参考資料

TEST DATA OF MHFW64812

Regulated DC Power Supply
October 27, 2021

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COSEL CO.,LTD.

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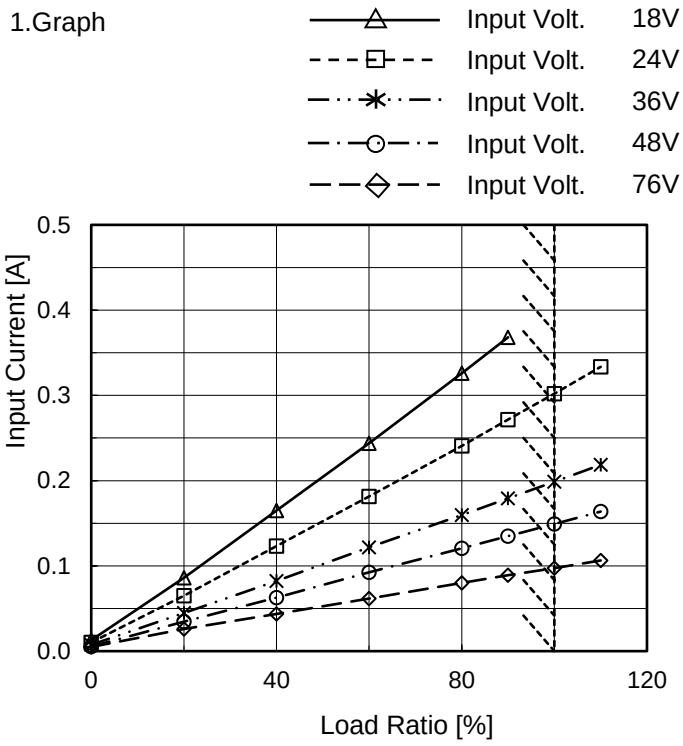
Model	MHFW64812
Item	Input Current (by Load Current)
Object	————————

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.013	0.010	0.007	0.005	0.005
20	0.086	0.065	0.045	0.035	0.026
40	0.165	0.123	0.082	0.063	0.043
60	0.244	0.181	0.122	0.092	0.062
80	0.326	0.241	0.160	0.121	0.080
90	0.368	0.271	0.179	0.135	0.089
100	*1	0.302	0.199	0.149	0.097
110	*1	0.333	0.219	0.164	0.106
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*1 Maximum output current at 18V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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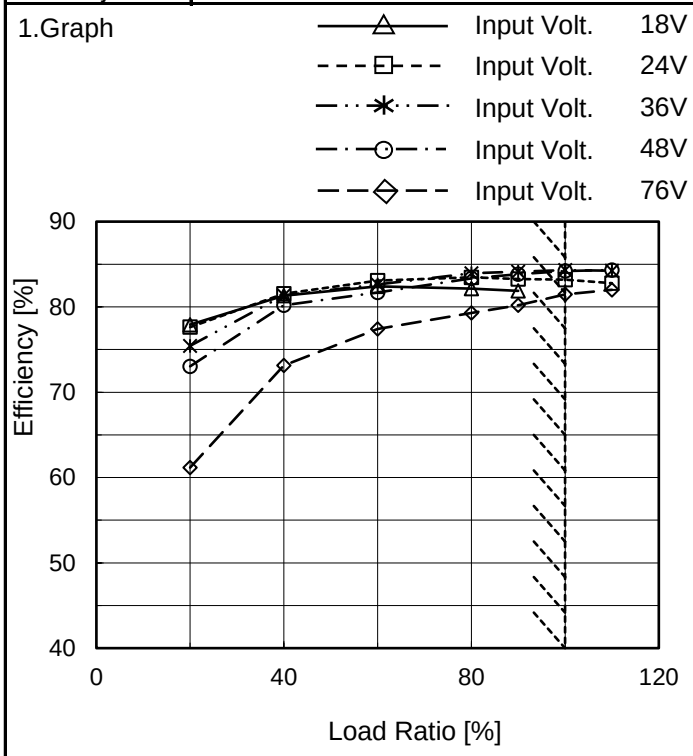
Model	MHFW64812
Item	Efficiency (by Load Current)
Object	————————

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-	-	-
20	77.9	77.6	75.4	73.0	61.2
40	81.3	81.5	81.4	80.2	73.1
60	82.4	83.1	82.6	81.7	77.4
80	82.2	83.5	83.9	83.3	79.3
90	81.9	83.3	84.1	83.8	80.2
100	*1	83.2	84.3	84.2	81.5
110	*1	82.8	84.2	84.3	82.0
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*1 Maximum output current at 18V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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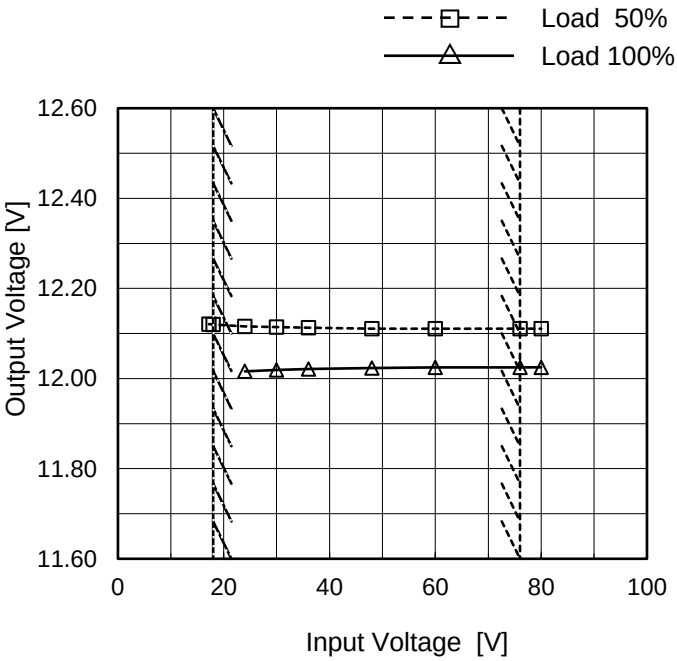
Model	MHFW64812
Item	Line Regulation
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



