



TEST DATA OF MHFW32412

Regulated DC Power Supply
July 1, 2020

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Kenichi Tsukada Design Manager

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Yoshihiko Saeki Design Engineer

COSEL CO.,LTD.



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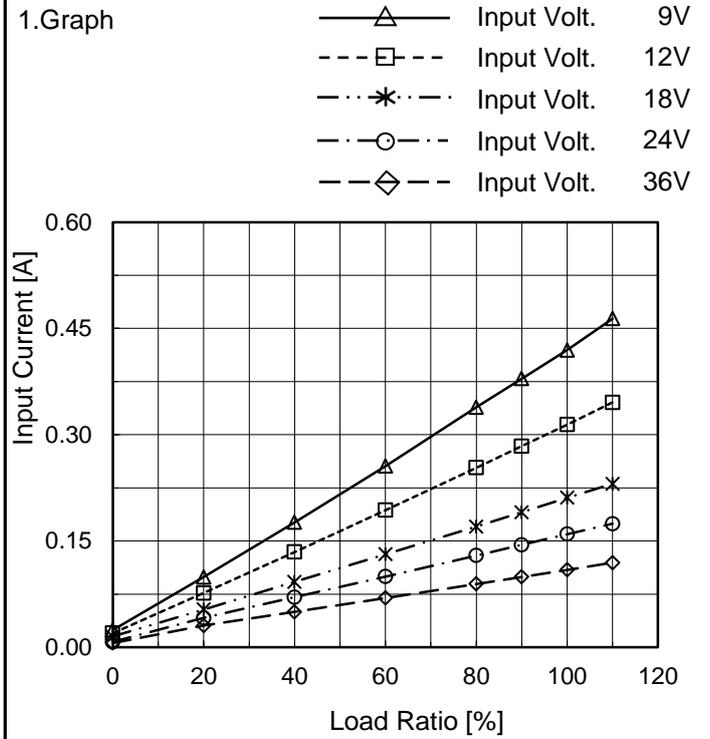
12.Figure of Testing Circuitry 14

(Final Page 14)



Model	MHFW32412
Item	Input Current (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A



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	0.024	0.020	0.015	0.008	0.006
20	0.099	0.077	0.053	0.041	0.031
40	0.176	0.134	0.092	0.071	0.050
60	0.256	0.194	0.131	0.100	0.070
80	0.339	0.253	0.170	0.130	0.089
90	0.379	0.284	0.191	0.145	0.099
100	0.420	0.314	0.211	0.160	0.109
110	0.464	0.346	0.231	0.174	0.119
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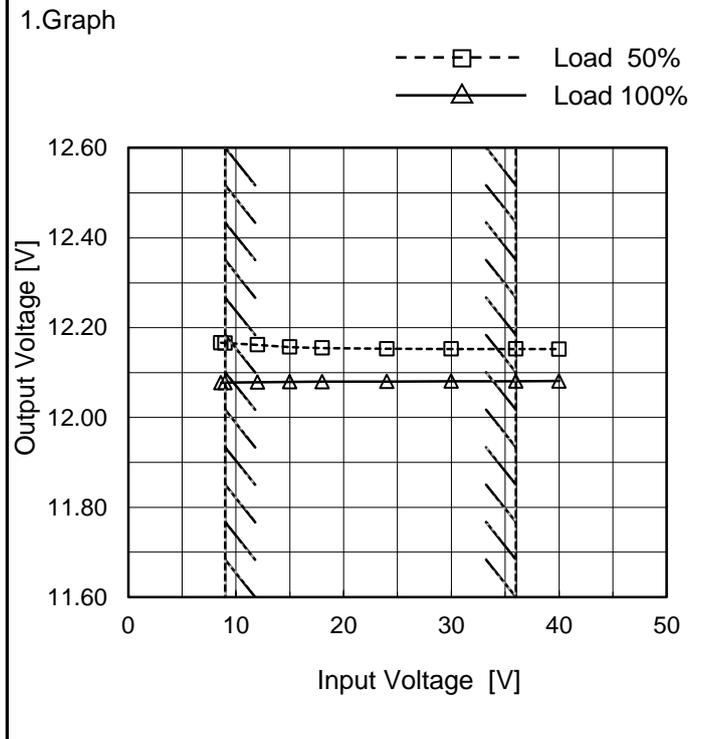


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Model	MHFW32412
Item	Line Regulation
Object	+12V0.13A

