COSEL

参考資料

TEST DATA OF MGFW152405

Regulated DC Power Supply
September 14, 2010

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COSEL CO.,LTD.

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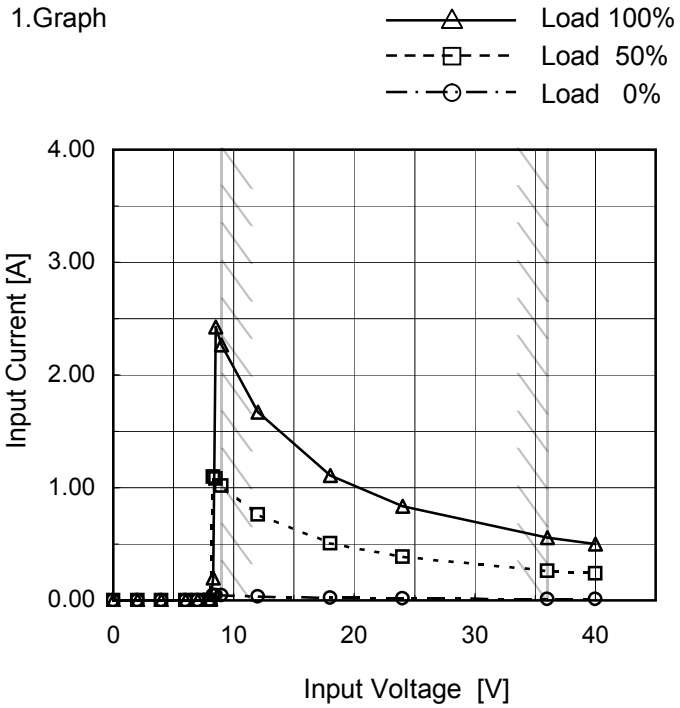
Model	MGFW152405
Item	Input Current (by Input Voltage)
Object	――――――――

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	0.000	0.000	0.000
2.0	0.000	0.001	0.000
4.0	0.002	0.002	0.002
6.0	0.002	0.002	0.002
7.0	0.003	0.002	0.003
8.0	0.003	0.003	0.002
8.1	0.003	0.003	0.012
8.3	0.045	1.095	0.198
8.5	0.045	1.080	2.426
9.0	0.043	1.017	2.270
12.0	0.033	0.759	1.673
18.0	0.023	0.505	1.107
24.0	0.015	0.387	0.832
36.0	0.013	0.262	0.558
40.0	0.012	0.236	0.500
--	-	-	-
--	-	-	-
--	-	-	-

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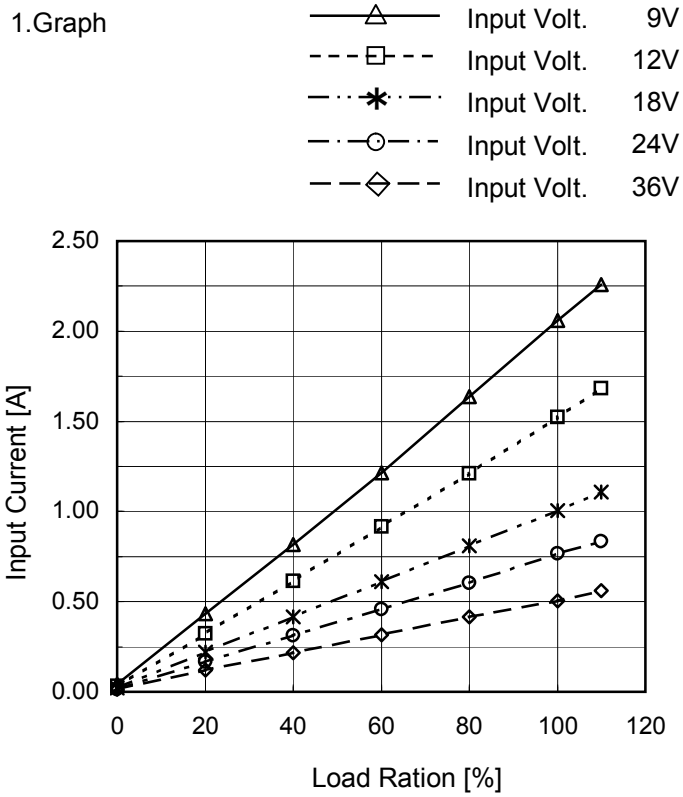
COSEL

Model	MGFW152405
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

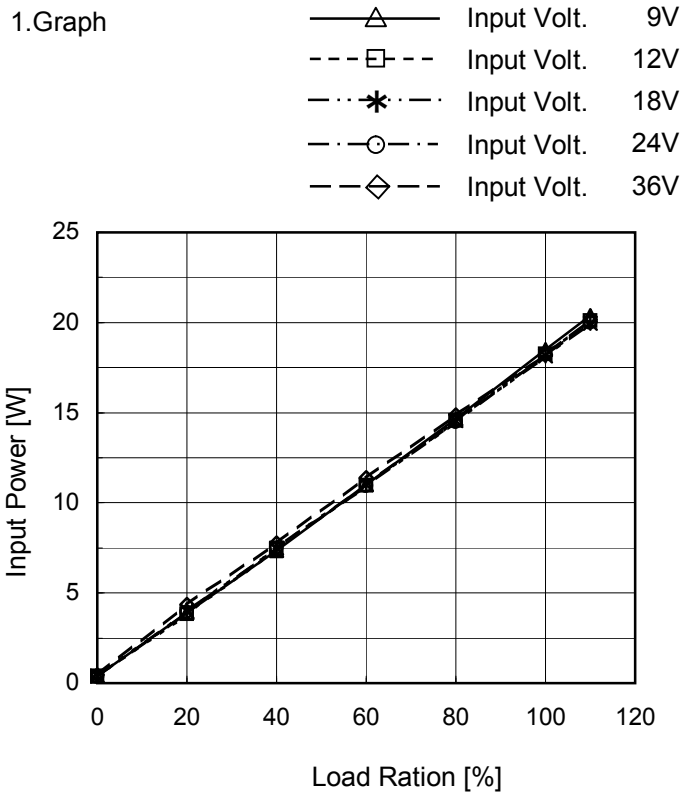
Load Ration [%]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.043	0.033	0.023	0.015	0.013
20	0.434	0.323	0.221	0.165	0.121
40	0.816	0.615	0.417	0.312	0.217
60	1.216	0.916	0.612	0.459	0.316
80	1.637	1.209	0.811	0.603	0.414
100	2.059	1.523	1.006	0.765	0.506
110	2.258	1.683	1.108	0.834	0.562
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW152405
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

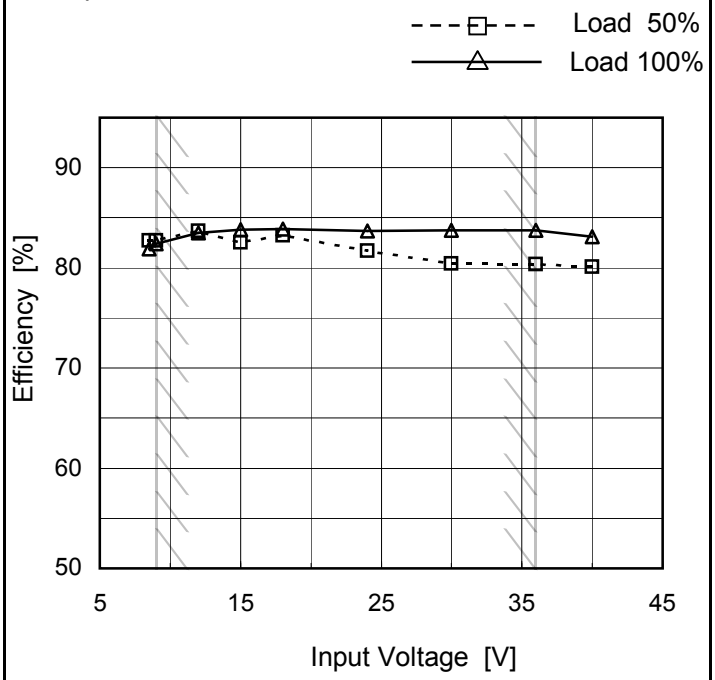
Load Ration [%]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.39	0.40	0.40	0.36	0.45
20	3.91	3.84	3.97	3.96	4.36
40	7.35	7.41	7.49	7.48	7.79
60	11.00	10.96	11.03	10.95	11.38
80	14.68	14.56	14.56	14.50	14.87
100	18.49	18.24	18.16	18.21	18.21
110	20.39	20.11	19.96	19.99	20.17
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW152405
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

