RECOMMENDED REFLOW SOLDERING CONDITIONS

Alchip™ MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/MLE/MLK/ML/MVJ/MV/MHV/MHB/MHJ/MKB/MV-BP/MVK-BP

The following conditions are recommended for air convection and infrared reflow soldering on the SMD products on to a glass epoxy circuit boards by cream solder. The dimensions of the glass epoxy boards with resist are 90x50x0.8mm for DS5 to KG5 case code SMD capacitors and 180x90x0.8mm for LH4 to MN0 case codes SMD capacitors.

The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.

Reflow should be performed twice or less.

Please ensure that the capacitor became cold enough to the room temperature (5 to 35°C) before the second reflow.

Consult with us when performing reflow profile in IPC / JEDEC (J-STD-020)

- Recommended soldering heat conditions (Except for Conductive Polymer Aluminum Solid Capacitors)

<table>
<thead>
<tr>
<th>SMD type</th>
<th>Size code</th>
<th>Voltage range (V)</th>
<th>Preheat</th>
<th>Time maintained above 217°C</th>
<th>Time maintained above 230°C</th>
<th>Peak temp.</th>
<th>Reflow number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical</td>
<td>DS5 to F90</td>
<td>4 to 63V (except 63V by MVH)</td>
<td>20sec. max.</td>
<td>60sec. max.</td>
<td>240°Cmax.</td>
<td>2 times or less</td>
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<td></td>
<td></td>
<td>80°C to 180°C</td>
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<td></td>
<td>6H3 to JA0</td>
<td>4 to 50V</td>
<td>120sec. max.</td>
<td>40sec. max.</td>
<td>250°Cmax.</td>
<td>2 times or less</td>
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<td></td>
<td></td>
<td>150°C to 260°C</td>
<td></td>
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<tr>
<td></td>
<td>KE0 to MN0</td>
<td>6.3 to 50V</td>
<td>20sec. max.</td>
<td>22sec. max.</td>
<td>240°Cmax.</td>
<td>2 times or less</td>
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<td></td>
<td></td>
<td>35°C to 450V</td>
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</tbody>
</table>

- Recommended Solder Land on PC Board

- PRECAUTIONS FOR USERS

Soldering method
The capacitors of Alchip-series have no capability to withstand such dip or wave soldering as totally immerse components into a solder bath.

Reflow soldering
Reflow the capacitors within recommended reflow soldering conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.

1. Location of components : Temperature increases at the edge of PC board more than the center.
2. Population of PC board : The lower the component population is, the more temperature rises.
3. Material of PC board : A ceramic made board needs more heat than a glass epoxy made board. The heat increase may cause damage to the capacitors.
4. Thickness of PC board : A thicker board needs more heat than a thinner board. The heat increase may damage the capacitors.
5. Size of PC board : A larger board needs more heat than a smaller board. The heat increase may damage the capacitors.
6. Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7. Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8. Vapor phase soldering (VPS) is not used.

Rework of soldering
Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10°C and an exposure time of 3±0.5 seconds.

Mechanical stress
Do not use the capacitors for lifting the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board
Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board
1. Before curing coating material, remove the cleaning solvents from the assembly board.
2. Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin
Internal chemical reaction gradually produces gas in the capacitor; then, increasing internal pressure. If the end seal of the capacitor is completely covered by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine contained resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

Others
Refer to PRECAUTIONS AND GUIDELINES.