



TEST DATA OF MHFW31215

Regulated DC Power Supply
July 1, 2020

Approved by : Kenichi Tsukada
Kenichi Tsukada Design Manager

Prepared by : Yoshihiko Saeki
Yoshihiko Saeki Design Engineer

COSEL CO.,LTD.

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(Final Page 14)

Model		MHFW31215	Temperature		25°C																																																																													
Item		Input Current (by Load Current)	Testing Circuitry		Figure A																																																																													
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1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>4.5V</div></div><div><div>---□---</div><div>Input Volt.</div><div>5V</div></div><div><div>---*---</div><div>Input Volt.</div><div>9V</div></div><div><div>---○---</div><div>Input Volt.</div><div>12V</div></div><div><div>---◇---</div><div>Input Volt.</div><div>18V</div></div></div> <div><div><div>Input Current [A]</div><div>1.0</div><div>0.8</div><div>0.6</div><div>0.4</div><div>0.2</div><div>0.0</div></div><div><div>0</div><div>20</div><div>40</div><div>60</div><div>80</div><div>100</div><div>120</div></div><div><div>Load Ratio [%]</div></div></div>	2.Values																																																																															
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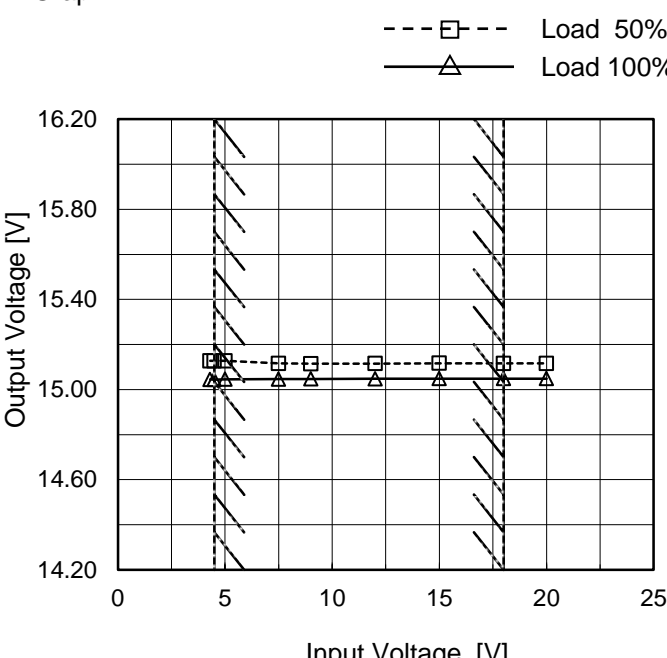
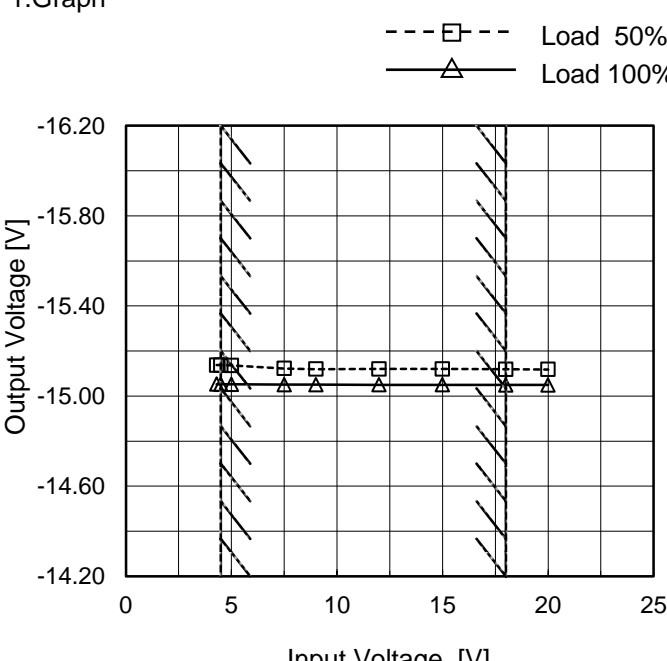
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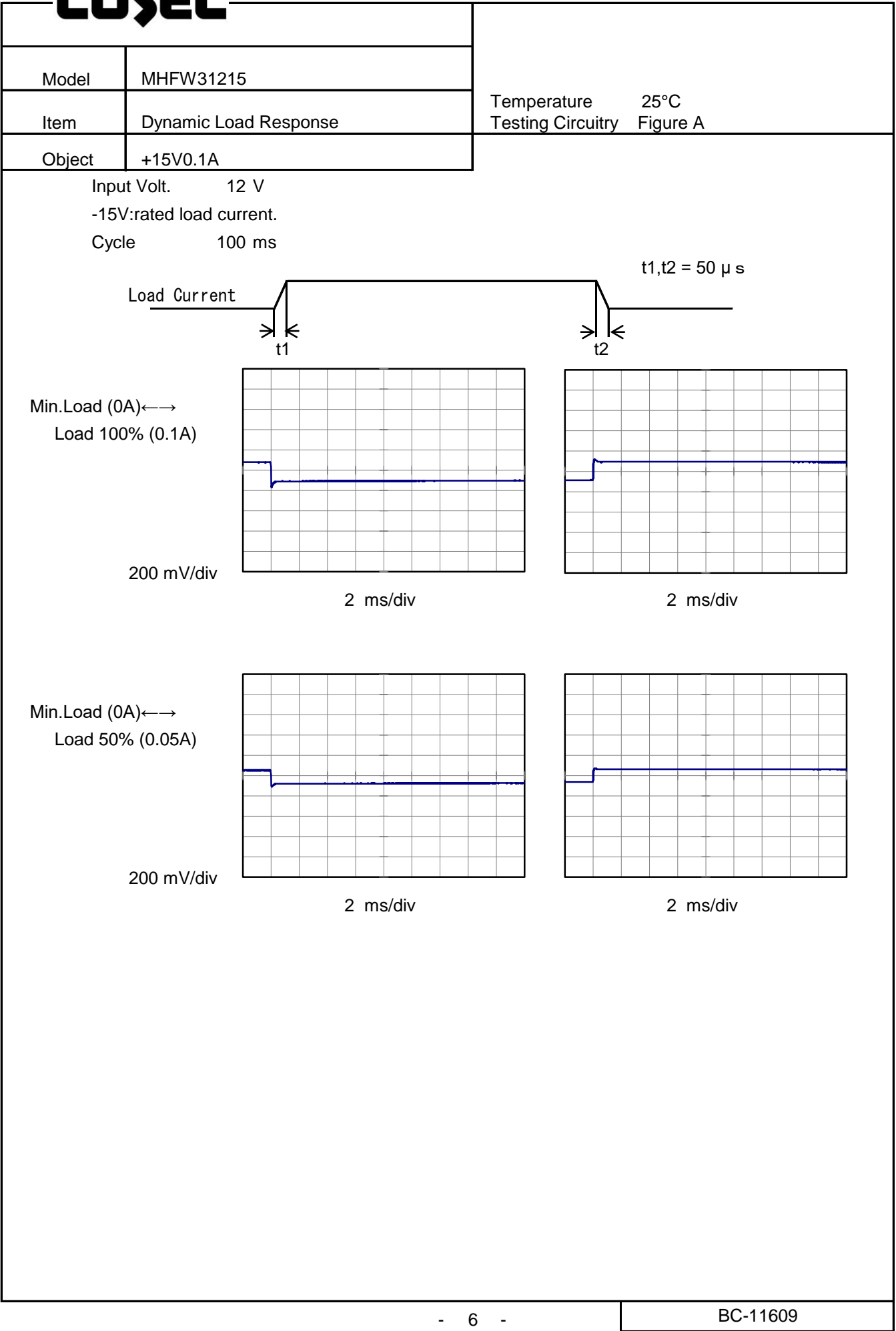
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Note: Slanted line shows the range of the rated input voltage.																																			

