

TEST DATA OF MHFS62405

Regulated DC Power Supply
October 27, 2021

Approved by : _____ Kenichi Tsukada

Design Manager

Prepared by : _____ Yoshihiko Saeki

Design Engineer

COSEL CO.,LTD.



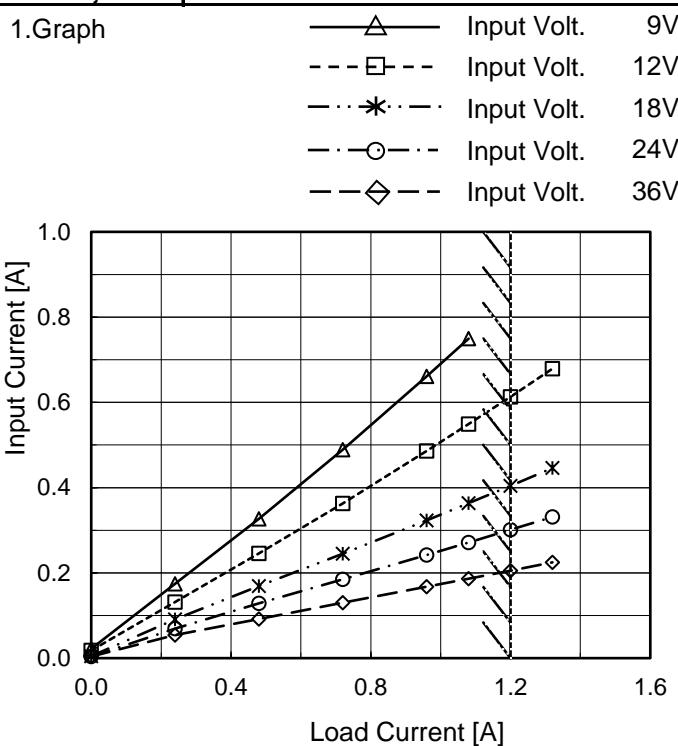
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(Final Page 10)

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Model	MHFS62405
Item	Input Current (by Load Current)
Object	_____



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

Temperature 25°C
Testing Circuitry Figure A

2.Values

Load Current [A]	Input Current [A]				
	9[V]	12[V]	18[V]	24[V]	36[V]
0.00	0.022	0.018	0.005	0.004	0.004
0.24	0.174	0.131	0.091	0.070	0.054
0.48	0.327	0.246	0.169	0.128	0.091
0.72	0.489	0.363	0.245	0.185	0.130
0.96	0.661	0.486	0.323	0.242	0.167
1.08	0.749	0.549	0.364	0.271	0.186
1.20	*1	0.613	0.404	0.301	0.205
1.32	*1	0.679	0.446	0.331	0.225
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*1 Maximum output current at 9V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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Model	MHFS62405	Temperature Testing Circuitry	25°C Figure A																																																																													
Item	Efficiency (by Load Current)																																																																															
Object	_____																																																																															
1.Graph		<p>The graph plots Efficiency [%] on the y-axis (40 to 90) against Load Current [A] on the x-axis (0.0 to 1.6). Five data series are shown for different input voltages: 9V (solid line with open triangle), 12V (dashed line with open square), 18V (dash-dot line with asterisk), 24V (dash-dot-dot line with open circle), and 36V (dash-dot-dot-dot line with open diamond). All curves show efficiency increasing with load current until approximately 1.2A, after which efficiency drops sharply. A slanted line from the origin marks the rated load current range.</p>																																																																														
2.Values		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="5">Efficiency [%]</th> </tr> <tr> <th>9[V]</th> <th>12[V]</th> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>0.24</td> <td>76.0</td> <td>75.5</td> <td>74.0</td> <td>71.4</td> <td>61.3</td> </tr> <tr> <td>0.48</td> <td>81.5</td> <td>81.2</td> <td>79.4</td> <td>77.9</td> <td>72.8</td> </tr> <tr> <td>0.72</td> <td>81.8</td> <td>82.7</td> <td>82.3</td> <td>81.2</td> <td>76.8</td> </tr> <tr> <td>0.96</td> <td>80.9</td> <td>82.5</td> <td>83.0</td> <td>82.8</td> <td>79.8</td> </tr> <tr> <td>1.08</td> <td>80.2</td> <td>82.1</td> <td>83.0</td> <td>83.1</td> <td>80.6</td> </tr> <tr> <td>1.20</td> <td>*1</td> <td>81.7</td> <td>82.9</td> <td>83.2</td> <td>81.3</td> </tr> <tr> <td>1.32</td> <td>*1</td> <td>81.2</td> <td>82.7</td> <td>83.3</td> <td>81.8</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		Load Current [A]	Efficiency [%]					9[V]	12[V]	18[V]	24[V]	36[V]	0.00	-	-	-	-	-	0.24	76.0	75.5	74.0	71.4	61.3	0.48	81.5	81.2	79.4	77.9	72.8	0.72	81.8	82.7	82.3	81.2	76.8	0.96	80.9	82.5	83.0	82.8	79.8	1.08	80.2	82.1	83.0	83.1	80.6	1.20	*1	81.7	82.9	83.2	81.3	1.32	*1	81.2	82.7	83.3	81.8	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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Note: Slanted line shows the range of the rated load current.

