4	5.058	5.058	5.058	5.058	5.058
3.6	5.058	5.057	5.057	5.057	5.057
4.8	5.057	5.057	5.057	5.057	5.057
6.0	5.056	5.056	5.056	5.056	5.056
6.6	5.056	5.056	5.056	5.056	5.056
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

BC-10514

CO$EL

Model	MGFS302405
Item	Dynamic Load Response
Object	+5V6A

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% (6A)

200mV/div

100μs/div　　　　　　100μs/div

Min. Load (0A) ←→
　Load 50% (3A)

200mV/div

100μs/div　　　　　　100μs/div

Load 50% (3A) ←→
　Load 100% (6A)

200mV/div

100μs/div　　　　　　100μs/div

　　　BC-10514

COSEL

Model	MGFS302405
Item	Ripple Voltage (by Load Current)
Object	+5V6A

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]
0.0	7	8
1.2	7	8
2.4	7	8
3.6	7	8
4.8	7	8
6.0	7	8
6.6	7	8
--	-	-
--	-	-
--	-	-
--	-	-

BC-10514

COSEL

Model	MGFS302405
Item	Ripple-Noise
Object	+5V6A

Temperature　　25°C
Testing Circuitry　Figure B

1.Graph

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

Ripple Voltage [mV] vs Load Current [A]

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	10	10
1.2	10	15
2.4	10	15
3.6	10	15
4.8	10	15
6.0	10	15
6.6	10	15
--	-	-
--	-	-
--	-	-
--	-	-

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

Ripple
Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

　　　BC-10514

COSEL

Model	MGFS302405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V6A

Testing Circuitry　Figure B

1.Graph

- - -☐- - - Load 50%
——△—— Load 100%

Ambient Temperature [°C]
Input Volt.　　24V

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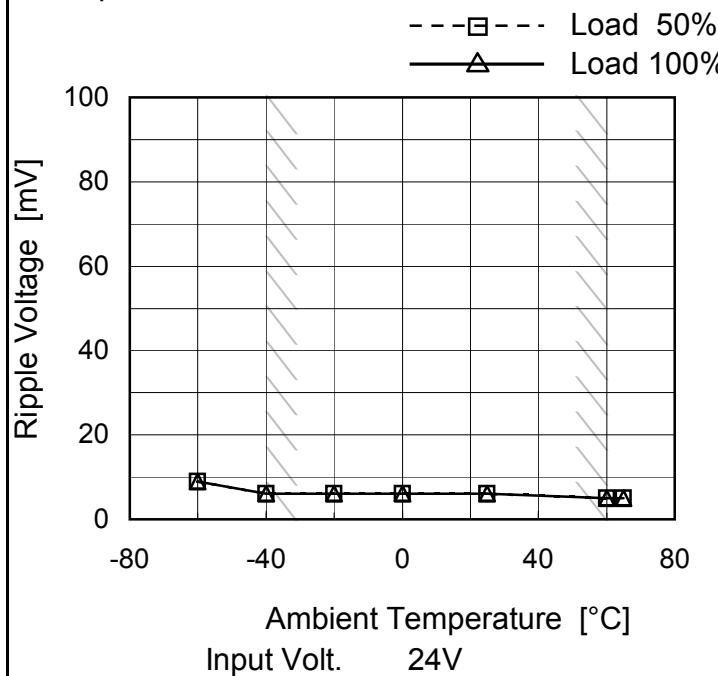
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	9	9
-40	6	6
-20	6	6
0	6	6
25	6	6
60	5	5
65	5	5
--	-	-
--	-	-
--	-	-
--	-	-

　　　BC-10514

COSEL

Model	MGFS302405
Item	Ambient Temperature Drift
Object	+5V6A

Testing Circuitry   Figure A

1.Graph

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

Ambient Temperature [°C]

