

PHANTOM

swiss solar

54-TCA BIFACIAL DOUBLEGLOSS

520W | UP TO 25.90%

► TOPCon ADVANCE TECHNOLOGY

Next-generation cell architecture with enhanced passivation for higher output, reduced LID & PID, and stable performance under high temperatures and low light.

► DuraGlassX™

Ultra-strong tempered glass with advanced anti-reflective coating ensures maximum transparency, impact resistance, and long-term durability in extreme climates.

► Phantom Design

Deep black cells with an elegant black frame deliver a modern, premium look that blends seamlessly into architectural projects.

► AluForce™ Black Frames

Equivalent to up to +32% higher frame strength under front and side load tests.



COMPLETE SYSTEM AND PRODUCT CERTIFICATIONS



PHANTOM

54-TCA BIFACIAL DUAL GLASS 500-520

up to
25.90%
maximum efficiency

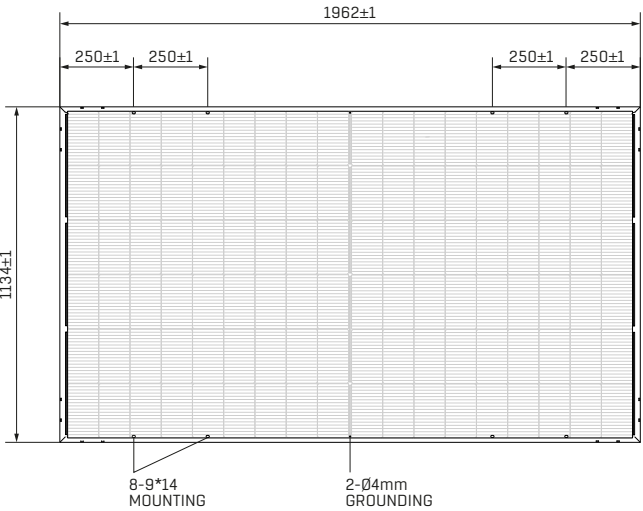
0~3
power
tolerance

<1%
first year
power degradation

0.35%
year 2-30
power degradation

N-TYPE CELL
lower operating
teperature

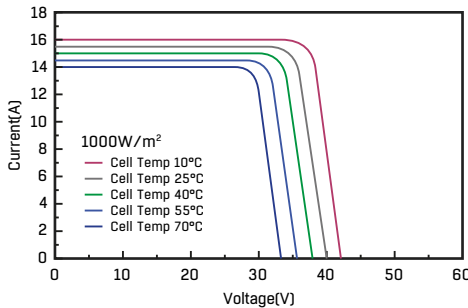
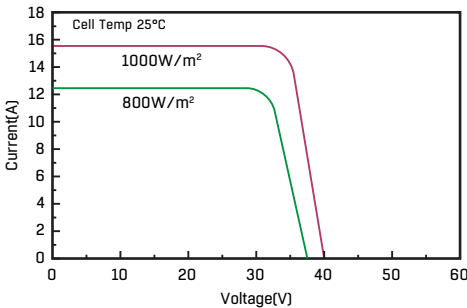
MECHANICAL CHARACTERISTICS	
Solar Cells	N-type Mono
No. of Cells	108 (12x9)
Dimensions	1962x 1134 x 30mm
Weight	27.4kg
Front / Back Glass	2.0mm coated semi-tempered glass
Frame	Anodized aluminium alloy
Junction Box	Ip68 rated (3 by pass diodes)
Output Cables	4.0mm², 250mm (+) / 350mm (-) Length can be customized
Connectors	Mc4 compatible
Mechanical load test	Front 6200Pa / Rear 4200Pa



POWER CLASS	PH54-TCA-500		PH54-TCA-505		PH54-TCA-510		PH54-TCA-515		PH54-TCA-520	
	STC	BNPI	STC	BNPI	STC	BNPI	STC	BNPI	STC	BNPI
Maximum Power (Pmax)	500W	554W	505W	560W	510W	566W	515W	571W	520W	577W
Open Circuit Voltage (Voc)	39.48±3%	39.60±3%	39.54±3%	39.66±3%	39.60±3%	39.72±3%	39.66±3%	39.78±3%	39.72±3%	39.84±3%
Short Circuit Current (Isc)	15.83±3%	17.49±3%	15.96±3%	17.64±3%	16.09±3%	17.78±3%	16.22±3%	17.92±3%	16.35±3%	18.07±3%
Voltage at Maximum Power (Vmpp)	33.56V	33.66V	33.61V	33.71V	33.66V	33.76V	33.71V	33.81V	33.76V	33.86V
Current Maximum Power (Impp)	14.90A	16.46A	15.02A	16.60A	15.14A	16.74A	15.26A	16.88A	15.38A	17.02A
MODULE EFFICIENCY (%)	22.47%	24.92%	22.69%	25.16%	22.91%	25.41%	23.13%	25.65%	23.35%	25.90%

STC: Irradiance 1000W/m², cell temperature 25°C, AM1.5G | NOCT: Irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G m²

PACKING CONFIGURATION	
Container	40'HQ
Pieces per pallet	36
Pallets per container	24
Pieces per container	864



OPERATING CHARACTERISTICS	
Operating Module Temperature	-40°C to +85°C
Maximum System Voltage	1500 DC (IEC)
Maximum Series Fuse Rating	30A
Power Tolerance	0/+5W

TEMPERATURE CHARACTERISTICS	
Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Pmax	-0.29%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	+0.045%/°C