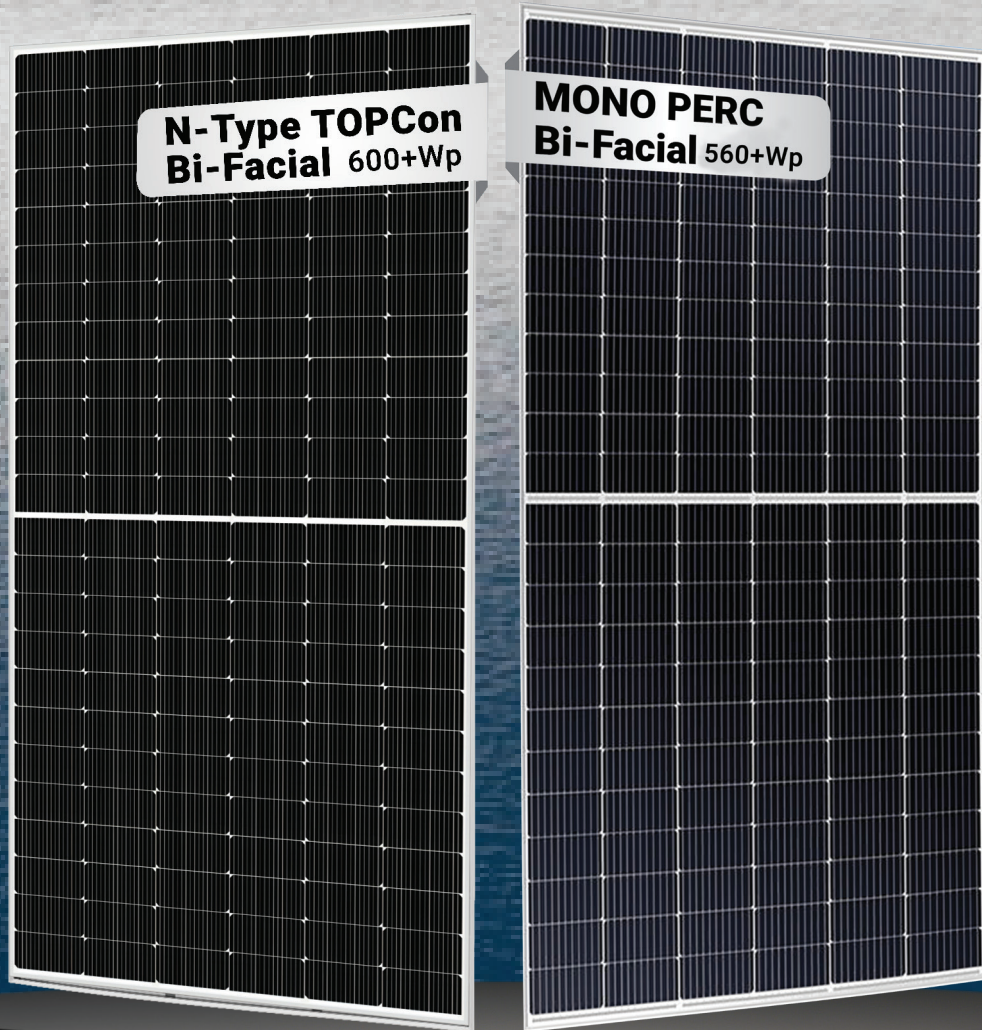


# citizen<sup>TM</sup> SOLAR



**2.6 GW\*** SOLAR MODULE MANUFACTURING CAPACITY



[www.citizensolar.com](http://www.citizensolar.com)



**30** Years Linear Power Output Warranty

**12** Years Product Warranty

+91 8000 111 222

[www.citizensolar.com](http://www.citizensolar.com)