Load 100%

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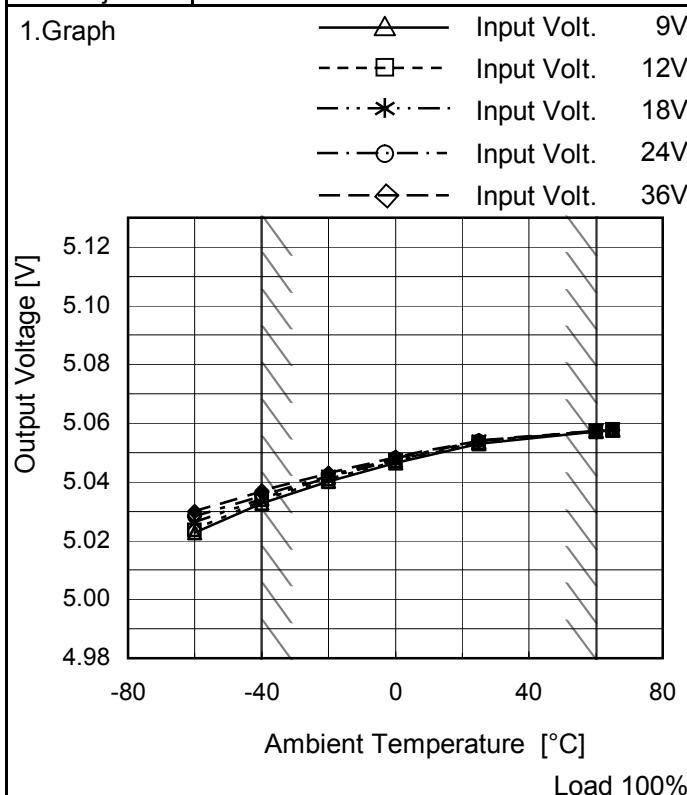
2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	5.023	5.024	5.026	5.028	5.030
-40	5.033	5.034	5.034	5.035	5.037
-20	5.040	5.041	5.042	5.042	5.043
0	5.047	5.047	5.047	5.048	5.049
25	5.053	5.053	5.054	5.054	5.054
60	5.057	5.057	5.057	5.058	5.058
65	5.058	5.058	5.058	5.058	5.058
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

BC-10514

COSEL

Model	MGFS302405
Item	Output Voltage Accuracy
Object	+5V6A

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 - 60°C
         Input Voltage : 9 - 36V
        Load Current   : 0 - 6A

  * 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 Current[A]	Output Voltage[V]	Output Voltage Accuracy Value [mV]	Output Voltage Accuracy Ration [%]
Maximum Voltage	60	36	0	5.060	±14	±0.3
Minimum Voltage	-40	9	6	5.033		

BC-10514

COSEL

Model	MGFS302405
Item	Time Lapse Drift
Object	+5V6A

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

Input Volt. 24V

Load 100%
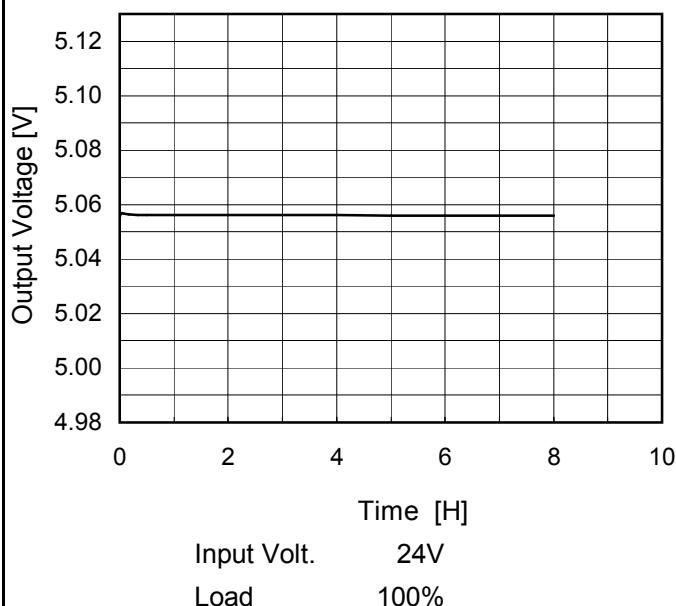
2.Values

Time since start [H]	Output Voltage [V]
0.0	5.055
0.5	5.056
1.0	5.056
2.0	5.056
3.0	5.056
4.0	5.056
5.0	5.056
6.0	5.056
7.0	5.056
8.0	5.056

