# OIPV6

*Solar cell*

## General Description

OIPV6 consists in a photovoltaic cell, 4x4mm, packaged in CSP (Chip Scaled Package). The package type enhance the fill factor of the component. The device is the ideal solution as harvesting "brick" for smart systems, sensors and electronics. The cell efficiency is very high allowing the user to extract more current than from normal cells. The OIPV6 is a simple element, which can be assembled as a classic SMT component: it can be combined in series and/or in parallel, in order to achieve the desired voltage and current.

OIPV6 can be purchased with 2 options, concerning the encapsulant resin, depending on requirements.

The silicone encapsulant ensures very high temperature ranges (ideal for concentration applications) and very low degradation due to aging. The silicone offers also better mechanical properties, as it is elastic.

The epoxy resin encapsulant is very clear, it offers a good hardness (75 shore D), it is insensible to dust in comparison to silicone and it has very high optical transmission index. The drawback of epoxy covering resin is that it is delicate to the temperature shocks.

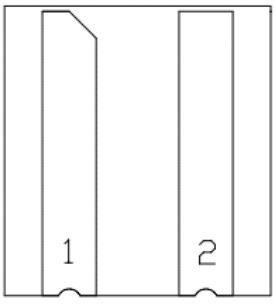
## Applications

Harvesting modules

Concentration photovoltaic systems

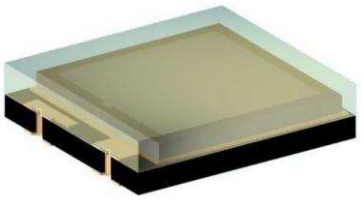
Solar rechargeable systems

Green power production





back view



## Features

- **High efficiency cell (20 at 1 sun)**
- **Output current linear with concentration factor**
- **Textured surface**
- **No contact degradation (no aging of the metal contacts)**
- **Compliant to RoHS European Directive**
- **Suitable also for concentrated light up to 150X**
- **Available with different encapsulants (silicone or clear epoxy)**

## Pin Functions

| No. | Name | Function |
|---|---|---|
| 1 | C | Cathode |
| 2 | A | Anode |

## Ordering Information

| | |
|---|---|
| **OIPV6-S** | Photovoltaic cell in CSP 4x4mm silicone cover |
| **OIPV6-E** | Photovoltaic cell in CSP 4x4mm epoxy cover |

## ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Min | Max | Unit |
|---|---|---|---|---|
| $T_A$ | Max Operating Temperature (S version) | -30 | 100 | °C |
| | Max Operating Temperature (E version) | -20 | 70 | °C |

*Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.*

## ELECTRICAL CHARACTERISTICS

$T_A$ = 25°C, unless otherwise noted.

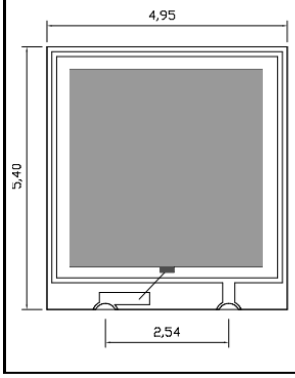
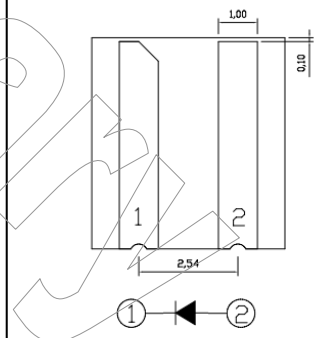
| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $T_A$ | Operating Temperature Range | | 0 | | 70 | °C |
| | Operating Temperature Range | | -25 | | 85 | °C |
| Voc | Open circuit voltage | | | 0.625 | | V |
| Isc | Short circuit current | | | 39 | | $mA/cm^2$ |
| E | Efficiency | 1 SUN | | 20 | | |
| | | 100 SUN | | 24 | | |

## MECHANICAL CHARACTERISTICS

$T_A$ = 25°C, unless otherwise noted.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| A | Active area | | | 0.13 | | $cm^2$ |
| FFc | Fill factor of the cell | | | 82.3 | | % |
| FFp | Fill factor of packaged device | Including the package | | 50 | | % |
| H | Hardness of the resin | S version, shore D | | 75 | | |
| | | E version, shore A | | 29 | | |

