

CLM-650M-72 Series — Infinite Technology

Premium n-type back-contact dual-glass modules for rooftop and ground-mount applications

HPBC 2.0 standard · ABC / TBC optional | OEM / ODM ready

640~665 W

144 half-cut BC cells · Bifacial

24.6%

MAX MODULE EFFICIENCY

0~3%

POWER TOLERANCE

1%

FIRST-YEAR POWER DEGRADATION

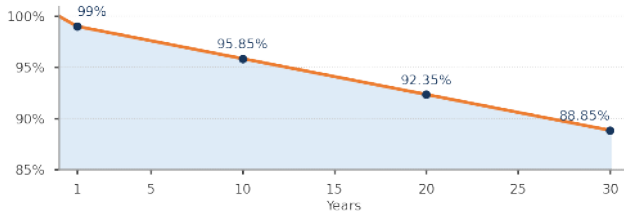
0.35%

YEAR 2-30 POWER DEGRADATION

BC-CELL

LOWER OPERATING TEMPERATURE

30-Year Power Warranty

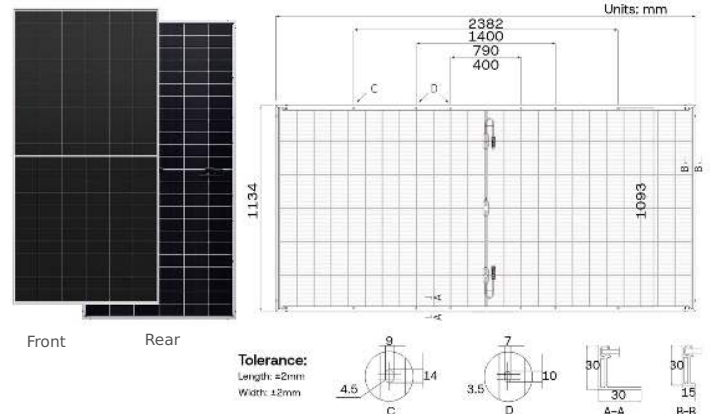


Mechanical Parameters

Cell Type	N-type Back Contact (HPBC 2.0)
Cell Orientation	144 (6 × 24)
Junction Box	IP68, three diodes
Output Cable	4 mm ² , +400 / -200 mm (±1400 mm), customizable
Glass	Dual glass, 2.0 + 2.0 mm semi-tempered
Frame	Anodized aluminum alloy frame
Weight	32.5 kg
Dimensions (L × W × H)	2382 × 1134 × 30 mm
Packaging	36 pcs / pallet · 288 pcs / 20' GP · 720 pcs / 40' HC

Module Views & Dimensions

Units: mm · tolerance ±2 mm

**Advanced:** N-TaiRay + HPBC 2.0 + OBB**Higher Output:** 30W+ Power Gain + Enhanced Shade Tolerance**Aesthetic:** Zero Front Gridlines + Seamless Integration**Safer:** Lower Hot-Spot & Micro-Crack

Electrical Characteristics

 STC: AM1.5, 1000 W/m², 25 °C · NOCT: AM1.5, 800 W/m², 20 °C, 1 m/s · Test uncertainty for P_{max} ±3%

Module Type	CLM-640M-72		CLM-645M-72		CLM-650M-72		CLM-655M-72		CLM-660M-72		CLM-665M-72	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (P _{max} / W)	640	487	645	491	650	495	655	499	660	502	665	506
Open Circuit Voltage (V _{oc} / V)	54.02	51.34	54.12	51.43	54.22	51.53	54.32	51.62	54.42	51.72	54.52	51.81
Short Circuit Current (I _{sc} / A)	14.98	12.03	15.06	12.10	15.14	12.16	15.22	12.22	15.30	12.29	15.38	12.33
Voltage at Max. Power (V _{mp} / V)	44.67	42.45	44.77	42.55	44.87	42.64	44.97	42.74	45.07	42.83	45.17	42.93
Current at Max. Power (I _{mp} / A)	14.33	11.49	14.41	11.55	14.49	11.61	14.57	11.68	14.65	11.75	14.72	11.80
Module Efficiency (%)	23.7		23.9		24.1		24.2		24.4		24.6	

Electrical Characteristics with Different Rear-Side Power Gain

 Reference bin: CLM-655M-72

P _{max} / W	V _{oc} / V	I _{sc} / A	V _{mp} / V	I _{mp} / A	P _{max} gain
655	54.32	15.22	44.97	14.57	0%
688	54.32	15.98	44.97	15.30	5%
721	54.32	16.74	44.97	16.03	10%
755	54.42	17.50	45.07	16.76	15%
788	54.42	18.26	45.07	17.48	20%
821	54.42	19.03	45.07	18.21	25%

Operating Parameters

Operational Temperature	-40 °C ~ +85 °C
Power Output Tolerance	0 ~ +3%
Maximum System Voltage	DC 1500 V (IEC)
Maximum Series Fuse Rating	30 A
Nominal Operating Cell Temperature	45 ± 2 °C
Protection Class	Class II
Fire Rating	IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400 Pa
Rear Side Maximum Static Loading	2400 Pa
Hailstone Test	25 mm hailstone at 23 m/s

Temperature Ratings (STC)

Temperature Coefficient of I _{sc}	+0.050 %/°C
Temperature Coefficient of V _{oc}	-0.200 %/°C
Temperature Coefficient of P _{max}	-0.260 %/°C