COSEL

参考資料

TEST DATA OF MGW152405

Regulated DC Power Supply
September 15, 2010

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COSEL CO.,LTD.

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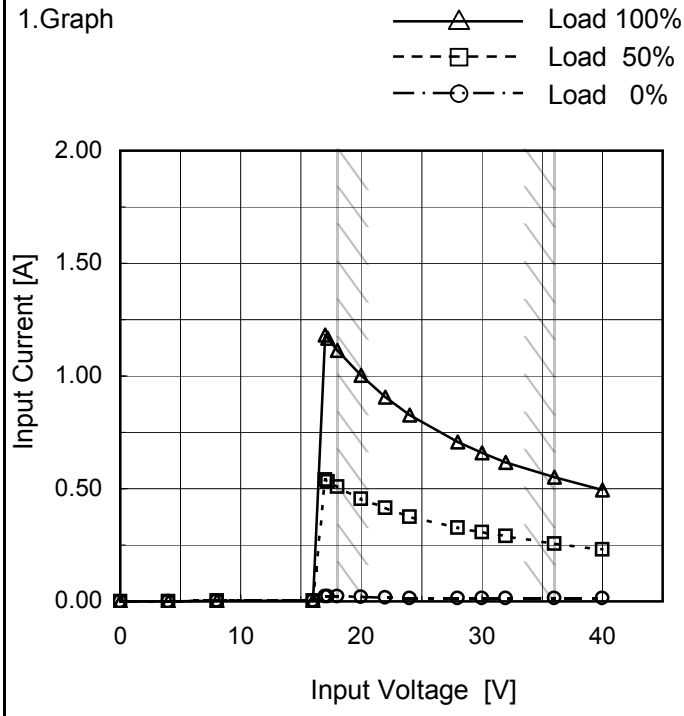
Model	MGW152405
Item	Input Current (by Input Voltage)
Object	————————

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
4.0	0.000	0.000	0.000
8.0	0.003	0.003	0.003
16.0	0.003	0.003	0.003
17.0	0.023	0.539	1.183
17.2	0.023	0.532	1.169
18.0	0.022	0.508	1.114
20.0	0.019	0.456	1.002
22.0	0.017	0.414	0.906
24.0	0.015	0.376	0.827
28.0	0.015	0.327	0.706
30.0	0.015	0.307	0.658
32.0	0.015	0.289	0.617
36.0	0.015	0.256	0.550
40.0	0.015	0.229	0.495
--	-	-	-
--	-	-	-
--	-	-	-

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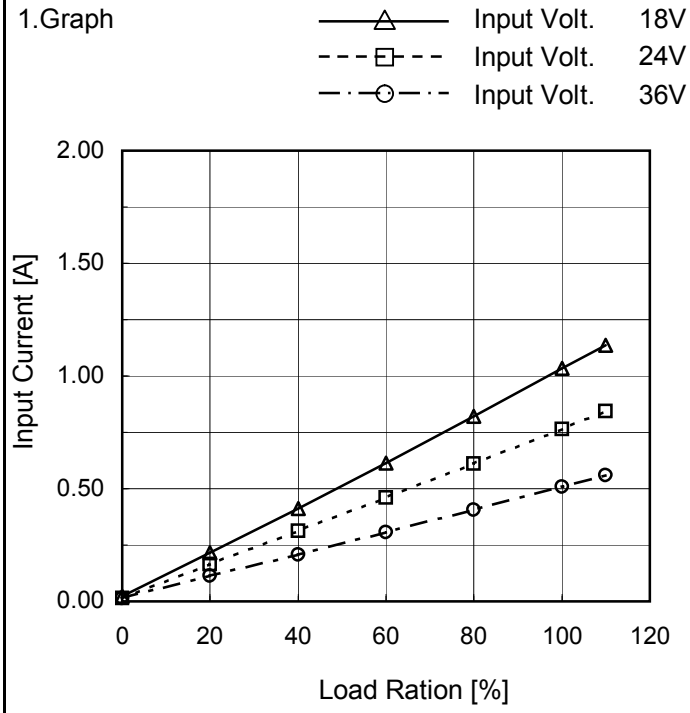
COSEL

Model	MGW152405
Item	Input Current (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

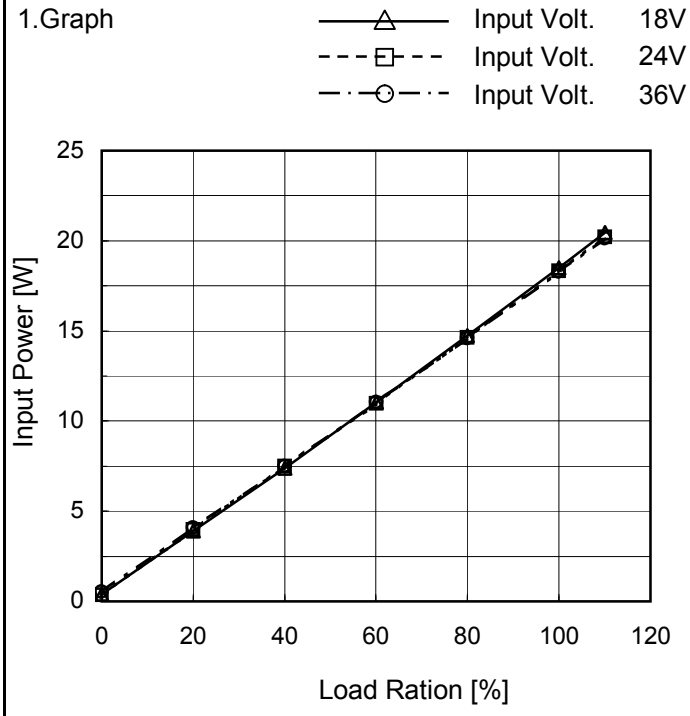
Load Ration [%]	Input Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.022	0.015	0.015
20	0.217	0.166	0.113
40	0.412	0.313	0.208
60	0.614	0.460	0.308
80	0.820	0.610	0.406
100	1.034	0.765	0.509
110	1.136	0.843	0.560
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW152405
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

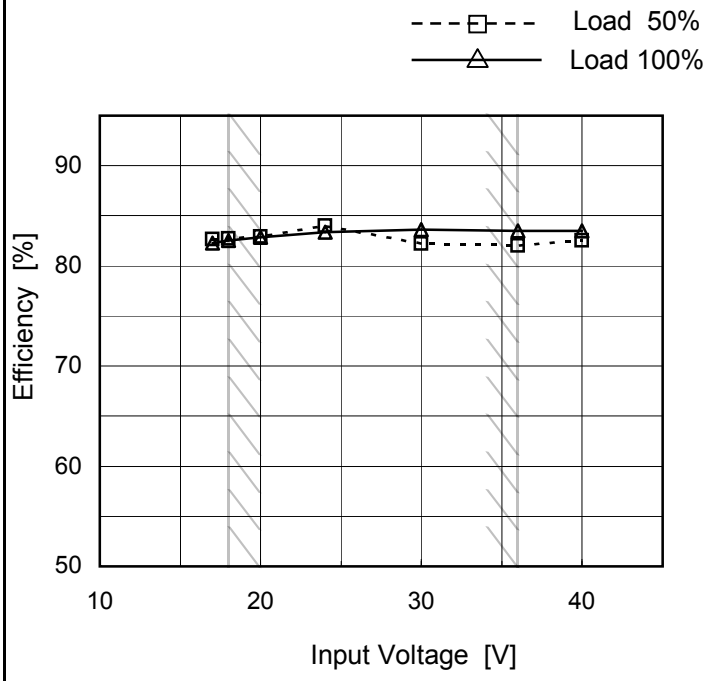
Load Ration [%]	Input Power [W] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.40	0.36	0.55
20	3.90	3.97	4.08
40	7.38	7.49	7.50
60	11.04	10.99	11.06
80	14.72	14.63	14.61
100	18.50	18.32	18.29
110	20.45	20.20	20.14
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW152405
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

