

SOLAR SYSTEM

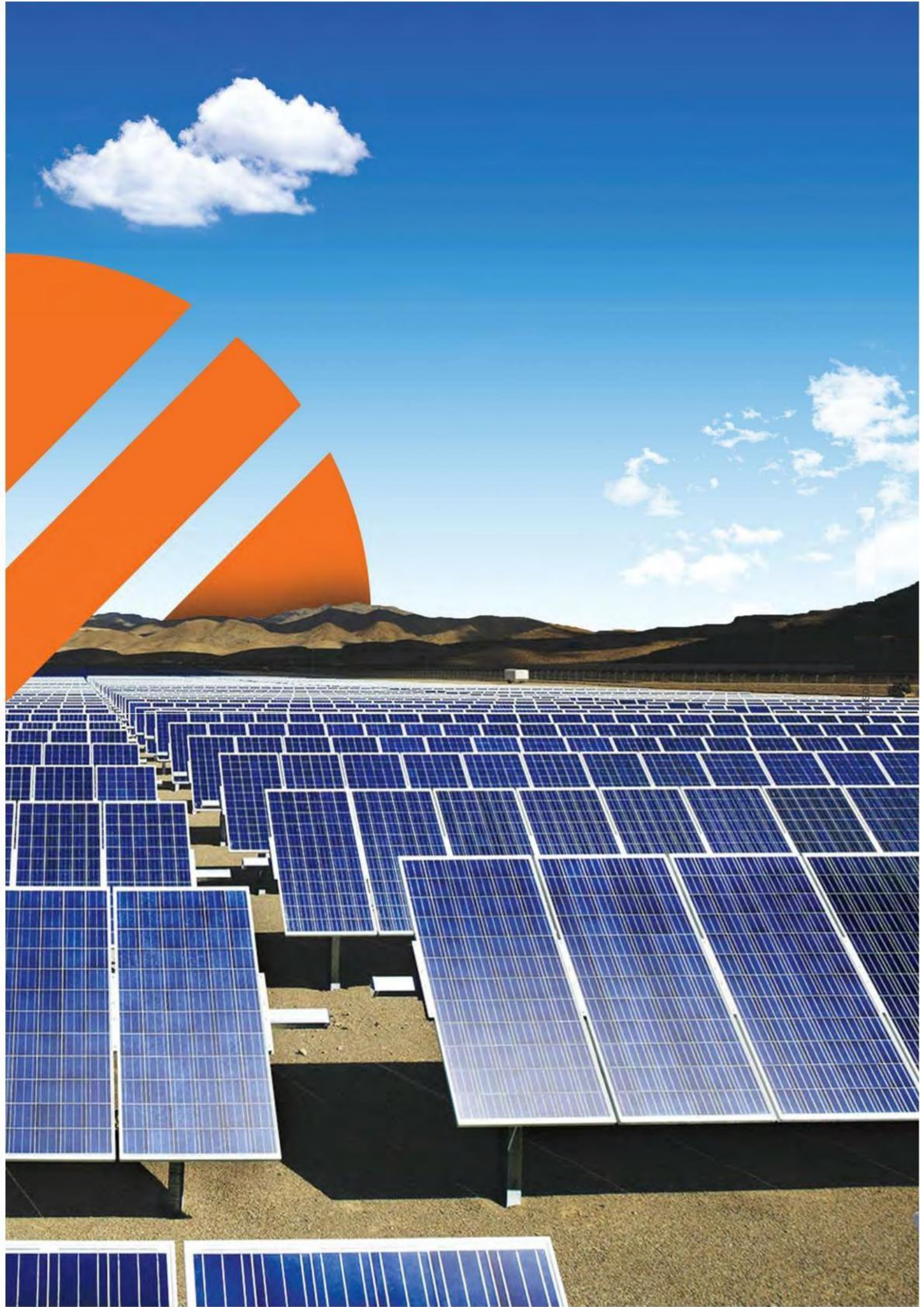
product catalogue



S **LAR PANEL**

HeeDGROUP
info@heedgroup.net

We do only **THE BEST!**





60 CELL
POLYCRYSTALLINE MODULE

275W - 290W
OUTPUT POWER RANGE

OVER %17,8
PANEL EFFICIENCY

0~+5Wp
POSITIVE OUTPUT TOLERANCE



Positive Output Tolerance



Over %17,8 Panel Efficiency



Compatible with International Standards



100 % EL Double EL Inspection



1500V Maximum System Voltage



High Quality Junction Box and Plugging System



**5400 Pa Snow Load
2400 Pa Wind Load Resistance**



**Type 1, Type 2
A Class Fire Protection**



10 Years Producer Warranty



25 Years Linear Performance Warranty

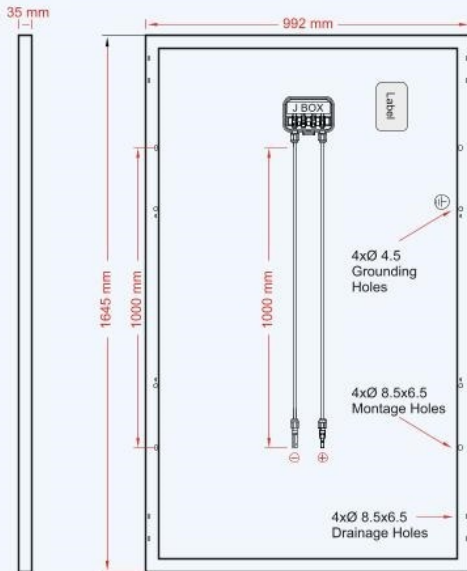


The data were measured under standard test conditions. It may vary depending on the ambient conditions.

