TCL SOLAR

C2 Black Solar Panel

Product: HSM-BE54-DD

480–495 W | Up to 24.3 % efficiency

Ideal for residential applications

Back-contact gapless technology

Framed glass-glass with black tint



More energy from your system

Innovative back-contact gapless technology minimizes resistive losses
Increased power density and Bifaciality up to 70 %
Lower operating temperature

Long term reliability

Built reduced risk of micro-cracks
Reinforced circuit design

Elegant design

Busbar free front side
Gapless cell design

Comprehensive warranty coverage

Product and power coverage 25-30 Years
Year 1 minimum warranted output 99.0 %
Maximum annual degradation 0.35 %

25 PRODUCT | 30 POWER WARRANTY

S&P Global

BloombergNEF TIER 1 PV Modules

SOLAR STEWARDSHIP INITIATIVE

Comprehensive Products and System Certificates

IEC 61215 / IEC 61730 | CE | ISO 9001:2015 | ISO 45001:2018 | ISO 14001:2015

TCL SOLAR

Learn more about TCL Solar panels
www.tclsolar.com

HSM-BE54-DD 480-495 W | C2 Black

495 W Maximum power | **24.3 %** Maximum efficiency | **0~+3 %** Power tolerance

Electrical Data – STC[1] and BNPI[3]

Test Conditions		STC	BNPI	STC	BNPI	STC	BNPI	STC	BNPI
Maximum Power[2]	Pmax (W)	480	525	485	531	490	536	495	542
Power Binning	(%)	+3/0	+3/0	+3/0	+3/0	+3/0	+3/0	+3/0	+3/0
Rated Voltage	Vmp (V)	33.53	33.53	33.64	33.64	33.75	33.75	33.86	33.86
Rated Current	Imp (A)	14.32	15.67	14.42	15.78	14.52	15.89	14.62	16.00
Open-Circuit Voltage[2]	Voc (V)	40.34	40.34	40.45	40.45	40.56	40.56	40.66	40.66
Short-Circuit Current [2]	Isc (A)	15.08	16.50	15.18	16.61	15.28	16.72	15.38	16.83
Panel Efficiency	(%)	23.5		23.8		24.0		24.3	

Electrical Characteristic with Different Bifacial Gain[4]

Bifacial Gain Conditions		5 %	10 %	5 %	10 %	5 %	10 %	5 %	10 %
Maximum Power	Pmax (W)	504	528	509	534	515	539	520	545
Rated Voltage	Vmp (V)	33.53	33.53	33.64	33.64	33.75	33.75	33.86	33.86
Rated Current	Imp (A)	15.04	15.75	15.14	15.86	15.25	15.97	15.35	16.08
Open-Circuit Voltage	Voc (V)	40.34	40.34	40.45	40.45	40.56	40.56	40.66	40.66
Short-Circuit Current	Isc (A)	15.83	16.59	15.94	16.70	16.04	16.81	16.15	16.92

Electrical Data

Power Bifaciality	70±5 %
Maximum System Voltage	1500 V DC
Testing Temperature	-40 °C to +85 °C
Operating Temperature	-40 °C to +70 °C (IEC TS 63126)
Maximum Series Fuse Rating	30 A
Temperature Coefficient of Pmax	-0.26 %/°C
Temperature Coefficient of Voc	-0.22 %/°C
Temperature Coefficient of Isc	+0.050 %/°C

Mechanical Data

Solar cells	N-Type Back Contact
Glass	2.0 mm + 2.0 mm, semi tempered glass AR coating on front glass
Junction Box	IP68 / three diodes
Connector	Stäubli EVO2A
Weight	26.0 kg ±3 %
Max. Load[5]	Wind: 2400 Pa, 245 kg/m² front & back Snow: 5400 Pa, 550 kg/m² front
Frame	Black Anodized Aluminum Alloy

Packaging Configuration

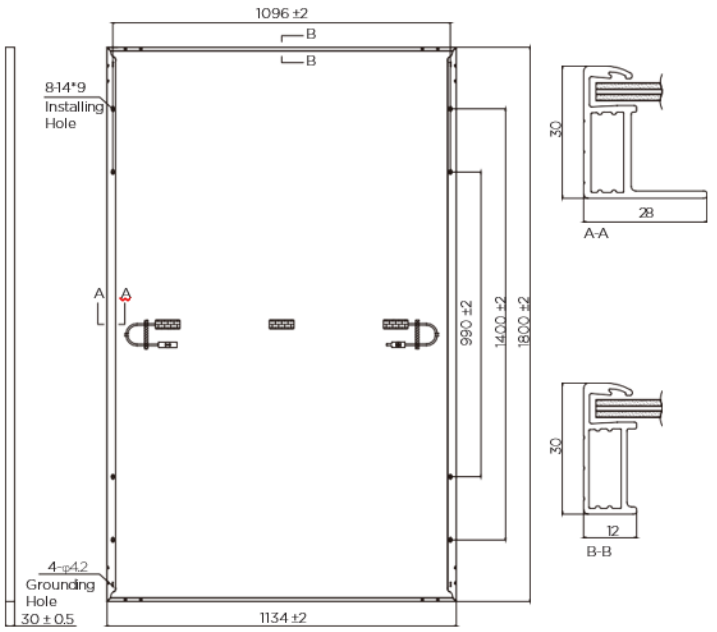
Number of modules per pallet	36 pcs
Number of pallets per 40ft HQ container	26 pcs
Number of modules per container	936 pcs

Tests and Certifications

Standard Tests	IEC 61215, IEC 61730
Fire Rating	Class C (IEC 61730 - 2 / UL 790)
Protection Class	Class II (IEC 61140)
Quality Certs	ISO 9001:2015, ISO 14001:2015
EHS Compliance	ISO 45001:2018, ISO 50001:2018, Recycling Scheme

Engineering Drawing

[Unit: mm]



Please read the safety and installation instructions.
Visit www.tclsolar.com/resources
Paper version can be requested through
techsupport.EN@sunpowerglobal.com

1 Standard Test Conditions (1000 W/m² 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/m², rear 135 W/m² 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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