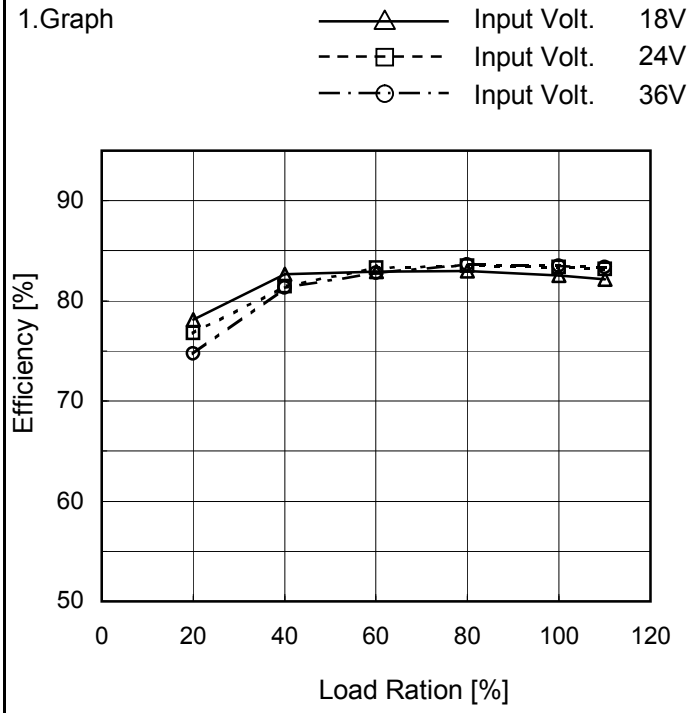
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	82.7	82.3
18	82.7	82.5
20	82.9	82.8
24	84.0	83.3
30	82.2	83.6
36	82.0	83.5
40	82.6	83.5
--	-	-
--	-	-

COSEL

Model	MGW152405
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-
20	78.2	76.8	74.7
40	82.7	81.4	81.3
60	82.9	83.3	82.8
80	83.0	83.5	83.6
100	82.5	83.3	83.5
110	82.1	83.1	83.4
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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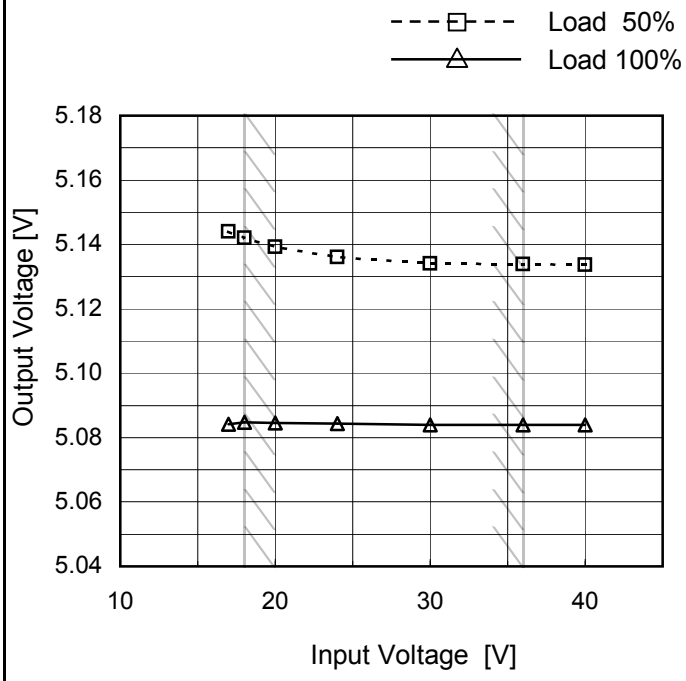
Model	MGW152405
Item	Line Regulation

Temperature 25°C
Testing Circuitry Figure A

Object +5V1.5A

1.Graph



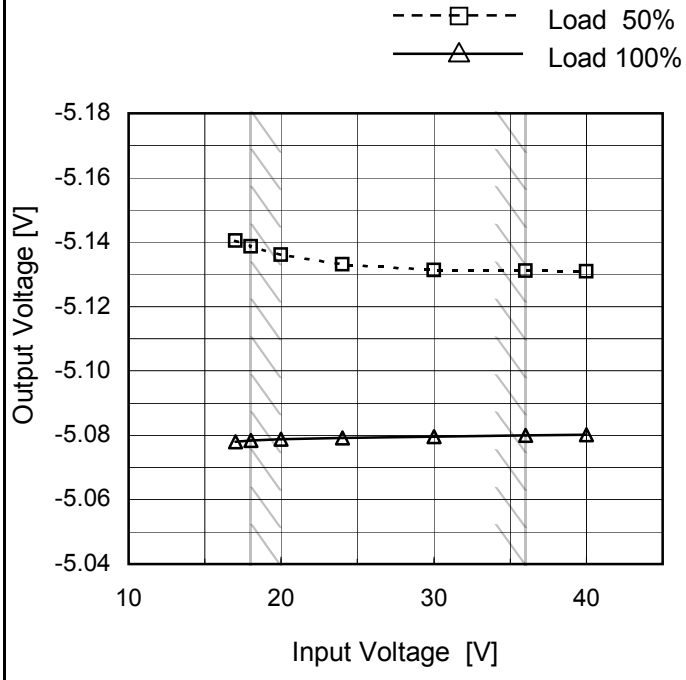
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.144	5.084
18	5.142	5.085
20	5.139	5.085
24	5.136	5.084
30	5.134	5.084
36	5.134	5.084
40	5.134	5.084
--	-	-
--	-	-

-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%
17	-5.141	-5.078
18	-5.139	-5.078
20	-5.136	-5.079
24	-5.133	-5.079
30	-5.131	-5.080
36	-5.131	-5.080
40	-5.131	-5.080
--	-	-
--	-	-

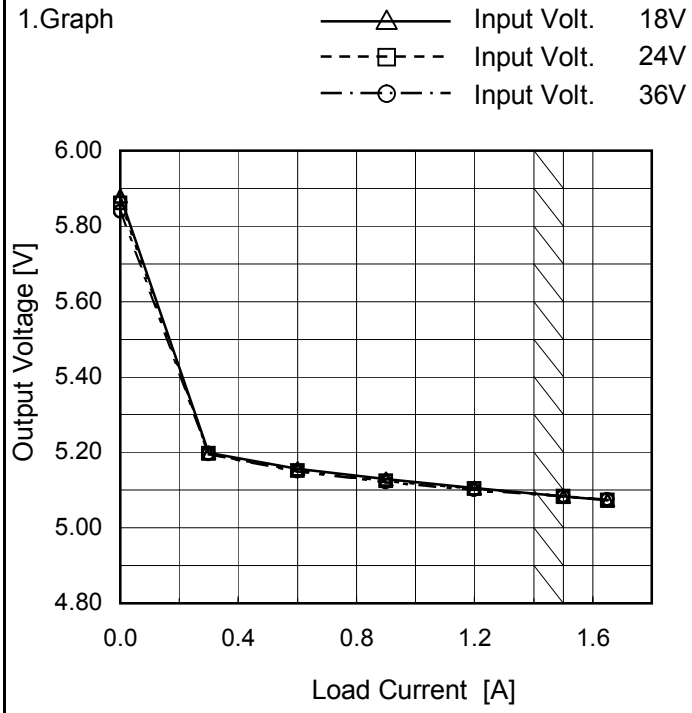
+5V: Rated output current

COSEL

Model	MGW152405
Item	Load Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



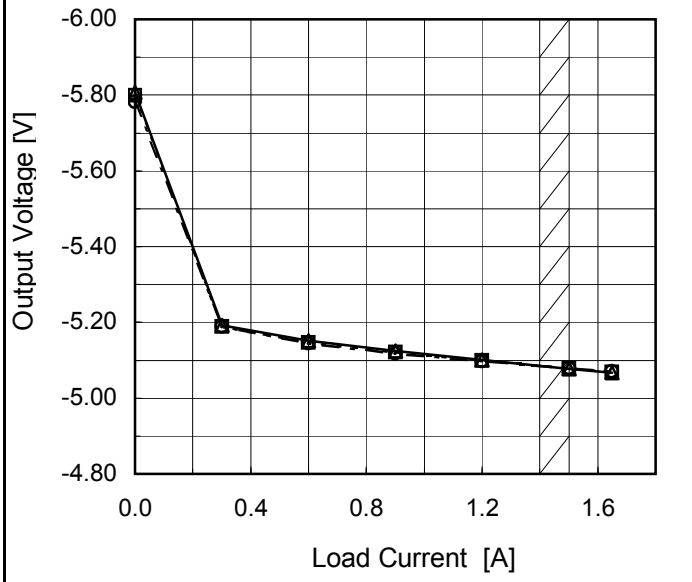
2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	5.880	5.861	5.839
0.30	5.199	5.197	5.196
0.60	5.157	5.151	5.150
0.90	5.130	5.125	5.122
1.20	5.106	5.103	5.101
1.50	5.084	5.083	5.083
1.65	5.073	5.074	5.074
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

