



**Q CELLS**  
YIELD SECURITY

- ✓ ANTI PID TECHNOLOGY (APT)
- ✓ HOT-SPOT PROTECT (HSP)
- ✓ TRACEABLE QUALITY (TRA.Q™)

**VDE**  
Quality Tested

High reliability  
optimized durability  
low degradation  
continuous line monitoring

ID. 40032587

CLAIMING LEADERSHIP MEANS PROVING IT

# TRIPLE PROTECTION

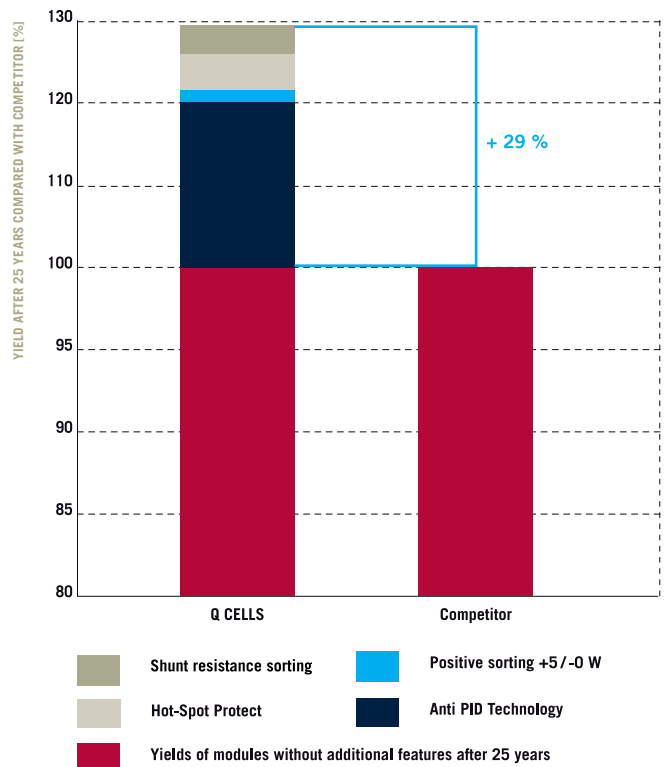
## WITH CRYSTALLINE SOLAR MODULES BY Q CELLS

### QUALITY TESTED GUARANTEES FOR LONGEVITY!

Would you ride your car on flat tyres for 25 years? Neither would we at Q CELLS. That's why we particularly care for the most important quality feature of solar modules: **Yield security**. In the long run, our innovative Q CELLS technologies, comprehensive quality controls and positive sorting allow for up to 29% higher yields compared to competitor modules. We guarantee for the longevity of our modules with the **Q CELLS Yield security** as well as with the **Quality Tested certificate** of the German certification body VDE.

Generally, the longevity of a typical solar module is tested only once with only a few single modules. We are different. Q CELLS is a member of the **VDE Quality Tested** program, which requires quarterly stress tests of our crystalline modules directly from serial production. Additionally, we extended the basic tests as required by the IEC industry standards - our solar modules have to endure the critical aging tests twice as long, and humidity-freeze tests even 3 times as long as required by the IEC.

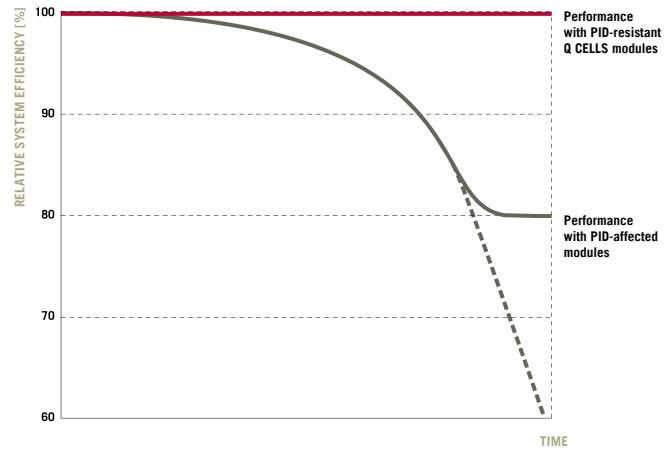
**Nobody has more comprehensive tests.**



