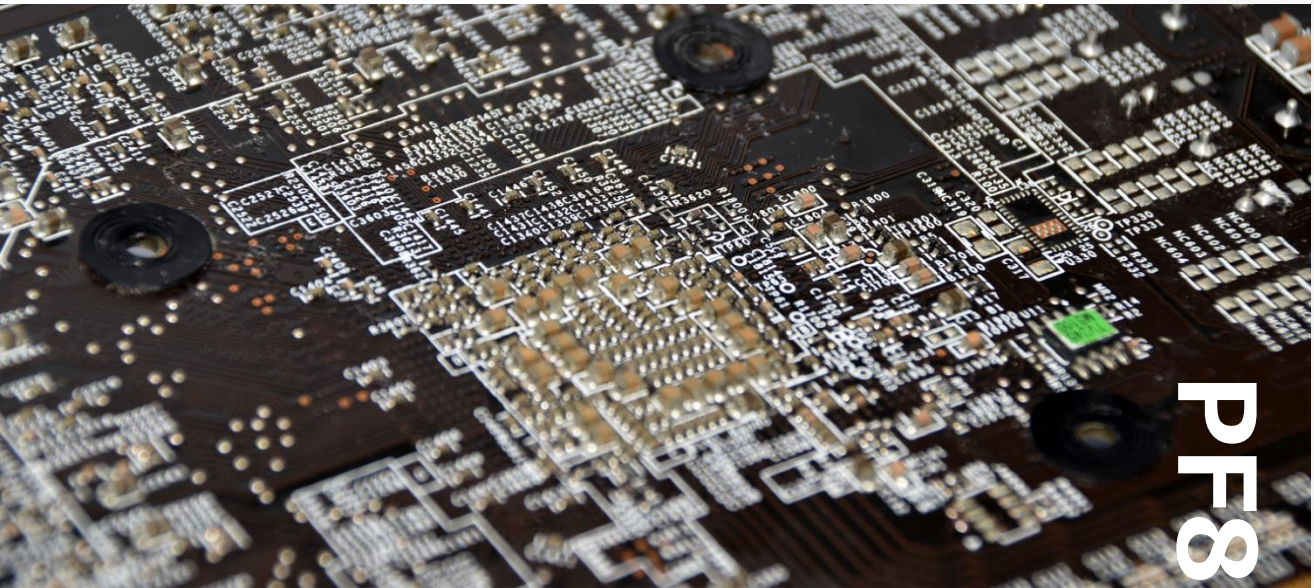


Highly reliable solder alloy
SnSb alloy solder paste for power module application

PF830-150TO(A1)

Low void solder paste with highly reliable alloy

- Features high reliable alloy suitable for power module application
- Adopts optimum flux available bonding under chip and under DBC
- Realize low void bonding even under Ni-plated DBC



Lead free Solder Paste for Power Module

PF830-150TO(A1)

● General Characteristics

Item	Representative value	試験方法	
Alloy Composition	Sn-8.0Sb-3.0Ag	—	
Particle Size	20 to 38µm	—	
Flux Content	12.5 wt%	JIS Z 3197	
Halide Content	0.03%	JIS Z 3197	
Flux type	ROH1	IPC J-STD-004	
Copper Plate Corrosion Test	No Corrosion	JIS Z 3197	
Silver Chromate Paper Test	No Change	JIS Z 3197	
Insulation Resistance Test	40°C90%RH after 168H	1.0×10 ¹¹ Ω or more	JIS Z 3197
	85°C85%RH after 168H	1.0×10 ⁸ Ω or more	JIS Z 3197
Tack time at 100gf or more	24 hours	JIS Z 3284	
Fluid Characteristics	Viscosity	200 Pa · s	JIS Z 3284
	Ti-value	0.50	JIS Z 3284

The above figures are representative values, not guaranteed specification. Available customization for alloy composition, particle size and flux content. Please ask our sales staff for more details.

PF830-150TO(A1)

Highly reliable alloy
low void solder paste

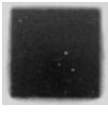
Highly reliable Sn-Sb Solute Strengthening & Sn-Ag precipitation Strengthening

	Unit	Representative values			Test Method
Nihon Handa Alloy Number	—	PF830	24	PF305	—
Solder Alloy	—	Sn-8.0Sb-3.0Ag	Sn-5.0Sb	Sn-3.0Ag-0.5Cu	--
Solidus – Liquidus	deg. C	232 – 252	235 – 240	217 – 219	JIS Z 3198
Gravity	g/cm ³	7.3	7.3	7.4	Theoretical Calculation
Tensile Strength	MPa	75.8	38.1	40.6	Tensile Test Method
Elongation	%	36.6	53.4	66.5	Tensile Test Method
Young's Modulus	GPa	59.0	46.9	50.1	Ultrasonography
Poisson's Rate	—	0.29	0.36	0.33	Ultrasonography
Thermal Conductivity	W/m · K	41.6	39.8	55.0	Xe Flash Method
Linear Expansion Coefficient	ppm/°C	24.2	26.4	21.0	TMA

Optimum flux performance suitable for bonding power module


Chip

PF830-150TO(A1)



Void rate : 0.4%

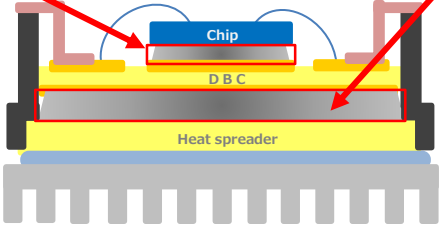
Conventional product



Void rate : 0.8%

Ni-Au plated Si chip (4mm²)


High suppression effect to void occurrence for versatile bonding areas



Test substrate : Ni-plated board
Reflow condition : Peak 270deg., O₂ 1000ppm or less
Evacuation time 40sec., Ultimate vacuum 2kPa

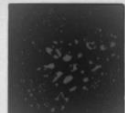
DBC

PF830-150TO(A1)



Void rate : 2.9%

Conventional product



Void rate : 6.9%

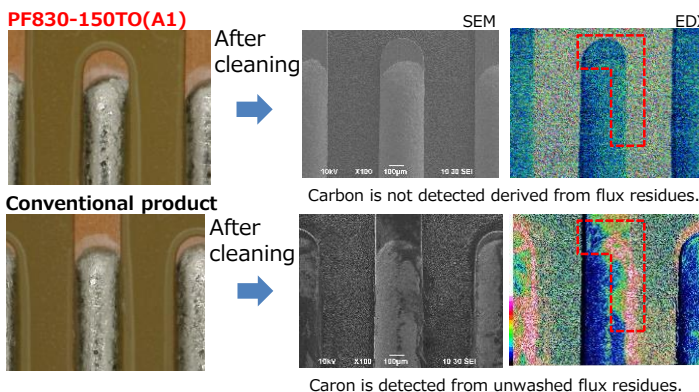
Ni-plated board (40mm²)

Good wettability



[Test condition]
Part : 2012 chip condenser, Sn plated
Thickness of stencil : t=0.15mm
Reflow condition : Peak temp. 270deg. C, O₂ 1000ppm

Good detergency of flux residues



[Test condition]
Substrate : JIS II Interdigitated array substrate
Reflow condition : Peak temp. 80deg. C O₂ 1000ppm
Cleaning method : Stir washing with hydro-carbon detergent for 5min. and dried in hot air

Lead free Solder Paste for Power Module

PF830-150TO(A1)