参考資料

TEST DATA OF MHFW62412

Regulated DC Power Supply
October 27, 2021

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Design Engineer

COSEL CO.,LTD.

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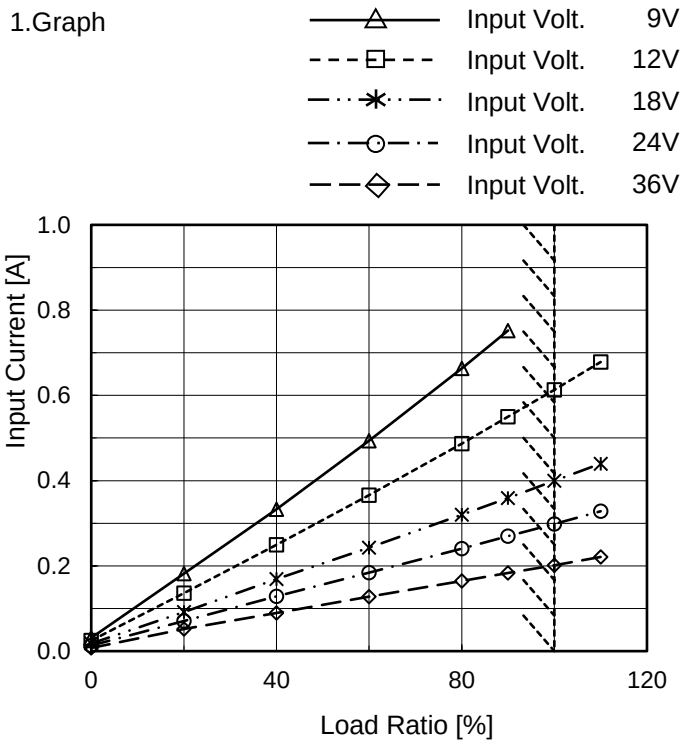
Model	MHFW62412
Item	Input Current (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Ratio [%]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.031	0.025	0.018	0.013	0.007
20	0.182	0.136	0.092	0.071	0.052
40	0.333	0.250	0.169	0.129	0.090
60	0.494	0.366	0.243	0.184	0.128
80	0.663	0.487	0.320	0.241	0.164
90	0.752	0.550	0.359	0.270	0.183
100	*1	0.613	0.399	0.299	0.202
110	*1	0.678	0.440	0.328	0.221
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*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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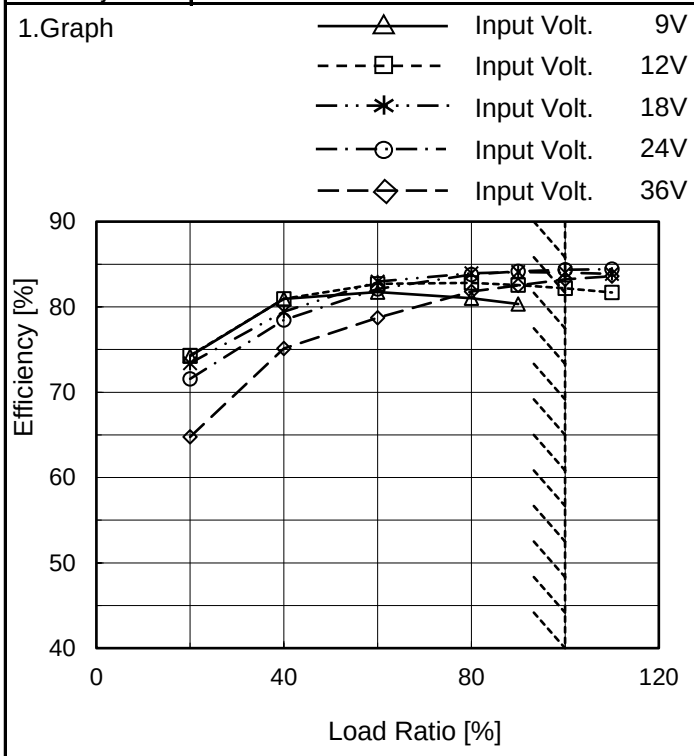
Model	MHFW62412
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Ratio [%]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-	-	-
20	74.2	74.3	73.4	71.6	64.8
40	80.9	80.9	79.5	78.5	75.1
60	81.7	82.7	83.0	82.1	78.7
80	81.0	82.8	83.9	83.8	81.8
90	80.3	82.6	84.1	84.2	82.5
100	*1	82.2	84.0	84.3	83.2
110	*1	81.7	83.9	84.4	83.6
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*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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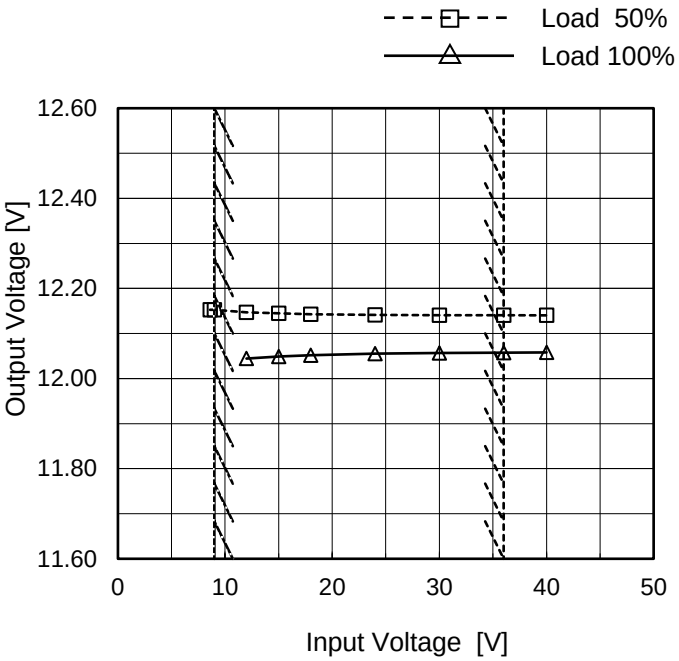
Model	MHFW62412
Item	Line Regulation
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