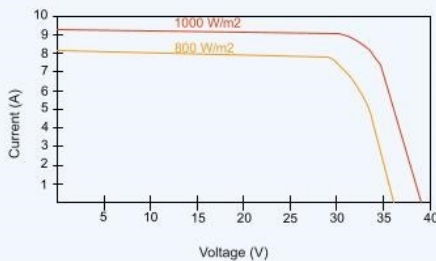
POLYCRYSTALLINE

POLYCRYSTALLINE 60 CELL SOLAR (PV) MODULE 275W - 290W

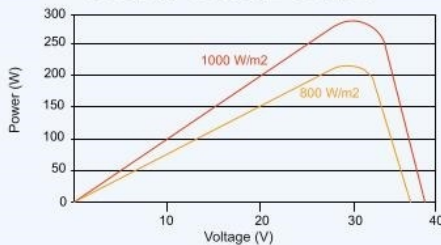
MODULE DIMENSIONS (mm)



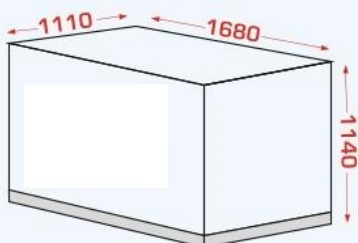
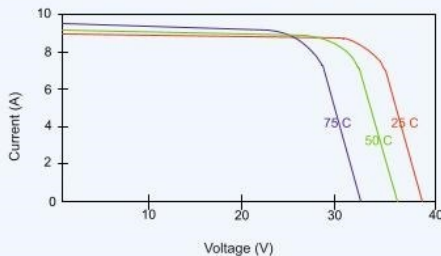
CURRENT VOLTAGE CURVE



POWER VOLTAGE CURVE



CURRENT VOLTAGE CURVE



ELECTRICAL PARAMETERS (STC)

	Unit	OSP60-275W	OSP60-280W	OSP60-285W	OSP60-290W
Maximum Power	P _{maks} (Wp)	275	280	285	290
Positive Output Tolerance		0 ~ +5W			
Max. Power Voltage	V _{mpp} (V)	31,46	31,21	31,39	31,54
Max. Power Current	I _{mpp} (A)	8,85	8,99	9,10	9,21
Open Circuit Voltage	V _{oc} (V)	38,33	38,7	38,92	39,21
Short Circuit Voltage	I _{sc} (A)	9,235	9,57	9,65	9,73
Module Efficiency	η _m (%)	16,9	17,2	17,5	17,85

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSP60-275W	OSP60-280W	OSP60-285W	OSP60-290W
Maximum Power	P _{maks} (Wp)	208	211	213,4	217,4
Max. Power Voltage	V _{mpp} (V)	29,8	28,25	28,42	28,54
Max. Power Current	I _{mpp} (A)	6,97	7,45	7,51	7,62
Open Circuit Voltage	V _{oc} (V)	36,3	35,33	35,51	35,73
Short Circuit Voltage	I _{sc} (A)	7,5	8,09	8,17	8,2

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Polycrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	60 Cell (6x10)
Panel Size	992 x 1645 x 35 mm
Weight	19 Kg
Glass	3.2 mm (0,125") Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	White Anodized Aluminium
Junction Box	IP 67 or IP 68 - 1500 VDC / 15A
Output Cables	IEC, UL approved (4 mm², 12 AWG) (PV Cable Type) , 1000mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1,18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C (± 2°C)
Temperaure Coefficient (P _{max})	-0,40 %/°C
Temperaure Coefficient (V _{oc})	-0,3409 %/°C
Temperaure Coefficient (I _{sc})	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1500V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

PACKAGING

Pallet Size: 1110x1680x1140 mm
Modules per Pallet: 30 Pieces
Total Weight: 565 Kg
Modules per 40 HC Container: 840 Pieces
Modules per 20 DC Container: 360 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty





POLYCRYSTALLINE

► **POLYCRYSTALLINE 72 CELL SOLAR (PV) MODULE**
325W - 345W

Over **%18,8** Cell
Efficiency

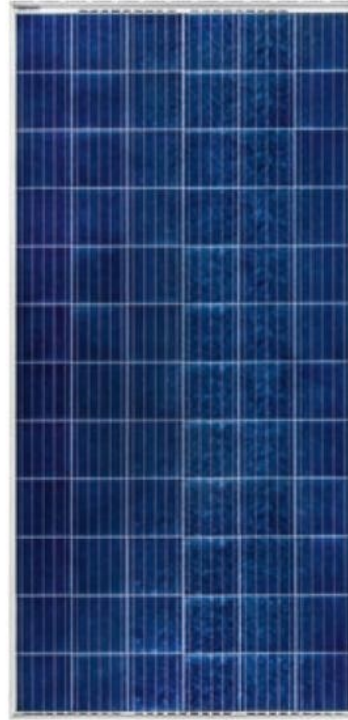


72 CELL
POLYCRYSTALLINE MODULE

325W - 345W
OUTPUT POWER RANGE

OVER **%17,7**
PANEL EFFICIENCY

0~+5Wp
POSITIVE OUTPUT TOLERANCE



Positive Output
Tolerance



Compatible with
International Standards



1500V Maximum
System Voltage



5400 Pa Snow Load
2400 Pa Wind Load
Resistance



10 Years Producer
Warranty



Over **%17,7** Panel
Efficiency



100 % EL Double
EL Inspection



High Quality Junction
Box and Plugging System



Type 1, Type 2
A Class Fire Protection



25 Years Linear
Performance Warranty

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LINEAR PERFORMANCE WARRANTY

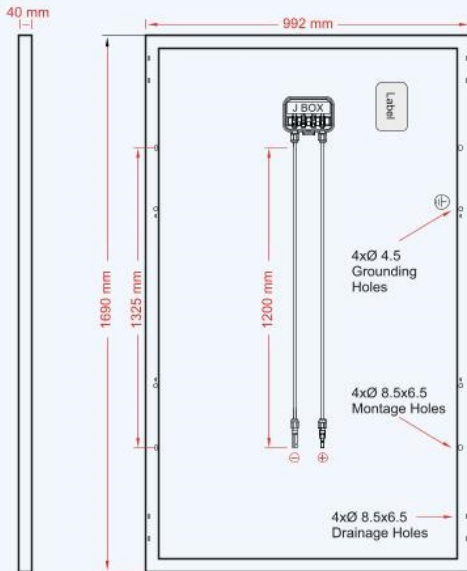


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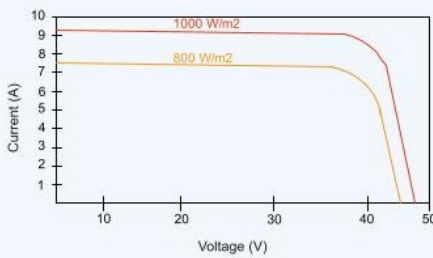
POLYCRYSTALLINE

