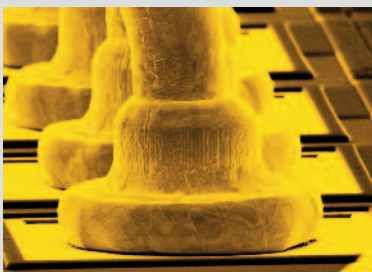
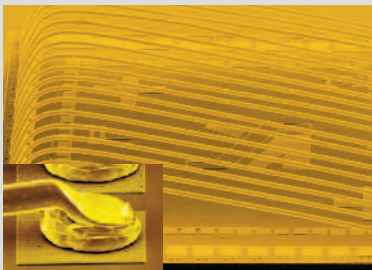
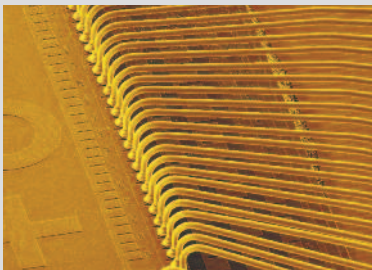


AW-14 Gold Bonding Wire for Universal Use



For the last half decade, AW-14 has been an industry mainstay for applications involving low loops such as those found in TQFP, CSP, TSOP and smart card assembly. Consistent fine grain size and a short heat affected zone allow low heights (as low as 100 μm) and long spans (up to 7 mm). This versatile 4N wire (99.99% Au) provides very wide parameter window and can be used on virtually all types of equipment for both ball and wedge bonding.

Easy to optimize parameters for a wide range of packages

AW-14 lends itself to a variety of devices (from discretes through TSOPs, QFPs and BGAs for single die, stacked die and die-to-die applications) due to a high modulus and stable properties. AW-14's large process windows provide robust, highly portable bonding in mass production, making it one of the industry's easiest wires to use.

AW-14 Benefits

- Large process window for robust, highly portable mass production
- Proven in the widest range of applications
- Excellent low loop stability and high strength properties for a variety of advanced packaging requirements
- Consistent ball size and fine-grain, short heat affected zone (HAZ) at ball neck
- Easily optimized wire available in diameters down to 17.5 μm (0.7 mil.)
- Compatible with all ball and wedge bonding equipment

AW-14 Low Loop Consistency

All dimensions in microns

Wire Size	Loop Height	Std Dev	Wire		
			Min.	Max.	n
25	168	4.0	160	168	20
25	150	2.3	146	154	32
33	152	5.8	137	168	100

Bonding Conditions: Wire diameter: 25 μm (1.0 mils)
Wire bonder: K&S 1488 turbo · Package type: 208-lead QFP · Die metallization: AlSi (1%) Cu (0.5%) · Lead-frame: Ag-plated Cu · Wire span: 4 – 7 mm · Bonding temperature: 220°C · Capillary: 414Fa-0310-R35

AW-14 Mechanical Properties

Diameter	Microns Mils	18	20	23	25	28	30	32	33
			0.7	0.8	0.9	1.0	1.1	1.2	1.25
Recommended Spec for Ball Bonding									
Elongation (%)		2 – 5	2 – 6	2 – 6	2 – 6	2 – 6	2 – 7	2 – 7	2 – 7
Breaking Load (g)		3 – 6	3 – 8	7 – 10	9 – 14	10 – 15	12 – 18	14 – 21	16 – 22
Typical Breaking Load (g)									
Room Temp @ 4% EL		5.1	6.6	8.7	10.5	13.0	15.5	17.0	19.7
High Temp (250°C / 20s)		4.4	5.8	8.0	9.5	12.0	14.7	15.5	17.8
In-Line Pad Pitch (μm)									
Min. In-Line Pad Pitch					65	70	80		

Range of recommended pad pitch with corresponding wire diameter.

AW-14 Characteristics (for 25 µm diameter wire)

Non-Gold Elements	< 100 ppm
Breaking Load @ Room Temperature	> 10 g at 4% EL
Breaking Load @ 250°C / 20 sec.	> 9 g
Elastic Modulus	> 80 GPa
Heat Affected Zone (HAZ)	~ 140 µm (for 50 µm ball diameter)
Melting Point	1063°C
Density	19.32 g/cm ³
Heat Conductivity	3.17 W/cm-K
Electrical Resistivity	2.3 µOhm-cm
Coeff. of Linear Expansion (0 – 100°C)	14.22 ppm / K
Fusing Current for 25 µm, dia 100 mm length (in air)	0.5 A

Superior Loop Linearity

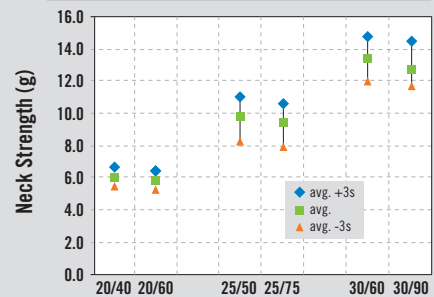
Mold Sweep Resistance

- Auto-Gang Pot Molding
- Sumitomo Compound EME 7320
- Wire diameter 30 µm, wire span up to 7 mm
- Spec. limit 8% of wire span

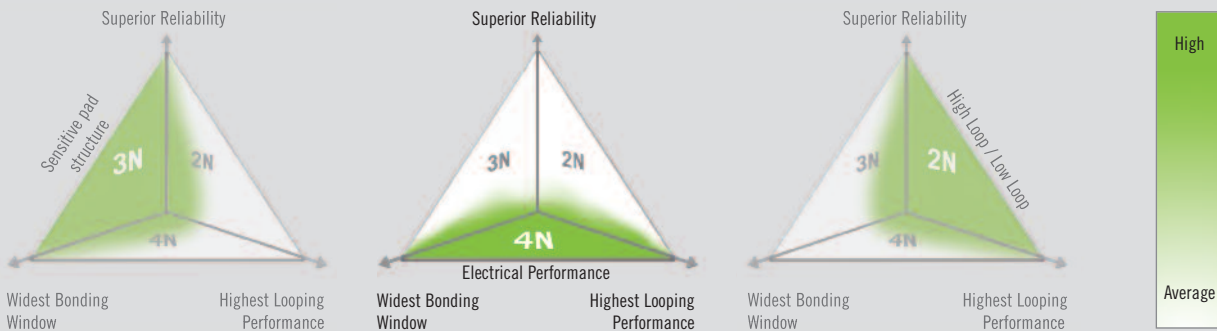
DAP Size	Wire Span	Std			
		Avg.	Dev.	Min.	Max.
9 x 9	5 mm	1.2	0.40	0.3	2.1
10.5 x 10.5	6 mm	1.9	0.67	0.8	3.3
12 x 12	7 mm	2.0	0.59	0.8	3.4

Data is in % of wire span, measured at 90° positioned to gate.

Neck Strength



Gold Wire Segmentation by Properties



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