

# TCL SOLAR

## T Class Solar Panel

Product: HSM-ND54-DR

485-510 W | Up to 22.9% efficient



Ideal for residential and commercial applications



Framed glass-glass



Bifacial energy generation



### High energy yield

- Consistent energy production across all weather conditions
- Bifacial energy generation

### Elegant design

- Sleek panel aesthetic
- High-durability frame and heat-strengthened glass

### Reliable operation

- Rigorous supply chain qualification procedures
- Easy to install
- Backed by a bankable company

### Comprehensive warranty coverage

Product and power coverage

25-30 Years

Year 1 minimum warranted output

99.0%

Maximum annual degradation

0.40%

**TCL SOLAR**

Learn more about TCL Solar panels  
[www.tclsolar.com/resources](http://www.tclsolar.com/resources)



**T CLASS POWER: 485-510 W | EFFICIENCY: Up to 22.9%**

Electrical Data, Front STC Characteristics <sup>1</sup>					
	HSM-ND54-DR510	HSM-ND54-DR505	HSM-ND54-DR500	HSM-ND54-DR495	HSM-ND54-DR490
Nominal Power (Pnom) <sup>2</sup>	510 W	505 W	500 W	495 W	490 W
Power Binning	3/0%	3/0%	3/0%	3/0%	3/0%
Panel Efficiency	22.9%	22.7%	22.5%	22.3%	22.0%
Rated Voltage (Vmpp)	34.10 V	33.90 V	33.70 V	33.50 V	33.30 V
Rated Current (Impp)	14.96 A	14.90 A	14.84 A	14.78 A	14.72 A
Open-Circuit Voltage (Voc) <sup>2</sup>	40.36 V	40.14 V	39.92 V	39.70 V	39.50 V
Short-Circuit Current (Isc) <sup>2</sup>	15.95 A	15.88 A	15.81 A	15.74 A	15.67 A

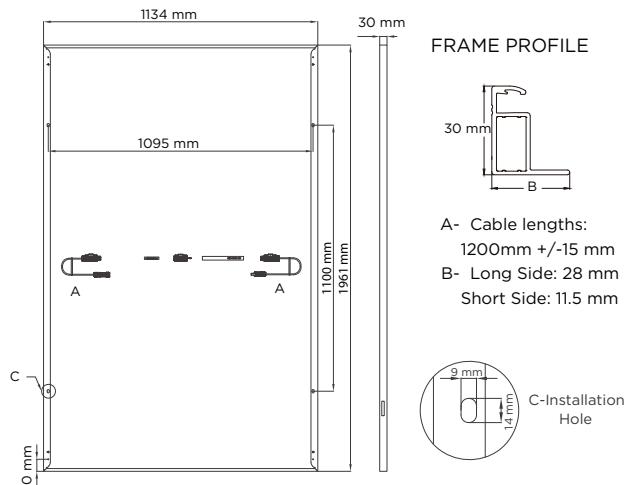
BNPI Data <sup>3</sup>					
Nominal Power (Pmax) <sup>2</sup>	558 W	553 W	548 W	543 W	537 W
Open-Circuit Voltage (Voc) <sup>2</sup>	40.54 V	40.34 V	40.13 V	39.93 V	39.71 V
Short-Circuit Current (Isc) <sup>2</sup>	17.38 A	17.31 A	17.24 A	17.17 A	17.08 A

Bifacial Gain <sup>4</sup>					
Pmax with 5% Bifacial Gain	536 W	530 W	525 W	520 W	515 W
Isc with 5% Bifacial Gain	16.75 A	16.67 A	16.60 A	16.53 A	16.45 A
Pmax with 10% Bifacial Gain	561 W	556 W	550 W	545 W	539 W
Isc with 10% Bifacial Gain	17.55 A	17.47 A	17.39 A	17.31 A	17.24 A
					17.16 A

Electrical Data			Mechanical Data		
Bifaciality ( $\phi$ Pmax/ $\phi$ Isc)	80% +/-5%		Solar Cells	N-Type TOPCon	
Bifaciality ( $\phi$ Voc)	98% +/-2%		Glass	2.0 mm + 2.0 mm, high transmission heat strengthened glass, AR coating on front glass	
Maximum System Voltage	1500 V IEC		Junction Box	IP-68, 3 bypass diodes	
Testing Temperature	-40°C to +85°C		Connector	Stäubli MC4-EVO2A	
Operation Temperature	-40°C to +70°C (IEC TS 63126)		Weight	27 kg	
Maximum Series Fuse	30 A		Max. Load <sup>5</sup>	Wind: 2400 Pa, 245 kg/m <sup>2</sup> front & back Snow: 5400 Pa, 550 kg/m <sup>2</sup> front	
Power Temp. Coef.	-0.29% / °C		Impact Resistance	25 mm diameter hail at 23 m/s	
Voltage Temp. Coef.	-0.25% / °C		Frame	Black Anodized Aluminum Alloy	
Current Temp. Coef.	0.045% / °C				

Packaging Configuration		
Number of modules per pallet	36	
Number of pallets per 40ft HQ container	24	
Number of modules per container	864	

Tests And Certifications		
Standard Tests	IEC 61215, IEC 61730	
Fire Rating	Class A (IEC 61730-2 / UL 790)	
Protection Class	Class II (IEC 61140)	
Quality Certs	ISO 9001:2015, ISO 14001:2015	
EHS Compliance	ISO 45001-2018, Recycling Scheme	



Please read the safety and installation instructions. Visit [www.tclsolar.com/resources](http://www.tclsolar.com/resources)  
Paper version can be requested through  
[techsupport.EN@sunpowerglobal.com](mailto:techsupport.EN@sunpowerglobal.com)



1 Standard Test Conditions (1000 W/m<sup>2</sup> irradiance, AM 1.5, 25° C).  
NREL calibration Standard: SOMS current, LACCS FF and Voltage.

2 Measurements tolerance +/-3%.

3 BNPI Test Condition (front 1000 W/m<sup>2</sup>, rear 135W/m<sup>2</sup> irradiance, AM 1.5, 25° C).

4 The additional gain from the back side of the panel compared to the power of the front side of the panel at the standard test conditions. It depends on mounting (structure, height, tilt angle etc.) and albedo of the underlying surface.

5 Test load as per IEC 61215-2 is equal to design load with safety factor = 1.5. See "Safety and Installation Instructions" for details.

Specifications included in this datasheet are subject to change without notice.  
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