参考資料

COSEL

TEST DATA OF MHFW32415

Regulated DC Power Supply
July 2, 2020

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COSEL CO.,LTD.

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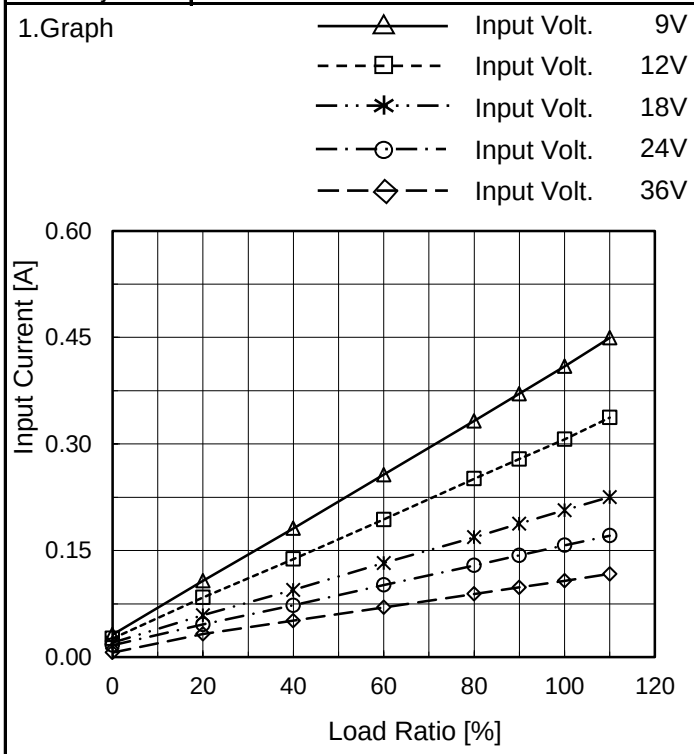
COSEL

Model	MHFW32415
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

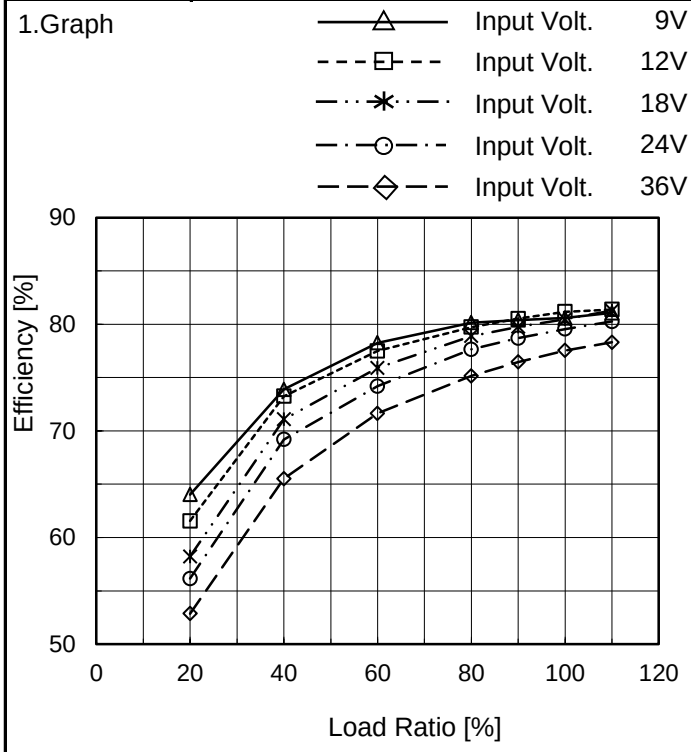
Load Ratio [%]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.032	0.026	0.020	0.017	0.007
20	0.107	0.084	0.059	0.046	0.033
40	0.181	0.138	0.095	0.073	0.051
60	0.257	0.194	0.133	0.102	0.070
80	0.332	0.251	0.169	0.129	0.089
90	0.371	0.279	0.188	0.143	0.098
100	0.409	0.307	0.207	0.158	0.108
110	0.449	0.337	0.225	0.171	0.117
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MHFW32415
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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	64.0	61.6	58.2	56.2	52.9
40	73.9	73.2	71.1	69.2	65.5
60	78.3	77.5	75.9	74.2	71.6
80	80.2	79.7	78.9	77.6	75.1
90	80.4	80.5	79.8	78.7	76.5
100	80.6	81.2	80.5	79.5	77.5
110	81.1	81.4	81.3	80.3	78.3
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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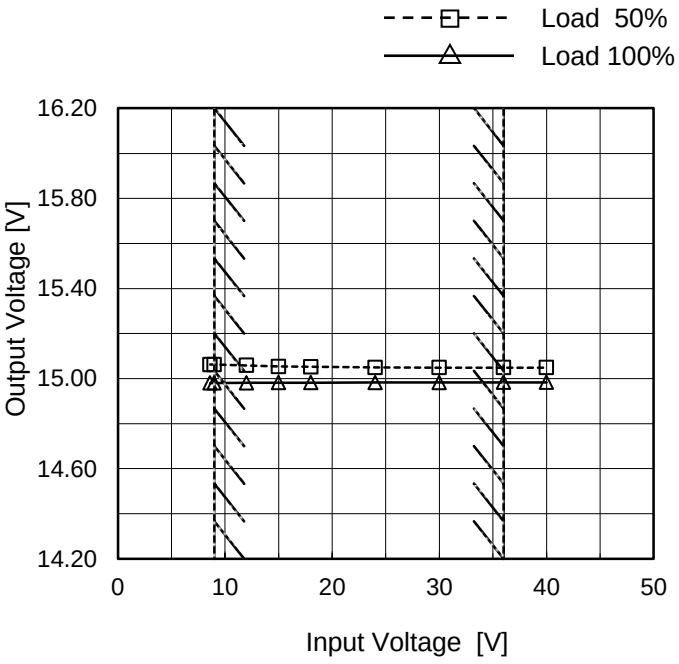
Model	MHFW32415
Item	Line Regulation
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