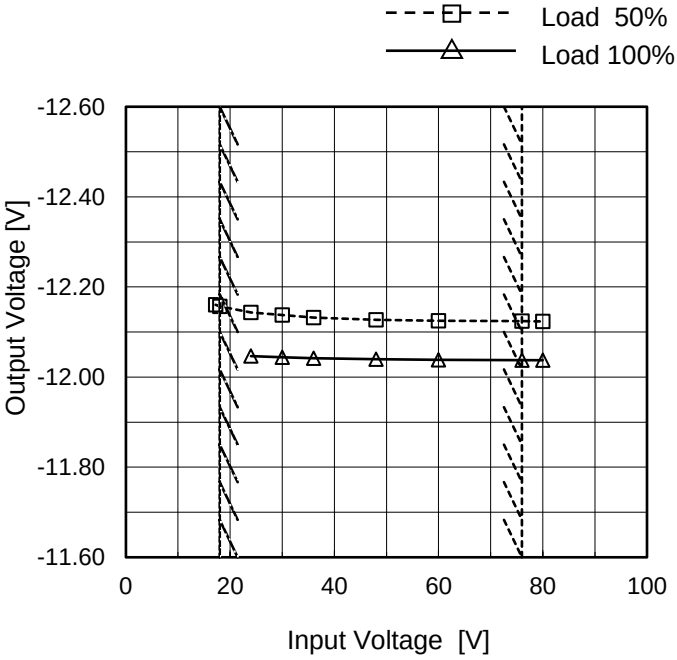
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17.2	12.121	*1
18.0	12.120	*1
24.0	12.116	12.016
30.0	12.115	12.019
36.0	12.113	12.022
48.0	12.111	12.024
60.0	12.111	12.025
76.0	12.111	12.025
80.0	12.111	12.025

-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%
17.2	-12.161	*1
18.0	-12.157	*1
24.0	-12.143	-12.047
30.0	-12.138	-12.044
36.0	-12.132	-12.042
48.0	-12.127	-12.039
60.0	-12.125	-12.038
76.0	-12.124	-12.038
80.0	-12.124	-12.037

+12V:Rated Load Current

*1 Maximum output current at 18V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

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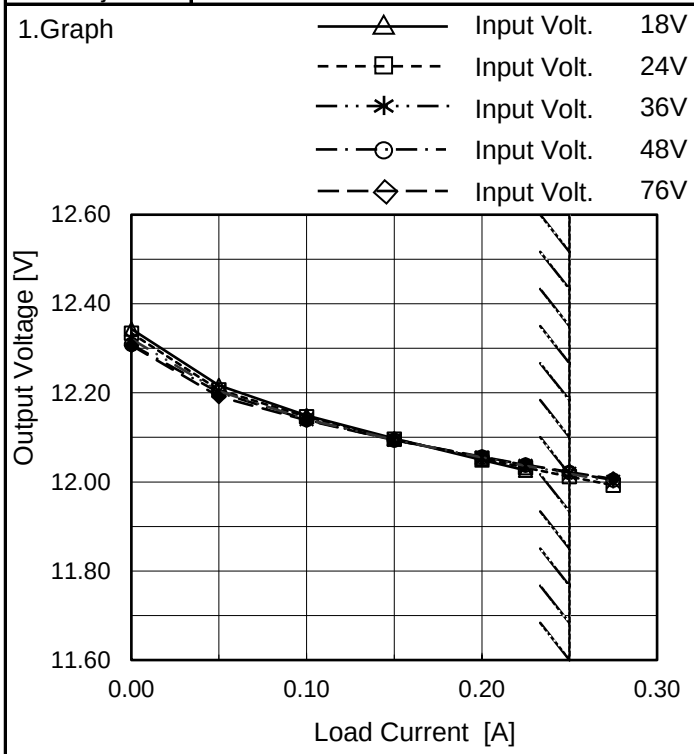
Model	MHFW64812
Item	Cross Regulation
Object	+12V0.25A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	12.343	12.334	12.321	12.308	12.307
0.05	12.217	12.207	12.204	12.201	12.192
0.10	12.149	12.146	12.140	12.140	12.139
0.15	12.097	12.096	12.095	12.094	12.094
0.20	12.049	12.053	12.055	12.056	12.056
0.23	12.026	12.032	12.036	12.037	12.039
0.25	*1	12.012	12.019	12.021	12.022
0.28	*1	11.993	12.001	12.004	12.007
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