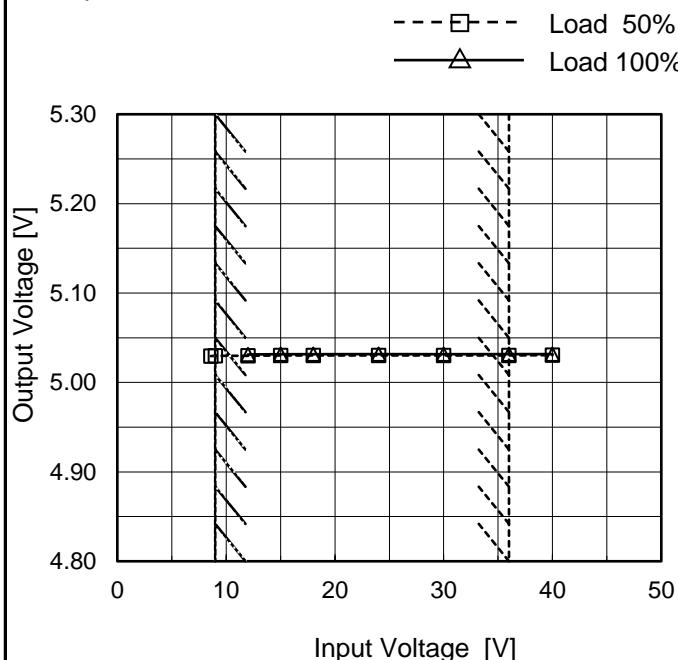
*1 Maximum output current at 9V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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Model	MHFS62405
Item	Line Regulation
Object	+5V1.2A

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]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	5.030	*1
9.0	5.030	*1
12.0	5.030	5.031
15.0	5.030	5.032
18.0	5.030	5.032
24.0	5.030	5.032
30.0	5.030	5.032
36.0	5.030	5.032
40.0	5.031	5.032

*1 Maximum output current at 9V input
Voltage is 80% of rated load current.
Refer to instruction manuals for details of
input derating.