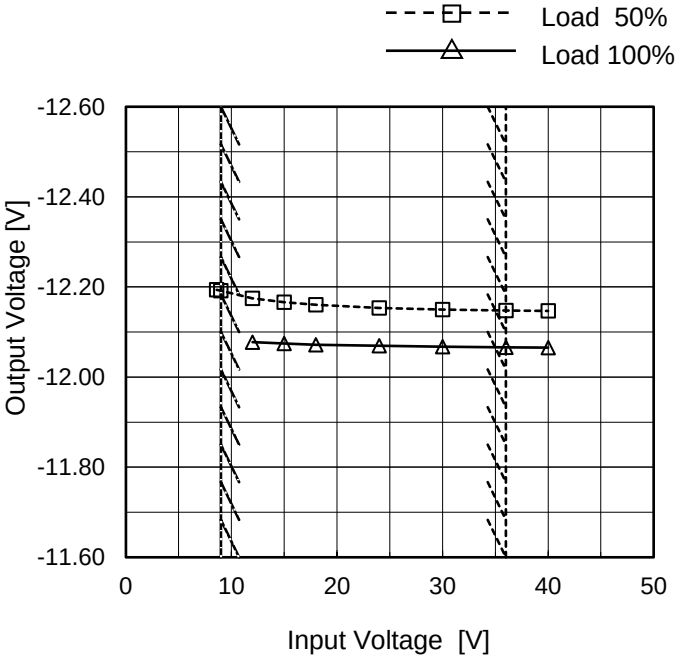
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	12.153	*1
9.0	12.152	*1
12.0	12.147	12.044
15.0	12.145	12.049
18.0	12.143	12.052
24.0	12.141	12.055
30.0	12.141	12.057
36.0	12.141	12.058
40.0	12.140	12.058

-12V:Rated Load Current

Object	-12V0.25A

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	-12.194	*1
9.0	-12.192	*1
12.0	-12.175	-12.078
15.0	-12.166	-12.074
18.0	-12.160	-12.072
24.0	-12.154	-12.069
30.0	-12.150	-12.067
36.0	-12.148	-12.066
40.0	-12.147	-12.065

+12V: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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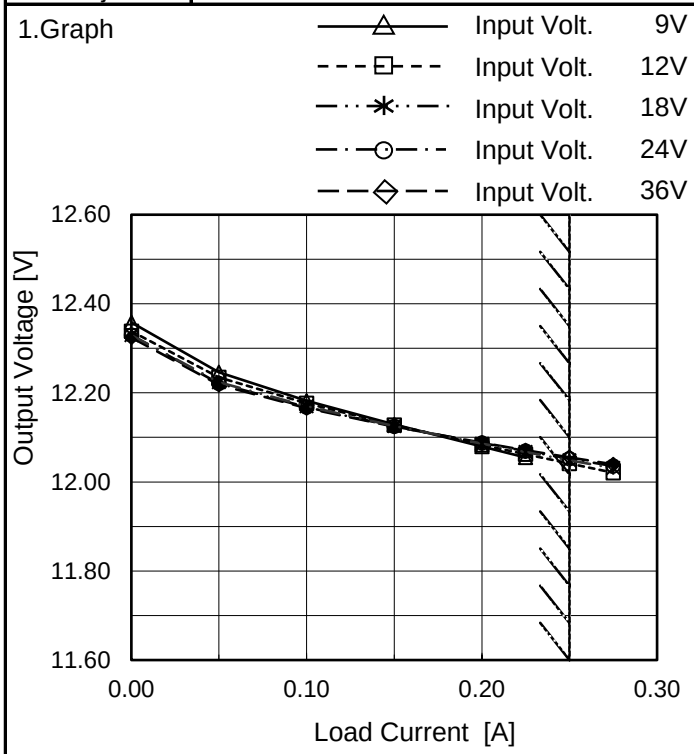
Model	MHFW62412
Item	Cross Regulation
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

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	12.358	12.338	12.329	12.329	12.324
0.05	12.247	12.234	12.224	12.221	12.218
0.10	12.182	12.176	12.170	12.168	12.166
0.15	12.129	12.127	12.126	12.125	12.124
0.20	12.079	12.083	12.086	12.087	12.088
0.23	12.055	12.062	12.067	12.070	12.071
0.25	*1	12.041	12.049	12.052	12.055
0.28	*1	12.021	12.031	12.036	12.039
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

