Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

IXOLAR™ High Efficiency SolarPN.

Description

IXOLAR™ SolarPN is an IXYS product line of Solar Panel made of monocrystalline, high efficiency solar cells. The IXOLAR™ SolarPN is an ideal for powering in the range over 1W up to 100W. Applications for IXOLAR™ SolarPN can be from various battery powered consumer products such as portable electronics like phones or notebooks, pads or tabs up to various medium power applications such as lightings for street or park and independent small power stations to drive power system outdoors in the remote area or islands. They are also suitable for industrial applications such as UPS, wireless sensors, portable instrumentation and for charging emergency backup batteries.

With a cell efficiency of typically 22%, SolarPN gives the ability to extend run time even in "low light" conditions and increase battery life in a limited small footprint. The design allows connecting SolarPN flexibly in series and/or parallel to perfectly meet the custom-specific application's power requirements.

IXOLAR™ products have a very good photonic response over a wide range of wavelength and therefore can be used in both indoor and outdoor applications.

Product and Ordering Information

Part Number	Open Circuit Voltage [V]	Short Circuit Current [A]	Typ. Voltage @ P_{mpp} [V]	Typ. Current @ P_{mpp} [A]
SLPN005H10L	6.30	1.05	5.50	0.98

(parameters given are typical values)
Dimensions (L x W x H): 223mm x 143mm x 2mm
SolarPN Weight: 60 grams
SolarPN are compliant to the RoHS Norm.

SolarMD Electrical Characteristics

Symbol	Cell Parameter	Typical Ratings *)	Units
V_{oc}	open circuit voltage	6.30	V
I_{sc}	short circuit current	1.00	A
V_{mpp}	voltage at max. power point	5.50	V
I_{mpp}	current at max. power point	0.98	A
P_{mpp}	maximum peak power	5.39	W
FF	fill factor	> 70	%
η	solar cell efficiency	22.1	%
$\Delta V_{oc}/\Delta T$	open circuit voltage temp. coefficient	-2.1	mV/K
$\Delta J_{sc}/\Delta T$	short circuit current temp. coefficient	0.12	mA/(cm²K)

*) All values measured at Standard Condition: 1 sun (= 1000 W/m²), Air Mass 1.5, 25°C

Features

- Monocrystalline silicon technology
- High efficiency outdoor and indoor
- Long life and stable output
- Sealed Package

Applications

- Battery chargers for portables like phones, notebooks, pads, tabs
- Various power systems like street or park lightings
- Independent green electricity power stations
- Power backup for UPS, wireless sensors, emergency power backup chargers.

Advantages

- One Product for Multiple Applications
- Flexible Integration into the Application
- High power density in a small foot print

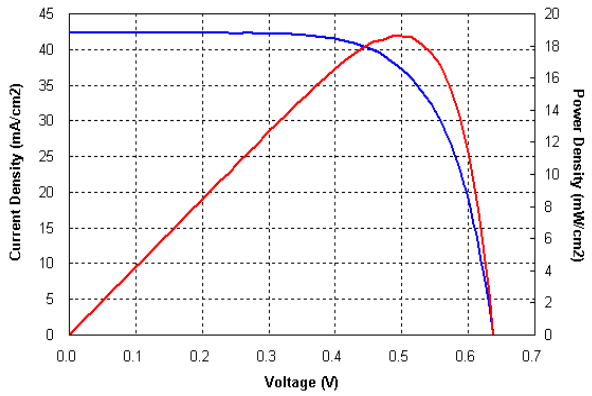
IXYS KOREA LTD.
906-5 Iui-dong, Yeongtong-Gu, Suwon, Gyeonggi-Do (Korea)
Phone +82-70-7113-0300, Fax +82-70-7113-0301

