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参考資料

TEST DATA OF MGFW154805

Regulated DC Power Supply
September 9, 2010

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COSEL CO.,LTD.

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参考資料

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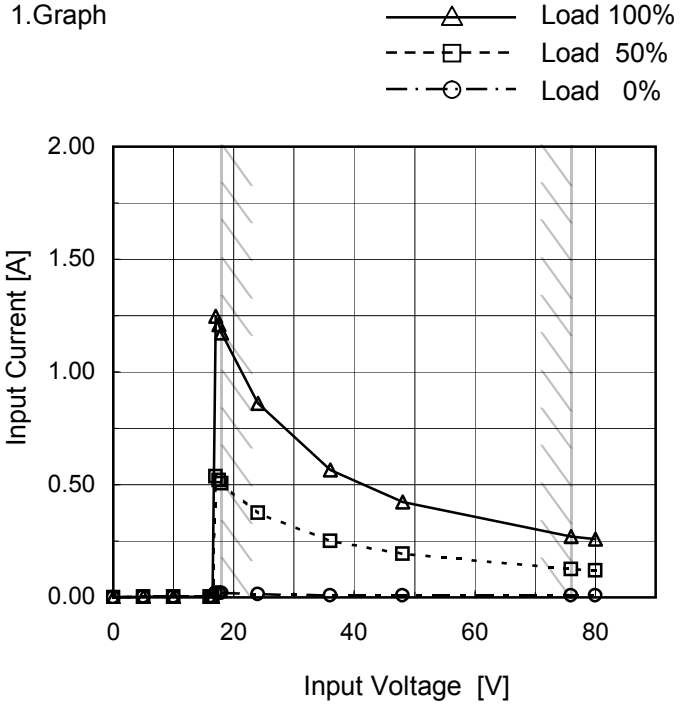
Model	MGFW154805
Item	Input Current (by Input Voltage)
Object	――――――

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
5.0	0.003	0.003	0.003
10.0	0.003	0.003	0.003
16.0	0.003	0.003	0.003
16.5	0.003	0.003	0.003
17.0	0.020	0.537	1.246
17.5	0.020	0.521	1.210
18.0	0.019	0.506	1.174
24.0	0.014	0.376	0.860
36.0	0.010	0.251	0.566
48.0	0.008	0.193	0.424
76.0	0.009	0.124	0.271
80.0	0.009	0.118	0.257
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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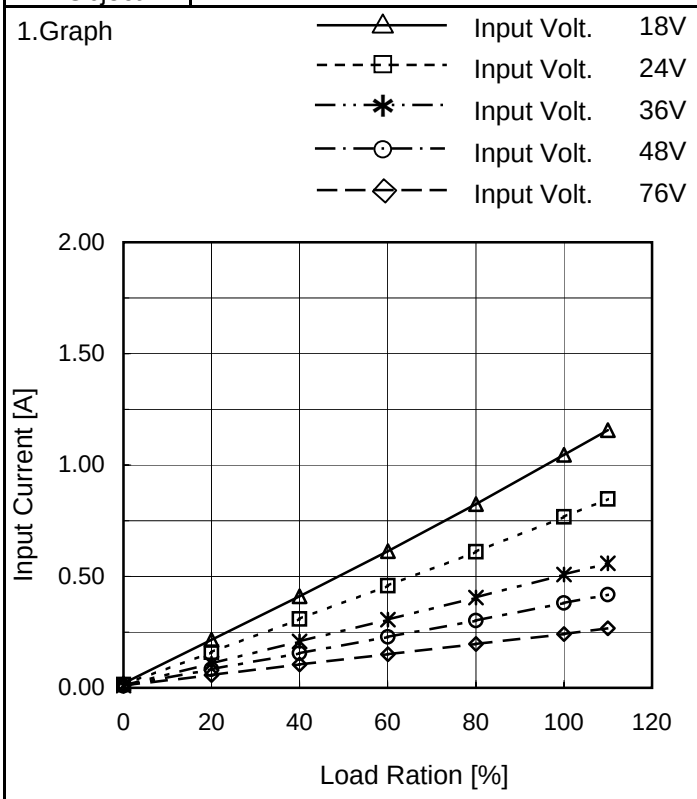
COSEL

Model	MGFW154805
Item	Input Current (by Load Current)
Object	――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

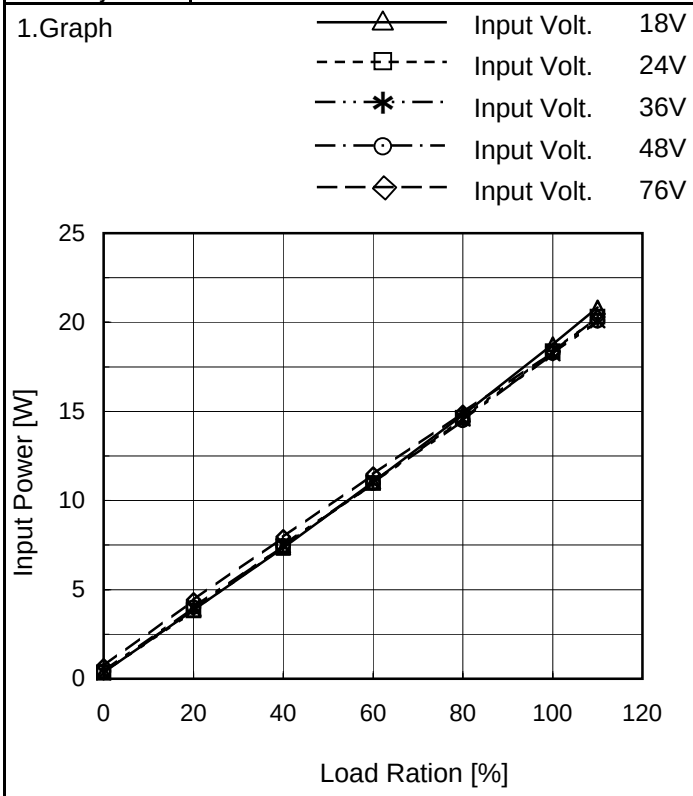
Load Ration [%]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.020	0.015	0.009	0.008	0.009
20	0.215	0.159	0.109	0.083	0.058
40	0.410	0.309	0.208	0.155	0.104
60	0.614	0.459	0.306	0.229	0.151
80	0.824	0.610	0.406	0.302	0.196
100	1.046	0.767	0.508	0.381	0.241
110	1.157	0.848	0.559	0.419	0.267
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW154805
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]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.36	0.35	0.35	0.41	0.72
20	3.87	3.82	3.93	4.00	4.41
40	7.35	7.41	7.48	7.46	7.95
60	11.04	10.97	11.02	10.97	11.48
80	14.80	14.63	14.59	14.50	14.94
100	18.76	18.38	18.24	18.26	18.34
110	20.83	20.32	20.09	20.08	20.30
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