-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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	-5.807	-5.799	-5.783
0.30	-5.191	-5.190	-5.189
0.60	-5.151	-5.146	-5.145
0.90	-5.125	-5.121	-5.118
1.20	-5.101	-5.099	-5.097
1.50	-5.078	-5.079	-5.079
1.65	-5.067	-5.069	-5.071
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

+5V: Rated output current

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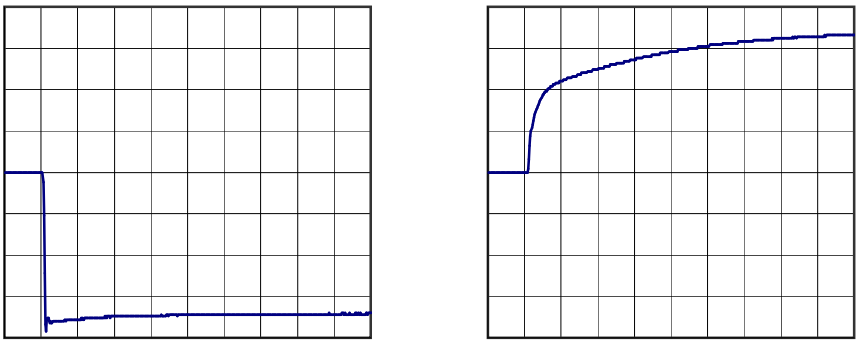
Model	MGW152405
Item	Dynamic Load Response
Object	+5V1.5A

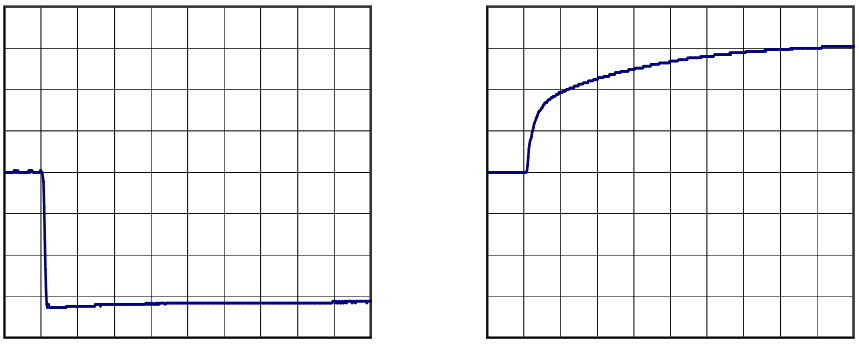
Temperature 25°C
Testing Circuitry Figure A

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

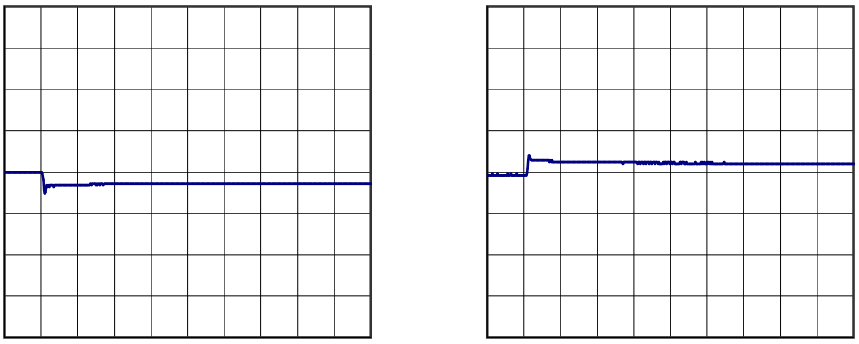
Min. Load (0A) ⟷
Load 100% (1.5A)



Min. Load (0A) ⟷
Load 50% (0.75A)



Load 50% (0.75A) ⟷
Load 100% (1.5A)



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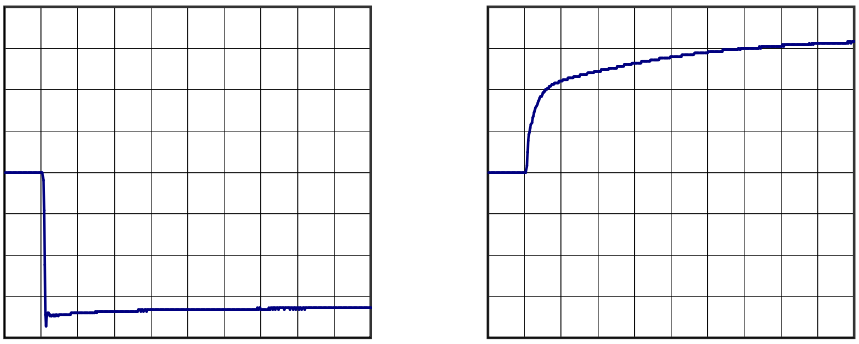
Model	MGW152405
Item	Dynamic Load Response
Object	-5V1.5A

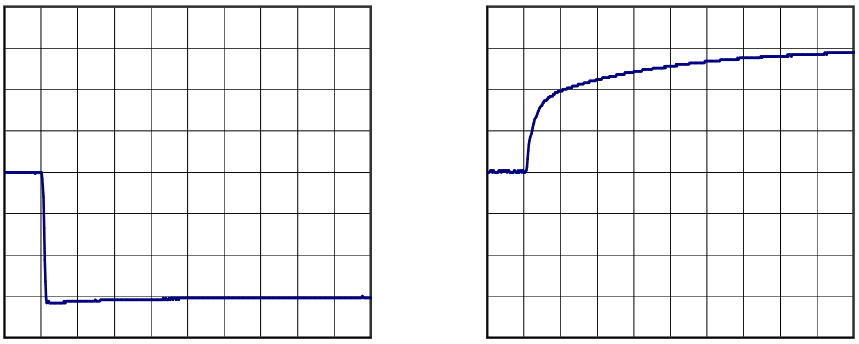
Temperature 25°C
Testing Circuitry Figure A

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

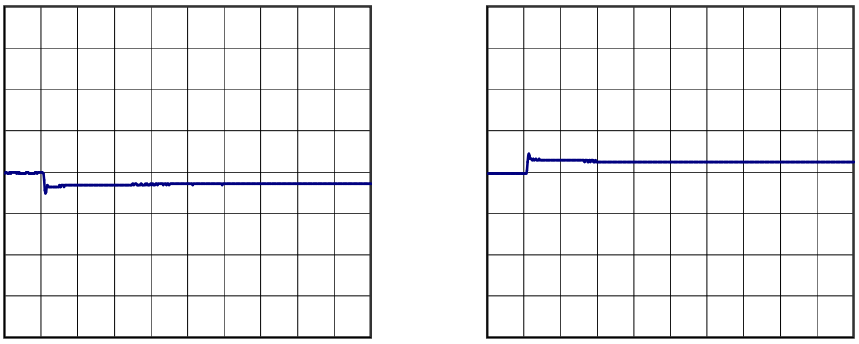
Min. Load (0A) ⟷
Load 100% (1.5A)



Min. Load (0A) ⟷
Load 50% (0.75A)



