SHENMAO SOLDER
Pb-free Material Edition

SOFT SOLDER

Technology possibilities are infinite. Nowadays, growing environmental concern around the world has brought to electronic industries' attentions to apply save soldering material on their products. For almost 30 years, SHENMAO has been playing a certain key role for the industry. It is our commitment to bring a good quality of solder to you, we insist to be at the leading edge on this field.
Let's heading toward better performance. Up-grade your products with us. We are your ultimate partner for solder.

SHENMAO LEAD FREE SOLDER

Alloy No.	Alloy Composition	Melting point (°C)	Products				Gravity	Strength (kgf/mm)	Elongation (%)	Remark
			Bar	Sphere	Wire	Paste				
PF601	Sn-Ag2.5-Cu0.5	220°C	○	○	○		7.40	5.30	57	Medium temperature alloy
PF602	Sn-Bi58	138°C				○	8.56	7.80	27	Low temperature alloy
PF603	Sn-Ag3.5	221°C	○	○	○	○	7.36	4.18	58	Soldering rework use
PF604	Sn-Cu0.7	227°C	○		○		7.32	3.80	50	Wave soldering & rework
PF605	Sn99.95	232°C	○				7.28	2.20	55	Medium temperature alloy
*PF606	Sn-Ag3.0-Cu0.5	219°C	○	○	○	○	7.40	5.30	47	Medium temperature alloy
*PF607	Sn-Ag3.5-Cu0.7	217°C	○	○	○	○	7.42	5.34	48	Medium temperature alloy
PF608	Sn-Ag3.9-Cu0.6	217°C	○	○	○	○	7.42	5.34	48	Medium temperature alloy
PF609	Sn-Ag3.8-Cu0.7	217°C	○	○	○	○	7.42	5.34	48	Medium temperature alloy
**PF610	Sn-Ag3.0-Cu0.5-Ni0.06-Ge0.01	219°C	○	○	○	○	7.4	5.40	48	Medium temperature alloy
PF612	Sn-Zn8.0-Bi3.0	190°C				○	7.30	6.60	27	Medium temperature alloy
PF614	Sn-Ag4.0-Cu0.5	217°C	○	○	○	○	7.42	5.34	48	Medium temperature alloy
PF623	Sn-Sb5.0	243°C				○	7.30	5.1	35	Medium temperature alloy

*** U.S. Patent No. 5.527.628**
(Under negotiation with IOWA State University Research Foundation for a sub-licensee).

**** PF610°AThis alloy composition our to recommend "Sn-Ag-Cu" system°C**
Japanese Patent No. 3296289°C U.S Patent No. 6179935B1

At present, there is common consensus from both of the industry and the academia that Sn-Ag-Cu alloys will be the primary material for Lead Free solders in the future. Nevertheless, this Sn-Ag-Cu alloy still causes production problems and defects in assembly practices; for instance: Because the Spread and Wetting properties of Sn-Ag-Cu are not as desirable as Sn63/Pb37 alloy's, it is common to supply with inert gas (nitrogen) to prevent oxidation when re-flowing, which results in De-wetting in SMT assembly process. In Wave Soldering, the residue produced from Sn-Ag-Cu alloy is much higher than from Sn63/Pb37 alloy's, and indirectly causes higher product costs to electronics manufacturers. To minimize these production defects, we Shenmao Technology made a special effort to obtain manufacture sub-license and introduce you a 5-elements alloy -- the **Sn-Ag-Cu-Ni-Ge alloy**

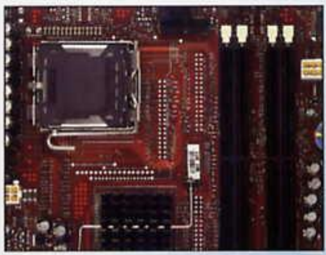
Lead Free Bar/ Anode

Product code	PF601-B	PF603-B	PF604-B	PF605-B	PF606-B
Alloy Composition	Sn-Ag2.5-Cu0.5	Sn-Ag3.5	Sn-Cu0.7	Sn99.95	Sn-Ag3.0-Cu0.5

Product code	PF607-B	PF608-B	PF609-B	PF610-B	PF614-B
Alloy Composition	Sn-Ag3.5-Cu0.7	Sn-Ag3.9-Cu0.6	Sn-Ag3.8-Cu0.7	Sn-Ag3.0-Cu0.5-Ni0.06-Ge0.01	Sn-Ag4.0-Cu0.5

Lead Free wire

Product code	PF601-R	PF603-R	PF604-R	PF606-R	PF607-R	PF608-R	PF609-R	PF610-R	PF614-R
Alloy Composition	Sn-Ag2.5-Cu0.5	Sn-Ag3.5	Sn-Cu0.7	Sn-Ag3.0-Cu0.5	Sn-Ag3.5-Cu0.7	Sn-Ag3.9-Cu0.6	Sn-Ag3.8-Cu0.7	Sn-Ag3.0-Cu0.5-Ni0.06-Ge0.01	Sn-Ag4.0-Cu0.5
Flux type	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1
Flux content (wt%)	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	3.0 ± 0.5
Wire diameter (mm)	1.6~0.3	1.6~0.3	1.6~0.3	1.6~0.3	1.6~0.3	1.6~0.3	1.6~0.3	1.6~0.3	1.6~0.3



Lead Free Paste

Product code	PF601-P	PF603-P	PF606-P	PF607-P	PF608-P	PF609-P	PF610-P	PF614-P
Alloy Composition	Sn-Ag2.5-Cu0.5	Sn-Ag3.5	Sn-Ag3.0-Cu0.5	Sn-Ag3.5-Cu0.7	Sn-Ag3.9-Cu0.6	Sn-Ag3.8-Cu0.7	Sn-Ag3.0-Cu0.5-Ni0.06-Ge0.01	Sn-Ag4.0-Cu0.5
Flux type	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1	ROL1
Particle size (um)	20-45	20-45	20-45	20-45	20-45	20-45	20-45	20-45
Flux content (wt%)	11.0±0.5	11.0±0.5	11.0±0.5	11.0±0.5	11.0±0.5	11.0±0.5	11.0±0.5	11.0±0.5
Viscosity (Pa.s)	200±50	200±50	200±50	200±50	200±50	200±50	200±50	200±50

Lead Free BGA Sphere

Product code	PF601-S	PF603-S	PF606-S	PF607-S	PF608-S	PF609-S	PF610-S	PF614-S
Alloy Composition	Sn-Ag2.5-Cu0.5	Sn-Ag3.5	Sn-Ag3.0-Cu0.5	Sn-Ag3.5-Cu0.7	Sn-Ag3.9-Cu0.6	Sn-Ag3.8-Cu0.7	Sn-Ag3.0-Cu0.5-Ni0.06-Ge0.01	Sn-Ag4.0-Cu0.5
Solderability	Good	Good	Good	Good	Good	Good	Good	Good
Diameter (mm)	0.76-0.2	0.76-0.2	0.76-0.2	0.76-0.2	0.76-0.2	0.76-0.2	0.76-0.2	0.76-0.2

- SHENMAO's lead free solder is developed by SHENMAO Research Laboratory and Industrial Development Bureau, Ministry of Economy Affairs.
- Contact us for further product details.