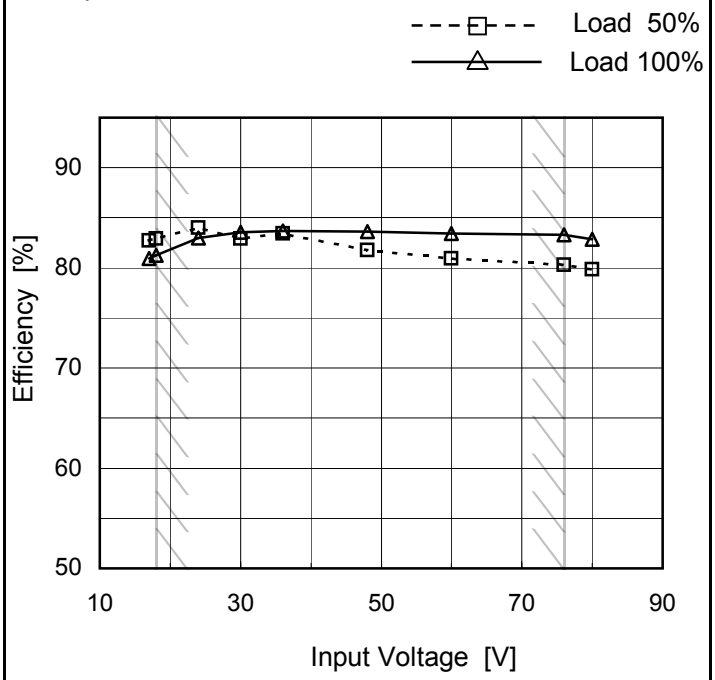
BC-10471

COSEL

Model	MGFW154805
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

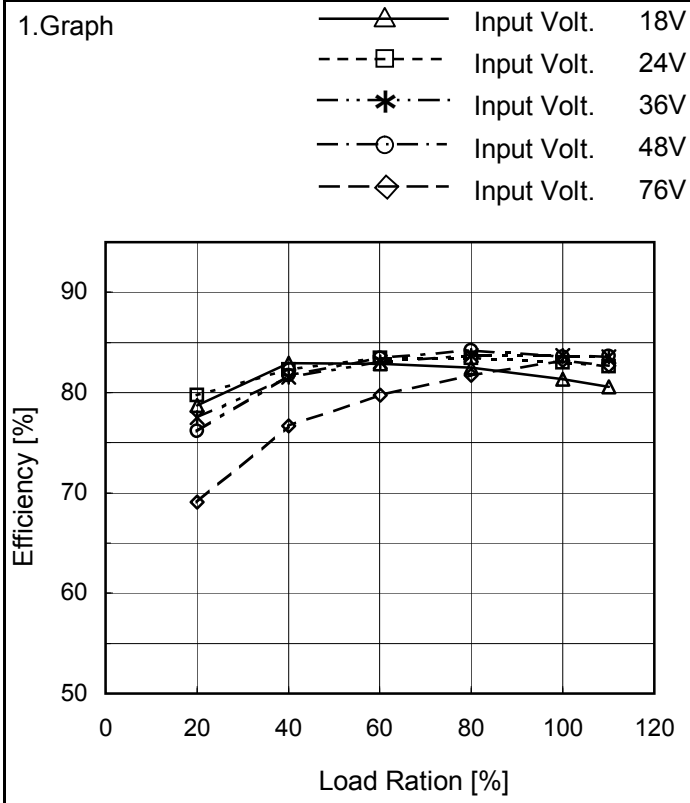
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	82.7	80.9
18	82.9	81.3
24	84.0	83.0
30	82.9	83.5
36	83.4	83.7
48	81.7	83.6
60	81.0	83.5
76	80.3	83.3
80	79.9	82.9

COSEL

Model	MGFW154805
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]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-	-	-
20	78.7	79.8	77.5	76.2	69.1
40	83.0	82.3	81.5	81.7	76.7
60	82.9	83.4	83.0	83.4	79.7
80	82.5	83.4	83.7	84.2	81.7
100	81.3	83.0	83.7	83.6	83.2
110	80.6	82.6	83.6	83.6	82.7
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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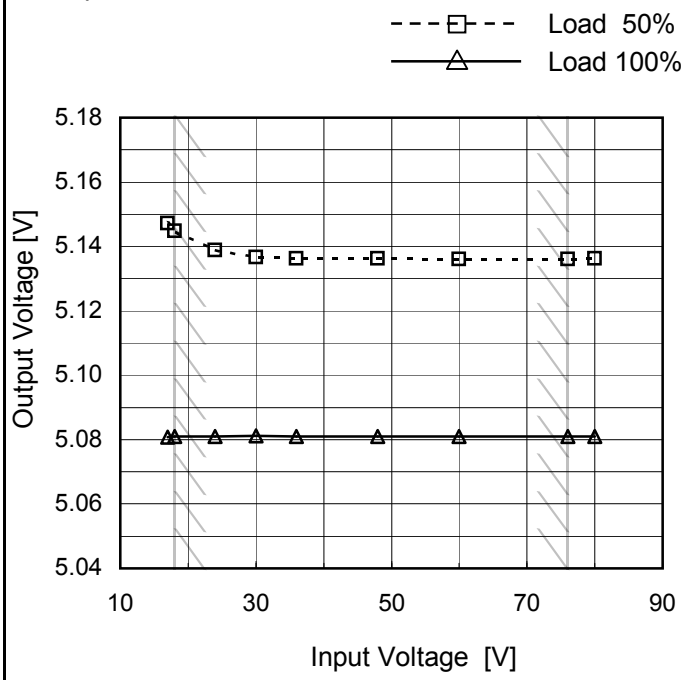
COSEL

Model	MGFW154805
Item	Line Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



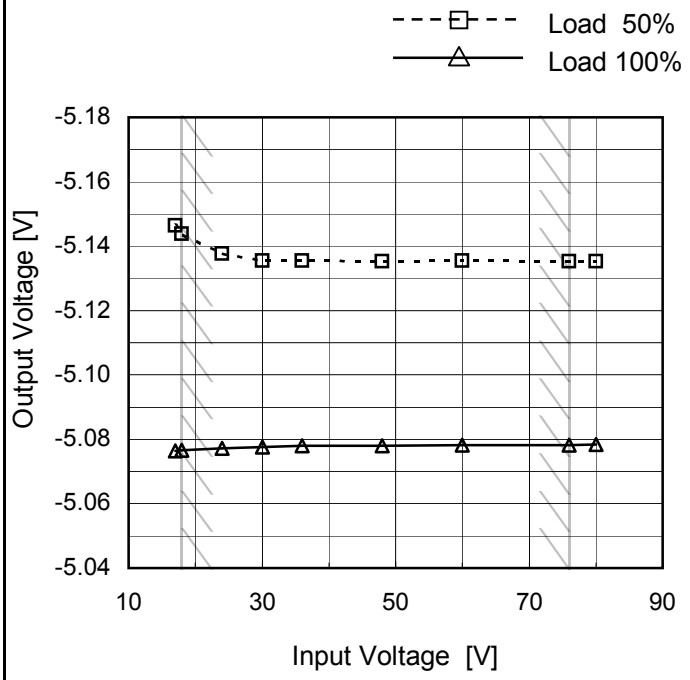
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.147	5.081
18	5.145	5.081
24	5.139	5.081
30	5.137	5.081
36	5.136	5.081
48	5.136	5.081
60	5.136	5.081
76	5.136	5.081
80	5.136	5.081

-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	-5.146	-5.076
18	-5.144	-5.077
24	-5.138	-5.077
30	-5.136	-5.078
36	-5.135	-5.078
48	-5.135	-5.078
60	-5.135	-5.078
76	-5.135	-5.078
80	-5.135	-5.078