Rev . Jan. 2014

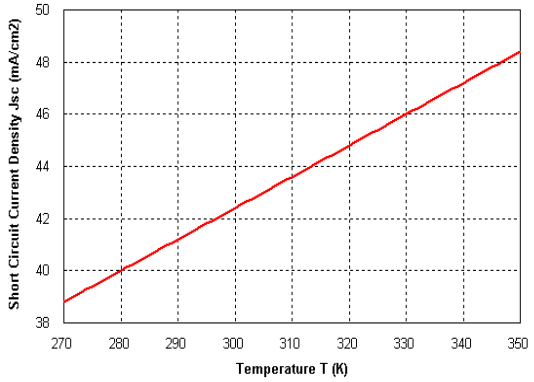
IXYS Corporation
1590 Buckeye Drive, Milpitas, CA 95035-7418
Phone (408) 457-9000, Fax 408-496-0670

Typical SolarPN Performance Data

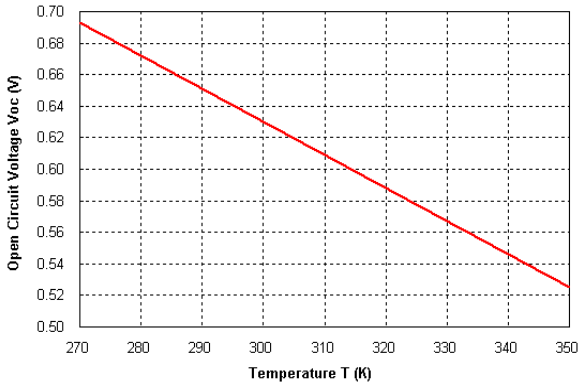
Current-Voltage Characteristics



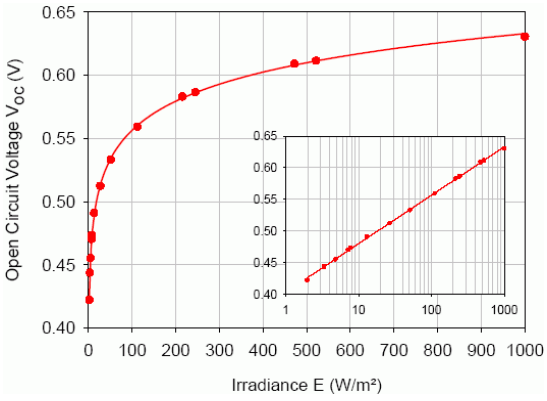
Short Circuit Current Density vs. Temperature



