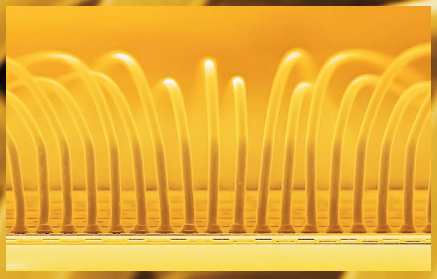
Heraeus



RelMax

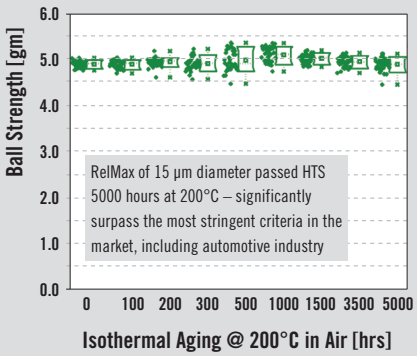
Reliability · Bondability · Ultra Fine Pitch

State-of-the-Art 2N Gold Wire with Ultimate Reliability and Bondability

RelMax Features

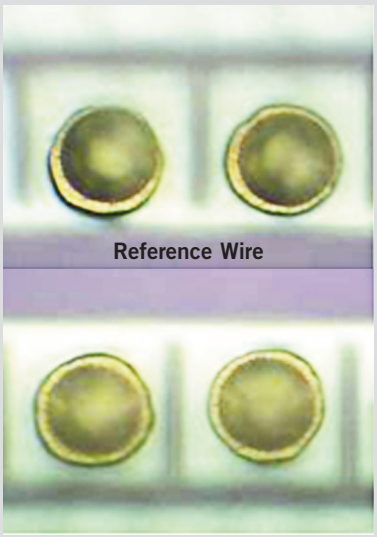
- Ultimate high reliability of 1st bond
- Hassle-free bondability in both 1st and 2nd bond, suitable for both laminate and leadframe devices
- Significantly improved 2nd bond stitch pull value
- Robust 2nd bond at lower parameters
- Improved concentricity of FAB for ultrafine wire bonding
- Soft free air ball, applicable for low-k and sensitive die
- Higher MTBA as compared to other 2N gold wires

Ultimater High Reliability Performance



Bonder: K&S Maxum · Capillary: K&S E18CJ-2010-R33 Device: K&S PBGA test device (35 µm PPB) · Bonded ball diameter: 27 µm · Gold wire: 15 µm

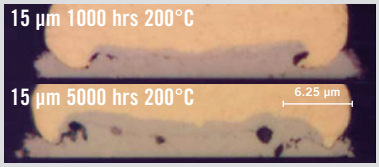
Improved Bonded Ball Concentricity



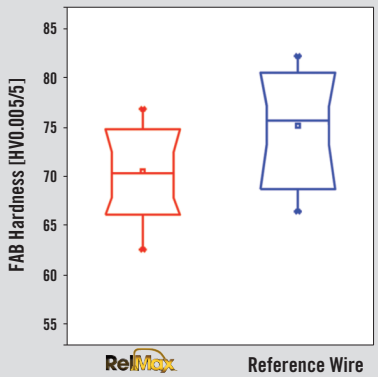
Ultra-fine pitch ball bond concentricity

Wire bonder: K&S Maxum Ultra · Capillary: K&S M18CK-2013-R33 (H15 CD20 T40 OR5 FA08 ICA50°) · Device: K&S PBGA 4x4 test device · Bonded ball diameter: 23 µm · Gold wire: 12.2 µm

Stable intermetallic growth at elevated storage temperature



Soft Free Air Ball



Wire bonder: K&S Maxum · EFO current: 20 mA FAB size: 25 µm · Gold wire: 15 µm

Recommended Technical Data of RelMax

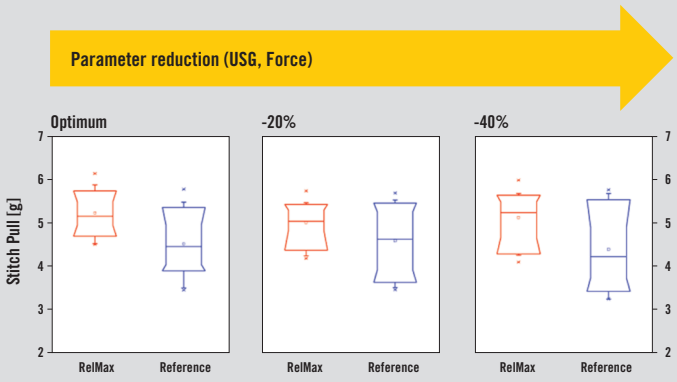
Diameter	Microns	15	18	20	23	25	28	30	33
	Mils	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3
Elongation (%)		2 – 6	2 – 7	3 – 7	3 – 7	3 – 7	3 – 8	3 – 8	3 – 8
Breaking Load (g)		3 – 7	4 – 9	5 – 11	8 – 14	10 – 16	13 – 19	15 – 20	18 – 25

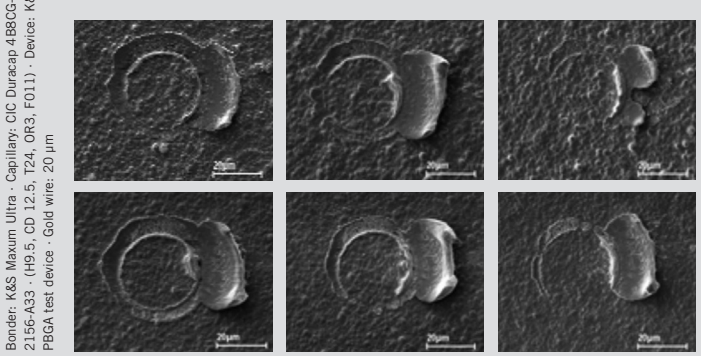
For other diameters, please contact Heraeus Bonding Wires sales representative.