+5V: Rated output current

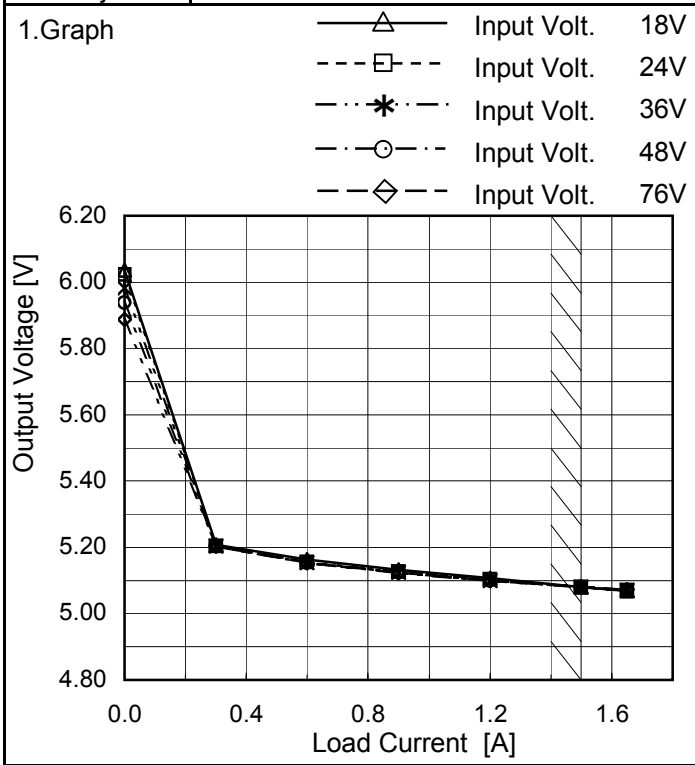
COSEL

Model	MGFW154805
Item	Load Regulation

Temperature 25°C
Testing Circuitry Figure A

Object +5V1.5A

1.Graph



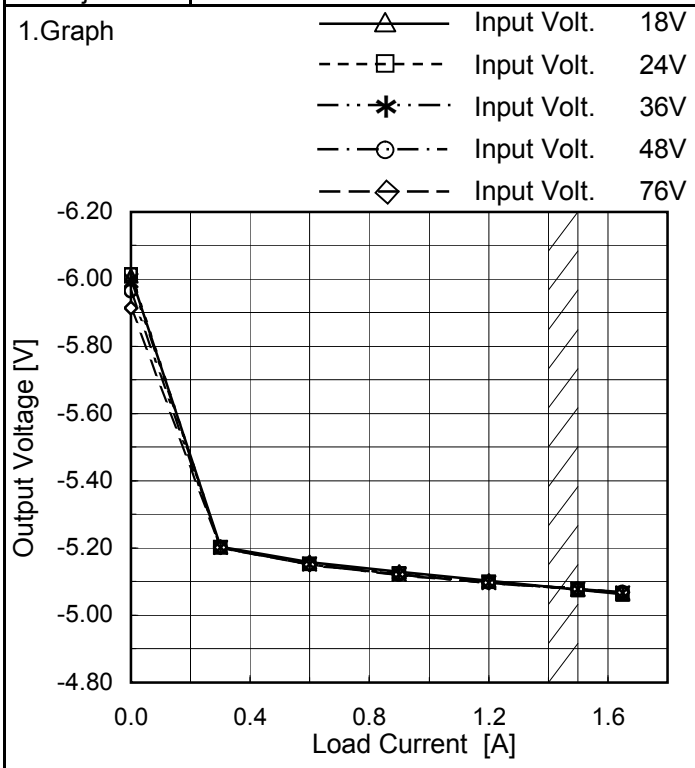
2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	6.036	6.022	5.982	5.938	5.887
0.30	5.207	5.204	5.203	5.204	5.203
0.60	5.162	5.156	5.154	5.154	5.154
0.90	5.133	5.127	5.124	5.124	5.123
1.20	5.106	5.103	5.100	5.100	5.100
1.50	5.080	5.080	5.080	5.080	5.080
1.65	5.068	5.070	5.071	5.071	5.072
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

-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]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	-6.009	-6.013	-5.997	-5.964	-5.915
0.30	-5.204	-5.202	-5.202	-5.203	-5.202
0.60	-5.158	-5.153	-5.152	-5.152	-5.151
0.90	-5.129	-5.124	-5.121	-5.121	-5.121
1.20	-5.102	-5.100	-5.097	-5.097	-5.097
1.50	-5.076	-5.077	-5.077	-5.077	-5.077
1.65	-5.063	-5.065	-5.068	-5.068	-5.069
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

+5V: Rated output current

COSEL

Model	MGFW154805	Temperature 25°C
Item	Dynamic Load Response	Testing Circuitry Figure A
Object	+5V1.5A	

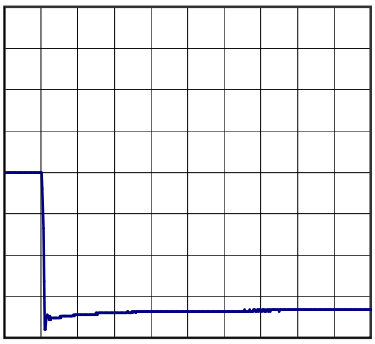
Input Volt. 48 V
Other output current rated
Cycle 1000 ms

t_1、t_2 = 50μs

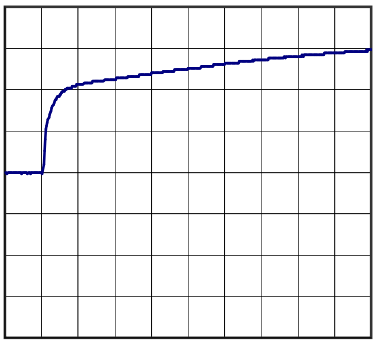
Load Current

Min. Load (0A) ←→
Load 100% (1.5A)

200mV/div



500μs/div

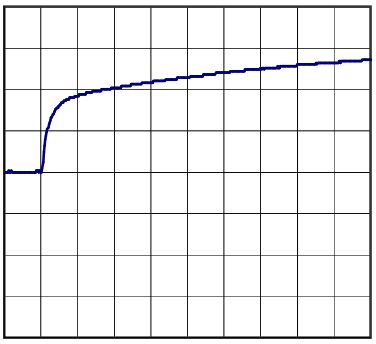


500μs/div

Min. Load (0A) ←→
Load 50% (0.75A)

200mV/div

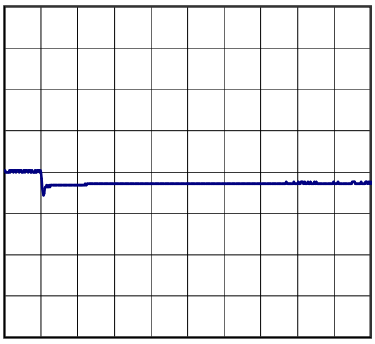
500μs/div



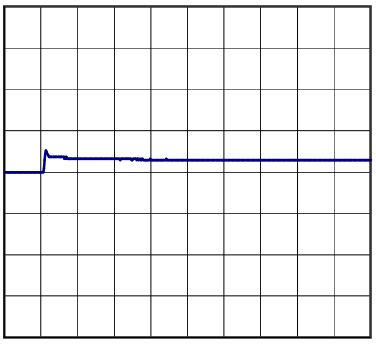
500μs/div

Load 50% (0.75A) ←→
Load 100% (1.5A)

200mV/div



500μs/div



500μs/div

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Model	MGFW154805	Temperature 25°C
Item	Dynamic Load Response	Testing Circuitry Figure A
Object	-5V1.5A	

Input Volt. 48 V
Other output current rated
Cycle 1000 ms

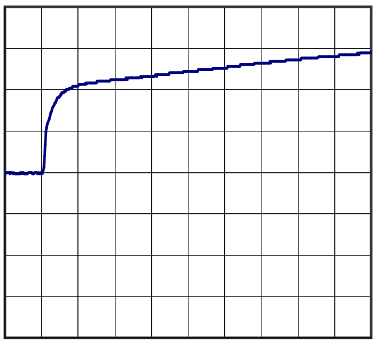
t_1、t_2 = 50μs

Load Current

Min. Load (0A) ←→
Load 100% (1.5A)

200mV/div

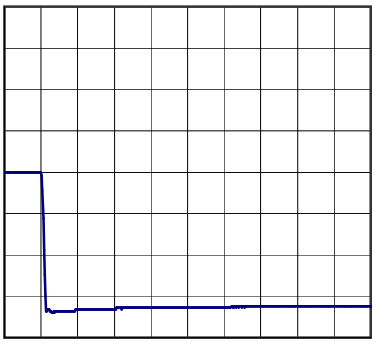
500μs/div



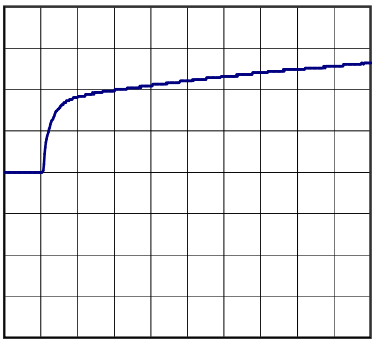
500μs/div

Min. Load (0A) ←→
Load 50% (0.75A)

200mV/div



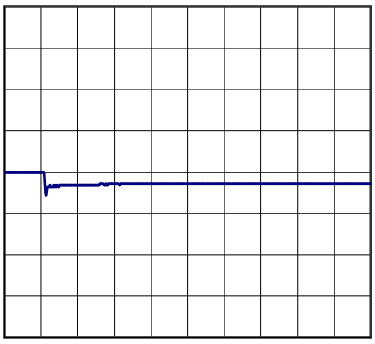
500μs/div



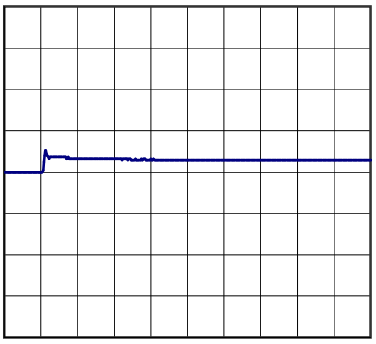
500μs/div

Load 50% (0.75A) ←→
Load 100% (1.5A)