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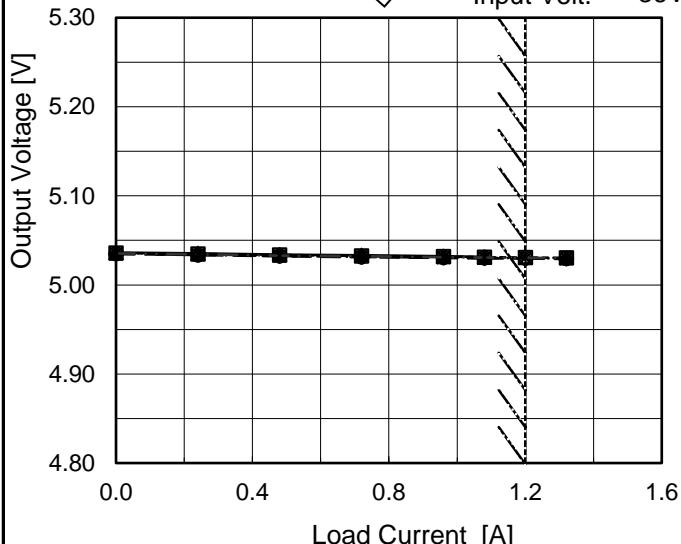
Model MHFS62405

Item Load Regulation

Object +5V1.2A

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.

Temperature 25°C
 Testing Circuitry Figure A

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	5.038	5.037	5.037	5.036	5.036
0.24	5.037	5.036	5.036	5.035	5.035
0.48	5.036	5.035	5.034	5.034	5.034
0.72	5.035	5.034	5.034	5.033	5.033
0.96	5.033	5.033	5.033	5.032	5.032
1.08	5.033	5.033	5.032	5.032	5.031
1.20	*1	5.032	5.032	5.031	5.031
1.32	*1	5.032	5.031	5.031	5.031
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

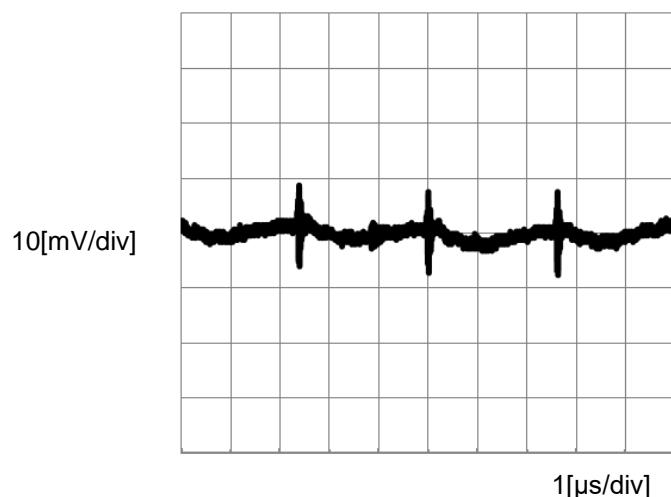
*1 Maximum output current at 9V input
 Voltage is 80% of rated load current.
 Refer to instruction manuals for details of
 input derating.

Item Ripple-Noise

Object +5V1.2A

1.Graph

Input Voltage 24V
 Load 100%

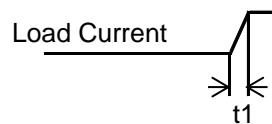


Temperature 25°C
 Testing Circuitry Figure B

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Model	MHFS62405	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+5V1.2A		

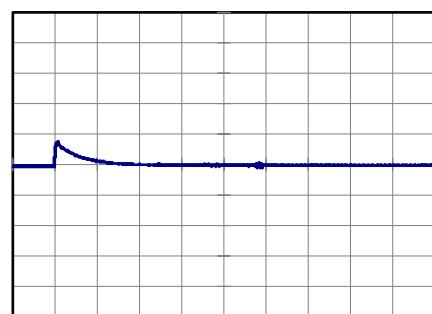
Input Volt. 24 V
 Cycle 100 ms

Response. $t_1=t_2=50\mu s$. Typ

Min.Load (0A)↔
 Load 100% (1.2A)

200 mV/div

1 ms/div

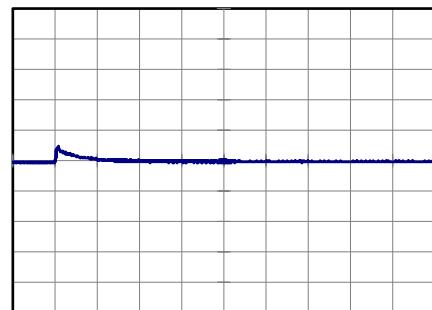


1 ms/div

Min.Load (0A)↔
 Load 50% (0.6A)

