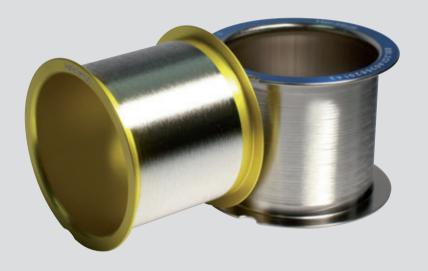
Heraeus

Ag<u>Ultra</u> Silver Alloy Wire for LED Device and IC Packaging

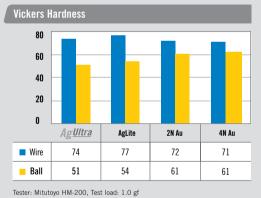


Recommended Technical Data of Ag <u>Ultra</u>										
Diameter	Microns (µm)	15	18	20	23	25	30	38	50	
	Mils	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	
Elongation	(%)	2 – 8	2 – 8	2 – 8	2 – 8	3 – 8	3 – 8	3 – 10	3 – 10	
Breaking Load	(g)	> 2	> 3	> 4	> 6	> 8	> 12	> 20	> 30	

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

Acultra Benefits & Features

- A cost-effective alternative to gold wires
- Good reflectivity surface
- Good bondability with both N₂ and forming gas
- Good mechanical properties
- Good reliability performance
- Good electrical properties



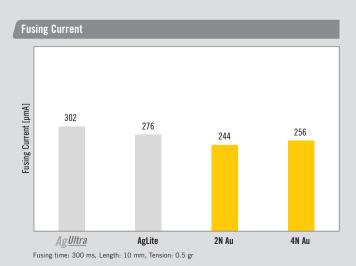
Holding time: 10 sec,
Number of measured sample: 5

Electrical Resistivity 4.7 2.9 2.3

4N Au

AgLite

Ag<u>Ultra</u>

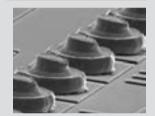


Physical Properties									
Diameter	Mils	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0
Grain Size (µm)	FAB	3 ~ 7	3 ~ 7	3 ~ 7	3 ~ 7	3 ~ 7	3 ~ 7	3 ~ 7	3 ~ 7
	Wire	1 ~ 3	1 ~ 3	1 ~ 3	1 ~ 3	1 ~ 3	1 ~ 3	1 ~ 3	1 ~ 3
Hardness (Hv)	FAB	45 ~ 55	45 ~ 55	45 ~ 55	45 ~ 55	45 ~ 55	45 ~ 55	45 ~ 55	45 ~ 55
	Wire	70 ~ 80	70 ~ 80	70 ~ 80	70 ~ 80	70 ~ 80	70 ~ 80	70 ~ 80	70 ~ 80
HAZ length (µm)		Max 115	Max 125	Max 135	Max 145	Max 155	Max 165	Max 180	Max 200
Fusing Current (mA, Length = 10 mm)		274	302	324	362	391	471	637	953
Resistivity (μΩcm) @ 20 °C		3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Recrystallization temp. (°C)		400 ~ 480	400 ~ 480	400 ~ 480	400 ~ 480	400 ~ 480	400 ~ 480	400 ~ 480	400 ~ 480
Melting Point (°C)		1004	1004	1004	1004	1004	1004	1004	1004

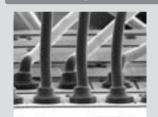
SSB Bonding

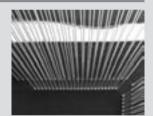


Stub Bump

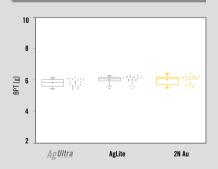


Multi-tier Bonding





Ball Pull Test (BPT)



Stitch Pull Test (SPT)



Ball Shear Test (BST)



Heraeus Electronics

Heraeus Deutschland GmbH & Co. KG Heraeusstraße 12-14 63450 Hanau, Germany www.heraeus-electronics.com

Americas

Phone +1 610 825 6050 electronics.americas@heraeus.com

Asia Pacific

Phone +65 6571 7677 electronics.apac@heraeus.com

China

Phone +86 21 3357 5457 electronics.china@heraeus.com

Europe, Middle East and Africa

Phone +49 6181 35 3069 +49 6181 35 3627 electronics.emea@heraeus.com

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for particular application.