200mV/div



500μs/div



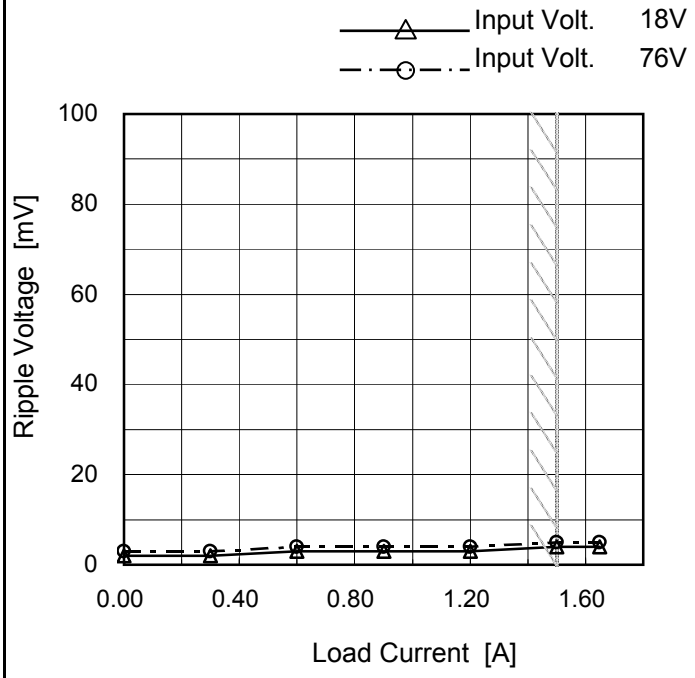
500μs/div

COSEL

Model	MGFW154805
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]

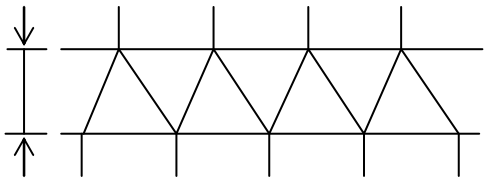


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	2	3
0.30	2	3
0.60	3	4
0.90	3	4
1.20	3	4
1.50	4	5
1.65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

−5V: Rated output current

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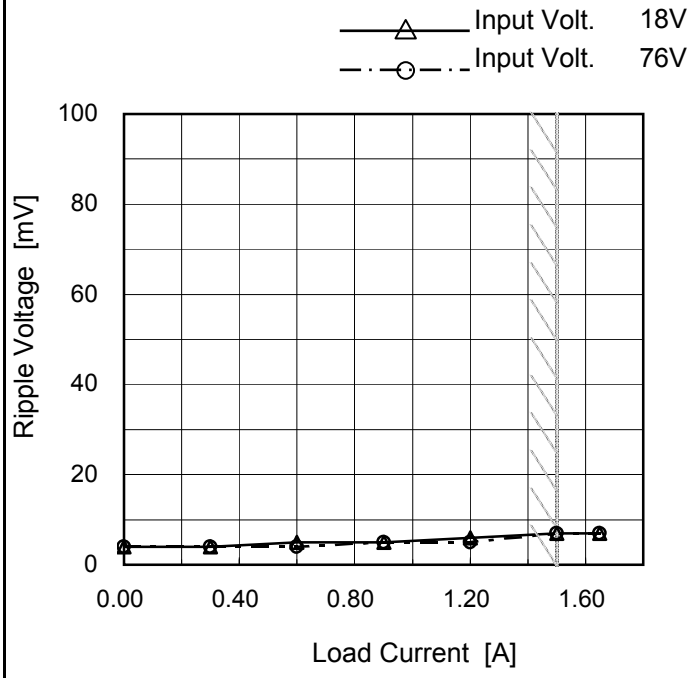
Model	MGFW154805
Item	Ripple Voltage (by Load Current)
Object	-5V1.5A

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]

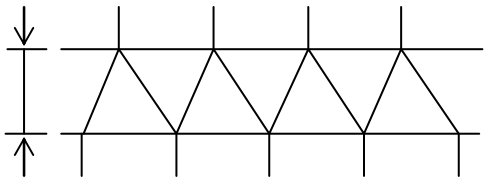


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	4	4
0.30	4	4
0.60	5	4
0.90	5	5
1.20	6	5
1.50	7	7
1.65	7	7
--	-	-
--	-	-
--	-	-
--	-	-

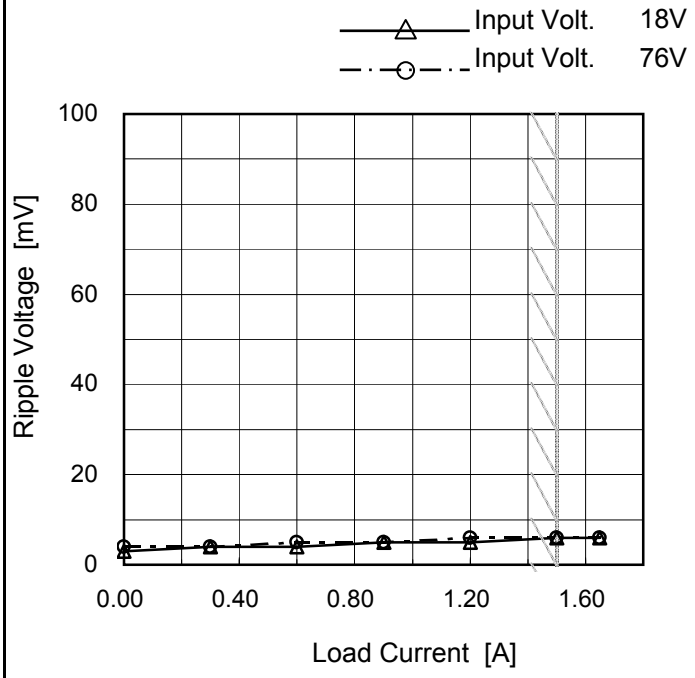
+5V: Rated output current

COSEL

Model	MGFW154805
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.

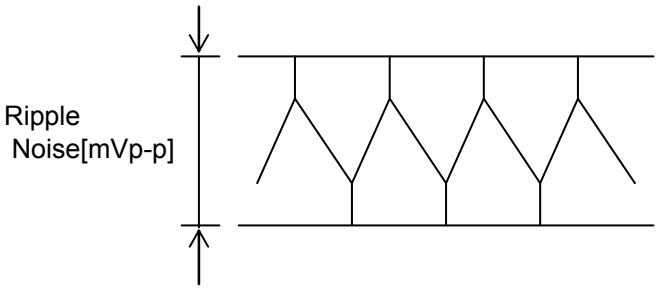


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	3	4
0.30	4	4
0.60	4	5
0.90	5	5
1.20	5	6
1.50	6	6
1.65	6	6
--	-	-
--	-	-
--	-	-
--	-	-

−5V: Rated output current

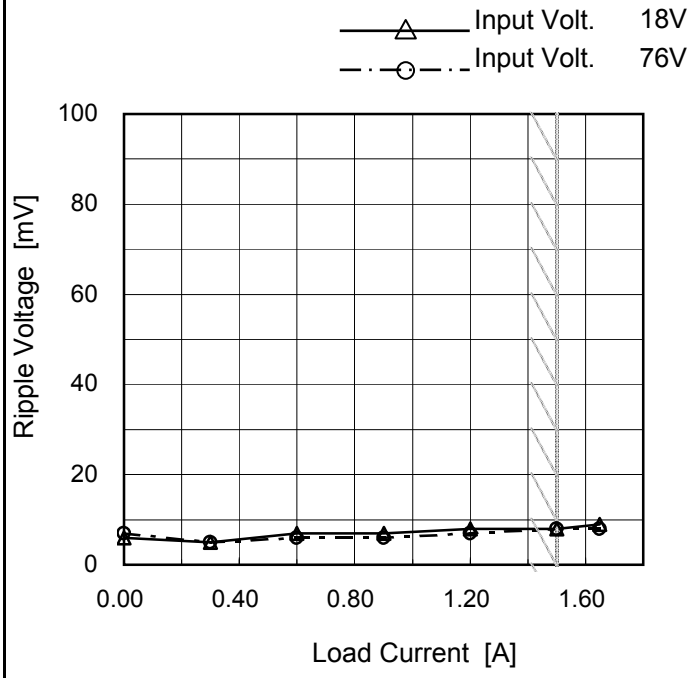
BC-10471

COSEL

Model	MGFW154805
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.

