

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

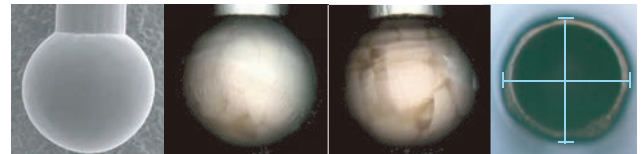
特徴

- 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インドウ

Characteristics of CLR-1A

	Wire cost	Squashed ball roundness	2nd bondability	Capillary life
CLR-1A	★★★	★★★★★	★★★★★	★★★★
Bare Cu	★★★★★	★★★	★	★★★★
4NAuWire	★	★★★★★	★★★★★	★★★★★

FAB Shape and Roundness



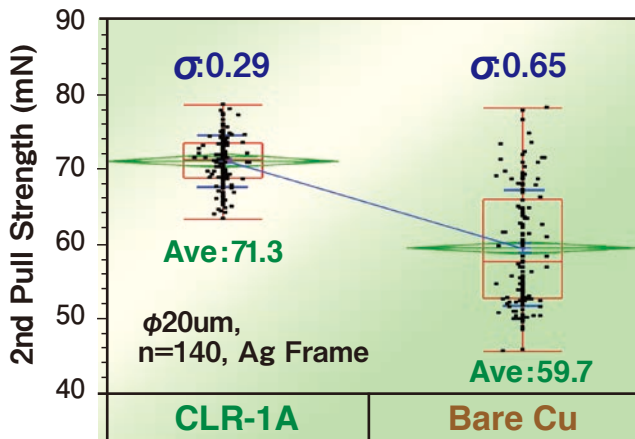
Wire ϕ 0.78mil
FAB ϕ 1.5mil

45mA
337ms

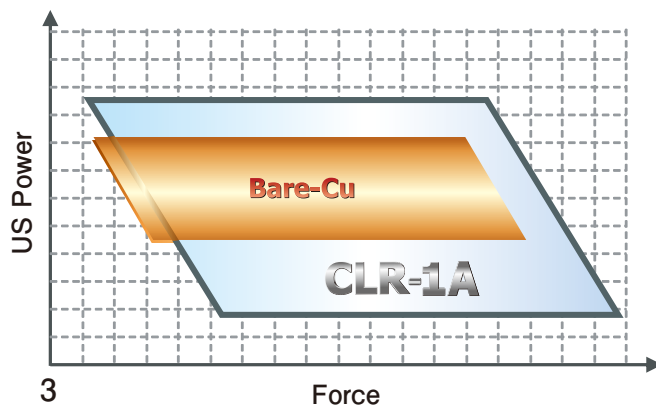
90mA
136ms

$\sigma_{x-y}=0.9$

2nd Bondability

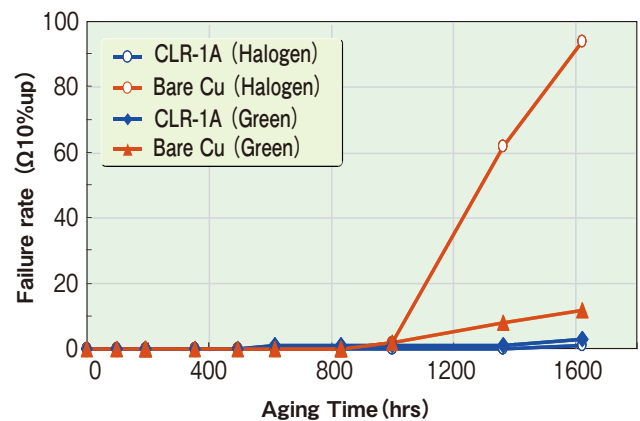


2nd Bond Parameter Window



Reliability

Electrical resistance on uHAST



Storage Condition: 130°C 85%
 Failure = $\Delta R/R_0 > 10\%$
 Wire Diameter: 25 μm
 BGA Substrate (FR-4)
 Mold resin: Conventional type

CLR-1A Data Sheet
General Properties

Wire Diameter (um)	15	18	20	23	25	28	30	32	35	38	ASTM F205-94
Tolerance (um)	+/- 1.0										
Weight (mg/200mm)	0.276-0.361	0.407-0.509	0.509-0.621	0.682-0.812	0.812-0.952	1.027-1.185	1.185-1.354	1.354-1.534	1.629-1.826	1.929-2.143	
Breaking Load (gf)	Tensile Tester Jaw Length = 100mm Production Guide 2012-3 10H										
Elongation (%)											
	Room Temp.	3.0 - 13.0	5.0 - 15.0				7.0 - 20.0				

Physical Property

Hardness (HV)	Free Air Ball	65 - 85										Vickers tester
	HAZ	75 - 90										
	Wire	80 - 100										
Density (g/cm ³)	8.97										Calculated Value	
Resistivity (uΩcm) @ 20°C	1.9										4 terminal method	
Fusing Current (A, Length=3mm,10sec)	0.4*	0.6	0.7	0.9	1.1	1.4	1.6	1.9	2.3	2.7	Theoretical Value (*Out of applicable W.D.)	
Electrical resistance (Ω, Length 10mm, Room Temp.)	0.94 - 1.23	0.67 - 0.84	0.55 - 0.67	0.42 - 0.50	0.36 - 0.42	0.29 - 0.33	0.25 - 0.29	0.22 - 0.25	0.19 - 0.21	0.16 - 0.18	Calculated Value	
Thermal Conductivity @ 20°C (W/m/K)	385										Theoretical Value	
Linear Expansion Coefficient (0-100°C) (ppm/K)	17.0										Metals Data Book	
Elastic Modulus (GPa)	60 - 85										Tensile Tester	
Melting Point (°C)	1,083										Chemical Book	