SHARP

Sharp Thin-film Single-, Dual-, and Triple-Junction Atmospheric Solar Modules

Datasheet

Features

Flight design – Lightweight, highly efficient flexible solar cells suitable for solar-powered aircraft applications

Light flight mass –Interconnected cell modules with typical mass density of 280 grams/m^2 generate up to 351 W/m^2 (in case of triple-junction)

Smooth surface – Smooth outer surface to reduce air drag for improved aerodynamic performance

Customizable – Offered as interconnected series of single, dual-, or triple-junction cells; single-facial and bifacial designs also available

Product Information

Product Name	Thin-film Atmospheric Solar Modules
Product Group	Atmospheric Solar

Line Up	Materials	Relative Power	Bifacial Availability
Single-junction	GaAs	Lower	Available
Dual-junction	InGaP/GaAs	Mid	Available
Triple-junction	InGaP/GaAs/InGaAs	High	No

Product Description

Panel Dimensions	24.32 cm by 51.4 cm for module containing 42 cells in series (but note: customizable module sizes available)
Thickness	0.16 mm
Weight	34 gram / module, 0.28 kg/m^2
Bypass diode	One per each cell

Electrical Data	Power (W)	Isc (A)	Voc (V)
Single-junction	30.5	0.86	43
Bifacial single junction	36.2	1.04	43

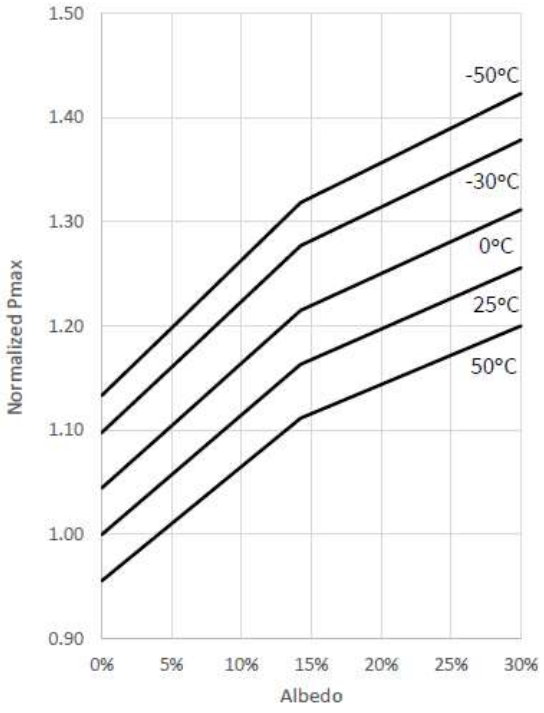
Dual-junction	34.7	0.39	104
Bifacial dual-junction	44.9	0.48	104
Triple-Junction	43.9	0.41	126

(Typical values observed for 42 cell module under AM0:136.7mW/cm2, 25°C; for bifacial reverse irradiance at 0.3 sun at AM0)

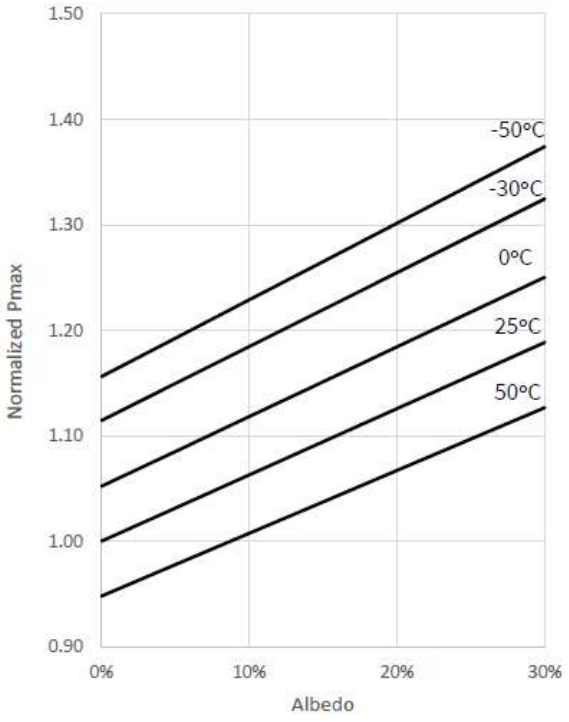
Temperature Coefficients	Pmax	VoC	Jsc
Single-junction	-0.21	-0.18	0.049
Dual-junction	-0.18	-0.16	0.044
Triple-junction	-0.19	-0.19	0.046

For bifacial single- and dual-junction modules, Pmax dependence on albedo and module temperature

Dual-junction



Single-junction



(Normalized for 25°C and 0% albedo.)