# About Citizen Solar



**32 Years**  
Of Rich Industry  
Experience



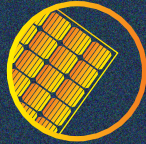
**2.6 GW\*** Capacity  
by 2026



**1000+**  
Workforce



**A Trusted Brand**  
For Quality And  
Performance



**High Efficiency  
PV Modules**  
500 Wp - 650 Wp



High Grade Raw  
Materials **A+** Grade  
Solar Cells

## Adaptable, Dynamic & Versatile, Our Modules Can Be Used For



Utilities



Industries



Residential



Institutes



Agriculture



Hospitals



Solar Park



## Our Vision

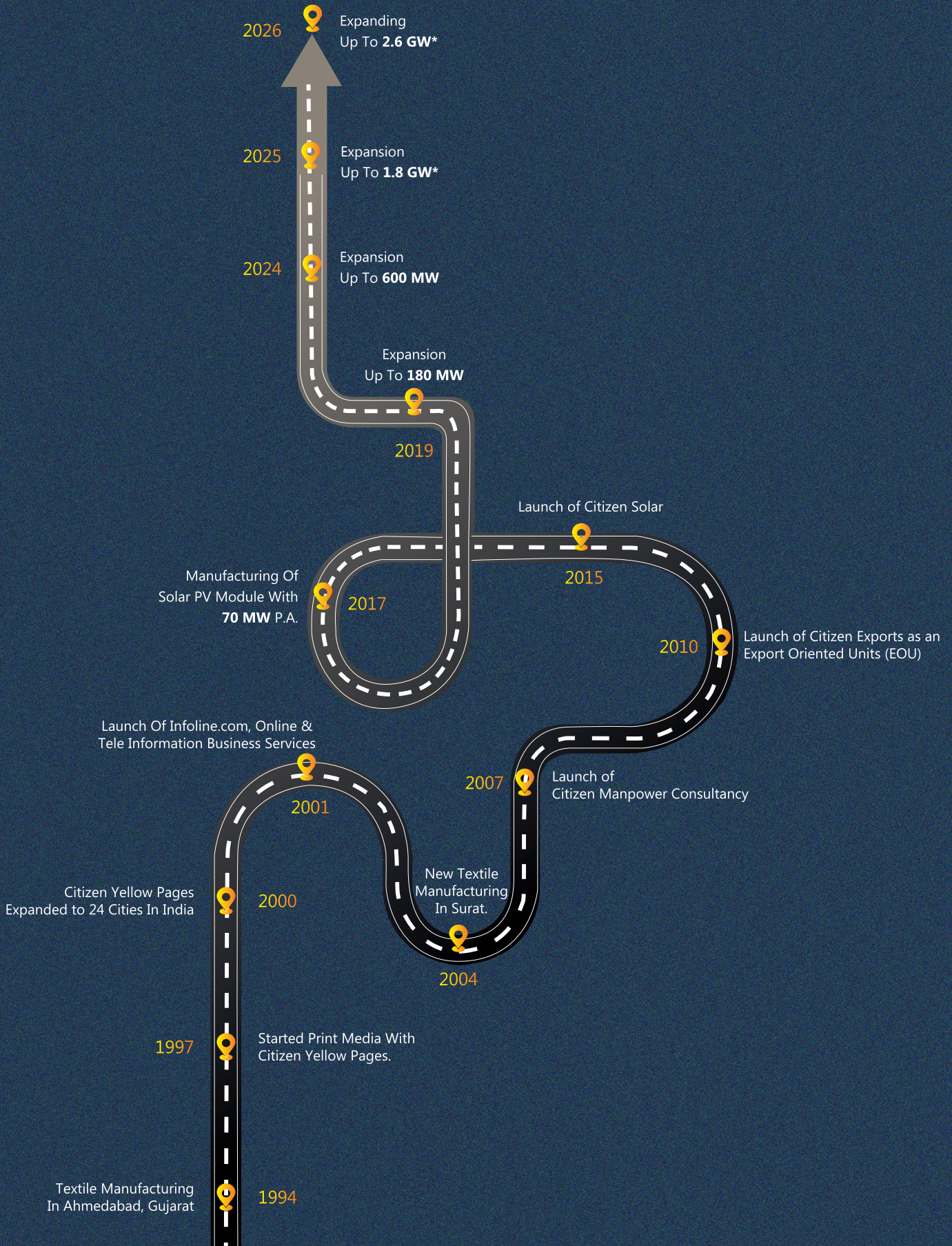
At **Citizen Solar**, we believe to deliver cost effective, better quality & highly efficient sustainable energy products & thus enabling the future of clean & green energy.



## Mission

To grow **Citizen Solar** into a preferred choice for Solar Power Products in India as well as Abroad thus creating a value for all the stakeholders & Customers.

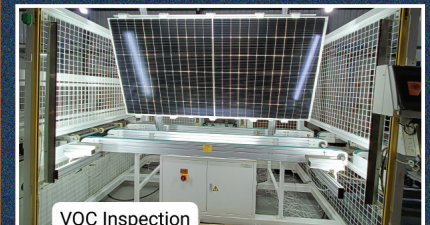
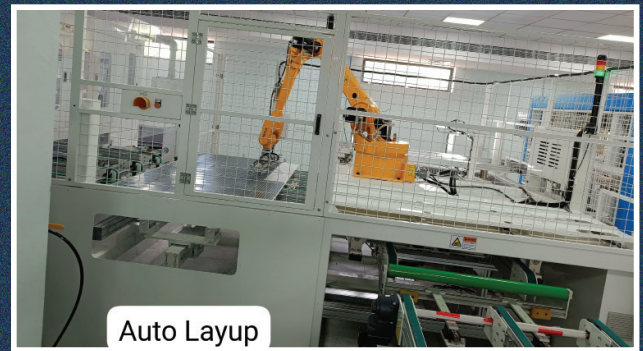
# Citizen Group Road Map & Growth Chart



