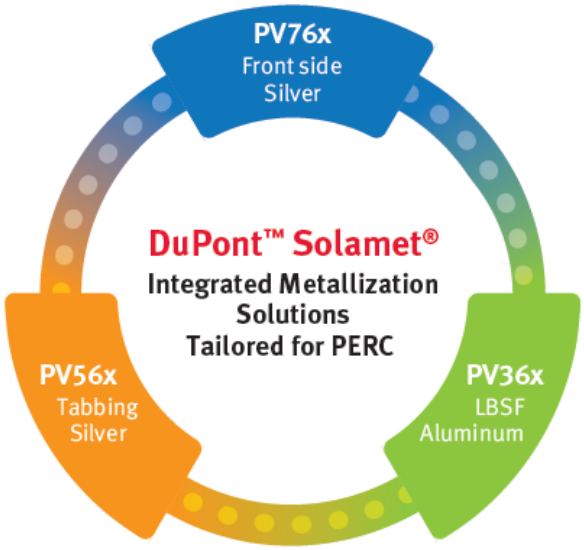
DuPont™ Solamet® Integrated Metallization Solutions for PERC

DuPont Microcircuit Materials

DuPont™ Solamet® Integrated Metallization Solutions for PERC with

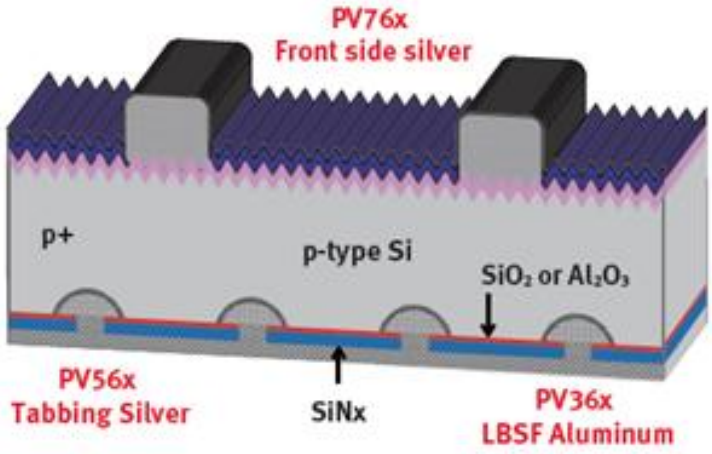
- PV76x Front Side Silver Paste
- PV56x Back Side Tabbing Silver Paste
- PV36x Aluminum Paste



- Paste Package Designed for PERC
- Excellent Efficiency at Lower Firing Temp.
- Minimal Damage to Rear-side Passivation
- Proven Module Reliability

Efficiency gain exceeding 0.15% in production by the integrated solutions for PERC

PERC Cell Structure



Key Benefits of PERC vs. Conventional Cells

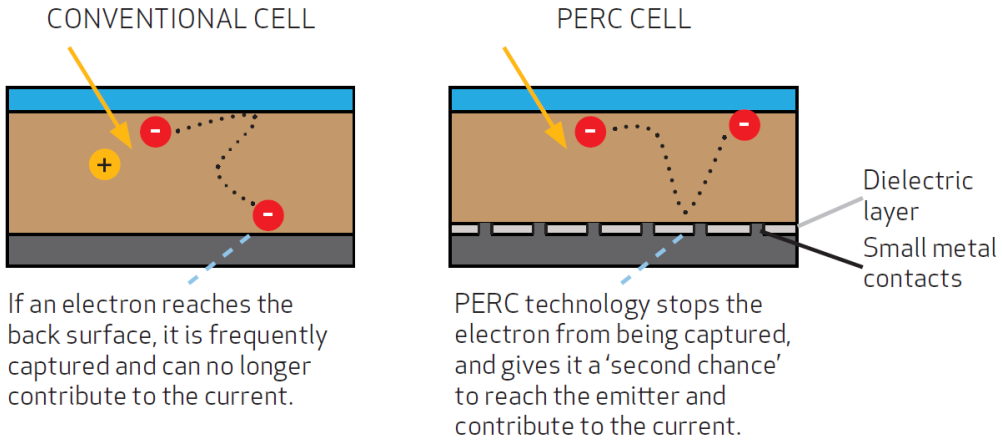
- Minimized surface recombination velocity (SRV)
- Increased internal reflectivity
- Higher Voc, Jsc, and cell efficiency (over 1%)