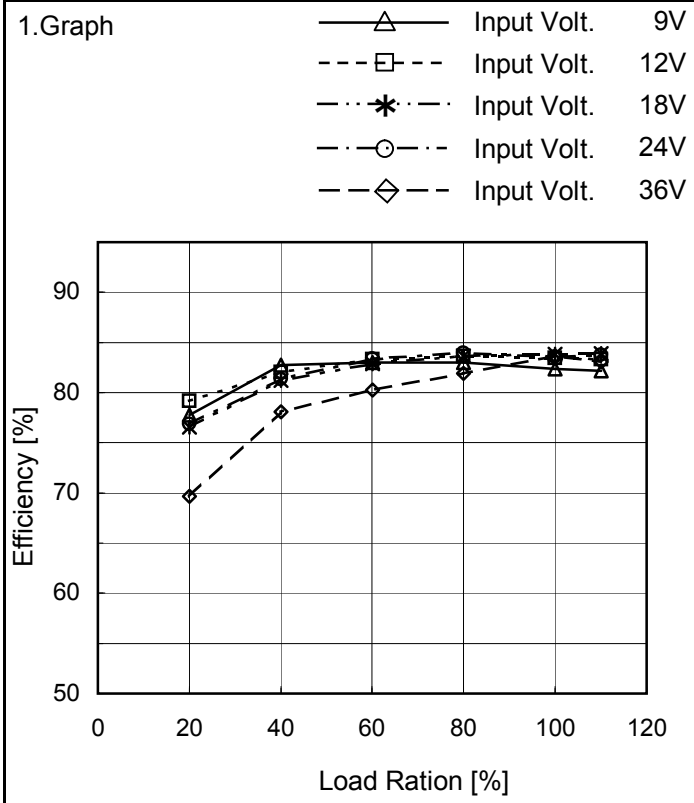
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	82.7	81.9
9.0	82.8	82.4
12.0	83.7	83.5
15.0	82.5	83.8
18.0	83.2	83.9
24.0	81.7	83.7
30.0	80.4	83.7
36.0	80.4	83.7
40.0	80.1	83.1

COSEL

Model	MGFW152405
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-	-	-
20	77.8	79.2	76.5	76.9	69.7
40	82.8	82.0	81.2	81.4	78.1
60	83.0	83.3	82.8	83.4	80.2
80	83.0	83.7	83.7	84.0	81.9
100	82.4	83.5	83.8	83.6	83.6
110	82.1	83.3	83.9	83.8	83.1
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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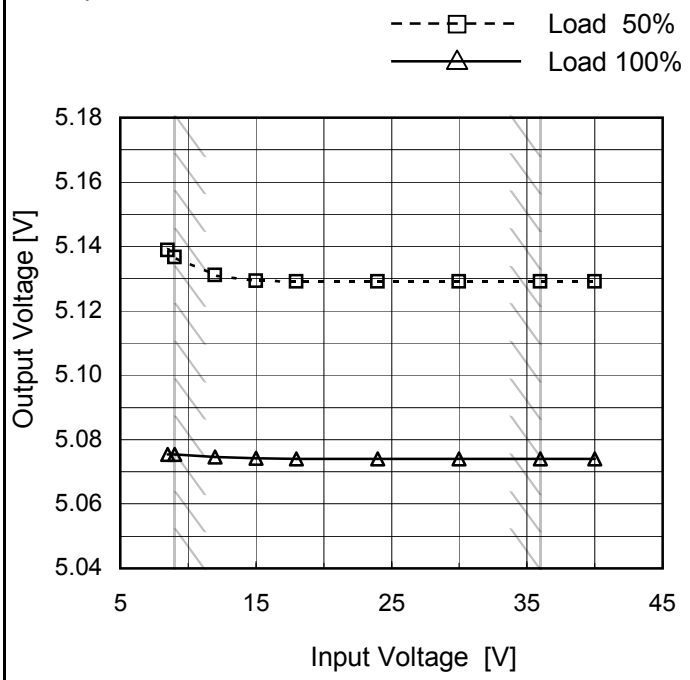
Model	MGFW152405
Item	Line Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



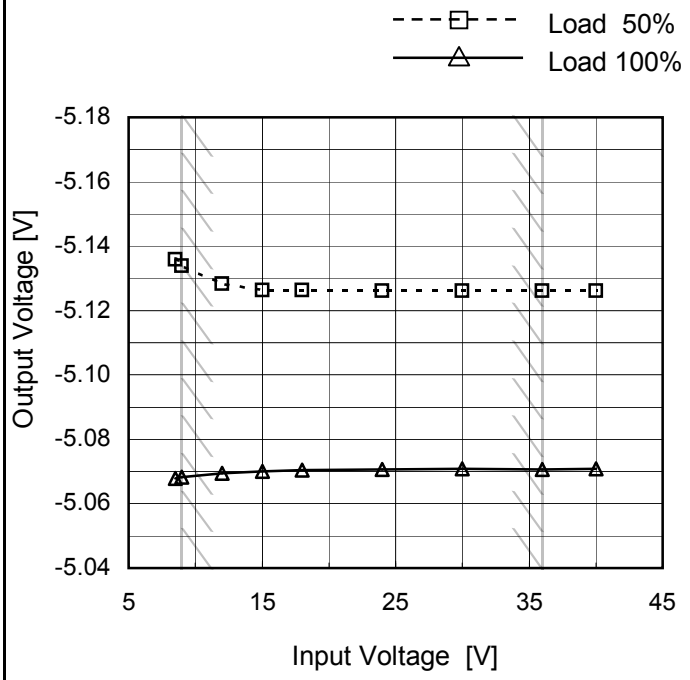
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	5.139	5.075
9.0	5.137	5.075
12.0	5.131	5.075
15.0	5.129	5.074
18.0	5.129	5.074
24.0	5.129	5.074
30.0	5.129	5.074
36.0	5.129	5.074
40.0	5.129	5.074

-5V: Rated output current

Object	-5V1.5A

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%
8.5	-5.136	-5.068
9.0	-5.134	-5.068
12.0	-5.128	-5.069
15.0	-5.126	-5.070
18.0	-5.126	-5.071
24.0	-5.126	-5.071
30.0	-5.126	-5.071
36.0	-5.126	-5.071
40.0	-5.126	-5.071