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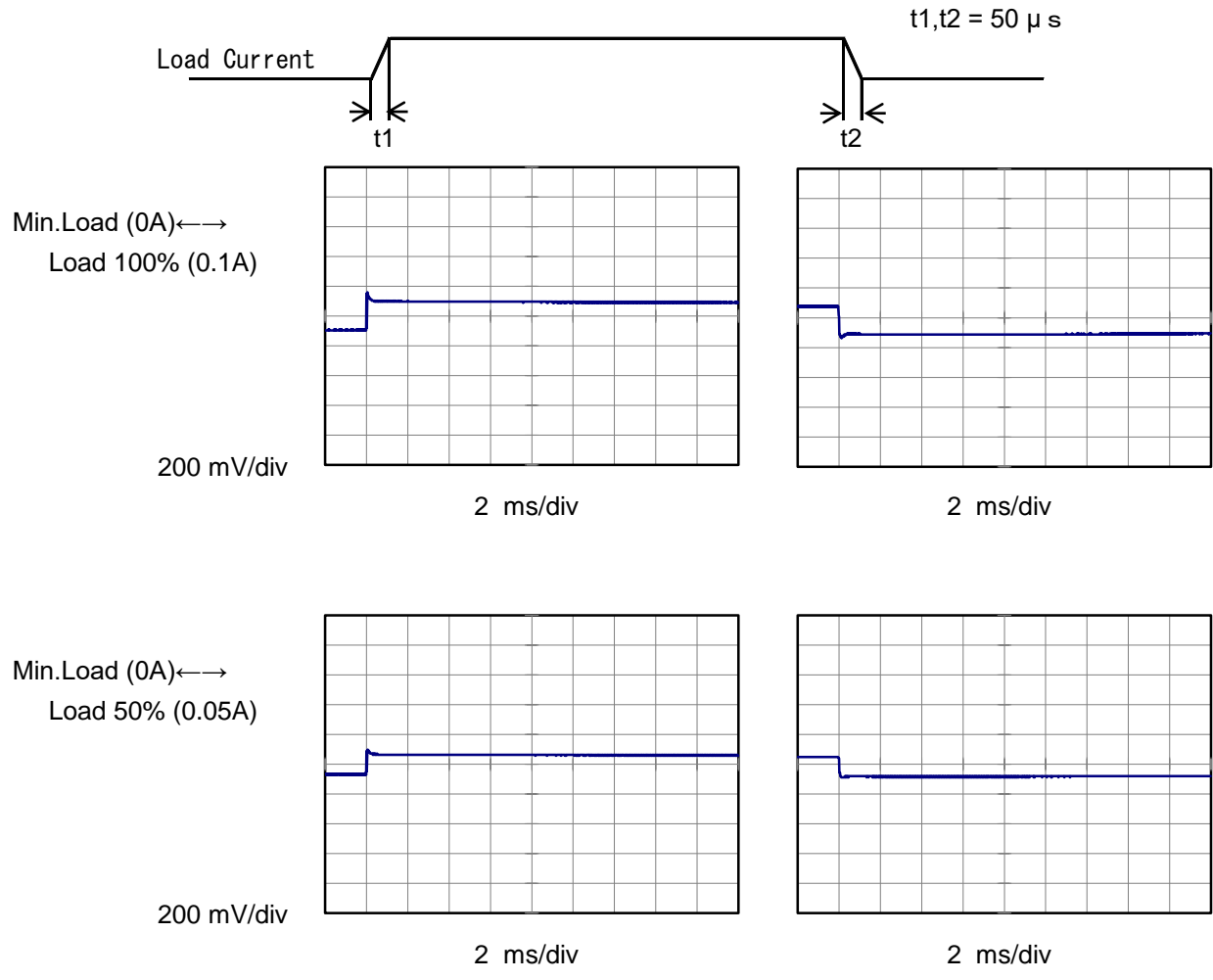
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Model	MHFW31215	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	-15V0.1A	