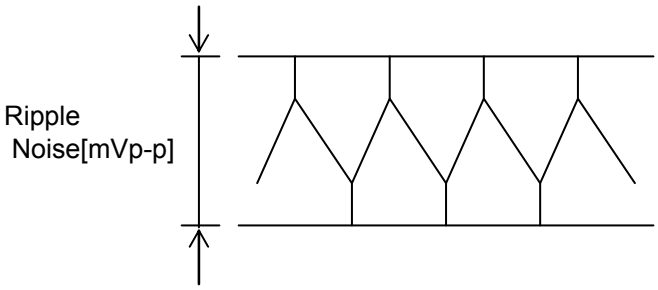


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	6	7
0.30	5	5
0.60	7	6
0.90	7	6
1.20	8	7
1.50	8	8
1.65	9	8
--	-	-
--	-	-
--	-	-
--	-	-

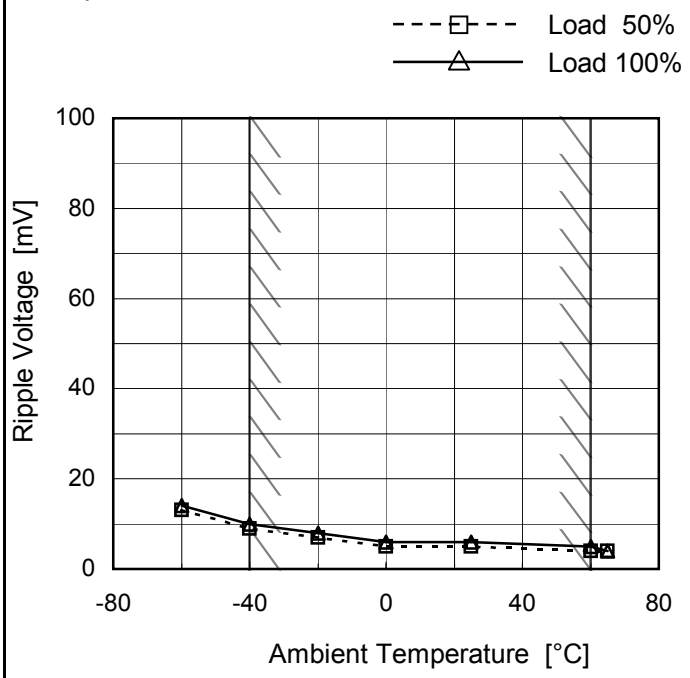
+5V: Rated output current

COSEL

Model	MGFW154805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.5A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

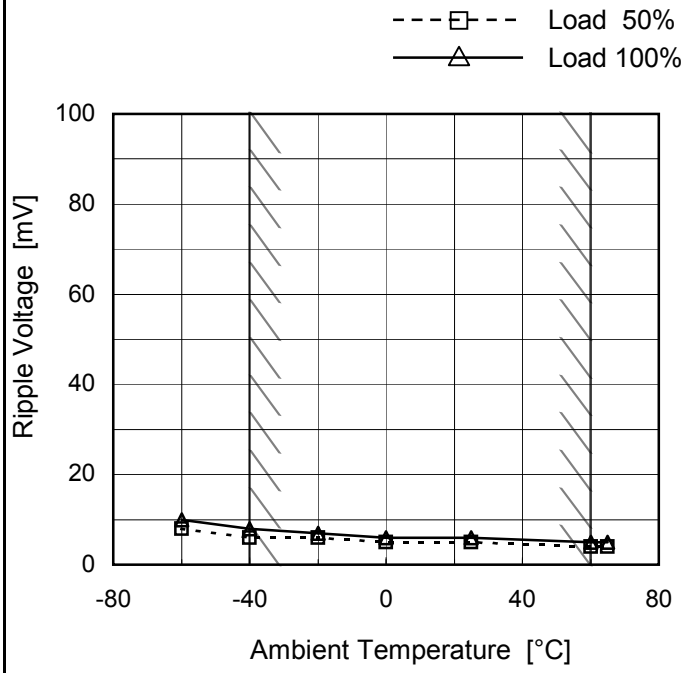
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	13	14
-40	9	10
-20	7	8
0	5	6
25	5	6
60	4	5
65	4	4
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Object	-5V1.5A

1.Graph



Input Volt. 48V

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	10
-40	6	8
-20	6	7
0	5	6
25	5	6
60	4	5
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

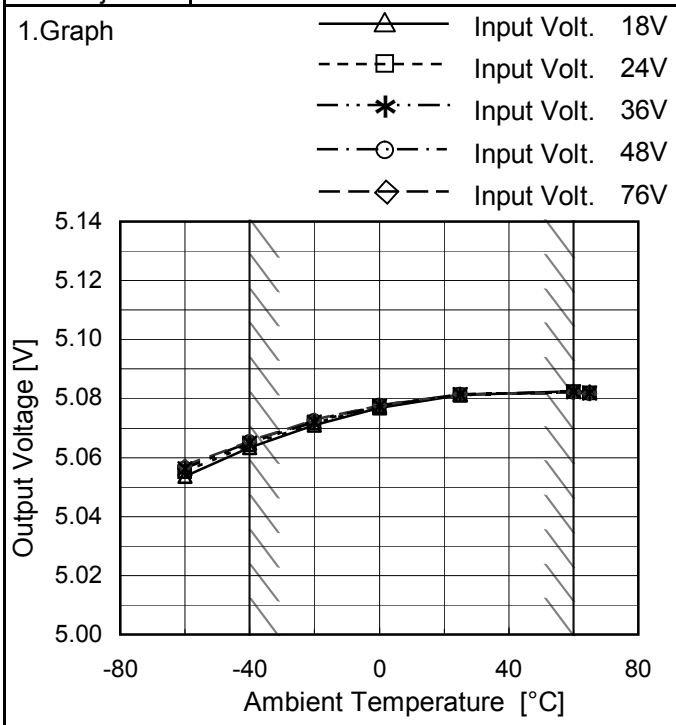
COSEL

Model	MGFW154805
Item	Ambient Temperature Drift

Testing Circuitry Figure A

Object +5V1.5A

1.Graph



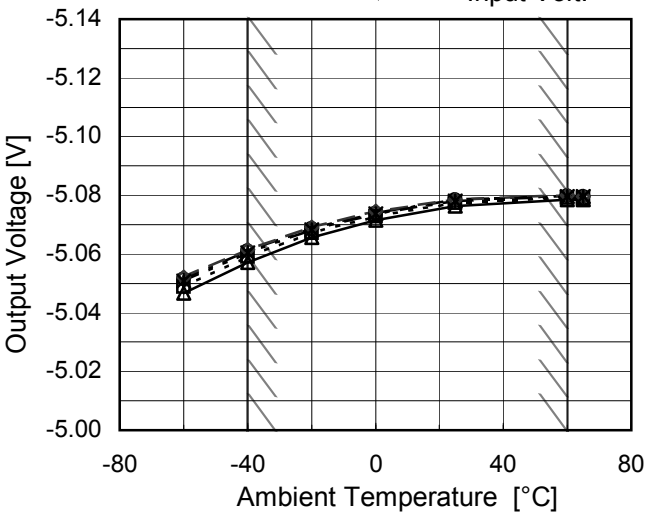
Load 100%

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	5.054	5.055	5.056	5.057	5.057
-40	5.063	5.064	5.065	5.065	5.066
-20	5.071	5.072	5.072	5.072	5.073
0	5.077	5.077	5.078	5.078	5.078
25	5.081	5.081	5.081	5.081	5.081
60	5.083	5.082	5.082	5.082	5.082
65	5.082	5.082	5.082	5.082	5.082
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object -5V1.5A

1.Graph



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]	Input Volt. 48[V]	Input Volt. 76[V]
-60	-5.047	-5.049	-5.051	-5.051	-5.052
-40	-5.057	-5.059	-5.060	-5.061	-5.062
-20	-5.066	-5.067	-5.068	-5.069	-5.069
0	-5.072	-5.073	-5.074	-5.074	-5.075
25	-5.076	-5.077	-5.078	-5.078	-5.079
60	-5.079	-5.079	-5.080	-5.080	-5.080
65	-5.079	-5.079	-5.080	-5.080	-5.080
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW154805
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 - 76V

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	18	0	6.034	±486	±9.7
Minimum Voltage	-40	18	1.5	5.063		