-12V:Rated Load Current

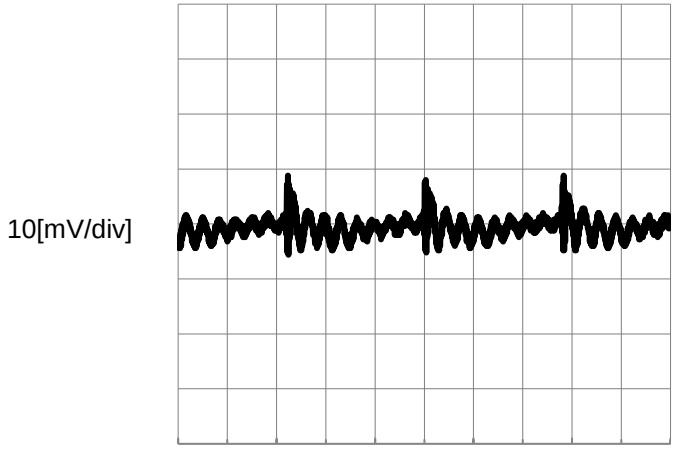
*1 Maximum output current at 9V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

Item	Ripple-Noise
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 24V
Load 100%



-12V:Rated Load Current

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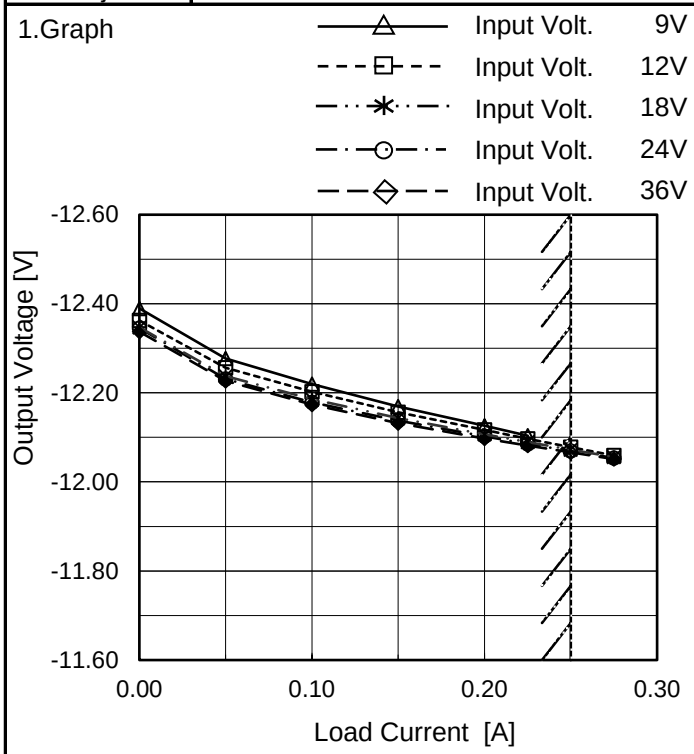
Model	MHFW62412
Item	Cross Regulation
Object	-12V0.25A

Temperature 25°C
Testing Circuitry Figure A

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	-12.390	-12.362	-12.347	-12.346	-12.337
0.05	-12.277	-12.256	-12.238	-12.231	-12.226
0.10	-12.219	-12.202	-12.186	-12.178	-12.173
0.15	-12.169	-12.156	-12.143	-12.137	-12.132
0.20	-12.126	-12.117	-12.107	-12.102	-12.098
0.23	-12.104	-12.097	-12.089	-12.086	-12.082
0.25	*1	-12.078	-12.072	-12.070	-12.066
0.28	*1	-12.059	-12.056	-12.054	-12.051
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

+12V:Rated Load Current

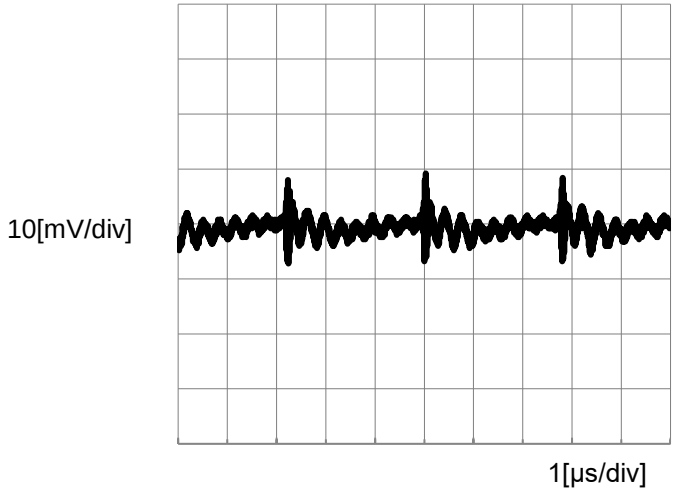
*1 Maximum output current at 9V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

Item	Ripple-Noise
Object	-12V0.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 24V
Load 100%



+12V:Rated Load Current

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Model	MHFW62412	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.25A	

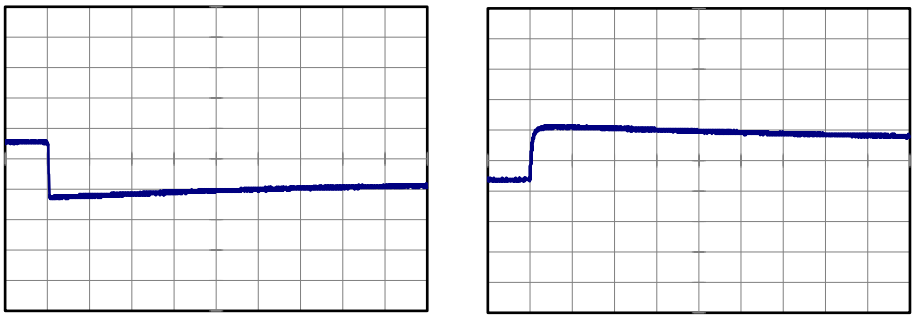
Input Volt. 24 V

-12V:rated load current.