-12V:Rated Load Current

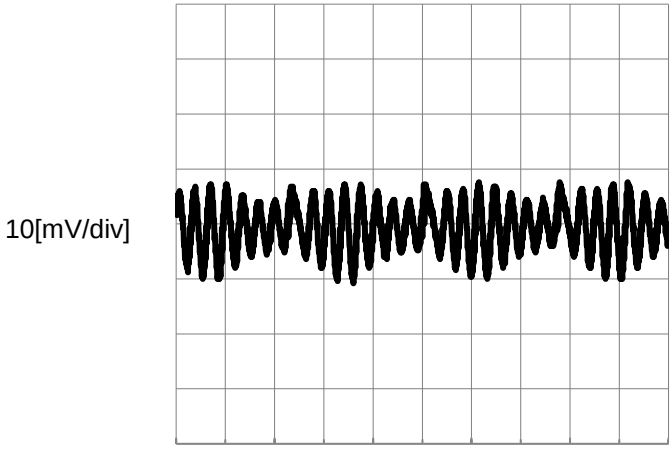
*1 Maximum output current at 18V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

Item	Ripple-Noise
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 48V
Load 100%



-12V:Rated Load Current

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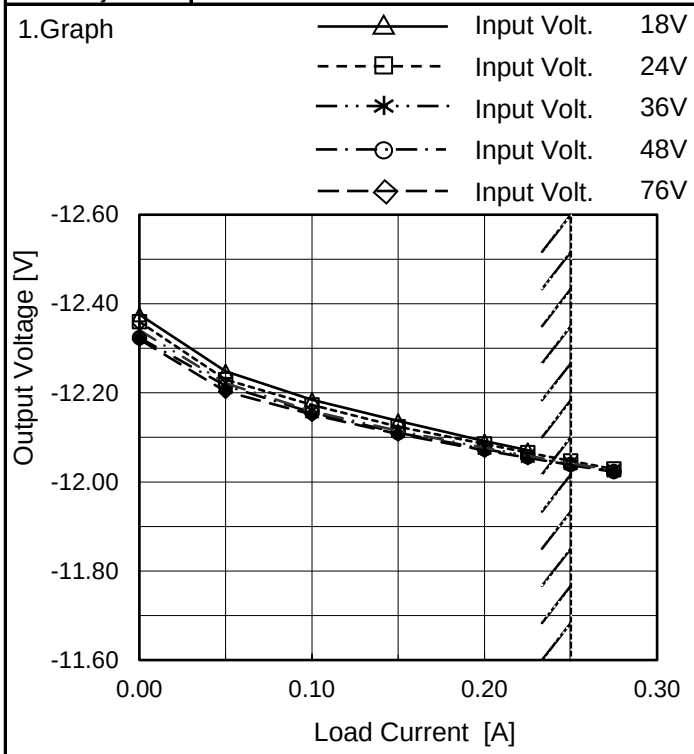
Model	MHFW64812
Item	Cross Regulation
Object	-12V0.25A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	-12.376	-12.360	-12.341	-12.324	-12.320
0.05	-12.248	-12.230	-12.222	-12.216	-12.203
0.10	-12.185	-12.173	-12.158	-12.155	-12.152
0.15	-12.137	-12.124	-12.115	-12.110	-12.108
0.20	-12.091	-12.085	-12.076	-12.074	-12.071
0.23	-12.071	-12.066	-12.059	-12.056	-12.054
0.25	*1	-12.047	-12.042	-12.040	-12.038
0.28	*1	-12.029	-12.026	-12.024	-12.022
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

+12V:Rated Load Current

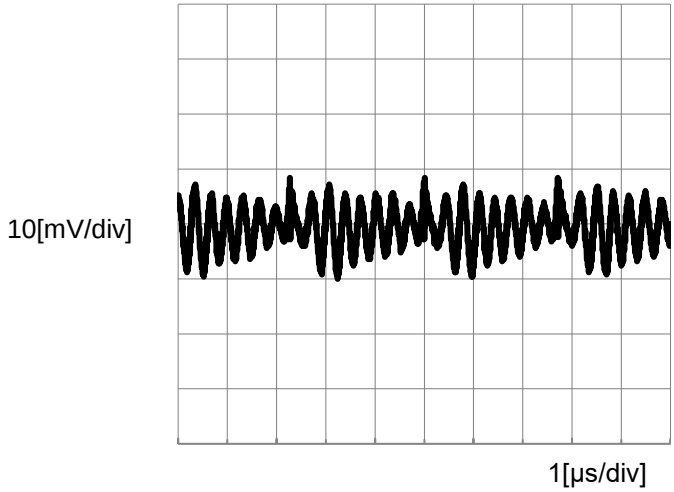
*1 Maximum output current at 18V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

Item	Ripple-Noise
Object	-12V0.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 48V
Load 100%