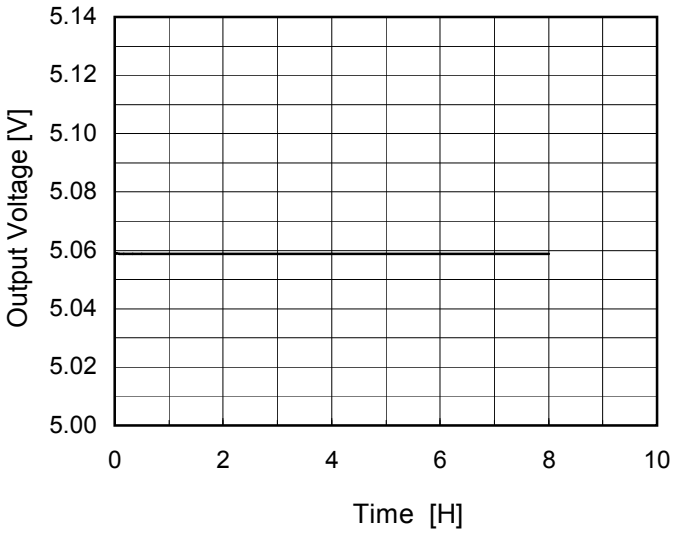
Object	-5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	24	0	-6.014	±479	±9.6
Minimum Voltage	-40	18	1.5	-5.057		

COSEL

Model	MGFW154805
Item	Time Lapse Drift
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



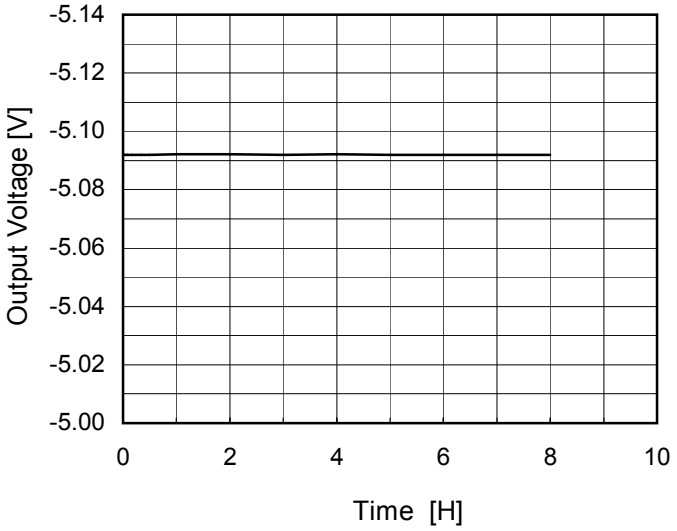
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.059
0.5	5.059
1.0	5.059
2.0	5.059
3.0	5.059
4.0	5.059
5.0	5.059
6.0	5.059
7.0	5.059
8.0	5.059

Object	-5V1.5A

1.Graph



Input Volt. 48V
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

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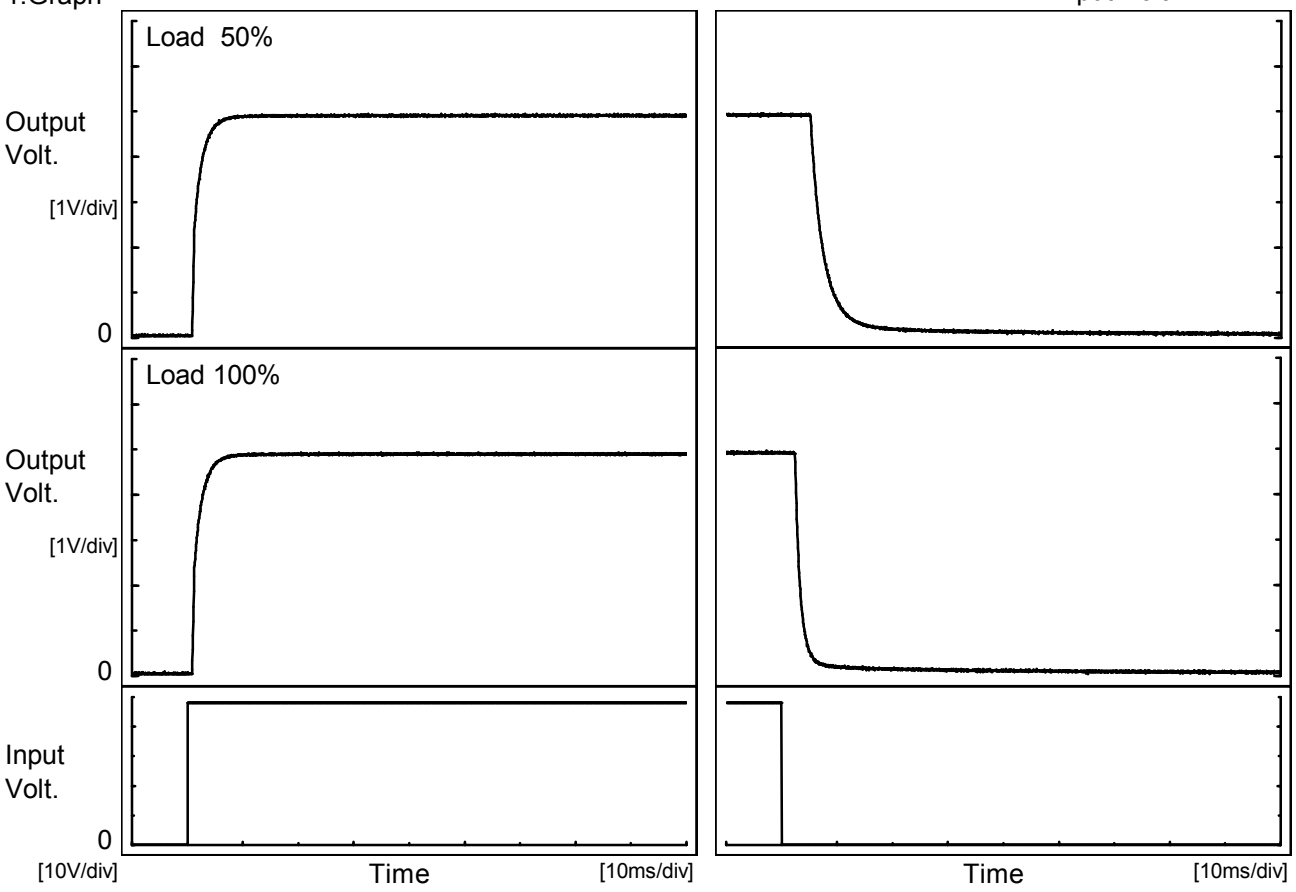
COSEL

Model	MGFW154805
Item	Rise and Fall Time
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

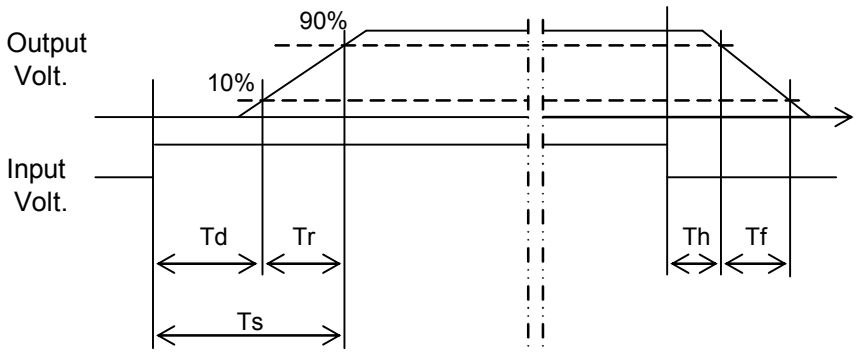
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.0	3.3	4.3	5.3	6.1
100 %	1.0	3.3	4.3	2.5	2.6