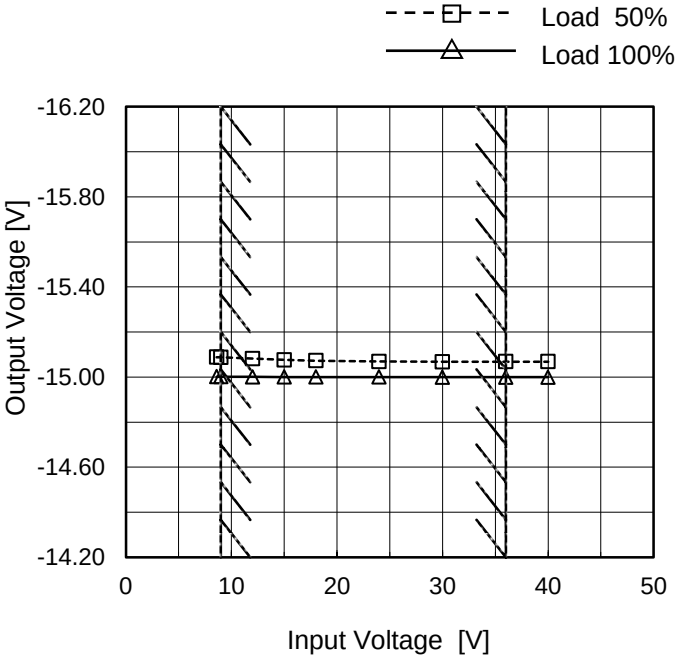
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	15.063	14.980
9.0	15.062	14.981
12.0	15.059	14.981
15.0	15.054	14.982
18.0	15.052	14.982
24.0	15.050	14.983
30.0	15.049	14.983
36.0	15.049	14.983
40.0	15.049	14.984

-15V:Rated Load Current

Object	-15V0.1A

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	-15.088	-15.002
9.0	-15.087	-15.002
12.0	-15.082	-15.001
15.0	-15.076	-15.000
18.0	-15.073	-15.000
24.0	-15.069	-15.000
30.0	-15.068	-14.999
36.0	-15.068	-14.999
40.0	-15.068	-14.999

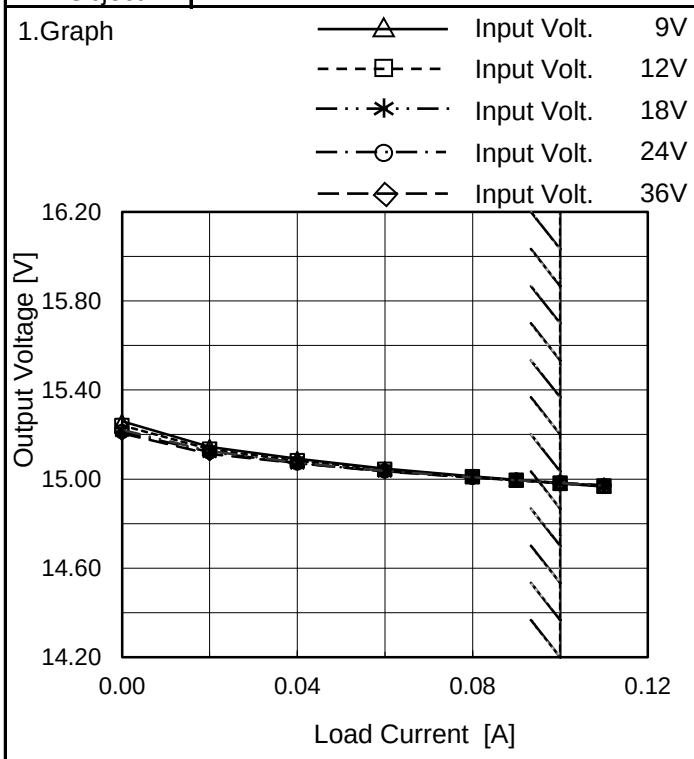
+15V:Rated Load Current

COSEL

Model	MHFW32415
Item	Load Regulation
Object	+15V0.1A

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	15.260	15.241	15.221	15.212	15.205
0.02	15.145	15.134	15.125	15.121	15.114
0.04	15.091	15.082	15.074	15.072	15.072
0.06	15.046	15.044	15.037	15.035	15.034
0.08	15.012	15.010	15.008	15.007	15.007
0.09	14.996	14.995	14.995	14.995	14.995
0.10	14.981	14.981	14.982	14.982	14.984
0.11	14.967	14.968	14.970	14.970	14.973
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