BC-10514

COSEL

Model	MGFS302405
Item	Rise and Fall Time
Object	+5V6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

Input Volt. 24 V

Load 50%

Output Volt.
[1V/div]

0

Load 100%

Output Volt.
[1V/div]

0

Input Volt.

0
[10V/div]

Time [10ms/div]

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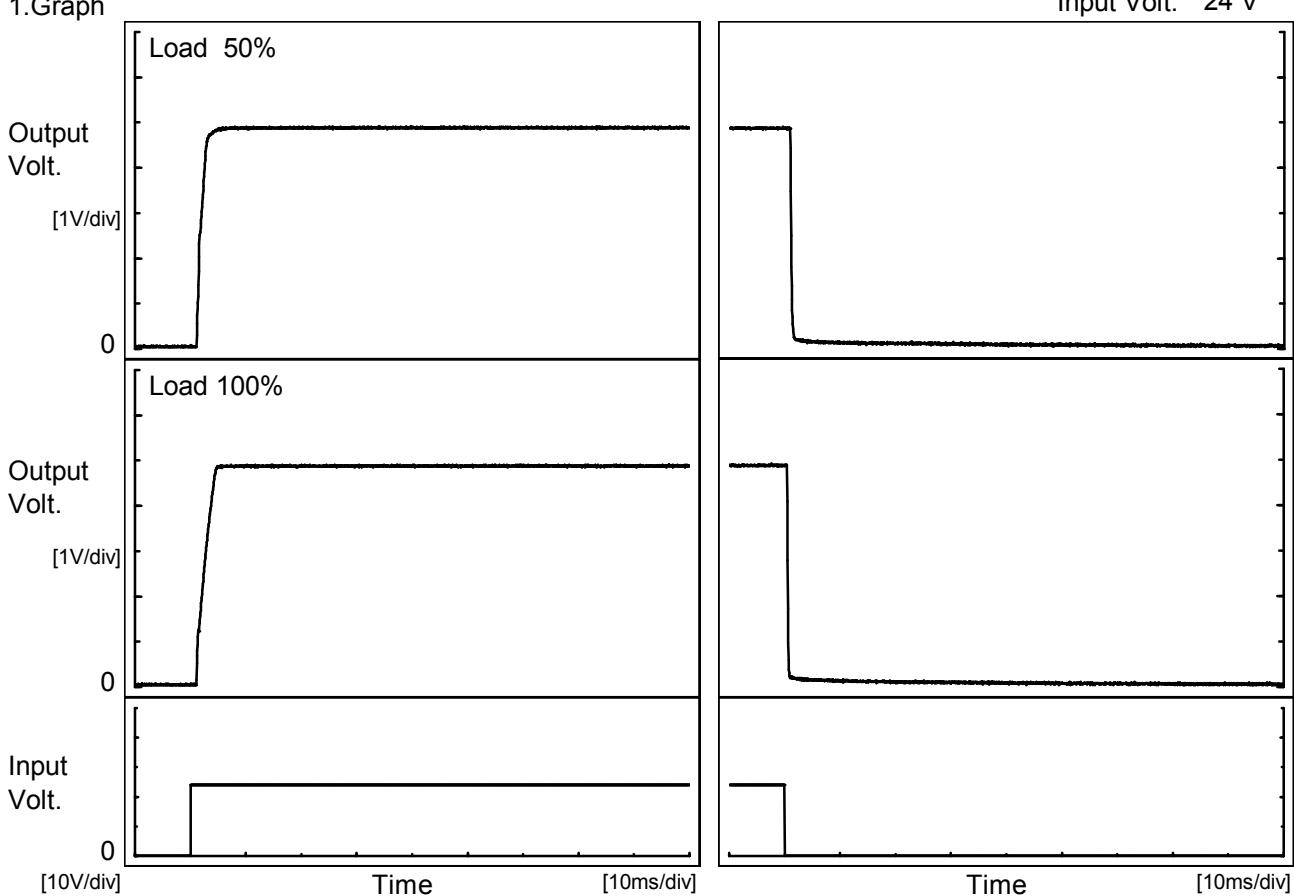
2.Values [ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	1.8	3.0	0.9	0.5
100 %	1.2	3.1	4.3	0.5	0.2