Temperature 25°C
Testing Circuitry Figure A

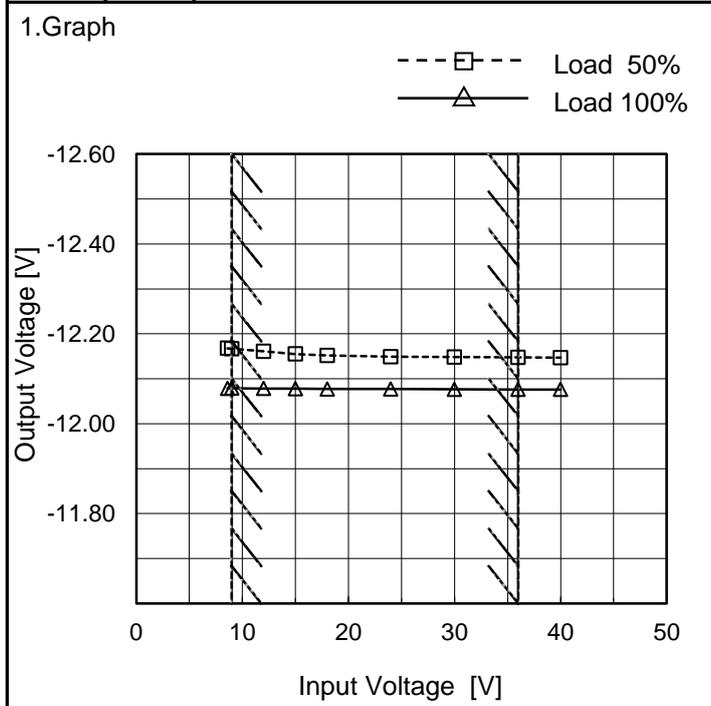


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	12.166	12.077
9.0	12.166	12.078
12.0	12.162	12.079
15.0	12.157	12.080
18.0	12.155	12.080
24.0	12.153	12.080
30.0	12.153	12.081
36.0	12.153	12.081
40.0	12.152	12.081

-12V:Rated Load Current

Object	-12V0.13A
--------	-----------



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.6	-12.168	-12.079
9.0	-12.167	-12.079
12.0	-12.161	-12.078
15.0	-12.155	-12.078
18.0	-12.152	-12.077
24.0	-12.149	-12.077
30.0	-12.148	-12.076
36.0	-12.147	-12.076
40.0	-12.147	-12.076

+12V:Rated Load Current

Note: Slanted line shows the range of the rated input voltage.



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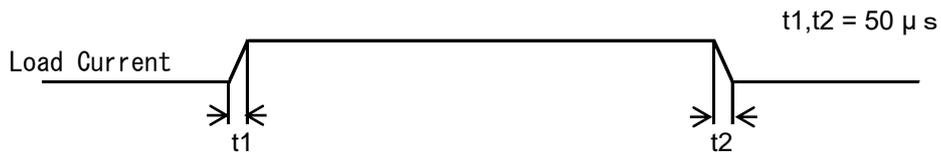


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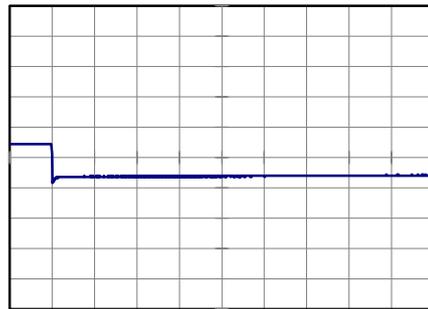
Model		MHFW32412	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		+12V0.13A	

Input Volt. 24 V
 -12V:rated load current.
 Cycle 100 ms

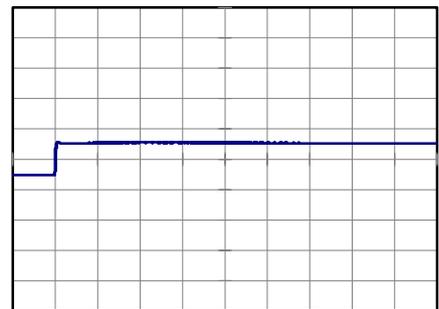


Min.Load (0A) ←→
 Load 100% (0.13A)

