Pan Solution Technologies

Effective Carrier Measurement Device
for Silicon Wafer of Solar Cell

VWECER-100-S

Fast measurement time
Clear measurement results
Correlation with cell conversion efficiency

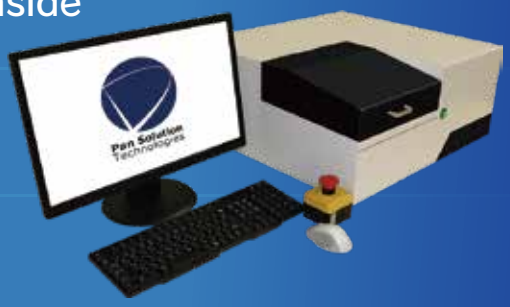
Our device supports
the production of
high-quality solar cells.

Device Specification		Measurement Performance	
Size	W:600×H:250×D:550 mm	Measuring time	About 30 sec / wafer
Weight	50 kg	Measuring Meteod	Probe contact type
power	Single-phase AC100 - 240V	Measuring Range	156×156×t0.2±0.05mm (Can be changed by option)
Operating Environment	Temperature and Humidity 25±5℃・85%RH	Measuring Object	p/n type Monocrystal・Polycrystal

What we do

By the parameter "potential conversion efficiency" that correlates with the conversion efficiency,

- confirms the quality of the wafer surface and inside
- confirms the cleaning status and cleaning solution deterioration
- confirms the texture effect and etchant deterioration



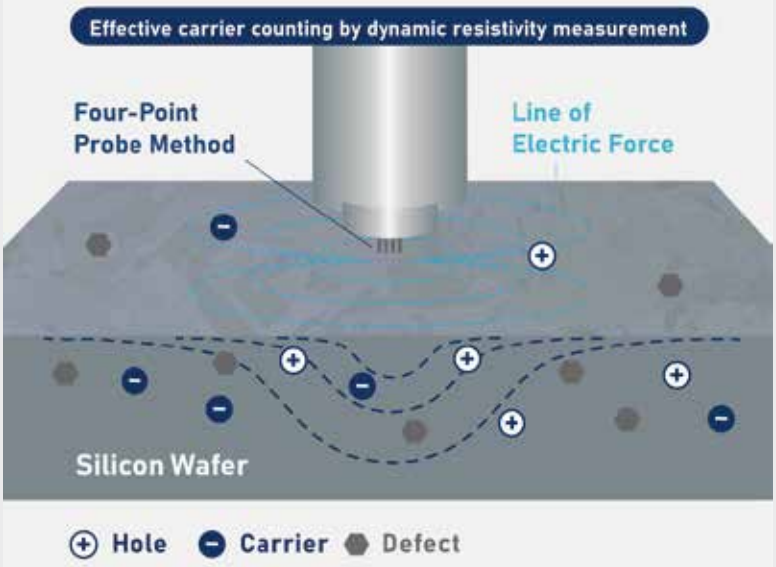
Upgrade

- ☑ **Conversion efficiency**
- ☑ **Development efficiency**
- ☑ **Defective rate**

New Evalution Technology

HS-CMR

High Speed-Current Modulating Resistivity Method



Modulating the injection current of four-probe, getting dynamic resistivity profile, calculating a single quality factor with surface quality and wafer thickness considered.

Unique technology for measuring effective carrier number by dynamic resistivity measurement.

The HS-CMR method is new crystal quality measurement technology developed from the Institute for Materials Research, Tohoku University. The HS-CMR does not use carrier lifetime mapping or diffusion length mapping that has been used in the past, and has been designed by comprehensively considering various problems caused by the thermal processes of semiconductor crystal wafers and subsequent device manufacturing processes.
The HS-CMR method uses the four-point probe method to measure the resistivity while changing the current with our own proprietary algorithm. With this method, the HS-CMR method can measure the "effective resistivity". The effective resistivity is a value that reflects the total number of minority carriers and majority carriers that are not trapped by crystal defects or impurities. The HS-CMR method can obtain a single quality factor that accurately reflects the quality of the wafer by comprehensively analyzing the transition of the resistivity and the effective resistivity. The measured values obtained by the HS-CMR method can be used to improve and develop crystal growth and device processes.

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