Cycle 100 ms

Response. t1=t2=50μs. Typ

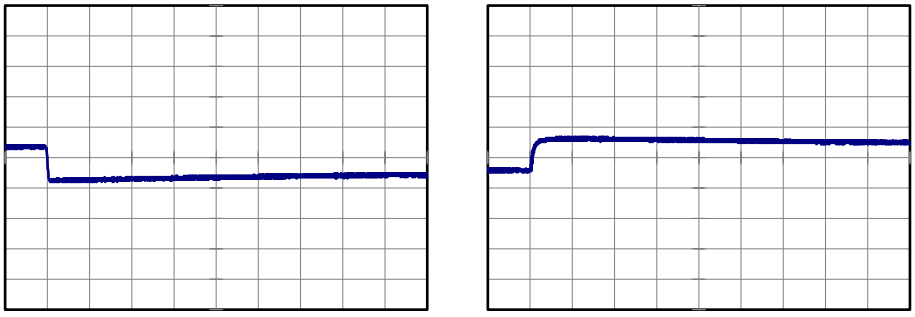
Min.Load (0A)←→
Load 100% (0.25A)



200 mV/div

1 ms/div 1 ms/div

Min.Load (0A)←→
Load 50% (0.125A)



200 mV/div

1 ms/div 1 ms/div

COSEL

Model	MHFW62412	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	-12V0.25A	

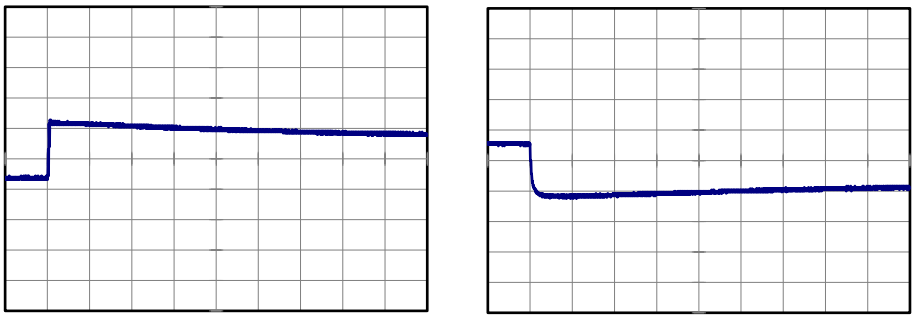
Input Volt. 24 V

+12V:rated load current.

Cycle 100 ms

Response. t1=t2=50μs. Typ

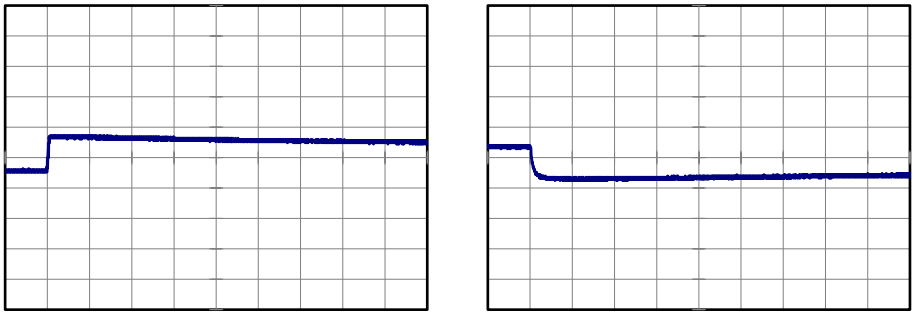
Min.Load (0A)←→
Load 100% (0.25A)



200 mV/div

1 ms/div 1 ms/div

Min.Load (0A)←→
Load 50% (0.125A)



