



MACsun Solar Energy Technology Co.,Ltd

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Photovoltaic Solar Roof Tile (Solar Roof Shingles)



Material: 12pcs monocrystalline silicon

Product Size: 410*940mm

Effective Size:350*900mm

Thickness:13mm

Weight:6Kg±0.2Kg

Power under standard (Wp).- Pm : 30W

Optimum operating voltage(V)-Vmp:6.0Vmp

Optimum operating current(A):5.0Imp

Open-circuit voltage(V)-Voc:73

Short circuit current(A)-ISC:5.31

Output power tolerance±3%

Nominal operating:46±2°C

Short-circuit current temperature coefficient(TK Isc):+0.09/°C

Open-circuit voltage temperature coefficient(TK Voc):-0.34/°C

Standard temperature coefficient under the condition of power:-0.37/°C

Operating temperature*40~+90°C

Maximum system voltage:100D

Standard test conditions :1000W/m²,25°C,AM1.5

MOQ: 20FCL: 2100 pcs = 63,000 Watts

40FCL: 4550 pcs = 136,500 Watts



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Solar Roof Singles: Macsun Solar

For those who want solar power without looking like they have solar power, solar shingles are an option. Designed to look like ordinary asphalt shingles, they also protect your roof, and are meant to be as durable and flexible as regular shingles. They're also lightweight and easy to install. A few different types of solar shingles are available. You may also see them called building-integrated photovoltaics (BIPV).

Thin-film solar shingles

These are the latest solar shingles. They use CIGS technology (copper indium gallium diselenide), which is laminated in thin films— hence the name— over the shingles. They match the flexibility of ordinary shingles. Thin-film cells are currently less efficient than traditional silicon technology, but they are also less expensive to make. A set of their solar shingles can be installed in about ten hours, which is about half the time that the first solar shingles required for installation.

Silicon-based solar shingles

Other solar shingles are made with silicon, the material used in most solar panels. These are more efficient than the thin-film shingles. The solar shingles made by us convert up to 22% of available sunlight into electricity. Note that the first silicon solar shingles were released in 2005, so the whole industry is new.

How much power do solar shingles produce?

Each shingle will produce between 13 and 63 watts, depending on the efficiency of shingle. If you use the shingles that produce 13 watts, you'd need 77 tiles to cover 100 square feet of roof, for a kilowatt of potential energy.

Can they withstand the weather?

Just like ordinary shingles, solar shingles are designed to withstand rain, wind, and hail. However, because they're new to the market, there isn't a lot of real-life data on how long solar shingles can last (**more:** How long do solar panels last).



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Solar shingles vs. solar panels

Photovoltaic roof tiles aren't a good match for all roofs. You need to have a roof that's correctly angled to receive sunlight. You also need to have a roofing substrate that can handle getting hot, and the correct air circulation. If you're interested in solar shingles, you'll need to have an installer check out your roof to see if it's a possibility.

Solar panels, on the other hand, can be angled to receive maximum sunlight even if the roof itself isn't quite at the right slope or if it's facing the wrong direction. They can be moved and relocated if necessary, without replacing the roof. They're also less expensive. Solar panels are more efficient, so you don't need to use as much roof space to bring down your electric bill. They also may not last as long. Right now, very few solar installers use solar shingles.

Combining solar technology with standard roofing materials, solar shingles are one of the hottest building-integrated photovoltaic products (BIPVs) on today's market. Integrating seamlessly into a roof, they're ideal for homeowners who want to enjoy the benefits of renewable energy but don't like the look of conventional solar panel arrays. As attractive as they are, however, their growing popularity has more to do with economics than aesthetics.

Sun-Powered Roofs

While there are a number of solar roofing options for residential installation, if your home is in need of a new roof or will need a new roof in the next few years, solar shingle technology is the most cost-effective home photovoltaic (PV) solution available today. You'll save 15 percent or more by installing solar roofing that if you install a new roof and PV system separately.

For new construction, a solar roof is a no-brainer. The advantages of solar shingles are too plentiful to consider any other option when constructing a new home.

Savings Through Incentive Programs

As a residential PV system, solar roofing installations are eligible for generous tax credits and rebates offered at the federal, state and local level. The federal incentive program alone can reduce the upfront cost of a solar roof installation by as much as 30 percent. Public utilities are mandated to invest in renewable energy, and most utilities partially meet these mandates by offering rebates to customers who install solar products, by crediting customers for any surplus energy that the system produces or by purchasing the extra electricity outright.

Durable and Reliable Energy Efficiency

Solar roofing products must meet strict standards to certify them as both a roofing and solar product. The best have a Class A fire rating, an outstanding snow load capacity and are certified to withstand hail, wind and rain. Depending on



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which solar roofing product you chose, you're likely to enjoy a 20-year warranty that will cover expected life of the roof. Most systems pay for themselves in less than 10 years. After your investment is recovered, you'll enjoy many years of free electricity.

Installation Options

As solar installations are modular in nature, you can choose to offset as much conventional electricity as you like. The larger the system, then the more that you'll save over the long term through reductions in monthly energy bills. Each system comes with an inverter to convert the direct current (DC) that solar cells generate into the alternating current (AC) that homes use. Some systems come with monitoring systems that allow you to track your energy usage and savings.

Residential PV systems offer insurance against rising conventional energy costs. With solar shingle technology, you can transform a roof from a depreciating asset into one that continues to save you money for many years to come.