



# Karra Series Data Sheet

## Electrical Characteristics

60Cells Panel Description		Karra-285		Karra-290		Karra-295		Karra-300	
Item	Unit	*STC	*NOC	STC	NOC	STC	NOC	STC	NOC
Max. Power (Pmax)	Wp	285	208.84	290	212.51	295	216.15	300	219.81
Max. Power voltage (Vmp)	V	31.81	28.88	32.19	29.23	32.56	29.56	32.93	29.90
Max. Power current (Imp)	A	8.96	7.23	9.01	7.27	9.06	7.31	9.11	7.35
Open circuit voltage (Voc)	V	39.20	36.17	39.50	36.44	39.80	36.72	40.10	37.00
Short circuit current (Isc)	A	9.50	7.73	9.55	7.77	9.60	7.82	9.65	7.86
Panel efficiency	%	17.1	12.5	17.4	12.7	17.7	13.0	18.0	13.2
Power tolerance	%	STC ± 3 / NOC ± 5							

\*STC(Standard Test Condition) : 1,000W/m<sup>2</sup>, AM 1.5, 25 °C / \*NOC(Nominal Operating Condition) : 800W/m<sup>2</sup>, 20°C, wind speed 1m/s, NOCT

## Thermal Characteristics

Rating	Unit	Value	
*NOCT	°C	45±2	
Temperature Coefficient	Isc	%/°C	+ 0.045
	Voc	%/°C	- 0.292
	Pmax	%/°C	- 0.410

\*NOCT : Nominal Operating Cell Temperature

## Qualification Test

Thermal cycling test	- 40 °C to 85 °C for 200 cycles
Damp heat test	85 °C and 85% relative humidity for 1000hr
Front load test	5400Pa
Rear load test	3600Pa
Hail impact test	25mm hail at 23m/s from 1m distance

## Mechanical Characteristics

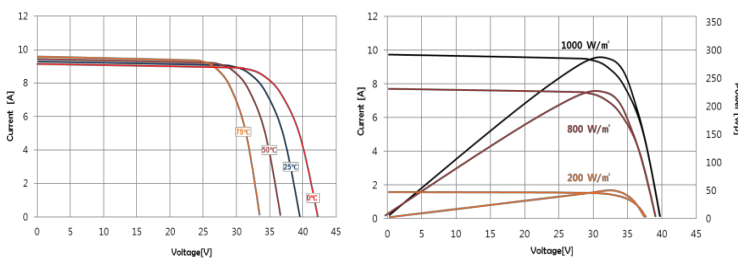
Cells per Panel	60Cells (6 x 10)
Cell Type	4BB Mono -crystalline
Panel Dimension (L x W x H)	1667 x 1000 x 40 mm
Panel Weight	18.2Kg
Front Glass	3.2mm Tempered Glass
Back Sheet	Tedlar film-based / Dupont
Frame	Anodized Aluminum
Junction Box	3 bypass diode / IP67
Output cable	(+, -) 1,000mm / 4mm <sup>2</sup> cable
Connectors type	PV-KST4 (male), PV-KBT4 (female) / Multi Contact
Edge seal & J -box Sealant	Dow Corning

## Safety Ratings & Warranties

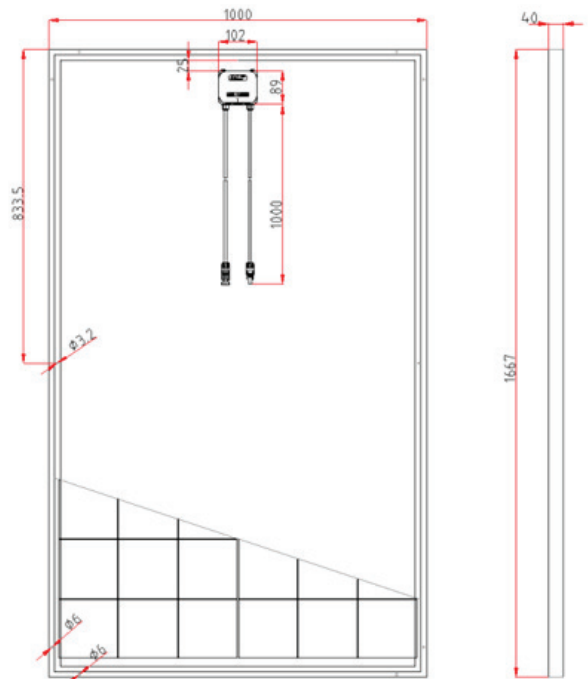
Safety application class	Class A
Fire Safety Classification	Class C
Certifications	IEC 61215, IEC 61730
Warranty	12 years limited product warranty
Performance guarantee	25 years limited warranty 80% power

## System Integration Parameters

Temperature range	-40°C to 85°C
Maximum system voltage	1,000 V DC(IEC)
Maximum over-current protection	15 A



[I-V Curves for 290]



[Panel Diagram]