POLYCRYSTALLINE 72 CELL SOLAR (PV) MODULE 325W - 345W

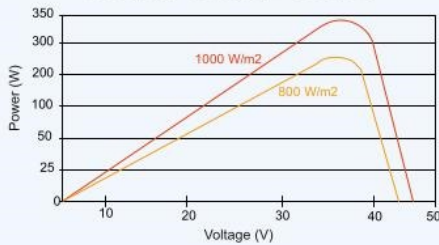
MODULE DIMENSIONS (mm)



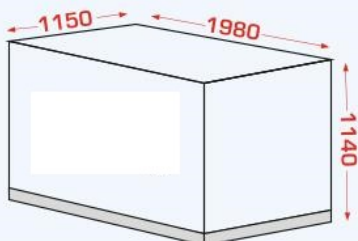
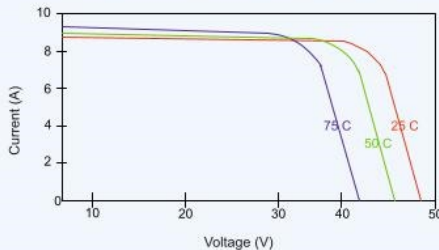
CURRENT VOLTAGE CURVE



POWER VOLTAGE CURVE



CURRENT VOLTAGE CURVE



ELECTRICAL PARAMETERS (STC)

	Unit	OSP72-325W	OSP72-330W	OSP72-335W	OSP72-340W	OSP72-345W
Maximum Power	P _{maks} (Wp)	325	330	335	340	345
Positive Output Tolerance		0 ~ +5W				
Max. Power Voltage	V _{mpp} (V)	37,4	37,7	37,27	37,32	37,39
Max. Power Current	I _{mp} (A)	8,7	8,8	9,01	9,13	9,23
Open Circuit Voltage	V _{oc} (V)	45,59	45,8	45,99	46,18	46,39
Short Circuit Voltage	I _{sc} (A)	9,24	9,3	9,57	9,60	9,66
Module Efficiency	η _m (%)	16,71	16,97	17,22	17,48	17,74

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSP72-325W	OSP72-330W	OSP72-335W	OSP72-340W	OSP72-345W
Maximum Power	P _{maks} (Wp)	241	244	247	251	255
Max. Power Voltage	V _{mpp} (V)	34,7	34,9	35	35,3	35,6
Max. Power Current	I _{mp} (A)	6,95	7	7,05	7,11	7,16
Open Circuit Voltage	V _{oc} (V)	42,13	42,3	42,5	42,8	43
Short Circuit Voltage	I _{sc} (A)	7,48	7,51	7,62	7,67	7,7

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Polycrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	72 Cell (6x12)
Panel Size	1960 x 992 x 40 mm
Weight	22 Kg
Glass	3.2 mm (0,125") Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	White Anodized Aluminium
Junction Box	IP 67 or IP 68 - 1500 VDC / 15A
Output Cables	IEC, UL approved (4 mm², 12 AWG) (PV Cable Type) , 1000mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1.18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C (± 2°C)
Temperaure Coefficient (P _{max})	-0,40 %/°C
Temperaure Coefficient (V _{oc})	-0,3409 %/°C
Temperaure Coefficient (I _{sc})	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1500V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

PACKAGING

Pallet Size: 1150x1980x1140 mm
Modules per Pallet: 28 Pieces
Total Weight: 640 Kg
Modules per 40 HC Container: 720 Pieces
Modules per 20 DC Container: 240 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty



