

Solar Panel Bonding Solutions

As the domestic solar industry grows, panel manufacturers need design solutions that are durable, easy-to-use, easy-to-automate, and that optimize panel design. Pressure-sensitive adhesive (PSA) tapes from Avery Dennison address those needs.

PSA materials are relied upon for critical applications in aerospace, automotive, building and construction, consumer packaged goods, healthcare, logistics and transportation, and many other industries. Their unique advantages make PSAs a sound solution for solar as well.

We're entering a dynamic era for the U.S. solar industry. Commercial and residential demand is growing as the price of solar energy is falling. Meanwhile, regulation is giving domestic production a boost: Enabled by the Inflation Reduction Act of 2022, the Solar Energy Industries Association (SEIA) is calling for 30% of panels installed in the U.S. to be produced domestically by 2030, up from just 2% in 2023.

With such growth on the horizon, now is the time for solar panel manufacturers to expand their material solutions to include versatile PSA tapes.



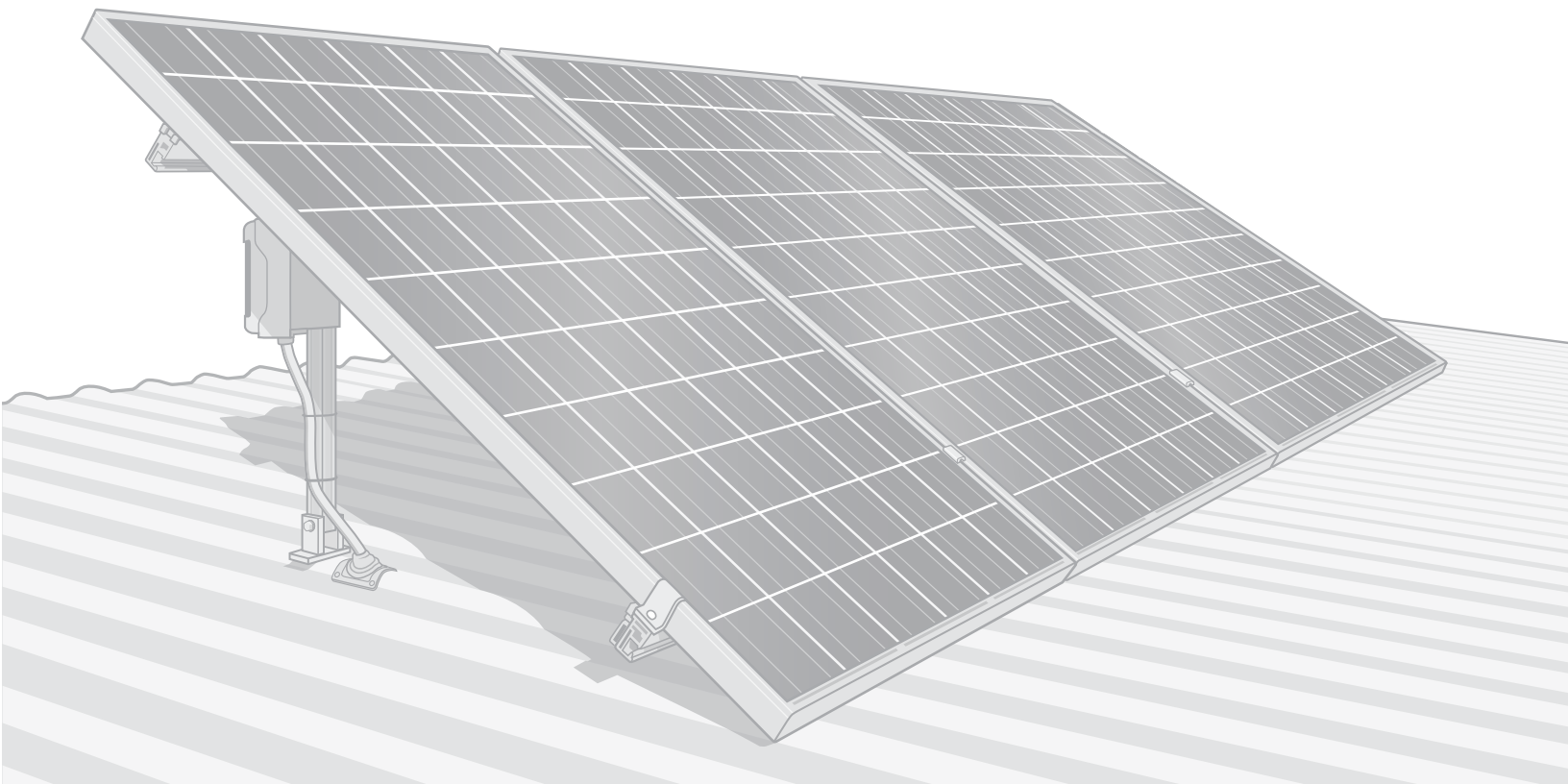


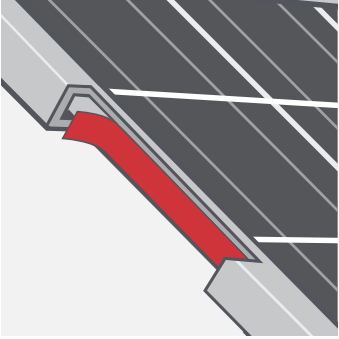
Applications

Avery Dennison PSA tape materials are engineered to perform in a wide variety of applications for solar panel manufacturing.

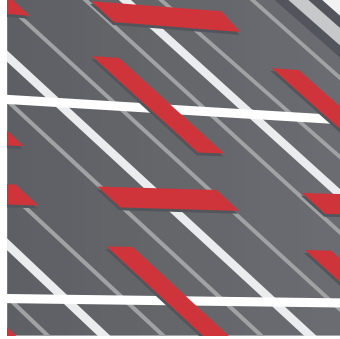
- Frame mounting
- Cell fixation
- Dielectric insulation
- Edge protection
- Busbar bonding
- Panel stiffener mounting
- Junction box mounting
- Cable fixation

Solar and other renewables are forecast to provide 44% of U.S. electricity generation by 2050, according to the U.S. Energy Information Administration. Innovative material solutions, such as PSAs, can help engineers scale up to meet the growing demand for clean energy.

