

TEST DATA OF MHFS61209

Regulated DC Power Supply
October 26, 2021

Approved by : Kenichi Tsukada
Design Manager

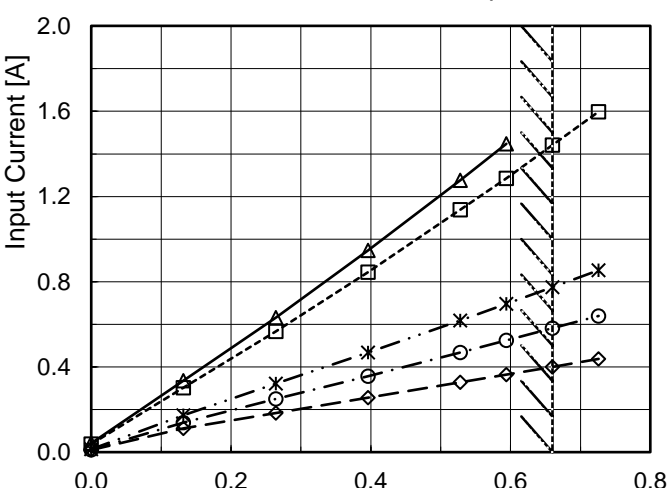
Prepared by : Yoshihiko Saeki
Design Engineer

COSEL CO.,LTD.

CONTENTS

1.Input Current (by Load Current)	1
2.Efficiency (by Load Current)	2
3.Line Regulation	3
4.Load Regulation	4
5.Ripple-Noise	4
6.Dynamic Load Response	5
7.Rise and Fall Time	6
8.Overcurrent Protection	7
9.Ambient Temperature Drift	8
10.Minimum Input Voltage for Regulated Output Voltage	8
11.Switching frequency (by Load Current)	9
12.Figure of Testing Circuitry	10

(Final Page 10)

Model		MHFS61209		Temperature 25°C																																																																														
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<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>Output Voltage [V]</div><div><div>9.40</div><div>9.20</div><div>9.00</div><div>8.80</div><div>8.60</div></div><div><div>0.0</div><div>0.2</div><div>0.4</div><div>0.6</div><div>0.8</div></div><div>Load Current [A]</div></div> <div>Note: Slanted line shows the range of the rated load current.</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="5">Output Voltage [V]</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>9.015</td><td>9.016</td><td>9.017</td><td>9.017</td><td>9.018</td></tr><tr><td>0.13</td><td>9.014</td><td>9.015</td><td>9.016</td><td>9.015</td><td>9.016</td></tr><tr><td>0.26</td><td>9.013</td><td>9.014</td><td>9.015</td><td>9.014</td><td>9.014</td></tr><tr><td>0.40</td><td>9.012</td><td>9.013</td><td>9.014</td><td>9.013</td><td>9.013</td></tr><tr><td>0.53</td><td>9.011</td><td>9.012</td><td>9.013</td><td>9.012</td><td>9.012</td></tr><tr><td>0.59</td><td>9.010</td><td>9.011</td><td>9.012</td><td>9.012</td><td>9.012</td></tr><tr><td>0.66</td><td>*1</td><td>9.011</td><td>9.012</td><td>9.012</td><td>9.012</td></tr><tr><td>0.73</td><td>*1</td><td>9.011</td><td>9.011</td><td>9.011</td><td>9.011</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> <div>*1 Maximum output current at 4.5V input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.</div>					Load Current [A]	Output Voltage [V]					Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.00	9.015	9.016	9.017	9.017	9.018	0.13	9.014	9.015	9.016	9.015	9.016	0.26	9.013	9.014	9.015	9.014	9.014	0.40	9.012	9.013	9.014	9.013	9.013	0.53	9.011	9.012	9.013	9.012	9.012	0.59	9.010	9.011	9.012	9.012	9.012	0.66	*1	9.011	9.012	9.012	9.012	0.73	*1	9.011	9.011	9.011	9.011	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Current [A]	Output Voltage [V]																																																																																		
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Item	Ripple-Noise	Temperature 25°C																																																																																	
Object	+9V0.66A	Testing Circuitry Figure B																																																																																	
1.Graph																																																																																			
<div><div><div>Input Voltage</div><div>12V</div><div>Load</div><div>100%</div></div><div><div>10[mV/div]</div><div><div>1[μs/div]</div></div></div></div>																																																																																			