Production Line

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We do only **THE BEST!**



MONOCRYSTALLINE

► **MONOCRYSTALLINE 60 CELL SOLAR (PV) MODULE**
300W - 320W

Over **%21,9** Cell
Efficiency

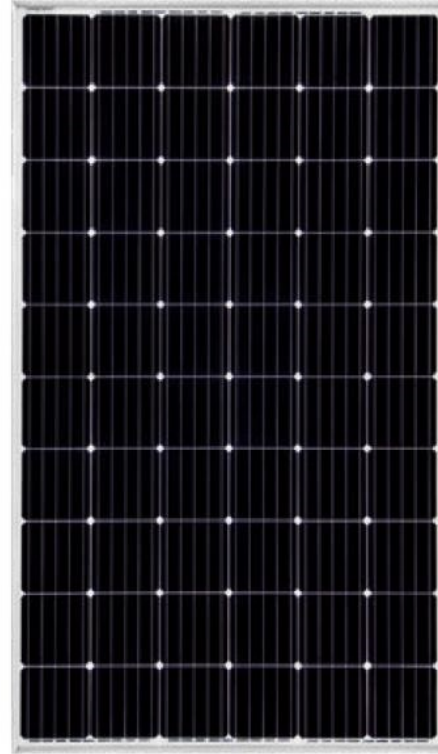


60 CELL
MONOCRYSTALLINE MODULE

300W - 320W
OUTPUT POWER RANGE

OVER %19
PANEL EFFICIENCY

0~+5Wp
POSITIVE OUTPUT TOLERANCE



Positive Output
Tolerance



Over %19 Panel
Efficiency



Compatible with
International Standards



100 % EL Double
EL Inspection



1500V Maximum
System Voltage



High Quality Junction
Box and Plugging System



5400 Pa Snow Load
2400 Pa Wind Load
Resistance



Type 1, Type 2
A Class Fire Protection



10 Years Producer
Warranty



25 Years Linear
Performance Warranty

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LINEAR PERFORMANCE WARRANTY

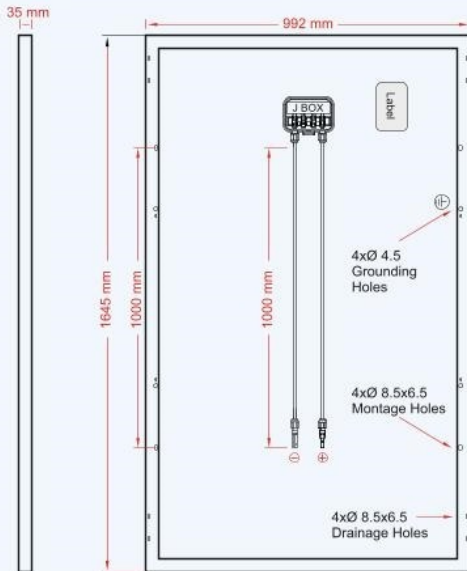


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MONOCRYSTALLINE

MONOCRYSTALLINE 60 CELL SOLAR (PV) MODULE 300W - 320W

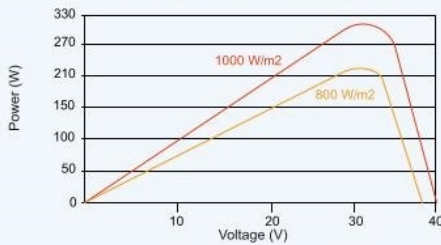
MODULE DIMENSIONS (mm)



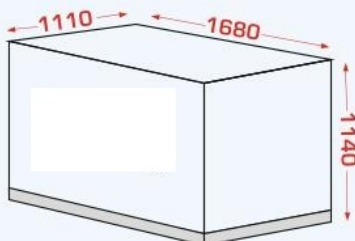
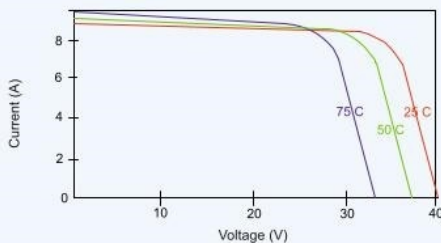
CURRENT VOLTAGE CURVE



POWER VOLTAGE CURVE



CURRENT VOLTAGE CURVE



ELECTRICAL PARAMETERS (STC)

	Unit	OSM60-300W	OSM60-305W	OSMp60-310W	OSMp60-315W	OSMp60-320W
Maximum Power	P _{maks} (Wp)	300	305	310	315	320
Positive Output Tolerance		0 ~ +5W				
Max. Power Voltage	V _{mpp} (V)	32,7	32,9	33,01	33,04	33,7
Max. Power Current	I _{mpp} (A)	9,2	9,28	9,41	9,5	9,55
Open Circuit Voltage	V _{oc} (V)	39,8	40,3	40,6	40,7	40,9
Short Circuit Voltage	I _{sc} (A)	9,77	9,79	9,922	10,01	10,3
Module Efficiency	η _m (%)	18,44	18,74	19,05	19,36	19,66

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSM60-300W	OSM60-305W	OSMp60-310W	OSMp60-315W	OSMp60-320W
Maximum Power	P _{maks} (Wp)	223	225	232	235	239
Max. Power Voltage	V _{mpp} (V)	30,2	30,5	30,9	31,3	31,5
Max. Power Current	I _{mpp} (A)	7,39	7,45	7,5	7,57	7,58
Open Circuit Voltage	V _{oc} (V)	37	37,3	37,5	37,6	37,9
Short Circuit Voltage	I _{sc} (A)	7,89	7,9	8,21	8,33	8,45

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Monocrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	60 Cell (6x10)
Panel Size	992 x 1645 x 35 mm
Weight	19 Kg
Glass	3.2 mm (0,125")Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	White Anodized Aluminium
Junction Box	IP 67 or IP 68 - 1500 VDC / 15A
Output Cables	IEC, UL approved (4 mm² ,12 AWG) (PV Cable Type) , 1000mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1.18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C (± 2°C)
Temperaure Coefficient (P _{max})	-0,40 %/°C
Temperaure Coefficient (V _{oc})	-0,3409 %/°C
Temperaure Coefficient (I _{sc})	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1500V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

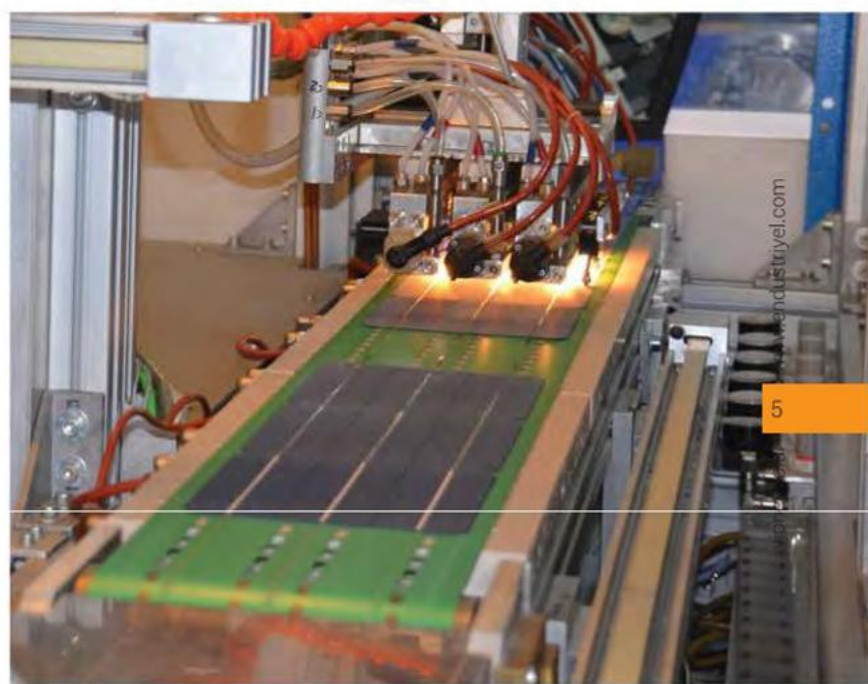
PACKAGING

Pallet Size: 1110x1680x1140 mm
Modules per Pallet: 30 Pieces
Total Weight: 565 Kg
Modules per 40 HC Container: 840 Pieces
Modules per 20 DC Container:: 360 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty





