



VersaEtch™ Etchant/n-Dopant

Features:

Single-Formula Etchant/Dopant

Enhanced Cell Efficiency

Etch Precise, Narrow Features

Reduced Wafer Scrap

Simplified Processes

Industry-Leading Durability

For more information on Trident Solar, visit www.tridentsolarcell.com

In North and South America contact: Steve Liker, Business Manager, Trident
Email: sliker@trident-itw.com
Phone: +1.203.740.9333 ext. 3037

In Europe contact Des O'Neill, European Sales Manager at Trident Europe
Email: doneill@trident-itw.com
Phone: +353.1.8014004

In Asia contact Kay Chino, Asia Sales Manager at Trident Asia
Email: kchino@trident-itw.com
Phone: +81.297.61.5860

VersaEtch™ Etchant/n-Dopant

Single-Formula Selective Emitter Solution for Solar Front Contacts

The new single-formula VersaEtch™ Etchant / n-Dopant material for inkjet selective emitter application of solar front contacts (c-Si) was developed in response to market demand for a solar inkjet solution capable of matching the enhanced cell efficiency and precise deposition performance of other selective emitter approaches, while offering the additional benefits of being non-contact, single-step, and cost-effective.

Single-Formula Etchant/Dopant

VersaEtch enables a single-formula, non-contact process for producing front solar contacts by etching through the SiNx ARC layer then diffusion doping the silicon emitter preparing the surface for increased efficiency, screen printed silver contact fingers.

Enhanced Cell Efficiency

Used with the Trident 256Jet-S printhead, VersaEtch can match the enhanced cell efficiency (0.5%-1.0%) of other selective emitter approaches..

Etch Precise, Narrow 50 Micron Features

Together, the VersaEtch Etchant/n-Dopant and 256Jet-S printhead have demonstrated capability to etch precise 50 micron features.

Reduced Wafer Scrap

As a non-contact process, use of the VersaEtch Etchant/n-Dopant can result in up to a 10x reduction in costly wafer scrap compared to the use of contact selective emitter processes such as screen etching or

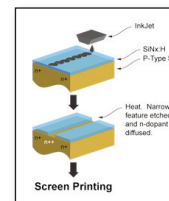
laser etching. Scrap rates currently range from 0.5 -1.0% and can be reduced to as low as 0.1%.

Simplified Processes

Combining the etching and doping processes also eliminates the need for very precise alignment of etchant and dopant in two separate processes.

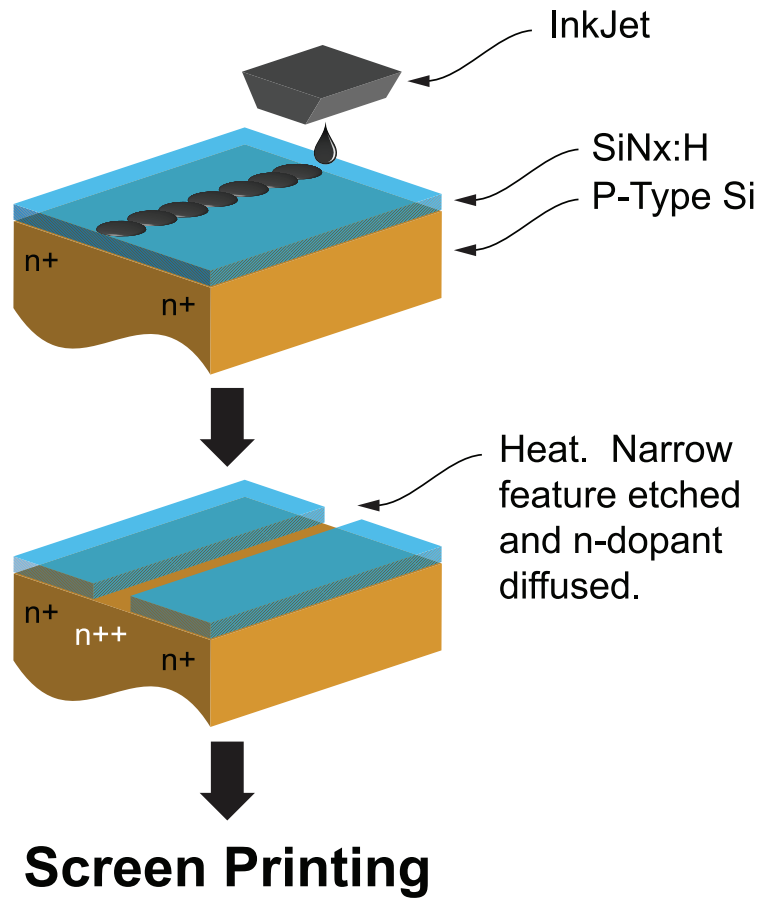
Industry-Leading Durability

The Trident 256Jet-S industrial printhead was specifically designed for solar applications. The printhead features stainless steel construction for chemical inertness and a unique repairable design – that allows the nozzle plate to be disassembled, ultrasonically cleaned and reassembled. These features allow the 256Jet-S printhead to last up to 5 times longer than alternative inkjet printheads.



See diagram on back »

InkJet Etchant & Dopant Combination



2011-VersaEtch01. VersaEtch™, was developed and is manufactured by Alpha PV Technologies (patent pending) for Trident Solar through the collaborative effort of both companies. VersaEtch™ is cell manufacturing ready.