- 4 -

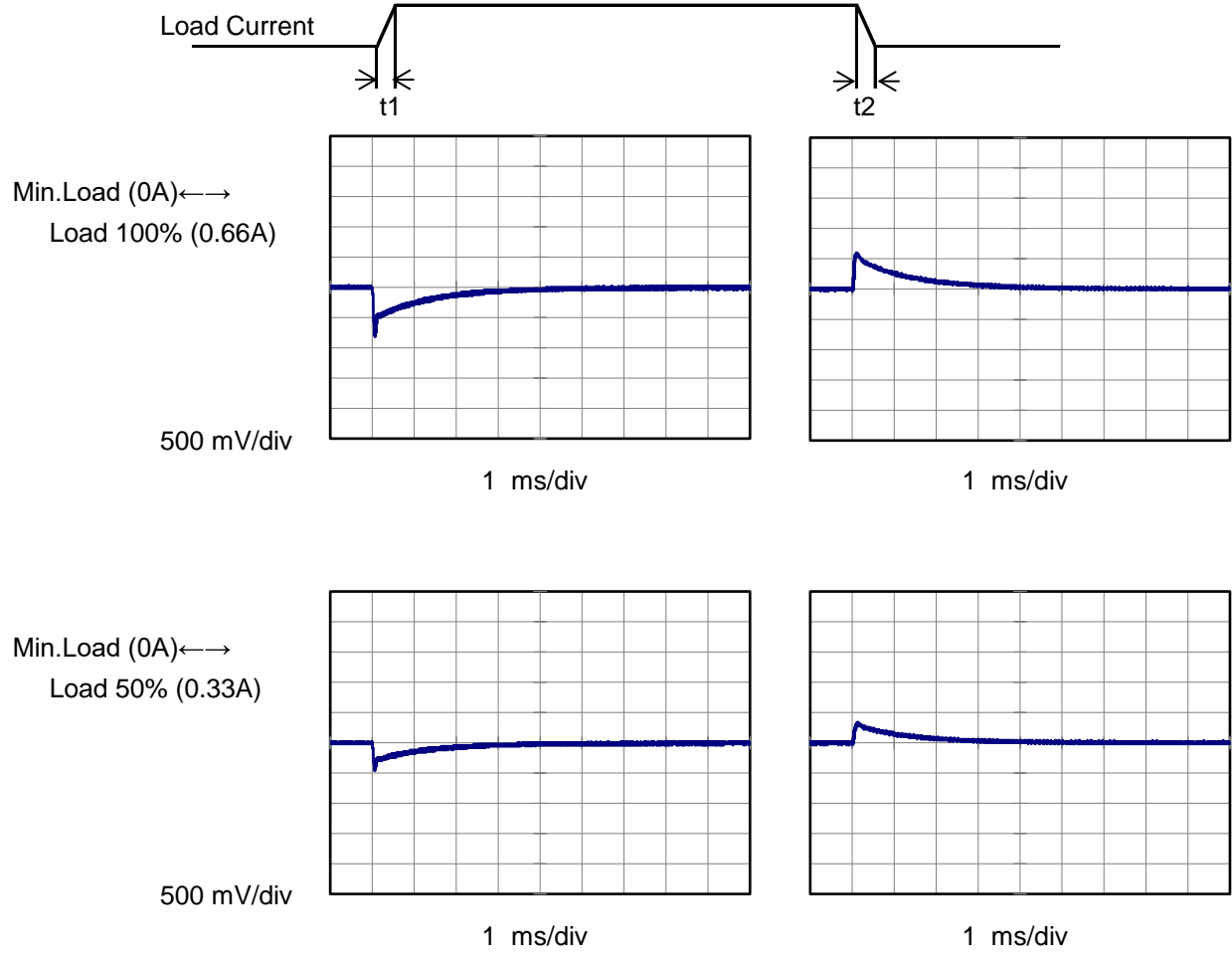
BC-11819



Model	MHFS61209		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure A
Object	+9V0.66A		

