

## High quality adhesive tapes for increasing efficiencies



tesa® solutions for the solar industry

APPLICATION FOLDER

WAFFER BASED

THIN FILM

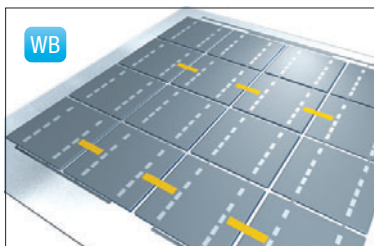
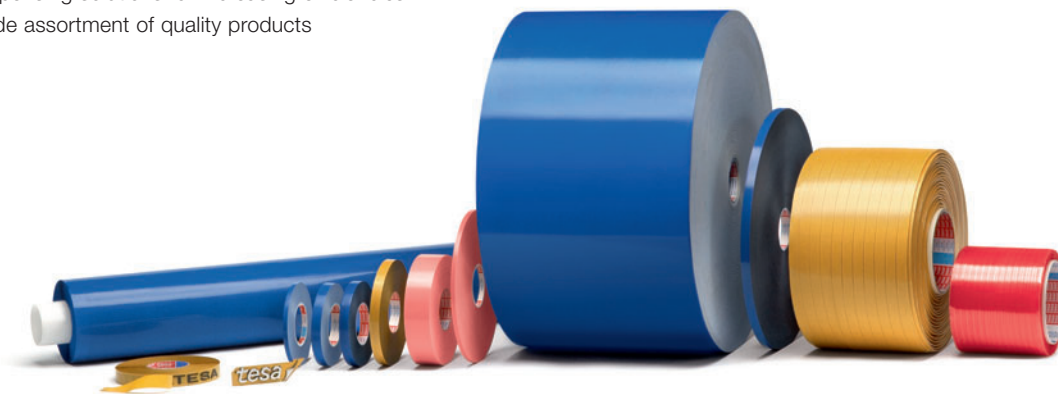


## Efficient tape solutions for the solar industry

Over the past years tesa has built an in depth understanding of tape applications in module assembly. This is why we are able to offer individual solutions consisting of quality products, technical advisory and application systems. As a result you get a reliable bonding quality and efficient, easy-to-implement processes.

### Benefit from a partnership with tesa

- Global presence and product availability
- Trusted technical advisory and R&D resources
- Dispensing solutions for increasing efficiencies
- Wide assortment of quality products



### 1. Reverse side cell fixation

Hold the cells in place during the lamination process.

#### tesa® 4129 – PET tape

- Thin and transparent
- Ageing- and UV-resistant
- High temperature resistance

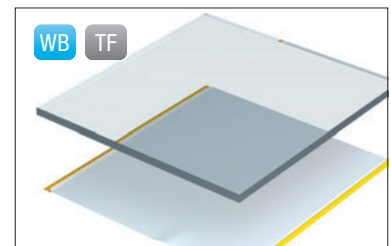


### 2. Frame mounting

Trusted solution for fast, clean and simple frame mounting. Choose your optimum solution from the tesa FrameSelect assortment.

#### tesa® 62508, 62510, 62512 FrameSelect - Double-sided PE foam tapes

- High quality PE foam tape
- Modular assortment: Thickness, colour and liner variants
- UL recognition, TÜV test report available



### 3. Protective cover sheet

Attach surface protection sheets to anti reflective solar glass. Prevent damages to the coating throughout the full assembly process.

#### tesa® 50600 -

#### High temperature masking tape

- Temperature resistance up to 220° C
- Excellent removability
- No tearing during removal

## tesa® core product range for solar module producers

### Dispensing and application tools



#### tesa® edge taper LR

Handheld device to laminate tape along the module edges. Feed tape from pancake roll or spool.

- Fast, convenient application helps to reduce process cost
- Customized tool ensures a precise tape positioning
- Optional: Liner removal function



#### tesa® 6095 Frame Select spool dispenser

Motor driven dispenser allows to use high length tape spools.