+12V:Rated Load Current

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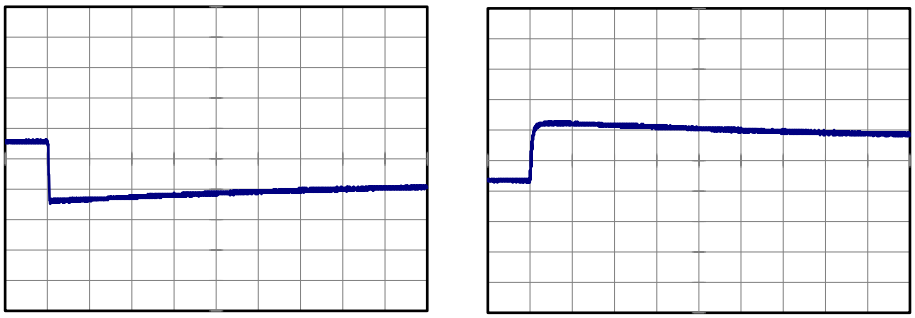
Model	MHFW64812
Item	Dynamic Load Response
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
-12V:rated load current.
Cycle 100 ms

Response. t1=t2=50μs. Typ

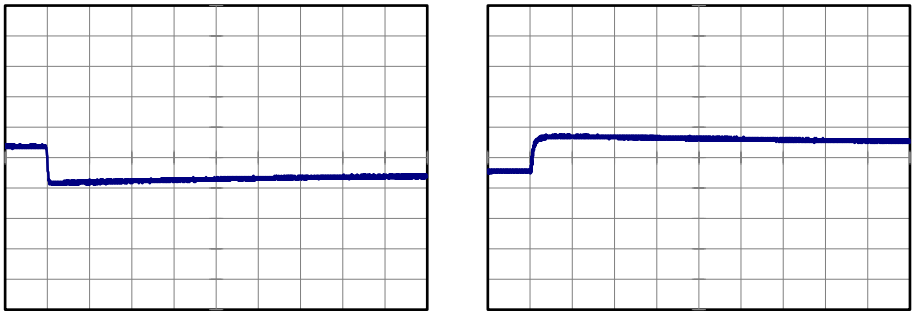
Min.Load (0A)←→
Load 100% (0.25A)



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

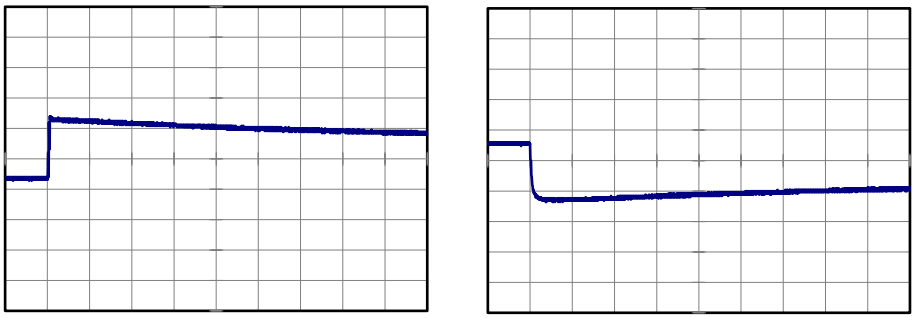
Model	MHFW64812
Item	Dynamic Load Response
Object	-12V0.25A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
+12V:rated load current.
Cycle 100 ms

Response. t1=t2=50μs. Typ

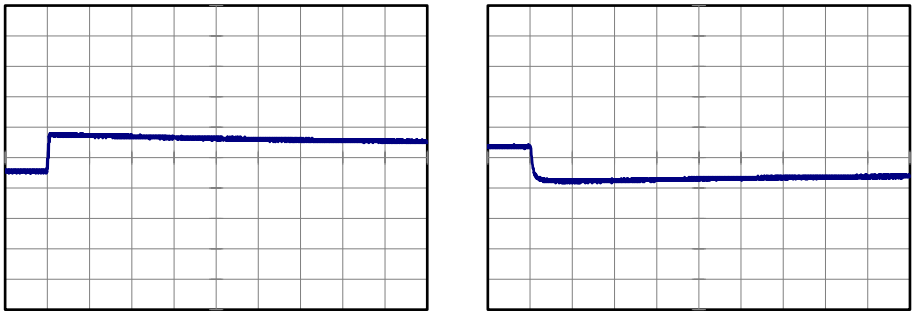
Min.Load (0A)←→
Load 100% (0.25A)



200 mV/div

1 ms/div 1 ms/div

Min.Load (0A)←→
Load 50% (0.125A)



