

# HIGH PERFORMANCE BIFACIAL PERC MONOCRYSTALLINE MODULE

SYM144-6-395BMDG-420BMDG

144 CELL MONO PERC MODULE

395-420Wp POWER OUTPUT RANGE

1500VDC MAXIMUM SYSTEM VOLTAGE

20.6% MAXIMUM EFFICIENCY

# TWINSEL

## About Twinsel

Twinsel is a manufacturer of high-performance solar photovoltaic products and provider of total business solutions for residential, commercial and utility-scale power generation. The company, founded in 1986, compels value generation for its chosen global customers. Techno-commercial innovation, underpinned by consummate quality and support, encircle Twinsel's total Solar PV business solutions which are among the most powerful and cost-effective in the industry. With local market presence and strong financial bankability status, we are committed, and able, to building strategic, mutually beneficial collaborations with our partners, as together we capitalise on the rising value of green energy.

## KEY SELIENT FEATURES



Global, Tier 1 bankable brand, with independently certified state-of-the-art automated manufacturing



Industry leading lowest thermal co-efficient of power



Industry leading 12 years product warranty



Excellent low irradiance performance



Excellent PID resistance



Positive tight power tolerance



Dual stage 100% EL Inspection warranting defect-free product



Module Imp binning radically reduces string mismatch losses



Warranted reliability and stringent quality assurances well beyond certified requirements



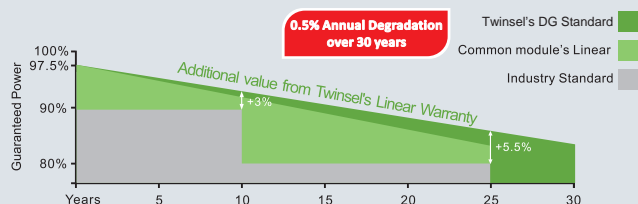
Certified to withstand severe environmental conditions

- ♦ Anti-reflective & anti-soiling surface minimise power loss from dirt and dust
- ♦ Severe salt mist, ammonia & blown sand resistance, for seaside, farm and desert environments
- ♦ Excellent mechanical load 2400Pa & snow load 5400Pa resistance



## LINEAR PERFORMANCE WARRANTY

12 Year Product Warranty / 25 year Linear Power Warranty



**TWINSEL**  
Electronic Technology

ZHEJIANG TWINSEL ELECTRONIC TECHNOLOGY CO., LTD.

Add: Tashan Industry Zone, Meilin Street Ninghai County, Ningbo City, China.

Mail: tony@twinsel.com

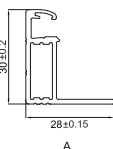
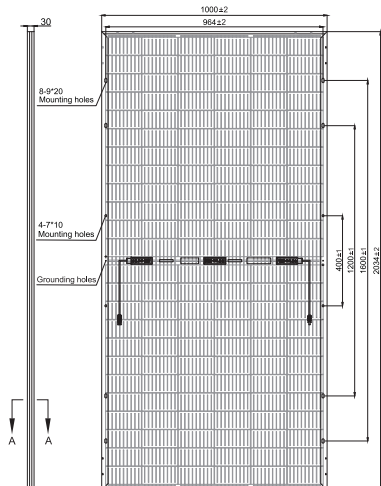
Website: www.twinsel.com

Tel: 86-574-59953554

Fax: 86-574-65173959

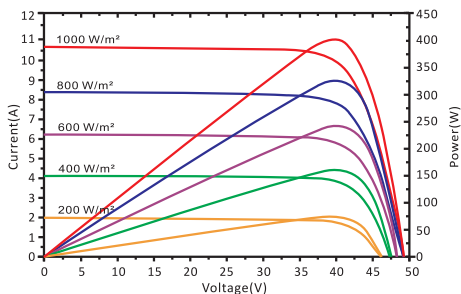
**Dimensions of PV Module**

Unit: mm



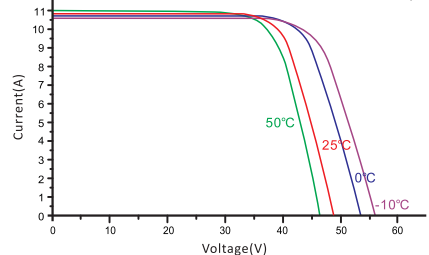
**SYM144-6-405BMDG**

**I-V characteristics at different irradiances**



**I-V characteristics at different temperatures**

(AM1.5, 1000W/m²)



