



MATRIX Solar Booster

Ambient Light Energy Harvesting Module

Features & Benefits

Highest performance

- Start-up and operation with 0.5 μA input current (1 μW)
- >70% efficiency with 5 μA input current (10 μW)
- V_{OUT} quiescent current = 0.2 μA ($V_{\text{OUT}} = 5\text{V}$, $V_{\text{IN}} = 0\text{V}$)
- Much cheaper than available ASIC solutions

Highly integrated light energy harvesting modules

- Optimized for amorphous indoor solar cells (4-cell series connection)
- Maximum power point setting (MPPS) in 100 mV steps
- Maximum output voltage (V_{OUT}) in 100 mV steps
- PNOK open-drain output for charge complete

Easy to use

- Ultra-compact SMT package
- Connect directly to solar cell and battery/capacitor
- No external components
- Evaluation kit available

Applications



- Wearables Air Quality Monitors Process Monitoring
Remote Controls Smoke Detectors Ambient Light Harvesting
Shelf Labeling Wireless Sensors

Product Brief

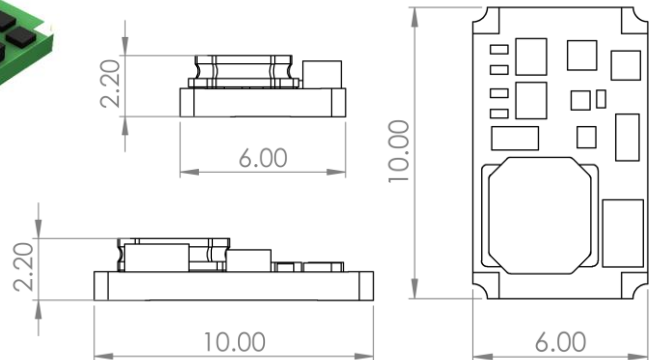
MATRIX Solar Booster is a family of energy harvesting modules designed for converting ambient light energy into useful electrical output.



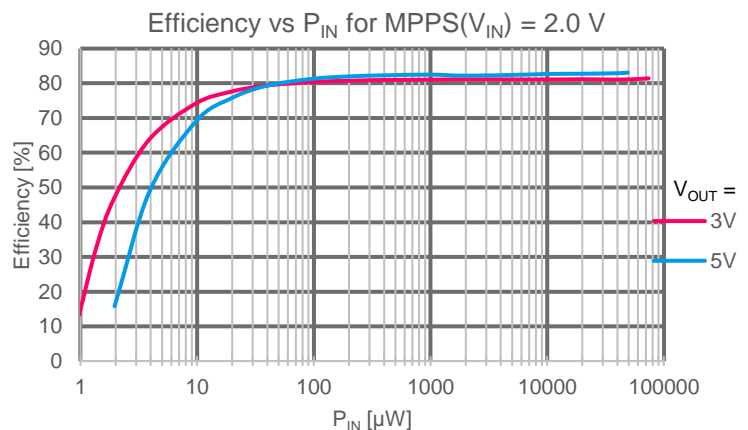
Each Solar Booster module integrates input impedance matching with output regulation in an ultra-compact package requiring no external components. MATRIX Solar Booster features the smallest cold-start power of any equivalent competitive solutions under identical conditions, whilst maintaining a constant high conversion efficiency across most of its operating input power range.

Multiple maximum power point setting (MPPS) options may be selected in 100mV steps, enabling ideal MPPS matching with any solar cell at the target illumination condition. Many maximum output voltages V_{OUT} between 2V and 5V are also available in 100mV steps, allowing the module to directly power integrated circuits, or charge various battery chemistries without needing additional charger circuitry. Integrated V_{OUT} regulation prevents voltage overshoot, securing reliable operation with various battery types. Operation temperature is -40°C to $+85^{\circ}\text{C}$, satisfying common industrial and commercial operating requirements.

Solar Booster is available as 4-lead, 10mm \times 6mm \times 2mm modules.



MATRIX Solar Booster dimensions.



Output efficiency vs input power P_{IN} for Solar Booster at output voltages of 3V and 5V, using maximum power point setting at input voltage V_{IN} of 2.0V.

MORE INFORMATION