MONOCRYSTALLINE

► **MONOCRYSTALLINE 72 CELL SOLAR (PV) MODULE**
360W - 380W

Over **%21,9** Cell
Efficiency



72 CELL
MONOCRYSTALLINE MODULE

360W - 380W
OUTPUT POWER RANGE

OVER %19
PANEL EFFICIENCY

0~+5Wp
POSITIVE OUTPUT TOLERANCE



**Positive Output
Tolerance**



**Over %19 Panel
Efficiency**



**Compatible with
International Standards**



**100 % EL Double
EL Inspection**



**1500V Maximum
System Voltage**



**High Quality Junction
Box and Plugging System**



**5400 Pa Snow Load
2400 Pa Wind Load
Resistance**



**Type 1, Type 2
A Class Fire Protection**



**10 Years Producer
Warranty**



**25 Years Linear
Performance Warranty**

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LINEAR PERFORMANCE WARRANTY

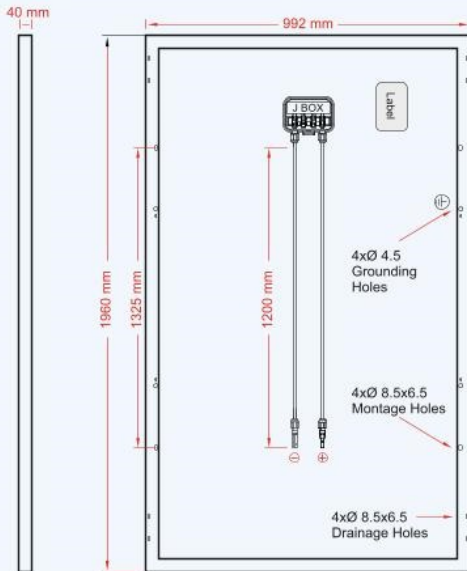


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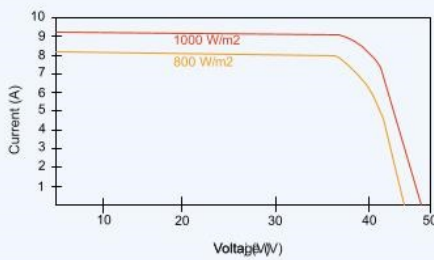
MONOCRYSTALLINE

MONOCRYSTALLINE 72 CELL SOLAR (PV) MODULE 360W - 380W

MODULE DIMENSIONS (mm)



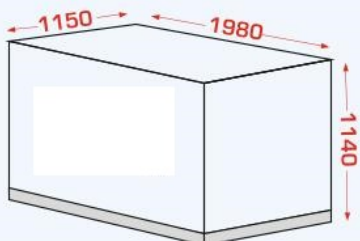
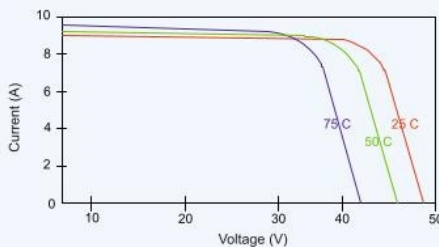
CURRENT VOLTAGE CURVE



POWER VOLTAGE CURVE



CURRENT VOLTAGE CURVE



ELECTRICAL PARAMETERS (STC)

	Unit	OSM72-360W	OSM72-365W	OSMp72-370W	OSMp72-375W	OSMp72-380W
Maximum Power	P _{maks} (Wp)	360	365	370	375	380
Positive Output Tolerance		0 ~ +5W				
Max. Power Voltage	V _{mpp} (V)	39,3	39,39	40	40,2	40,3
Max. Power Current	I _{mp} (A)	9,18	9,27	9,28	9,33	9,43
Open Circuit Voltage	V _{oc} (V)	46,9	47,8	48,4	47,8	48,4
Short Circuit Voltage	I _{sc} (A)	9,57	9,6	9,6	9,63	9,7
Module Efficiency	η _m (%)	18,51	18,77	19,02	19,28	19,54

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSM72-360W	OSM72-365W	OSMp72-370W	OSMp72-375W	OSMp72-380W
Maximum Power	P _{maks} (Wp)	268	269	274	277	279
Max. Power Voltage	V _{mpp} (V)	36,3	36,5	36,7	36,9	37
Max. Power Current	I _{mp} (A)	7,38	7,4	7,46	7,5	7,54
Open Circuit Voltage	V _{oc} (V)	43,6	44,3	45,8	46,3	46,6
Short Circuit Voltage	I _{sc} (A)	7,73	7,9	7,95	8	8,3

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Monocrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	72 Cell (6x12)
Panel Size	992 x 1960 x 40 mm
Weight	22 Kg
Glass	3.2 mm (0,125") Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	White Anodized Aluminium
Junction Box	IP 67 or IP 68 - 1500 VDC / 15A
Output Cables	IEC, UL approved (4 mm², 12 AWG) (PV Cable Type) , 1000mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1,18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C (± 2°C)
Temperaure Coefficient (P _{max})	-0,40 %/°C
Temperaure Coefficient (V _{oc})	-0,3409 %/°C
Temperaure Coefficient (I _{sc})	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1500V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

PACKAGING

Pallet Size: 1150x1980x1140 mm
Modules per Pallet: 28 Pieces
Total Weight: 640 Kg
Modules per 40 HC Container: 720 Pieces
Modules per 20 DC Container: 240 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty





