IXOLAR™ High Efficiency Solar Cells

Description

IXOLAR™ Solar Cells are IXYS' monocrystalline, high efficiency solar cell technology products incorporating an enhanced light trapping surface. There are 6 different cell sizes available: 36mm², 72mm², 120mm², 240mm², 360mm² and 480mm².

The IXOLAR™ Solar Cells are ideal for charging various battery powered and handheld consumer products such as mobile phones, cameras, PDAs, MP3-Playersand toys. They are also suitable for industrial applications such as wireless sensors, portable instrumentation and for charging emergency backup batteries.

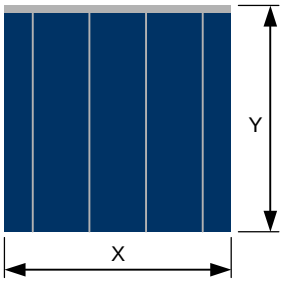
With an efficiency of typically 17%, these solar cells give the ability to extend run time even in "low light" conditions and increase battery life and run time in a small footprint, which can be easily accommodated in the design of Portable Products.

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

Product and Ordering Information

Part Number	X [mm]	Y [mm]	Open Circuit Voltage [mV]	Short Circuit Current [mA]
XOD17-04B	6	6	630	12
XOD17-07B	12	6	630	24
XOD17-12B	6	20	630	42
XOD17-24B	12	20	630	84
XOD17-36B	18	20	630	126
XOD17-48B	24	20	630	168

B-suffix: bondable front-side metallization



Front-side contact (–)
Back-side contact (+)

Electrical Characteristics

Symbol	Cell Parameter	Typical Ratings *)	Units
V_{OC}	open circuit voltage	630	mV
J_{SC}	short circuit current density	35	mA/cm²
V_{mpp}	voltage at max. power point	505	mV
J_{mpp}	current density at max. power point	32.5	mA/cm²
P_{mpp}	maximum peak power	16.6	mW/cm²
FF	fill factor	> 75	%
η	efficiency	17	%
$\Delta V_{OC}/\Delta T$	open circuit voltage temp. coefficient	-2.1	mV/K
$\Delta J_{SC}/\Delta T$	short circuit current temp. coefficient	0.12	mA/(cm²K)
t	cell thickness	250	µm

*) All values measured at Standard Condition: 1 sun (= 100mW/cm²), Air Mass 1.5, 25°C

Features

- Monocrystalline silicon technology
- High efficiency
- Enhanced light trapping surface texturization

Applications

- Battery chargers for portables such as cell phones, PDAs, GPS-Systems, …
- “Green” electricity generation
- Power backup for UPS, Sensors, Wearables

Advantages

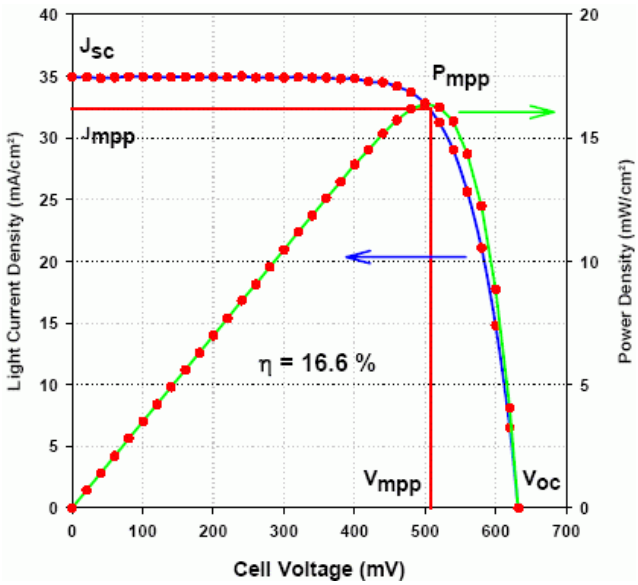
- Long life and stable output
- Solderable back-side metallization (available on request)
- Bondable front-side metallization
- Available in die and wafer form

IXYS Semiconductor GmbH
Edisonstr. 15, D-68623 Lampertheim (Germany)
Phone +49-6206-503-0, Fax +49-6206-503-627