200 mV/div

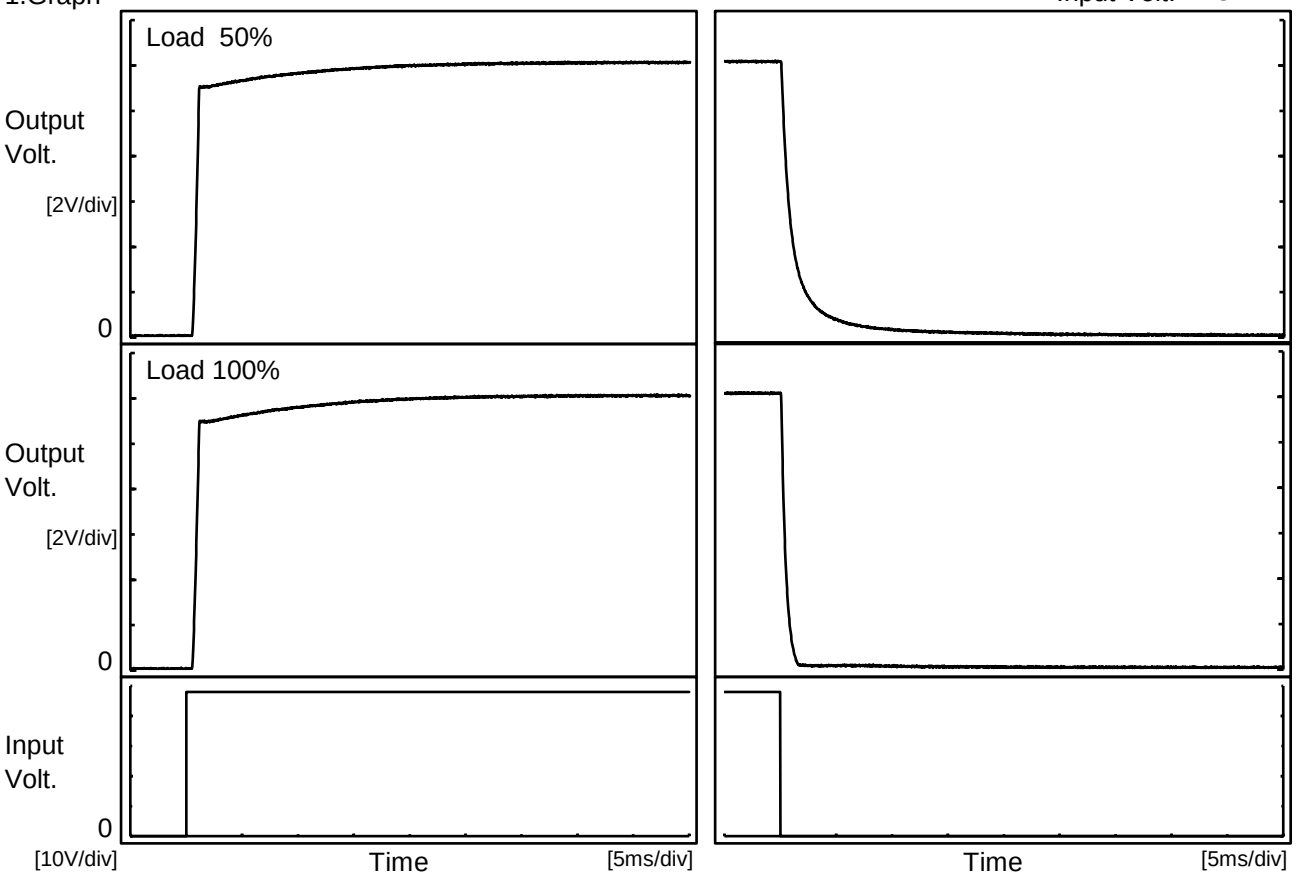
1 ms/div 1 ms/div

COSEL

Model	MHFW64812	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V0.25A	

1.Graph

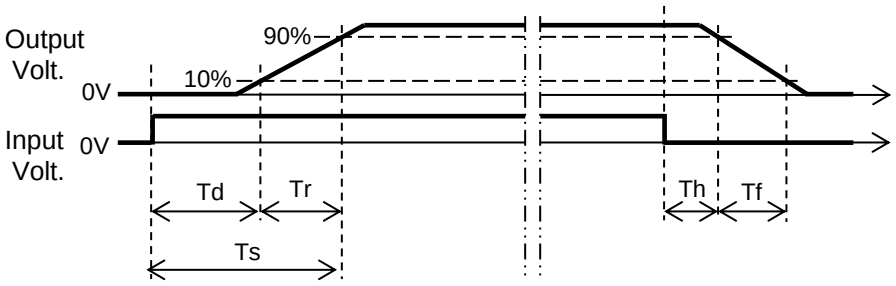
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	0.5	1.2	0.2	3.1
100 %	0.7	0.5	1.2	0.1	0.9



