

# Solar module cell efficiency





## Overview

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How efficient is a solar cell?

The solar cell is a crucial component of PV technology, and its performance in converting the sun's energy heavily depends on the materials used for its fabrication. In a study conducted by Zumar, A. et al , several key properties were identified as essential for prospective photovoltaic materials to ensure efficient solar cell performance.

How many new solar cell efficiency tables are there?

The international research group led by Professor Martin Green from the University of New South Wales (UNSW) in Australia has published Version 66 of the " Solar Cell Efficiency Tables " in Progress in Photovoltaics. The scientists said they have added 21 new results to the new tables since December.

How efficient is a silicon solar cell?

The first usable silicon solar cell was created in 1954 and had an efficiency of 6 %, inspired optimism for achieving even greater efficiency in subsequent silicon PV technologies. Since then, researchers have made significant progress, developing silicon solar cells with efficiencies approaching the Shockley-Queisser limit of around 33 % .

How efficient are Chinese solar cells?

The tables include the record efficiency of 27.81% achieved by Chinese manufacturer Longi for its hybrid interdigitated back contact (HIBC) crystalline silicon solar cell and a 14.1%-efficient kesterite (CZTSSe) solar cell built by the Chinese Academy of Sciences (CAS).



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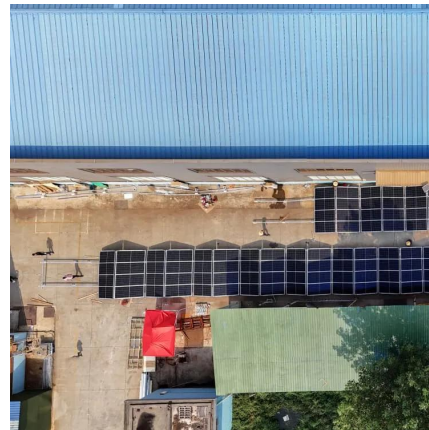


### [Solar Cell Efficiency Tables \(Version 66\)](#)

Jun 13, 2025 · The second new result in Table 1 is an energy conversion efficiency of 14.1% reported for a 1- cm<sup>2</sup> Cu<sub>2</sub>ZnSnSySe<sub>4-y</sub> (CZTSSe) cell fabricated by the Institute of Physics, ...

### [Solar Module Efficiency Data Guide](#)

Mar 18, 2025 · o In Version 33 and onward of the Progress in Photovoltaics Journal, the standardized testing conditions were updated to the new international accepted reference spectrum (IEC 60904 ...



### [Solar Cell Efficiency Tables \(Version 66\)](#)

Consolidated tables showing an extensive listing of the highest independently confirmed efficiencies for solar cells and modules are presented. ...



## Solar cells that combine multiple perovskite layers surpass 30% efficiency

1 day ago · Perovskites are promising materials for solar cells. A layer of dipolar molecules at the perovskite surface improves the efficiency of these devices.



### [All solar cell efficiencies at a glance - updated - pv magazine](#)

May 27, 2025 · The research group led by Professor Martin Green has published Version 66 of the solar cell efficiency tables. There are 17 new results reported in the new version.



### [Solar Cell Efficiency: What it is and How it's Measured](#)

Jan 30, 2024 · The first solar cell, built in 1954, had an efficiency of only around 6%. Since then, significant advancements have been made. Breakthroughs such as the discovery of the ...



### [Interactive Best Research-Cell Efficiency Chart](#)

Dec 6, 2025 · Interactive Best Research-Cell Efficiency Chart NLR maintains a chart of the highest confirmed conversion efficiencies for research cells for a range of photovoltaic ...







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### [Solar Cell Efficiency Tables \(Version 66\)](#)

Consolidated tables showing an extensive listing of the highest independently confirmed efficiencies for solar cells and modules are presented. Guidelines for inclusion of results into ...



### [Recent enhancement in photovoltaic cell efficiency ...](#)

Nov 1, 2025 · The solar cell is a crucial component of PV technology, and its performance in converting the sun's energy heavily depends on the materials used for its fabrication. In a ...



### [Organic solar cells achieve 20.02% efficiency with new giant](#)

14 hours ago · A research team has developed novel giant acceptors with an oxygenated linker, enabling the creation of highly efficient nonhalogenated-processed organic solar cells (OSCs), ...



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