MONOCRYSTALLINE

► MONOCRYSTALLINE 60 CELL SOLAR (PV) MODULE 325W - 335W

Over **%22,2** Cell
Efficiency

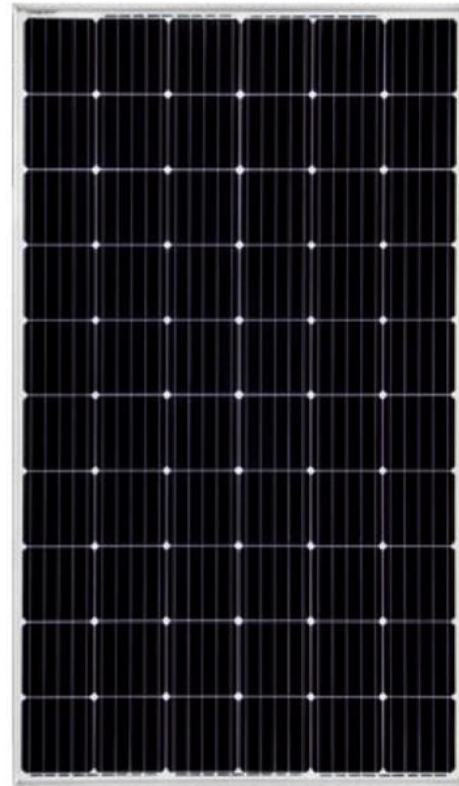


60 CELL
MONOCRYSTALLINE MODULE

325W - 335W
OUTPUT POWER RANGE

OVER **%20**
PANEL EFFICIENCY

0~+5Wp
POSITIVE OUTPUT TOLERANCE



Positive Output
Tolerance



Compatible with
International Standards



1500V Maximum
System Voltage



5400 Pa Snow Load
2400 Pa Wind Load
Resistance



10 Years Producer
Warranty



Over %20 Panel
Efficiency



100 % EL Double
EL Inspection



High Quality Junction
Box and Plugging System



Type 1, Type 2
A Class Fire Protection



25 Years Linear
Performance Warranty



LINEAR PERFORMANCE WARRANTY

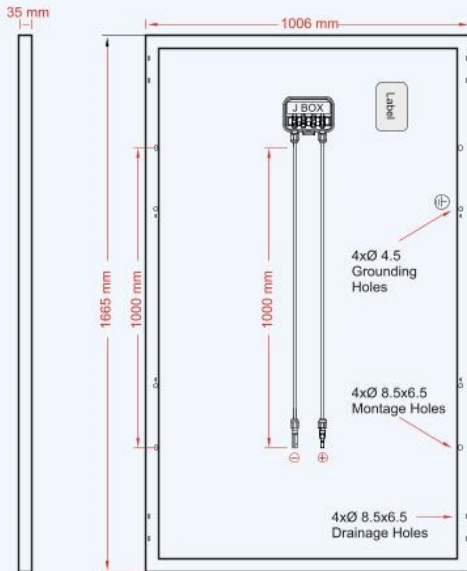


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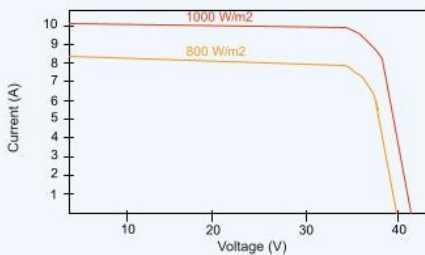
MONOCRYSTALLINE

MONOCRYSTALLINE 60 CELL SOLAR (PV) MODULE 325W - 335W

MODULE DIMENSIONS (mm)



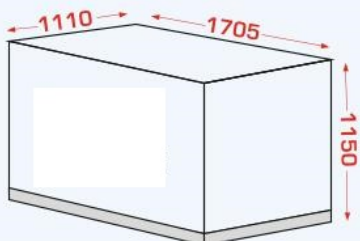
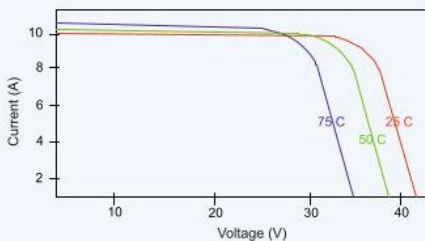
CURRENT VOLTAGE CURVE



POWER VOLTAGE CURVE



CURRENT VOLTAGE CURVE



ELECTRICAL PARAMETERS (STC)

	Unit	OSMp60-325W	OSMp60-330W	OSMp60-335W
Maximum Power	P _{maks} (Wp)	325	330	335
Positive Output Tolerance		0 ~ +5W		
Max. Power Voltage	V _{mpp} (V)	33,60	33,78	33,90
Max. Power Current	I _{mpp} (A)	9,68	9,77	9,9
Open Circuit Voltage	V _{oc} (V)	41,1	41,31	41,5
Short Circuit Voltage	I _{sc} (A)	10,2	10,31	10,52
Module Efficiency	η _m (%)	19,41	19,7	20,03

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSMp60-325W	OSMp60-330W	OSMp60-335W
Maximum Power	P _{maks} (Wp)	243	245	248
Max. Power Voltage	V _{mpp} (V)	31,8	31,97	32,05
Max. Power Current	I _{mpp} (A)	7,66	7,69	7,74
Open Circuit Voltage	V _{oc} (V)	38,1	39,17	39,3
Short Circuit Voltage	I _{sc} (A)	8,53	8,56	8,59

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Monocrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	60 Cell (6x10)
Panel Size	1006 x 1665 x 35 mm
Weight	18,5 Kg
Glass	3.2 mm (0,125")Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	White Anodized Aluminium
Junction Box	IP 67 or IP 68 - 1500 VDC / 15A
Output Cables	IEC, UL approved (4 mm² ,12 AWG) (PV Cable Type) , 1000mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1.18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C (± 2°C)
Temperaure Coefficient (P _{max})	-0,40 %/°C
Temperaure Coefficient (V _{oc})	-0,3409 %/°C
Temperaure Coefficient (I _{sc})	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1500V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

PACKAGING

Pallet Size: 1110x1705x1150 mm
Modules per Pallet: 30 Pieces
Total Weight: 580 Kg
Modules per 40 HC Container: 840 Pieces
Modules per 20 DC Container:: 360 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty





WE CONTRIBUTE TO THE FIGHT WITH CLIMATE CHANGE!

As the tendency towards renewable energy sources increases, it is accepted by all authorities where greenhouse gas emissions and therefore global warming decrease. Generating energy from clean sources has become one of the most effective ways of protecting the environment with increasing awareness about climate and environmental protection. We can reduce CO₂ emissions by preferring solar energy which is one of the clean energy sources against climate change and global warming.

By producing your electricity with photovoltaic solar panels in your home and workplace, you can fight global warming by reducing CO₂ emission by up to 97% compared to other energy sources.