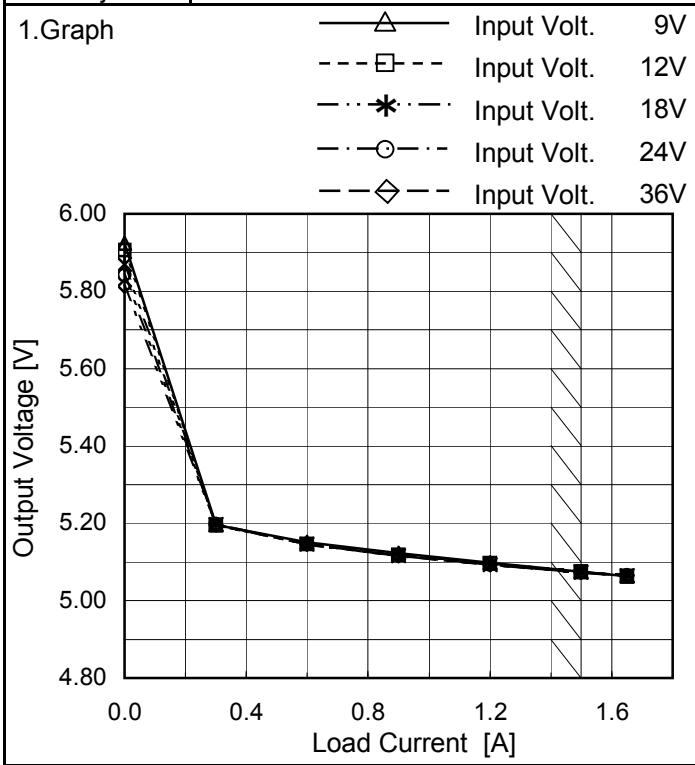
+5V: Rated output current

COSEL

Model	MGFW152405
Item	Load Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



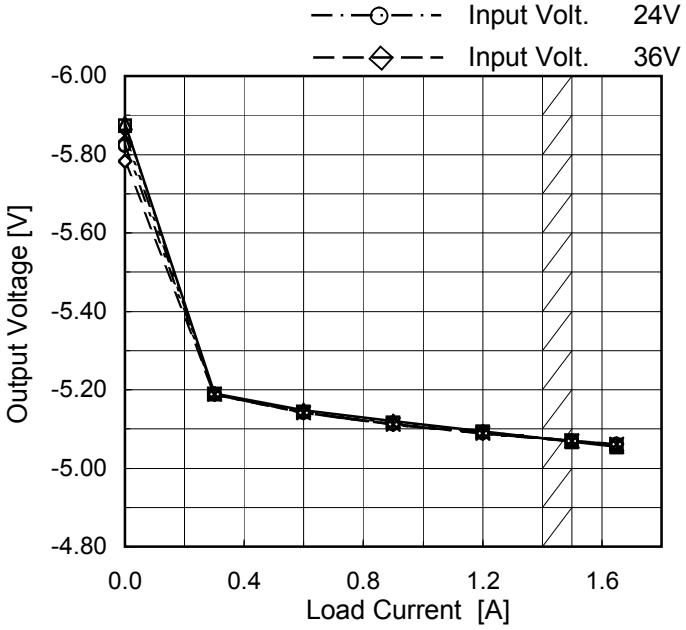
2.Values

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	5.923	5.905	5.870	5.840	5.814
0.30	5.196	5.196	5.197	5.197	5.196
0.60	5.151	5.146	5.146	5.146	5.146
0.90	5.123	5.118	5.116	5.116	5.116
1.20	5.099	5.096	5.093	5.092	5.092
1.50	5.075	5.074	5.073	5.073	5.073
1.65	5.063	5.064	5.064	5.065	5.065
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

-5V: Rated output current

Object	-5V1.5A

1.Graph



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]
0.00	-5.879	-5.873	-5.848	-5.822	-5.783
0.30	-5.190	-5.189	-5.188	-5.189	-5.189
0.60	-5.147	-5.143	-5.141	-5.142	-5.142
0.90	-5.120	-5.115	-5.112	-5.112	-5.112
1.20	-5.094	-5.092	-5.090	-5.089	-5.089
1.50	-5.068	-5.069	-5.070	-5.070	-5.070
1.65	-5.056	-5.058	-5.061	-5.062	-5.062
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

+5V: Rated output current

COSEL

Model	MGFW152405
Item	Dynamic Load Response
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

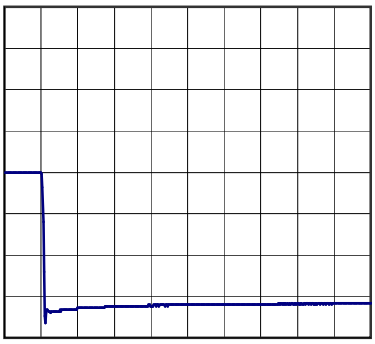
Input Volt. 24 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

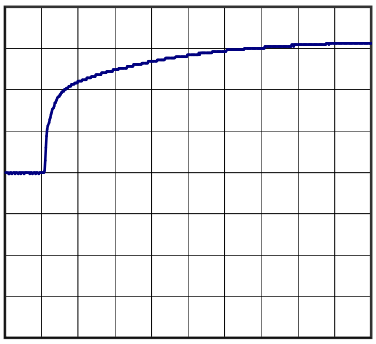
Load Current

Min. Load (0A) ←→
Load 100% (1.5A)

200mV/div



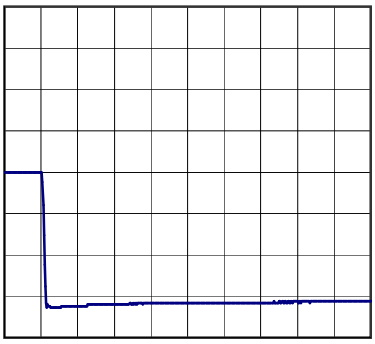
500μs/div



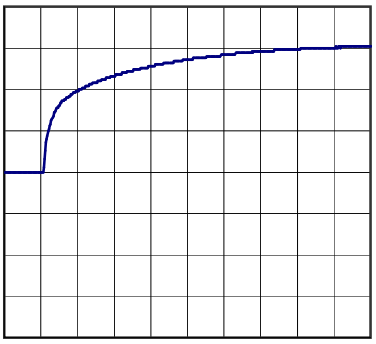
500μs/div

Min. Load (0A) ←→
Load 50% (0.75A)

200mV/div



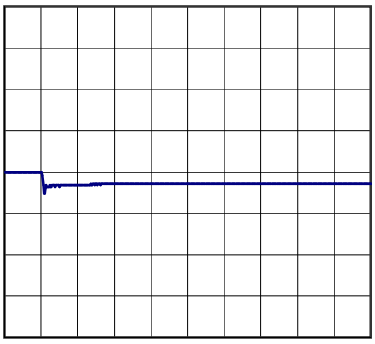
500μs/div



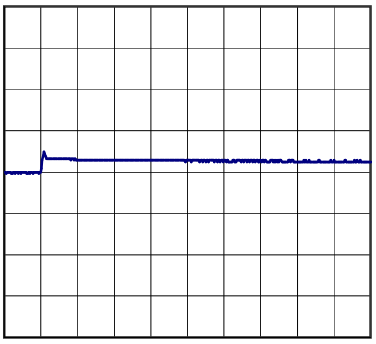
500μs/div

Load 50% (0.75A) ←→
Load 100% (1.5A)

200mV/div



500μs/div



500μs/div

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Model	MGFW152405	Temperature 25°C
Item	Dynamic Load Response	Testing Circuitry Figure A
Object	-5V1.5A	

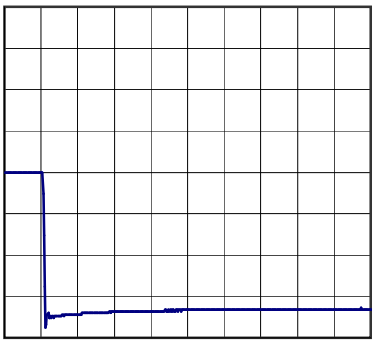
Input Volt. 24 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

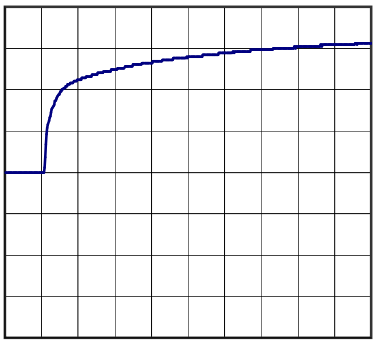
Load Current

Min. Load (0A) ←→
Load 100% (1.5A)

200mV/div



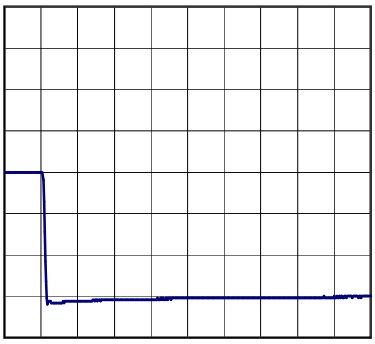
500μs/div



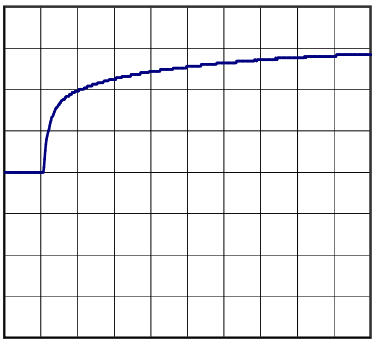
500μs/div

Min. Load (0A) ←→
Load 50% (0.75A)

200mV/div



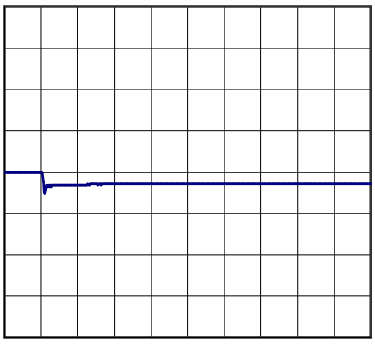
500μs/div



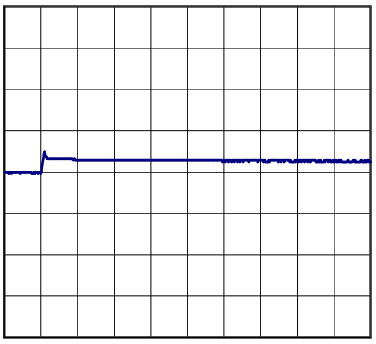
500μs/div

Load 50% (0.75A) ←→
Load 100% (1.5A)