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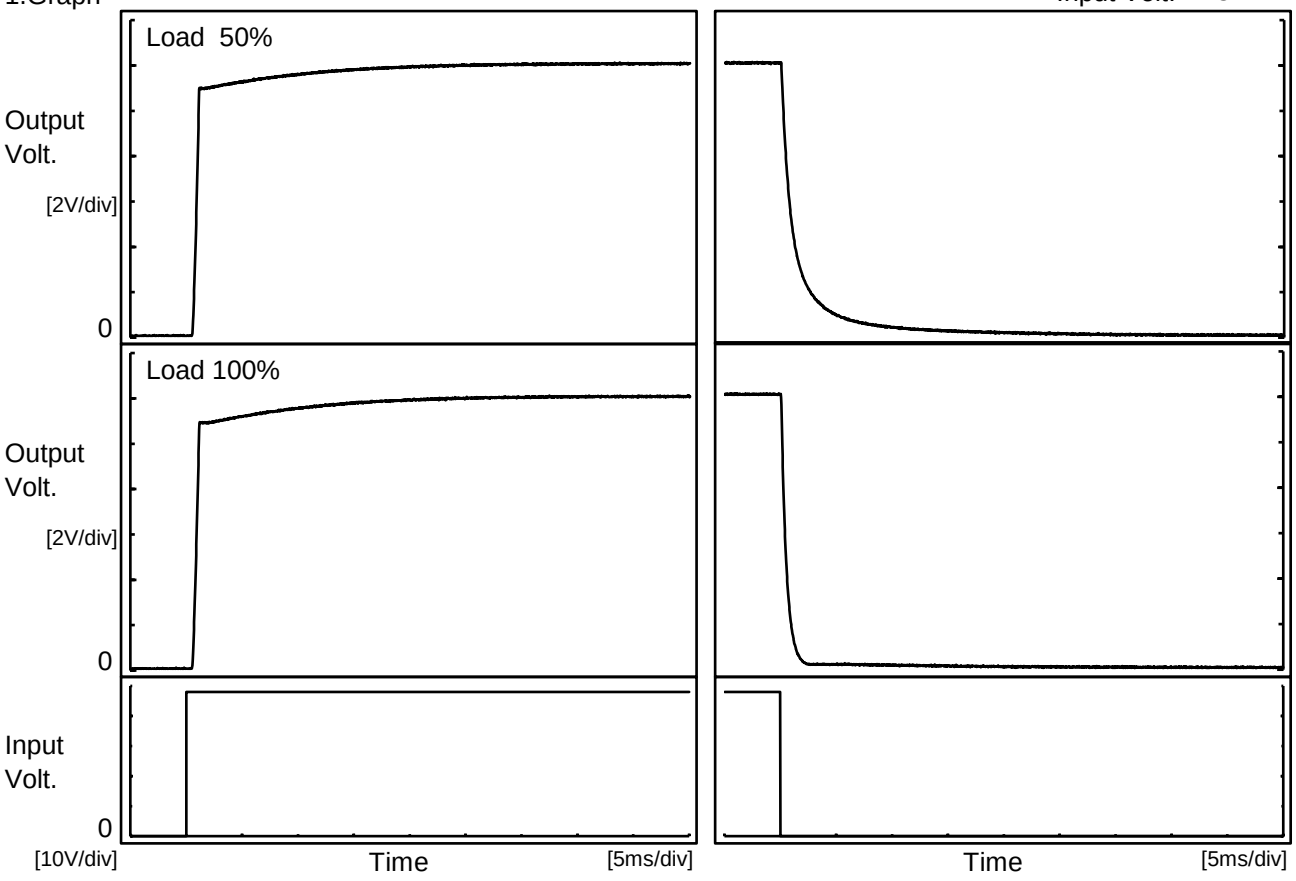
COSEL

Model	MHFW64812
Item	Rise and Fall Time
Object	-12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

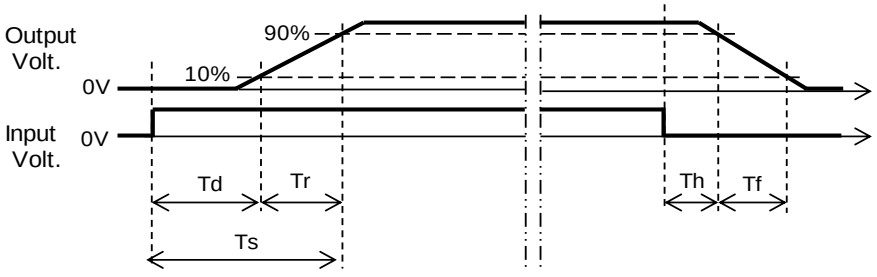
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	0.5	1.2	0.2	3.8
100 %	0.7	0.5	1.2	0.1	1.1

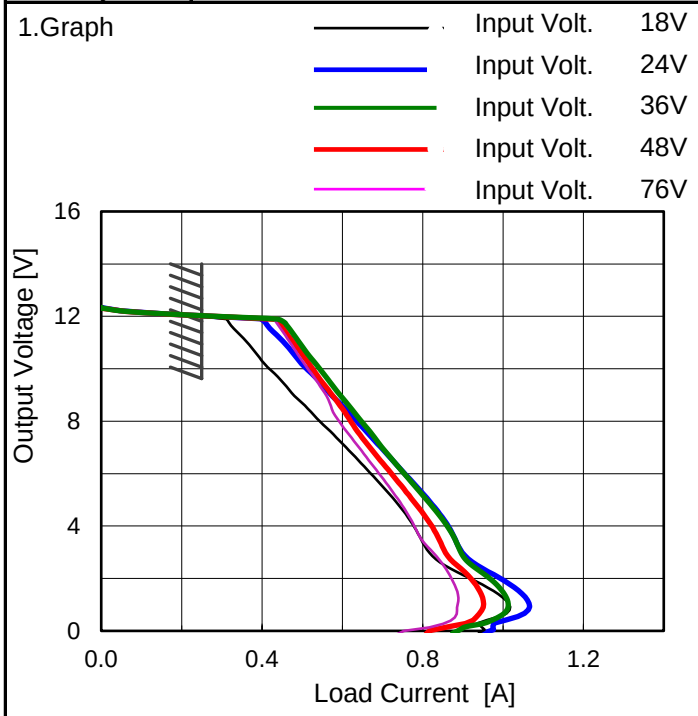


COSEL

Model	MHFW64812
Item	Overcurrent Protection
Object	+12V0.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