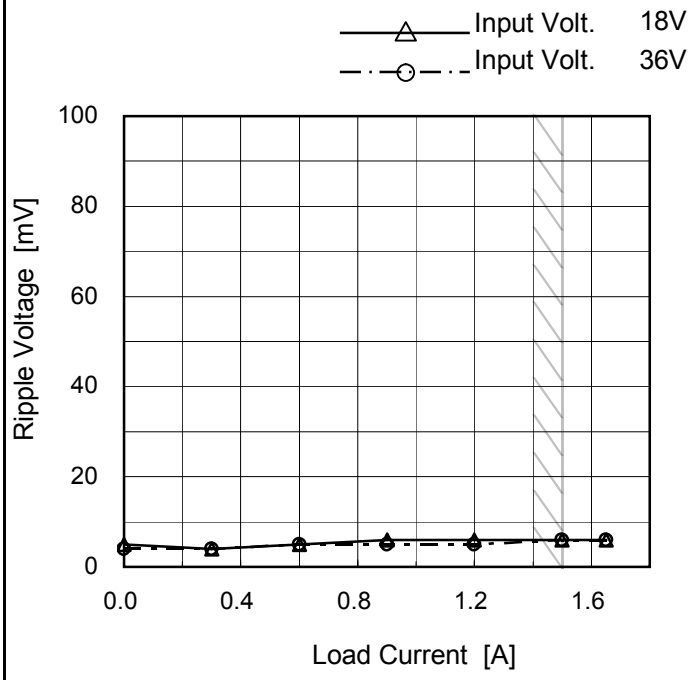
Load 50% (0.75A) ⟷
Load 100% (1.5A)



Model	MGW152405
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]

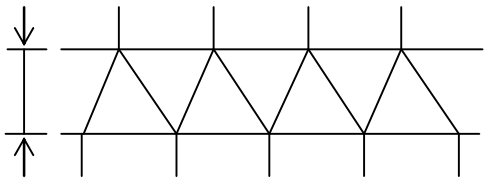


Fig.Complex Ripple Wave Form

2.Values

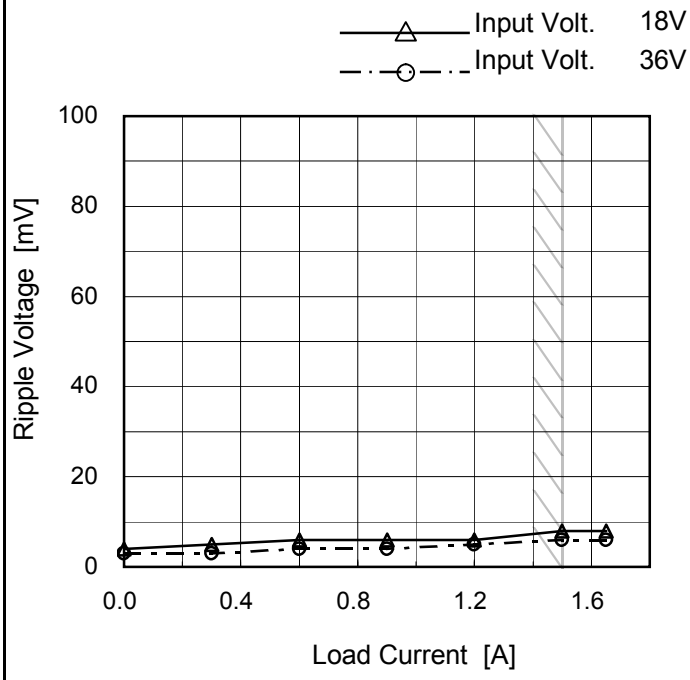
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	5	4
0.30	4	4
0.60	5	5
0.90	6	5
1.20	6	5
1.50	6	6
1.65	6	6
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Model	MGW152405
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]

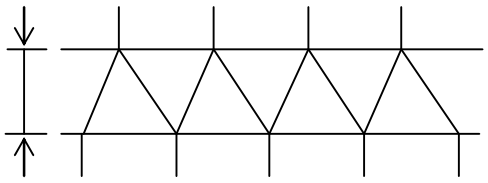


Fig.Complex Ripple Wave Form

2.Values

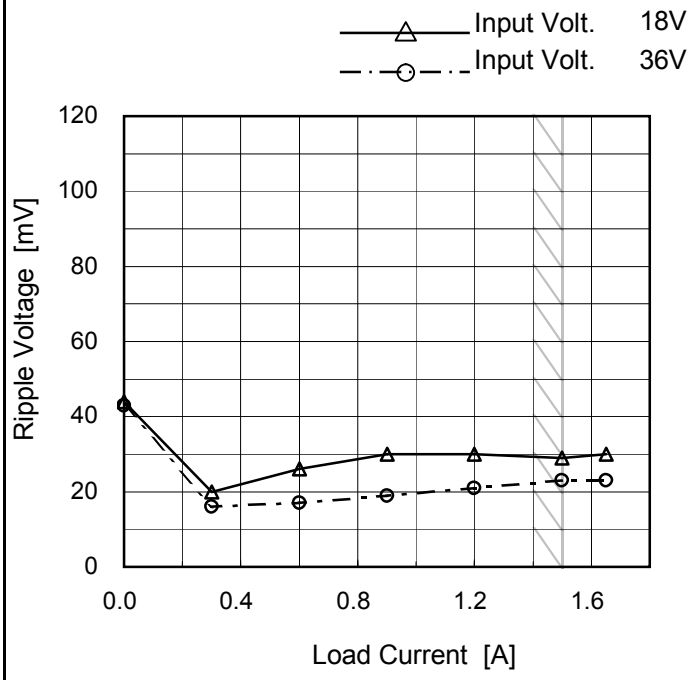
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	4	3
0.30	5	3
0.60	6	4
0.90	6	4
1.20	6	5
1.50	8	6
1.65	8	6
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

Model	MGW152405
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.

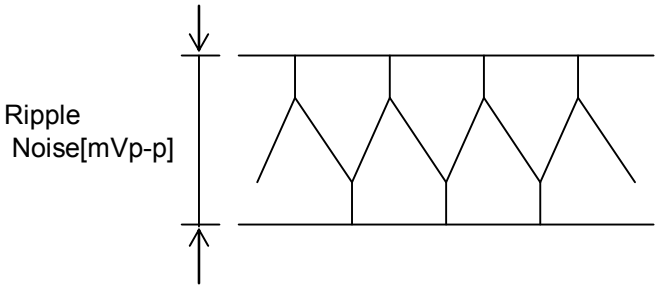


Fig.Complex Ripple Noise Wave Form

2.Values

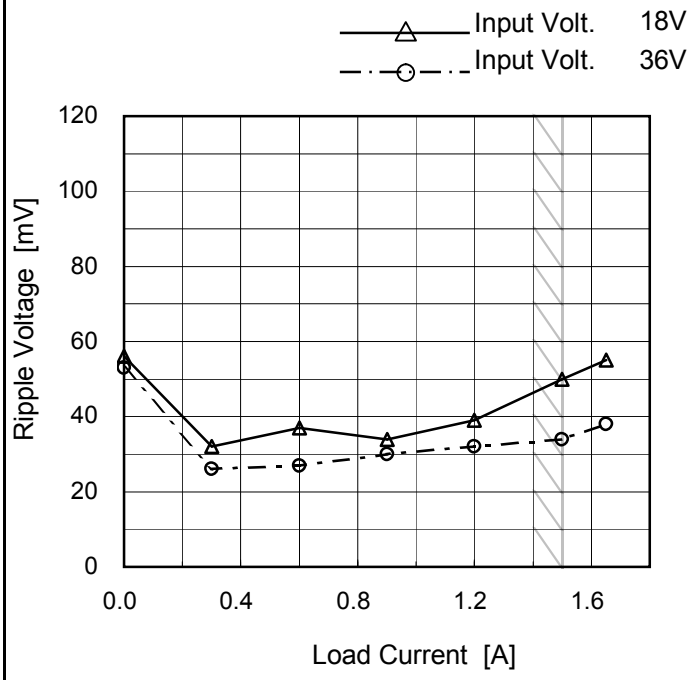
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	44	43
0.30	20	16
0.60	26	17
0.90	30	19
1.20	30	21
1.50	29	23
1.65	30	23
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Model	MGW152405
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.