200 mV/div



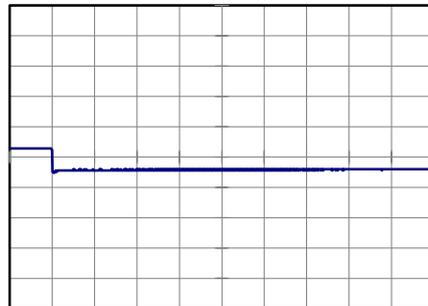
2 ms/div



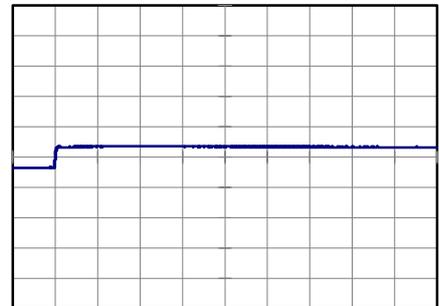
2 ms/div

Min.Load (0A) ←→
 Load 50% (0.065A)

200 mV/div



2 ms/div

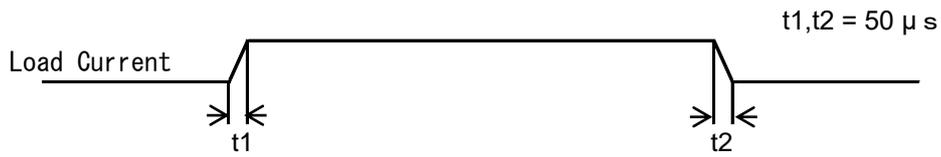


2 ms/div



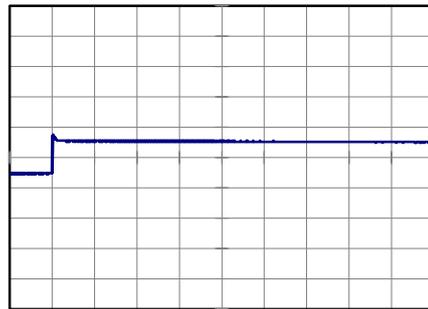
Model		MHFW32412	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		-12V0.13A	

Input Volt. 24 V
+12V:rated load current.
Cycle 100 ms

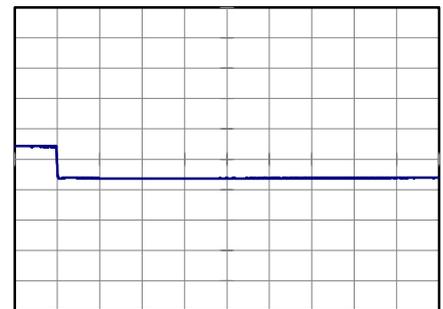


Min.Load (0A) ←→
Load 100% (0.13A)

200 mV/div



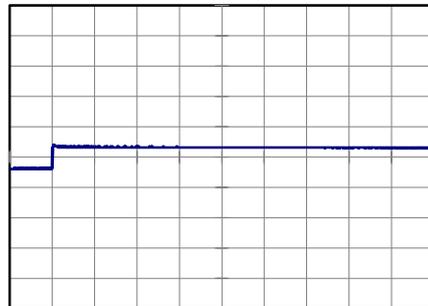
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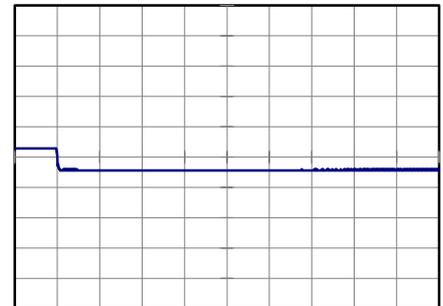
2 ms/div

Min.Load (0A) ←→
Load 50% (0.065A)