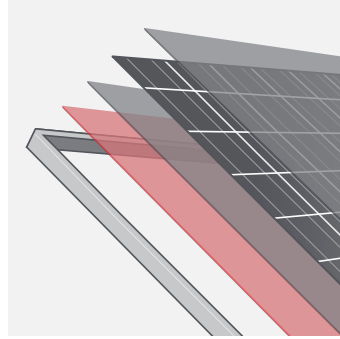




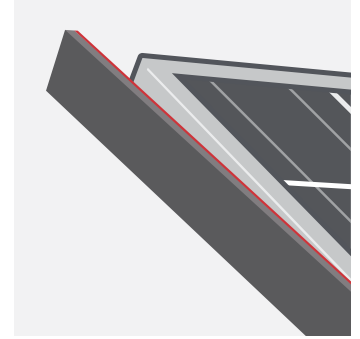
Frame mounting



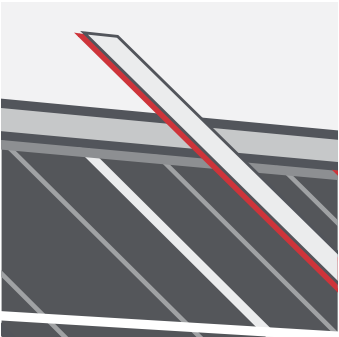
Cell fixation



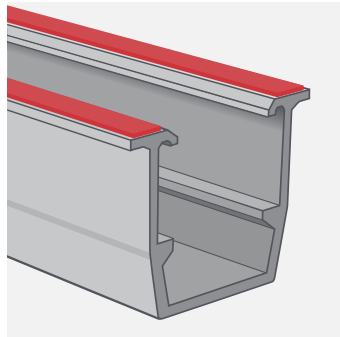
Dielectric insulation



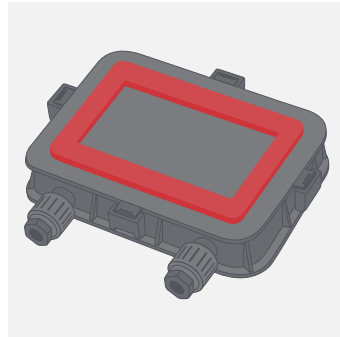
Edge protection