200mV/div



500μs/div



500μs/div

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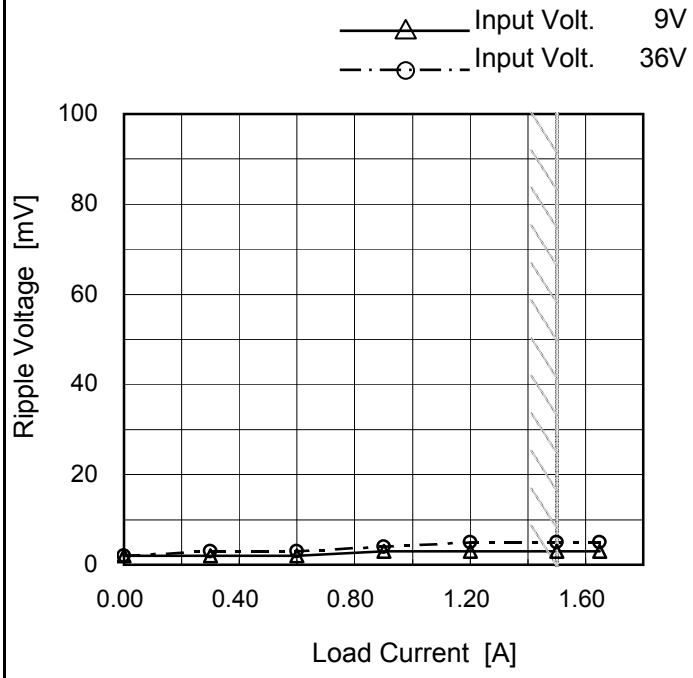
Model	MGFW152405
Item	Ripple Voltage (by Load Current)
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure B

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.

Ripple [mVp-p]

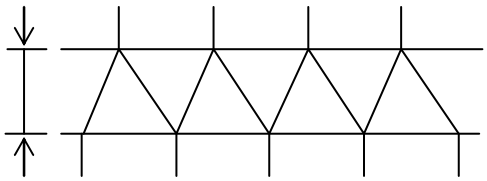


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	2	2
0.30	2	3
0.60	2	3
0.90	3	4
1.20	3	5
1.50	3	5
1.65	3	5
--	-	-
--	-	-
--	-	-
--	-	-

−5V: Rated output current

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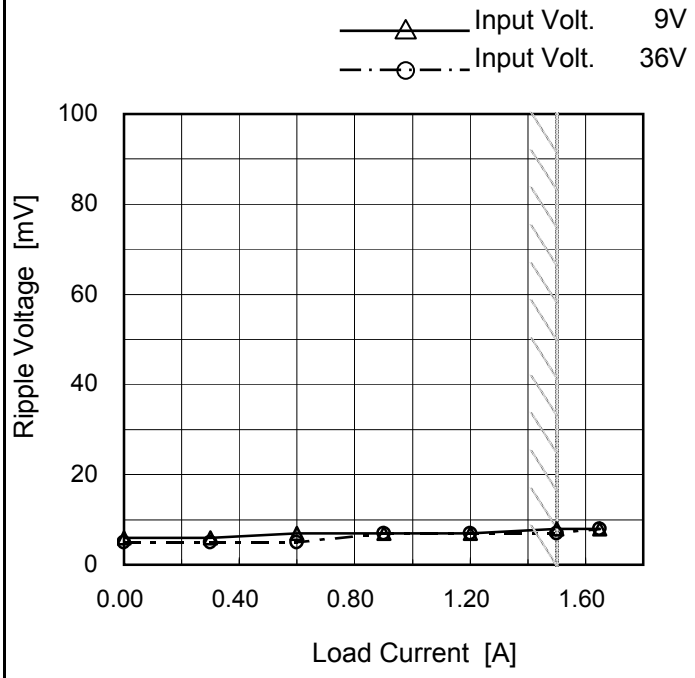
Model	MGFW152405
Item	Ripple Voltage (by Load Current)
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure B

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.

Ripple [mVp-p]

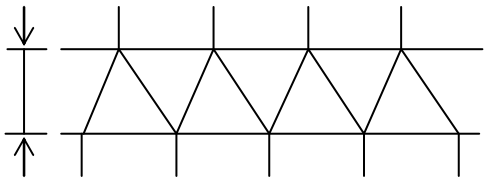


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	6	5
0.30	6	5
0.60	7	5
0.90	7	7
1.20	7	7
1.50	8	7
1.65	8	8
--	-	-
--	-	-
--	-	-
--	-	-

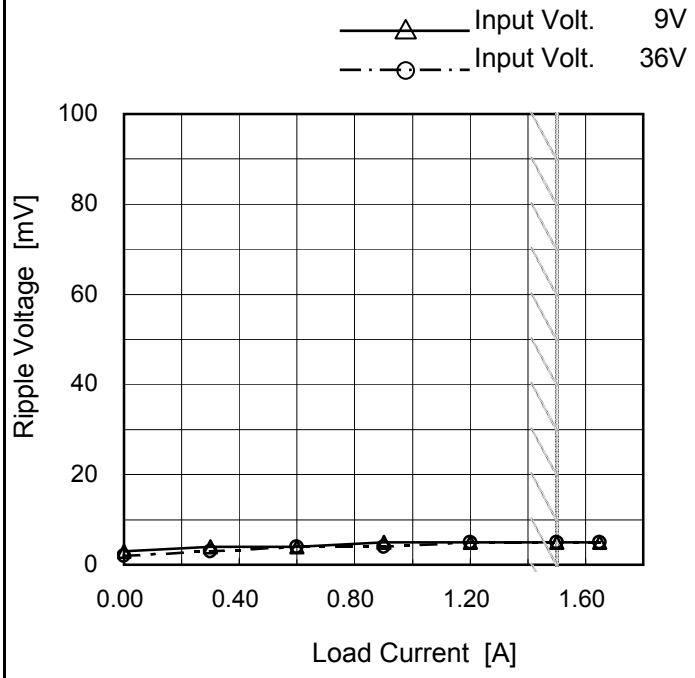
+5V: Rated output current

COSEL

Model	MGFW152405
Item	Ripple-Noise
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure B

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.

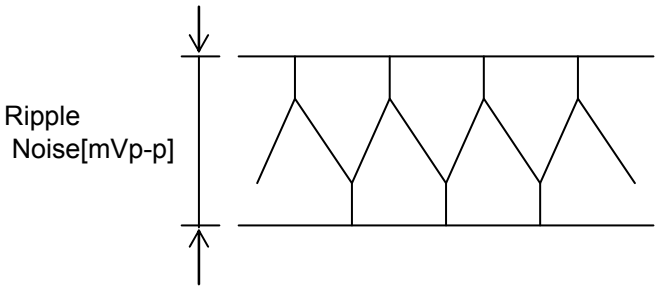


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	3	2
0.30	4	3
0.60	4	4
0.90	5	4
1.20	5	5
1.50	5	5
1.65	5	5
--	-	-
--	-	-
--	-	-
--	-	-

−5V: Rated output current

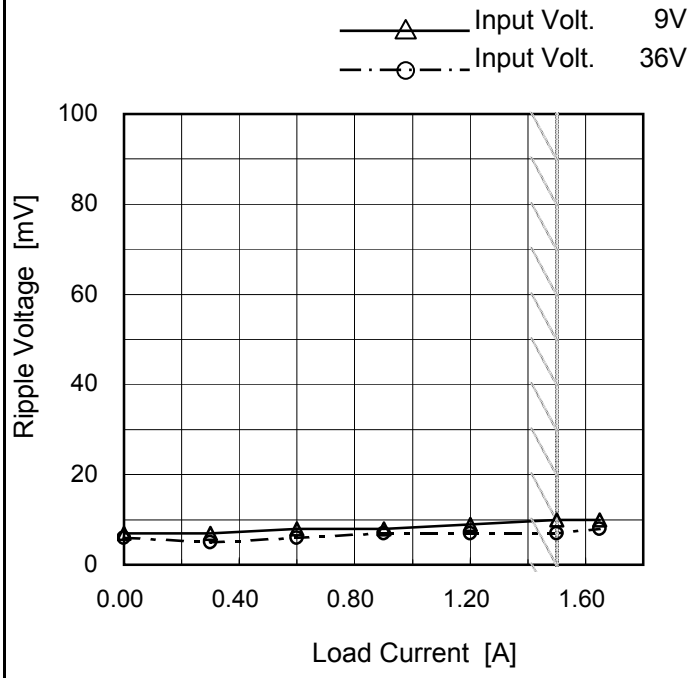
BC-10468

COSEL

Model	MGFW152405
Item	Ripple-Noise
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure B

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.