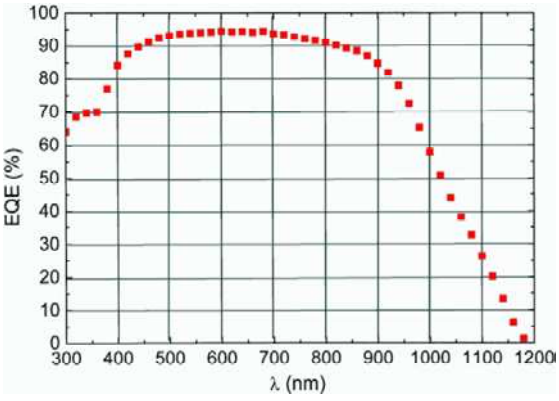
Open Circuit Voltage vs. Temperature



Open-Circuit Voltage vs. Irradiance



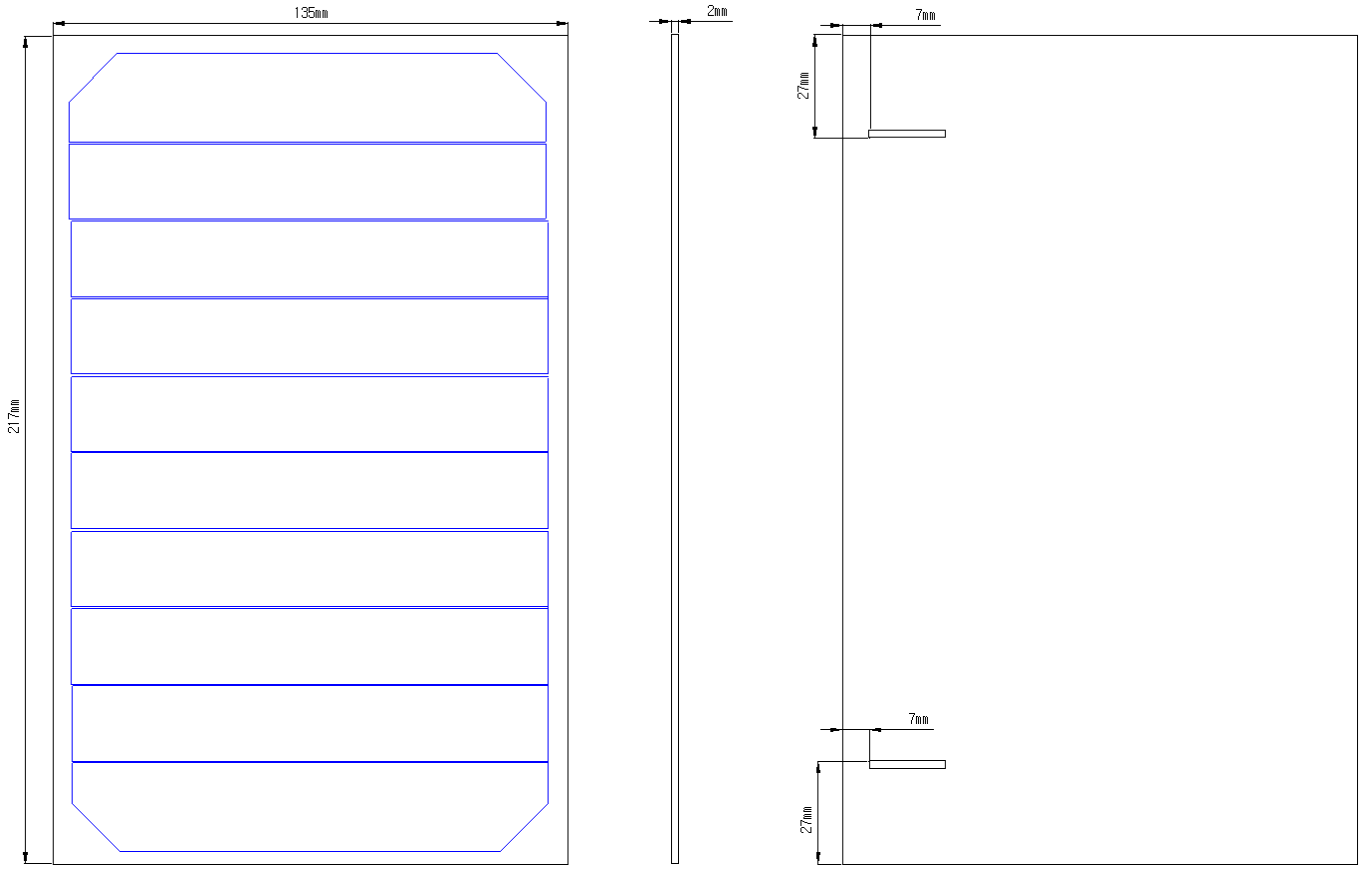
External Quantum Efficiency



IXYS KOREA LTD.
906-5 Iui-dong, Yeongtong-Gu, Suwon, Gyeonggi-Do (Korea)
Phone +82-70-7113-0300, Fax +82-70-7113-0301

IXYS Corporation
1590 Buckeye Drive, Milpitas, CA 95035-7418
Phone (408) 457-9000, Fax 408-496-0670

Package front-side and back-side view. (dimensions in millimeters)