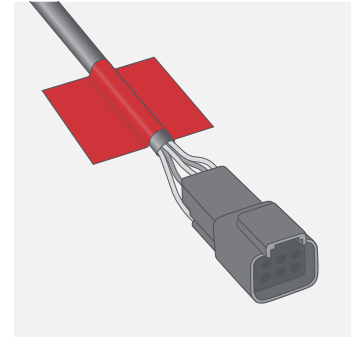
Busbar bonding



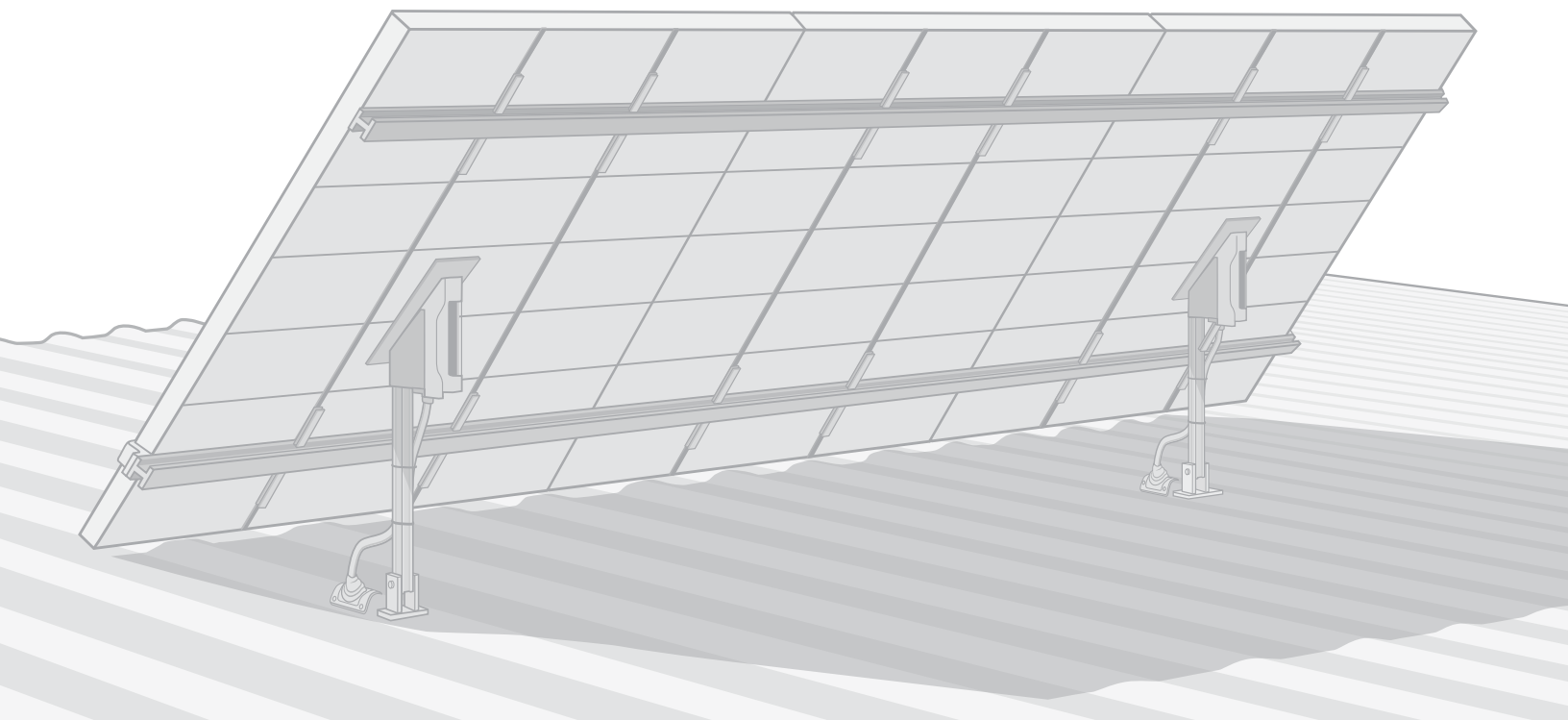
Panel stiffener mounting



Junction box mounting



Cable fixation



Avery Dennison Solar Panel Bonding Solutions Portfolio Advantages

PSAs offer solar panel manufacturers significant advantages over other bonding methods.