200 mV/div



2 ms/div



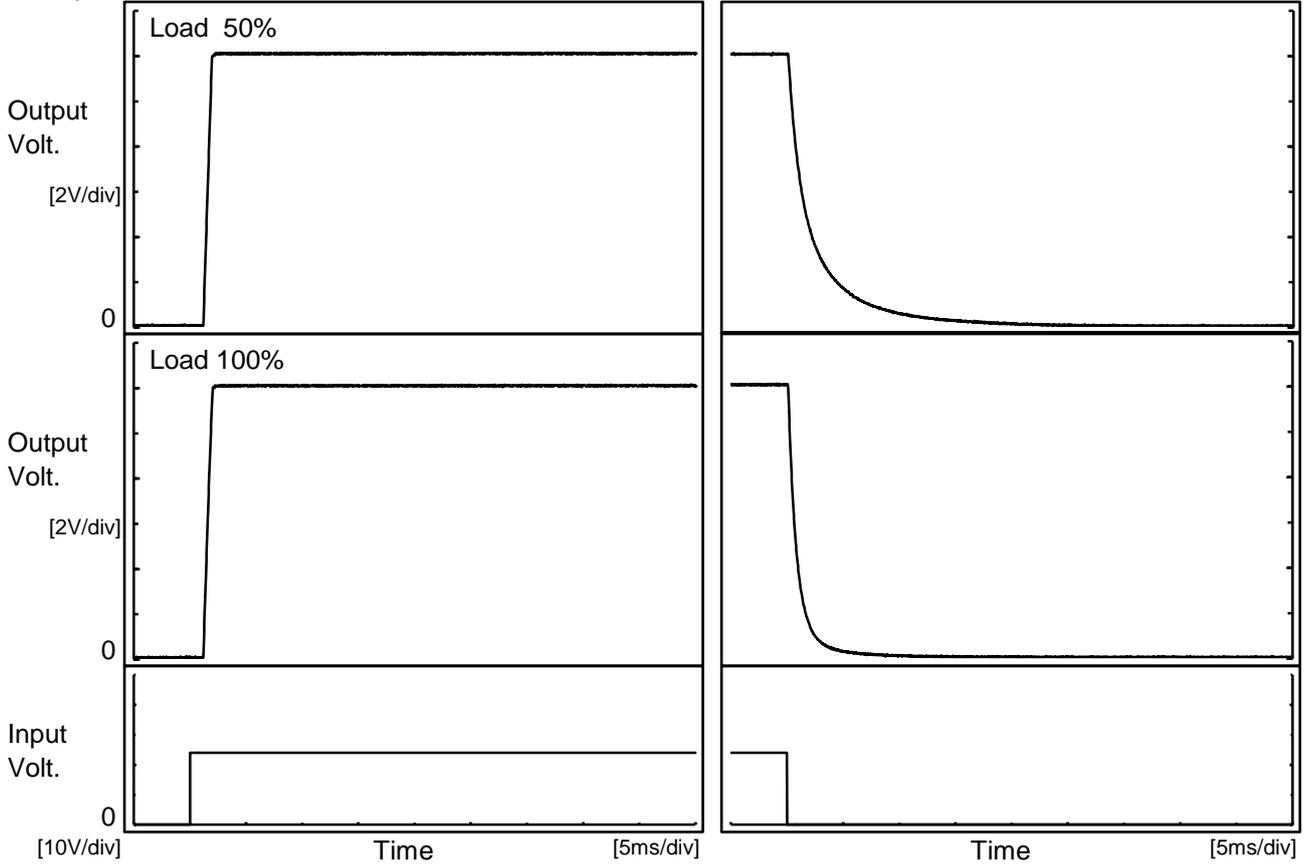
2 ms/div



Model	MHFW32412	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.13A		

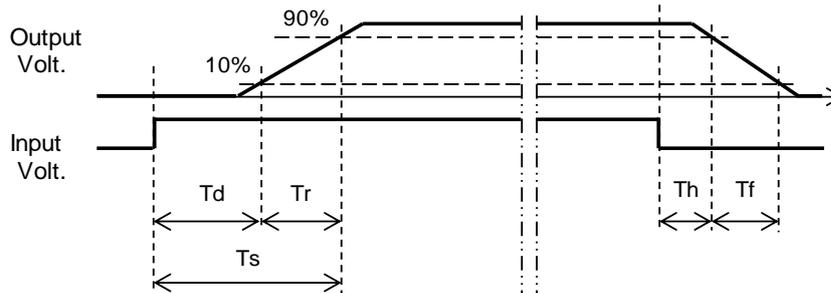
1. Graph

Input Volt. 24 V



2. Values

		[ms]				
Load \ Time	Td	Tr	Ts	Th	Tf	
50 %	1.3	0.6	1.9	0.3	6.1	
100 %	1.3	0.7	2.0	0.2	2.0	

