



<b>Product / Process Change Notification (PCN)</b>	
<input checked="" type="checkbox"/> Major change <input type="checkbox"/> Minor change	
<b>PCN #:</b> PCN_WPME-FISM_20230818  <b>Affected Series:</b> WPME-FISM, 1769205141; 1769205241; 1769205341; 1769405141; 1769405241; 1769405341  <b>PCN Date:</b> May 18, 2023  <b>Effective Date:</b> August 18, 2023	<b>Change Category:</b> <input type="checkbox"/> Equipment / Location <input checked="" type="checkbox"/> General Data <input type="checkbox"/> Material <input checked="" type="checkbox"/> Process <input type="checkbox"/> Product Design <input type="checkbox"/> Shipping / Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> Software
<b>Contact:</b> Product Management  <b>Phone:</b> +49 (0) 7942 - 945 5001  <b>Fax:</b> +49 (0) 7942 - 945 5179  <b>E-Mail:</b> pcn.eisos@we-online.com	<b>Data Sheet Change:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  <b>Attachment:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Description and purpose of change:</b> To improve the processability, Würth Elektronik has expanded the reflow solder profile to align with the JEDEC J-STDO20E industry standard for reflow soldering. As a datasheet information amendment, Würth Elektronik has changed the specified switching frequency to create a better understanding between the internal and external switching frequency of the topology and to justify the shown EMC diagrams. There will be no change in form, fit, function or reliability of the product. All date codes will be affected by this change.	



**Detail of Change:**

The reflow solder profile peak temperature has been increased to 245°C to meet the JEDEC J-STD020E standard's recommendation for the given package volume and thickness. (Page 30)

Before	After																																				
<p><b>HANDLING RECOMMENDATIONS</b></p> <p>The power module is classified as MSL1 (JEDEC Moisture Sensitivity Level 1) and requires special handling due to moisture sensitivity (JEDEC J-STD033).</p> <p><b>SOLDER PROFILE</b></p> <ol style="list-style-type: none"> <li>1. Measure the peak reflow temperature of the Mag<sup>2</sup>C power module in the middle of the top view.</li> <li>2. Ensure that the peak reflow temperature does not exceed 235°C ±5°C.</li> <li>3. The reflow time period during peak temperature of 235°C ±5°C must not exceed 30 seconds.</li> <li>4. Reflow time above liquidus (217°C) must not exceed 150 seconds.</li> <li>5. Maximum ramp up is rate 3K per second</li> <li>6. Maximum ramp down rate is 3K per second</li> <li>7. Reflow time from room (25°C) to peak must not exceed 8 minutes as per JEDEC J-STD020.</li> <li>8. Maximum numbers of reflow cycles is two.</li> <li>9. For minimum risk, solder the module in the last reflow cycle of the PCB production.</li> <li>10. For soldering process please consider lead material copper (Cu) and lead finish tin (Sn).</li> <li>11. For solder paste use a standard SAC Alloy such as SAC 305, type 3 or higher.</li> <li>12. Below profile is valid for convection reflow only</li> <li>13. Other soldering methods (e.g.vapor phase) are not verified and have to be validated by the customer on his own risk</li> </ol>	<p><b>21 HANDLING RECOMMENDATIONS</b></p> <ol style="list-style-type: none"> <li>1. The power module is classified as MSL1 (JEDEC Moisture Sensitivity Level 1) and doesn't requires special handling due to moisture sensitivity (JEDEC J-STD033).</li> <li>2. Parts have unlimited floor life according to JEDEC J-STD033.</li> <li>3. Maximum numbers of reflow cycles is three.</li> <li>4. For minimum risk, solder the module in the last reflow cycle of the PCB production.</li> <li>5. The component lead material is copper (Cu) and the lead finish is EN619 (NIPdAu).</li> <li>6. For solder paste use a standard SAC Alloy such as SAC 305, type 3 or higher.</li> <li>7. The profile below is valid for convection reflow only</li> <li>8. Other soldering methods (e.g. vapor phase) are not verified and have to be validated by the customer at their own risk</li> </ol> <p><b>21.1 Soldering Profile</b></p> <p>Table 16: Reflow solder profile.</p> <table border="1"> <thead> <tr> <th>Profile Feature</th> <th>Symbol</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Preheat temperature minimum</td> <td>T<sub>s,min</sub></td> <td>150°C</td> </tr> <tr> <td>Preheat temperature maximum</td> <td>T<sub>s,max</sub></td> <td>180°C</td> </tr> <tr> <td>Preheat time from T<sub>s,min</sub> to T<sub>s,max</sub></td> <td>t<sub>s</sub></td> <td>60-90 seconds</td> </tr> <tr> <td>Liquidus temperature</td> <td>T<sub>L</sub></td> <td>217°C</td> </tr> <tr> <td>Time maintained above T<sub>L</sub></td> <td>t<sub>L</sub></td> <td>60-90 seconds</td> </tr> <tr> <td>Classification temperature</td> <td>T<sub>C</sub></td> <td>245°C</td> </tr> <tr> <td>Peak package body temperature</td> <td>T<sub>P</sub></td> <td>T<sub>P</sub> ≤ T<sub>C</sub></td> </tr> <tr> <td>Time within T<sub>C</sub> - 5°C and T<sub>C</sub></td> <td>t<sub>D</sub></td> <td>t<sub>D</sub> ≤ 20 seconds</td> </tr> <tr> <td>Ramp-up Rate (T<sub>L</sub> to T<sub>P</sub>)</td> <td></td> <td>3°C/second maximum</td> </tr> <tr> <td>Ramp-down rate (T<sub>P</sub> to T<sub>L</sub>)</td> <td></td> <td>3°C/second maximum</td> </tr> <tr> <td>Time 25°C to peak temperature</td> <td></td> <td>8 minutes maximum</td> </tr> </tbody> </table> <p>Please refer to JEDEC J-STD020 for further information pertaining to reflow soldering of electronic components.</p> <p>Figure 23: Solder profile.</p>	Profile Feature	Symbol	Value	Preheat temperature minimum	T <sub>s,min</sub>	150°C	Preheat temperature maximum	T <sub>s,max</sub>	180°C	Preheat time from T <sub>s,min</sub> to T <sub>s,max</sub>	t <sub>s</sub>	60-90 seconds	Liquidus temperature	T <sub>L</sub>	217°C	Time maintained above T <sub>L</sub>	t <sub>L</sub>	60-90 seconds	Classification temperature	T <sub>C</sub>	245°C	Peak package body temperature	T <sub>P</sub>	T <sub>P</sub> ≤ T <sub>C</sub>	Time within T <sub>C</sub> - 5°C and T <sub>C</sub>	t <sub>D</sub>	t <sub>D</sub> ≤ 20 seconds	Ramp-up Rate (T <sub>L</sub> to T <sub>P</sub> )		3°C/second maximum	Ramp-down rate (T <sub>P</sub> to T <sub>L</sub> )		3°C/second maximum	Time 25°C to peak temperature		8 minutes maximum
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The switching frequency is now distinguished between internal clock frequency (300kHz), input current frequency (600kHz) and output voltage ripple frequency (600kHz) to give an overview of the occurring / measurable frequencies. (page 7)

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**Reliability / Qualification Summary:**

Components were subjected to five reflow soldering cycles with the new, higher temperature reflow profile. Intermittent and post-stress electrical tests were performed. All components passed all the electrical tests.