Output Volt.

90%

10%

Input Volt.

Td   Tr   Th   Tf

Ts

BC-10514

COSEL
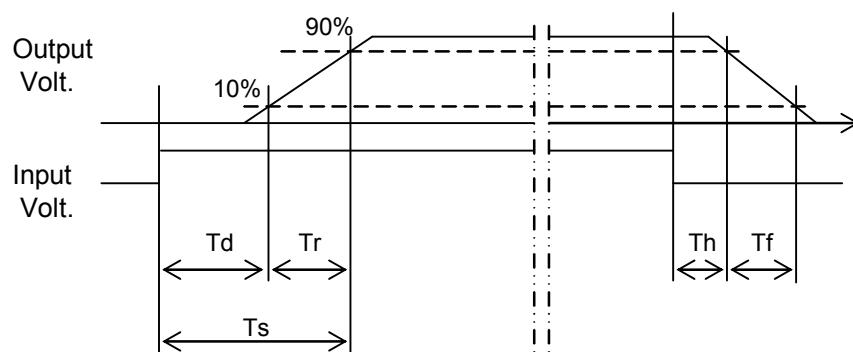
Model	MGFS302405
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V6A

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.
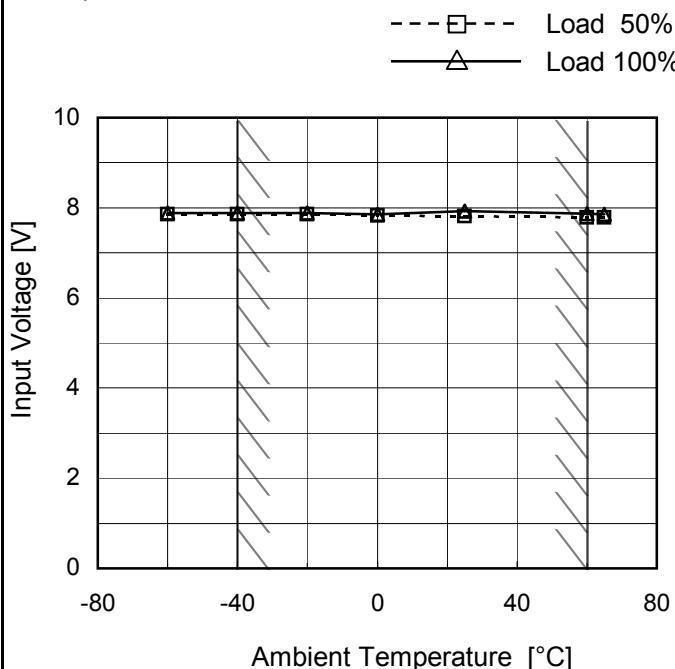
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	7.9	7.9
-40	7.9	7.9
-20	7.9	7.9
0	7.9	7.9
25	7.9	8.0
60	7.8	7.9
65	7.8	7.9
--	-	-
--	-	-
--	-	-
--	-	-