Odul Sun Reliance is aware of its responsibilities to the environment and nature and contributes to protect our environment by preventing CO₂ emission in energy production with solar panels.



MONOCRYSTALLINE

► **MONOCRYSTALLINE 72 CELL SOLAR (PV) MODULE**
385W - 400W

Over **%22,2** Cell
Efficiency

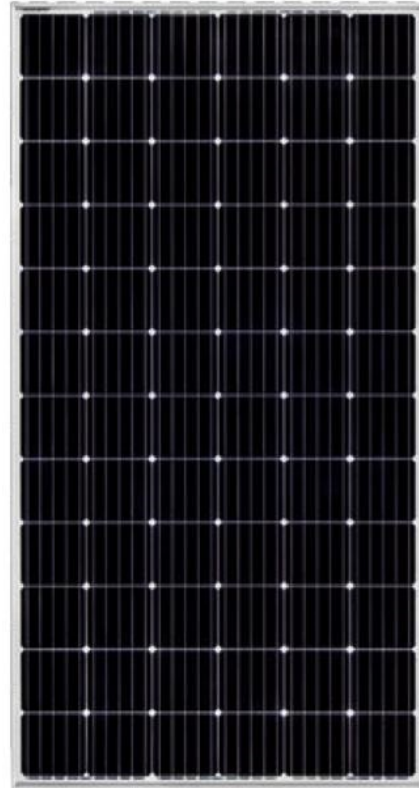


72 CELL
MONOCRYSTALLINE MODULE

385W - 400W
OUTPUT POWER RANGE

OVER %20
PANEL EFFICIENCY

0~+5Wp
POSITIVE OUTPUT TOLERANCE



**Positive Output
Tolerance**



**Compatible with
International Standards**



**1500V Maximum
System Voltage**



**5400 Pa Snow Load
2400 Pa Wind Load
Resistance**



**10 Years Producer
Warranty**



**Over %20 Panel
Efficiency**



**100 % EL Double
EL Inspection**



**High Quality Junction
Box and Plugging System**



**Type 1, Type 2
A Class Fire Protection**



**25 Years Linear
Performance Warranty**

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info@heedgroup.net



LINEAR PERFORMANCE WARRANTY

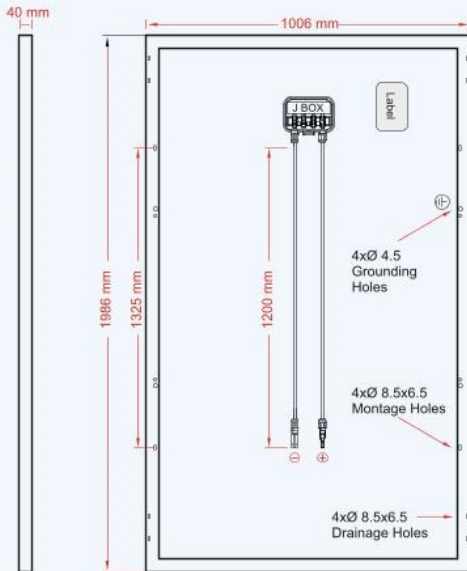


The data were measured under standard test conditions. It may vary depending on the ambient conditions.

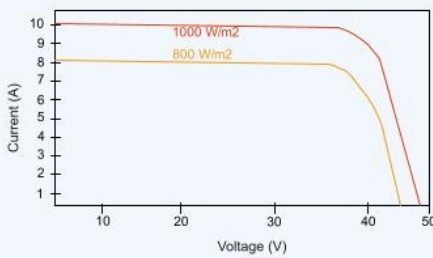
MONOCRYSTALLINE

MONOCRYSTALLINE 72 CELL SOLAR (PV) MODULE 385W - 400W

MODULE DIMENSIONS (mm)



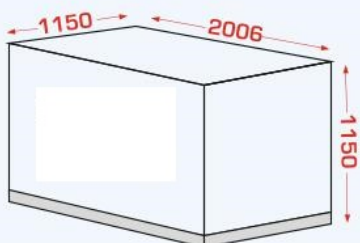
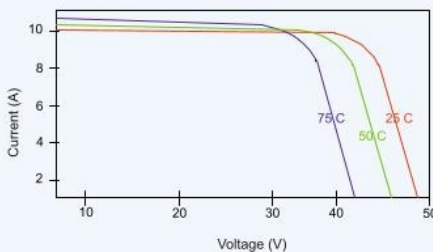
CURRENT VOLTAGE CURVE



POWER VOLTAGE CURVE



CURRENT VOLTAGE CURVE



ELECTRICAL PARAMETERS (STC)

	Unit	OSMp72-385W	OSMp72-390W	OSMp72-395W	OSMp72-400W
Maximum Power	P _{maks} (Wp)	385	390	395	400
Positive Output Tolerance		0 ~ +5W			
Max. Power Voltage	V _{mpp} (V)	40,8	41,1	40,48	40,51
Max. Power Current	I _{mpp} (A)	9,44	9,49	9,76	9,9
Open Circuit Voltage	V _{oc} (V)	49,1	49,3	49,64	49,95
Short Circuit Voltage	I _{sc} (A)	9,92	10,12	10,27	10,30
Module Efficiency	η _m (%)	19,27	19,52	19,77	20,07

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSMp72-385W	OSMp72-390W	OSMp72-395W	OSMp72-400W
Maximum Power	P _{maks} (Wp)	291	295	300	306
Max. Power Voltage	V _{mpp} (V)	38,9	39,1	39,5	39,9
Max. Power Current	I _{mpp} (A)	7,49	7,55	7,61	7,67
Open Circuit Voltage	V _{oc} (V)	47,8	48,1	48,6	49
Short Circuit Voltage	I _{sc} (A)	7,95	8,01	8,07	8,1

