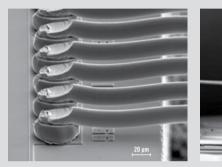
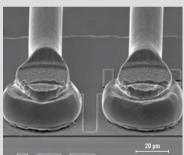
## Heraeus

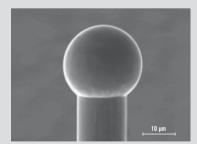
# **PdPRo** Palladium Coated Copper Wire for IC Applications



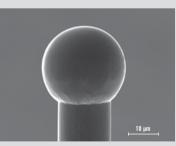


BGA Device, 60 µm BPP, 20 µm Diameter

#### Consistent FAB roundness in N2 environment



Target FAB: 24  $\mu m$ , Wire Diameter: 15  $\mu m$ , EFO Current / Time: 20 mA / 330  $\mu s,$  Bonder: Ultra,  $N_2$  Gas Flow Rate: 0.3 ~ 0.9 LPM



Target FAB: 28  $\mu m,$  Wire Diameter: 18  $\mu m,$  EFO Current / Time: 60 mA / 145  $\mu s,$  Bonder: iConn,  $N_2$  Gas Flow Rate: 0.3 – 0.9 LPM

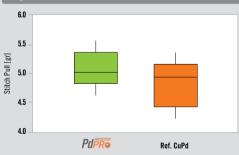
#### Benefits and Features

- Robust Free Air Ball quality at wide range of gas flow rate
- Higher stitch pull and wider 2nd bond process window
- Easy to optimize and able to Plug & Play with other CuPd wire
- Good for SSB / RSSB bonding
- Available in diameter ranging from 0.6 2.0 mil



Wire Diameter: 18 µm, Device Type: BGA, Capillary part #: K&S C8-FG-1034-P37 (H:8.5, CD:10.5, T:23, OR:01, F:011), Bonder Type: iConn, Bonding Temperature: 175  $^\circ$ C

#### Higher Stitch Pull Values



Recommended Technical Data of Pdino											
Diameter	Microns (µm)	15	18	20	23	25	28	30	33	38	50
	Mils	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.5	2.0
Elongation	(%)	5 - 11	6 - 12	9-15	11 - 17	12 - 18	10 - 22	10-22	10 - 22	10-20	10-22
Breaking Load	(g)	2-8	3 – 9	4-11	7 – 13	10-16	12-19	15 - 21	18 – 25	25 - 42	50 - 65

20 µm

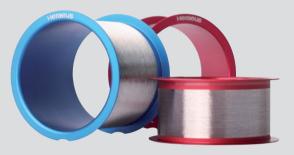
For other diameters, please contact Heraeus Bonding Wires sales representative.

## Heraeus



#### Characteristics for 0.8 mil diameter

Density	9.03 g/cm <sup>3</sup>
Melting Point*	1081 °C
Heat Conductivity*	401 W/m K
Specific Heat Capacity @ 25 °C*	352 J/kg K
Coeff. of Thermal Expansion*	16.6 (μm/m °C, 0-30 °C)
Electrical Resistivity	1.85 μΩ-cm
FAB Hardness (60 mA EFO)	92 - 107 HV (0.01 N / 5 s)
Wire Hardness	97 - 107 HV (0.01 N / 5 s)
Elastic Modulus	95 – 105 GPa



#### **Chemical Composition**

Pd	1.2 % – 2.5 %
Cu Purity	99.98 % min

#### Other Guidelines

60 days
6 months
N <sub>2</sub> / Forming Gas

\* Based on Core Material

### Reliability Data

Reliability	Test Conditions	Result	
HAST	130 °C / 85% RH / 96 hrs	PASSED	
TCT	-55 °C / 125 °C / 1000 x	PASSED	
HTS	150 °C / 1000 hrs	PASSED	

Device: BGA, Wire diameter: 20 µm, Ball diameter: 44 +/-2 µm

#### **Heraeus Electronics**

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

#### Americas

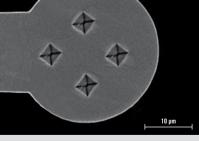
Phone +1 610 825 6050 electronics.americas@heraeus.com Asia Pacific Phone +65 6571 7677 electronics.apac@heraeus.com China Phone +86 21 3357 5457 electronics.china@heraeus.com Europe, Middle East and Africa Phone +49 6181 35 3069 +49 6181 35 3627 electronics.emea@heraeus.com

120 110 Hardness [Hv, 10 mN/5s] 100 90 80 EFO [mA] PdPRo Ref. CuPd PdPRo Ref. CuPd

FAB Hardness Data



N, Layout: HET12002-0516-1



Target FAB: 28  $\mu m,$  Wire Diameter: 18  $\mu m,$  EFO Current / Time: 40 mA / 225  $\mu s$  and 60 mA / 145  $\mu s,$  Bonder Type: iConn

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.