### Introduction

The need for high-temperature solders is growing as RF and power semiconductor devices continue to get smaller, with power density increasing both as a consequence of the shrink and as a result of increased power ratings. Indalloy® 182 (80Au/20Sn eutectic solder) has been the workhorse for high-temperature, high-reliability, die-attach applications for many years. However, as junction temperatures (Tj) increase, the gold-tin eutectic solder is beginning to reach its limit of utility. Higher temperatures cause increased thermal fatigue and delamination can also be seen at the solder joints.

The next option for RF and power semiconductor manufacturers needing higher temperatures is 88Au/12Ge. The melting temperature of 88Au/12Ge is 356°C (eutectic).

The traditional 88Au/12Ge alloy has poor solderability, which manifests as large voids in the bond. Voids are poor conductors of heat which create hot spots, and are the primary cause of premature failures.

Indium Corporation developed a semiconductor-grade 88Au/12Ge that increases solderability and decreases voiding%.

<table>
<thead>
<tr>
<th>88Au/12Ge Preform Type</th>
<th>Ni/Au</th>
<th>Copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>30%</td>
<td>32%</td>
</tr>
<tr>
<td>Semiconductor-Grade</td>
<td>14%</td>
<td>22%</td>
</tr>
</tbody>
</table>

### Packaging

Preform packaging is critical for two reasons:
- Protection during shipping and handling
- Ease of introduction into the manufacturing process

Because of these needs, Indium Corporation offers several packaging alternatives:
- Jar or bulk pack
- Bulk tray pack
- Array tray pack
- Tape & reel
- Waffle pack

We also can create customized packaging solutions to meet your needs and processes.

### Safety Data Sheet

Safety data sheet for this product can be found online at [http://www.indium.com/sds](http://www.indium.com/sds)

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Contact our engineers today: askus@indium.com
Learn more: [www.indium.com](http://www.indium.com)

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