

SiGen PolyMax™ Enhanced Thin PV Wafers Technology at a Glance

SiGen has extended its layer transfer expertise to the cleaving of mono-crystalline PV wafers for the solar industry.

SiGen PolyMax™ technology provides thin wafers at a lower production cost, with enhanced wafer properties, benefiting the entire PV chain, and driving it to lower dollar per watt (\$/W).

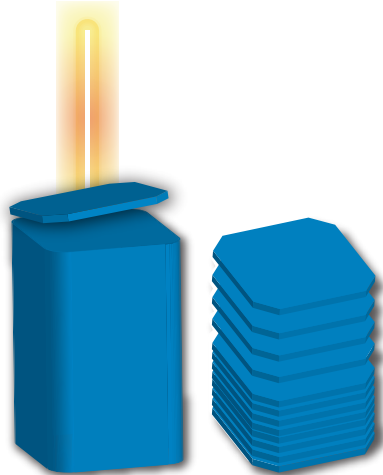
SiGen PolyMax approach to wafering is a two-step process:

Implant & Cleave

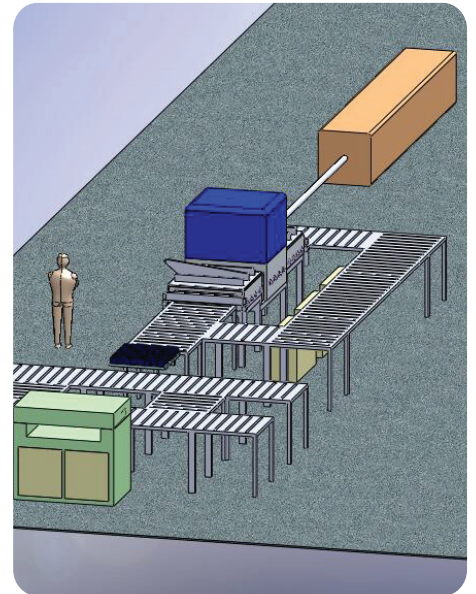
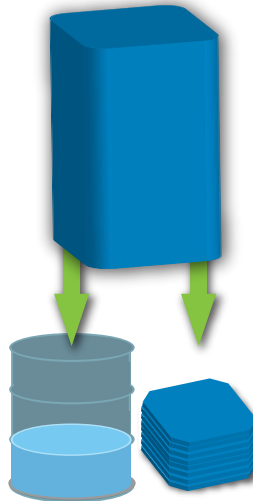
- ▶ Eliminates kerf loss
- ▶ Improved utilization of Si: about 2-4x gm/W vs. wire-saw
- ▶ 1\$/wafer less vs. wire-saw
- ▶ Eliminates consumables

SiGen PolyMax™

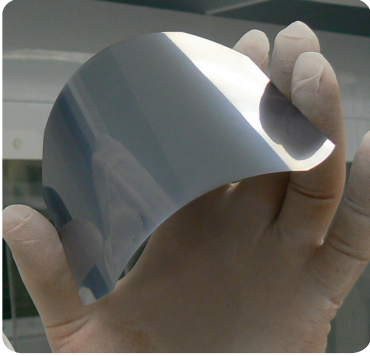
Direct Cleave Process



Wire Saw

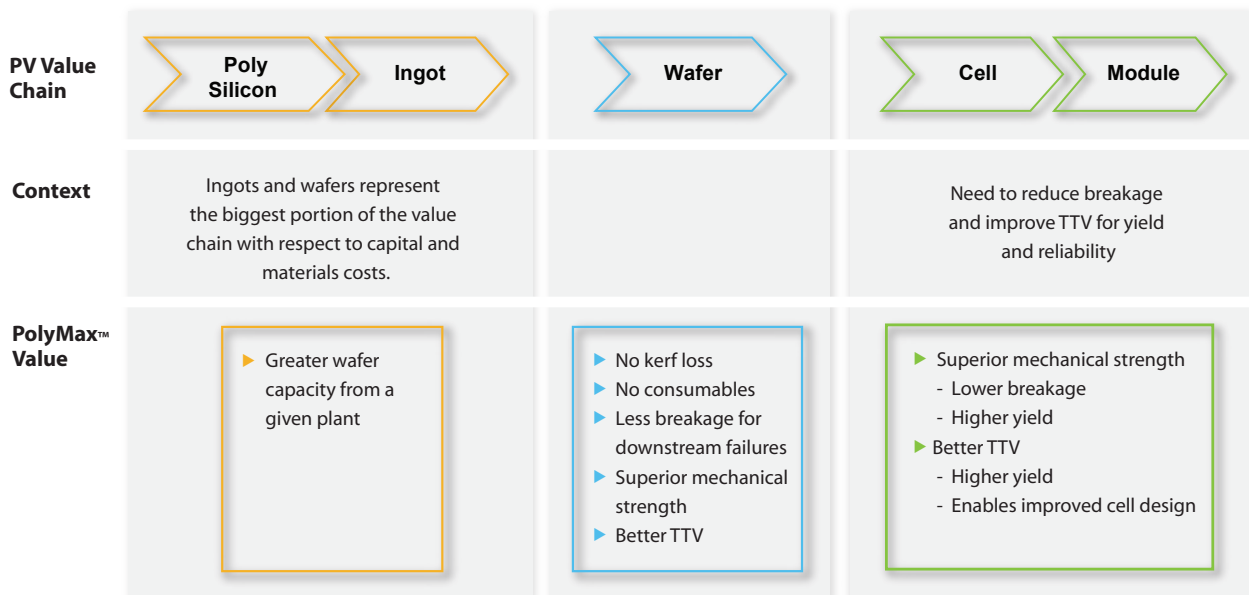


SiGen PolyMax enhanced silicon has unique wafers characteristics:



- ▶ No lifetime degradation – with recovery
- ▶ Thickness uniformity – TTV < 5%
- ▶ Mechanical strength – 10x stronger
- ▶ Low surface roughness
- ▶ Less breakage for downstream failures
- ▶ Inherent thickness scalability - 50µm-150 µm

PolyMax benefits cascade to all links in the PV production chain and PolyMax enhanced silicon adds value to the full chain resulting in lower \$/W.



PolyMax: Revolutionary Cost Impact

Available State of the Art Technology

- ▶ 200µm Wafer Thickness/150µm kerf loss
- ▶ 15.5% cell efficiency
- ▶ Required feedstock material: 4,500 tons
- ▶ Cost: \$1/W
- ▶ Output: 500MW/year

PolyMax

- ▶ 150µm Wafer Thickness/No kerf-loss (*)
- ▶ 15.5% cell efficiency (**)
- ▶ Required feedstock material: 2,000 tons
- ▶ Cost: \$0.5/W (***)
- ▶ Output: 500 MW/year

(*) For comparison used 150µm. Scalability 50µm to 150µm

(**) For comparison purpose. Potentially higher cell conversion efficiency

(***) Assumption is \$100/kg for polysilicon



Silicon Genesis, Inc.
 61 Daggett Drive
 San Jose, CA 95134
 T: 408.228.5858 F: 408.228.5859

For more information about Silicon Genesis, please refer to our web site:

www.sigen.com

© 2008 Silicon Genesis Corporation.
 All rights reserved.
 GDE-8/08