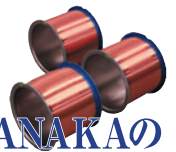


Cu Bonding Wire

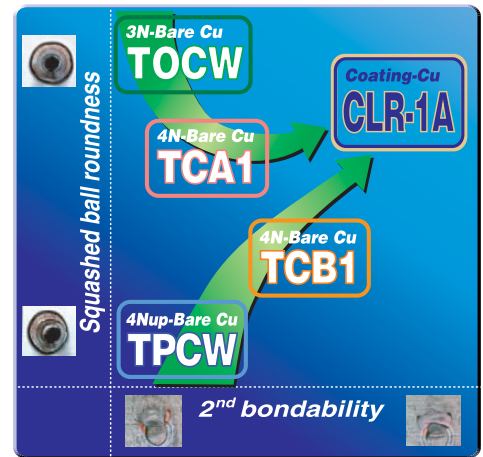
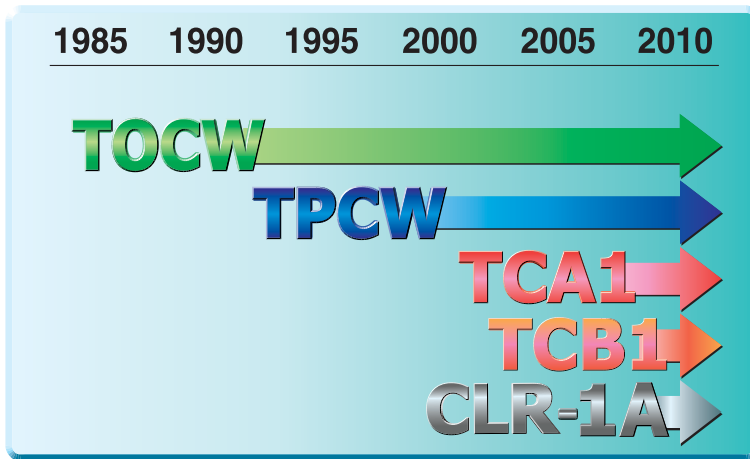
使用実績の豊富なTANAKAの
Cuボンディングワイヤ



- 電気材料として優れた物性を有したCuボンディングワイヤ。
- Cu bonding wire that has excellent properties as electric material.

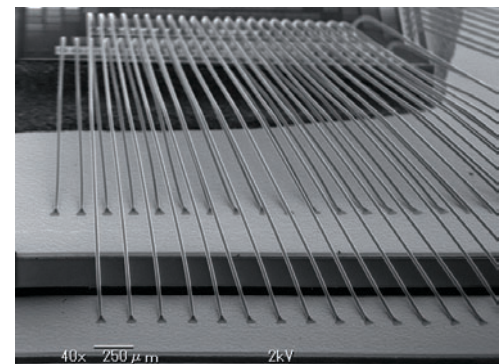
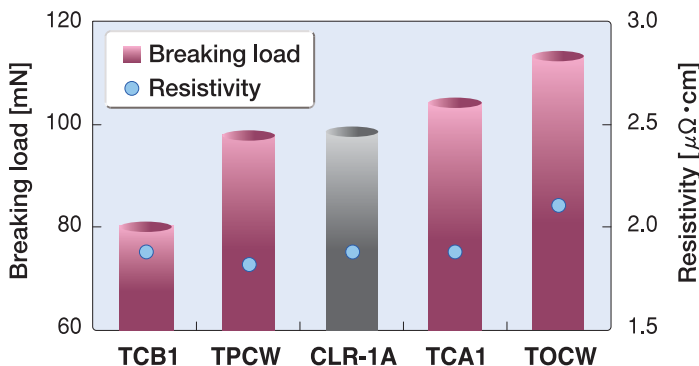
			Cu	Au	
Diffusion coefficient to Al Al中での拡散係数	(448K)	$\times 10^{19}$	[m ² /s]	0.092	3.9
Fusing current 溶断電流(実測値)	($\phi 25\mu\text{m}$, Loop length 4mm)		[A]	0.70	0.60
Coefficient of Linear expansion 線膨張係数	(273~373K)		[$\times 10^{-6} \cdot \text{K}^{-1}$]	17.0	14.1
Vicker's hardness of cross section of FAB FAB断面のHv硬さ			[Hv]	60~80	40~50

- 30年来の製造実績とAuボンディングワイヤで培った品質管理により、安定したパフォーマンスを発揮。
- Stable wire bonding performance by the preeminent quality control system and over 30 years manufacturing experiences.