Input Volt. 12 V
Cycle 100 ms

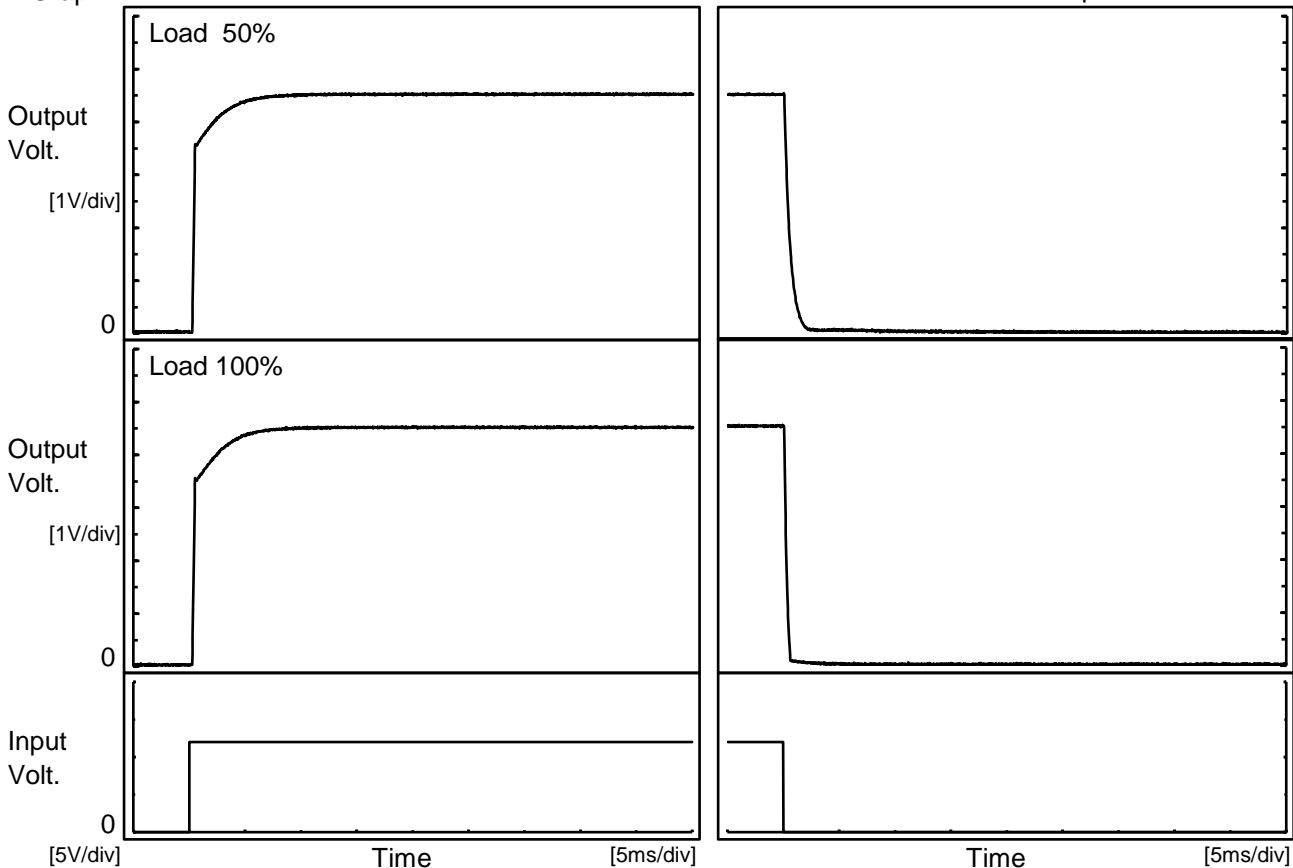
Response. $t_1=t_2=50\mu\text{s}$. Typ





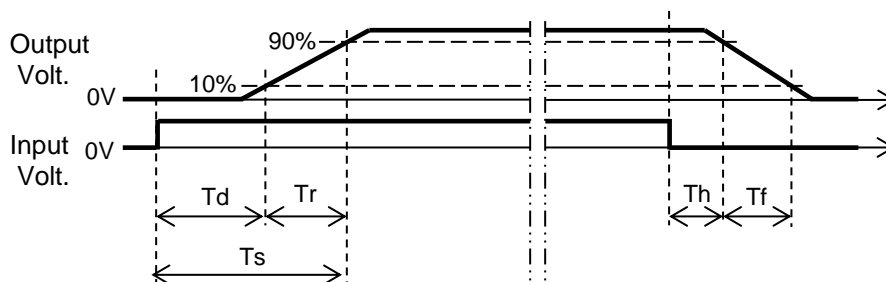
Model	MHFS61209	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+9V0.66A		