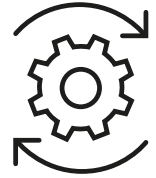
Durability

PSAs are engineered to withstand exposure to UV light, moisture, high and low temperatures, and climatic extremes. They can provide consistently high performance throughout the service life of a panel, helping improve overall quality and minimizing the need for warranty issues.



Ease-of-Use

PSAs offer a simple “peel-and-stick/instant-bond” alternative to messy liquid adhesives (which typically require cure time) and complicated mechanical fasteners. Adhesives can be engineered for easy repositionability, reducing rework and waste on an assembly line.



Automatable

PSA tape materials are engineered to facilitate automated application. This is typically a key requirement for solar panel manufacturing. These materials are also very easy to apply manually.



Design Optimization

PSA tapes can replace mechanical fastening methods, offering a thinner profile and lighter weight to help optimize solar panel design. They also spread their bonding forces more evenly than screws and rivets, helping prevent fatigue and wear of the substrate.

Solar Panel Applications Product Portfolio

Application	Product	Adhesive Type	Construction	Thickness without liner (mils)
Frame Mounting	AFB™ 6164B	Acrylic Foam Bond	Double Coated Acrylic Foam	25.2
	AFB™ 6111B	Acrylic Foam Bond	Double Coated Acrylic Foam	43.3
Panel Stiffener Mounting	AFB™ 6164B	Acrylic Foam Bond	Double Coated Acrylic Foam	25.2
	FM 2333	General Purpose Acrylic	Double Coated PE Foam	35.6
Junction Box Mounting	AFB™ 6164B	Acrylic Foam Bond	Double Coated Acrylic Foam	25.2
	FM 2333	General Purpose Acrylic	Double Coated PE Foam	35.6
Cable Fixation	FT 0031	Pure Acrylic	Single Coated Stretch Film	35.8
	FT 0012	Acrylic	Single Coated PET	1.5
	FT 0013	Acrylic	Single Coated PET	2.7
Cell Fixation	FT 0012	Acrylic	Single Coated PET	1.5
	FT 0013	Acrylic	Single Coated PET	2.7
Dielectric Insulation	FT 0012	Acrylic	Single Coated PET	1.5
	FT 0013	Acrylic	Single Coated PET	2.7
	FT 0021	Acrylic	Single Coated PET	5.1
Busbar Bonding	FBA 8960	General Purpose Acrylic	Double Coated PET	4
	HPA™ 1902	High Performance Acrylic	Transfer Tape	2.4
Edge Protection	FT 0031	Pure Acrylic	Single Coated Stretch Film	4
	FT 4260	Cold Tough Acrylic	Single Coated Stretch Film	6.6

Expansive Product Selection, plus Customization and Testing Capabilities

The Avery Dennison portfolio of PSA tape materials includes solutions for a wide range of solar panel manufacturing applications. But these innovative products are just the beginning of all we offer.

Collaboration

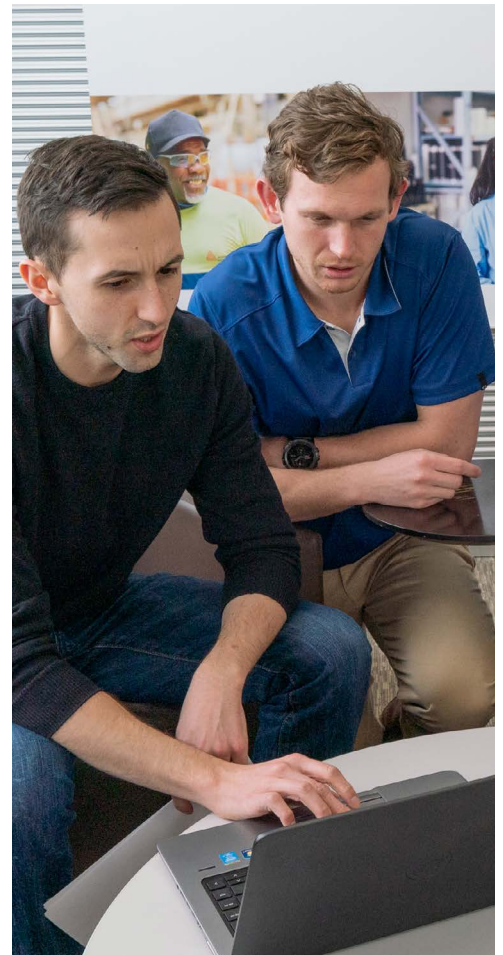
- New product development for developing custom solutions for specific applications
- Business development and specification support for emerging applications
- Application engineering and technical support
- Global reach