200 mV/div

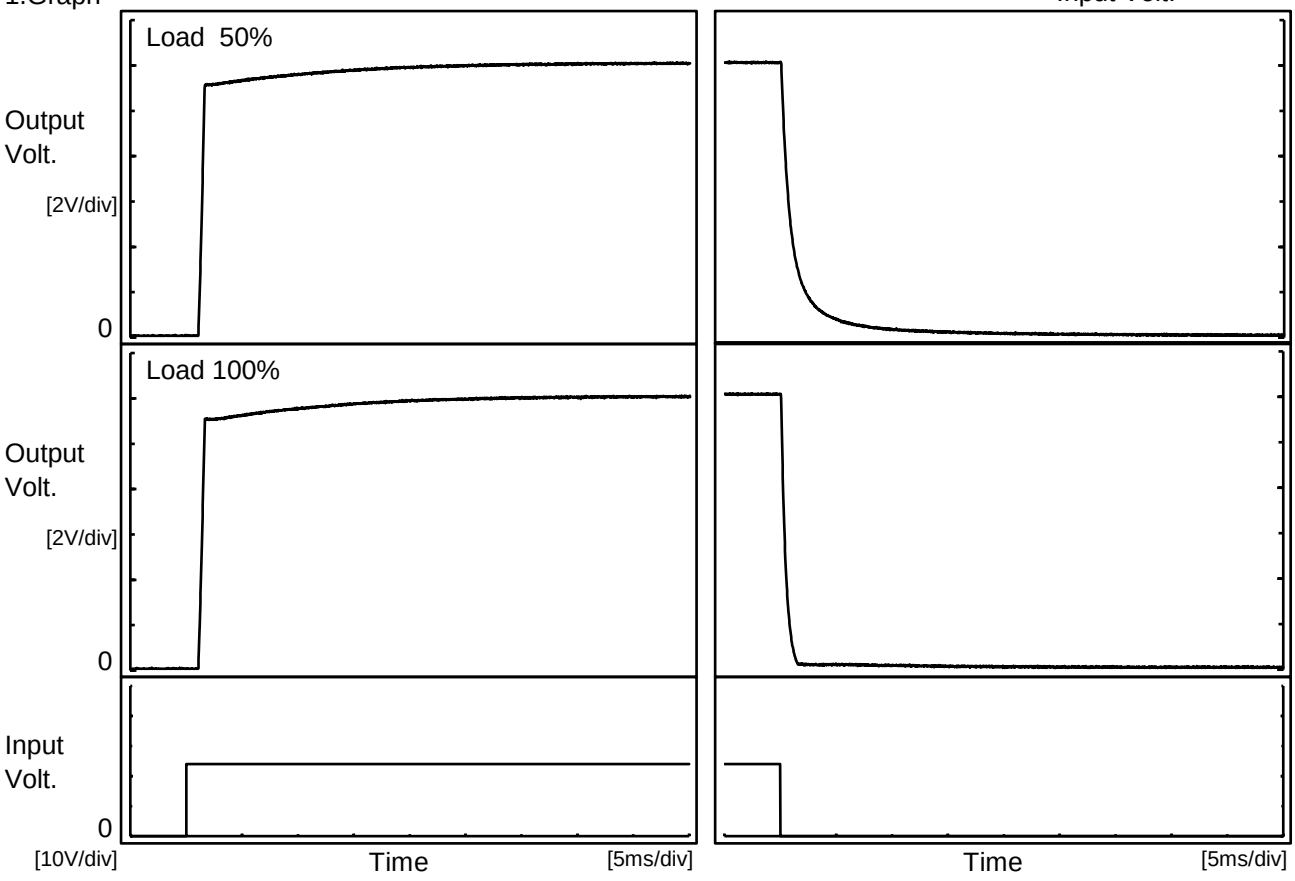
1 ms/div 1 ms/div

COSEL

Model	MHFW62412	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.25A	

1.Graph

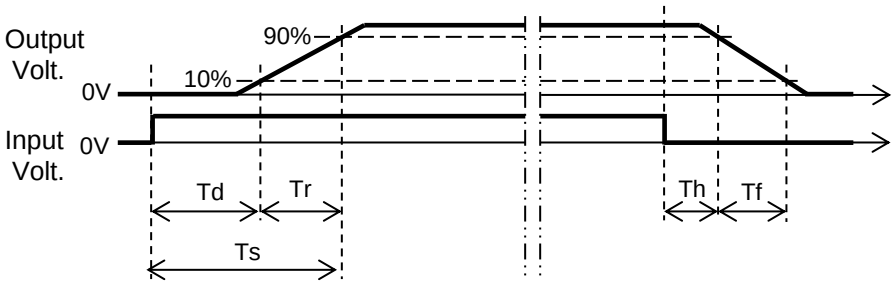
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	0.5	1.7	0.2	3.1
100 %	1.2	0.5	1.7	0.1	0.9