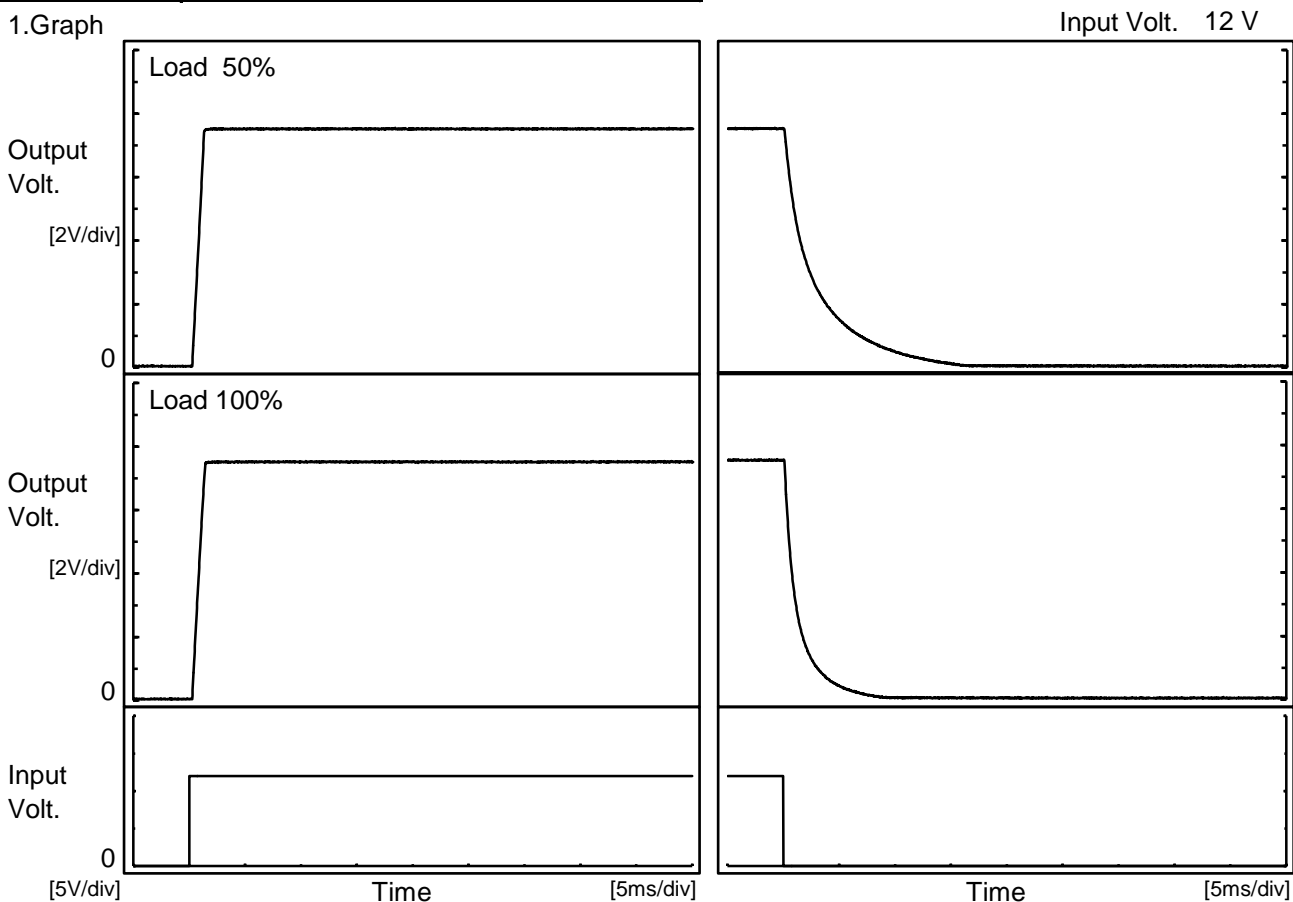
Input Volt. 12 V
+15V:rated load current.
Cycle 100 ms





