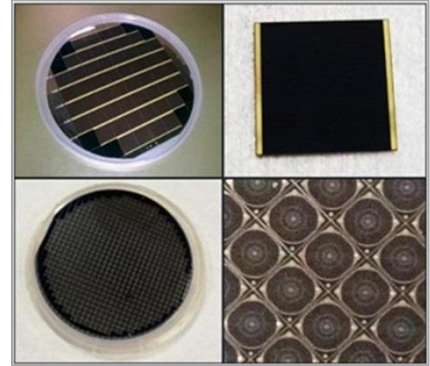
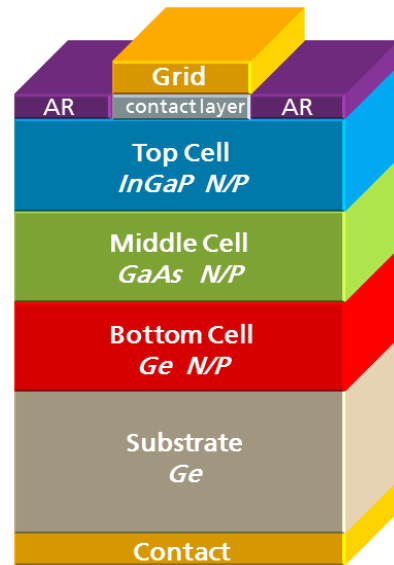


Triple-Junction Solar Cell for Terrestrial Applications (CCTJ40)

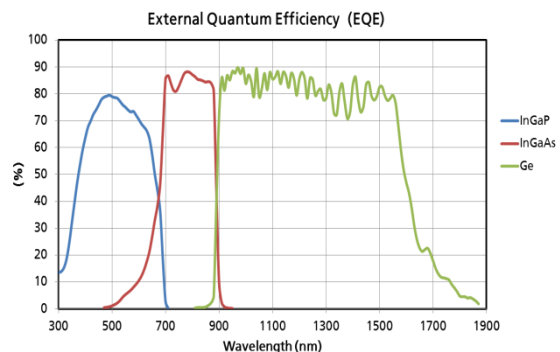
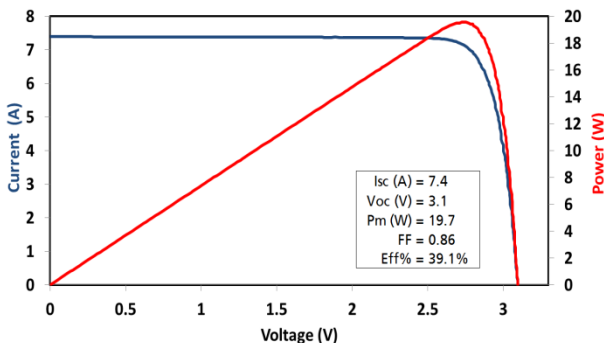


FEATURES & CHARACTERISTICS

- ◆ Efficiency 39.6% (@ 500 suns)
- ◆ Triple Junction Solar Cells InGaP/GaAs/Ge for HCPV Applications
- ◆ Polarity N on P
- ◆ Thickness 150 $\mu\text{m} \pm 20 \mu\text{m}$
- ◆ Multi-layer antireflective coating matched with incident spectrum
- ◆ Characterized for terrestrial applications under concentrated sunlight (over 1000 suns)
- ◆ Front and back contacts based on gold coated silver layers, weldable or solderable or bondable.
- ◆ Dimensions from 1 mm^2 up to 2 cm^2
- ◆ Customized dimensions available
- ◆ Operating temperature < 100°C
- ◆ Maximum temperature < 350°C
- ◆ External By-pass diode for reverse bias protection
- ◆ High flexibility to customization available (sizes, other)



TYPICAL CURRENT-VOLTAGE CHARACTERISTIC (AM 1.5D LOW AOD T= 25°C @500 SUNS)



PERFORMANCE DATA

(TYPICAL SOLAR CELL ELECTRICAL PARAMETERS @AM1.5D, LOW AOD, T=25°C)

SUNS	J_{sc} (A/cm^2)	V_{oc} (V)	P_M (W/cm^2)	FF	MIN. EFF. (%)
200	3.0	2.9	7.6	0.89	38.1
500	7.4	3.1	19.6	0.86	39.1
1000	14.9	3.1	38.3	0.83	38.3

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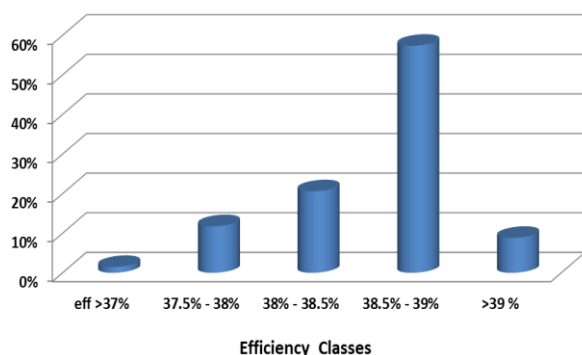
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TEMPERATURE COEFFICIENTS

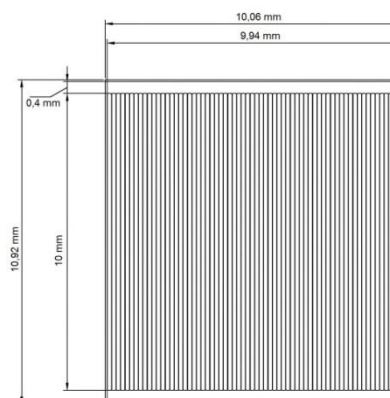
(TEMPERATURE DEPENDENCE AT 500 SUNS , 20°C ± 70°C)

$\Delta J_{SC}/\Delta T$ ($\mu A/cm^2/^\circ C$)	$\Delta V_{OC}/\Delta T$ (mV/°C)	$\Delta J_{P_{MAX}}/\Delta T$ (%abs/°C)
6.9	-3.99	-0.05

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MECHANICAL DIMENSIONS



QUALIFICATION RESULTS

TEST	CONDITIONS	REQUIREMENT	TEST RESULTS
Electrical Performance	50 W/cm ²	Characterization	Avg Eff. = 38.8%
Damp Heat	85°C, 90% RH, 1000 hrs	$\Delta P_m \leq 5\%$ on 100% samples	$\Delta P_m = 0.31\%$
Thermal shock	-190°C / +110 °C, 100 cycles	$\Delta P_m \leq 5\%$ on 100% samples	$\Delta P_m < 1.6\%$
Cell Reverse Bias	$V_{rev}=2.5$ V, 25°C, 1sec	$\Delta P_m \leq 5\%$ on 100% samples	ΔP_m Avg < 1.4% (max 3%)
ESD (IEC 61000-4-2)	Cell on ground plane. Pulse peak voltage ± 500 V in contact.	Characterization	No failures
	Cell insulated. Pulse peak voltage ± 500 V in contact.	Characterization	No failures
	Pulse peak voltage up to ± 5 kV noncontact discharge; Cells on ground plane	Characterization	<ul style="list-style-type: none"> •1000V: no failure, •2000V: 20% failure •3000V: 60% failure

The Information contained on this datasheet is for reference only. Specifications are subject to change without notice

For further information please visit www.cesi.it, e-mail at solar@cesi.it or telephone at +39 02 21255183

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