

Busbarless connection method



AI Overview

Busbarless solar cells are interconnected using fine metal wires, electrically conductive adhesives, or embedded ribbons, ensuring both electrical contact and mechanical adhesion without traditional busbars.

Metal Wire Interconnection

In busbarless modules, metal connecting wires are used to link the individual cells. The process involves cutting wires to the required length, positioning them on the cell fingers, and welding or soldering them to form a stable electrical connection. Adhesive points are applied on the front and back of the cell string to reinforce mechanical stability, and curing ensures the connection is solid and reliable. Wire cross-sections can be triangular, circular, or rectangular, typically ranging from 0.005 to 0.55 mm², and may be coated with low-melting-point alloys to facilitate soldering at 120–250°C .

Wire-Embedded EVA Sheet Method

Another approach embeds SnBiAg or copper wires within an EVA encapsulant. The wires are aligned with the cell fingers, and lamination at controlled temperatures (around 170°C) forms ohmic contact while minimizing thermal stress on thin wafers. This method reduces microcracks and maintains high efficiency by optimizing contact resistivity and fill factor .

Electrically Conductive Adhesive (ECA)



Article Content

What is 0 Busbar (0BB) solar Cell Technology?

Unlike conventional solar cell packaging, this method uses a new stringer machine to place the copper wire composite

Assessing current-voltage measurements of busbarless solar cells

For measuring the current-voltage (I-V) characteristics of busbarless solar cells, there is a certain degree of freedom in

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Disclosed are a busbar-free solar photovoltaic module and a manufacturing method therefor, relating to the technical field of solar

Towards non-permanent contacting schemes for busbar-free solar cells

In this contribution several alternative approaches for non-permanent electrical contacting of busbar-free solar cells are described as

Innovative Cell Interconnection Based on Ribbon Bonding of Busbar-less ...

Attaching interconnection ribbons to solar cells using electrically conductive adhesives is an attractive alternative to

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The present invention discloses a method for manufacturing a novel busbarless solar photovoltaic module and relates

Flexo-printed Busbarless Solar Cells for Multi-wire Interconnection

Furthermore, first busbarless solar cells with flexo-printed front side metallization and a fully functional mini-module with SWCT

Decoupling of electrical contact and mechanical adhesion for busbarless ...

Decoupling of electrical contact and mechanical adhesion for busbarless interconnection T. Meßmer¹, H. Chu¹, T. Timofte¹, I.

Contacting of Busbarless Solar Cells for Accurate I-V Measurements

In recent years, solar cell development has undergone a major change in metallization layout. In their most radical form, busbarless

Multi-wire Interconnection of Busbar-free Solar Cells

The interconnection of busbar-free solar cells by multiple wires is a simple and evolutionary concept to lower the cost of

What is 0 Busbar (0BB) solar Cell Technology?

Explore the evolution and advantages of no Busbar (0BB) solar cell technology in the photovoltaic industry. This

Impact of the contacting scheme on measurements

We perform FDM simulations to test the approximation of Bothe et al. on the contacting of busbarless solar cells during I-V

Flexo-printed Busbarless Solar Cells for Multi-wire Interconnection

The ability to realize narrow contact fingers with very low silver consumption makes this technology particularly

(PDF) Multi-wire Interconnection of Busbar-free Solar Cells

Recently, improvements in metallization methods have enabled the fabrication of cells without busbars (busbarless or

(PDF) Multi-Wire Interconnection of Busbarless Solar Cells with ...

This technology increases the active area for photocurrent generation because the cells are connected in a busbar-less

FoilMet®-Interconnect: Busbarless, electrically conductive adhesive ...

The laser metal bond (A) establishes a purely mechanical connection to the cell surface and demonstrates high

Multi-Busbars Solar Cells & Modules – PV-Manufacturing

Figure 2 – Worldwide market share trends for more and multi busbar (busbarless) technology. Source : ITRPV MBB technology

Busbar-less shingled array solar cells and methods of manufacturing ...

The method includes etching a solar cell, singulating the cell to form strips, and depositing a conductive adhesive on at least one

The challenge of measuring busbarless solar cells and the impact on ...

Measurement systems for busbarless solar cells To investigate the influence of the contacting scheme on the performance of

Multi-Wire Interconnection of Busbarless Solar Cells with Embedded ...

In this paper, a method of manufacturing a module using a cell/module integrated process was proposed. This proposes a module

Decoupling of electrical contact and mechanical adhesion for

For standard IBC cells busbars are printed perpendicular to the fingers and the insulation pads. Printing on the busbars levels the

Busbarless emitter wrap-through solar cells and modules

In this work, we produce "busbarless" emitter wrap-through (EWT) solar cells that use about 65% less gridline Ag

Interconnection of busbar-free back contacted solar cells by laser ...

We present a module integration process for aluminum metalized, busbar-free back-junction back-contact solar cells by

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For more information, pricing, or custom solutions, please contact us:

Website: <https://www.kilitech.co.za>

Email: info@kilitech.co.za

Phone: +44 20 7183 2649

Address: 1st Floor, The Shard, 32 London Bridge Street, London, SE1 9SG, United Kingdom

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