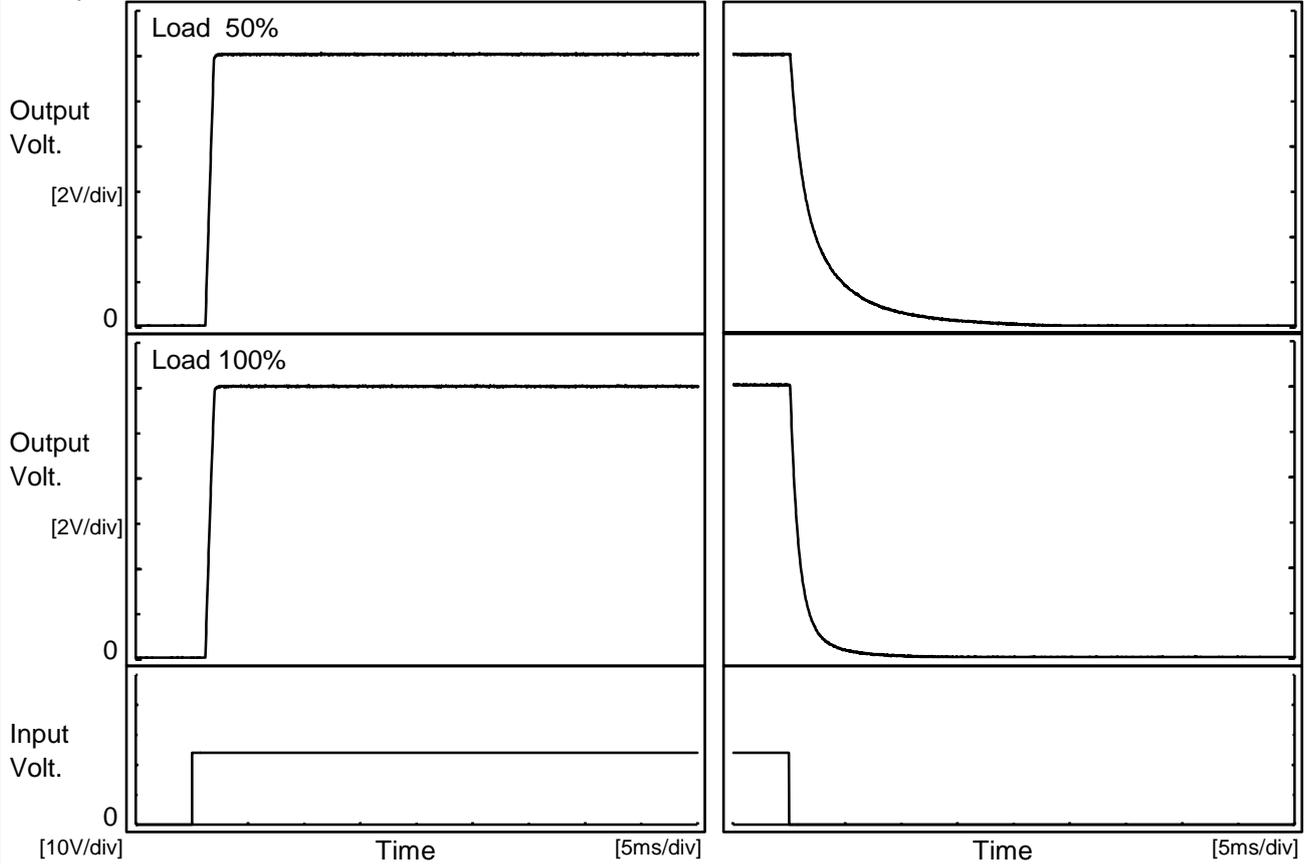




Model	MHFW32412	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-12V0.13A		

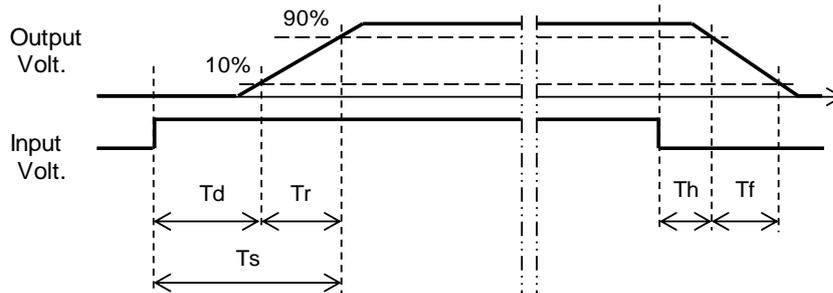
1. Graph

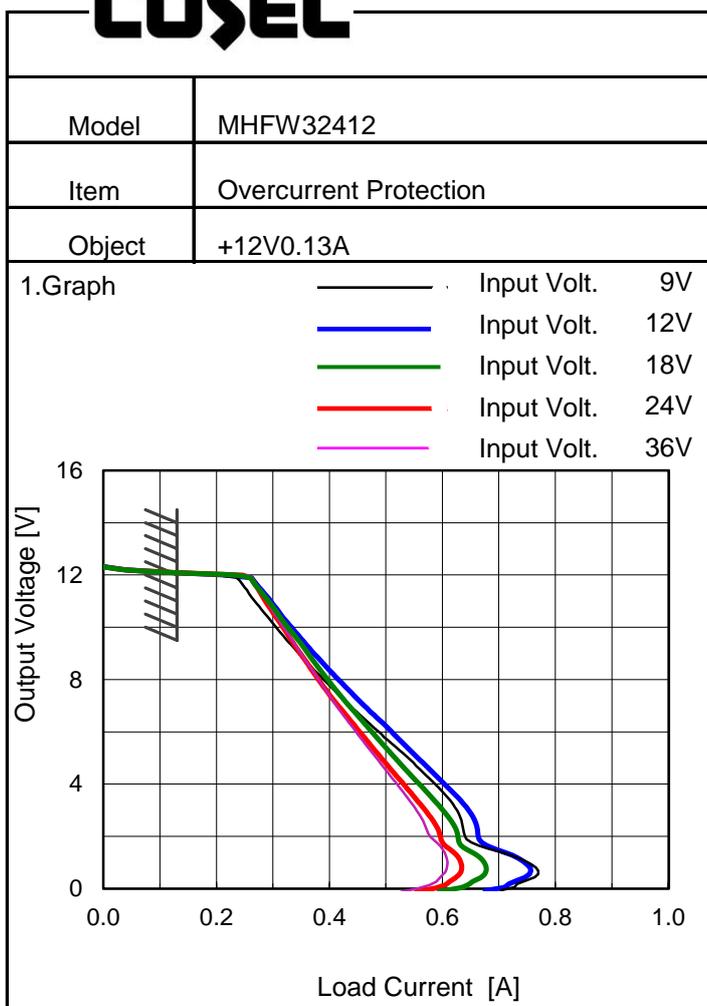
Input Volt. 24 V



2. Values

		[ms]				
Load \ Time	Td	Tr	Ts	Th	Tf	
50 %	1.3	0.6	1.9	0.3	6.4	
100 %	1.3	0.7	2.0	0.2	2.2	



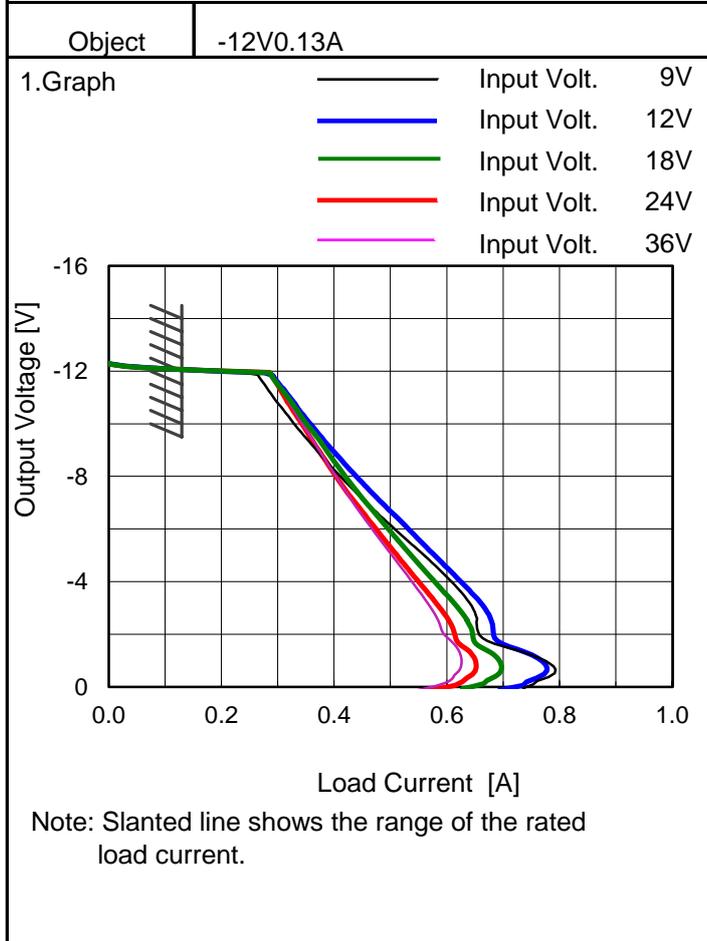


Temperature 25°C
Testing Circuitry Figure A

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	0.254	0.280	0.278	0.276	0.278
10.8	0.275	0.304	0.296	0.290	0.296
9.6	0.318	0.345	0.339	0.328	0.329
8.4	0.368	0.395	0.380	0.366	0.366
7.2	0.424	0.450	0.425	0.407	0.405
6.0	0.485	0.508	0.474	0.453	0.447
4.8	0.549	0.565	0.524	0.495	0.487
3.6	0.605	0.622	0.572	0.543	0.531
2.4	0.635	0.660	0.619	0.587	0.568
1.2	0.719	0.723	0.662	0.626	0.607
0.0	0.704	0.676	0.594	0.554	0.527
--	-	-	-	-	-