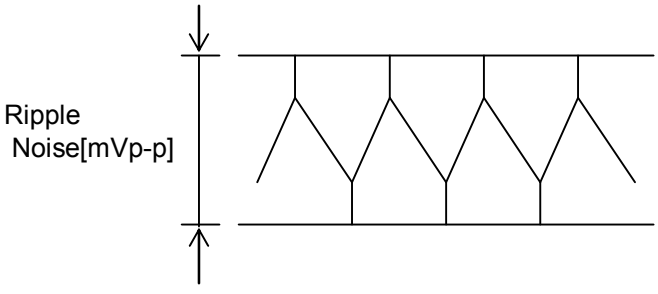


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	56	53
0.30	32	26
0.60	37	27
0.90	34	30
1.20	39	32
1.50	50	34
1.65	55	38
--	-	-
--	-	-
--	-	-
--	-	-

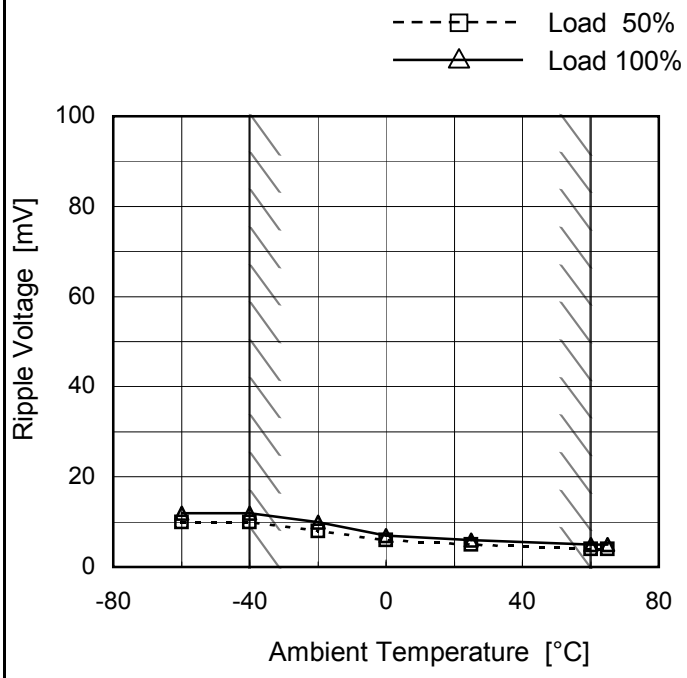
+5V: Rated output current

COSEL

Model	MGW152405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

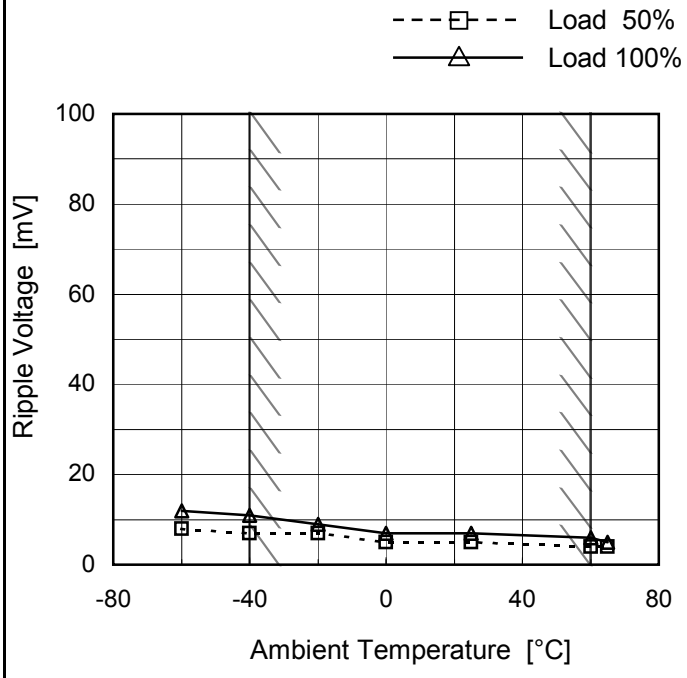
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	12
-40	10	12
-20	8	10
0	6	7
25	5	6
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	12
-40	7	11
-20	7	9
0	5	7
25	5	7
60	4	6
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

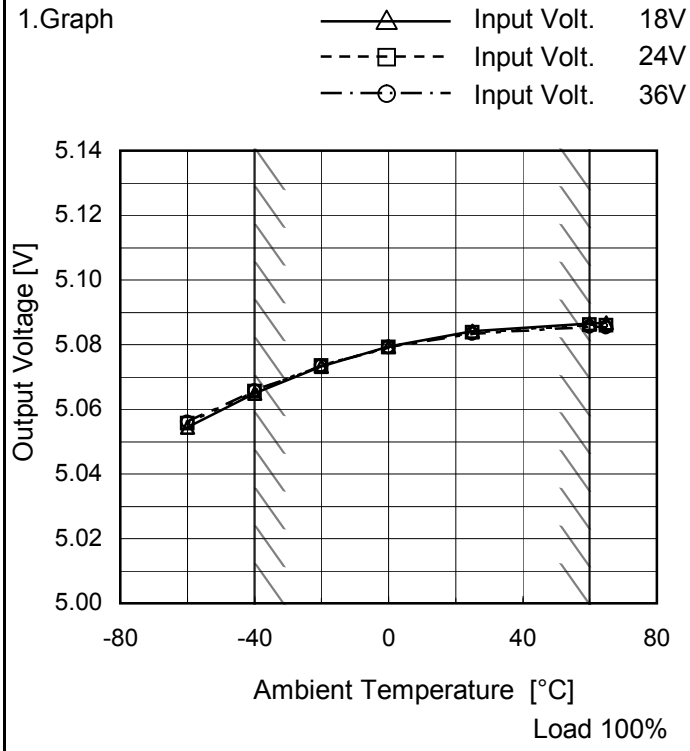
+5V: Rated output current

COSEL

Model	MGW152405
Item	Ambient Temperature Drift
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph

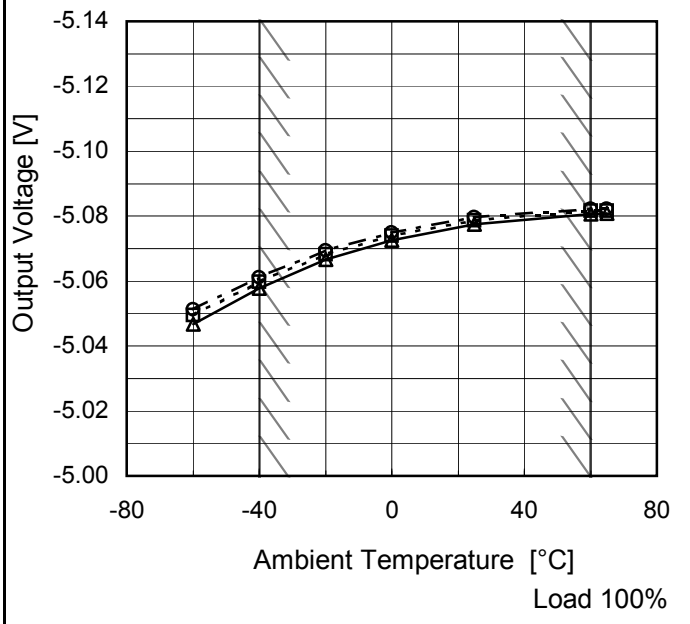


2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	5.054	5.056	5.056
-40	5.065	5.066	5.066
-20	5.073	5.074	5.074
0	5.080	5.079	5.079
25	5.084	5.084	5.083
60	5.087	5.086	5.086
65	5.087	5.086	5.085
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	-5.047	-5.049	-5.051
-40	-5.058	-5.060	-5.061
-20	-5.067	-5.068	-5.069
0	-5.073	-5.074	-5.075
25	-5.077	-5.079	-5.080
60	-5.081	-5.082	-5.082
65	-5.081	-5.082	-5.082
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGW152405	
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 : 18 - 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

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

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	18	0	5.878	±407	±8.1
Minimum Voltage	-40	18	1.5	5.065		