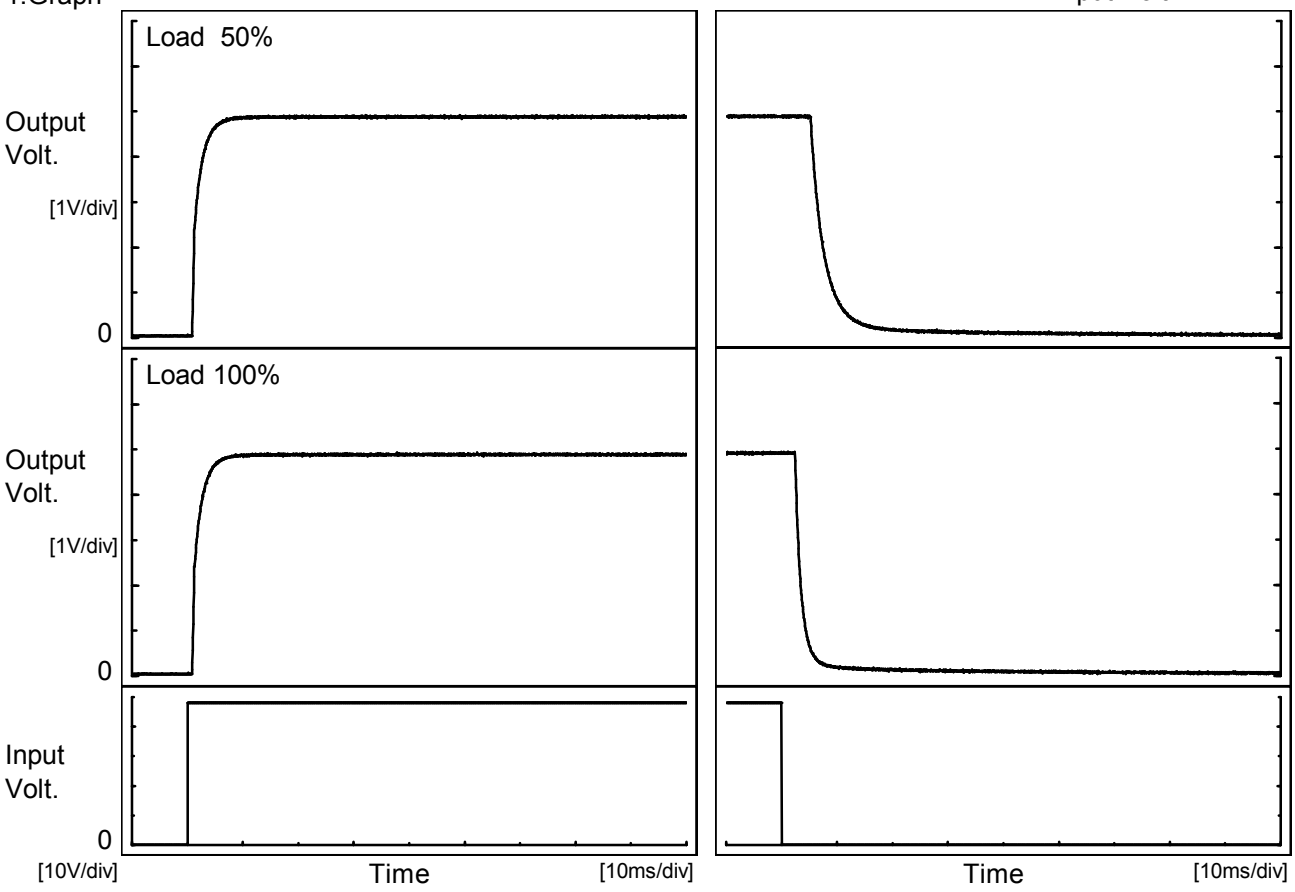
COSEL

Model	MGFW154805
Item	Rise and Fall Time
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

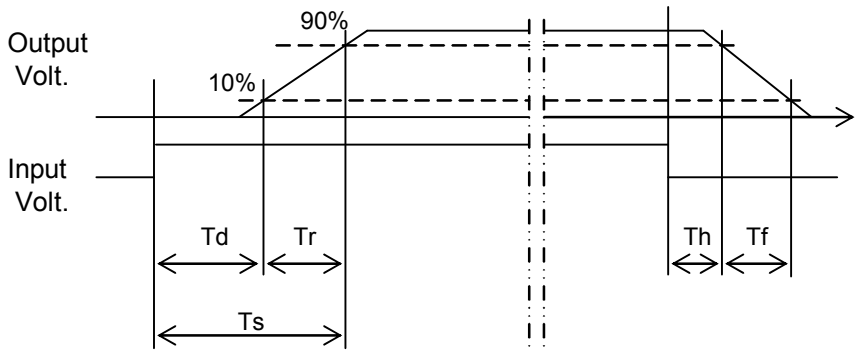
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.0	3.4	4.4	5.3	6.3
100 %	1.0	3.4	4.4	2.5	2.9



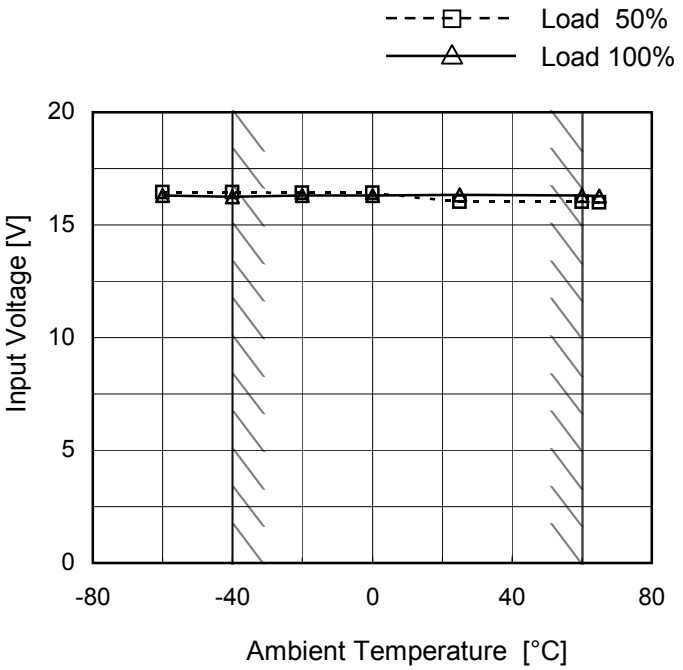
COSEL

Model	MGFW154805
Item	Minimum Input Voltage for Regulated Output Voltage

Testing Circuitry Figure A

Object: +5V1.5A

1.Graph

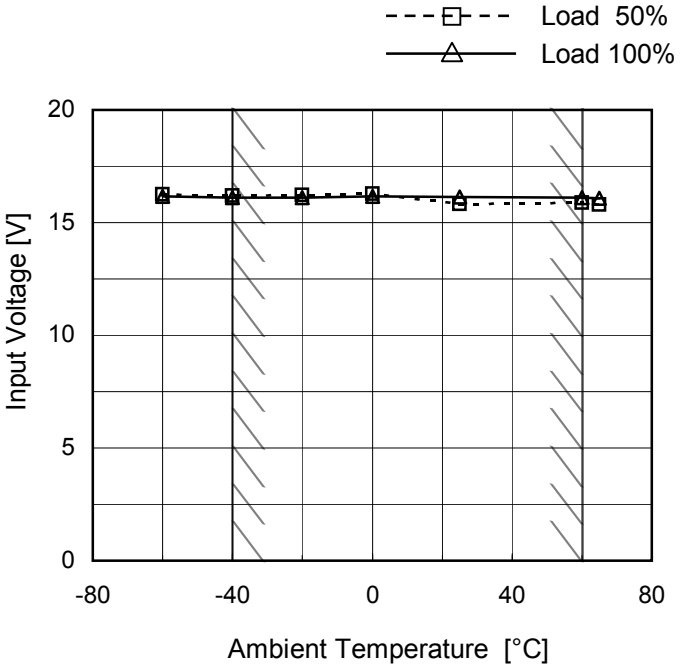


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	16.5	16.4
-40	16.5	16.3
-20	16.5	16.4
0	16.5	16.4
25	16.1	16.4
60	16.1	16.4
65	16.0	16.3
--	-	-
--	-	-
--	-	-
--	-	-

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	16.3	16.2
-40	16.2	16.1
-20	16.3	16.2
0	16.3	16.2
25	15.9	16.2
60	15.9	16.2
65	15.8	16.1
--	-	-
--	-	-
--	-	-
--	-	-