-12V: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	0.280	0.306	0.304	0.301	0.303
-10.8	0.301	0.331	0.328	0.321	0.323
-9.6	0.341	0.370	0.364	0.353	0.354
-8.4	0.389	0.418	0.404	0.390	0.389
-7.2	0.442	0.475	0.446	0.428	0.426
-6.0	0.506	0.531	0.493	0.471	0.465
-4.8	0.568	0.585	0.542	0.515	0.507
-3.6	0.623	0.640	0.591	0.565	0.548
-2.4	0.653	0.680	0.636	0.607	0.585
-1.2	0.750	0.752	0.682	0.646	0.624
0.0	0.736	0.694	0.628	0.570	0.540
--	-	-	-	-	-

+12V:Rated Load Current



COSEL		
Model	MHFW32412	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+12V0.13A	

1.Values

Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	12.015	12.017	12.019	12.019	12.021
25	12.076	12.078	12.079	12.080	12.081
70	12.074	12.076	12.077	12.077	12.078

-12V:Rated Load Current

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+12V0.13A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	7.4	7.3
25	7.2	7.2
70	7.0	7.1



COSEL		
Model	MHFW32412	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	-12V0.13A	

1.Values

Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	-12.010	-12.011	-12.012	-12.012	-12.013
25	-12.079	-12.078	-12.077	-12.077	-12.076
70	-12.081	-12.079	-12.078	-12.077	-12.077

+12V:Rated Load Current

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	-12V0.13A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	7.3	7.4
25	7.2	7.2
70	7.0	7.1



Model		MHFW32412		Temperature 25°C																																																																												
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A																																																																												
Object		+/-12V0.13A																																																																														
1.Graph		<p> —△— Input Volt. 9V - - - □ - - - Input Volt. 12V - · · * · · - · - Input Volt. 18V - · · ○ - · - Input Volt. 24V - - - ◇ - - - Input Volt. 36V </p>		2.Values																																																																												
		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="5">Switching Frequency [kHz]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> <th>Input Volt. 24[V]</th> <th>Input Volt. 36[V]</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>811</td><td>901</td><td>1004</td><td>1022</td><td>966</td></tr> <tr><td>0.026</td><td>613</td><td>715</td><td>833</td><td>905</td><td>917</td></tr> <tr><td>0.052</td><td>484</td><td>582</td><td>687</td><td>776</td><td>847</td></tr> <tr><td>0.078</td><td>399</td><td>491</td><td>609</td><td>691</td><td>764</td></tr> <tr><td>0.104</td><td>339</td><td>421</td><td>540</td><td>617</td><td>688</td></tr> <tr><td>0.117</td><td>312</td><td>398</td><td>502</td><td>585</td><td>662</td></tr> <tr><td>0.130</td><td>294</td><td>374</td><td>478</td><td>555</td><td>631</td></tr> <tr><td>0.143</td><td>270</td><td>349</td><td>459</td><td>525</td><td>598</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]	Switching Frequency [kHz]					Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.000	811	901	1004	1022	966	0.026	613	715	833	905	917	0.052	484	582	687	776	847	0.078	399	491	609	691	764	0.104	339	421	540	617	688	0.117	312	398	502	585	662	0.130	294	374	478	555	631	0.143	270	349	459	525	598	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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<p>Note: Slanted line shows the range of the rated load current.</p> <p>When load current is low, MH operates intermittently, so switching frequency would not become constant.</p>																																																																																