Cu Bonding Wire

- 軟質系から硬質な部類までのラインアップを展開。ディスクリートはもちろん、汎用ICパッケージにまで対応。
- Wires from a softness series to a hardness series are presented. It is possible to use general-purpose IC packages, not to mention Discrete device.



TCA1/TCB1

Standard Cu Bonding Wire 標準的なCuボンディングワイヤ



Characteristics

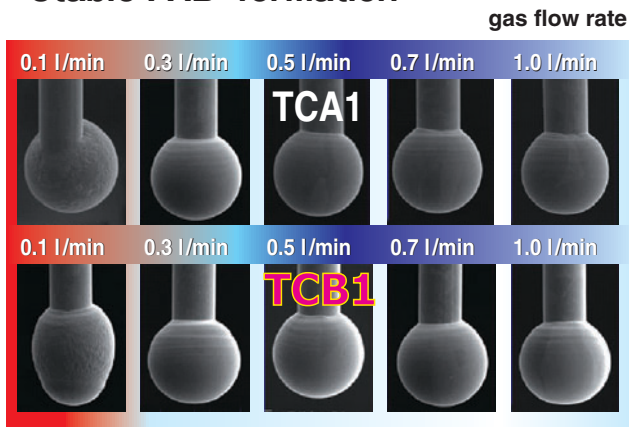
- Manufacturing experiences for LSI
- Stable FAB and squashed ball roundness
- Stable and low deformability

特徴

- 汎用LSIへの量産実績
- 安定したFAB形成性と圧着真円性
- 低く安定した変形性能

Free Air Ball shape

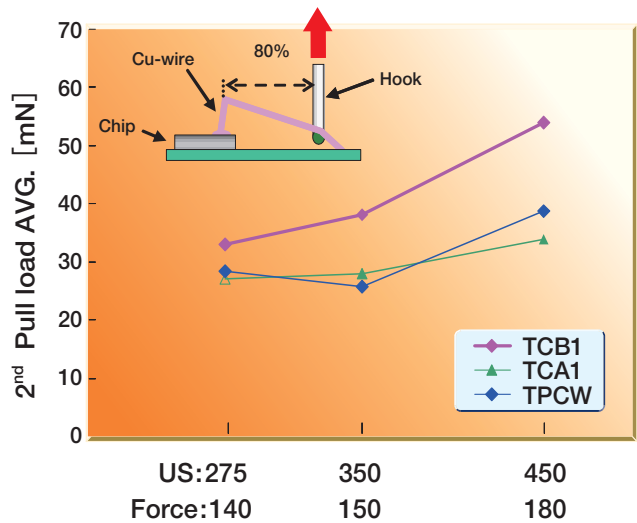
● Stable FAB formation



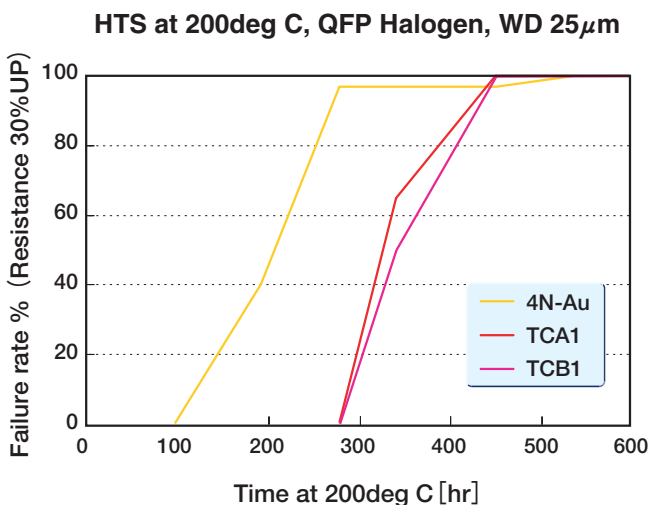
- *Wire diameter: 25 μ m
- *Forming gas: N₂+5%H₂
- *All data by ©SHINKAWA LTD. UTC-1000 with copper kit

2nd Bondability

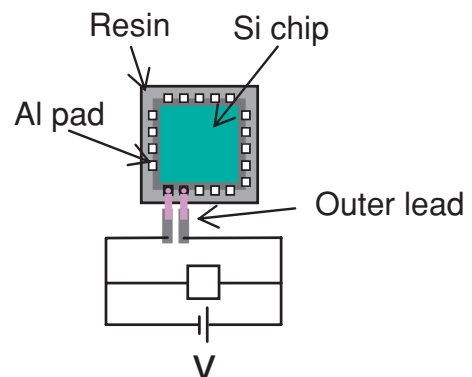
● Bond for QFN(PPF) higher 2nd pull load