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy ±%3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Monocrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	72 Cell (6x12)
Panel Size	1006 x 1986 x 40 mm
Weight	22,5 Kg
Glass	3.2 mm (0,125") Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	White Anodized Aluminium
Junction Box	IP 67 or IP 68 - 1500 VDC / 15A
Output Cables	IEC, UL approved (4 mm ² , 12 AWG) (PV Cable Type) , 1000mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1,18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C (± 2°C)
Temperaure Coefficient (P _{max})	-0,40 %/°C
Temperaure Coefficient (V _{oc})	-0,3409 %/°C
Temperaure Coefficient (I _{sc})	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1500V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

PACKAGING

Pallet Size: 1150x2006x1150 mm
Modules per Pallet: 28 Pieces
Total Weight: 660 Kg
Modules per 40 HC Container: 720 Pieces
Modules per 20 DC Container: 300 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty





SOLAR ROOF TILES

► MONOCRYSTALLINE 6 CELL SOLAR ROOF TILES 32WATT



Over **%21,9** Cell Efficiency

6 CELL MONOCRYSTALLINE MODULE

32W OUTPUT POWER RANGE

OVER **%19,8** PANEL EFFICIENCY

0~+5Wp POSITIVE OUTPUT TOLERANCE



Positive Output Tolerance



Over %19,8 Panel Efficiency



**5400 Pa Snow Load
2400 Pa Wind Load Resistance**



Compatible with International Standards



100 % EL Double EL Inspection



**Type 1, Type 2
A Class Fire Protection**



High Quality Junction Box and Plugging System



10 Years Producer Warranty



25 Years Linear Performance Warranty

ELECTRICAL PARAMETERS (STC)

	Unit	OSMp6-32W
Maximum Power	Pmaks (Wp)	32
Positive Output Tolerance	Watt	0 ~ +0,5W
Max. Power Voltage	Vmpp (V)	3,34
Max. Power Current	Imp (A)	9,59
Open Circuit Voltage	Voc (V)	4,1
Short Circuit Voltage	Isc (A)	10,15
Module Efficiency	η_m (%)	19,83

STC: 1000W/m² Irradiation / 25°C Cell Temperature / AM=1,5 / Measurement Accuracy $\pm$ %3 / 1m/s Wind Speed

ELECTRICAL PARAMETERS (NOTC)

	Unit	OSMp6-32W
Maximum Power	Pmaks (Wp)	23,9
Max. Power Voltage	Vmpp (V)	3,14
Max. Power Current	Imp (A)	7,62
Open Circuit Voltage	Voc (V)	3,78
Short Circuit Voltage	Isc (A)	8,45

NOTC: 800W/m² Irradiation / 20°C Cell Temperature / AM=1,5 / Measurement Accuracy $\pm$ %3 / 1m/s Wind Speed

MECHANICAL COMPONENTS

Cell Type	Monocrystalline Perc Cell / 156.75 mm x 156.75 mm
Cell Amount	6 Cell (2x3)
Panel Size	537 x 363 x 30 mm
Weight	3,3 Kg
Glass	3,2 mm (0,125") Low Ironed High-Pass Tempered Glass
Back Surface	Multi Layered White Polymer Film
Frame	Fireproof Composite Tile
Junction Box	IP 65 and above
Output Cables	IEC, UL approved (4 mm ² , 12 AWG) (PV Cable Type), 300mm
Connector	Compatible MC4 (IP67, IEC and UL approved)
Fire Resistance	Type 1, Type 2 - A Class
Impact Resistance	Decreased from "51,19 / 1300 mm, (1,18 lbs / 535g) Steel Ball Test

TEMPERATURE COEFFICIENTS

NOTC (Nominal Cell Working Temperature)	45°C ($\pm$ 2°C)
Temperature Coefficient (Pmax)	-0,40 %/°C
Temperature Coefficient (Voc)	-0,3409 %/°C
Temperature Coefficient (Isc)	+0,0447 %/°C

WORKING CONDITIONS

Working Temperature	-40~+85°C
Max. System Voltage	1000V DC (UL / IEC)
Max. Reverse Current	15A / 20A
Maximum Load	75 lbs ft (UL Standard) 5400 Pa (IEC Standard)

PACKAGING

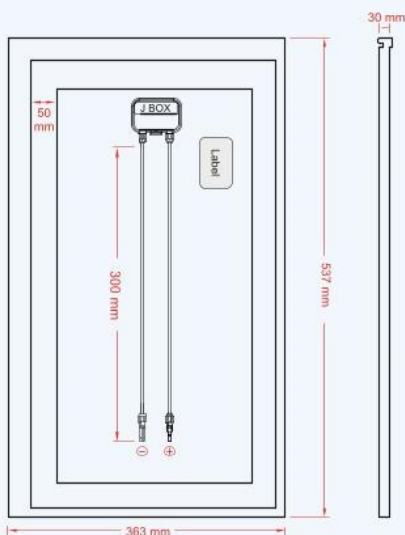
Pallet Size: 800x1200x1630 mm
Modules per Pallet: 160 Pieces
Total Weight: 580 Kg
Modules per 40 HC Container: 3680 Pieces
Modules per 20 DC Container: 1760 Pieces

WARRANTY

10 Years OSR Mechanical Warranty
25 Years Linear Performance Warranty



MODULE DIMENSIONS (mm)



EXCLUSIVELY PRODUCED

► SOLAR MODULES

► **OSP 25**



► **OSP 50**



► **OSP 80**



► **OSP 165**



► **OSMp 185**



ELECTRICAL PARAMETERS (STC)

	Unit	OSP 25	OSP 50	OSP 80	OSP 165	OSMp 185
Maximum Power	P _{maks} (Wp)	25	55	80	165	185
Max. Power Voltage	V _{mpp} (V)	18,68	18,7	18,73	18,78	19
Max. Power Current	I _{mpp} (A)	1,34	2,95	4,28	9,1	10,3
Open Circuit Voltage	V _{oc} (V)	22,69	22,70	22,75	22,80	24
Short Circuit Voltage	I _{sc} (A)	1,42	3,2	4,9	8,79	9,74
Module Efficiency	η _m (%)	14,8	14,27	14,81	16,42	18,41
Weight	Kg	2,1	4,5	7	8	8
Cell Amount	Piece	36	36	36	36	36
Panel Size	mm	480x350x25	688x560x25	785x688x35	1488x675x35	1488x675x35



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