



MAXIMUM EFFICIENCY %

23.8

POSITIVE POWER TOLERANCE WP

0~+5.00

WATTAGE RANGE WP

440-470



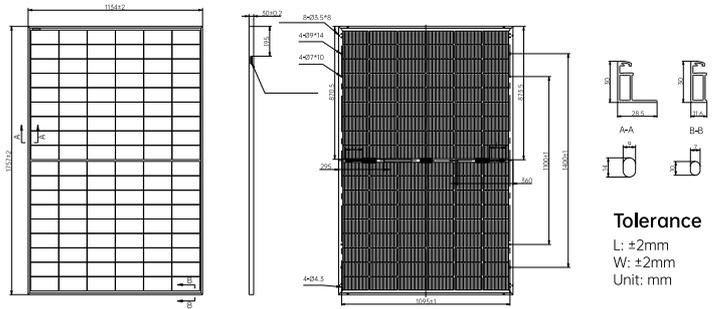
Product
Warranty



Performance
Warranty

■ Mechanical Specification

Dimension	1757x1134x30mm (69.17x44.64x1.18 in)
Weight	24.2kg (53.35 lb)
Front Cover	2.0 mm (0.08 in) tempered glass , Anti-Reflection Coated
Back Cover	2.0 mm (0.08 in), Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
Cell	N-Type Monocrystalline
Junction Box	Protection class IP68, with bypass diodes
Cable	4mm ² (12AWG), (±)≤47.24 in (1200 mm)
Connector	MC 4 or MC 4 Compatible; -IP68



■ Electrical Characteristics

POWER CLASS	440	445	450	455	460	465	470
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MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLERANCE +5W / -0W)

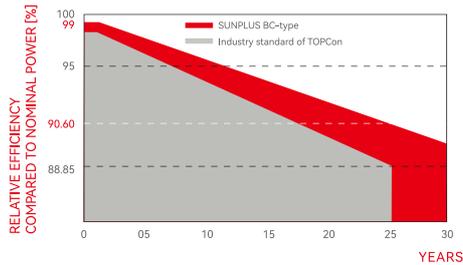
Minimum	Power at MPP ¹	P _{MPP}	[W]	440	445	450	455	460	465	470
	Short Circuit Current ¹	I _{SC}	[A]	13.92	14.02	14.12	14.22	14.25	14.29	14.32
	Open Circuit Voltage ¹	V _{OC}	[V]	40.82	40.88	40.94	41.00	41.06	41.12	41.18
	Current at MPP	I _{MPP}	[A]	12.80	12.93	13.05	13.17	13.29	13.41	13.54
	Voltage at MPP	V _{MPP}	[V]	34.38	34.44	34.50	34.56	34.62	34.68	34.74
	Efficiency ¹	η	[%]	≥22.1	≥22.3	≥22.6	≥22.8	≥23.1	≥23.3	≥23.6

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS NMOT²

Minimum	Power at MPP	P _{MPP}	[W]	331	335	339	343	346	350	354
	Short Circuit Current	I _{SC}	[A]	13.00	13.03	13.06	13.09	13.12	13.12	13.12
	Open Circuit Voltage	V _{OC}	[V]	38.55	38.60	38.66	38.72	38.77	38.83	38.89
	Current at MPP	I _{MPP}	[A]	10.22	10.32	10.41	10.51	10.61	10.71	10.80
	Voltage at MPP	V _{MPP}	[V]	32.47	32.52	32.58	32.64	32.69	32.75	32.81

¹Measurement tolerances P_{MPP} ± 3 %; I_{SC}; V_{OC} ± 5 % at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • ²800 W/m², NMOT, spectrum AM 1.5

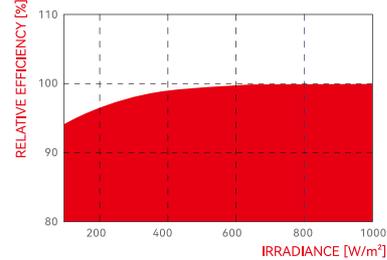
MODULE PERFORMANCE WARRANTY



At least 99 % of nominal power during first year. Thereafter max. 0.37% degradation per year. At least 96 % of nominal power up to 10 years. At least 88.85 % of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the SUNPLUS sales organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α	[% / K]	+0.048	Temperature Coefficient of V _{OC}	β	[% / K]	-0.22
Temperature Coefficient of P _{MPP}	γ	[% / K]	-0.26	Nominal Module Operating Temperature	NMOT	[°C]	43±3

■ Properties for system Design

Maximum System Voltage	V _{sys}	1500VDC (IEC)	PV module classification	Class II
Maximum Reverse Current	I _R	25A	Fire Rating based UL61730	Type 29
Max. Design Load, Push / Pull		5400 / 2400	Permitted Module Temperature	-40°C~+85°C
Max. Test Load, Push / Pull		8100 / 4000	on Continuous Duty	

Packaging Information

	1780 mm 70.07 in	1130 mm 44.48 in	1256 mm 49.44 in	932 kg 2054.7 lb	24 pallets	20 pallets	37 modules
Vertical packaging							

SUNPLUS pursues minimizing paper output in consideration of the global environment

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