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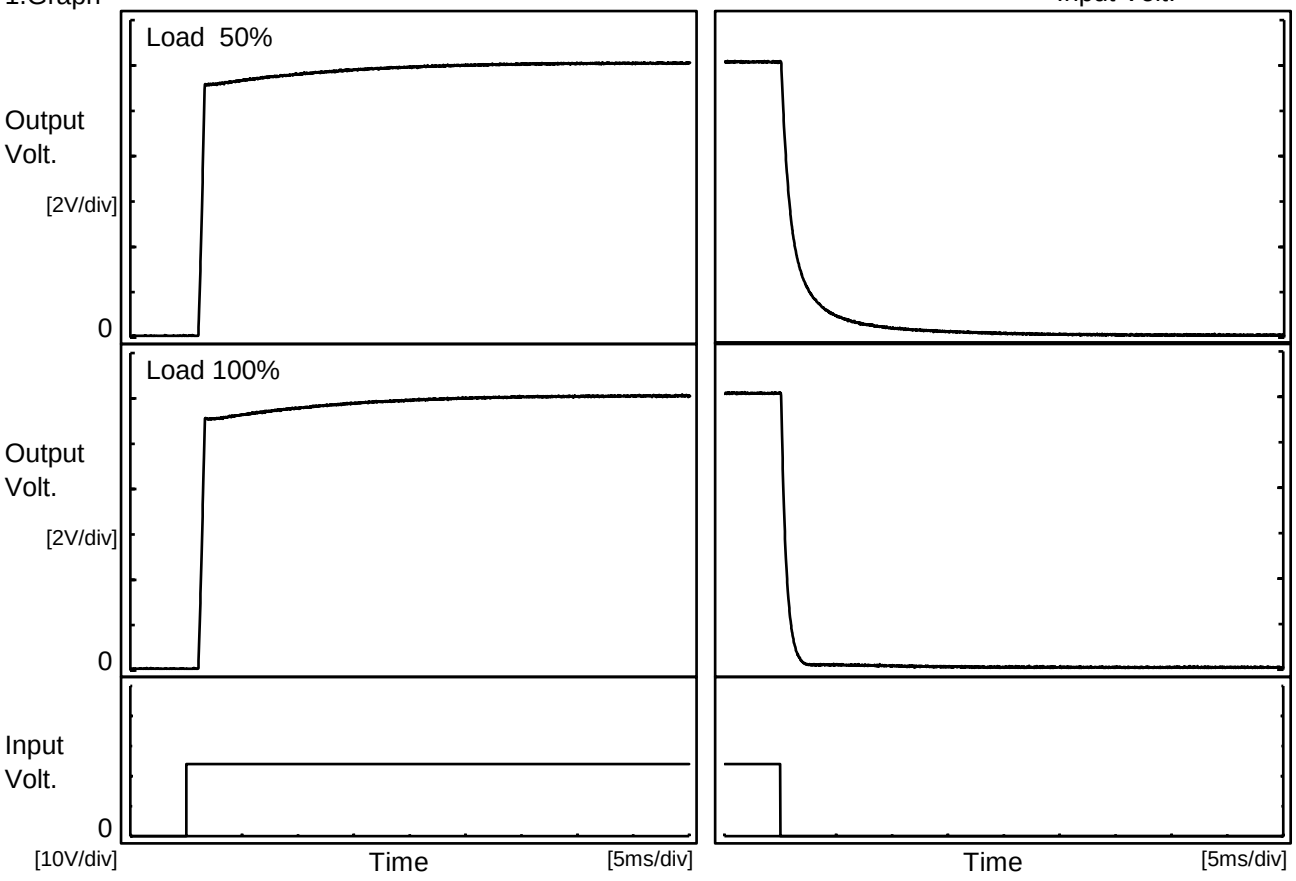
Model	MHFW62412	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-12V0.25A	

1.Graph

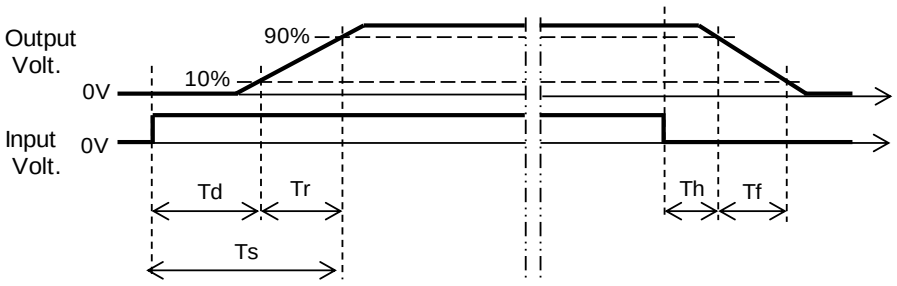
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	0.5	1.7	0.2	3.7
100 %	1.2	0.5	1.7	0.1	1.0



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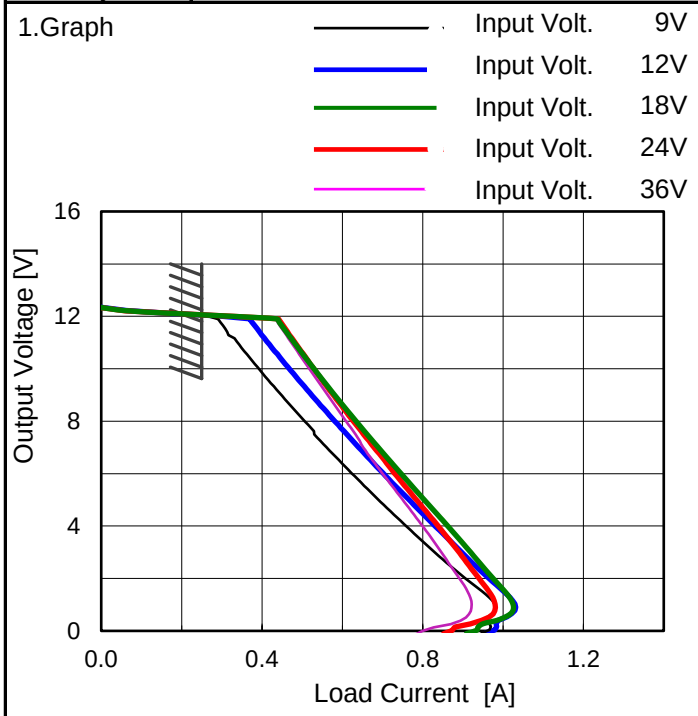
Model	MHFW62412
Item	Overcurrent Protection
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