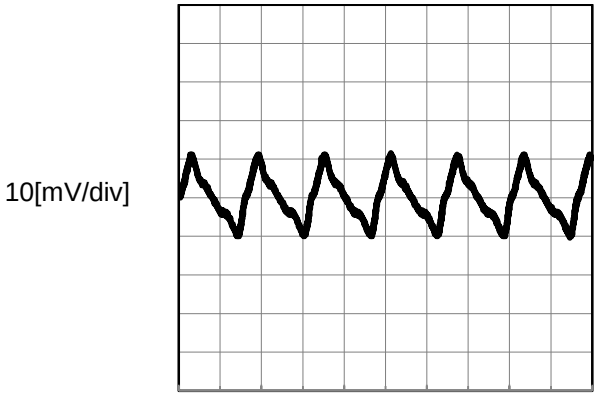
-15V:Rated Load Current

Item	Ripple-Noise
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 24V
Load 100%



-15V:Rated Load Current

BC-11616

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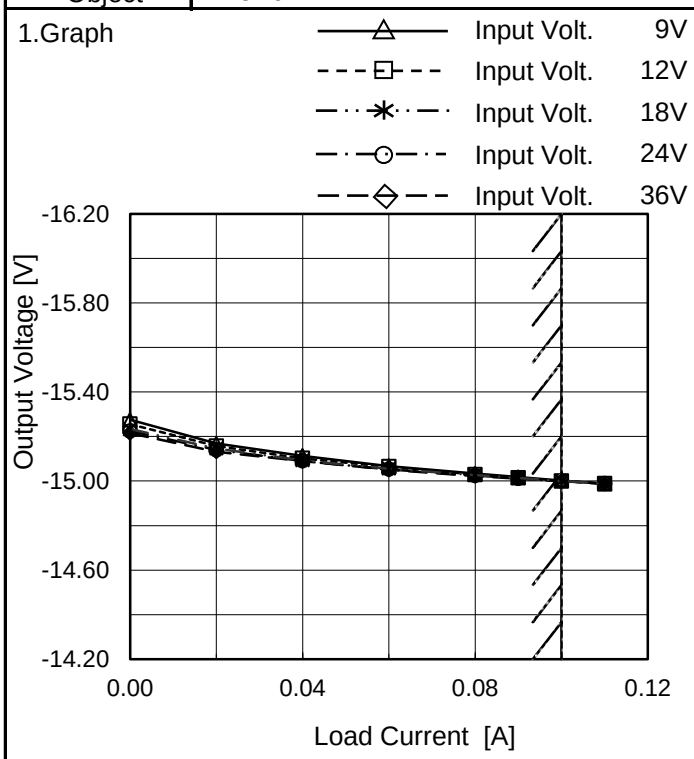
Model	MHFW32415
Item	Load Regulation
Object	-15V0.1A

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	-15.275	-15.255	-15.233	-15.225	-15.216
0.02	-15.169	-15.157	-15.146	-15.140	-15.132
0.04	-15.113	-15.102	-15.093	-15.090	-15.090
0.06	-15.067	-15.064	-15.056	-15.053	-15.051
0.08	-15.033	-15.029	-15.027	-15.024	-15.023
0.09	-15.017	-15.014	-15.013	-15.012	-15.011
0.10	-15.002	-15.001	-15.000	-15.000	-14.999
0.11	-14.988	-14.988	-14.988	-14.988	-14.989
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

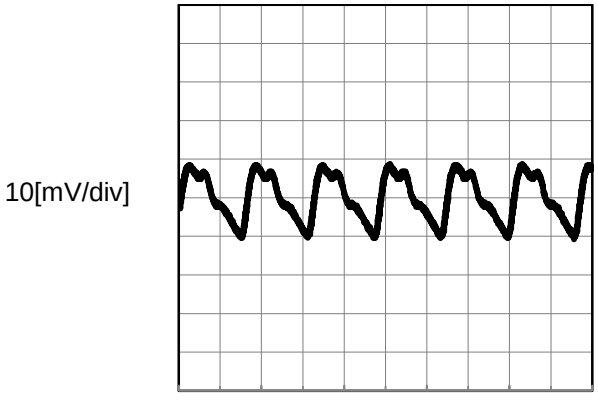
+15V:Rated Load Current

Item	Ripple-Noise
Object	-15V0.1A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 24V
Load 100%



+15V:Rated Load Current

COSEL

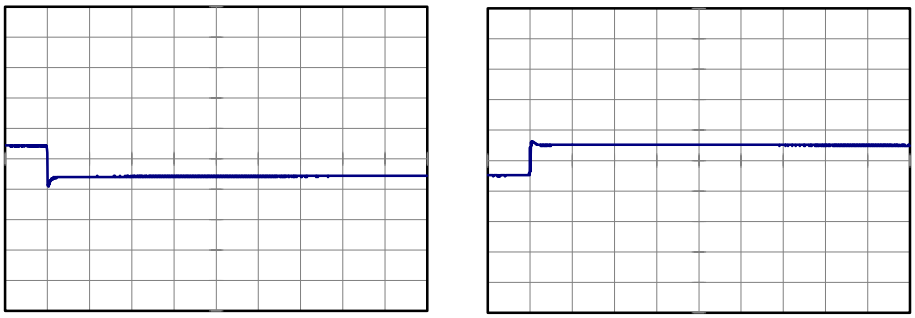
Model	MHFW32415	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+15V0.1A	

Input Volt. 24 V

-15V:rated load current.