Front-side View details **Back-side View details**

Moisture Sensitivity and Washing Information

IXYS has characterized the moisture reflow sensitivity of the film laminated SolarPN using IPC/JEDEC standard J-STD-020. The film laminated SolarPN meets the standard MSL level 1 soak requirements of 85°C/85%RH for 168hrs. Moisture uptake from atmospheric humidity occurs by diffusion. During the soldering process to the electrode, the combination of moisture uptake and high temperature soldering may lead to moisture induced delamination and cracking of the component. To prevent this, this component must be handled with care in soldering. SLPN005H10L is encapsulated with EVA, and polymer film on top and backsheet on back. The substrate is slightly flexible and the silicon solar cells can be somewhat bowed if necessary. However, care in handle is needed not to bend too much where it can break the substrate. Since the solar cell used in SolarPN is so called back contact solar cell, the solar cell will still function normally even when it is slightly bowed or even slightly broken, unless the back metal on the backside of solar cell is broken disconnected. SLPN005H10L is surface treated with antistatic coating on the front to prevent collecting electrostatic dust for two or three years. However this doesn't guarantee 100% antistatic, so care is needed to keep the top surface clean as possible. In the sense, IXYS does not recommend the use of chlorinated solvents for washing. Recommended for washing is regular water.

IXYS KOREA LTD.
906-5 Iui-dong, Yeongtong-Gu, Suwon, Gyeonggi-Do (Korea)
Phone +82-70-7113-0300, Fax +82-70-7113-0301
IXYS Corporation
1590 Buckeye Drive, Milpitas, CA 95035-7418
Phone (408) 457-9000, Fax 408-496-0670

Background

Some basic information needs to be covered to better understand what to expect in terms of the SolarPN's performance with regards to solar cell type, lighting conditions in terms of power density, and general industry standards as they relate to battery charging.

Solar Cell Types

Keep in mind these cost and performance tradeoffs when comparing various solar cell materials:

Polycrystalline cells are commonly found in outdoor applications and have a spectral sensitivity range of 500nm to 1100nm. They're in the medium price range and typically offer a 13% power conversion efficiency.

Monocrystalline cells, such as the IXYS SolarPN, have a spectral sensitivity range from 300 nm (near-ultraviolet) to 1100 nm (near-infrared), which includes visible light (400 to 700 nm). Due to this wide spectral range, they can be used in both indoor and outdoor applications. Monocrystalline or single-crystalline material is the most expensive but it does not contain impurities, and as such the power conversion efficiency does not degrade over operating time. The power conversion efficiency of commercially available monocrystalline cells ranges from 15 to 22%. The surface of these cells is a homogenous dark blue or dark grey.

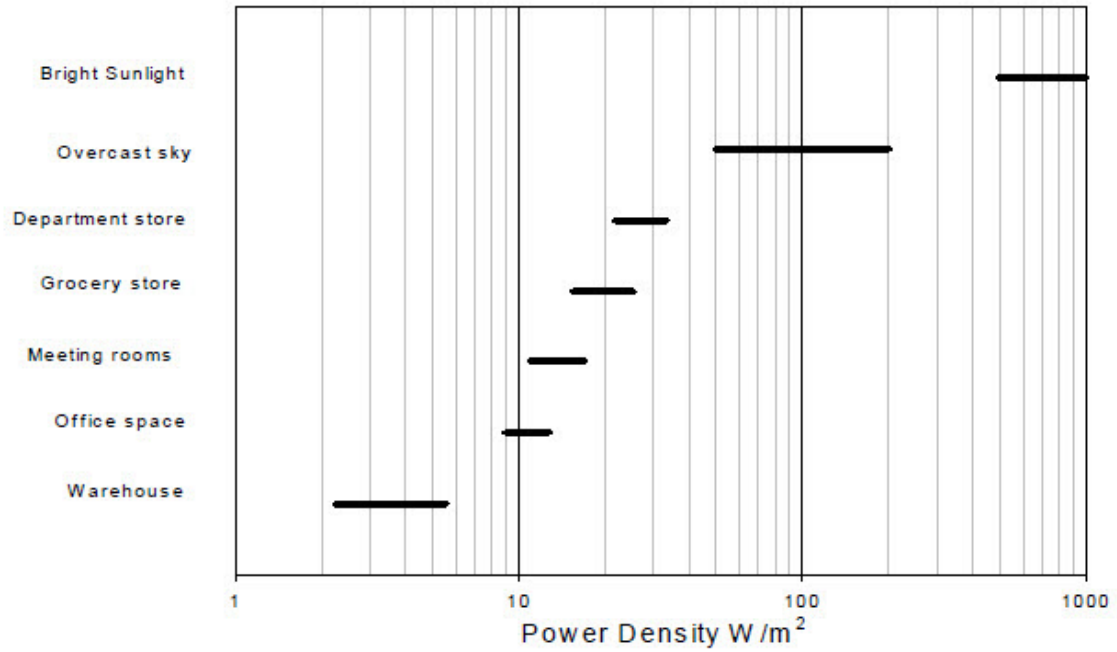
Finally, amorphous cells, which work in the spectral range of 300nm to 600nm, are used predominantly indoors in products such as solar powered calculators since they are not sensitive to the upper light spectrum and cannot take advantage of natural sunlight. They offer about 5% power conversion efficiency and are mostly used with ultra low power devices like clocks and electronic calculators. Amorphous cells, like polycrystalline cells, suffer from efficiency degradation.