Testing

- ISO 9000 certified and ISO 17025 accredited laboratory
- Industry-standard testing and custom application testing
- Mechanical and analytical pressure-sensitive adhesive testing capabilities
- Pressure-sensitive adhesive bulk property testing (peel, tack and shear)
- Environmental conditioning (temperature, humidity, UV, chemical and more)

We welcome the opportunity to collaborate on custom PSA-based solutions. You'll enjoy access to testing facilities and subject matter experts who understand your challenges. We can work together to produce one-of-a-kind products that help give your business an edge.

To learn more about our portfolio and capabilities, contact your Avery Dennison account manager or visit www.tapes.averydennison.com.

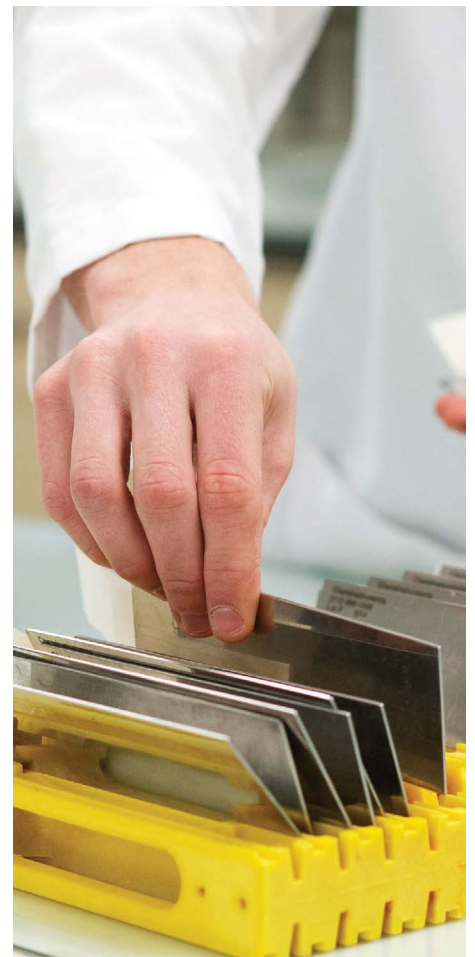


About Avery Dennison Performance Tapes

Avery Dennison Performance Tapes is a world-class operation focused on developing and manufacturing high-performance pressure-sensitive adhesives and tapes for a broad range of applications in automotive, appliances, electronics, building and construction, specialty industrial and personal care segments. The organization has more than 50 years of experience supplying standard and customized pressure-sensitive materials designed to deliver innovative solutions for customers' needs across the globe. Worldwide manufacturing facilities ensure a global presence supported by local sales, technical and customer service throughout the regions. Learn more at www.tapes.averydennison.com.

About Avery Dennison

Avery Dennison Corporation (NYSE: AVY) is a global materials science and digital identification solutions company that provides a wide range of branding and information solutions that optimize labor and supply chain efficiency, reduce waste, advance sustainability, circularity and transparency, and better connect brands and consumers. Our products and solutions include labeling and functional materials, radio frequency identification (RFID) inlays and tags, software applications that connect the physical and digital, and a variety of products and solutions that enhance branded packaging and carry or display information that improves the customer experience. Serving an array of industries worldwide – including home and personal care, apparel, general retail, e-commerce, logistics, food and grocery, pharmaceuticals and automotive – we employ approximately 35,000 employees in more than 50 countries. Our reported sales in 2023 were \$8.4 billion. Learn more at www.averydennison.com.



www.tapes.averydennison.com

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