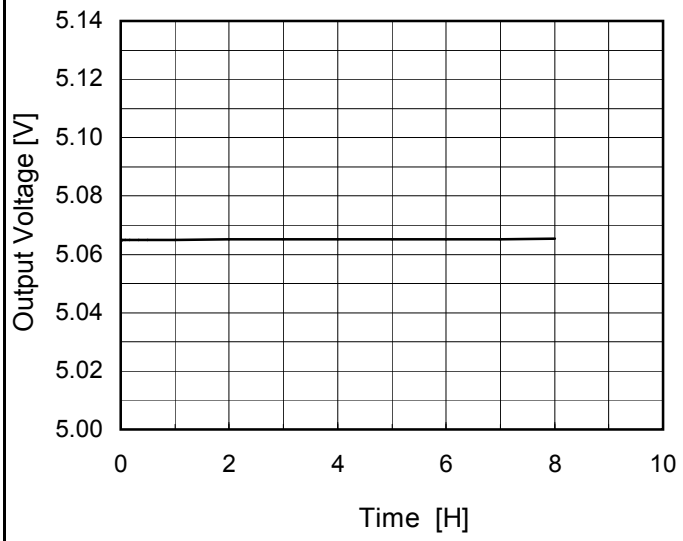
Object	-5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18	0	-5.808	±375	±7.5
Minimum Voltage	-40	18	1.5	-5.058		

COSEL

Model	MGW152405
Item	Time Lapse Drift
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



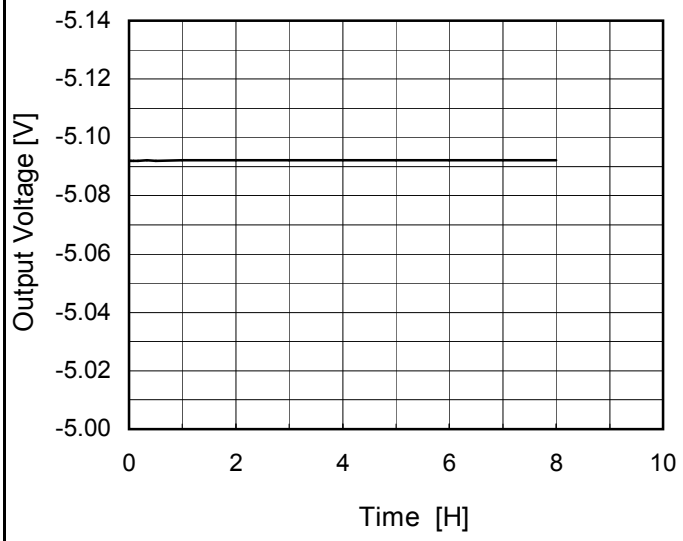
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.065
0.5	5.065
1.0	5.065
2.0	5.065
3.0	5.065
4.0	5.065
5.0	5.065
6.0	5.065
7.0	5.065
8.0	5.065

Object	-5V1.5A

1.Graph



Input Volt. 24V
Load 100%

2.Values

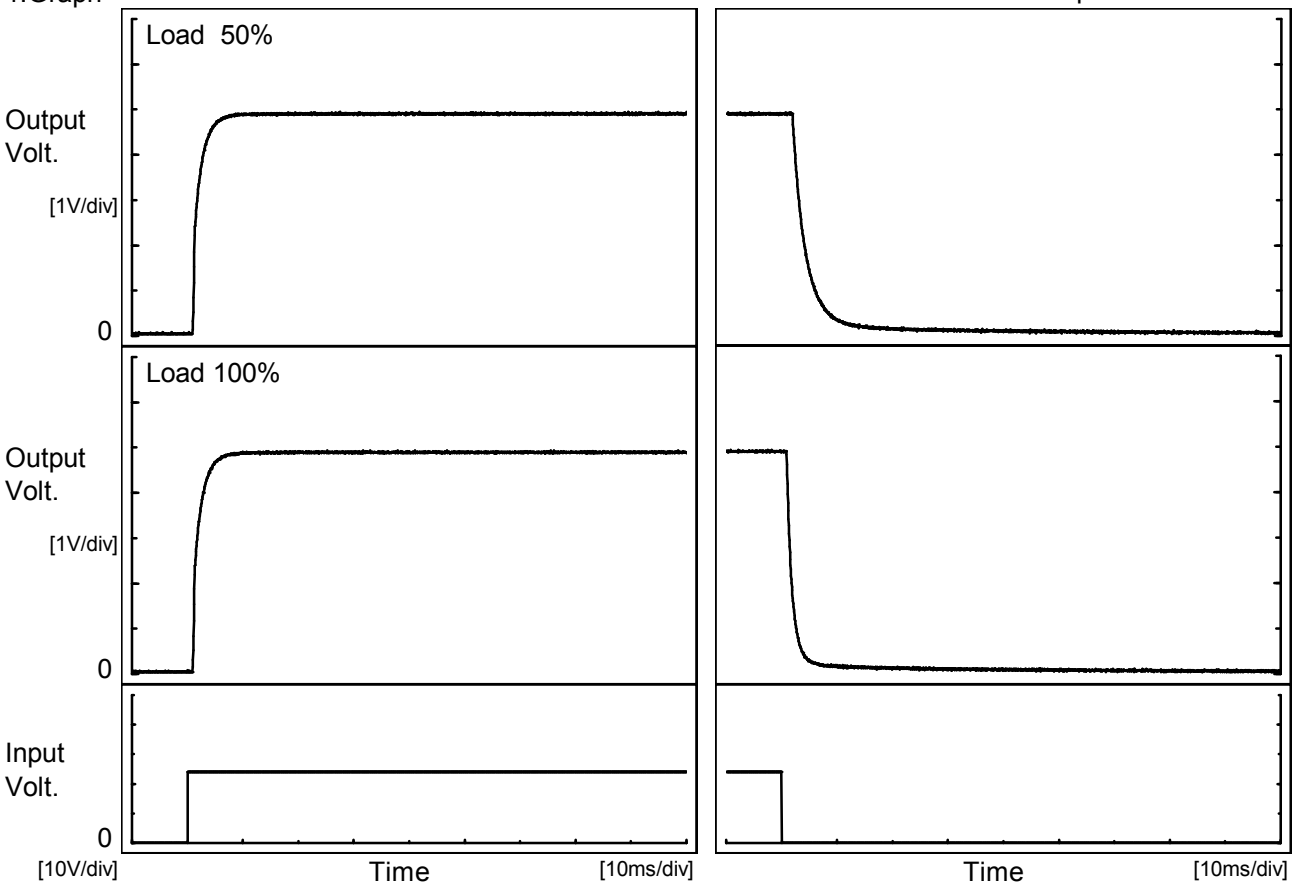
Time since start [H]	Output Voltage [V]
0.0	-5.092
0.5	-5.092
1.0	-5.092
2.0	-5.092
3.0	-5.092
4.0	-5.092
5.0	-5.092
6.0	-5.092
7.0	-5.092
8.0	-5.092

COSEL

Model	MGW152405	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V1.5A	

1.Graph

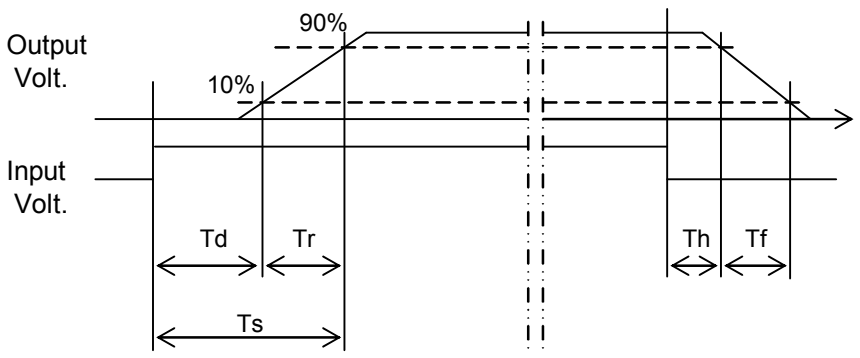
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.1	3.2	4.3	2.0	6.1
100 %	1.1	3.2	4.3	1.0	2.6