200 mV/div

1 ms/div

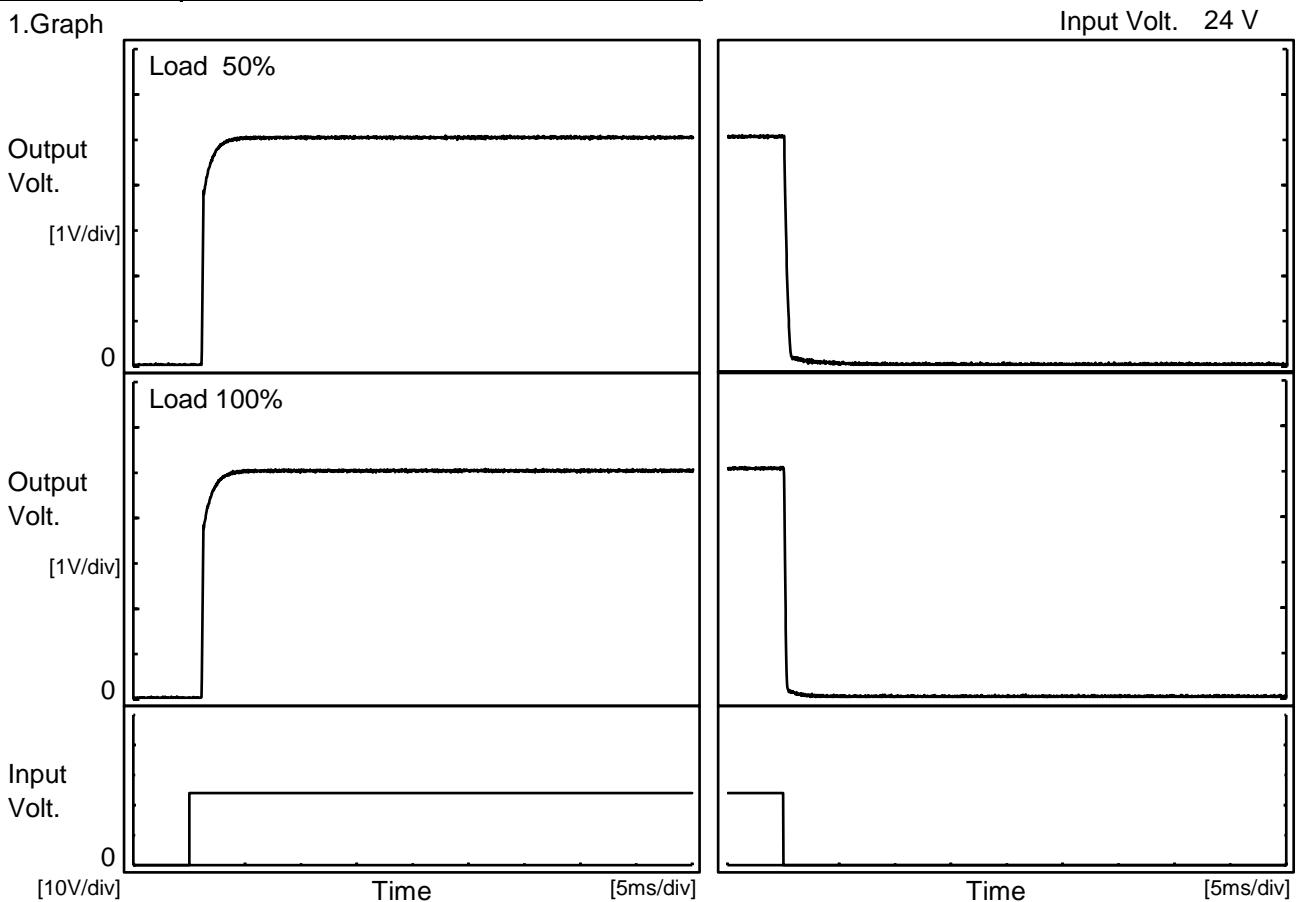


1 ms/div

COSEL

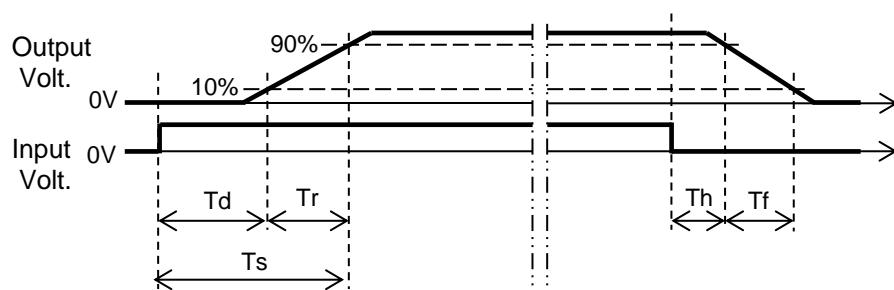
Model	MHFS62405	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V1.2A		

1. Graph



2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		1.2	0.8	2.0	0.1	0.5	
100 %		1.2	0.9	2.1	0.1	0.2	



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Model	MHFS62405	Temperature Testing Circuitry	25°C Figure A																																																																																			
Item	Overcurrent Protection																																																																																					
Object	+5V1.2A																																																																																					
1.Graph	<p>The graph plots Output Voltage [V] on the Y-axis (0 to 6) against Load Current [A] on the X-axis (0.0 to 3.0). Five curves are shown for different input voltages: 9V (black), 12V (blue), 18V (green), 24V (red), and 36V (magenta). All curves show a linear decrease in output voltage as load current increases. A slanted line is drawn from approximately (1.0, 5.0) to (2.0, 0.5), indicating the range of rated load current at 9V.</p>																																																																																					
