

Alloys

AIM offers a broad range of alloys for SMT, wave soldering, hand soldering, and various applications. Commonly used alloys for the electronics industry are shown below. Other alloys are available upon request.

| ALLOY | MELTING POINT °C | COMMENT | SOLDER FORM AVAILABILITY* | | | | | |
|---|------------------|--|---------------------------|------------|------------|------------|-----------------|----------------|
| | | | SOLDER PASTE | BAR SOLDER | CORED WIRE | SOLID WIRE | SOLDER PREFORMS | SOLDER SPHERES |
| LOW TEMPERATURE | | | | | | | | |
| Sn42/Bi58 | 138 | For low temperature soldering applications. Alloys containing high amount of bismuth have unique properties that may require special considerations. | ● | ● | | ● | ● | ● |
| Sn42/Bi57/Ag1 | | | | | | | | |
| Sn62/Pb36/Ag2 | 179 | Not RoHS/REACH compliant. | ● | ● | ● | ● | ● | ● |
| Sn63/Pb37 | 183 | | | | | | | |
| HIGH RELIABILITY | | | | | | | | |
| REL61™ Sn/Ag/Cu/Bi | 208-215 | Enhanced reliability, high strength/low silver, lead-free solder alloy. Exhibits good wetting. Mitigates tin whisker formation. | ● | ● | ● | ● | ● | ● |
| REL22™ Sn/Ag/Cu/Bi/Sb/X | 210-212 | High reliability, high strength lead-free solder alloy. Exceptionally durable for extreme service environments. | ● | ● | ● | ● | ● | ● |
| CASTIN® Sn/Ag2.5/Cu0.8/Sb0.5 | 217-219 | Improved drop-shock performance versus SAC305. | ● | ● | ● | ● | ● | ● |
| TIN-SILVER/TIN-SILVER-COPPER (SAC) | | | | | | | | |
| SAC305 Sn/Ag3/Cu0.5 | 217-218 | Industry standard for SMT and through hole soldering. High purity and high performance alloy. | ● | ● | ● | ● | ● | ● |
| SAC387 Sn/Ag3.8/Cu0.7 | | | | | | | | |
| SAC405 Sn/Ag4/Cu0.5 | | | | | | | | |
| Sn96.5/Ag3.5 | 221 | Eutectic Sn-Ag solder alloy. May not have adequate thermal reliability/wetting. Requires higher soldering temperature than SAC alloys. | ● | ● | ● | ● | ● | ● |
| LOW/NO SILVER LEAD-FREE | | | | | | | | |
| SAC-B 0307 Sn/Ag0.3/Cu0.7 | 217-227 | Cost effective alternative to SAC alloys. Primarily used in wave, selective and hand soldering due to higher melting temperatures. High purity and high performance alloy. | ● | ● | ● | ● | ● | ● |
| SAC-B 0107 Sn/Ag0.1/Cu0.7 | | | | | | | | |
| SN100C® Sn/Cu0.7/Ni0.05+Ge | 227 | Near eutectic, low/no silver, cost effective alternative for wave soldering and hand soldering applications. | ● | ● | ● | ● | ● | ● |
| Sn99.3/Cu0.7 | | | | | | | | |
| SCAN | | | | | | | | |
| Sn97/Cu3 | 227-300 | Lead-free alloy used for high temperature soldering applications. | ● | ● | | ● | ● | ● |
| SPECIALTY ALLOYS | | | | | | | | |
| Sn95/Sb5 | 235-240 | High temperature application alloy. Special considerations may need to be made to accommodate unique alloy properties. | ● | ● | ● | ● | ● | ● |
| Bi97.5/Ag2.5 | 263 | | | | | | | |
| Au80/Sn20 | 281 | Ideal for soldering gold. High hardness, high strength, high reliability. | ● | ● | | ● | ● | ● |
| Sn5/Pb93.5/Ag1.5 | 305-306 | High temperature alloy used for semiconductor attachment and used in fuse and thermal couple attachment applications. | ● | ● | | ● | ● | ● |
| Bi95/Sb5 | 275-308 | High temperature application alloy. | ● | ● | | | | ● |
| Au88/Ge12 | 356 | Gold die-attach alloy. | ● | ● | | | ● | ● |

*Solder Form Availability Subject to Change
Melting points should not be used as design criteria for thermal protection devices.