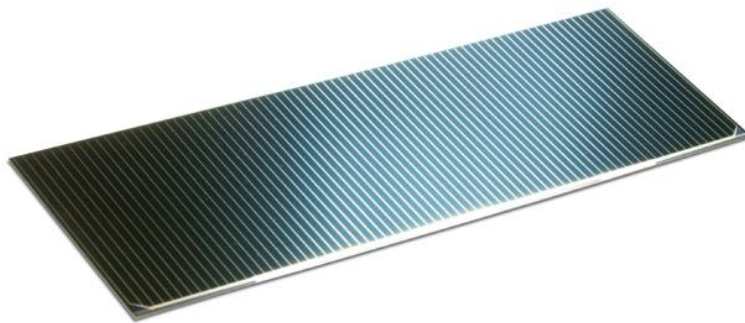


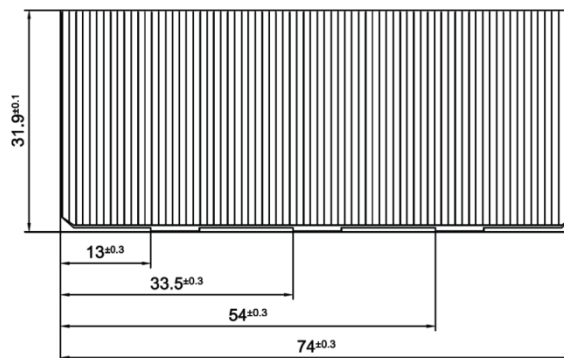


Silicon Solar Space Cell S 32

Type: S 32



This cell type is a state-of-the-art high efficiency, low weight silicon solar cell with an integrated by-pass diode.



Silicon solar space cell S 32

Type: S 32



Design and Mechanical Data

Base Material	CZ, <1-0-0>
AR-coating	TiO ₂ /Al ₂ O ₃
Dimensions (bare cell)	74.0 x 31.9 mm ± 0.1 mm
Cell Area	23.61 cm ²
Average Weight	≤ 32 mg/cm ²
Cell - Thickness	130 ± 30 µm
Ag - Thickness	3 – 11 µm
Grid Design	Improved Grid system with 3 contact pads
Resistivity	ρ (B) 2 ± 1 Ω cm
Shadow Protection	Integrated Zener by-pass diode I _{rev} = 55 mA/cm ² (1.2 I _{sc}) @ V _{rev} = 5 – 6 V



Electrical Data

		BOL	3E14	1E15	3E15
Average Open Circuit V _{oc}	[mV]	628	0.91	0.89	0.85
Average Short Circuit I _{sc}	[mA/cm ²]	45.8	0.88	0.85	0.76
Voltage at max. Power V _{mp}	[mV]	528	0.91	0.89	0.84
Current at max. Power I _{mp}	[mA/cm ²]	43.4	0.88	0.84	0.75
Average Efficiency η _{bare}	[%]	16.9	0.80	0.74	0.64

Test Conditions: AMO Spectrum; Light Intensity E = 135.3 mW/cm²; Cell Temperature T_c = 28°C

Standard: CNES 01-23MV1

BOL measurement accuracy: ± 1.5% relative



Temperature Gradients

		BOL	3E14	1E15	3E15
Voltage dV _{oc} /dT	[mV/°C]	- 2.02	- 2.14	- 2.17	- 2.20
Short Circuit dI _{sc} /dT	[mA/cm ² /°C]	0.030	0.045	0.055	0.059
Voltage dV _{pmax} /dT	[mV/°C]	- 2.07	- 2.22	- 2.19	- 2.25
Power dP _{mpax} /dT	[mW/cm ² /°C]	0.004	0.023	0.023	0.035



Threshold Values

Absorptivity	≤ 0.78 (with CMX 100 AR/IRR)
Pull Test	> 5 N at 45° welding test (with 35µm Ag stripes)
Development Status	Qualified