1.Graph



2.Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.3	2.2	2.5	0.1	1.1
100 %	0.3	2.5	2.8	0.1	0.4



Model		MHFS61209		Temperature 25°C																																																																																				
Item		Overcurrent Protection		Testing Circuitry Figure A																																																																																				
Object		+9V0.66A																																																																																						
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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>8.55</td><td>0.839</td><td>0.858</td><td>0.971</td><td>0.964</td><td>0.920</td></tr><tr><td>8.10</td><td>0.870</td><td>0.888</td><td>0.989</td><td>0.981</td><td>0.940</td></tr><tr><td>7.20</td><td>0.928</td><td>0.947</td><td>1.034</td><td>1.020</td><td>0.975</td></tr><tr><td>6.30</td><td>1.000</td><td>1.016</td><td>1.086</td><td>1.067</td><td>1.014</td></tr><tr><td>5.40</td><td>1.061</td><td>1.081</td><td>1.137</td><td>1.110</td><td>1.038</td></tr><tr><td>4.50</td><td>1.144</td><td>1.161</td><td>1.194</td><td>1.154</td><td>1.075</td></tr><tr><td>3.60</td><td>1.215</td><td>1.234</td><td>1.250</td><td>1.202</td><td>1.114</td></tr><tr><td>2.70</td><td>1.304</td><td>1.315</td><td>1.316</td><td>1.257</td><td>1.154</td></tr><tr><td>1.80</td><td>1.372</td><td>1.391</td><td>1.371</td><td>1.303</td><td>1.194</td></tr><tr><td>0.90</td><td>1.458</td><td>1.469</td><td>1.420</td><td>1.338</td><td>1.217</td></tr><tr><td>0.00</td><td>1.347</td><td>1.335</td><td>1.212</td><td>1.048</td><td>0.908</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]	8.55	0.839	0.858	0.971	0.964	0.920	8.10	0.870	0.888	0.989	0.981	0.940	7.20	0.928	0.947	1.034	1.020	0.975	6.30	1.000	1.016	1.086	1.067	1.014	5.40	1.061	1.081	1.137	1.110	1.038	4.50	1.144	1.161	1.194	1.154	1.075	3.60	1.215	1.234	1.250	1.202	1.114	2.70	1.304	1.315	1.316	1.257	1.154	1.80	1.372	1.391	1.371	1.303	1.194	0.90	1.458	1.469	1.420	1.338	1.217	0.00	1.347	1.335	1.212	1.048	0.908	--	-	-	-	-	-		
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COSEL

		Testing Circuitry Figure A
Model	MHFS61209	
Item	Ambient Temperature Drift	
Object	+9V0.66A	

1.Values

Load 100%

Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 4.5V*1	Input Volt. 5V	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V
-40	8.942	8.943	8.945	8.946	8.947
25	9.008	9.008	9.009	9.010	9.010
55	9.021	9.020	9.021	9.021	9.021

*1 Load 80%

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+9V0.66A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 80%
-40	3.5	3.5
25	3.5	3.5
55	3.5	3.5

Model		MHFS61209		Temperature 25°C																																																																														
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A																																																																														
Object		+9V0.66A																																																																																
1.Graph		<div><div><div>—△—</div>Input Volt. 4.5V</div><div><div>---□---</div>Input Volt. 5V</div><div><div>-·*·-</div>Input Volt. 9V</div><div><div>-·○-</div>Input Volt. 12V</div><div><div>--◇--</div>Input Volt. 18V</div></div> <div>Switching Frequency [kHz]</div> <div>Load Current [A]</div>		2.Values																																																																														
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When load current is low, MH operates intermittently, so switching frequency would not become constant.																																																																																		