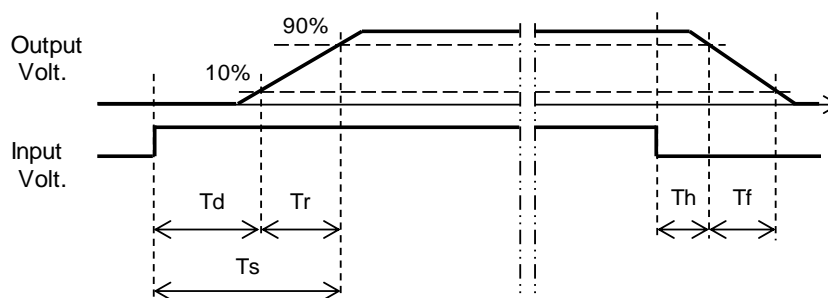
Model	MHFW31215	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V0.1A		

1.Graph



2.Values

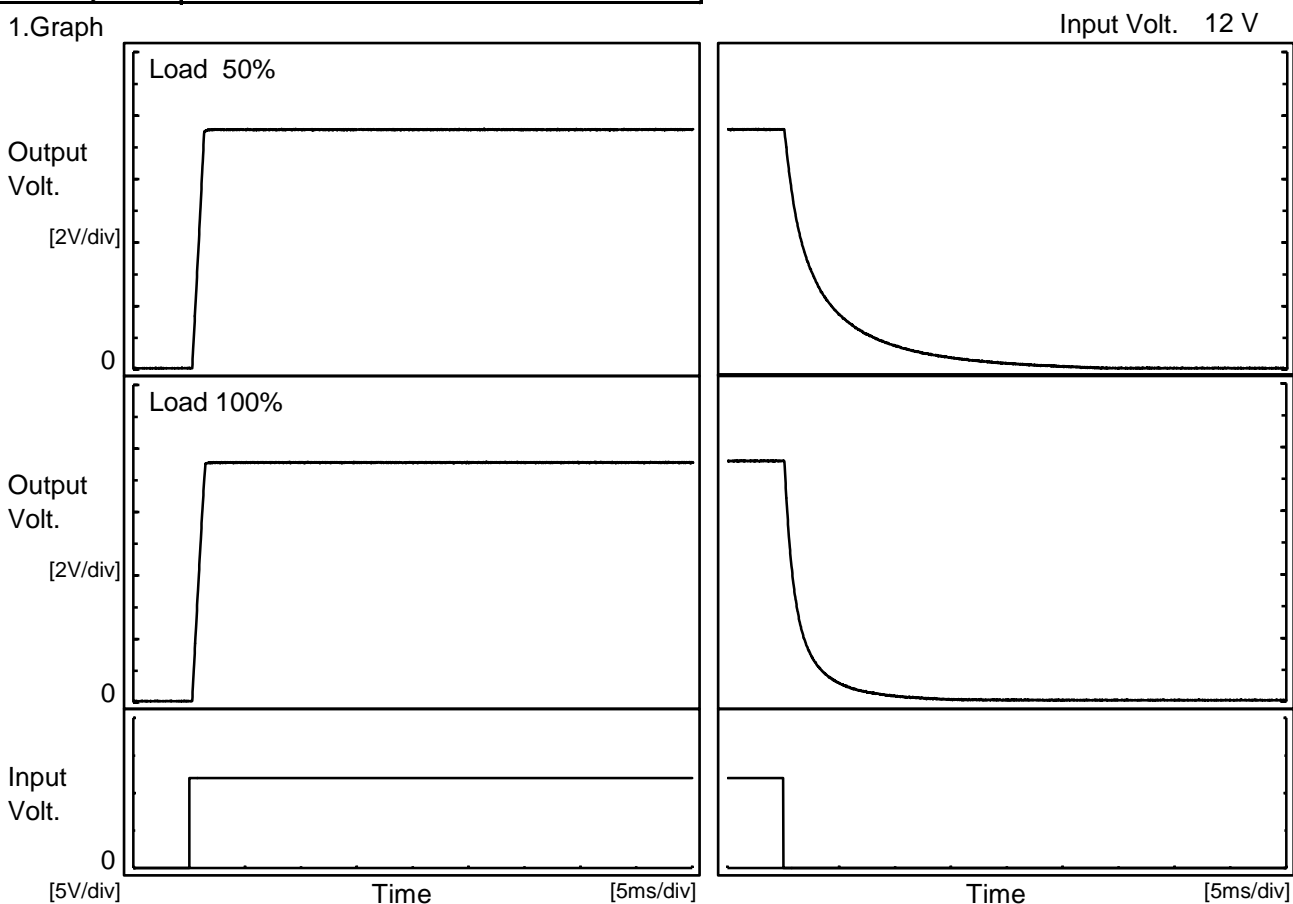
Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.4	0.9	1.3	0.3	7.7
100 %	0.4	1.0	1.4	0.2	3.3





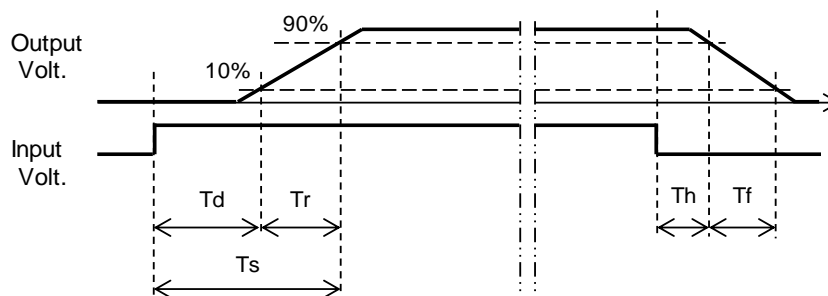
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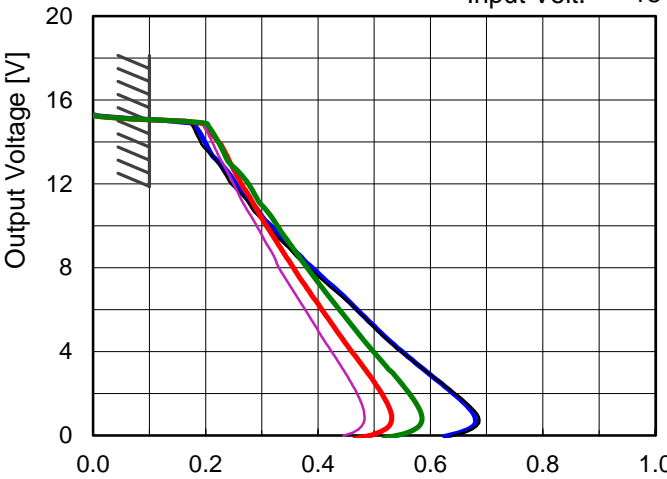
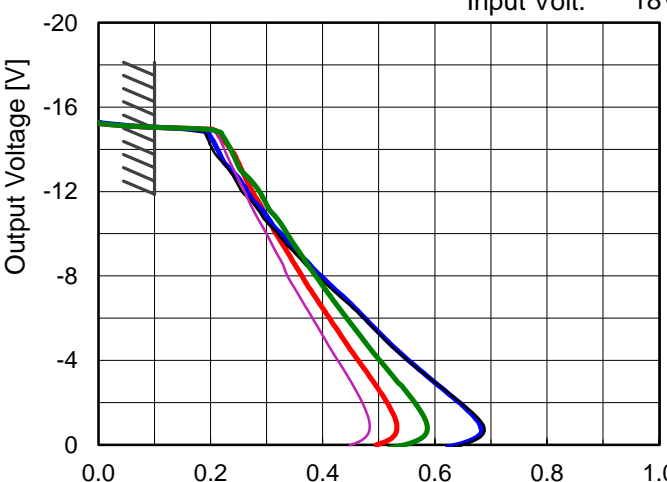
1.Graph



