Versatile Solutions for Challenging Assembly Applications

Selectively Increase Solder Volume

During reflow, the preform is pulled into the solder, creating a solder joint with increased volume. The preform volume can be up to four times the solder paste volume and routinely achieve excellent reflow results.

Application: RF Shield

RF shields represent two distinct challenges: characteristic warping and the need for relatively wide SMT pads for adequate solder. Preforms add solder, enabling the use of smaller shield pads, and maintain shield-board integrity despite warping.

Application: Long SMT Header Connector

Open circuits can occur with long header connectors if the board warps during reflow. Preforms add the solder volume needed to prevent opens and strengthen header connector joints, even when warping occurs.

Commonly Used Alloys

<table>
<thead>
<tr>
<th>Sn</th>
<th>Ag</th>
<th>Cu</th>
<th>Bi</th>
<th>Pb</th>
<th>Sb</th>
<th>Ni</th>
<th>Melting Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAC305</td>
<td>96.5</td>
<td>3.0</td>
<td>0.5</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>217-219°C</td>
</tr>
<tr>
<td>Sn96.5Ag3.5</td>
<td>96.5</td>
<td>3.5</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>217°C</td>
</tr>
<tr>
<td>SAC0807*</td>
<td>98.5</td>
<td>0.8</td>
<td>0.7</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>217-228°C</td>
</tr>
<tr>
<td>SAC0307*</td>
<td>99.0</td>
<td>0.3</td>
<td>0.7</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>219-229°C</td>
</tr>
<tr>
<td>SAC357</td>
<td>95.8</td>
<td>3.5</td>
<td>0.7</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>217°C</td>
</tr>
<tr>
<td>SAC397</td>
<td>95.5</td>
<td>3.8</td>
<td>0.7</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>217-218°C</td>
</tr>
<tr>
<td>SAC405</td>
<td>95.5</td>
<td>4.0</td>
<td>0.5</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>217-218°C</td>
</tr>
<tr>
<td>InnoLot™ Balance</td>
<td>3.8</td>
<td>0.7</td>
<td>3.0</td>
<td>–</td>
<td>1.4</td>
<td>0.15</td>
<td>206-217°C</td>
</tr>
</tbody>
</table>

Low-Temp Lead-Free

| Sn65Bi57.6Ag0.4** | 42 | 0.4 | –  | 57.6 | –  | –  | 138°C |
| Sn63Pb37 | 63.0 | –  | –  | 37.0 | –  | –  | 183°C |
| Sn62Pb36Ag2 | 62.0 | 2.0 | –  | 36.0 | –  | –  | 179-182°C |
| Sn62.8Pb36.8Ag0.4 | 62.8 | 0.4 | –  | 36.8 | –  | –  | 179-183°C |

Additional alloys and sizes available
* SACX® Plus alloys available upon request
** Other SnBi alloy blends available on request

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For the Alpha Sales Office near you, go to www.AlphaAssembly.com/Utility/Contact-Us/
ALPHA® Exactalloy® Solder Preforms

Tape & Reel Packaging
ALPHA® Exactalloy® Preform technology is based on our dedicated research and development work which is focused on meeting your electronic assembly requirements. Whether it is solving hole fill issues or RF shield challenges, we have the right preform solution that will ensure solder joint reliability and high first pass yield.

New Technology Yields Highest Performance
Alpha deploys a number of manufacturing techniques to meet the needs of the tape and reel preform market. For the smallest tape and reel preforms, Alpha’s new Symmetrical Technology creates a preform with four identical pick surfaces, enabling the industry’s highest pick and place rates.

ALPHA® SnBiAg Preform and Solder Paste Technology Enables Low Temperature Reflow Soldering
SnBiAg solder has emerged as a viable solder alloy for an increasing number of applications. Solder preforms in SnBiAg bring all the benefits of preform technology to the low temperature solder world.

ELIMINATE WAVE SOLDERING
Key Considerations:
• Components tolerate reflow temperature
• Component stand-off height
• No shoulder on pins
• No paste is printed underneath stand-offs
• Pin protrusion is not excessive
• Pin hole ratio is reasonable

Key Benefits:
• Improved first pass yield
• 100% hole fill
• No board thickness limitations
• Fillets as required
• PCB exposed to fewer thermal cycles

Supplemented with ALPHA® Exactalloy® Preforms
A preform added to solder paste yields 100% hole fill plus fillet.

Rework of Through Hole Components
Conventional: solder paste only
Thick boards and tight pin spacing result in inadequate hole fill.

Supplemented with ALPHA® Exactalloy® Preforms
A preform added to solder paste yields 100% hole fill plus fillet.

Eliminate Wave Soldering

ALPHA® InnoLot™ Preform and Solder Paste Technology Delivers Exceptional Thermal Cycling Endurance
InnoLot™ solder plays a critical role in high-temperature applications, such as automotive engine control units (ECU), where an increasing trend is to locate electronics near the engine. InnoLot is also being used in outdoor telecom applications, a tribute to the alloy’s superior thermal cycling endurance.

Contact your local Alpha sales representative for a complete list of available sizes.