Reliability



Electrical resistance on HTS



- Mold resin: Nitto Denko: MP-8000CH
- Mold temperature: 180 deg C
- Cure: 175 deg C, 5hrs
- Temperature: 200 deg C
- In the Air

TCA1 / TCB1

CLR-1A High Performance Cu Bonding Wire

高性能Cuボンディングワイヤ



Characteristics

- High and stable bondability
- Excellent reliability
- Wide bonding window

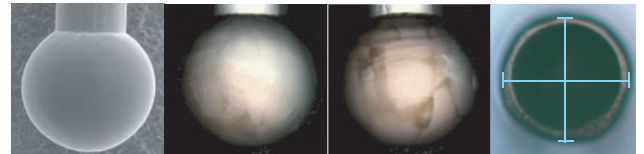
特徴

- 高く安定したステッチ接合性
- 優れた接合信頼性
- 広いボンディングウィンドウ

Characteristics of CAR-1A

New	Wire cost	Squashed ball roundness	2nd bondability	Capillary life
CLR-1A	★★★★	★★★★★	★★★★★	★★★★
Bare Cu	★★★★★	★★★	★	★★★
Au	★	★★★★★	★★★★★	★★★★★

FAB Shape and Roundness



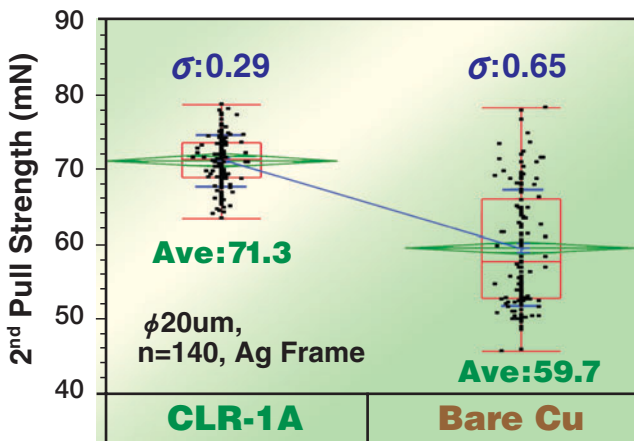
Wire ϕ 0.78mil
FAB ϕ 1.5mil

45mA
337ms

90mA
136ms

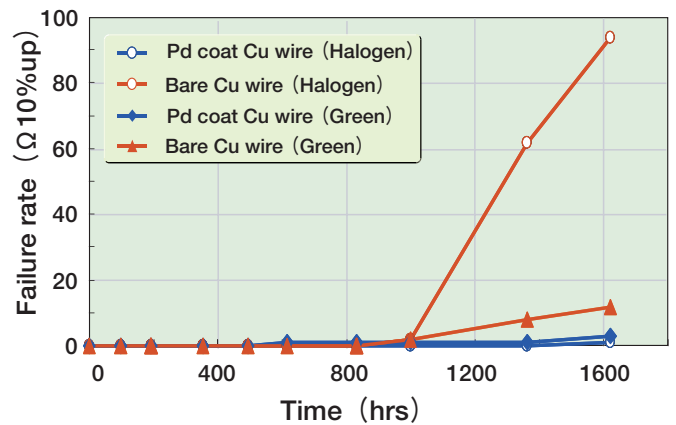
$\sigma_{x-y}=0.9$

2nd Bondability

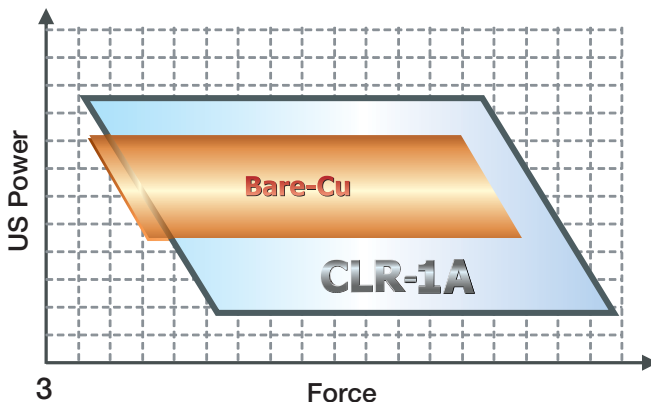


Reliability

Electrical resistance on uHAST



Stitch Bond Parameter Window



Storage Condition: 130°C 85%
Failure = $\Delta R/R0 > 10\%$
Wire Diameter: 25 μ m
BGA Substrate (FR-4)
Mold resin: Conventional type