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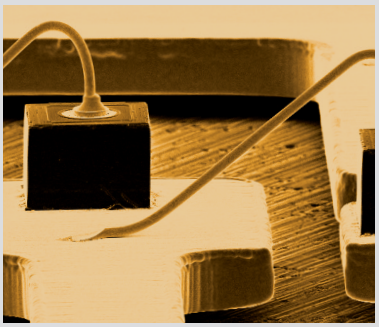
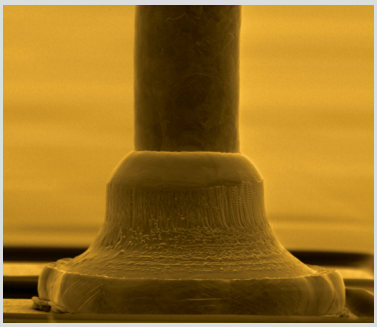
AW-29
Gold Bonding Wire for Universal Use in Discrete and IC (Larger Dia) Applications





AW-29 Benefits

- Permits ease of looping for high loop applications
- Robust 2nd bond with wide application range for low temperature bonding, such as on soft substrate e. g. COB and Hybrids packages
- Established for use on sensitive IC die metallizations with wire diameter ≥ 30 µm
- Compatible with high speed automatic ball bonding equipment

AW-29 –
for standard bonding applications

Ideal for discrete devices such as LEDs, Optos etc, AW-29 is typically found in 25 µm to 35 µm diameters. This alloy displays salient characteristics via its long HAZ which facilitates ease of looping for both medium (~ 170 µm)* and high loop (~ 230 µm)* applications, thereby minimizing requirements on machine looping capability. In addition, AW-29's large process 2nd bond window makes it an excellent choice for low temperature bonding on soft substrates. AW-29 is also commonly used on sensitive die metallization, even in diameters > 30 µm.

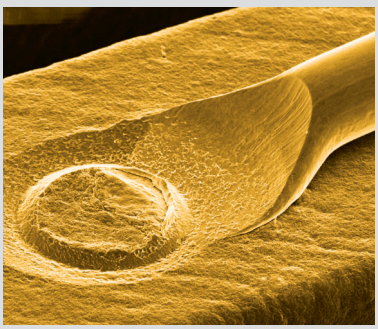
* Reference to 25 µm wire dia.

Application Data*

First bond results on optimum setting

	Ball Diameter (µm)	Squash Height (µm)	Shear Force (g)	Shear Strength (g/mil²)
Mean	88	16	71.1	7.5
Std Dev	0.35	0.63	2.7	0.3
Min	84	13	66.0	6.5
Max	93	20	76.2	7.9

* Results may vary with package and die configuration, as well as bond process.



Bonding Conditions: Wire diameter: 33 µm · Wire bonder: K&S 1488 turbo
Package type: PLCC 68 leads · Die metallization: AlSi (1%) Cu (0.5%)
Leadframe: Ag: Plated Cu · Wire span: 3.2 – 4 mm · Loop height range: 230 µm +/- 25 µm
Bonding temperature: 240°C · Capillary: 41413-0013-335 · T=3.7 mil, FA 8°

Recommended Technical Data of AW-29

Diameter	**Microns**	20	23	25	28	30	32	33	35	38	50
	Mils	0.8	0.9	1.0	1.1	1.2	1.25	1.3	1.4	1.5	2.0
Recommended Specs for Ball Bonding											
Elongation (%)		2 – 6	2 – 6	2 – 6	2 – 6	2 – 7	2 – 7	2 – 7	2 – 7	2 – 7	4 – 12
Breaking Load (g)		3 – 8	5 – 10	7 – 12	9 – 15	10 – 17	12 – 19	13 – 20	15 – 23	19 – 27	30 – 45

For other diameters, please contact Heraeus Bonding Wires sales representative.

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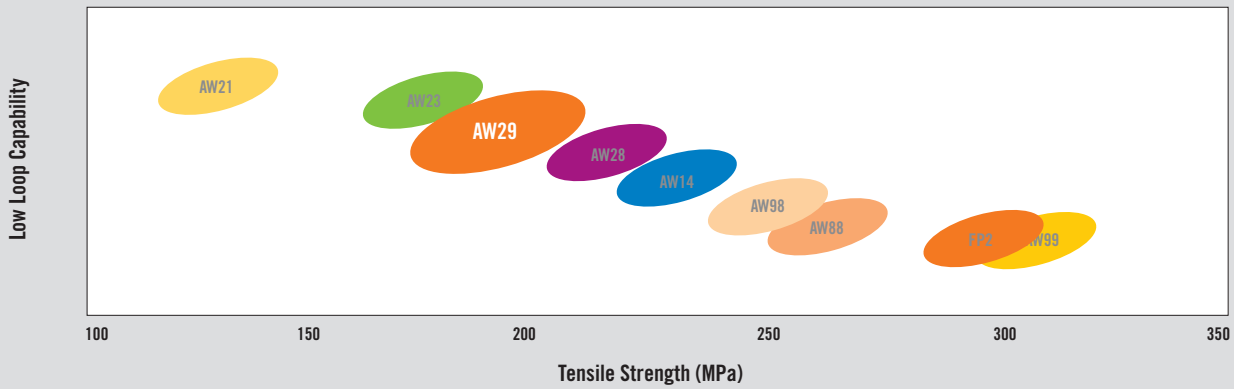
AW-29 Characteristics for 30 µm diameter

Non-Gold Elements	< 100 ppm
Elastic Modulus	~ 70 GPa
Heat Affected Zone (HAZ)	90 – 280 µm
Neck Strength	~ 11 g (at 70 µm ball diameter)
Melting Point	1063 °C
Density	19.32 g/cm^3
Heat Conductivity	3.17 W/cm·K
Electrical Resistivity	2.3 µΩ-cm
Coeff. of Linear Expansion (20 – 100°C)	14.2 ppm/K
Fusing Current for 30 µm, dia 10 mm length (in air)	0.47 A

HAZ Length – 25 µm wire, 50 µm FAB)

(Measurement accuracy +/- 10 µm)

Low Loop Capability vs. Tensile Strength



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