Cycle 100 ms

Min.Load (0A)←→
Load 100% (0.1A)

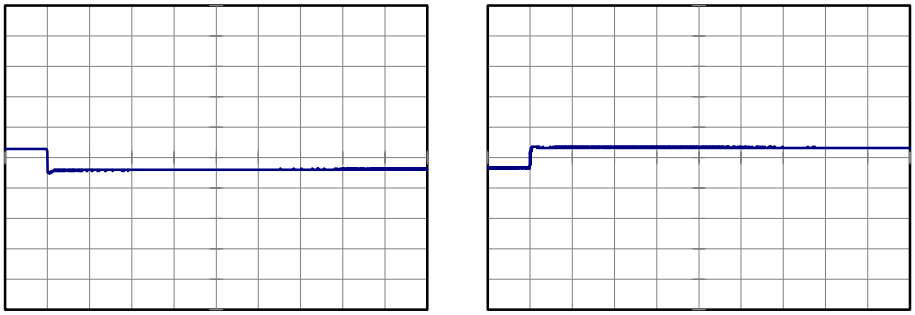


200 mV/div

2 ms/div

2 ms/div

Min.Load (0A)←→
Load 50% (0.05A)



200 mV/div

2 ms/div

2 ms/div

COSEL

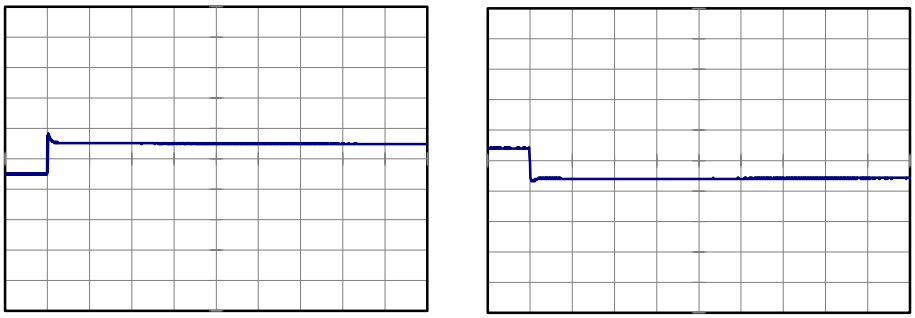
Model	MHFW32415	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	-15V0.1A	

Input Volt. 24 V

+15V:rated load current.

Cycle 100 ms

Min.Load (0A)←→
Load 100% (0.1A)

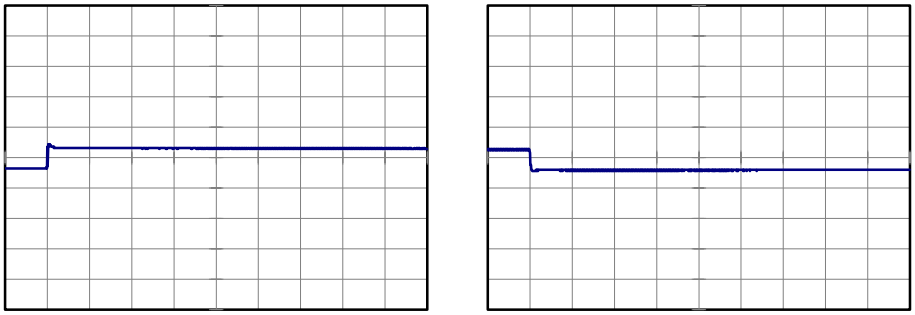


200 mV/div

2 ms/div

2 ms/div

Min.Load (0A)←→
Load 50% (0.05A)