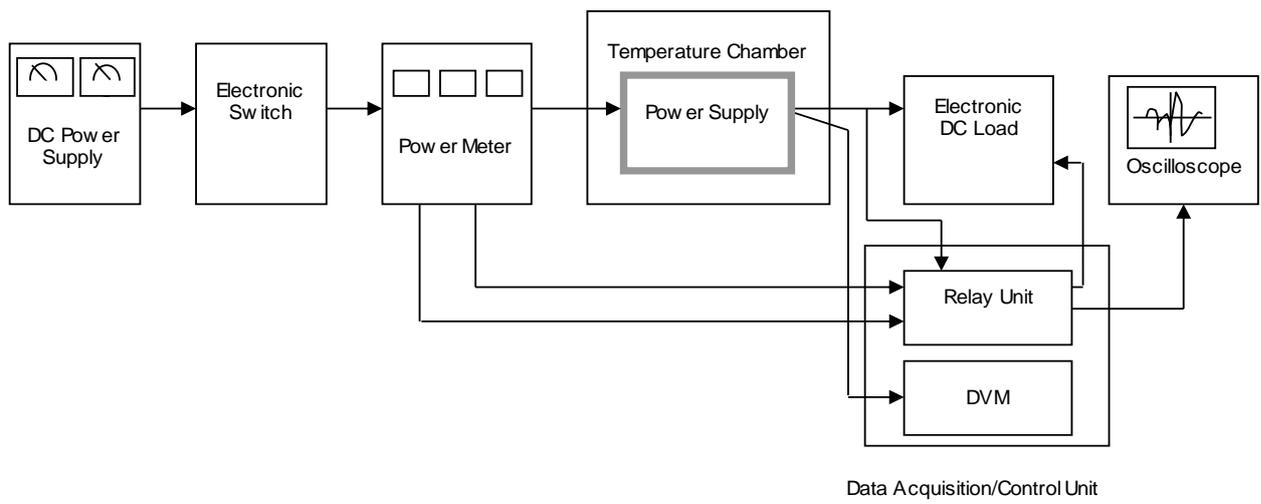


Figure A

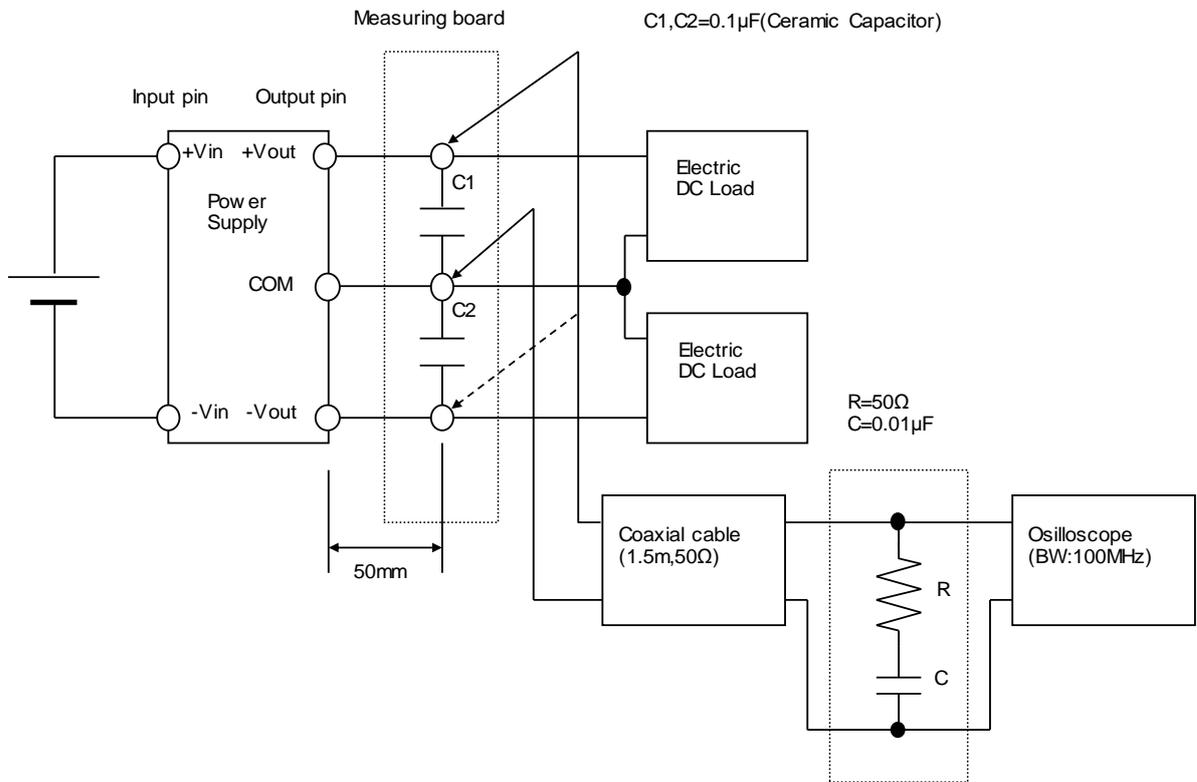


Figure B