## ANTI PID TECHNOLOGY PREVENTS POWER LOSS!

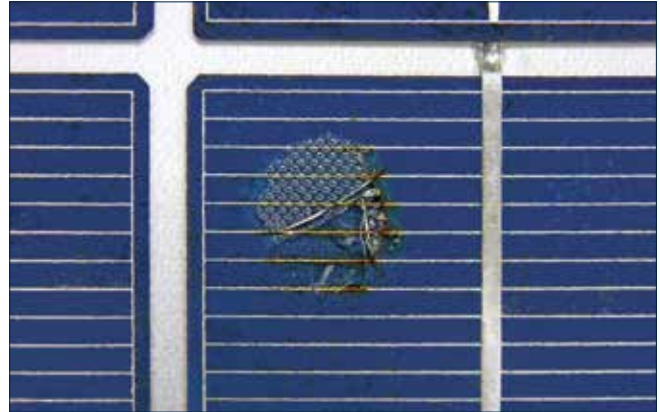
When solar modules are interconnected, voltage differences between the module frame and the active layer can occur. If unchecked, voltage differences can cause leakage currents to develop, which can cause significant power loss within the first few months of operation. This phenomenon called potential induced degradation is best resolved on the cell level. With the new Anti PID Technology (APT<sup>1</sup>), Q CELLS has optimized its production processes to prevent the negative effects of leakage currents.

<sup>1</sup> APT test conditions: Cells at -600 V relative to frame, wet module surface, 25 °C, 300 h



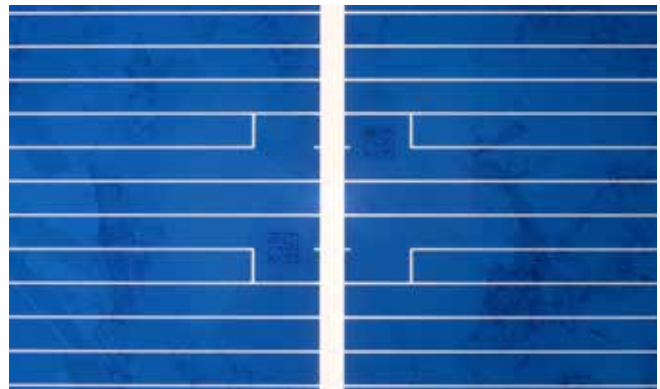
## HOT-SPOT PROTECT BETTER CELLS LEAD TO BETTER MODULES!

During the production process, solar cells can be subject to stress which can cause defects not detectable by the naked eye. Under disadvantageous conditions (e.g. partial shading), those defects can heat up to 250 °C. That's why they are called Hot-Spots. The extreme local heat can cause **power loss** and - in the worst case - even **module fire**. With our unique **quality control** Hot-Spot Protect, Q CELLS is the only solar cell producer to sort out all Hot-Spot affected cells and modules - to guarantee more reliability and safety for our solar modules.



## TRACEABLE QUALITY TRA.Q™ GUARANTEES 100 % QUALITY!

Before entering the production process, every Q CELLS solar cell receives a distinct **Data Matrix Code**, applied by our unique Traceable Quality (TRA.Q™) laser marking technology. This allows us to directly match our solar cells with particular production parameters. Due to this, we can **better analyse** defects as well as enhancements like **improved efficiency**. Furthermore, the TRA.Q™-Code of a module's solar cell allows us to answer your questions about your Q CELLS module even more efficiently.



## THE BEST WARRANTIES SECURE YOUR INVESTMENT!

Q CELLS offers the most reliable and safest solar modules on the market. This is backed up by our 12-year product warranty as well as a 25-year linear performance warranty. We guarantee that the power of a new module decreases no more than 0.6 % per year and still achieves at least 83 % of the nominal power after 25 years. **Nobody offers better warranties.**

