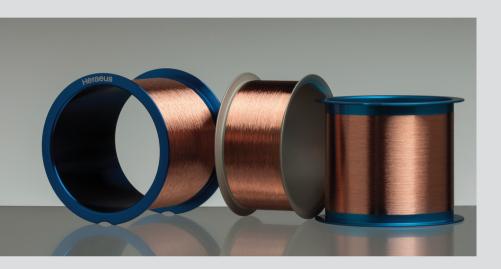
## Heraeus

# MaxSoft2

# Copper Wire for High Pin Count and Fine Pitch Applications



### 

Wire diameter: 20  $\mu$ m, Device: QFP 208L, Capillary: CU-FF-1115-P37 (H:10, CD:12.5, TO:27, OR:01, FA:08),

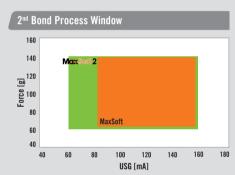
Bonder: iConn, Bonding Temperature: 220 °C



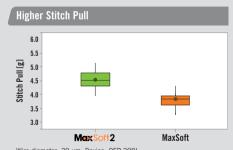
Target FAB: 40 µm Wire Diameter: 0.8 mil EFO Current/Time: 60 mA/265 µs

### MaxSoft2 Benefits & Features

- Higher MTBA (Mean Time Between Assist) and better workability
- ullet Wider  $1^{
  m st}$  and  $2^{
  m nd}$  bond process window
- Able to bond at lower bonding parameter
- Softer FAB (Free Air Ball) & wire hardness
- Available in diameter ranging from
   15 μm to 50 μm (0.6 mil to 2.0 mils)



Wire diameter: 20 µm, Device: QFP 208L, Capillary: CU-FF-1115-P37 (H:10, CD:12.5, T0:27, OR:01, FA:08), Bonder: K&S Maxum, Bonding Temperature: 220 °C



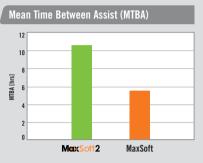
Wire diameter: 20 µm, Device: QFP 208L, Capillary: CU-FF-1115-P37 (H:10, CD:12.5, T0:27, OR:01, FA:08), Bonder: K&S Maxum, Bonding Temperature: 220 °C

Recommended Technical Data of Mox soft 2											
Diameter	Microns	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
Recommended Specs for Ball Bonding											
Elongation (%)		7 – 12	8 - 14	10 - 15	11 - 16	13 – 19	14 - 19	15 - 20	16 – 21	16 – 21	12 - 18
Breaking Load (g)		3 – 5	4 – 6	6 - 8	7 – 10	9 – 12	11 - 14	13 - 16	17 – 21	22 – 30	35 – 45

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

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#### 2 Characteristics for 0.8 mil diameter **Physical Properties** 8.92 g/cm3 Density Melting Point 1081 °C Thermal Conductivity 405 W/m.K Specific Heat Capacity @ 25 °C 419 J/kg.K Coeff. of Thermal Expansion 18.1 μm/m °C, (0 – 100 °C) Electrical Resistivity $1.70~\mu\Omega/cm$ FAB Hardness 80 - 90 (0.01 N/5s) Wire Hardness 82 - 92 (0.01 N/5 s) 80 - 90 GPa Elastic Modulus **Chemical Composition** Cu Purity 99.97 % (min) Other Guidelines Floor Life 7 days Shelf Life Time 6 months Forming Gas (95N<sub>2</sub>:5H<sub>2</sub>) Shielding Gas



	MaxSoft2	MaxSoft
No. of Real Stoppages	3	6
No. and Type of Stoppage	- Short Tail (3x)	- NSOL (3x)
		- Short Tail (3x)

Total Touchdown: 1000 kbonds each wire Wire diameter: 20 µm (0.8 mil) Device: QFP 208L Bonder: K&S Maxum

#### **Reliability Data**

Reliability	Test Conditions	Test Result		
BHAST (Bias HAST) 50 devices		Passed	-	
BPT (Ball Pull Test) $Spec: \geq 2.7 \text{ g}$ $Samples \text{ size} = 30 \text{ readings}$	130 °C / 85%RH +3v / 192 hrs	Passed	Mean = 8.7 g Min = 7.4 g Max = 9.8 g	
BST (Ball Shear Test) $\mbox{Spec:} \geq 14 \mbox{ g}$ $\mbox{Samples size} = 30 \mbox{ readings}$		Passed	Mean = 38.8 g Min = 34.7 g Max = 44.6 g	

Wire diameter: 23 µm, Device: TSOP

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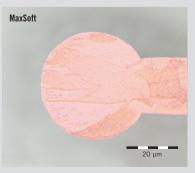
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#### **FAB Morphology**





Target FAB: 40 µm Wire Diameter: 0.8 mil EFO Current/Time: 60 mA/265 μs Bonder: 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.