

1. Alloying component (comply with GB/T 20422-2006)

Item	Alloying component (weight %)												
	Sn	Ag	Cu	Bi	Sb	In	Zn	Pb	Au	Fe	As	Al	Cd
Sn96.5	other	2.5~3.5	0.3~0.7	≦0.10	≦0.10	≦0.10	≦0.001	≦0.10	≦0.05	≦0.02	≦0.03	≦0.001	≦0.002
Ag3.0													
Cu0.5													

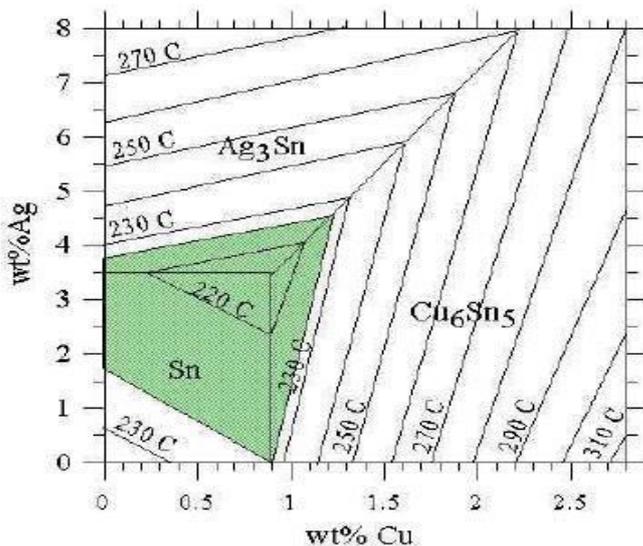
2. Size and tolerance

Diameter (mm)	Tolerance (mm)
≤0.3	±0.02
0.3~0.8	±0.03
>0.8~2.5	±0.05
>2.5~6.0	±0.10

3. Physical property

Component	Sn96.5/ Ag3.0/ Cu0.5	Heat capacity (J/kg · k)	220
Solid phase temperature	217°C	Heat conductivity (J/m · s · K)	64
Liquidus temperature	218°C	Tensile strength (MPa)	32
Proportion	7.3	Elongation (%) df	48

4. Sn/Pb phase diagram



5. Chemical characteristic

Num	Item	Testing standard	comply with standards
1	Solder (%)	Standard $\pm 0.1\%$	GB/T 3131-2001
2	Continuity of solder (%)	$< 1.5\%$	GB/T 3131-2001
3	Halogen (wt %)	R: $< 0.05\%$; RMA: $0.05\% \sim 0.15\%$ RA: $> 0.15\%$	GB/T 9491-2002
4	Copper corrosion tests	No obvious corrosion	JIS Z 3197
5	Copper Mirror Corrosion	AA: no change A: no corrosion through copper film	JIS Z 3197
6	Insulation resistance (Ω)	R, RMA: first-grade $\geq 1 \times 10^{12}$ second $\geq 1 \times 10^{11}$ RA: first-grade $\geq 1 \times 10^{11}$ second $\geq 1 \times 10^{10}$	GB/T 9491-2002
7	Water extraction resistance ($\Omega \cdot \text{cm}$)	R, RMA: $\geq 1 \times 10^5$, RA: $\geq 5 \times 10^4$	GB/T 9491-2002
8	rate of spread (%)	R: ≥ 75 , RMA ≥ 80 , RA: ≥ 90	GB/T9491-2002
9	dryness	No viscosity on the surface of slag, and easy to remove the powder.	IPC-TM-650
10	spatter loss coefficient (%)	outstand: $0 \sim 10\%$; medium: $11 \sim 30\%$; off-grade: $> 31\%$	IPC-TM-650
11	acid (mg KOH/g)	$> 162 \text{mg(KOH)/g}$	GB/T 8146-2003

6. Alloying component of solder

Element	CAS #	Percent wt%	TLV-TWA mg/m3	TLV-STEL mg/m3	OSHA PEL mg/m3
Sn	7440-31-5	96.5	2	/	2.0
Ag	7440-22-4	3.0	0.1	/	0.1
Cu	7440-50-8	0.5	0.2	/	0.1

CAS: Chemical Abstracts cited; OSHA: occupation safety and Health Administration of American; PEL: Permissible exposure limit; TLV: Threshold Limit Value; TWA: Time-weighted average; STEL: Short term exposure; STEL: Short term exposure limit.