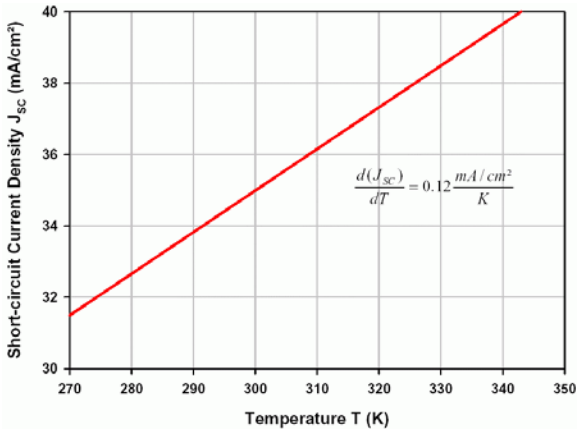
IXYS Corporation
3540 Bassett Street, Santa Clara CA 95054
Phone 408-982-0700, Fax 408-496-0670

Typical Performance Data

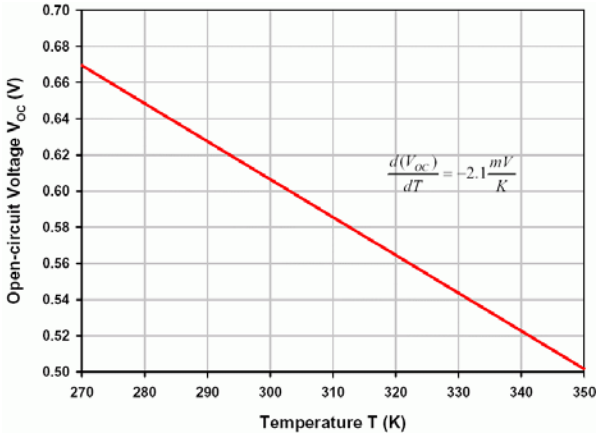
Cell Current/Voltage Behavior



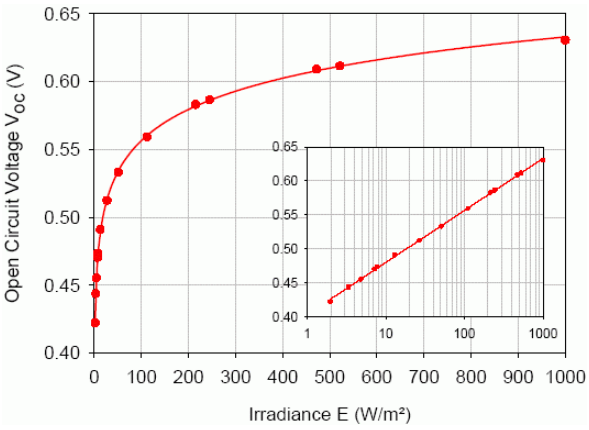
Short-Circuit Current Density vs. Temperature



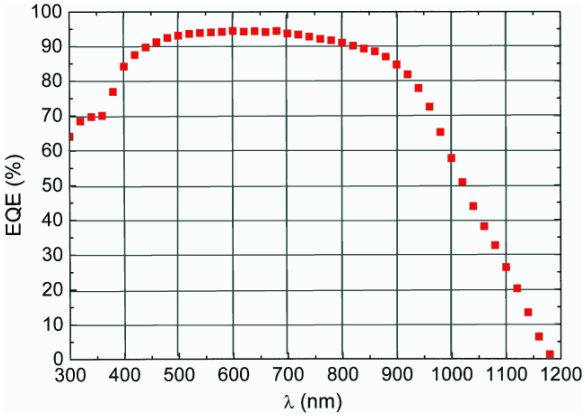
Open-Circuit Voltage vs. Temperature



Open-Circuit Voltage vs. Irradiance



External Quantum Efficiency



IXYS Semiconductor GmbH
Edisonstr. 15, D-68623 Lampertheim (Germany)
Phone +49-6206-503-0, Fax +49-6206-503-627

IXYS Corporation
3540 Bassett Street, Santa Clara CA 95054
Phone 408-982-0700, Fax 408-496-0670