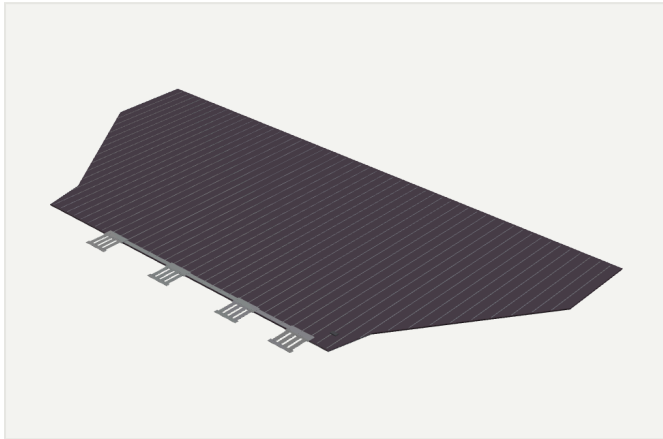


Triple Junction GaAs Solar Cell (CIC)

ES-30TJSC-80 · 30 % efficiency, flight-proven large-area cell assembly with integrated cover glass, interconnectors and bypass diode



CAD-based rendering of the ES-30TJSC-80 CIC outline · dimension drawing on page 2

Efficiency (BOL, AM0)	30 %
Cell area	79.80 cm²
Dimensions	144.45 mm × 68.65 mm (± 0.15 mm)
CIC weight	13.5 g ± 0.5 g
V_m / I_m (typical)	2440 mV / 1325 mA
Base material	GaInP₂ / GaAs / Ge
Bypass diode	External Si diode, integrated
Also available	Custom welded strings

01 Product description

The cell has a BOL efficiency of 30 % in batch production and is flight proven. It includes integrated cover glass and interconnectors (CIC). The cell has an integrated bypass diode to protect against potential damage to the cell. This cell offers the best mass and price per watt in our portfolio. The product is also available in custom welded strings.

02 Key features and ordering

Key features

- 30 % BOL efficiency in batch production
- Flight proven
- Integrated cover glass and interconnectors (CIC)
- Integrated bypass diode protects the cell
- Best mass and price per watt in our portfolio
- Available as custom welded strings

Ordering

ES-30TJSC-80

Single cell assembly (CIC) with integrated cover glass, interconnectors and bypass diode.

Custom welded strings: number of cells in series and string layout on request.

Document

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03 Design and mechanical data

Dimensions	(144.45 mm ± 0.15 mm) × (68.65 mm ± 0.15 mm)
Cell area	79.80 cm ²
CIC thickness	400 μm ± 75 μm
CIC weight	13.5 g ± 0.5 g
Base material	GaInP ₂ / GaAs / Ge on Ge substrate
Cover glass type	KFB 120 AR
Cover glass thickness	120 μm ± 20 μm
AR coating	TiO _x / Al ₂ O ₃
Interconnector (3× front side / 1× diode)	Kovar, silver coated
Interconnector thickness	30 μm
Interconnector weld points	4 per interconnector
Bypass diode	External Si diode

06 Temperature coefficients

Linear over 20–65 °C, at 1 MeV electron fluence (e⁻/cm²)

PARAMETER	SYMBOL	UNIT	BOL	5 × 10 ¹⁴	1 × 10 ¹⁵
Short circuit current	I _{sc}	mA/°C	0.88	0.80	1.04
Open circuit voltage	V _{oc}	mV/°C	-5.9	-6.1	-6.3
Current at max. power	I _m	mA/°C	0.72	0.76	1.20
Voltage at max. power	V _m	mV/°C	-6.0	-6.2	-6.5

07 Acceptance and threshold values

Acceptance voltage V _{acc}	2350 mV
Min. average current at V _{acc} (I _{acc min})	1325 mA
Min. individual current at V _{acc} (I _{acc ave})	1300 mA
Shadow protection diode	External Si diode
V _{forward} (at 1000 mA, dark)	≤ 1.2 V
I _{reverse} (at 4.0 V, dark)	≤ 10 μA
Absorptivity	≤ 0.92
Interconnector pull test (at 45°)	≥ 0.83 N/mm ²

04 Electrical performance, BOL

AMO, 1353 W/m², T = 25 °C, typical values

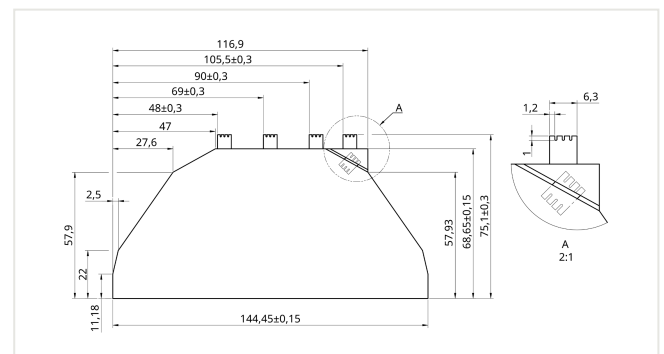
PARAMETER	SYMBOL	UNIT	VALUE
Average open circuit voltage	V _{oc}	mV	2760
Average short circuit current	I _{sc}	mA	1375
Average short circuit current density	J _{sc}	mA/cm ²	17.2
Voltage at max. power	V _m	mV	2440
Current at max. power	I _m	mA	1325
Current density at max. power	J _m	mA/cm ²	16.6
Average efficiency (1353 W/m ²)	η _{bare}	%	30

05 Radiation remaining factors

1 MeV electron fluence (e⁻/cm²)

RATIO	1 × 10 ¹⁴	5 × 10 ¹⁴	1 × 10 ¹⁵
I _m / I _{m0}	0.99	0.98	0.96
V _m / V _{m0}	0.96	0.93	0.91
P _m / P _{m0}	0.95	0.91	0.87

08 Cell dimensions



Dimensions in mm · Detail A 2:1 · Drawing reproduced from cell datasheet v1.25