Other benefits

- Minor change in the cell/module production
- Necessary for thin wafers (<150um)

Key Benefits of PERC Cells Explained

1. Minimized surface recombination velocity (SRV) improving cell voltage (Voc) and current (Jsc)



2. Increased internal reflectivity improving cell current (Jsc)

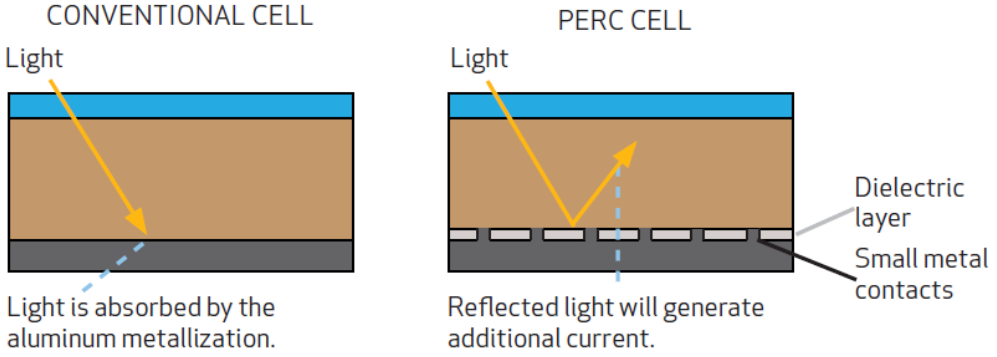
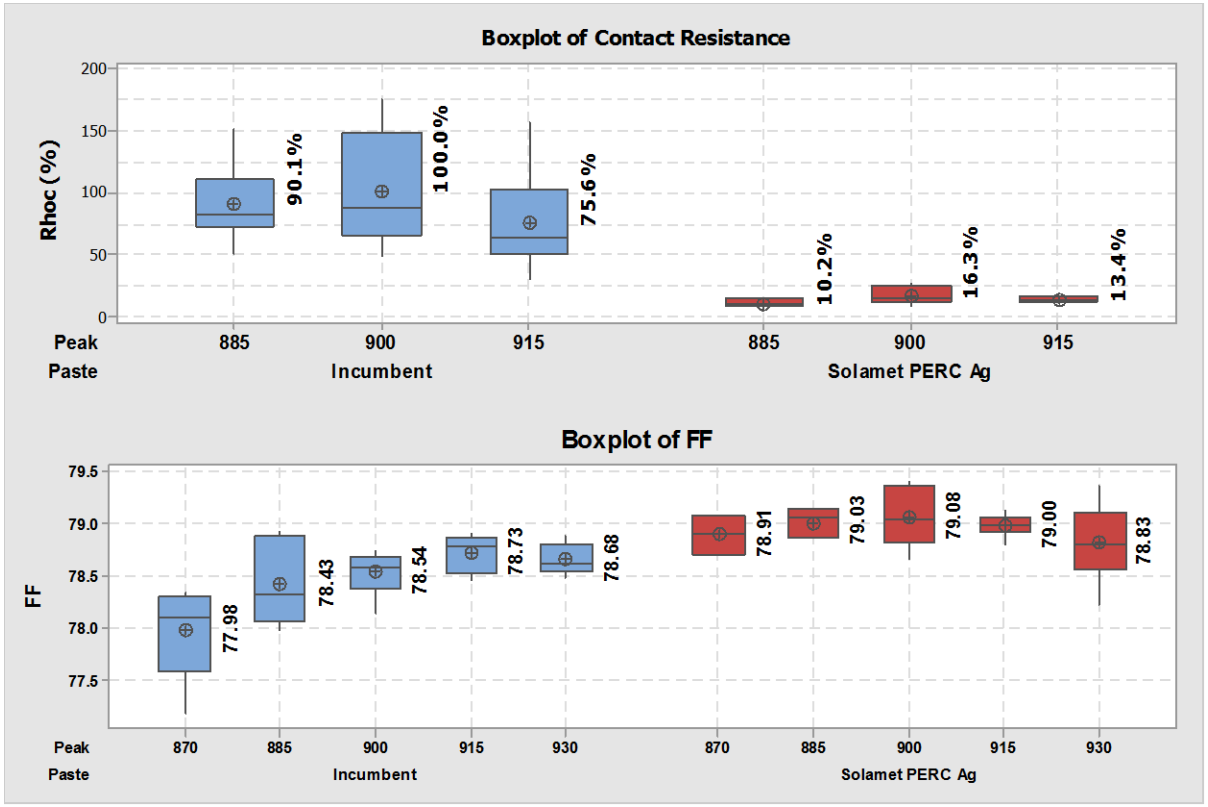


