

# HIGH PERFORMANCE MONOCRYSTALLINE PERC MODULE

SYM156-6-425M-445M

156 CELL MONO PERC MODULE

425-445Wp POWER OUTPUT RANGE

1500VDC MAXIMUM SYSTEM VOLTAGE

20.5% MAXIMUM EFFICIENCY



## 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



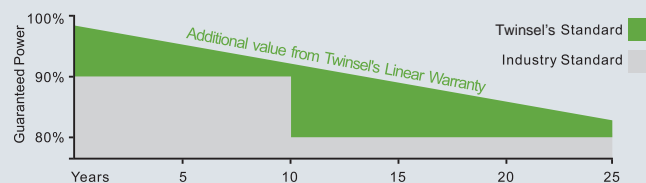
Certified to withstand severe environmental conditions

- ◆ 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



ZHEJIANG TWINSEL ELECTRONIC TECHNOLOGY CO., LTD.

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

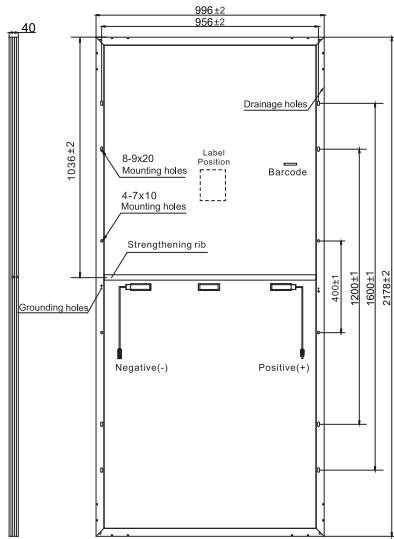
Mail: tony@twinsel.com

Website: www.twinsel.com

Tel: 86-574-59953554

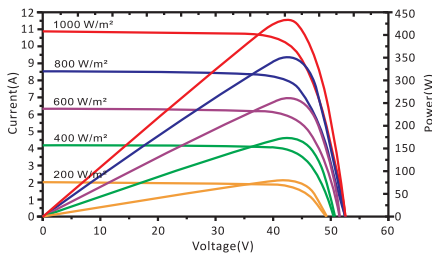
Fax: 86-574-65173959

**Dimensions of PV Module** Unit: mm



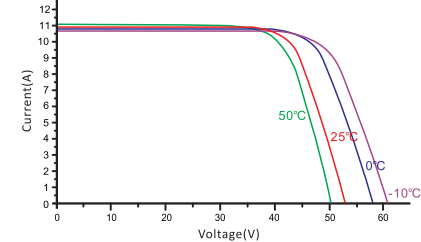
**SYM156-6-435M**

**I-V characteristics at different irradiances**



**I-V characteristics at different temperatures**

(AM1.5, 1000W/m<sup>2</sup>)



**Our Partners:**

**ELECTRICAL DATA (STC)**

Model Number	SYM156-6-425M	SYM156-6-430M	SYM156-6-435M	SYM156-6-440M	SYM156-6-445M
Rated Power in Watts-Pmax(Wp)	425	430	435	440	445
Open Circuit Voltage-Voc(V)	52.23	52.38	52.50	52.62	52.70
Short Circuit Current-Isc(A)	10.38	10.47	10.57	10.67	10.77
Maximum Power Voltage-Vmpp(V)	43.50	43.60	43.70	43.80	43.90
Maximum Power Current-Impp(A)	9.78	9.87	9.97	10.06	10.15
Module Efficiency (%) *	19.6	19.8	20.1	20.3	20.5

STC: Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.

\* Module Efficiency (%): Round-off to the nearest number

**ELECTRICAL DATA (NMOT)**

Model Number	SYM156-6-425M	SYM156-6-430M	SYM156-6-435M	SYM156-6-440M	SYM156-6-445M
Maximum Power-Pmax (Wp)	318.0	321.8	325.5	329.3	332.9
Open Circuit Voltage-Voc (V)	48.10	48.20	48.30	48.40	48.48
Short Circuit Current-Isc (A)	8.51	8.59	8.67	8.75	8.83
Maximum Power Voltage-Vmpp (V)	39.80	39.90	40.00	40.10	40.24
Maximum Power Current-Impp (A)	7.98	8.06	8.13	8.21	8.27

NMOT: Irradiance at 800 W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1 m/s.

**MECHANICAL DATA**

Solar cells	Monocrystalline, 9BB
Cell configuration	156 cells (6×13+6×13)
Module dimensions	2178×996×40mm
Weight	25.5kg
Superstrate	High Transmission, Low Iron, Tempered ARC Glass
Substrate	White Back-sheet
Frame	Anodized Aluminium Alloy type 6063T5, Silver Color
J-Box	Potted, IP68, 1500VDC, 3 Schottky bypass diodes
Cables	4.0mm <sup>2</sup> (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	-0.29%/°C
Temperature Coefficient of Isc	0.05%/°C
Temperature Coefficient of Pmax	-0.37%/°C
Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500VDC
Max Series Fuse Rating	20A
Limiting Reverse Current	20A

**PACKAGING CONFIGURATION**

	40ft	20ft
Number of modules per container	540	270
Number of modules per pallet	27	27
Number of pallets per container	20	10
Packaging box dimensions (LxWxH) in mm	2205×1130×1130	2205×1130×1130
Box gross weight[kg]	745	745

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT

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