- Increases assembly speed
- Low investment cost
- Easy to integrate into existing production layout

### Single-sided tapes

Product properties	Cell fixation	Cable fixation	Ribbon fixation / Surface protection	Ribbon cover	Solar glass marking	Edge protection
	tesa® 4129	tesa® 64284	tesa® 50600	tesa® 50572	tesa® 6926	tesa® 65052
Total thickness	50 µm	110 µm	80 µm	53 µm	160 µm	570 µm
Colour	transparent	blue	green translucent	black	black	matte black
Backing	polyester film	MOPP	PET	PET	polymeric matrix	PVC
Adhesive	acrylic	natural rubber	silicone	acrylic	none	acrylic
Tensile strength	46 N/cm	300 N/cm	90 N/cm	>36 N/cm	n.a.	27 N/cm
Elongation at break	140 %	35 %	110 %	<60 %	n.a.	200 %
Initial adhesion to steel	2.3 N/cm	4.0 N/cm	4.0 N/cm	5.4 N/cm	permanent	17 N/cm
Temperature resistance	200 °C (short term)	100 °C (short term)	220 °C (short term)	180 °C (short term)	>1000 °C	85 °C (short term)

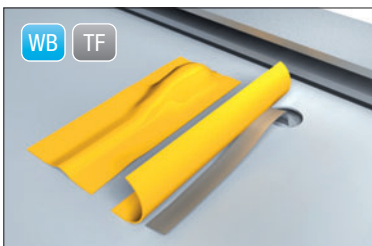
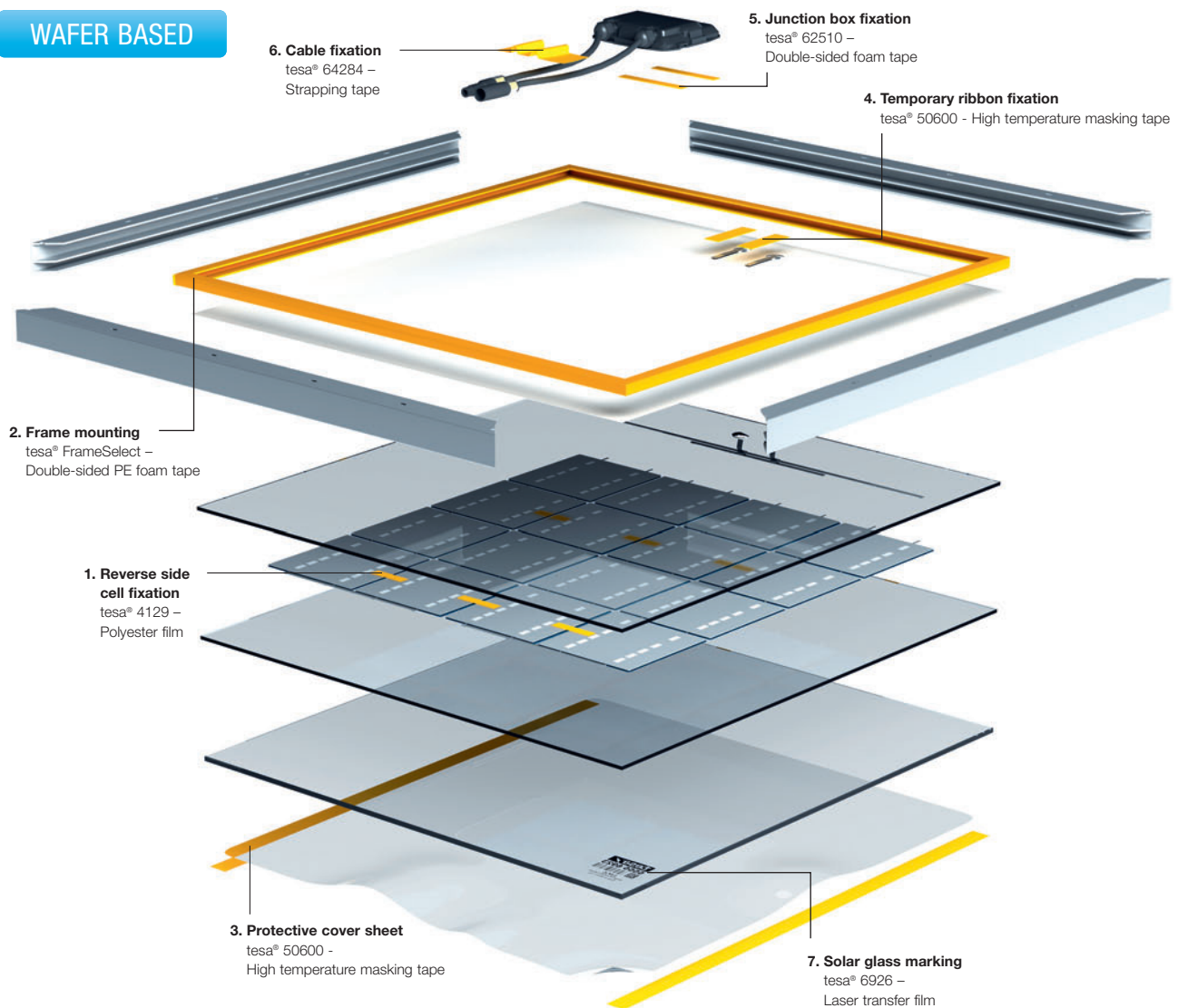
### Double-sided tapes