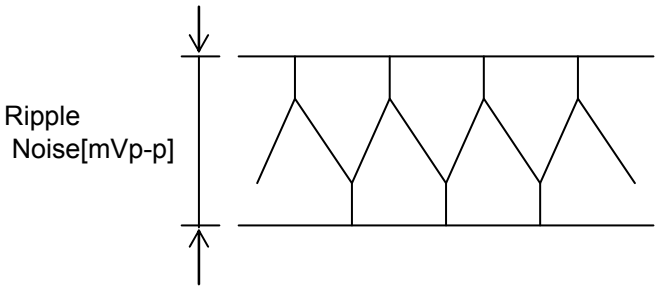


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.00	7	6
0.30	7	5
0.60	8	6
0.90	8	7
1.20	9	7
1.50	10	7
1.65	10	8
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

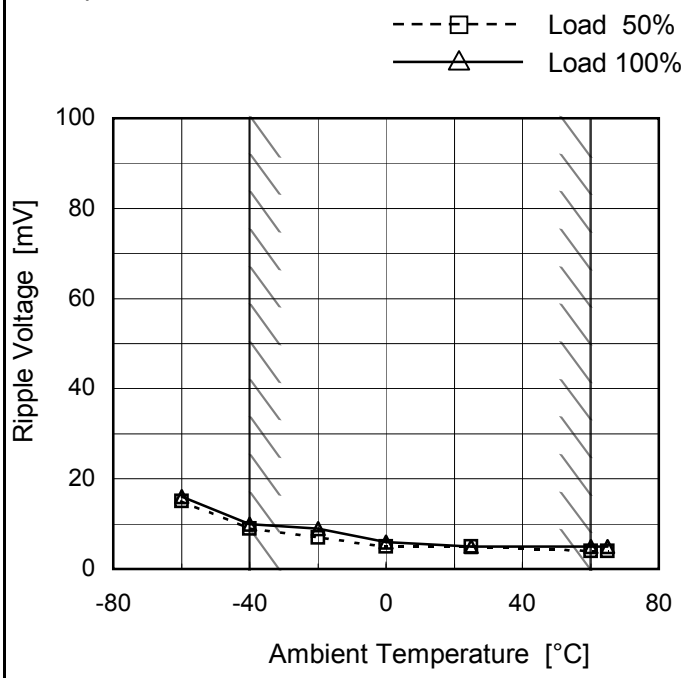
BC-10468

COSEL

Model	MGFW152405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

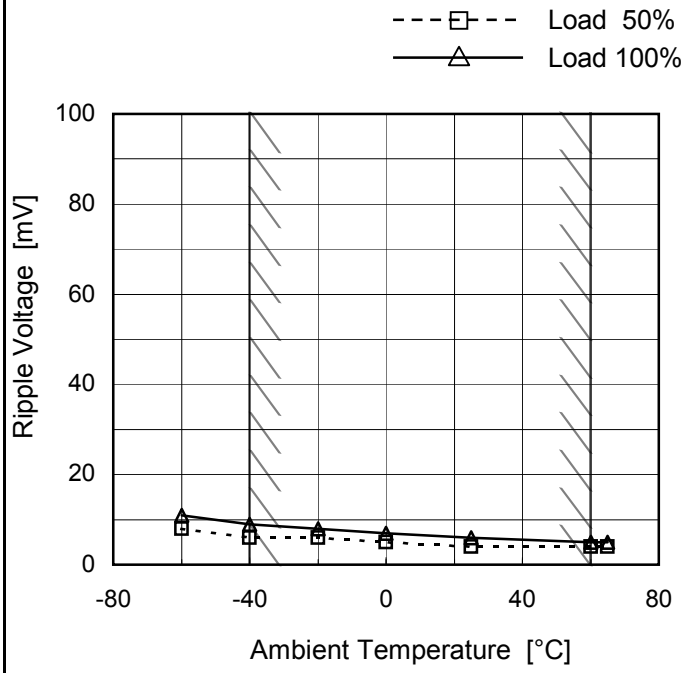
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	15	16
-40	9	10
-20	7	9
0	5	6
25	5	5
60	4	5
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Object	-5V1.5A

1.Graph



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	8	11
-40	6	9
-20	6	8
0	5	7
25	4	6
60	4	5
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

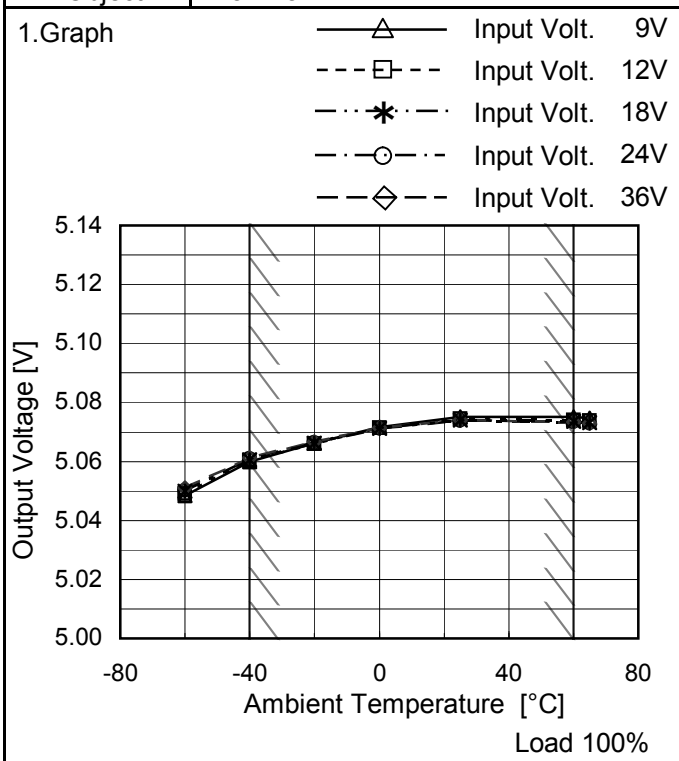
COSEL

Model	MGFW152405
Item	Ambient Temperature Drift

Testing Circuitry Figure A

Object +5V1.5A

1.Graph

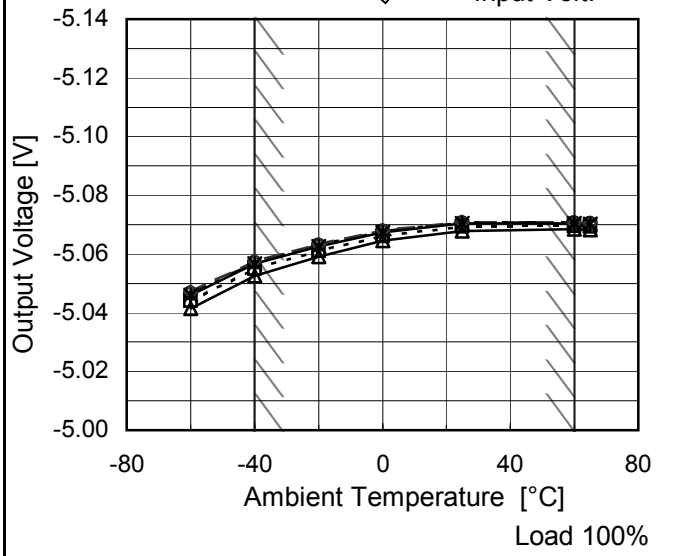


2.Values

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	5.048	5.049	5.050	5.050	5.051
-40	5.060	5.060	5.061	5.061	5.061
-20	5.066	5.066	5.066	5.067	5.067
0	5.072	5.071	5.071	5.071	5.072
25	5.075	5.074	5.074	5.074	5.074
60	5.075	5.074	5.074	5.073	5.073
65	5.075	5.074	5.073	5.073	5.073
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object -5V1.5A

1.Graph



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	-5.042	-5.044	-5.046	-5.047	-5.047
-40	-5.053	-5.055	-5.057	-5.057	-5.058
-20	-5.059	-5.061	-5.063	-5.063	-5.063
0	-5.065	-5.066	-5.067	-5.068	-5.068
25	-5.068	-5.069	-5.071	-5.071	-5.071
60	-5.069	-5.070	-5.071	-5.071	-5.071
65	-5.068	-5.069	-5.070	-5.071	-5.071
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW152405	
Item	Output Voltage Accuracy	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 (AVR 1) : 0 - 1.5A (AVR 2) : 0 - 1.5A

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

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

2.Values

Object	+5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	9	0	5.921	±431	±8.6
Minimum Voltage	-40	9	1.5	5.060		

