

SOLAR SHINGLES SHR-17

- Power Rating 17W
- Lightweight & Flexible
- No Support Structures Needed
- Virtually Unbreakable (No Glass)
- Shadow & High Heat Tolerant
- Delivers Up To 20% More Real Energy



Photo Courtesy of Oakland University



UNI-SOLAR® shingles are unique and have

been honored with the prestigious Popular Science Grand Award, “Best of What’s New (Environmental Technology),” and Discover Magazine’s “Technological Innovation Award” for best innovation (Environment). The PV shingle permits the roof of commercial buildings or residential homes to evolve from mere protection from the weather to a source of electrical power. The flexible, thin film solar cell shingle blends into a roofing pattern or traditional asphalt shingles.

Why Do UNI-SOLAR Products Outperform Others?

All solar panels are rated in terms of peak power output (watts). Outdoors, under normally higher operating temperatures, solar panel performance changes, depending on temperature, solar spectrum (light color) and related effects. UNI-SOLAR products are less affected by temperature than monocrystalline or polycrystalline solar technology products. The result is up to 20% more delivered energy.**

** Source Solfest, “Module Shoot Out”

Applications

- Residential Grid Connected Systems
- Commercial Grid Connected Systems
- Schools & Institutions
- Apartment Complexes
- Condominiums
- Renovation Or New Construction

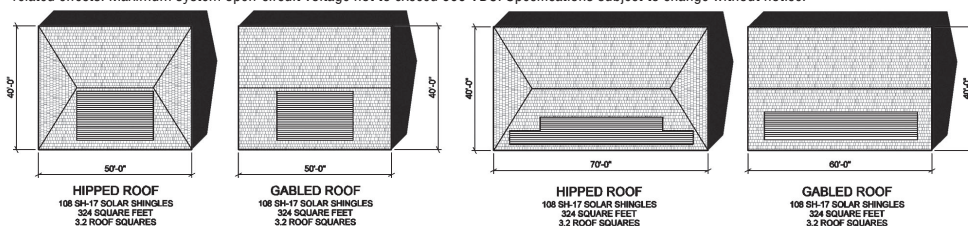


Specifications

Model	SHR-17
Rated Power (Watts)	17
Max Power Point VMPP (V)	9
Max Power Point IMPP (A)	1.9
Open-Circuit Voltage (Volts)	13
Short-Circuit Current (Amps)	2.4
Shingle Length (in./mm)	86.4 in./2195 mm
Shingle Width (in./mm)	12 in. (5 in. exposed area)/305 mm
Shingle Thickness (in./mm)	0.1 in./4 mm
Weight (lb./kg)	4.8 lb./2.2 kg
Customer-Supplied Substrate	Wood Deck and Fire retardant underlayment
Minimum Slope	3:12 (15°)
Maximum Slope	21:12 (60°)
Warranty on Power Output	20 Year



During the first 8-10 weeks of operation, electrical output exceeds specific 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 ($\pm 10\%$) 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.



Quality Assurance, Proven Reliability

UNI-SOLAR shingles comply with the following qualification tests:

- UL Listed Up To 600 VDC as A Prepared Roofing Cover (UL)
- Capable Of Withstanding 80 mph Wind Speeds
- Meets IEC 61646 Requirements
- Thermal Cycling
- Humidity-Freeze Test
- Damp Heat Test
- UV-Test
- Wet Insulation Test
- Mechanical Load Test
- Hail Impact Test
- Robustness of Terminations Test

Product Description

Each SHR (solar home roofing) 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.

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. The shingles are mounted over 30 lb. felt or a fire resistant underlayment (e.g. Elk® Versa Shield.)

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