Image Source: REC Solar (www.recgroup.com)

DuPont™ Solamet® PV76x Front Side Silver Paste Designed for PERC

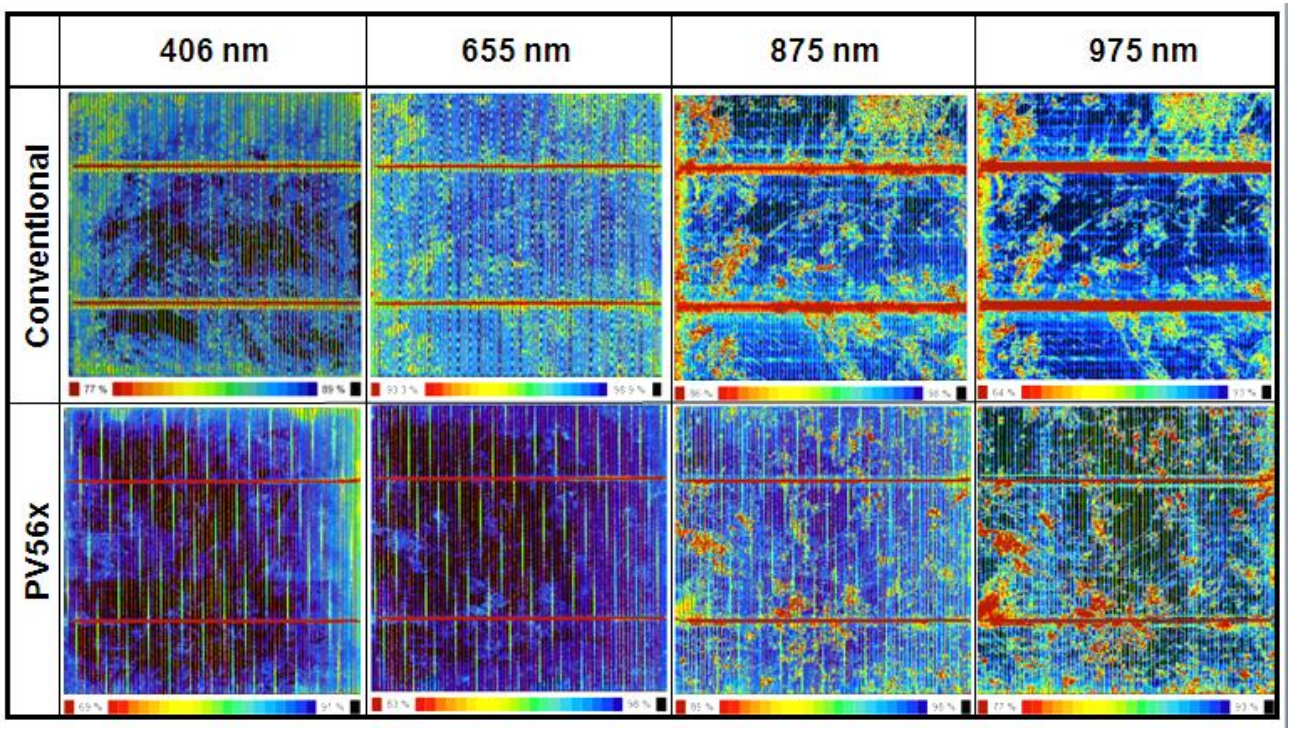


- Excellent contact performance at lower peak firing temperatures
- Lower firing temperature reduces voids and passivation damage