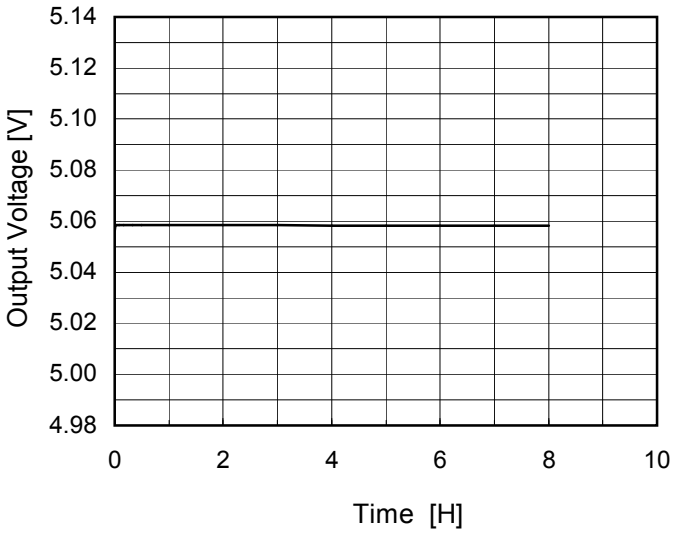
Object	-5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	9	0	-5.884	±416	±8.3
Minimum Voltage	-40	9	1.5	-5.053		

COSEL

Model	MGFW152405
Item	Time Lapse Drift
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



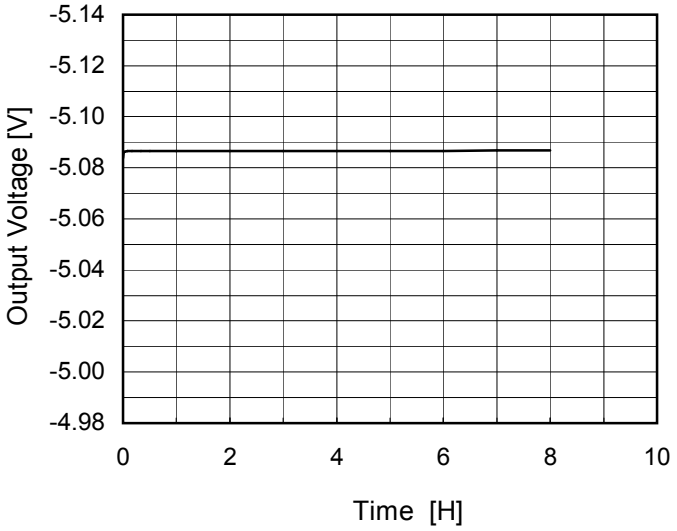
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.056
0.5	5.058
1.0	5.058
2.0	5.058
3.0	5.058
4.0	5.058
5.0	5.058
6.0	5.058
7.0	5.058
8.0	5.058

Object	-5V1.5A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-5.084
0.5	-5.087
1.0	-5.087
2.0	-5.087
3.0	-5.087
4.0	-5.087
5.0	-5.087
6.0	-5.087
7.0	-5.087
8.0	-5.087

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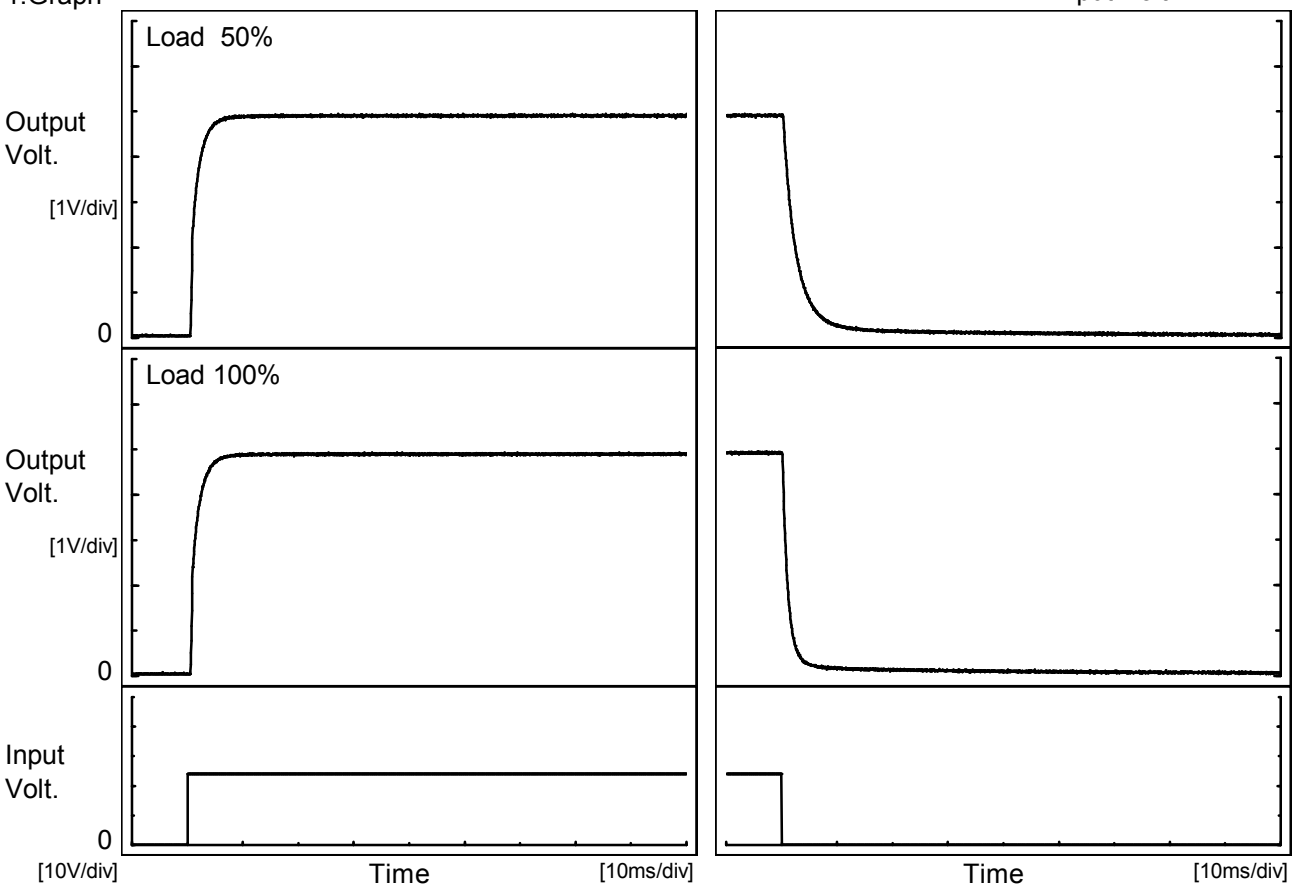
COSEL

Model	MGFW152405
Item	Rise and Fall Time
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

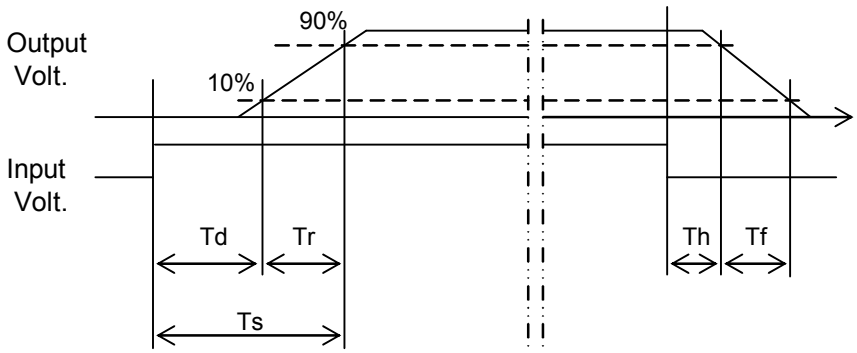
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	3.1	3.8	0.3	6.0
100 %	0.7	3.2	3.9	0.2	2.6