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Note:	<p>Slanted line shows the range of the rated load current.</p> <p>Maximum output current at 9V input Voltage is 80% of rated load current.</p> <p>Refer to instruction manuals for details of input derating.</p>																																																																																					



Model	MHFS62405	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+5V1.2A	

1.Values

Load 100%

Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 9V*1	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	5.015	5.015	5.015	5.016	5.016
25	5.029	5.028	5.029	5.029	5.029
50	5.035	5.034	5.035	5.035	5.035

*1 Load 80%

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+5V1.2A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 80%
-40	7.3	7.3
25	7.2	7.1
50	7.1	7.1

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Model	MHFS62405	Temperature	25°C																																																																													
Item	Switching frequency (by Load Current)	Testing Circuitry	Figure A																																																																													
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Note:	Slanted line shows the range of the rated load current. When load current is low, MH operates intermittently, so switching frequency would not become constant.																																																																															
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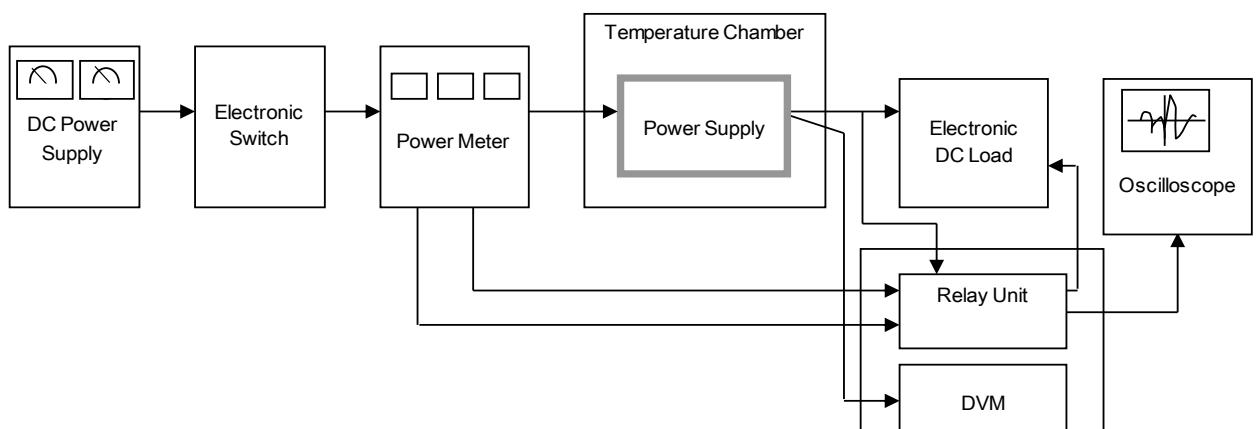