200 mV/div

2 ms/div

2 ms/div

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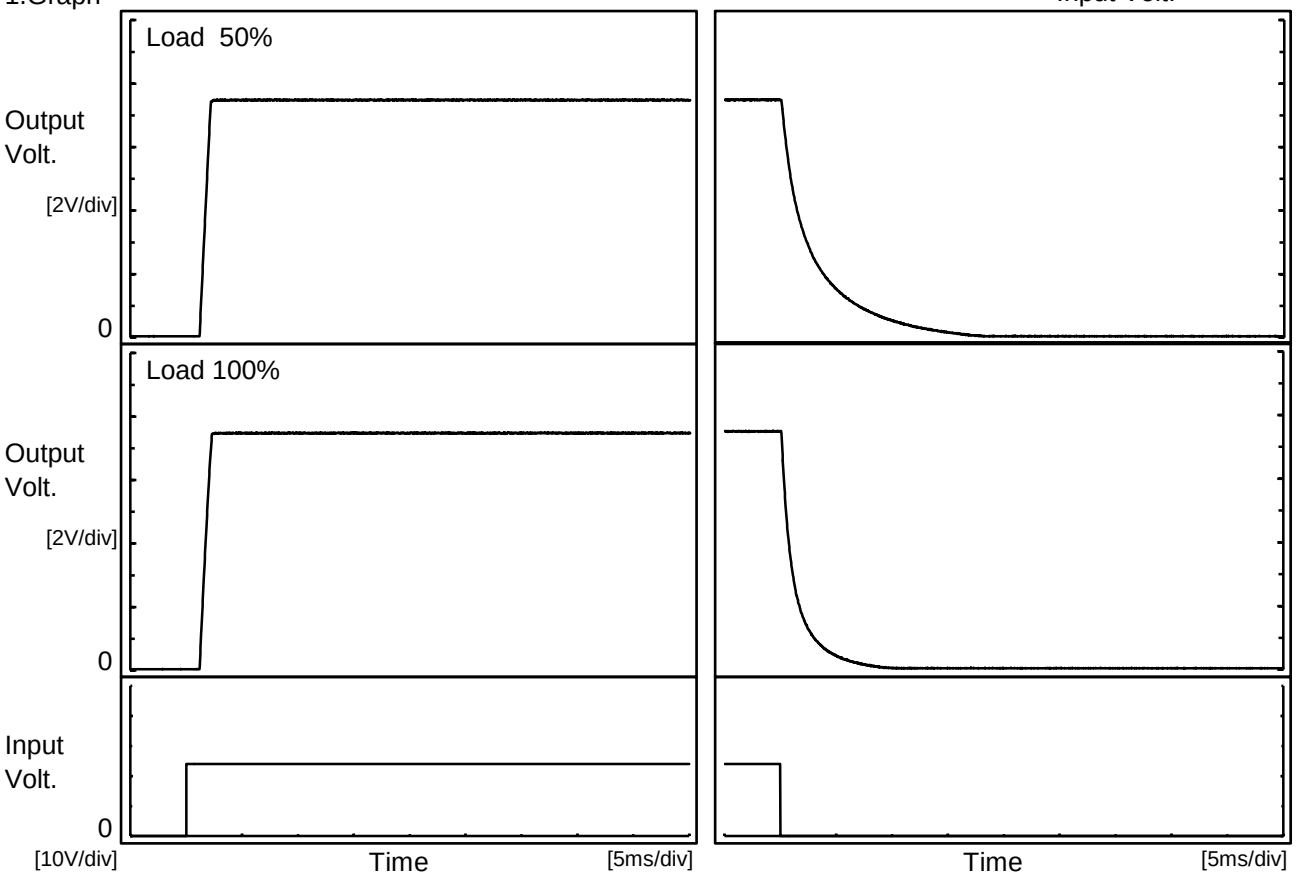
Model	MHFW32415	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+15V0.1A	

1.Graph

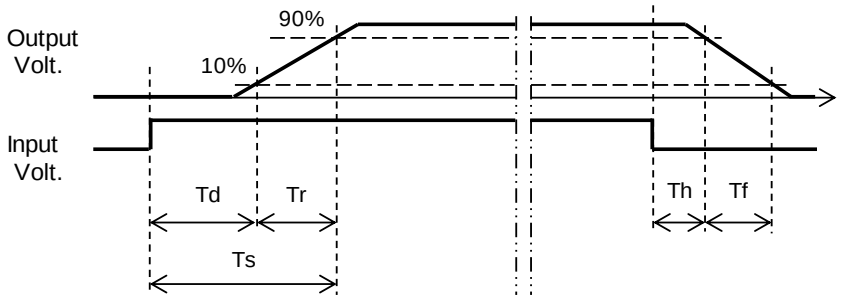
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.3	0.8	2.1	0.3	7.9
100 %	1.3	0.9	2.2	0.2	3.4