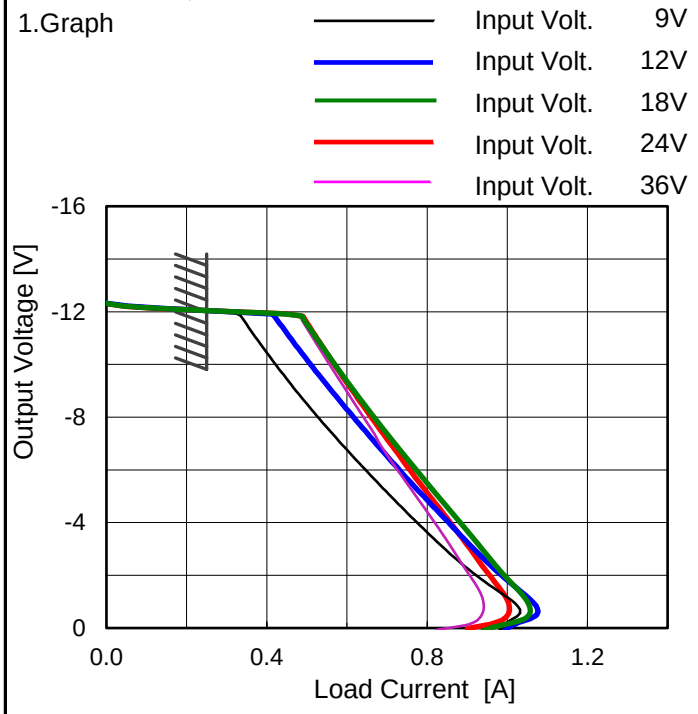
2.Values

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]
11.4	0.314	0.394	0.460	0.463	0.455
10.8	0.264	0.291	0.317	0.324	0.341
9.6	0.409	0.485	0.545	0.543	0.532
8.4	0.478	0.554	0.608	0.604	0.587
7.2	0.545	0.626	0.675	0.666	0.643
6.0	0.623	0.700	0.744	0.729	0.699
4.8	0.703	0.778	0.815	0.795	0.760
3.6	0.779	0.850	0.879	0.854	0.814
2.4	0.868	0.931	0.947	0.916	0.870
1.2	0.966	1.018	1.016	0.975	0.919
0.0	0.946	0.955	0.909	0.852	0.785

-12V:Rated Load Current

Object	-12V0.25A

1.Graph



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

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]
-11.4	0.355	0.438	0.508	0.510	0.498
-10.8	0.378	0.467	0.530	0.531	0.522
-9.6	0.436	0.528	0.585	0.584	0.572
-8.4	0.505	0.592	0.643	0.639	0.623
-7.2	0.573	0.658	0.705	0.696	0.673
-6.0	0.645	0.727	0.768	0.753	0.724
-4.8	0.720	0.799	0.833	0.814	0.780
-3.6	0.799	0.874	0.899	0.874	0.835
-2.4	0.884	0.950	0.964	0.932	0.887
-1.2	0.987	1.048	1.040	0.992	0.936
0.0	0.981	0.994	0.939	0.900	0.825

+12V:Rated Load Current

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	MHFW62412	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+12V0.25A	

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]				
	Input Volt. 9V*1	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	11.962	11.968	11.976	11.980	11.983
25	12.039	12.041	12.048	12.051	12.054
55	12.049	12.051	12.058	12.061	12.063

*1 Load 80%

-12V:Rated Load Current

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+12V0.25A	

1.Values

Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 80%
-40	7.2	7.1
25	7.0	7.0
55	7.0	7.2

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Model	MHFW62412	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	-12V0.25A	

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]				
	Input Volt. 9V*1	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	-11.995	-12.000	-11.998	-11.997	-11.995
25	-12.074	-12.075	-12.070	-12.068	-12.065
55	-12.085	-12.084	-12.079	-12.076	-12.073

*1 Load 80%

+12V:Rated Load Current

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	-12V0.25A	

1.Values

Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 80%
-40	7.2	7.1
25	7.0	7.0
55	7.0	7.2

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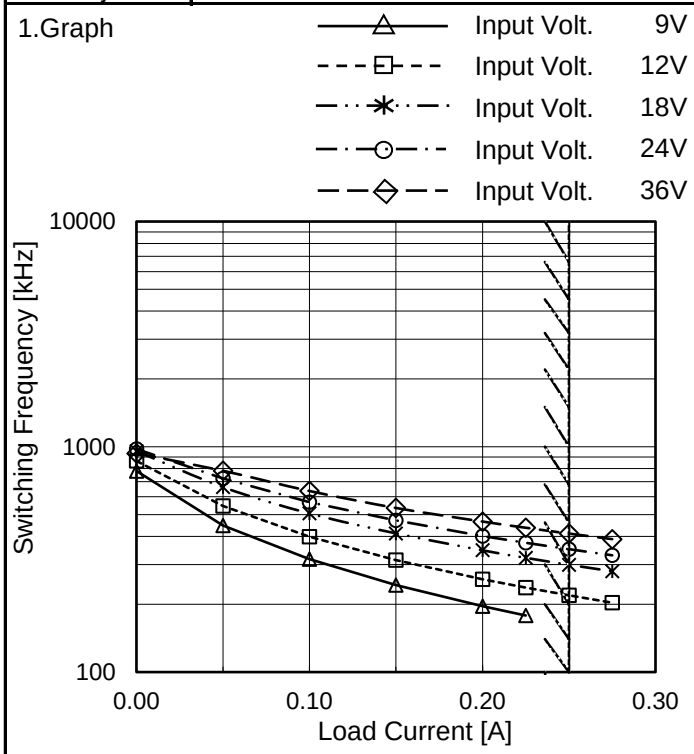
Model	MHFW62412
Item	Switching frequency (by Load Current)
Object	+/-12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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.