BC-10514

COSEL

Model	MGFS302405
Item	Overcurrent Protection
Object	+5V6A

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

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]
5.00	8.014	8.063	8.046	8.006	7.653
4.75	-	-	-	-	-
4.50	-	-	-	-	-
4.00	-	-	-	-	-
3.50	-	-	-	-	-
3.00	-	-	-	-	-
2.50	-	-	-	-	-
2.00	-	-	-	-	-
1.50	-	-	-	-	-
1.00	-	-	-	-	-
0.50	-	-	-	-	-
0.00	-	-	-	-	-

BC-10514

COSEL

Model	MGFS302405

Item	Overvoltage Protection

Object	+5V6A

Testing Circuitry   Figure A

1.Graph

———△——— Input Volt.   24V

- - -□- - - Input Volt.   36V

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

Ambient Temperature [°C]

Load 0%

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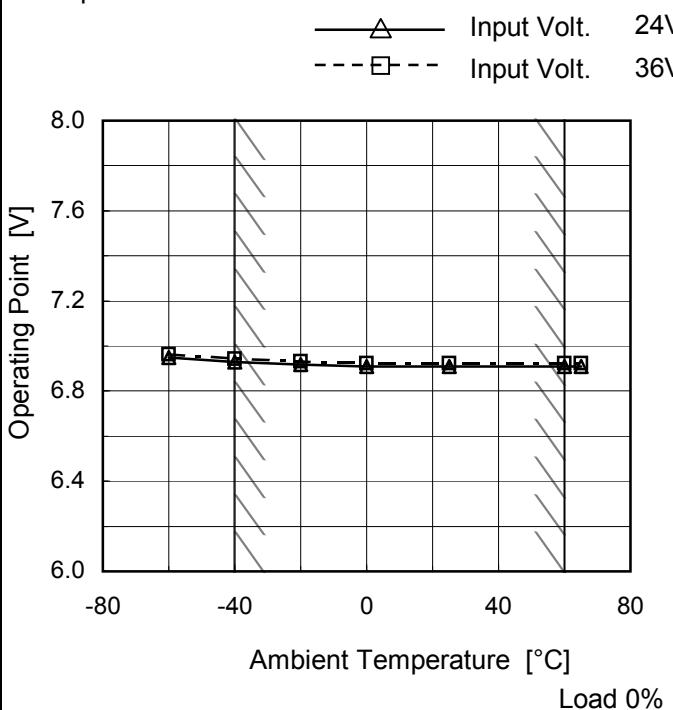
2.Values

| Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 24[V]	Input Volt. 36[V]
-60	6.95	6.96
-40	6.93	6.94
-20	6.92	6.93
0	6.91	6.92
25	6.91	6.92
60	6.91	6.92
65	6.91	6.92
--	-	-
--	-	-
--	-	-
--	-	-

