



Revolutionary Product —Selective Emitter™ Solar Module

Same module size,
Same exposure time,
10% more power output!

Made of CSUN SE high efficiency solar cells*, CEEG SE modules can deliver you 10% higher efficiency**. Especially, you could benefit **MORE** from the excellent performance under the low light condition and low hot spot effect, and get **LESS** degradation under light exposure.



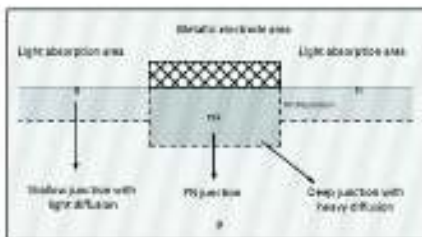
MORE - LESS =? You know how to choose!

□ Features

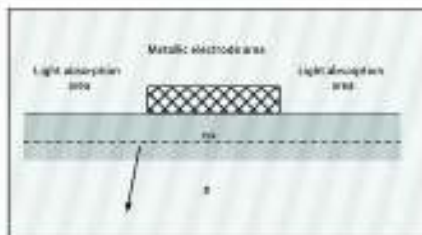
- High conversion efficiency;
- Low power tolerance of $\pm 3\%$;
- Excellent performance under low lighting conditions;
- Low hot spot effect, due to low reverse current density;
- Low degradation under light exposure;
- Low cell performance mismatch during encapsulation, our SE module demonstrates high power output, which is very close to the power generated by the whole cells before encapsulation;
- Passing mechanical load test of 5400Pa according to IEC 61215;
- Tested to withstand hails with maximum diameter of 25mm and impact speed of 23 m·s⁻¹.

□ Quality and Certificates

- 5-year hardware warranty;
- 25-year power output warranty***;



Selective Emitter cell



Conventional cell

To one piece of solar cell, the main factors that affect conversion efficiency are:

- The number of minority carriers crossing the PN junction in unit time;
- The electrical resistivity of metal electrode.

SE solar cell adopts deep and shallow junction structures, which mainly improve conversion efficiency from such aspects as:

1. The shallow junction with light diffusion of cell active areas make the number of minority carrier through PN junction more than common;
2. The voltage between the deep and shallow junctions of metal contact area increases the power of minority carriers;
3. The deep junction with heavy diffusion of metal electrode areas ensure the lower contact resistance between metal and semiconductor.

* Average efficiency of 17.5%, up to 18%.

** Compared to modules with the same size, made of normal P-type solar cells, average efficiency of which is 16%.

*** 10 years at 90% of the minimal rated power output, 25 years at 80% of the minimal rated power output.

□ Specifications of SE module

Type	SE-190W	SE-185W	SE-180W
Peak Power (Pm)	190	185	180
Open Circuit Voltage (Voc)	45.0	44.8	44.6
Short Circuit Current (Isc)	5.50	5.48	5.40
Optimum operating Voltage (Vmp)	36.2	35.8	35.4
Optimum operating Current (Imp)	5.25	5.17	5.09
Practical module efficiency	17.76%	17.29%	16.83%
CEC	Testing	165.6W	161W
Maximum system voltage [V]	1000(IEC)/600(UL)		
Voltage temperature coefficients	-0.307%/K		
Current temperature coefficients	+0.039%/K		
Power temperature coefficients	-0.423%/K		
Series fuse rating[A]	10		
Cells	6×12 pieces monocrystalline solar cells series strings 125mm×125mm(5inch)		
Junction box	with 3 bypass diodes		
Cable	length 900 mm(35.4inch), 1×4 mm ² (0.16inch ²)		
Front glass	white toughened safety glass, 3.2 mm(1/8inch)		
Cell encapsulation	EVA (Ethylene-Vinyl-Acetate)		
Back	composite film		
Frame	anodised aluminium profile		
Dimensions	* $[L \times W \times H]$ 1580×808×35mm(62.2×31.81×1.38inch) * $[L \times W \times H]$ 1580×808×50mm(62.2×31.81×1.97inch)		
Weight	*15.6kg (34.4lbs) *16Kg (35.27lbs)		

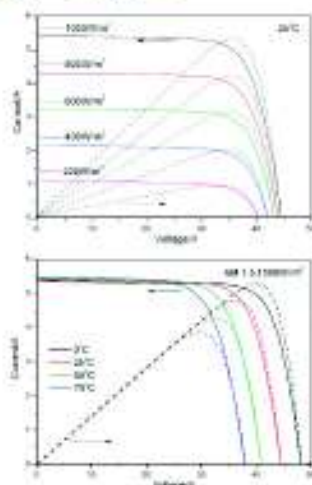
The electrical data relates to standard test conditions [STC]: 1,000 W/m²; AM 1.5; 25°C.

Performance deviation of Pmp: ±3%; Performance deviation of Voc, Isc, Vmp and Imp: ±10%.

□ Operating Condition & Packaging

Maximum surface load capacity	tested up to 2,400 Pa according to IEC 61215 ^B tested up to 5,400 Pa according to IEC 61215 ^B
Hail	maximum diameter of 25 mm with impact speed of 23 m·s ⁻¹ (51.2mph)
Temperature range	-40 °C to +85 °C
Dimensions(L×W×H)	Container 20' Container 40' Container 40HC'
1580×808×35mm	360 840 952
1580×808×50mm	258 602 686

□ IV-Curves



□ Dimensions