**Our Partners:**

**ELECTRICAL DATA (STC)**

Model Number	SYM144-6-395BMDG	SYM144-6-400BMDG	SYM144-6-405BMDG	SYM144-6-410BMDG	SYM144-6-415BMDG	SYM144-6-420BMDG
Rated Power in Watts-Pmax(Wp)	395	400	405	410	415	420
Open Circuit Voltage-Voc(V)	48.45	48.60	48.75	48.90	49.00	49.10
Short Circuit Current-Isc(A)	10.40	10.50	10.60	10.70	10.80	10.90
Maximum Power Voltage-Vmpp(V)	40.35	40.45	40.55	40.65	40.70	40.80
Maximum Power Current-Impp(A)	9.80	9.90	10.00	10.10	10.20	10.30
Module Efficiency (%) ★	19.4	19.7	19.9	20.2	20.4	20.6

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.  
Bifacial factor: 70%±5 ★ Module Efficiency (%): Round-off to the nearest number

**Electrical characteristics with different rear side power gain (reference to 405Wp front)**

Bifacial Gain ★	Pmax/W	Voc/V	Isc/A	Vmpp/V	Impp/A
5%	426	48.75	11.13	40.55	10.50
10%	446	48.75	11.66	40.55	11.00
15%	466	48.75	12.19	40.55	11.50
20%	487	48.75	12.72	40.55	12.00
25%	507	48.75	13.25	40.55	12.50
30%	527	48.75	13.78	40.55	13.00

★Bifacial Gain: The additional gain from the rear side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

**ELECTRICAL DATA (NMOT)**

Model Number	SYM144-6-395BMDG	SYM144-6-400BMDG	SYM144-6-405BMDG	SYM144-6-410BMDG	SYM144-6-415BMDG	SYM144-6-420BMDG
Maximum Power-Pmax (Wp)	295.6	299.3	303.1	306.9	309.2	312.7
Open Circuit Voltage-Voc (V)	44.60	44.70	44.90	44.99	45.63	45.70
Short Circuit Current-Isc (A)	8.53	8.61	8.69	8.77	8.80	8.87
Maximum Power Voltage-Vmpp (V)	37.00	37.05	37.14	37.24	37.30	37.40
Maximum Power Current-Impp (A)	8.00	8.08	8.16	8.24	8.29	8.36

**MECHANICAL DATA**

Solar cells	Monocrystalline, 9BB
Cell configuration	144 cells (6×12+6×12)
Module dimensions	2034×1000×30mm
Weight	27kg
Superstrate	High Transmission, Low Iron, Tempered ARC Glass
Substrate	Tempered Glass
Frame	Anodized Aluminium Alloy type 6063T5, Silver Color
J-Box	Potted, IP68, 1500VDC, 3 Schottky bypass diodes
Cables	4.0mm² (12AWG), Positive(+) 270mm, Negative(-) 270mm
Connector	Twinsel PV-SY02, IP68

**TEMPERATURE & MAXIMUM RATINGS**

Nominal Module Operating Temperature (NMOT)	45°C±2°C
Temperature Coefficient of Voc	-0.28%/°C
Temperature Coefficient of Isc	0.05%/°C
Temperature Coefficient of Pmax	-0.36%/°C
Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500VDC
Max Series Fuse Rating	20A
Limiting Reverse Current	20A

**PACKAGING CONFIGURATION**

	40ft
Number of modules per container	770
Number of modules per pallet	35
Number of pallets per container	22
Packaging box dimensions (LxWxH) in mm	2100×1130×1135
Box gross weight[kg]	1000

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT

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