Figure A

Data Acquisition/Control Unit

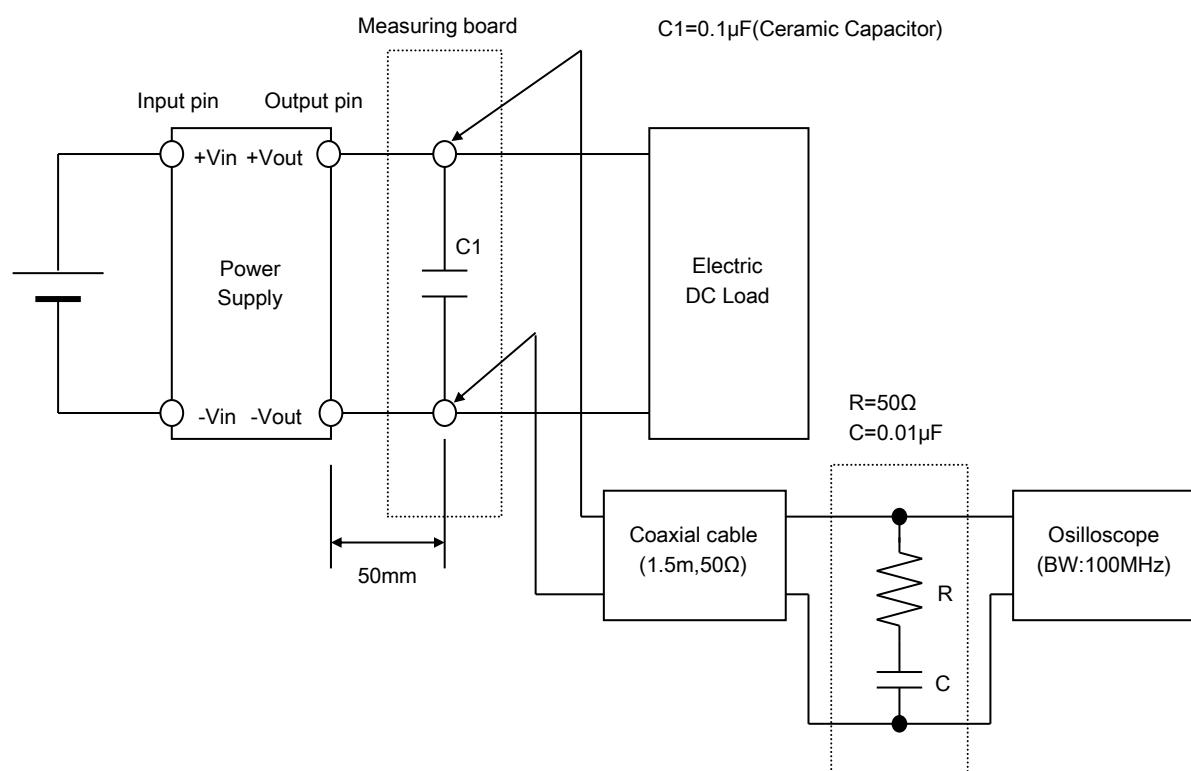


Figure B