BC-10514

CO$EL
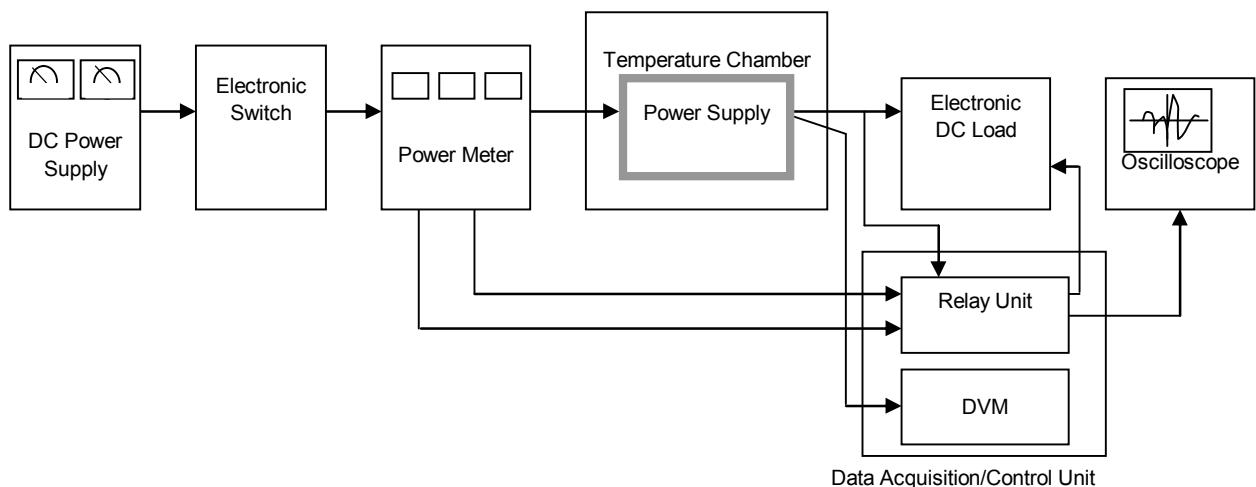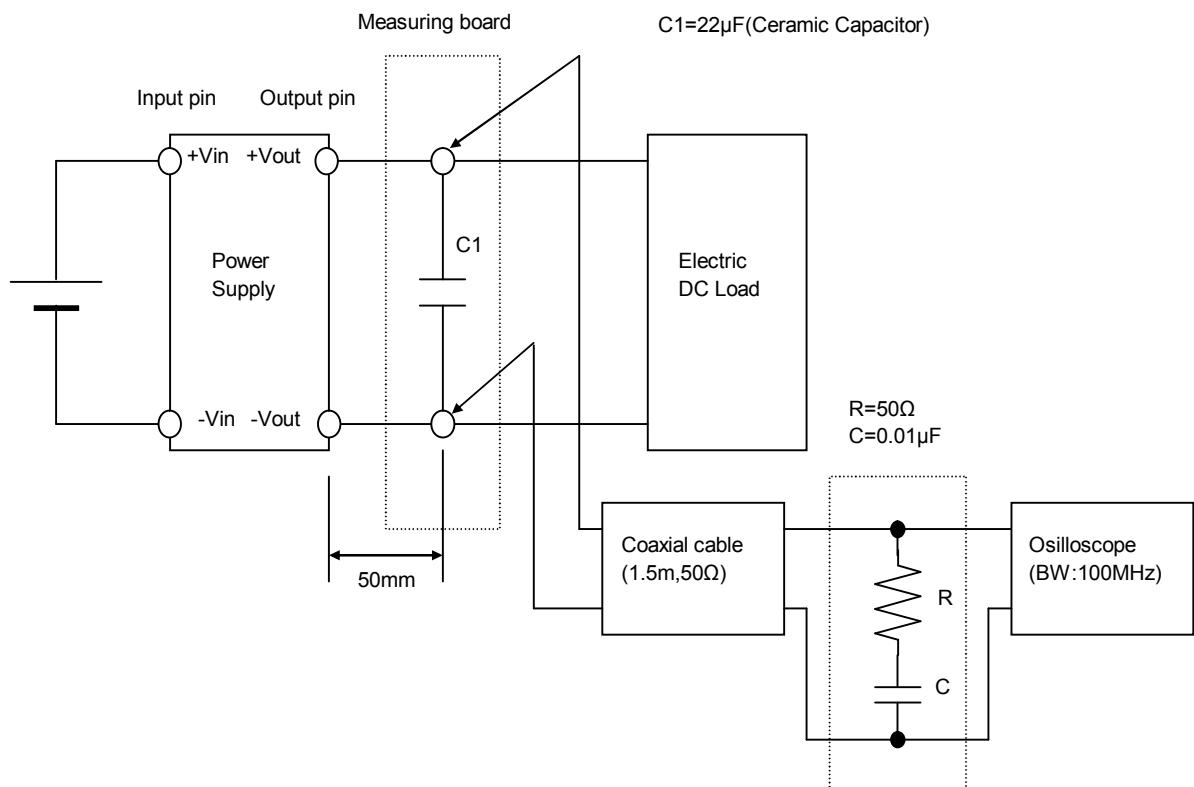
Figure A

Figure B（Ripple and Ripple noise Characteristic）

BC-10514