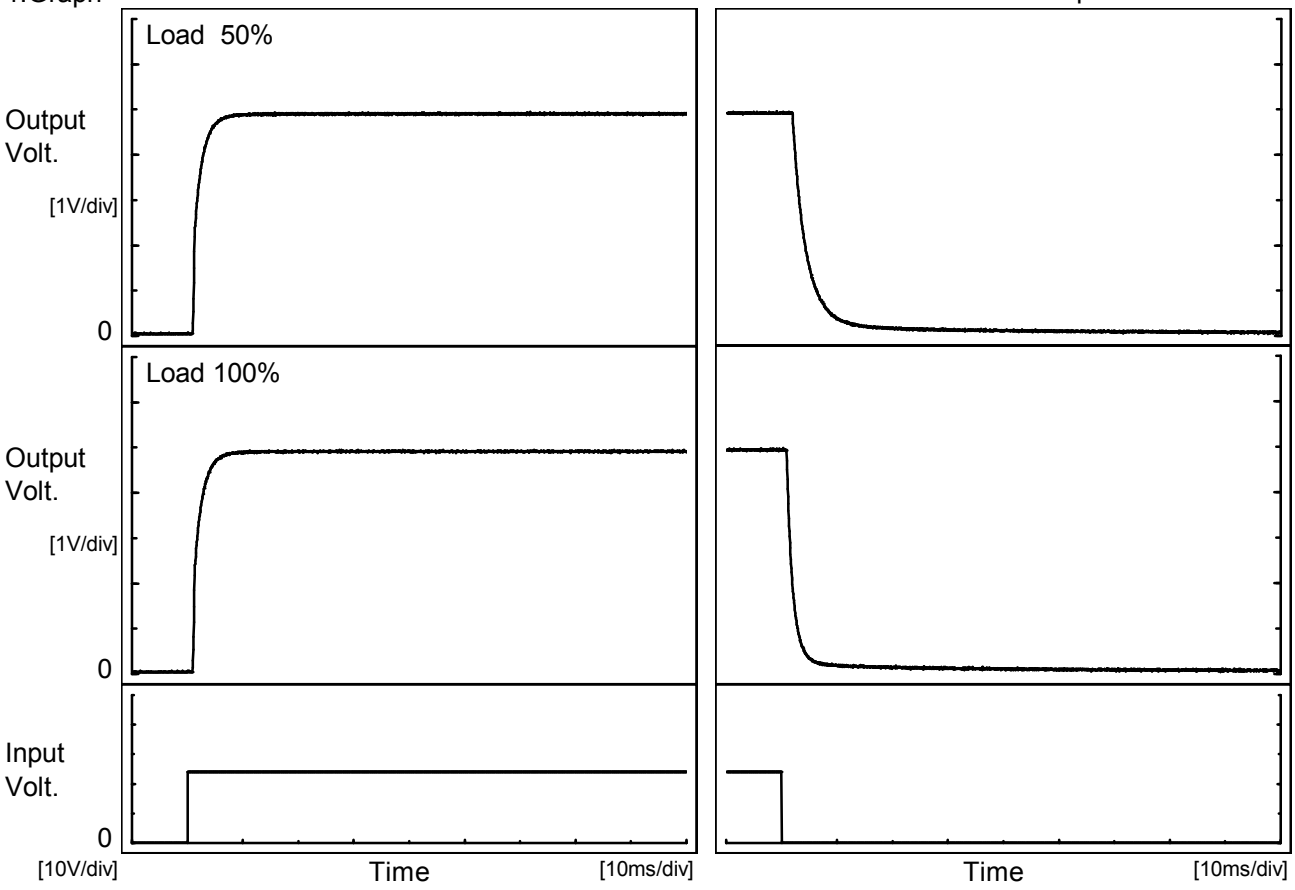


COSEL

Model	MGW152405	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-5V1.5A	

1.Graph

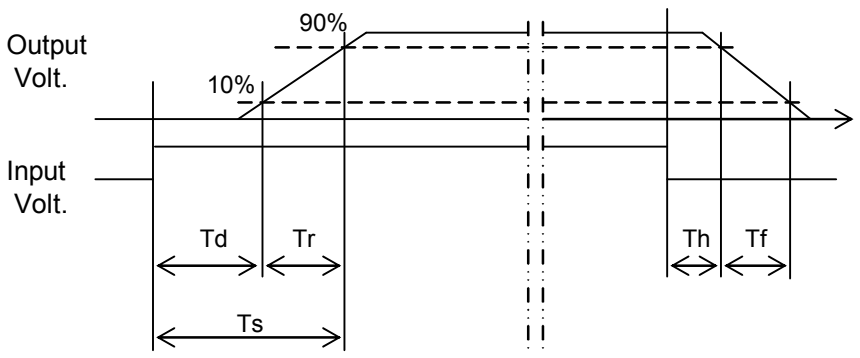
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.1	3.2	4.3	2.0	6.4
100 %	1.1	3.1	4.2	1.0	3.0

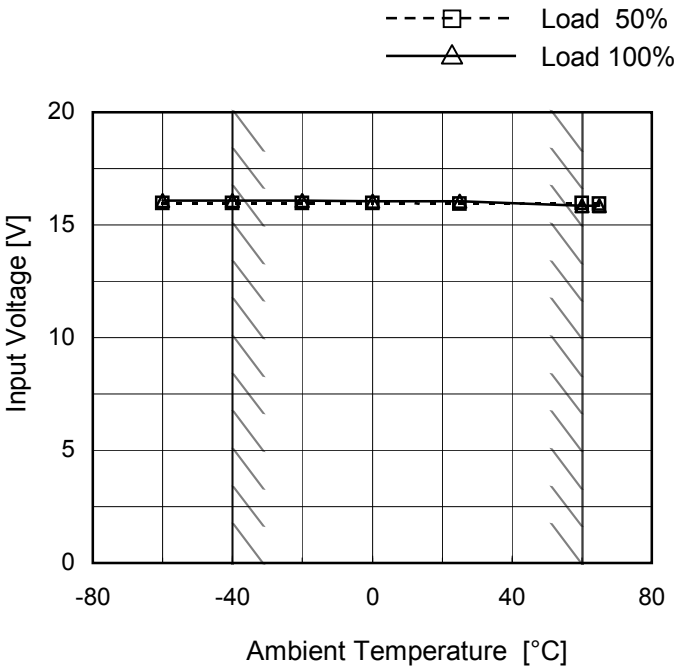


COSEL

Model	MGW152405
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph

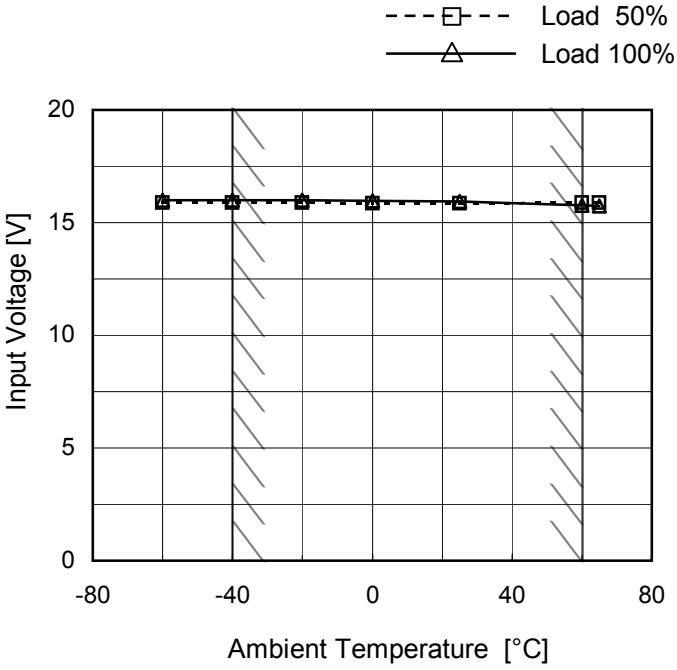


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	16.0	16.1
-40	16.0	16.1
-20	16.0	16.1
0	16.0	16.1
25	16.0	16.1
60	16.0	15.9
65	16.0	15.9
--	-	-
--	-	-
--	-	-
--	-	-

Object	-5V1.5A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.9	16.0
-40	15.9	16.0
-20	15.9	16.0
0	15.9	16.0
25	15.9	16.0
60	15.9	15.8
65	15.9	15.8
--	-	-
--	-	-
--	-	-
--	-	-

