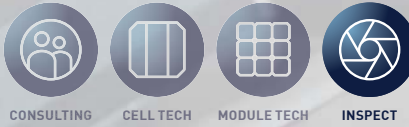


GP ISO-TEST INLINE / PRO

EDGE ISOLATION TESTING INLINE AND OFFLINE



SITUATION

Diffusion of the pn-junction does not only form the emitter on the front side of the wafer, but virtually always also a parasitic emitter is present on the wafer rear. To avoid short-circuits in the cell, the edges of the cells have to be isolated to separate the front emitter from the parasitic emitter on the rear or the parasitic emitter on the rear has to be removed.

Three main approaches are currently in use to isolate the cell along the wafer edge: laser scribing, plasma etching, and single-sided wet chemical etching. Successful laser scribing of the processed cell can easily be controlled by measuring the IV characteristics of the cells. For monitoring the results of plasma etching and wet chemical etching, the GP ISO-TEST Inline and the GP ISO-TEST Pro can be used.

DESCRIPTION

The GP ISO-TEST Inline and the GP ISO-TEST Pro use a similar measurement technique. The front side is contacted 5 times with four-point probes (4PP). The rear side is contacted with single tips along the edges. In a first step, the system determines the deviation between the centre and edge 4PP sensors to check

for etching of the emitter on the front side. In a second step, the system checks the resistance between the front 4PP and the contacting tips along the edge on the rear side, separately for all four wafer edges. A special classification routine helps to identify possible failures.

The GP ISO-TEST Inline is designed for inline integration. The wafers can be moved into the system by a transport belt. To ensure that the contacts are always good, the Inline version features redundant measurement heads. The GP ISO-TEST Inline is capable of fully classifying a wafer within app. 10 seconds, which allows for checking up to 10% of the wafers if the equipment operates at 3600 wafers/hr. The system comes complete with measurement stage, measurement electronics and controller PC. It includes as well different handshake techniques to the automation and MES connectivity.

The GP ISO-TEST Pro has the same functionality and classification routines as the Inline version. The measurement stage is integrated in a 19" rack that also contains all measurement electronics. The wafer is placed on a push loading drawer. Contacting is done by a motorized stage upon starting a measurement.

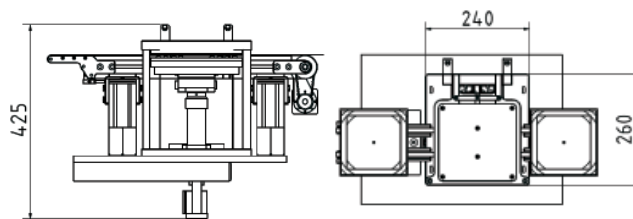


.GPsolar

INSPECT



GP ISO-TEST Pro



GP ISO-TEST Inline

TOPIC	DESCRIPTION
Samples to be measured	<ul style="list-style-type: none"> > Mono- and multi-crystalline wafers > Square or pseudo square > Textured or non-textured surface > Diffused layer (n+p or p+n) > Edge isolated (plasma or single-side wet chemical)
Wafer size	125 ... 210 mm
Repeatability	+/- 10%
Total cycle time	Approx. 10 sec
ISO-TEST INLINE	
Standstill time	Approx. 8 sec
Machine interface (automation)	<ul style="list-style-type: none"> > Parallel I/O > Parallel I/O (combined with RS232 for WaferID info) Profibus
Data interface (to factory network or automation)	<ul style="list-style-type: none"> > OPC (server) > XML via TCP/IP
System layout	<ul style="list-style-type: none"> > Measurement stage to be integrated with automation > Measurement electronics and controller PC in 19" industrial standard for integration > 17" TFT (100 mm VESA mount), industrial keyboard with integrated trackball (to be integrated with automation)
Dimensions (W x H x D)	<ul style="list-style-type: none"> > Measurement stage: Approx. 240 mm x 425 mm x 260 mm > Electronics and PC: Industrial 19" rack, 10 HU
ISO-TEST PRO	
System layout	<ul style="list-style-type: none"> > Measurement stage, measurement electronics and controller PC integrated in transportable 19" rack > Industrial keyboard with integrated trackball, 17" TFT
Dimensions (W x H x D)	570 mm x 450 mm x 650 mm w/o Monitor, Keyboard Weight ~ 70 kg
Order Information/Article Number	Pro: 04.01.0111 Inline: 04.01.0010

Note: some of the mentioned features are optional. Technical details subject to change without prior notice.
Only technical specifications in quotations and duty books are binding.

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