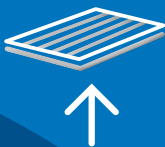


SOL328 Series



efficiency

BACK-SIDE PASTE



New Generation PERC Back-side Tabbing Paste

- Higher efficiency for PERC with Less fire-through/penetration into the passivation
- Better compatibility with PERC Al
- Wide product portfolio, low Ag content for COO

Based on Heraeus' Award-winning tabbing paste, the newly developed low-activity SOL328 series enables PERC and floating busbar design cells to have higher efficiency and longer term reliability. SOL328 contains a specially designed glass chemistry, imparting a controlled reaction between the Ag paste and dielectric layer, and offers at the same time, in combination with an optimized Ag system, higher aged adhesion on wafers with different morphology.

The SOL328 is designed to maximize the protection of the dielectric layer of PERC cells from damage during metallization, thus contributing to reduce electron recombination. In addition to excellent solderability and adhesion, it can be co-fired with commercially available PERC Aluminum paste. Due to its unique features, SOL328 Series shows wider firing temperature, higher Voc and improved cell efficiencies of 20+ % with low Ag content for COO .

KEY BENEFITS

- Less fire-through/penetration into the passivation
- Better compatibility with PERC Al Paste
- Low Ag content for COO
SOL328C, 55 %
SOL328D: 51 %
- Higher efficiency on PERC from Voc gain
- Excellent adhesion and aged adhesion
- Wide soldering window, compatible with PERC
- Wide product portfolio with different Ag content

BETTER PROTECTED PASSIVATION LAYER FOR HIGHER CELL EFFICIENCY

Especially for the SOL328 Series, Heraeus has developed a new glass formulation and paste additives, which helps to minimize defects on the emitter during the metallization process, resulting in less fire-through/penetration into the passivation and offering, in combination with the controlled Ag/glass interaction, for higher adhesion and higher aged adhesion(See Figure 2). It also shows the feature of being able to co-fired with commercially available PERC Aluminum paste(See Figure 1).

With these properties, SOL328 Series enables higher cell efficiencies of 20+%, with improved Voc as well as module reliability.

Due to its unique features, SOL328 Series shows wider firing temperature, higher Voc and improved cell efficiencies of 20+% with low Ag content for COO(See Figure 3).

SOL326 Series offers improved Voc

Reference: SOL328A smooth surface,
Al beads during firing good Ag/Al compatibility

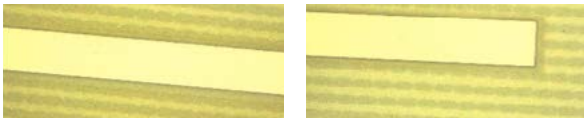


Figure 1: SOL328A shows better Ag/Al compatibility

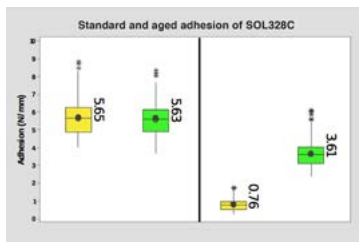


Figure 2: SOL328 Series offers higher aged adhesion, compared to a control paste with very low aged adhesion

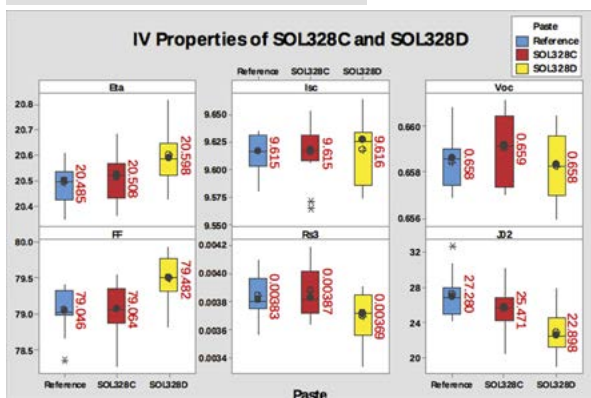


Figure 4: SOL328D offers better COO with improved eta

TYPICAL PROPERTIES

Wafer types:

- Monocrystalline PERC
- Multicrystalline PERC

Solid content:

- SOL328A:** solid 68 +/- 2 %
- SOL328B:** solid 62 +/- 2 %

Viscosity:

60–150 kcps
CPE-51 spindle, @ 1 RPM, 25°C

Fineness of Grind (FOG):

4th scratch: ≤ 12 μm
50%: ≤ 8 μm

RECOMMENDED PROCESSING GUIDELINES

Printing: Stainless steel screen:

230 to 360 mesh, 16–36 μm wire

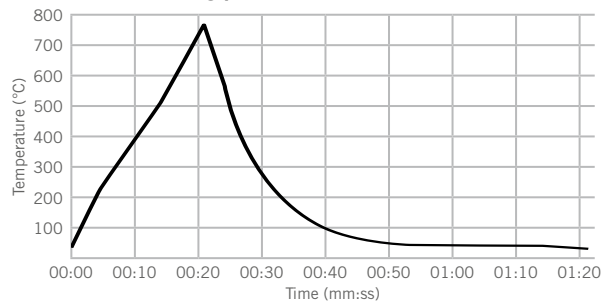
Drying: Typically dried in an IR dryer with set points of

250–300°C in less than 20 seconds

Firing:

IR Furnace with Actual Wafer Peak Temperature at 740–800°C profile

Recommended firing profile:



Contact your AE partner for individual advice...

Storage:

DO NOT REFRIGERATE.

Store in a dry location at 5°C–25°C. Allow paste to come to room temperature prior to opening. Spatulate well before using.

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