2.Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.4	0.9	1.3	0.3	9.3
100 %	0.4	0.9	1.3	0.2	3.8



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		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load Current [A]</th></tr><tr><th>Input Volt. 4.5[V]</th><th>Input Volt. 5[V]</th><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>-14.3</td><td>0.199</td><td>0.207</td><td>0.231</td><td>0.230</td><td>0.221</td></tr><tr><td>-13.5</td><td>0.217</td><td>0.221</td><td>0.242</td><td>0.245</td><td>0.231</td></tr><tr><td>-12.0</td><td>0.254</td><td>0.264</td><td>0.287</td><td>0.274</td><td>0.261</td></tr><tr><td>-10.5</td><td>0.299</td><td>0.307</td><td>0.323</td><td>0.305</td><td>0.288</td></tr><tr><td>-9.0</td><td>0.349</td><td>0.354</td><td>0.359</td><td>0.338</td><td>0.318</td></tr><tr><td>-7.5</td><td>0.410</td><td>0.416</td><td>0.397</td><td>0.371</td><td>0.345</td></tr><tr><td>-6.0</td><td>0.471</td><td>0.473</td><td>0.442</td><td>0.412</td><td>0.382</td></tr><tr><td>-4.5</td><td>0.526</td><td>0.529</td><td>0.485</td><td>0.449</td><td>0.414</td></tr><tr><td>-3.0</td><td>0.592</td><td>0.592</td><td>0.530</td><td>0.488</td><td>0.449</td></tr><tr><td>-1.5</td><td>0.668</td><td>0.663</td><td>0.574</td><td>0.523</td><td>0.477</td></tr><tr><td>0.0</td><td>0.634</td><td>0.623</td><td>0.520</td><td>0.496</td><td>0.448</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>			Output Voltage [V]	Load Current [A]					Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	-14.3	0.199	0.207	0.231	0.230	0.221	-13.5	0.217	0.221	0.242	0.245	0.231	-12.0	0.254	0.264	0.287	0.274	0.261	-10.5	0.299	0.307	0.323	0.305	0.288	-9.0	0.349	0.354	0.359	0.338	0.318	-7.5	0.410	0.416	0.397	0.371	0.345	-6.0	0.471	0.473	0.442	0.412	0.382	-4.5	0.526	0.529	0.485	0.449	0.414	-3.0	0.592	0.592	0.530	0.488	0.449	-1.5	0.668	0.663	0.574	0.523	0.477	0.0	0.634	0.623	0.520	0.496	0.448	--	-	-	-	-	-
Output Voltage [V]	Load Current [A]																																																																																						
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Note: Slanted line shows the range of the rated load current.																																																																																							

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BC-11609

COSEL

		Testing Circuitry Figure A
Model	MHFW31215	
Item	Ambient Temperature Drift	
Object	+15V0.1A	

1.Values

Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 4.5V	Input Volt. 5V	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V
-40	14.954	14.955	14.956	14.958	14.959
25	15.045	15.045	15.047	15.048	15.049
70	15.052	15.052	15.053	15.054	15.054

-15V:Rated Load Current

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

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	3.6	3.7
25	3.6	3.6
70	3.5	3.6

