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 7 different cell sizes available: 36mm², 120mm², 240mm², 342mm², 360mm², 480mm² and 676mm².

The IXOLAR™ Solar Cells are ideal for charging various battery powered and handheld consumer products such as mobile phones, cameras, PDAs, MP3 players and 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.

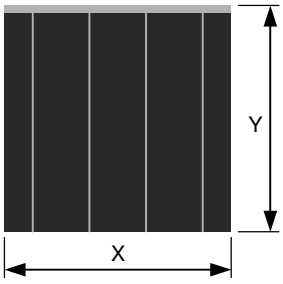
IXOLAR™ products have a very good response over a wide wavelength range and therefore can be used in both indoor and outdoor applications.

Product and Ordering Information

Part Number	X [mm]	Y [mm]	Open Circuit Voltage [mV]	Short Circuit Current [mA]	Peak Power [mW]
XOD17-04B	6	6	630	12	6
XOD17-12B	6	20	630	42	20
XOD17-24B[*1)]	12	20	630	84	40
XOD17-34B	18.5	18.5	630	120	56
XOD17-36B[*1)]	18	20	630	126	60
XOD17-48B[*1)]	24	20	630	168	80
XOD17-68B	26	26	630	236	112

B-suffix: wire-bondable front-side metallization (non solderable)

[*1)] do not use with new designs



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

Electrical Characteristics

Symbol	Cell Parameter	Typical Ratings[*2)]	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

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

Operating temperature range: -40°C …. + 85°C

XOD17 solar cell dies are RoHS compliant

Features

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

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
- Bondable front-side metallization
- Available in die and wafer form

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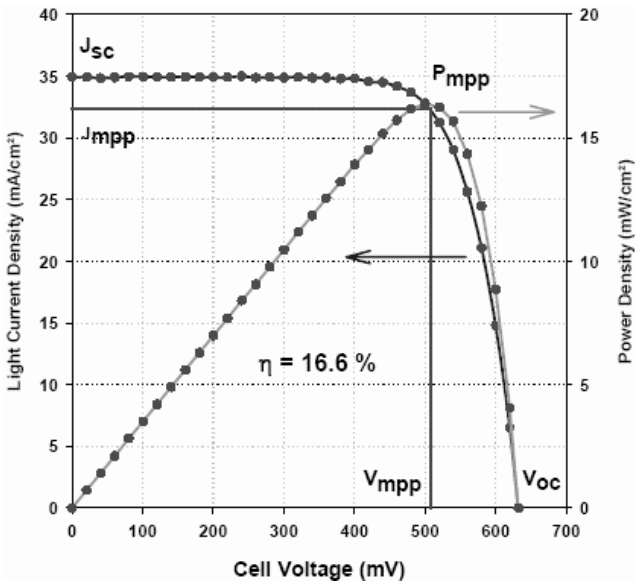
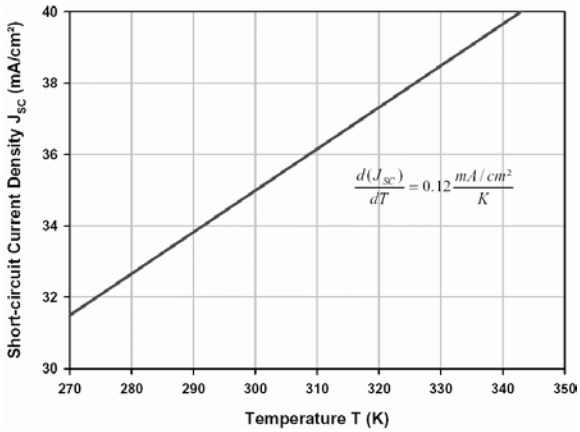
Typical Performance Data

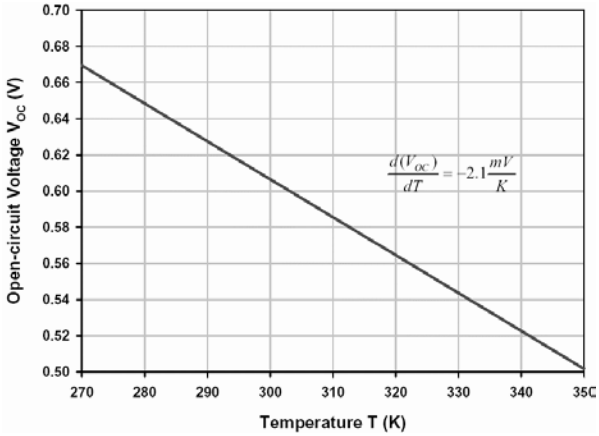
Cell Current/Voltage Behavior



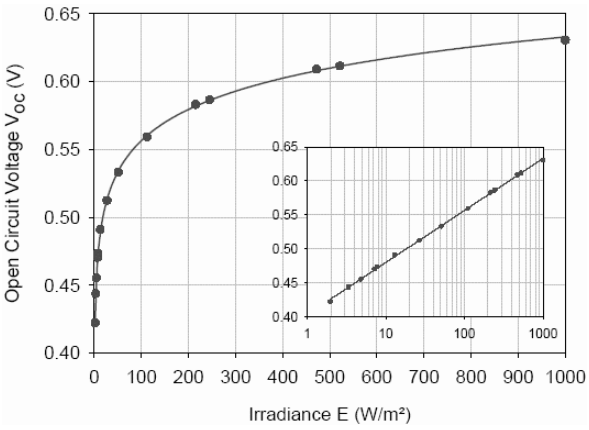
Short-Circuit Current Density vs. Temperature



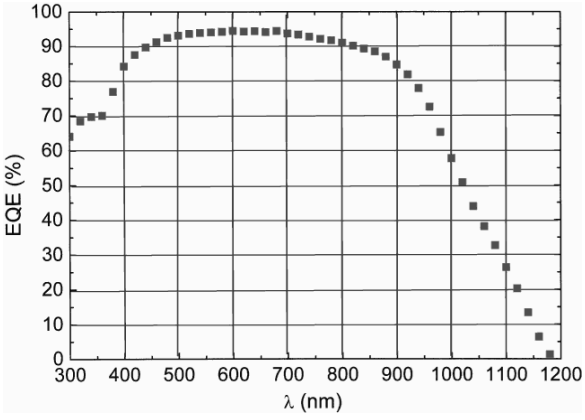
Open-Circuit Voltage vs. Temperature



Open-Circuit Voltage vs. Irradiance



External Quantum Efficiency



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