

## Common Elements

### Aluminum

Offers good corrosion resistance and good strength when alloyed with Zn or Si.

### Antimony

Increases tensile strength of solders. Poor conductor of heat and electricity.

### Bismuth

Low melting when alloyed with SnPb or In. Expands 3.32% on solidification. Non-toxic.

### Cadmium

Increases corrosion resistance of solders. Increases service temperature and strength of solder.

### Copper

When used in SnPb alloys, slight increase in spread rate, lowers melting temperature.

### Gallium

Has one of the longest liquid ranges for metals. Has low vapor pressure.

### Germanium

When alloyed with Au or Al, will reduce melting point and increase strength. Contributes to poor solder wettability.

### Gold

Highly conductive and corrosion resistant. High melting point is reduced when alloyed with Sn, Si, or Ge.

### Indium

Improves wetting of PbAg solders. Resists alkaline corrosion. Bonds glass, quartz, and glazed ceramics.

### Lead

Economical material, soft and ductile. Offers increased strength when alloyed with other elements. Toxic.

### Silicon

When used with Au or Al, will reduce melting point, increase strength, and improve wettability.

### Silver

Exhibits the highest electrical and thermal conductivity of all metals.

### Tin

Excellent wetting characteristics. Low strength when used alone but becomes stronger when alloyed.

### Zinc

When used in SnPb alloys, lowers spreading rate; when soldering to Al, used to reduce the electrical potential difference.

		13	14	
		Al	Si	
29	30	31	32	
Cu	Zn	Ga	Ge	
47	48	49	50	51
Ag	Cd	In	Sn	Sb
79			82	83
Au			Pb	Bi

APPLICATION NOTE

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