Product properties	Bus bar mounting	Frame mounting - tesa® FrameSelect			Rail bonding
	tesa® 4983	tesa® 62508	tesa® 62510	tesa® 62512	tesa® ACX <sup>plus</sup> 7078
Total thickness	30 µm	800 µm	1000 µm	1200 µm	2000 µm
Colour	transparent	black/white	black/white	black/white	black
Backing	PET-film	closed cell PE foam	closed cell PE foam	closed cell PE foam	foamed acrylic
Adhesive	tackified acrylic	tackified acrylic	tackified acrylic	tackified acrylic	pure acrylic
Temperature resistance	200 °C (short term)	85 °C*	85 °C*	85 °C*	120 °C (long term)
Final adhesion to steel	7.6 N/cm	> 13.5 N/cm (foam splitting)	> 13.5 N/cm (foam splitting)	> 13.5 N/cm (foam splitting)	40 N/cm
Weathering resistance	++	++	++	++	++
UL file No.	PGGU2.MH18055	QIHE2.E334507	QIHE2.E334507	QIHE2.E334507	QOQW2.E309290

\* Comparative adhesion test after damp heat storage according to IEC 61215

o = satisfactory, + = good, ++ = very good

## WAFER BASED



### 4. Temporary ribbon fixation

Cover the ribbons temporarily during the lamination process.

**tesa® 50600 -**

#### High temperature masking tape

- High immediate adhesion
- 220° C temperature resistance
- Excellent removability from backsheet after lamination process



### 5. Junction box fixation

Apply self adhesive pads for instant fixation during the box mounting process. Improving process safety and bonding quality.

**tesa® 62510 - Double-sided foam tape**

- High immediate adhesion to polymer substrates
- UL recognition



### 6. Cable fixation

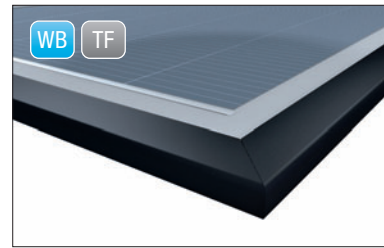
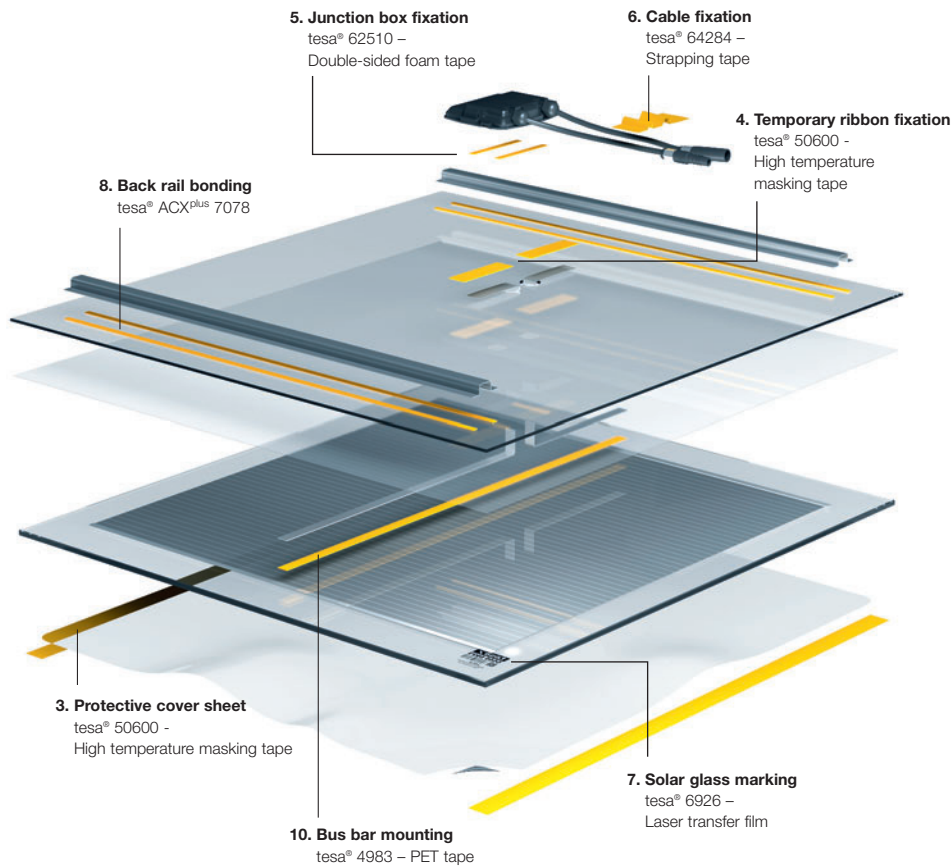
Secure cables during transport.