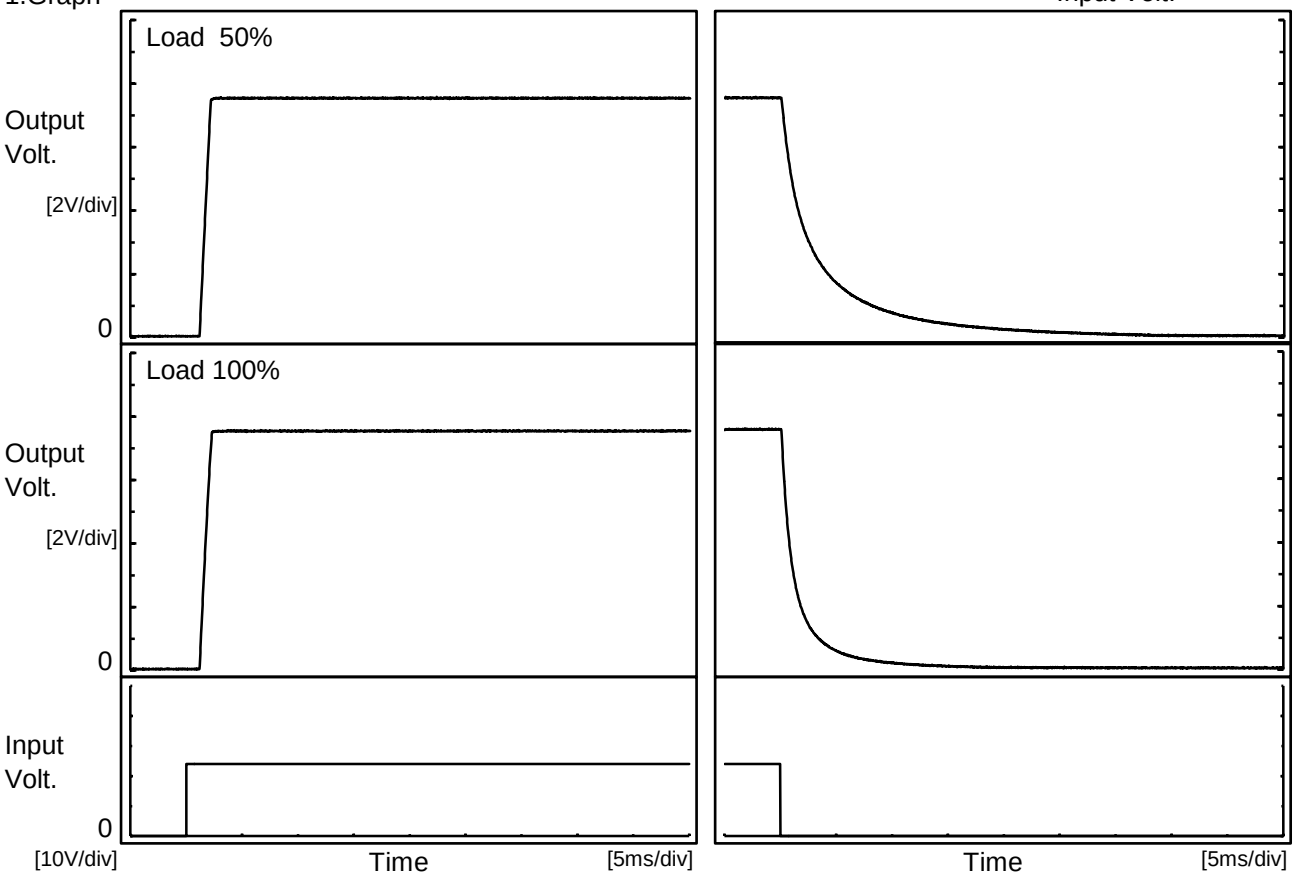


COSEL

Model	MHFW32415	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	-15V0.1A	

1.Graph

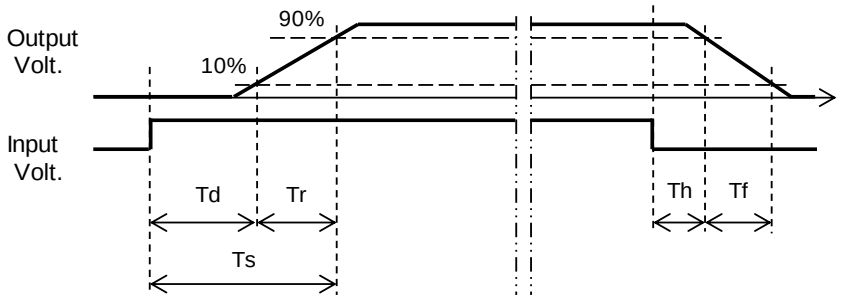
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.3	0.8	2.1	0.3	9.7
100 %	1.3	0.9	2.2	0.2	3.9

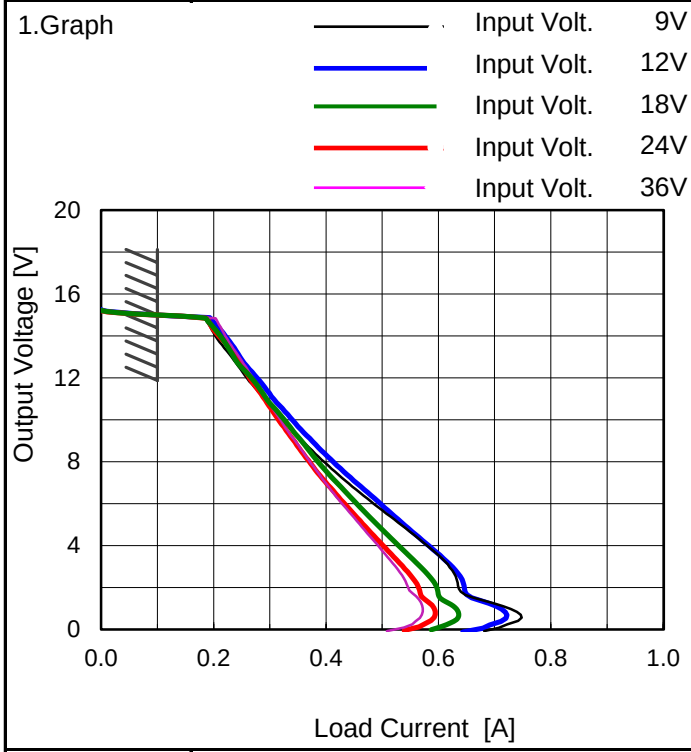


COSEL

Model	MHFW32415
Item	Overcurrent Protection
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