2.Values

Load Current [A]	Switching Frequency [kHz]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	781	865	957	978	935
0.05	448	546	662	723	783
0.10	317	399	506	568	637
0.15	243	314	413	471	535
0.20	196	258	347	402	466
0.23	178	237	321	375	437
0.25	*1	219	299	351	412
0.28	*1	203	280	330	389
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*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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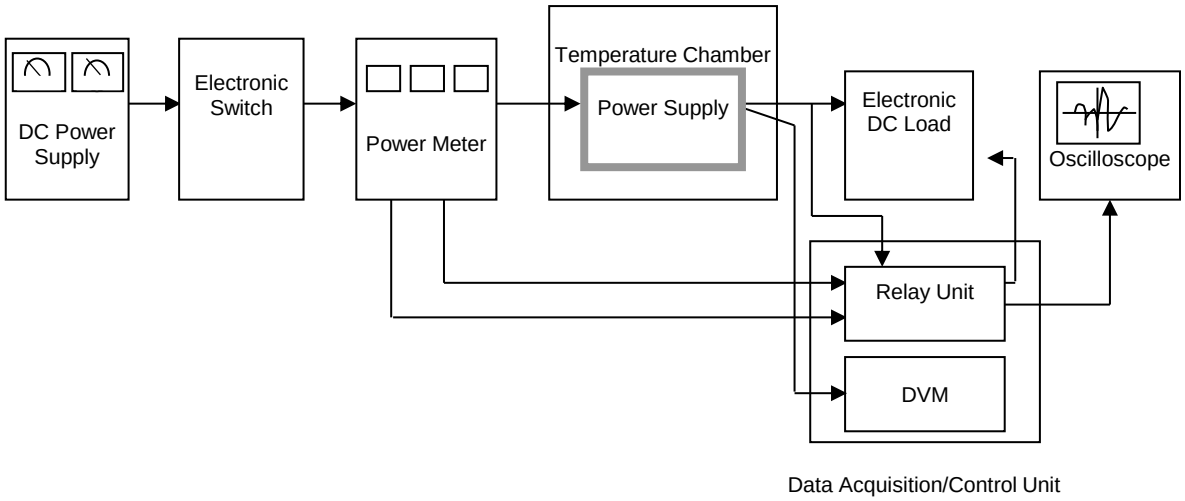

Figure A

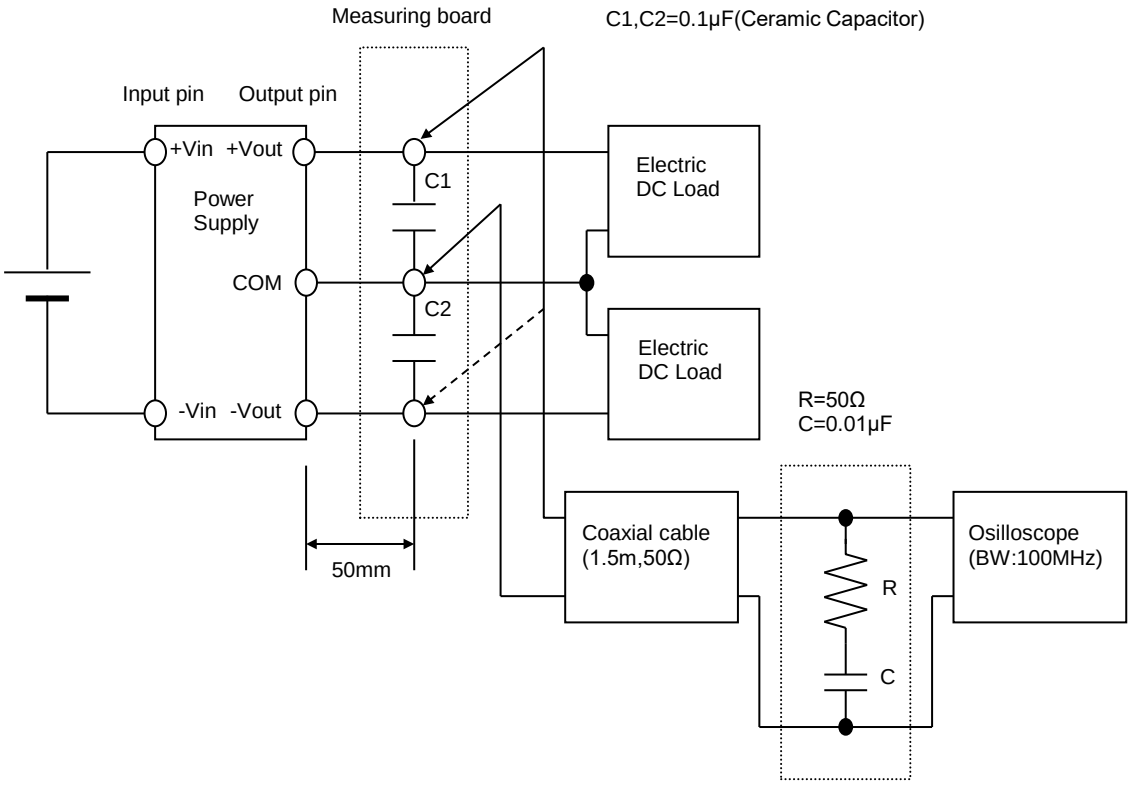

Figure B