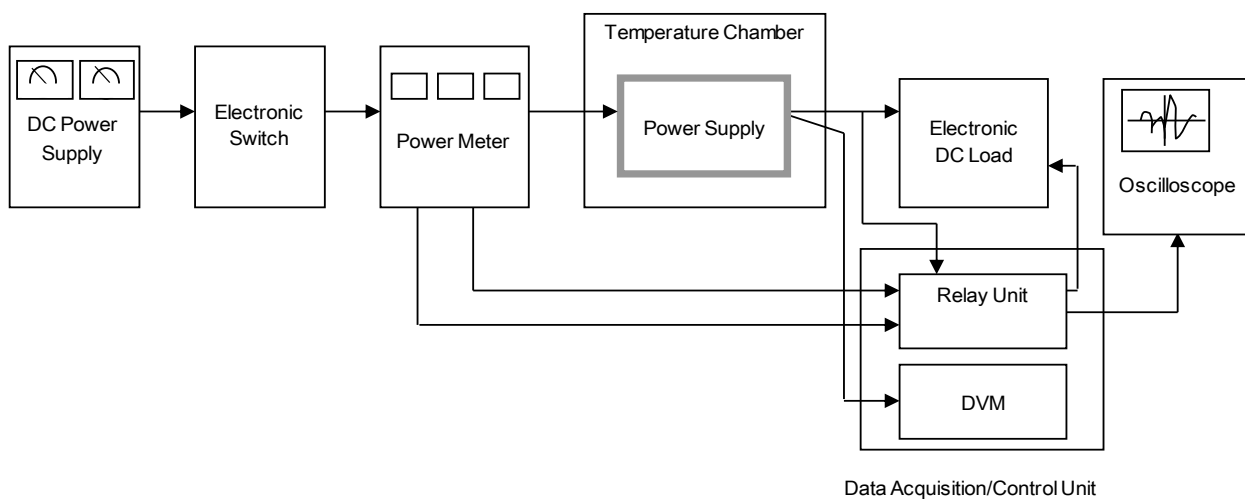


Figure A

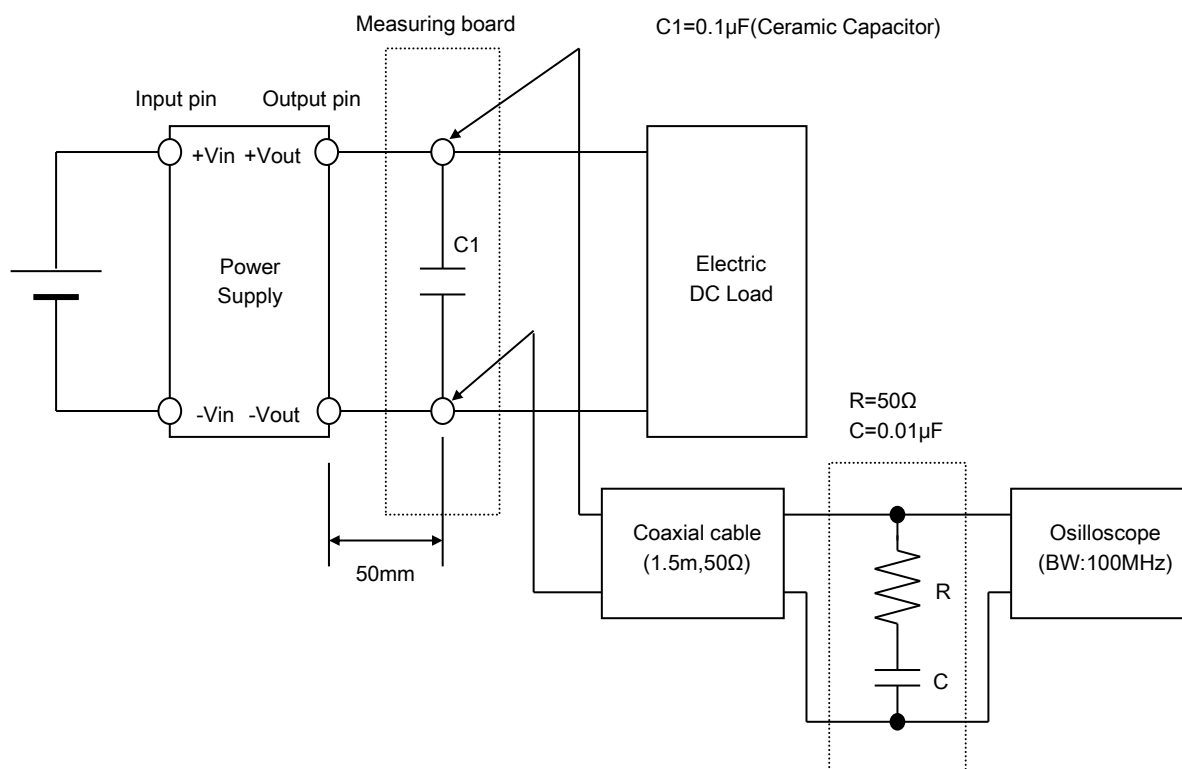


Figure B