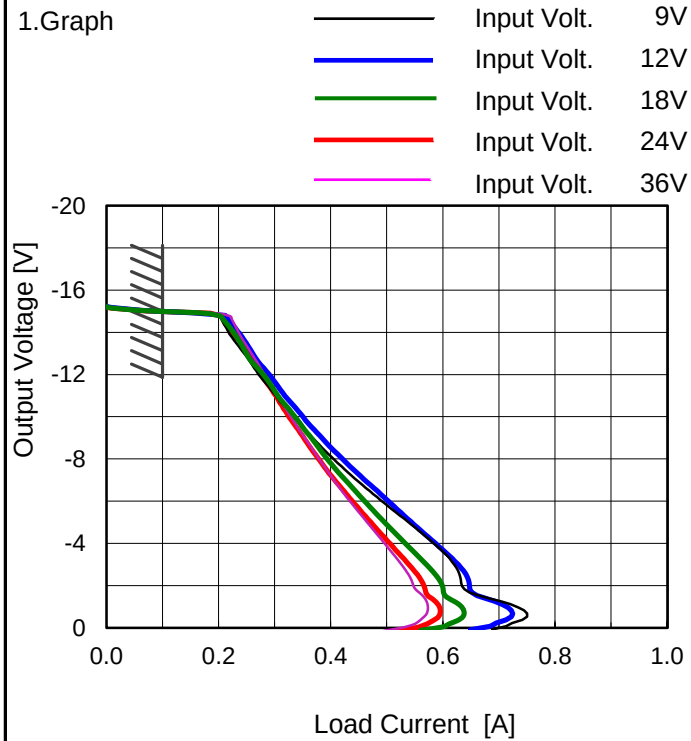
2.Values

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]
14.3	0.197	0.212	0.204	0.201	0.216
13.5	0.215	0.233	0.224	0.225	0.232
12.0	0.255	0.273	0.264	0.262	0.267
10.5	0.304	0.322	0.309	0.303	0.306
9.0	0.354	0.371	0.354	0.341	0.343
7.5	0.416	0.431	0.397	0.381	0.382
6.0	0.480	0.493	0.452	0.431	0.427
4.5	0.556	0.559	0.505	0.480	0.473
3.0	0.617	0.620	0.565	0.536	0.523
1.5	0.661	0.660	0.601	0.570	0.560
0.0	0.682	0.643	0.587	0.539	0.509
--	-	-	-	-	-

-15V:Rated Load Current

Object	-15V0.1A

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]
-14.3	0.213	0.230	0.221	0.218	0.229
-13.5	0.227	0.246	0.237	0.237	0.244
-12.0	0.271	0.290	0.280	0.273	0.279
-10.5	0.315	0.333	0.320	0.313	0.316
-9.0	0.364	0.381	0.363	0.350	0.352
-7.5	0.425	0.435	0.405	0.389	0.390
-6.0	0.489	0.501	0.460	0.438	0.434
-4.5	0.558	0.561	0.512	0.486	0.479
-3.0	0.616	0.622	0.566	0.536	0.523
-1.5	0.663	0.661	0.605	0.570	0.559
0.0	0.688	0.650	0.560	0.520	0.495
--	-	-	-	-	-

+15V:Rated Load Current

COSEL

Model	MHFW32415	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+15V0.1A	

1.Values

Ambient Temperature[℃]	Output Voltage [V]				
	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	14.890	14.892	14.892	14.894	14.896
25	14.981	14.981	14.982	14.982	14.984
70	14.985	14.986	14.986	14.986	14.988

-15V:Rated Load Current

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+15V0.1A	

1.Values

Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 100%
-40	7.4	7.4
25	7.3	7.3
70	7.0	7.1

Model	MHFW32415	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	-15V0.1A	

1.Values

Ambient Temperature[℃]	Output Voltage [V]				
	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	-14.912	-14.912	-14.912	-14.912	-14.913
25	-15.002	-15.001	-15.000	-15.000	-14.999
70	-15.006	-15.004	-15.003	-15.002	-15.002

+15V:Rated Load Current

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	-15V0.1A	

1.Values

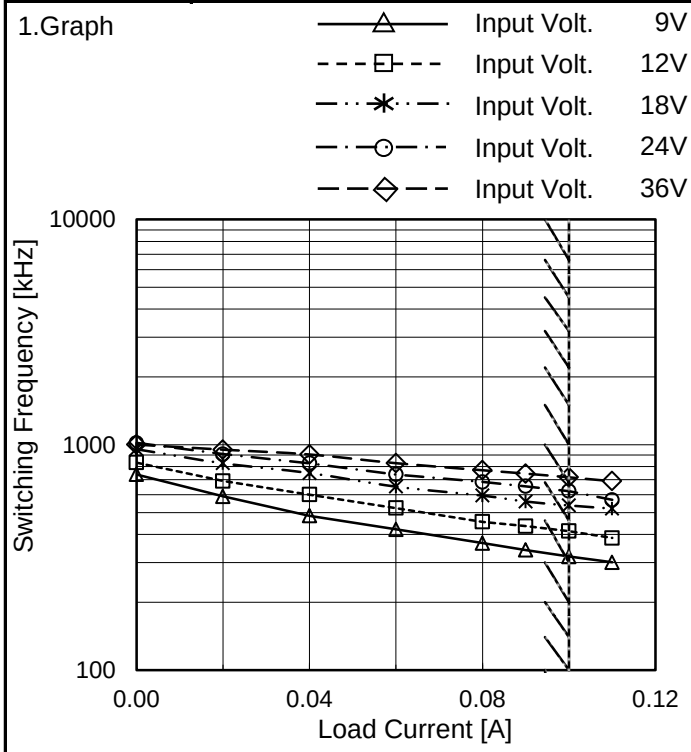
Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 100%
-40	7.3	7.4
25	7.3	7.3
70	7.1	7.2

COSEL

Model	MHFW32415
Item	Switching frequency (by Load Current)
Object	+/-15V0.1A

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	739	834	956	1020	1002
0.02	590	691	828	909	952
0.04	485	601	749	828	906
0.06	421	524	652	739	829
0.08	366	455	595	684	771
0.09	341	436	560	654	745
0.10	319	414	538	623	717
0.11	301	386	521	569	689
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--	-	-	-	-	-
--	-	-	-	-	-