>0.15% cell efficiency gain vs. conventional front side pastes

DuPont™ Solamet® PV56x Tabbing Silver Paste Designed for PERC

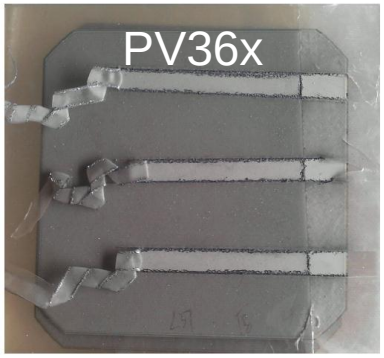
LBIC Test

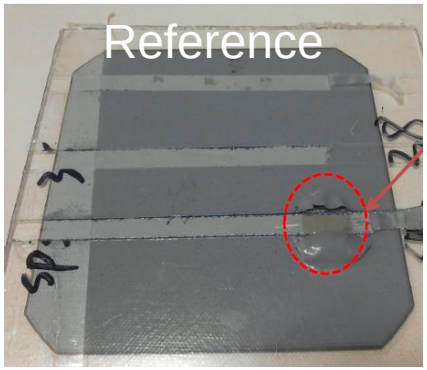


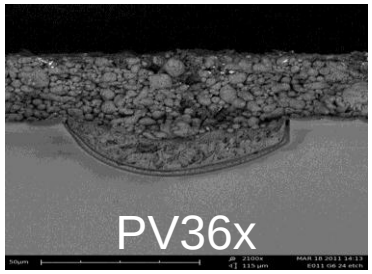
- Reduced rear passivation damage
- Whilst maintaining excellent adhesion to passivation layer

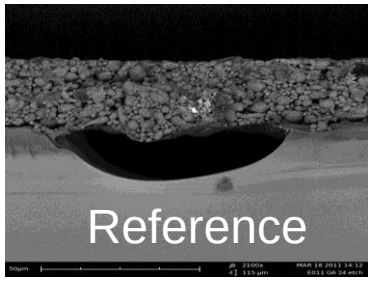
Delivers up to 0.05% efficiency gain vs. conventional tabbing

DuPont™ Solamet® PV36x Local Back Surface Field (LBSF) Aluminum Designed for PERC



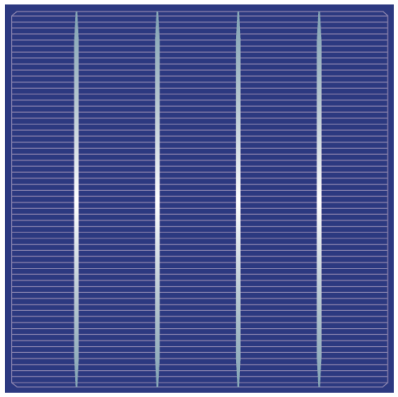






- **Strong adhesion to passivation delivering reliable module performance**
- **Innovative glass and Al powder technology for better local contact**

Proven Performance on Industry Leading Multi PERC



Latest Solartech High Efficiency Sapphire Multi-Crystalline PERC Solar Cell:	
效率 Efficiency	19.65%
Voc	656.6mV
Jsc	37.41mA/cm²
FF	80.02%

Image and data courtesy of Solartech Corp.

- DuPont collaborated with Solartech to demonstrate the performance of DuPont™ Solamet® Integrated Solutions for Multi PERC
- With PV76x/PV56x/PV36x Solartech achieved a record 19.65% cell efficiency
- The power output of Solartech's latest "Sapphire" series panels has reached 290Wp in 60 cell format

Read more at: http://www.dupont.com/products-and-services/solar-photovoltaic-materials/media/press-releases/20150409-dupont-introduces-solamet-pv76x.html

Proven Performance on Industry Leading Mono PERC

Image courtesy of TSEC

- DuPont collaborated with TSEC to develop front and rear side silver pastes optimized to maximize PERC cell performance
- With the new PERC pastes TSEC gained 0.15% cell efficiency to reach over 21%
- The power output of TSEC's newest "V-Series" panels is more than 300Wp and 360Wp in 60-cell and 72-cell configuration respectively

Read more at: http://www.dupont.com/products-and-services/solar-photovoltaic-materials/media/press-releases/20150224-dupont-tsec-high-efficiency-solar-panels.html

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