



MATRIX Single Solar Booster

Ambient Light Energy Harvesting Module for Small Single Solar Cells

Features & Benefits

Highest performance

- Start-up and operation at 0.6 V and 5 μA input (3 μW)
- >70% efficiency at 0.6 V and 50 μA input (30 μW)
- V_{OUT} quiescent current = 0.67 μA ($V_{\text{OUT}} = 4.2 \text{ V}$, $V_{\text{IN}} = 0 \text{ V}$)
- Much cheaper than available ASIC solutions

Highly integrated light energy harvesting modules

- Optimized for large indoor/outdoor single solar cells
- Maximum power point setting (MPPS) in 50 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



Remote Controls

Smoke Detectors

Ambient Light Harvesting



Shelf Labeling

Wireless Sensors

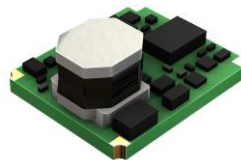
Product Brief

MATRIX Single Solar Booster (SSB) is an energy harvesting module designed for converting ambient light energy into useful electrical output.

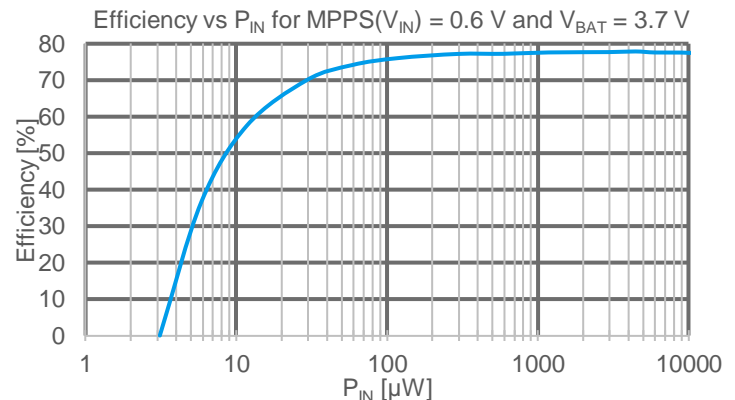
Each SSB module integrates input impedance matching with output regulation in an ultra-compact package requiring no external components. MATRIX SSB features the smallest cold-start power of any equivalent competitive solutions under identical conditions, whilst maintaining a constant high conversion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

Multiple maximum power point setting (MPPS) options may be selected in 50mV 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.

SSB is available as 4-lead, 10mm \times 12mm \times 5mm modules.



MATRIX SSB dimensions.
Custom shapes and sizes available upon request.



Output efficiency vs input power P_{IN} for MATRIX SSB at output voltage V_{OUT} of 3.7V, using maximum power point setting at input voltage V_{IN} of 0.6V.

MORE INFORMATION