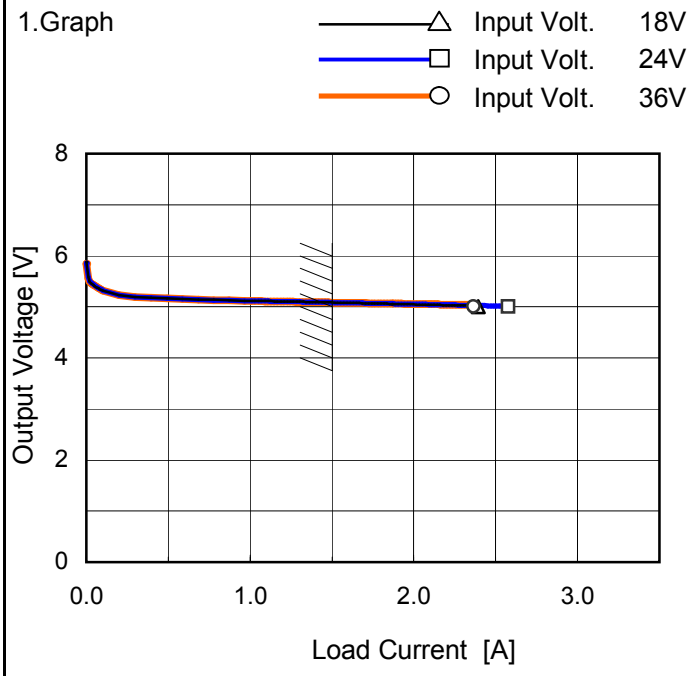
Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	MGW152405
Item	Overcurrent Protection
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



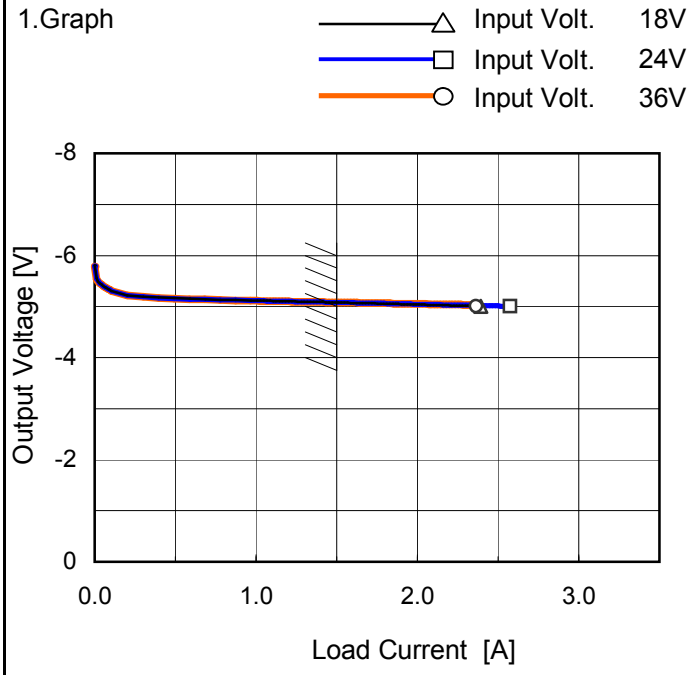
2.Values

Output Voltage [V]	Load Current [A] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
5.00	2.39	2.58	2.37
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-5.00	2.39	2.58	2.37
-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

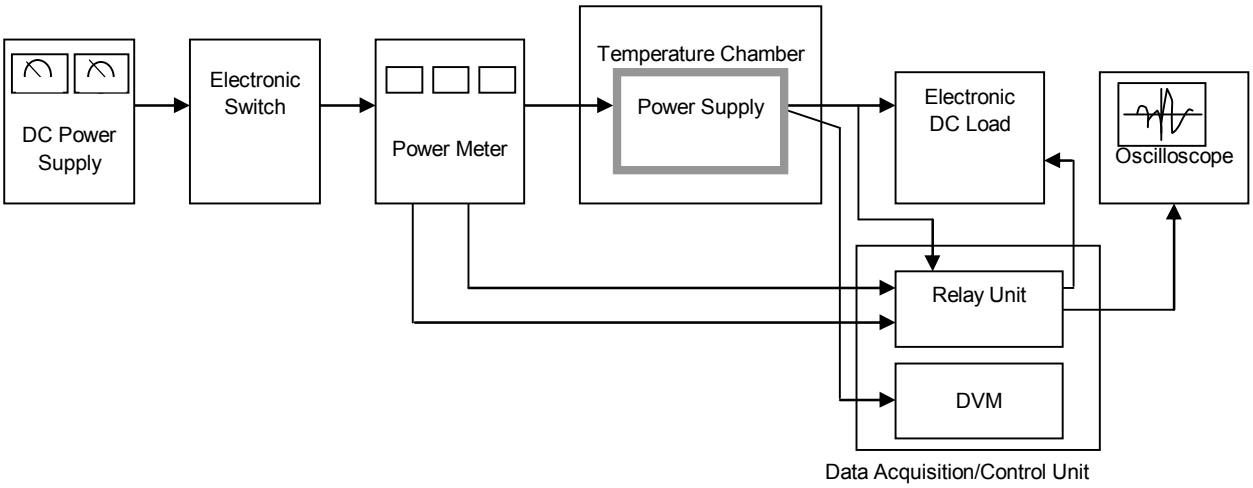


Figure A

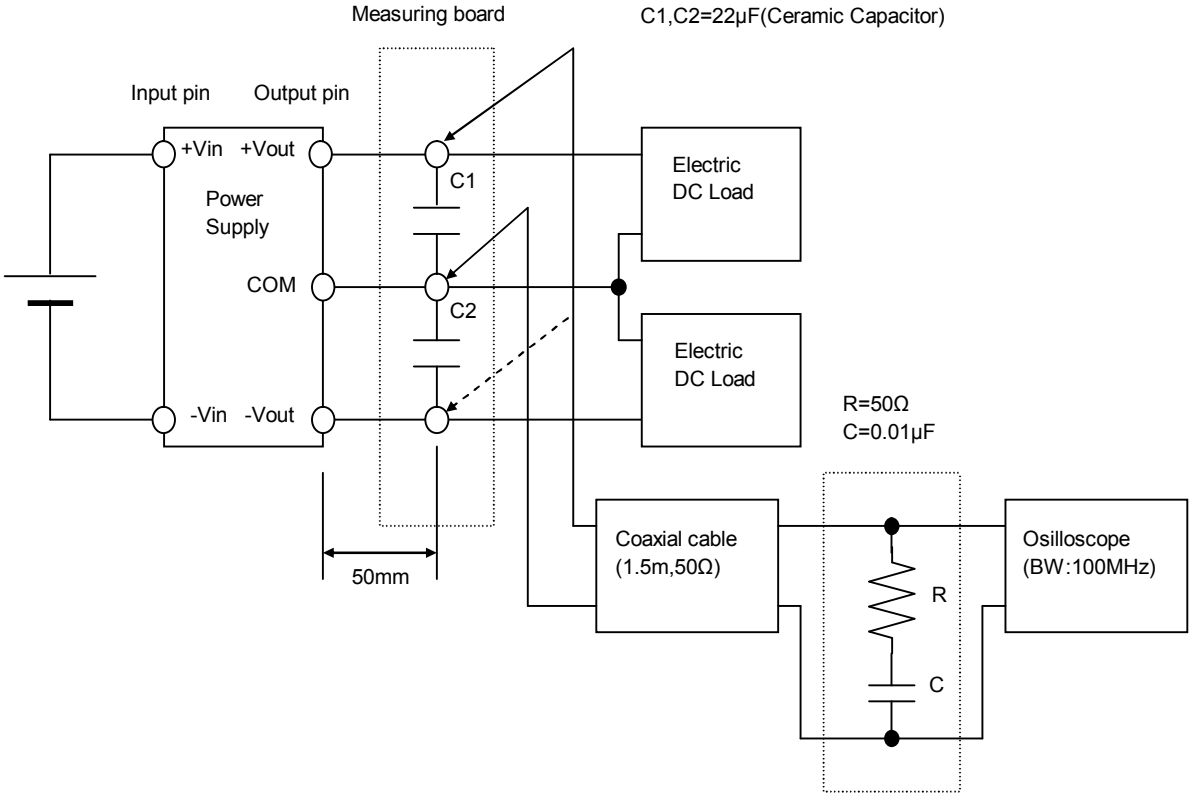


Figure B（Ripple and Ripple noise Characteristic）