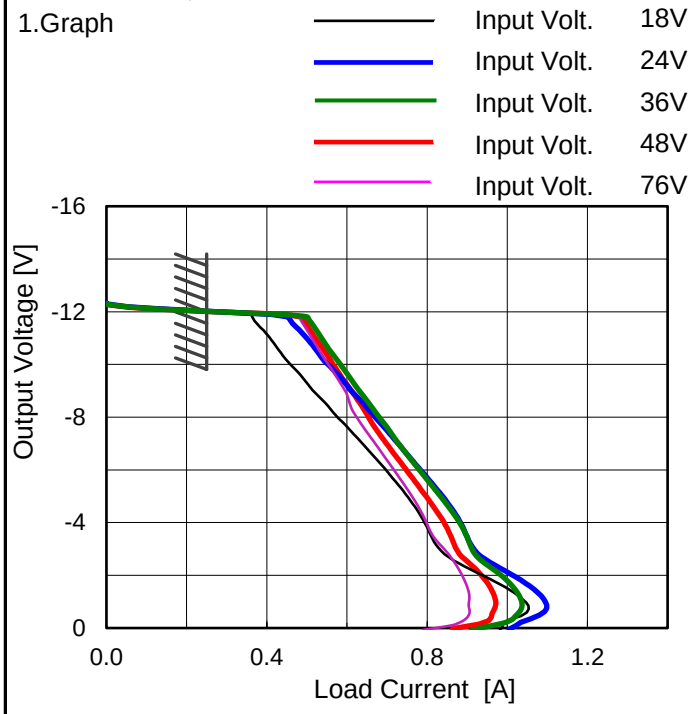
2.Values

Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
11.4	0.339	0.428	0.474	0.460	0.453
10.8	0.368	0.271	0.497	0.483	0.474
9.6	0.439	0.531	0.559	0.541	0.529
8.4	0.515	0.607	0.622	0.601	0.574
7.2	0.593	0.680	0.686	0.656	0.629
6.0	0.669	0.753	0.752	0.721	0.691
4.8	0.740	0.824	0.820	0.784	0.743
3.6	0.788	0.878	0.873	0.834	0.789
2.4	0.856	0.935	0.923	0.886	0.853
1.2	0.999	1.055	1.008	0.949	0.889
0.0	0.940	0.953	0.874	0.809	0.737

-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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-11.4	0.385	0.472	0.517	0.502	0.495
-10.8	0.418	0.508	0.543	0.529	0.519
-9.6	0.483	0.575	0.600	0.581	0.569
-8.4	0.553	0.644	0.658	0.636	0.609
-7.2	0.625	0.712	0.716	0.687	0.660
-6.0	0.695	0.779	0.777	0.746	0.716
-4.8	0.758	0.844	0.839	0.804	0.769
-3.6	0.805	0.893	0.893	0.854	0.810
-2.4	0.878	0.956	0.941	0.905	0.871
-1.2	1.030	1.084	1.026	0.966	0.905
0.0	0.982	1.004	0.909	0.864	0.790

+12V:Rated Load Current

Maximum output current at 18V input Voltage is 80% of rated load current.
Refer to instruction manuals for details of input derating.

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Model	MHFW64812	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+12V0.25A	

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]				
	Input Volt. 18V*1	Input Volt. 24V	Input Volt. 36V	Input Volt. 48V	Input Volt. 76V
-40	11.934	11.940	11.946	11.950	11.951
25	12.011	12.012	12.018	12.020	12.021
60	12.023	12.023	12.029	12.031	12.032

*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	14.6	14.7
25	14.4	14.4
60	14.2	14.5

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Model	MHFW64812	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	-12V0.25A	

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]				
	Input Volt. 18V*1	Input Volt. 24V	Input Volt. 36V	Input Volt. 48V	Input Volt. 76V
-40	-11.966	-11.968	-11.967	-11.966	-11.966
25	-12.044	-12.043	-12.039	-12.037	-12.036
60	-12.056	-12.053	-12.049	-12.047	-12.045

*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	14.6	14.7
25	14.4	14.4
60	14.2	14.5

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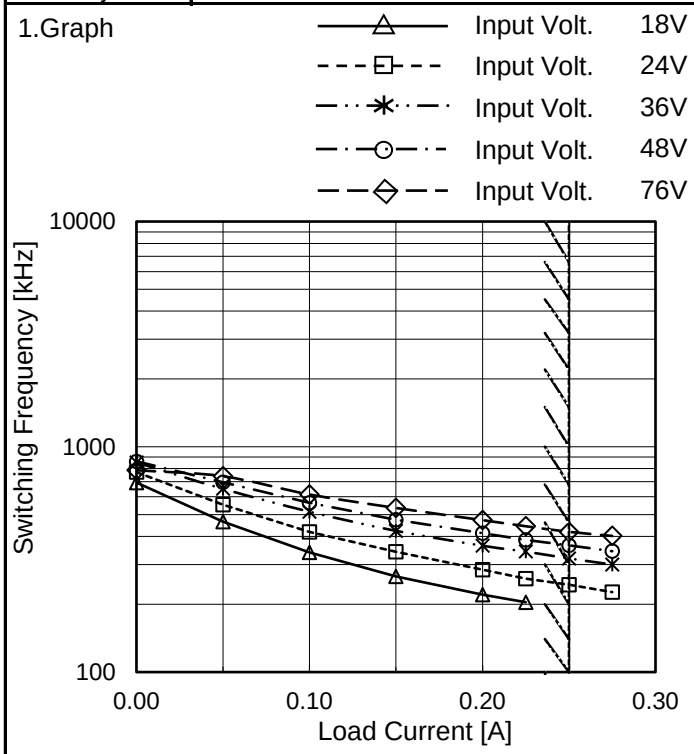
Model	MHFW64812
Item	Switching frequency (by Load Current)
Object	+/-12V0.25A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	694	772	852	862	787
0.05	466	554	651	697	740
0.10	340	419	515	564	614
0.15	266	342	424	474	535
0.20	221	284	364	414	473
0.23	204	259	343	386	444
0.25	*1	244	319	366	419
0.28	*1	226	300	344	402
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