## MECHANICAL DIMENSIONS

| Top View | Side View | Bottom View |
|---|---|---|
|  |  |  |

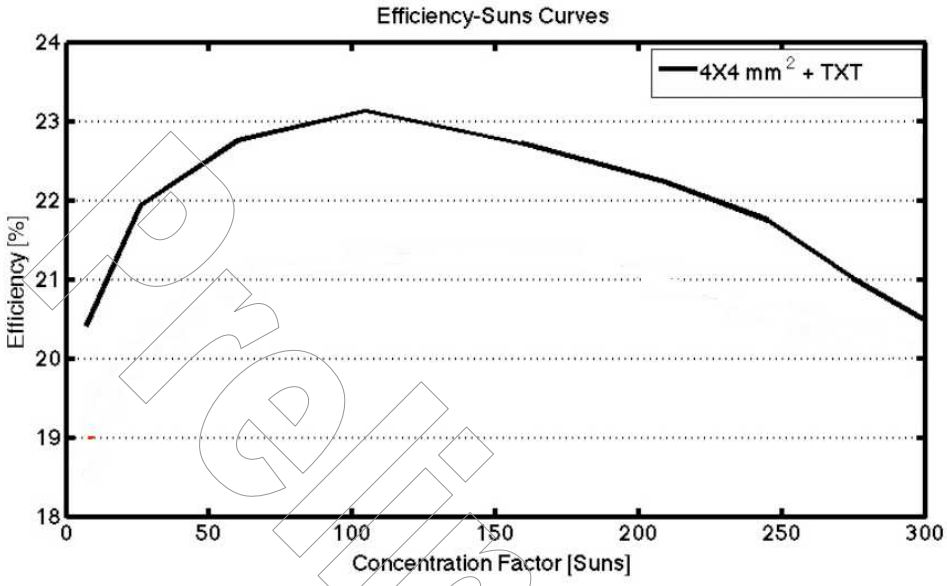



**Figure 1 – efficiency VS concentration factor**

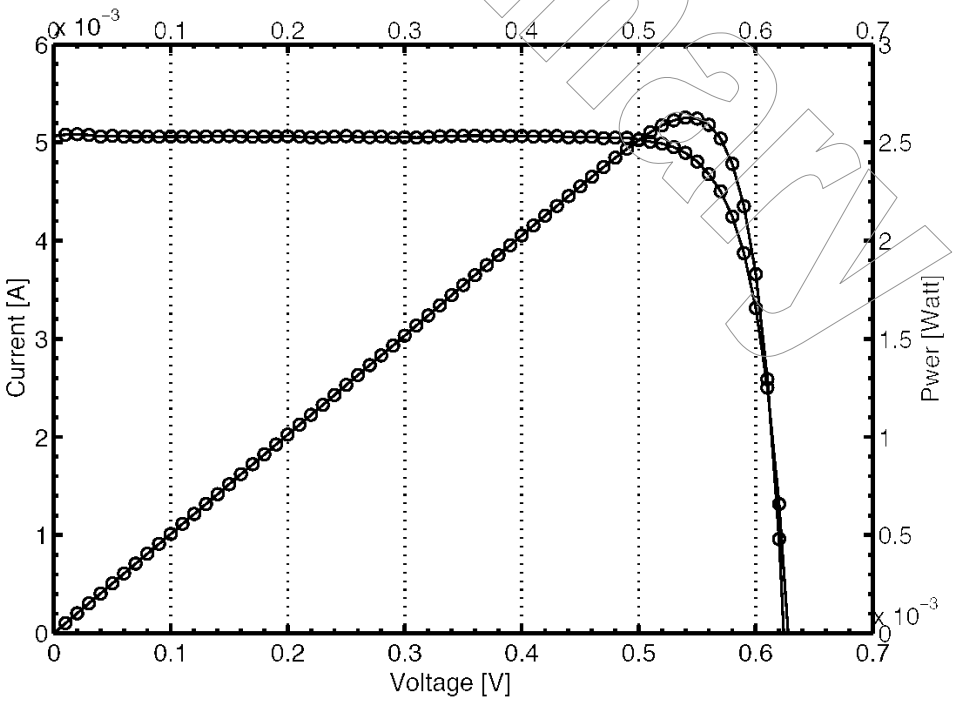



**Figure 2 – I-V characteristic, conversion efficiency**