**tesa® 64284 - Strapping tape**

- Easy and clean removal after transport to customer
- High immediate adhesion to numerous substrates
- Tear resistant backing



## THIN FILM

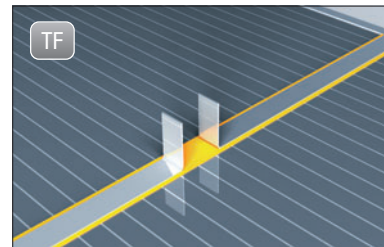


### 11. Permanent edge protection

Gives frameless modules an aesthetic finish and reduces the module break rate.

#### tesa® 65052 – Edge protection tape

- Shock absorbing
- Durable and weathering resistant
- Easy to apply



### 10. Bus bar mounting

Efficiently mount and insulate the bus bar manually or fully automated. Improve process cost and quality.

#### tesa® 4983 – Double sided PET tape

- Ultrathin design
- High dielectric strength
- High temperature resistance

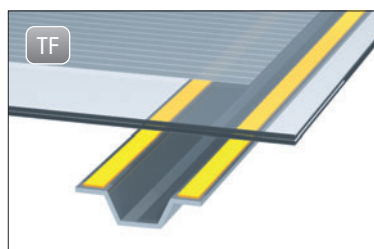


### 7. Solar glass marking

Most reliable glass marking solution for production process control and life time module tracking. Using the unique tesa® laser transfer technology.

#### tesa® 6926 – Laser transfer film

- Excellent print quality and readability
- No damage to glass or TCO coating
- Outstanding resistance against temperature, chemicals and UV

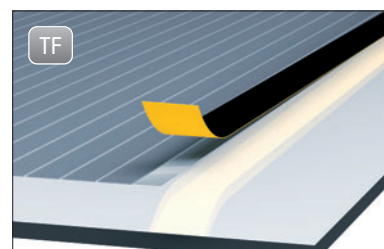


### 8. Back rail bonding

Reliable bonding of rails for mounting or stiffening to the reverse side of the module.

#### tesa® ACX<sup>plus</sup> 7078 – Acrylic foam tape

- High bonding strength
- Stress dissipating core
- High temperature and weathering resistance



### 9. Ribbon cover

Cover visible charge collectors or bus bars improving your module design.

#### tesa® 50572 –

#### Black single sided PET tape

- Low light transmission
- High dielectric strength
- Ageing and temperature resistant



### tesa SE: Worldwide Manufacturer of Self-Adhesive System Solutions.

tesa SE is one of the world's leading manufacturers of self-adhesive product and system solutions for industry, trade, and consumers. The company's 125 years of experience in coating technology and its development of adhesives and innovative product solutions have taken tesa, headquartered in Hamburg, to the top of the world market in many fields of application. As a partner to industry, tesa works together with its clients to analyze their production processes in order to develop tailored solutions for increasing efficiency or optimizing end products. Research labs in Germany, the United States, China, and Singapore ensure continual development of innovative product solutions. Our company sees its orientation toward international quality, environmental, and occupational safety standards as a matter of course. As a result, we submit to regular evaluations by recognized certification companies in the context of our "Global Certification Concepts", which we impose upon ourselves, to determine whether our Hamburg headquarters and the regional subsidiaries meet these standards.

## Solutions for the solar industry

- Wide assortment of quality products
- Global presence and product availability
- R&D resources and technical support
- Complementary dispensing solutions



tesa® products prove their impressive quality day in, day out in demanding conditions and are regularly subjected to strict controls. All information and recommendations are provided to the best of our knowledge on the basis of our practical experience. Nevertheless tesa SE can make no warranties, express or implied, including, but not limited to any implied warranty of merchantability or fitness for a particular purpose. Therefore, the user is responsible for determining whether the tesa® product is fit for a particular purpose and suitable for the user's method of application. If you are in any doubt, our technical support staff will be glad to advise you.

#### HEADQUARTERS

##### tesa SE

Quickbornstrasse 24  
D-20253 Hamburg, Germany  
Phone: +49 40 4909 3814  
solar@tesa.com  
www.tesa.com



The tesa management system is certified according to the standards ISO 9001 and ISO 14001.