

Although the first solar cell invented by Bell Labs in 1954 was n-type, the p-type structure became more dominant due to demand for solar technologies in space. P-type cells proved to be more resistant to space ...

We show that striations caused a degradation of n-type solar cell performance up to about 1% absolute. o Striations are visible as low lifetime rings in wafers near the seed ...

The cost of silicon heterojunction (SHJ) solar cells could be reduced by replacing n-type silicon wafers with cheaper p-type wafers. Chang et al. use Monte Carlo simulations to ...

Boron doped emitters prepared by thermal diffusion using boron trichloride (BCl<sub>3</sub>) have been adopted in N-type Tunnel Oxide Passivated Contact (TOPCon) silicon solar cells. ...

We evaluate minority-carrier lifetime and defect content of n-type floating-cast-Si. Up to 1.8 ms lifetimes are achieved by gettering for wafers from near the ingot top. Swirl ...

The aim of this work is a progress on understanding the type of defects responsible for the striated recombination areas of solar cells. Different impurities, such as ...

Degradation in solar cells can occur due to various factors, such as potential-induced degradation (PID), light-induced degradation, and other environmental stresses. N ...

While p-type ingots are dominated by B-O complexes and impurities, the general higher lifetime in n-type cause other defects, like intrinsic defects, dislocations, etc., to ...

Certain impurities and defects can decrease lifetime in n-type silicon (e.g., Cr). Cr can affect n-type cell efficiencies at concentrations as low as  $10^{10}$  atoms/cm<sup>3</sup> [16]. Cu can also...

The resultant carrier concentrations were more than  $10^{13}$  cm<sup>-3</sup> for the p- and n-type samples, with Hall coefficients ranging from  $-0.5$  m<sup>3</sup> C<sup>-1</sup> (n-type) to  $0.6$  m<sup>3</sup> C<sup>-1</sup> (p-type).

CuO (cupric oxide) is a well-known p-type semiconductor, suitable for solar cell photovoltaic applications. However, due to the easy formation of defects and Cu-rich layers at ...

In this paper, we investigate the properties and origins of striations in n-type Czochralski silicon solar cells. These striations, occurring in wafers with an oxygen ...

Herein, the findings of metallic impurity and structural defect concentration present in n-type mc silicon are

# Defects of n-type cells

summarized, and their limiting properties on carrier lifetime ...

We investigated ring defects induced by a two-step anneal in n-type Czochralski-grown silicon wafers using a combination of high spatial resolution Fourier ...

One of the primary challenges impeding an improvement in the efficiency of kesterite (CZTSSe) solar cells is the significant open-circuit voltage deficit ( $V_{oc,def}$ ), which is ...

Hydrogen passivation was illustrated to have a positive effect on deep defect states in p-type CuO, without affecting the n-type counterpart. Outlined results were found to ...

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