IXYS KOREA LTD.
906-5 Iui-dong, Yeongtong-Gu, Suwon, Gyeonggi-Do (Korea)
Phone +82-70-7113-0300, Fax +82-70-7113-0301
IXYS Corporation
1590 Buckeye Drive, Milpitas, CA 95035-7418
Phone (408) 457-9000, Fax 408-496-0670

SolarPN Description

SolarPN is made of monocrystalline, high-efficiency solar cells on a thick and flexible PC substrate. They're reliably sealed with film lamination on the front and can be used in harsh environments. Solar cells used in SolarPN have a very high (22%) power conversion efficiency, which means that 22% of the light energy is converted into electrical energy. They're extremely useful in applications requiring solar power generation in a limited foot print.

Monocrystalline cells can be used in indoor and outdoor applications because they have a wide spectral sensitivity, 300 to 1100 nm. However, the output power of a solar cell is proportional (over a wide range) to the incoming light energy, and irradiance is generally much higher outdoors. The values in the data sheet are measured at "standard condition" of 1 sun, which is equal to 1000W per square meter sunlight irradiance at a defined light spectrum (air mass of 1.5) and 25°C cell temperature.



Relative Light Power Densities

IXYS KOREA LTD.
906-5 Iui-dong, Yeongtong-Gu, Suwon, Gyeonggi-Do (Korea)
Phone +82-70-7113-0300, Fax +82-70-7113-0301

IXYS Corporation
1590 Buckeye Drive, Milpitas, CA 95035-7418
Phone (408) 457-9000, Fax 408-496-0670

Relative Lighting Power Density

The figure above compares relative power density for various lighting conditions in units of Watts per square meter (W/m^2). The reference standard condition is 1 Sun and is equal to 1000 Watts per square meter of sunlight irradiance at a constant 25°C cell temperature and at 1.5 Air Mass (Air Mass stands for a well defined light spectrum which appears if the sunlight goes through the earth's athmosphere at a defined angle). As the chart clearly shows, the power density of typical indoor lighting is dramatically lower than that of sunlight. Not only is irradiance from indirect and artificial light lower; the spectrum is also narrower. In typical Office Space lighting with a spectrum produced from incandescent or halogen light bulbs, the power output may be roughly 100 times less than bright sunlight. It may be 200 to 500 times less with fluorescent lighting due to the further limited spectrum.

IXYS KOREA LTD.
906-5 Iui-dong, Yeongtong-Gu, Suwon, Gyeonggi-Do (Korea)
Phone +82-70-7113-0300, Fax +82-70-7113-0301

IXYS Corporation
1590 Buckeye Drive, Milpitas, CA 95035-7418
Phone (408) 457-9000, Fax 408-496-0670