

# KD135SX-1PU

High efficiency multicrystal photovoltaic module



## CUTTING-EDGE TECHNOLOGY

Exhaustive research work and continuous further development of production processes enable the integrated Kyocera high-performance solar cells with a standard size of 156 mm x 156 mm to achieve over 16 % efficiency, guaranteeing an extremely high annual yield of energy from the photovoltaic system.

To protect against the harshest weather conditions, the cells are embedded between a reinforced glass covering and EVA foil, and are sealed with a PET foil backing. The laminate is set in a sturdy aluminium frame which is easy to assemble. The module fulfils test conditions according to IEC 61215 ed. 2 for a surface load of 5,400N/m<sup>2</sup>.

The junction box on the module backside is equipped with bypass diodes that eliminate the risk of the individual solar cells overheating (hot spot effect). The solar cables ensure flexible installation in the junction box which definitely simplifies the installation of standalone solutions in particular.

Kyocera manufactures all the components at its own production sites – without buying in semi-finished products – to ensure consistently high product quality.

## EXAMPLES OF APPLICATION

- Stand-alone systems (electrifying remote houses, holiday homes and allotment systems, etc.)
- Supplying electricity to outlying villages and medical institutions in rural areas and development zones
- Emergency power supply, protection against catastrophes
- Pumping systems (drinking water supply and irrigation)
- Telecommunications (mobile phone networks, booster stations, etc.)
- Oil & gas (corrosion proofing, control, monitoring, etc.)



TUVdotCOM Service: Internet platform for tested quality and service  
 TUVdotCom-ID: 0000023574  
 IEC 61215 ed. 2, IEC 61730 and Safety Class II  
 Kyocera is ISO 9001 and ISO 14001 certified and registered.

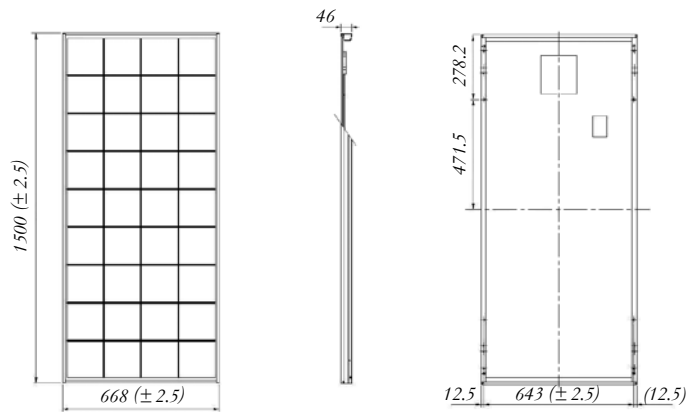


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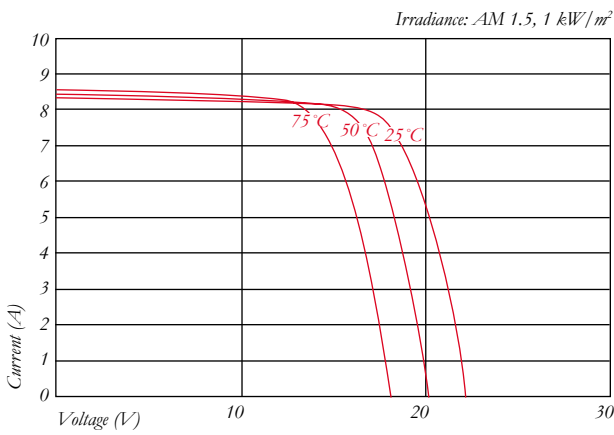
## SPECIFICATIONS

in mm

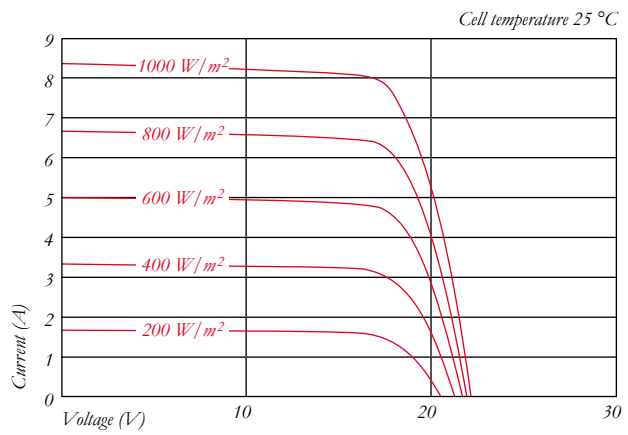


## ELECTRICAL CHARACTERISTICS

Current-Voltage characteristics at various cell temperatures



Current-Voltage characteristics at various irradiance levels



## ELECTRICAL PERFORMANCE

PV Module Type	KD135SX-1PU	
<b>At 1000 W/m<sup>2</sup> (STC)*</b>		
Maximum Power	[W]	135
Maximum System Voltage	[V]	750
Maximum Power Voltage	[V]	17.7
Maximum Power Current	[A]	7.63
Open Circuit Voltage (V <sub>OC</sub> )	[V]	22.1
Short Circuit Current (I <sub>SC</sub> )	[A]	8.37
<b>At 800 W/m<sup>2</sup> (NOCT)**</b>		
Maximum Power	[W]	95
Maximum Power Voltage	[V]	15.7
Maximum Power Current	[A]	6.1
Open Circuit Voltage (V <sub>OC</sub> )	[V]	20
Short Circuit Current (I <sub>SC</sub> )	[A]	6.79
NOCT	[°C]	47.9
Power Tolerance	[%]	+5 / -5
Maximum Reverse Current I <sub>R</sub>	[A]	15
Series Fuse Rating	[A]	15
Temperature Coefficient of V <sub>OC</sub>	[V/°C]	-0.80x10 <sup>-1</sup>
Temperature Coefficient of I <sub>SC</sub>	[A/°C]	5.02x10 <sup>-3</sup>
Temperature Coefficient of Max. Power	[W/°C]	-6.14x10 <sup>-1</sup>
Reduction of Efficiency (from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup> )	[%]	5.8

## DIMENSIONS

Length	[mm]	1500 (±2.5)
Width	[mm]	668 (±2.5)
Depth / incl. Junction Box	[mm]	46
Weight	[kg]	12.5
Connection Type	Screw Terminals	
Junction Box	[mm]	150x140x37.2
IP Code	IP65	

## GENERAL INFORMATION

Performance Guarantee	10*** / 20 years****
Warranty	5 years

## CELLS

Number per Module	36
Cell Technology	polycrystalline
Cell Shape (square)	[mm] 156x156
Cell Bonding	3 busbar

\* Electrical values under standard test conditions (STC): irradiation of 1000 W/m<sup>2</sup>, airmass AM 1.5 and cell temperature of 25 °C

\*\* Electrical values under normal operating cell temperature (NOCT): irradiation of 800 W/m<sup>2</sup>, airmass AM 1.5, wind speed of 1 m/s and ambient temperature of 20 °C

\*\*\* 10 years on 90% of the minimally specified power P under standard test conditions (STC)

\*\*\*\* 20 years on 80% of the minimally specified power P under standard test conditions (STC)

Your local Kyocera dealer:

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**KYOCERA Fin ceramics GmbH  
Solar Division**  
Fritz-Mueller-Straße 27  
73730 Esslingen/Germany  
Tel: +49 (0)711-93 93 49 99  
Fax: +49 (0)711-93 93 49 50  
E-Mail: solar@kyocera.de  
www.kyocerasolar.de