UNI-SOLAR® Shingle Model: SHR-17

Data Sheet

- **Lightweight, Flexible, Durable**
- **20 Year warranty on power output**
- **Bypass Diodes for Shadow Tolerance**
- **Solar shingles are structurally and aesthetically integrated roofing elements**
- **UL rated to withstand 80 mph wind loads**
- **No support structures needed**
- **UL Listed as prepared roofing**
- **Wind and water tight roof**
- **Suitable both for renovation and for new construction**
- **Direct nailing on wood decks with fire-resistant underlayment**
- **No back-ventilation of solar shingles necessary**

The Solar Shingle will replace the conventional shingle. The shingles are UL Listed both as an electricity generator and as a prepared roofing cover. Each shingle has a pair of wires coming off the back of the shingle that will be fed through the roof deck for wiring inside the attic. The solar shingle wires can be "shorted" during installation. The wires from adjacent shingles are connected together using moisture resistant butt splices (supplied with the System). The wires are rated for 600 volts maximum. The wires are mounted over a fire resistant underlayment (ex. Elk® Versa Shield).

Product Description and Application

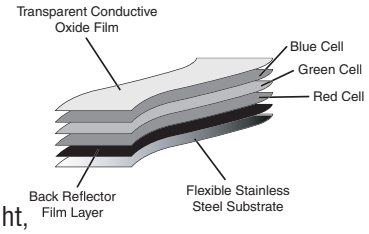
Each SHR (photovoltaic shingle) utilizes the proprietary Triple Junction solar cells manufactured by *UNI-SOLAR*. These cells are made in a roll-to-roll deposition process on a continuous roll of stainless steel. The result is a unique, flexible, lightweight, solar cell. The *UNI-SOLAR* PV Shingles are encapsulated in UV stabilized polymers making them exceptionally durable. Bypass diodes are connected across each cell, allowing the modules to produce power even when partially shaded.

Application Criterion

- Mount 35 inches up from the eave (to ensure adequate wiring space below the roof deck)
- Install Versa Shield Underlayment directly on wood decking
- Extend Versa Shield Underlayment 12" around entire perimeter of the array
- Installed per manufacturer's Instructions
- Wood deck repairs must be completed before installation

Triple Junction Technology

The foundation of the new *UNI-SOLAR* SHR is the Triple Junction silicon solar cell unique to *UNI-SOLAR*. Each cell is composed of three semiconductor junctions stacked on top of each other. The bottom cell absorbs the red light, the middle cell absorbs the green light and the top cell absorbs the blue light. This spectrum splitting capability is the key to higher efficiency.



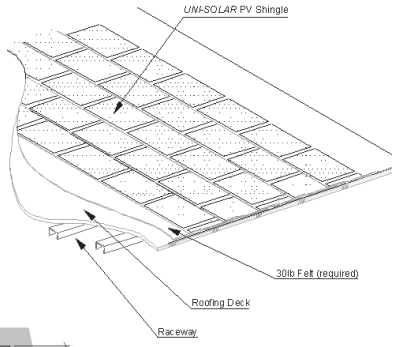
United Solar Ovonic

United Solar Ovonic is the world leader in thin-film technologies. It's a company with years of experience in photovoltaics and is backed by a U.S. technology leader, Energy Conversion Devices, which holds 350 U.S. patents and 800 foreign patents. Our technology has proven itself over decades under the most extreme conditions imaginable, including satellites, ocean buoys and military applications. We offer a proven product, a proven technology, from a proven company.

Dimensions & Specifications

Physical:

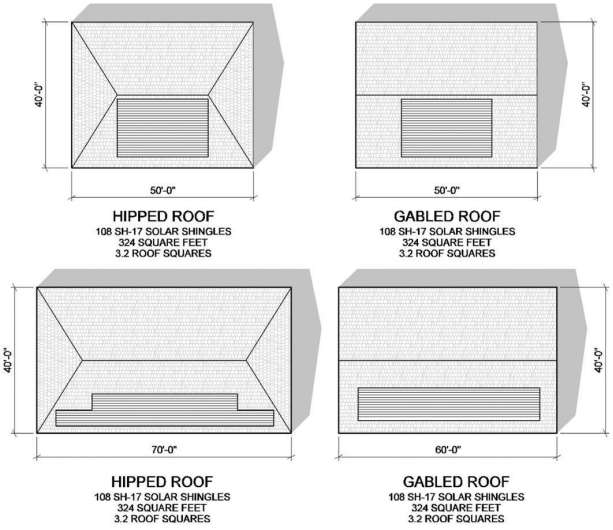
Model Number	Shingle Length	Shingle Width	Shingle Thickness	Weight	Customer-Supplied Substrate	Minimum Slope	Maximum Slope
SHR-17	86.4 in.	12 in. (5 in exposed area)	0.14 in.	4.8 lb.	Wood Deck and Versa Shield	3:12 (15°)	21:12 (60°)

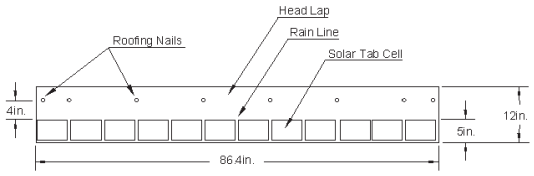


Electrical:

Performance	SHR-17
Rated Power (Watts)	17
Operating Voltage (Volts)	9.0
Operating Current (Amps)	1.9
Open-Circuit Voltage (Volts)	13.0
Open-Circuit Voltage (Volts) at -10°C and 1250 W/m2	14.8
Short-Circuit Current (Amps)	2.35
Short-Circuit Current (Amps) At 75°C and 1250 W/m2	3.1
Series Fuse Rating (Amps)*	4
Min. Blocking Diode (Amps)	4

NOTES:
During the first 8-10 weeks of operation, electrical output exceeds specified ratings. Power output may be higher by 15%, operating voltage may be higher by 11% and operating current may be higher by 4%.
Electrical specifications (±10%) are based on measurements performed at standard test conditions of 1000 W/m2 irradiance, Air Mass 1.5, and Cell Temperature of 25°C after long-term stabilization. Actual performance may vary up to 10% from rated power due to low temperature operation, spectral and other related effects.
Maximum system open-circuit voltage not to exceed 600 VDC.
Specifications subject to change without notice.
* Refer to section 690.8 of the National Electric Code for an additional factor of 125%, which may be applicable.





Corporate Sales & Marketing Office:
United Solar Ovonic
3800 Lapeer Rd., Auburn Hills,MI 48326
Tel: 248.475.0100
Toll Free: 800.843.3892
Fax: 248.364.0510
Email: info@uni-solar.com

North American Sales Office:
United Solar Ovonic
4520 Viewridge Ave., San Diego, CA 92123
Tel: 858.614.1435
Toll Free: 800.397.2083
Fax: 858.514.8694
www.uni-solar.com