COSEL

		Testing Circuitry Figure A
Model	MHFW31215	
Item	Ambient Temperature Drift	
Object	-15V0.1A	

1.Values

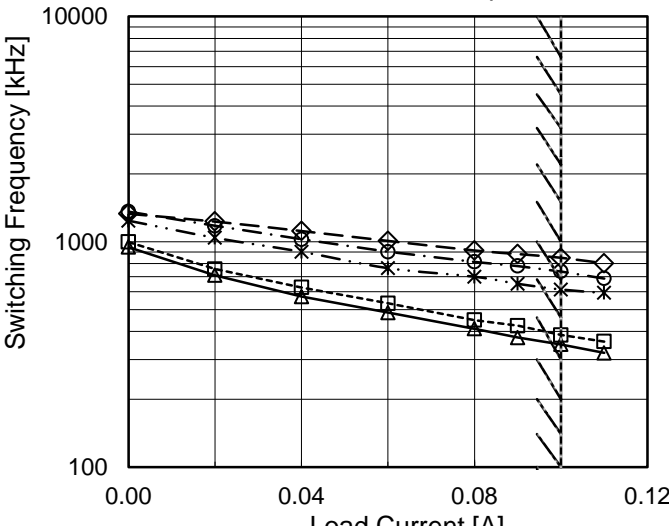
Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 4.5V	Input Volt. 5V	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V
-40	-14.955	-14.956	-14.956	-14.957	-14.958
25	-15.053	-15.052	-15.050	-15.049	-15.050
70	-15.061	-15.060	-15.058	-15.056	-15.057

+15V:Rated Load Current

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

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	3.6	3.7
25	3.6	3.5
70	3.5	3.6

Model		MHFW31215		Temperature 25°C																																																																															
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A																																																																															
Object		+/-15V0.1A																																																																																	
1.Graph		<div><div><div><div>—△—</div><div>Input Volt.</div><div>4.5V</div></div><div><div>---□---</div><div>Input Volt.</div><div>5V</div></div><div><div>-·-*·-</div><div>Input Volt.</div><div>9V</div></div><div><div>-·-○-</div><div>Input Volt.</div><div>12V</div></div><div><div>---◇---</div><div>Input Volt.</div><div>18V</div></div></div></div>		2.Values																																																																															
		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="5">Switching Frequency [kHz]</th></tr><tr><th>Input Volt. 4.5[V]</th><th>Input Volt. 5[V]</th><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>0.00</td><td>946</td><td>998</td><td>1241</td><td>1362</td><td>1331</td></tr><tr><td>0.02</td><td>710</td><td>757</td><td>1042</td><td>1177</td><td>1230</td></tr><tr><td>0.04</td><td>571</td><td>627</td><td>903</td><td>1027</td><td>1116</td></tr><tr><td>0.06</td><td>485</td><td>533</td><td>764</td><td>903</td><td>1009</td></tr><tr><td>0.08</td><td>411</td><td>449</td><td>700</td><td>815</td><td>915</td></tr><tr><td>0.09</td><td>376</td><td>424</td><td>651</td><td>780</td><td>882</td></tr><tr><td>0.10</td><td>351</td><td>386</td><td>614</td><td>738</td><td>849</td></tr><tr><td>0.11</td><td>321</td><td>361</td><td>593</td><td>687</td><td>802</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></table>					Load Current [A]	Switching Frequency [kHz]					Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.00	946	998	1241	1362	1331	0.02	710	757	1042	1177	1230	0.04	571	627	903	1027	1116	0.06	485	533	764	903	1009	0.08	411	449	700	815	915	0.09	376	424	651	780	882	0.10	351	386	614	738	849	0.11	321	361	593	687	802	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Current [A]	Switching Frequency [kHz]																																																																																		
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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.																																																																																			

