

PV-ARC

PV-ARC is the best measurement technology for textured (poly) crystalline silicon solar cell

PV-ARC can directly measure the reflectivity from ARC layer on textured PV with 100 μm beam size.

Average thickness of ARC on top of peaks and valleys of pyramid structure of textured PV can be directly measured.

No tilt of sample is necessary even though the directions of pyramid are random.

No standard reference (ex. Silicon) is needed during operation, because it calibrates the light flux automatically.

Multi-layered ARC can be also analyzed. PV-ARC can be used for both mono and multi-crystal silicon substrates.

Feature

- PV-ARC combines the best photovoltaic measurement technology into a single system designed specifically for textured (poly-) crystalline silicon solar cell.
- PV-ARC combines a special optical system with reflection optimizer to improve performance on textured surfaces that significantly reduce reflected signal.
- PV-ARC is perfect for characterizing AR coatings on etched silicon surfaces.

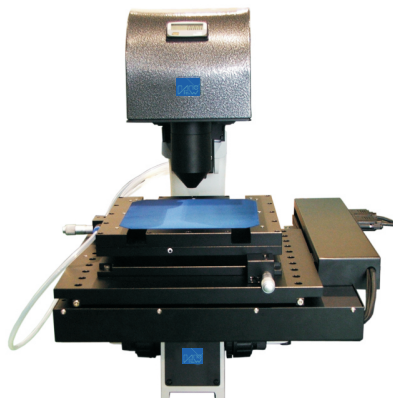
Specification

- | | |
|---------------------------|---|
| • Wavelength | 420~950nm (1.3 ~ 3.0 eV) : expandable |
| • Accuracy ₁ | 1048.85Å ± 0.29 Å for 1049 Å SiO ₂ on c-Si |
| • Thickness range | 10nm ~ 20 μm (depends on sample) |
| • Throughput ₂ | <1 sec per point |
| • Bean spot size | ~50 μm |
| • Focusing of bean | Manual (Optional auto-focus) |
| • Sample stage | Manual X-Y stage (specify sample size and travel distance)
(Optional automatic X-Y stage for mapping) |

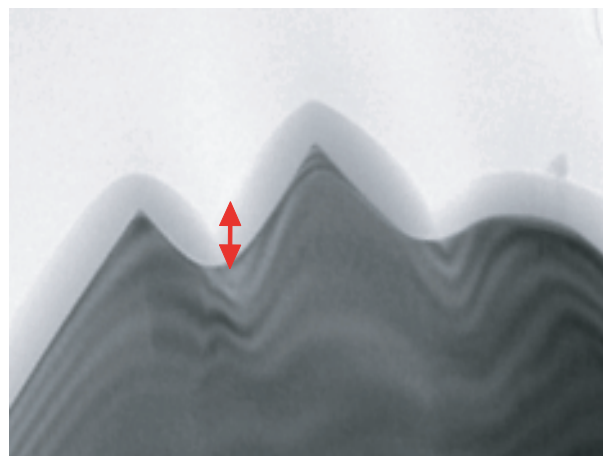
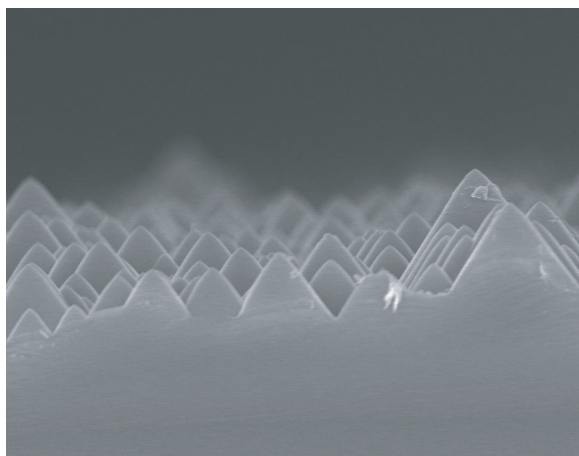
Foot note

1. Thickness measurement on specular sample Accuracy is the precision, where a static sample is repeatedly measured at the same spot and is described as three times of standard deviation.
2. Throughput is the time of 1 point static sample measurement.

PV-ARC



PV-ARC measurement of thin ARC film on textured photovoltaic device



Cross-sectional TEM

Sample	Thickness (nm)	
	Cross-sectional TEM	PV-ARC
1 (SiNx)	64~69	66.00
2 (SiO2)	201~254	216.40
3 (SiO2)	143~179	145.54
4 (SiNx)	97~106	100.80
5 (SiNx)	84~102	96.93