

The 2023 Top Performers

Each Top Performer shown here submitted unique bills of materials (BOMs) for testing in PVEL’s Product Qualification Program (PQP). These BOMs are represented by their associated model types in the 2023 Top Performer searchable database below. Manufacturer logos and search results are listed in alphabetical order by the manufacturers’ number of Scorecard appearances.





247 model types from 35 manufacturers are named as 2023 Top Performers.

Filter through this year's Top Performers by PQP Test, Manufacturer Name, Module Type, Cell Technology, and more.

Search results are listed in alphabetical order by the manufacturers' number of Scorecard appearances. A check mark means the module type is a Top Performer in that test. Both tested model types and their variants for which the results are representative are included in the list of Top Performers. In some cases, test results were not available at the time of publication.



PQP Test

Module Design




Cell Technology








Power Class Range

Number of Cells



Wafer Width (mm)

Factory Location

| MANUFACTURER | MODEL TYPE | TC | DH | MSS | PID | LID+LETID | PAN | MODULE DESIGN | CELL TECHNOLOGY |
|---|--------------------------------|----|----|-----|-----|-----------|-----|-------------------------------|-----------------|
|  | JKMxx xM-6RL 3 | | | | | | | monofacial - glass//backsheet | p-type PERC |
|  | JKMxx xM-6RL 3-B | | | | | | | monofacial - glass//backsheet | p-type PERC |
|  | JKMxx xM-72 HL4-BD VP | | | | | | | bifacial - glass//glass | p-type PERC |

| | | | |
|---|---|-------------------------------|---------------|
|  | xM-72 HL4-TV | bifacial - glass//backsheet | p-type PERC |
|  | JKMxx xM-72 HL-TV | bifacial - glass//backsheet | p-type PERC |
|  | JKMxx xM-7RL 3-V | monofacial - glass//backsheet | p-type PERC |
|  | JKMxx xN-54H L4-B | monofacial - glass//backsheet | n-type TOPCon |
|  | JKMxx xN-54H L4-(V) | monofacial - glass//backsheet | n-type TOPCon |
|  | JKMxx xN-60 HL4- (V) | monofacial - glass//backsheet | n-type TOPCon |
|  | JKMxx xN-72H L4-BDV | bifacial - glass//glass | n-type TOPCon |

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The Top Performers included above are from the 9th Edition of the Scorecard. Click to access past editions of the Scorecard to see previous Top Performers and findings.

[1st Edition - 2014: 10 Manufacturers Named →](#)

[5th Edition - 2019: 15 Manufacturers Named →](#)

[2nd Edition - 2016: 13 Manufacturers Named →](#)

[6th Edition - 2020: 22 Manufacturers Named →](#)

[3rd Edition - 2017: 22 Manufacturers Named →](#)

[7th Edition - 2021: 26 Manufacturers Named →](#)

[4th Edition - 2018: 22 Manufacturers Named →](#)

[8th Edition - 2022: 25 Manufacturers Named →](#)

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TOP PERFORMERS

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