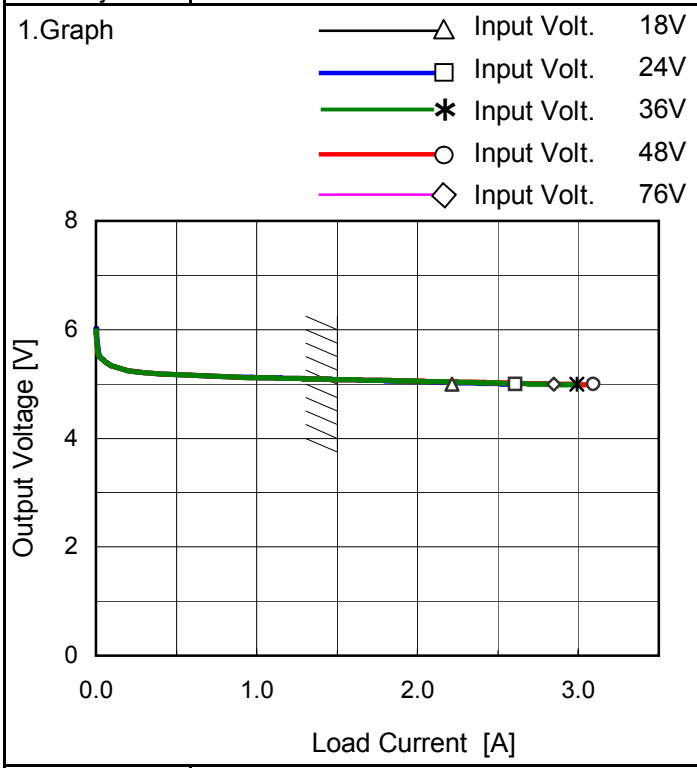
COSEL

Model	MGFW154805
Item	Overcurrent Protection

Temperature 25°C
Testing Circuitry Figure A

Object +5V1.5A

1.Graph



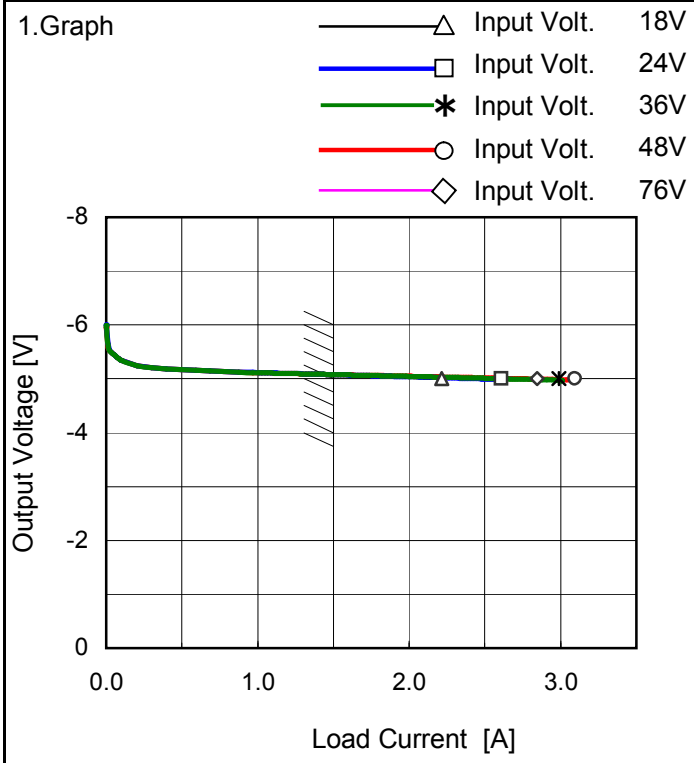
2.Values

Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
5.00	2.213	2.608	2.991	3.094	2.846
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]	Input Volt. 48[V]	Input Volt. 76[V]
-5.00	2.213	2.608	2.991	3.094	2.846
-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

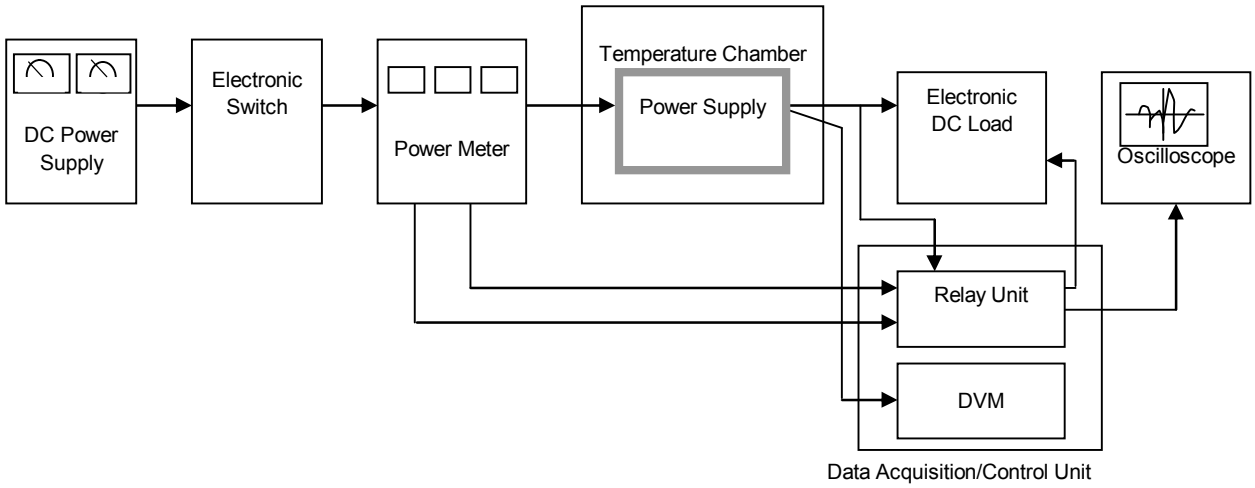


Figure A

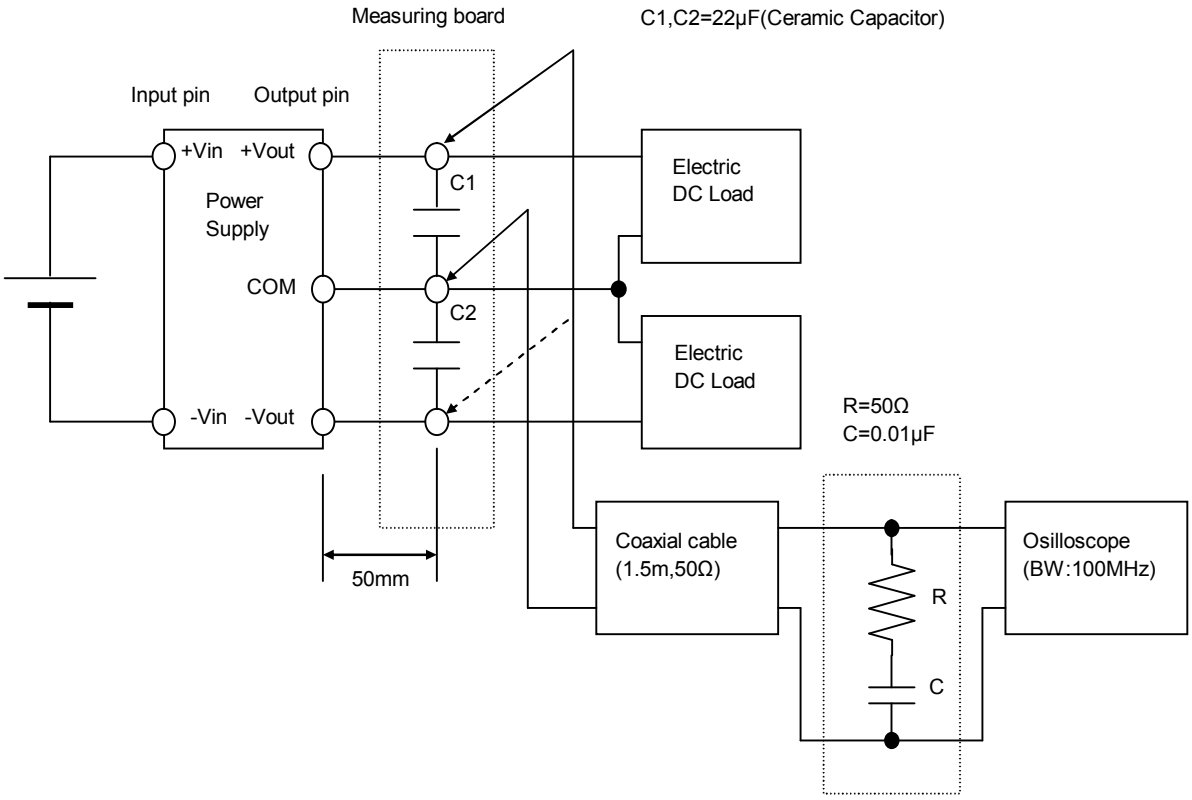


Figure B（Ripple and Ripple noise Characteristic）