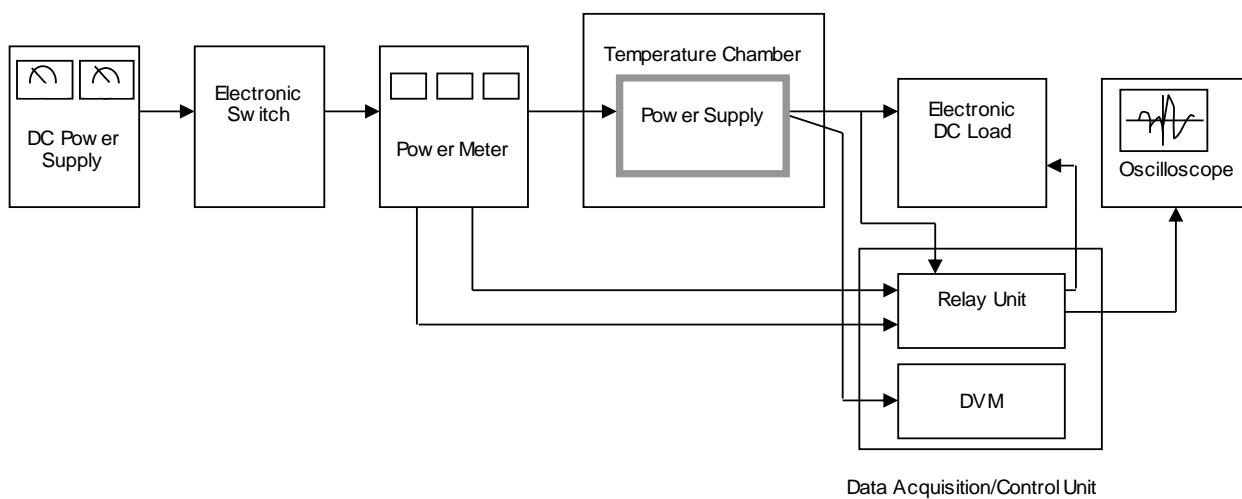


Figure A

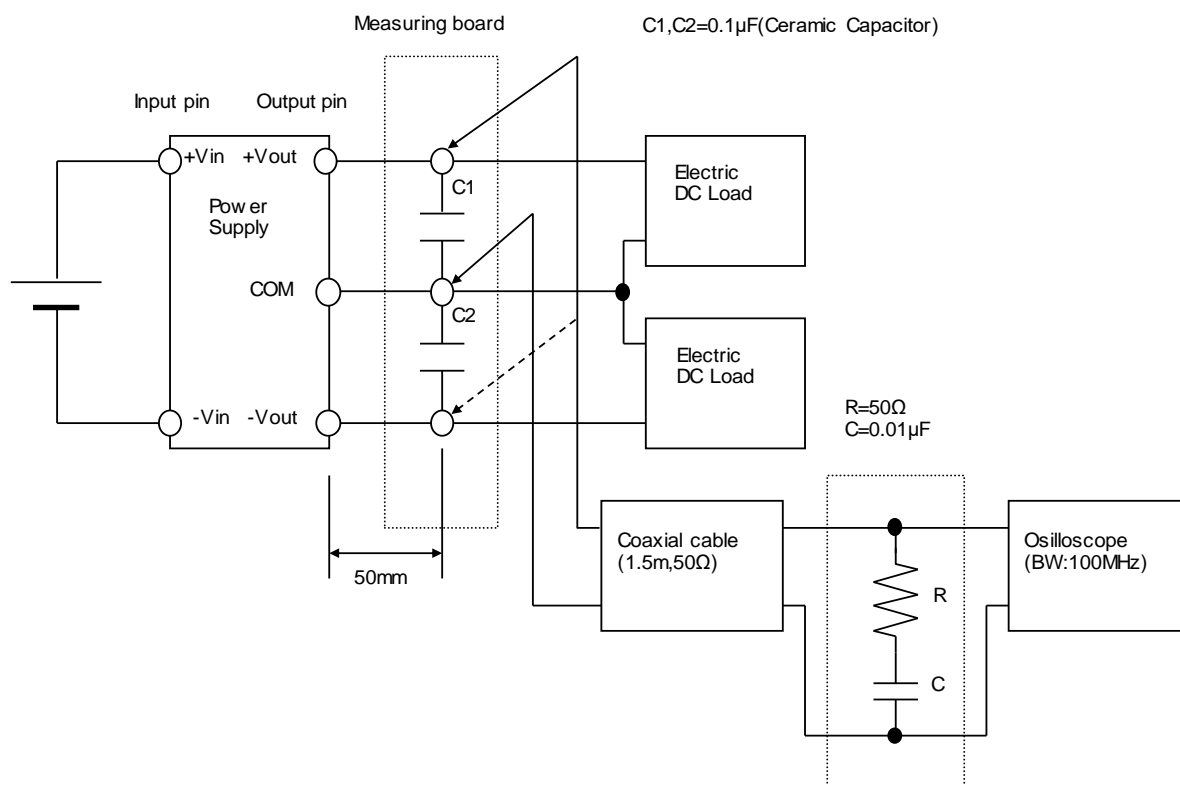


Figure B