BC-10468

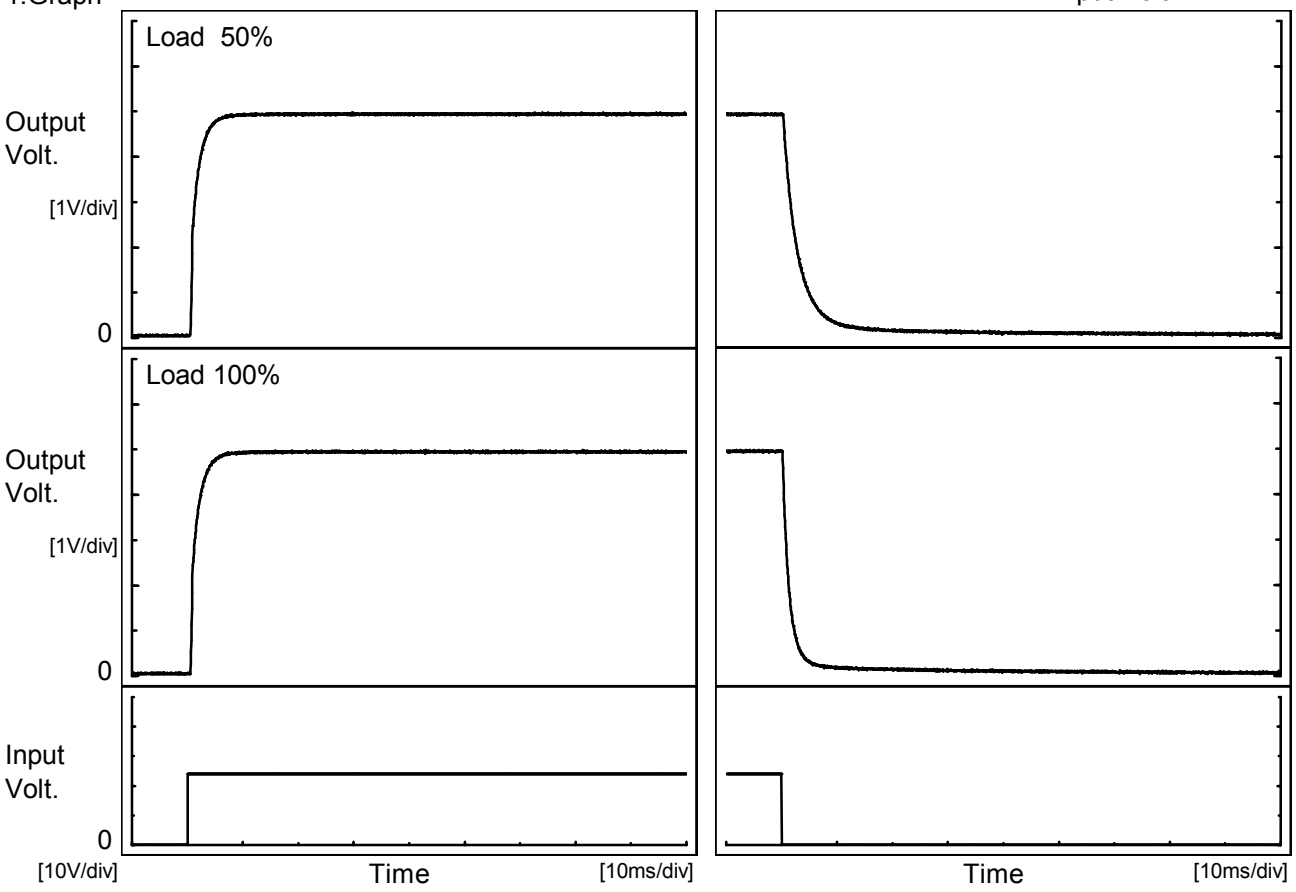
COSEL

Model	MGFW152405
Item	Rise and Fall Time
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

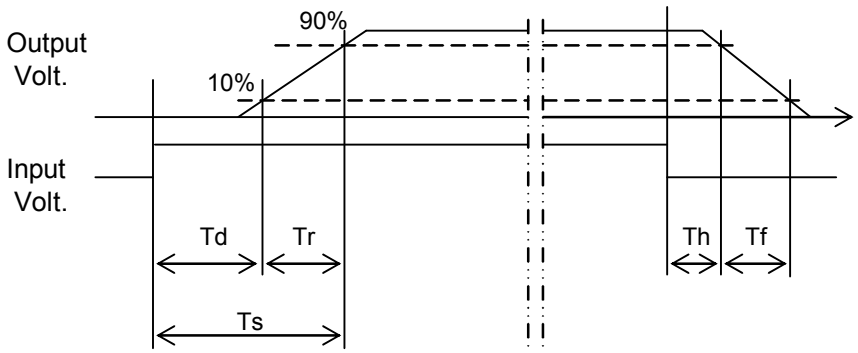
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	2.9	3.6	0.4	6.8
100 %	0.7	2.9	3.6	0.3	3.1



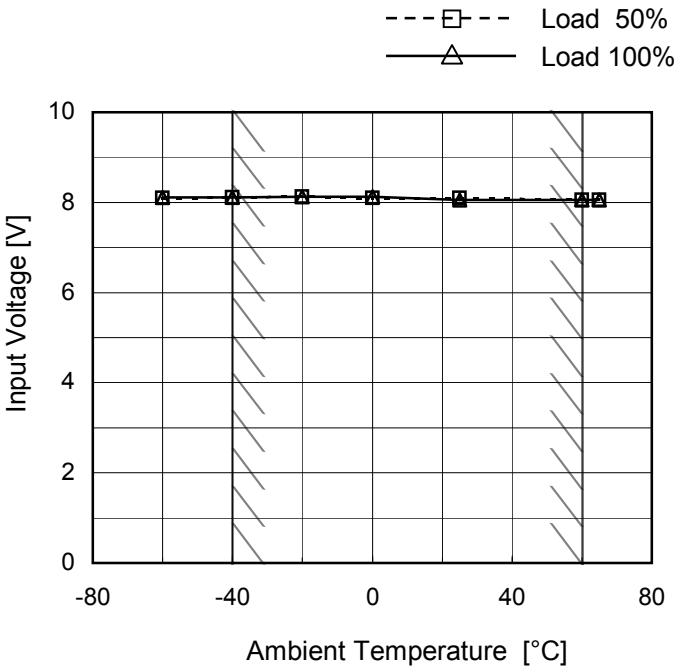
BC-10468

COSEL

Model	MGFW152405
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph

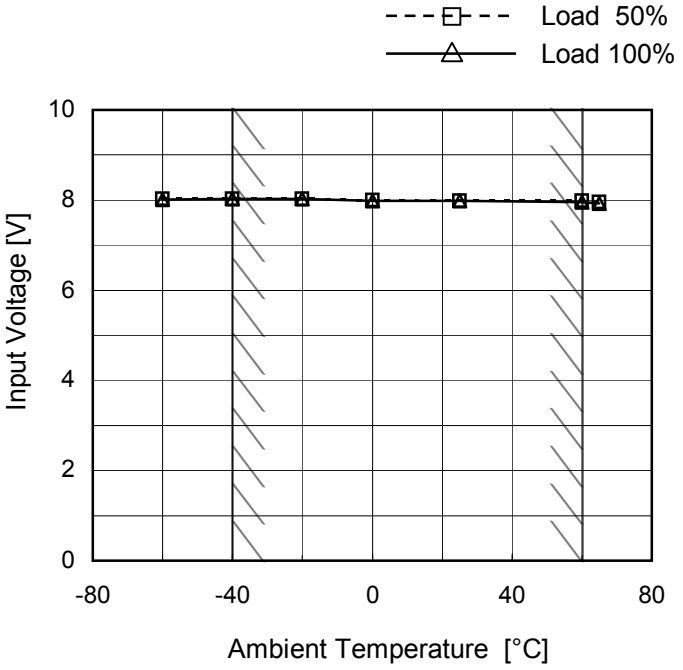


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.2
-40	8.2	8.2
-20	8.2	8.2
0	8.1	8.2
25	8.1	8.1
60	8.1	8.1
65	8.1	8.1
--	-	-
--	-	-
--	-	-
--	-	-

Object	-5V1.5A

1.Graph



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

2.Values

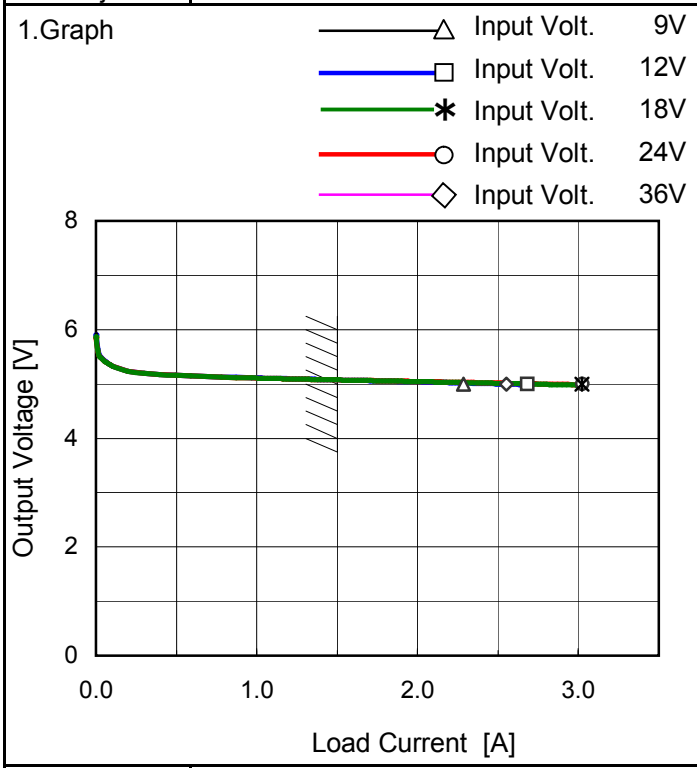
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.1	8.1
-40	8.1	8.1
-20	8.1	8.1
0	8.0	8.0
25	8.0	8.0
60	8.0	8.0
65	8.0	8.0
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGFW152405
Item	Overcurrent Protection
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