Characteristics

	Diameter at 25 µm	Diameter at 15 µm
Elastic Modulus	~ 90 GPa	~ 90 GPa
Heat Affected Zone (HAZ) at BSR 1.8	35 – 110 µm	35 – 110 µm
FAB Hardness at BSR 1.8	57 – 67 HV (0.01 N/5 s)	57 – 67 HV (0.01 N/5 s)
Fusing Current, dia 10 mm length (in air)	0.37 A	0.23 A
Non-Gold Elements	< 1%	< 1%
Density	19.3 g/cm^3	19.3 g/cm^3
Heat Conductivity	2.3 W/cm·K	2.3 W/cm·K
Electrical Resistivity	3.3 µΩ-cm	3.3 µΩ-cm
Coeff. of Linear Expansion (20 – 100 °C)	14.2 ppm/K	14.2 ppm/K

Maintaining Stitch Pull at Lower Bonding Parameter Setting



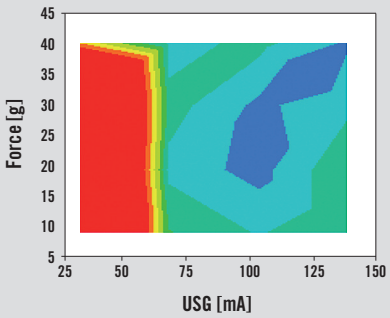


Bonder: K&S Maxum Ultra · Capillary: CIC Duracap 4 B8CG-2156-A33 · (H9.5, CD 12.5, T24, OR3, F011) · Device: K&S PBGA test device · Gold wire: 20 µm

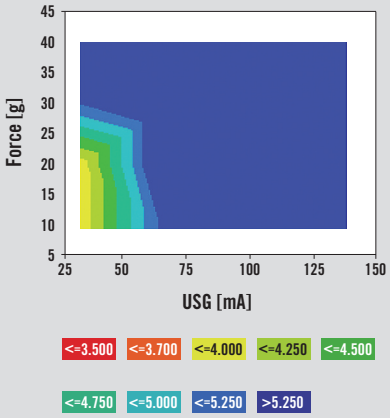
Larger 2nd Bond Window

with Improved Stitch Pull Value

Stitch pull reference 2N wire

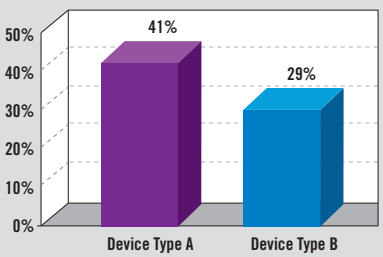


Stitch pull reference RelMax



Wire bonder: K&S Maxum · Capillary: K&S 2CA5768L (H9.5 CD12.5 T24 OR3 F011) · Device: K&S PBGA test device · Gold wire: 20 µm

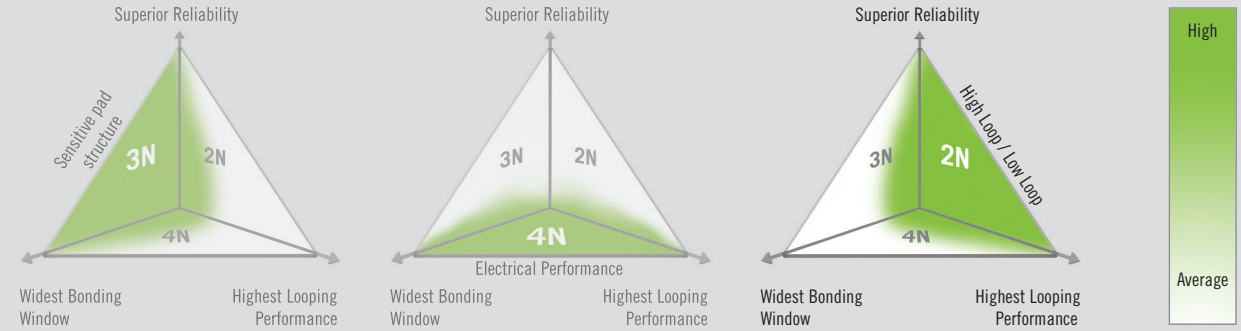
MTBA Improvement over Ref. 2N Wire



Device: BGA
Wire bonder: ASM Eagle 60 AP
Capillary: K&S SI-24060-302F
Gold wire: 20 µm

Device: BGA
Wire bonder: K&S Maxum Plus
Capillary: K&S 488CF-3454-R33
Gold wire: 23 µm

Gold Wire Segmentation by Properties



11.2017/ Layout: HET-MarCom_HET14025-1117-2

The data given here is valid. We reserve the right to make technical alterations.

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