*1 Maximum output current at 18V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

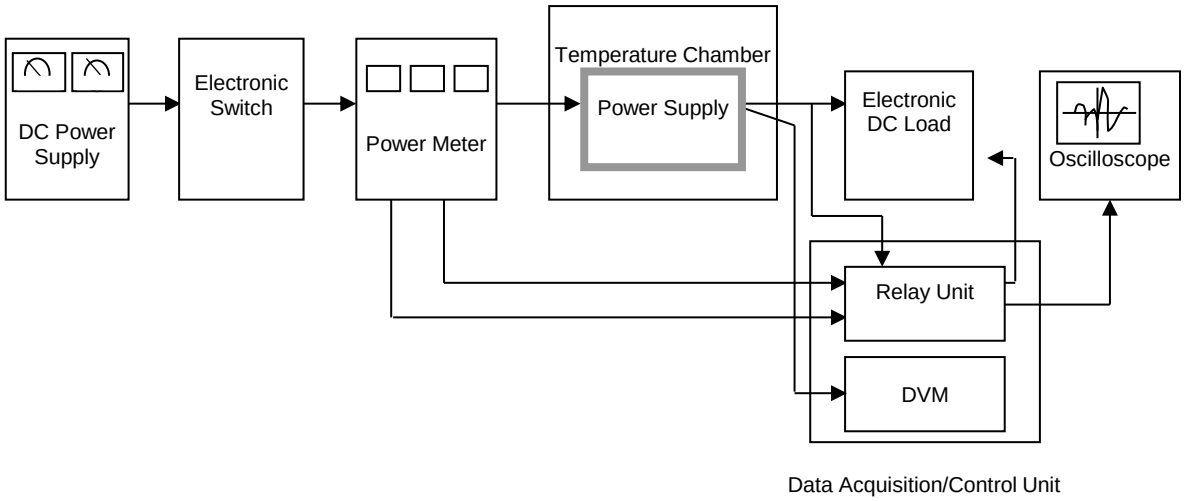


Figure A

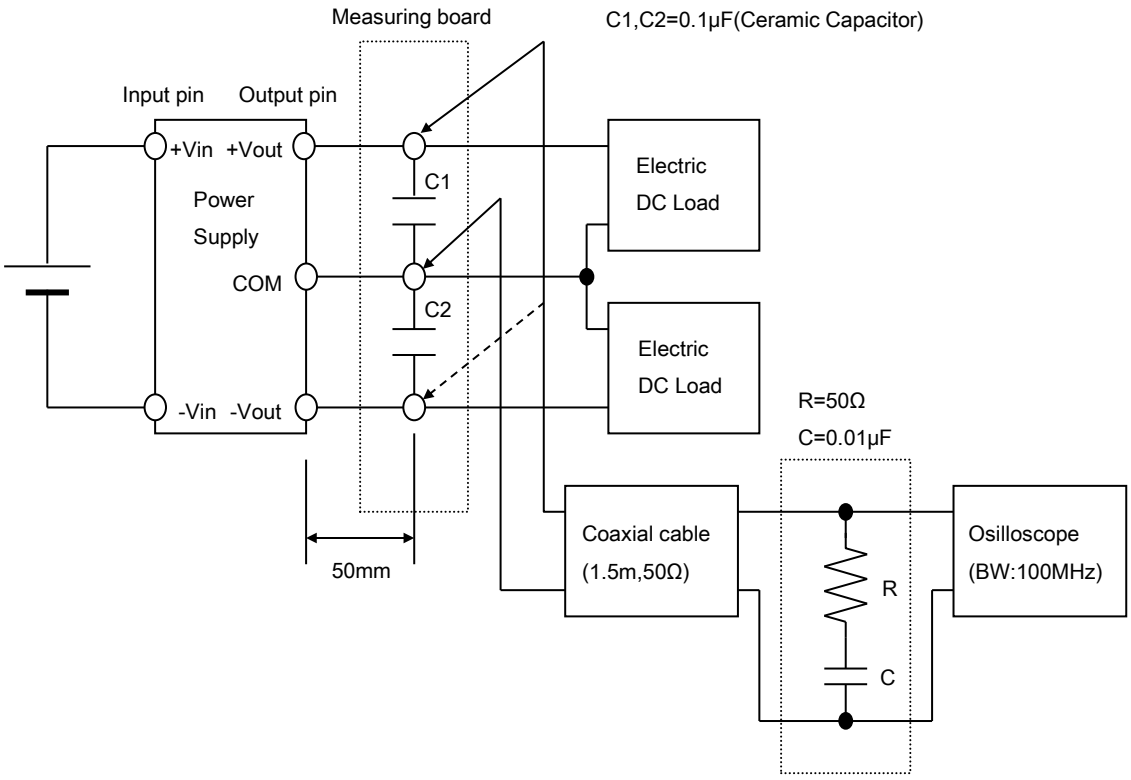


Figure B