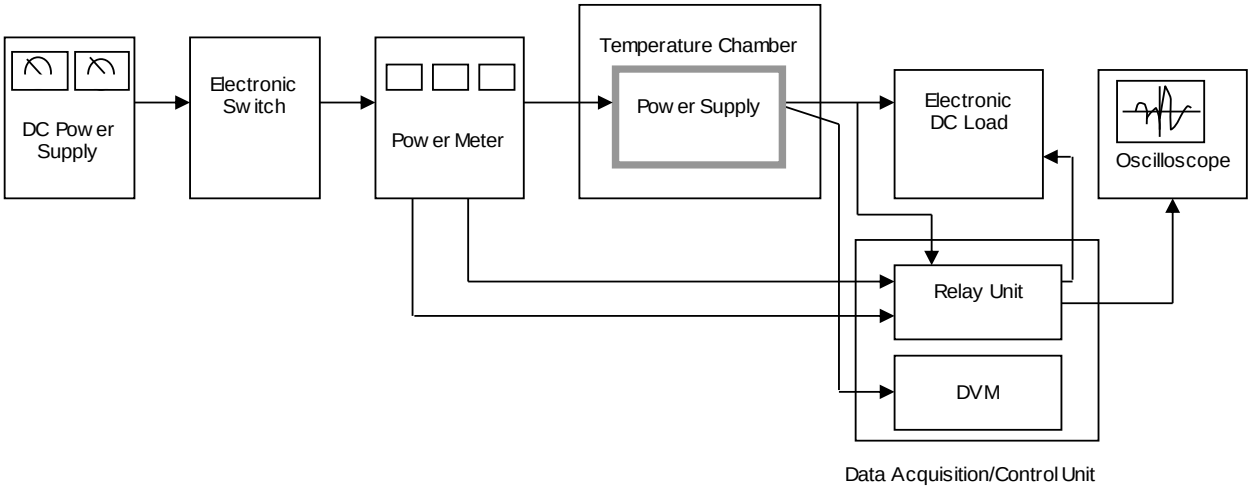

Figure A

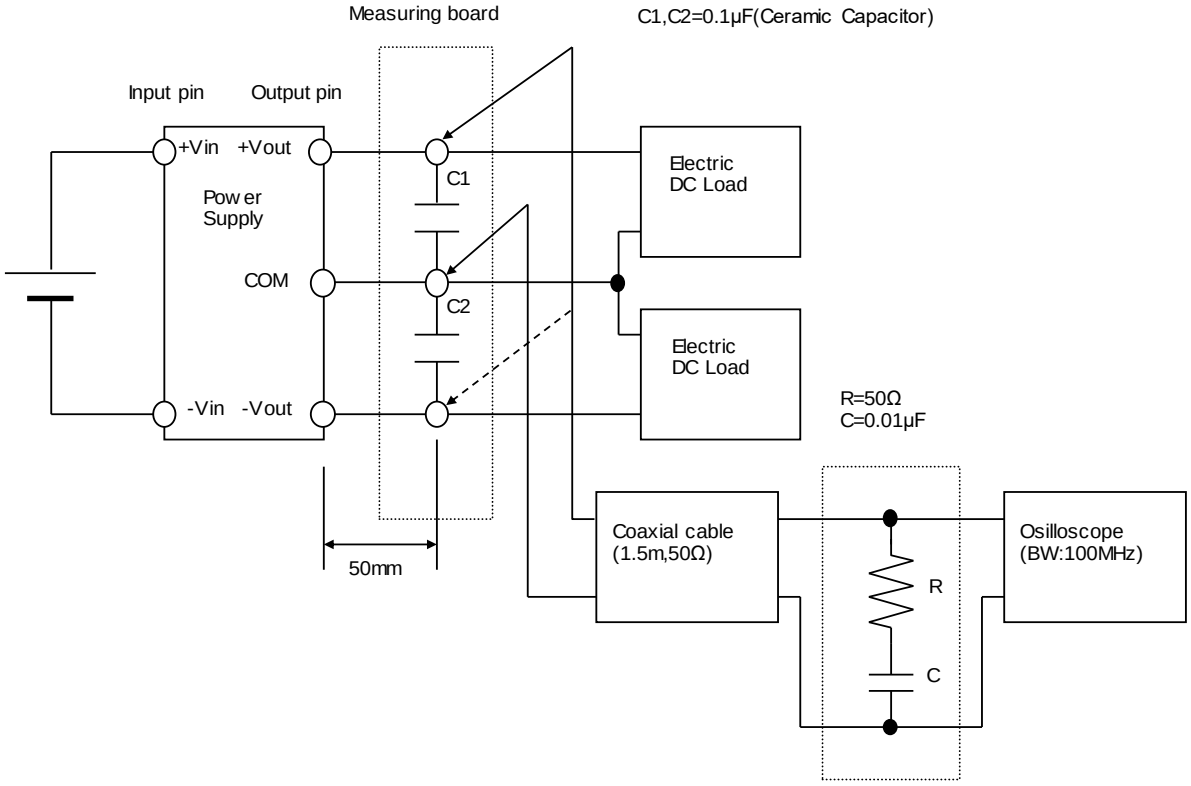

Figure B