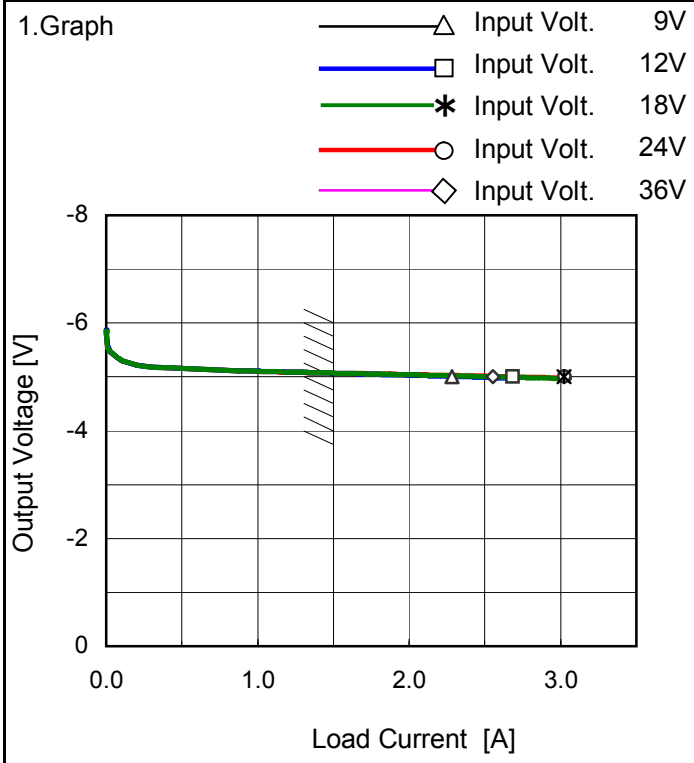
2.Values

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	2.284	2.684	3.021	3.027	2.552
4.75	-	-	-	-	-
4.50	-	-	-	-	-
4.00	-	-	-	-	-
3.50	-	-	-	-	-
3.00	-	-	-	-	-
2.50	-	-	-	-	-
2.00	-	-	-	-	-
1.50	-	-	-	-	-
1.00	-	-	-	-	-
0.50	-	-	-	-	-
0.00	-	-	-	-	-

-5V: Rated output current

Object	-5V1.5A

1.Graph



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	2.284	2.684	3.021	3.027	2.552
-4.75	-	-	-	-	-
-4.50	-	-	-	-	-
-4.00	-	-	-	-	-
-3.50	-	-	-	-	-
-3.00	-	-	-	-	-
-2.50	-	-	-	-	-
-2.00	-	-	-	-	-
-1.50	-	-	-	-	-
-1.00	-	-	-	-	-
-0.50	-	-	-	-	-
0.00	-	-	-	-	-

+5V: Rated output current

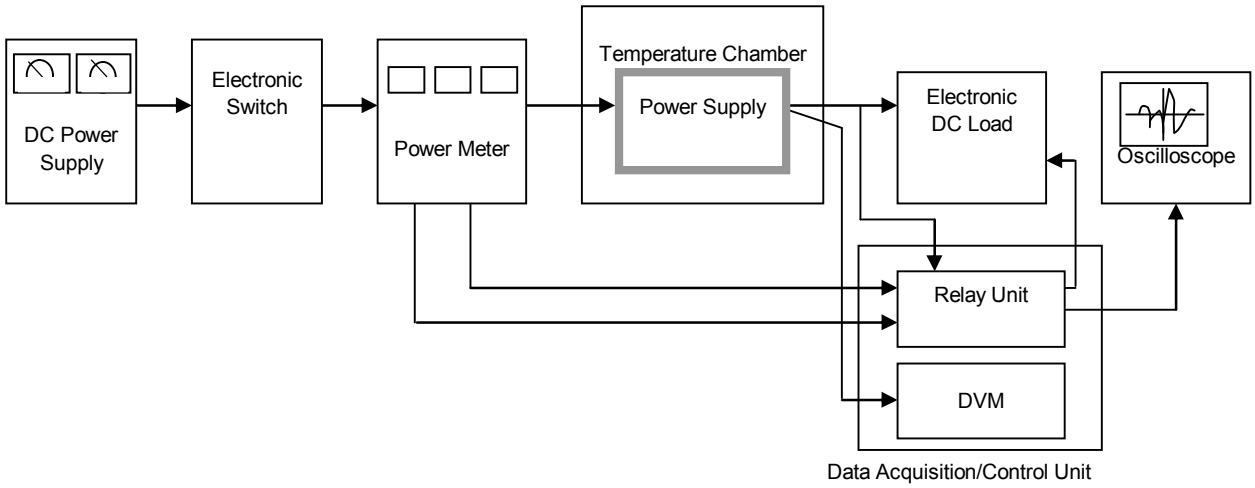


Figure A

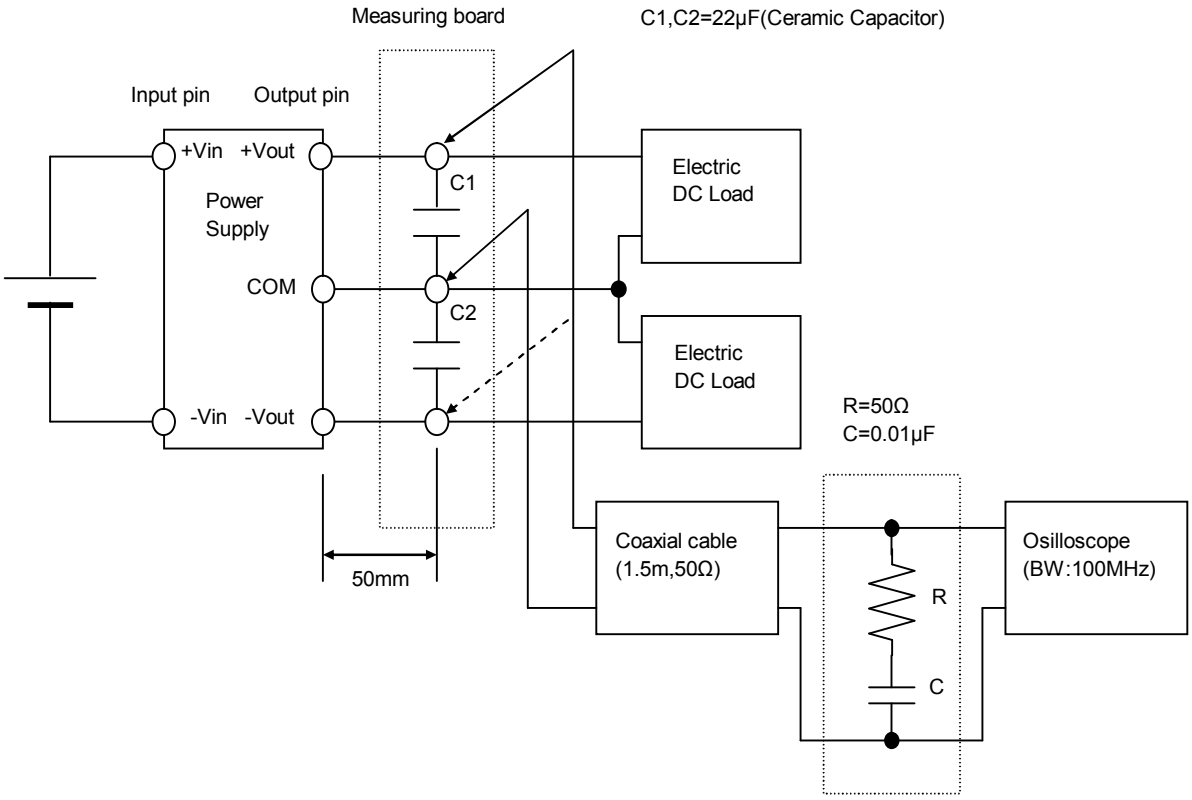


Figure B（Ripple and Ripple noise Characteristic）