# INTRODUCTION

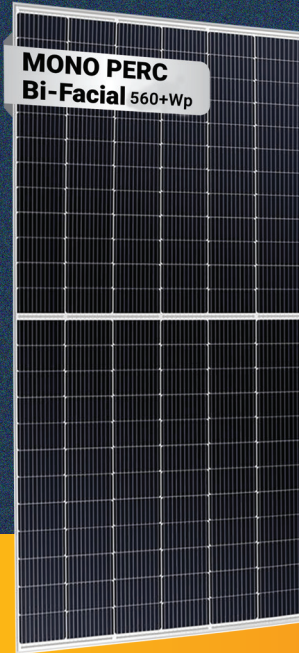
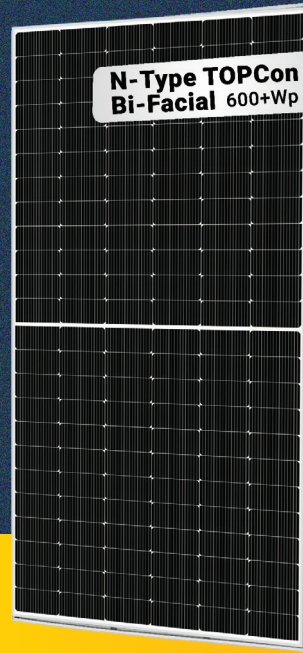
- » Citizen Solar Private Limited is a part of the 32 year old Citizen Group. Engineered in Germany, Made in India, a BIS and IEC Certified, MNRE and ALMM approved Company with IEC 62804 / IEC 61701/ IEC 61853- 1, IS 14286 / 61730- 1 / 61730- 2, ISO 9001: 2015, ISO 14001: 2015 & ISO 45001: 2018 Certifications is a Trusted Brand for Quality and Performance using High Grade Raw Materials which is one of India's Premier Solar Panel and Solar Inverter Manufacturer dealing with technologically astute and cutting edge solutions for industrial and business use. Equipped with world class machinery and industry leading infrastructure.
- » Citizen Solar's state-of-the-art manufacturing facility is located at Chhatral Kadi Road, Gujarat having been spread over a massive 5 lakhs square feet, capable of consistently producing 1.8 GW energy per annum and it's Corporate office is based at Ahmedabad,Gujarat.
- » Citizen Solar comprises of one main division that includes Citizen Solar Technology which is a leading Solar Module manufacturer with a Pan India & International presence and that is widely known for their optimum quality.
- » We are currently supplying Solar PV Modules all across the Globe.

# SMARTER MANUFACTURING SMARTER CHOICE



# MONO PERC & TOPCon SOLAR PV MODULES

ENLIGHT SERIES  
(TOPCON HALF CUT)



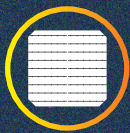
NEWLIGHT SERIES  
(MONOPERC HALF CUT)

## COMPREHENSIVE CERTIFICATES

- IS 14286 / 61730-1 / 61730-2 • IEC 62804 / 61701 / 61853-1
- ISO 9001:2015 • ISO 14001:2015 • ISO 45001:2015



## KEY FEATURES



**10BB, 12BB & 16BB** Solar Cell design to improve the module efficiency & give a better aesthetic appearance.



Excellent module efficiency upto 23.20% for **TOPCON**, upto 21.7% for **Mono PERC**.



ARC Coated high transmission glass is used which directs more light on module resulting higher energy output.



Robust aluminium frame, ensure the modules to withstand wind load upto 2400 Pa. & heavy snow load upto 5400 Pa.



Positive power tolerance  
**0~+5wp**



High PID resistant, advance technology & qualified material leads to high resistant to PID.



Ip68 junction box for long-term weather endurance.



Low degradation and excellent performance under low light condition and withstanding to harsh environment.



**144 Cell | 16 BB Cell**  
**N-Type TOPCon Half**  
**Cut Bifacial Module**  
**580wp to 600wp**



**16bb bifacial cell technology**

**TOPCon 600+Wp**



**enlight**  
 SERIES



**Extra Power**



**Extra Life**



**Double-Sided Power Generation**



**Excellent anti-LeTID & anti-PID performance**



**Lower temperature coefficient**



**Lower LCOE & system cost**

N-type Citizen TOPCON Bifacial Modules have the best efficiency >23.20% with higher power generation and reliable characteristic resistance. These panels provide efficient production under extreme weather conditions along with bifaciality with lower degradation. N-type Citizen TOPCON Bifacial Modules generate significantly more power per watt(kwh/kw) over 30 years(Long life)

**Module Efficiency**  
 >23.20%

**Positive Power Tolerance upto**  
 0~+5wp

**30 Years Performance Warranty**

**12 Years Product Warranty**

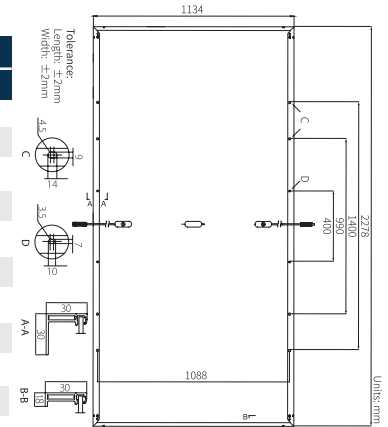
**PID Resistant**

**ALMM Approved List by MNRE\***

## TECHNICAL DATA

Electrical Data : All Data refers to STC (1000W/m<sup>2</sup>, AM1.5G, 25°C) and NOCT irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C, wind speed 1 m/sec

Product Model Number	CSPL-144THC-GF-580		CSPL-144THC-GF-585		CSPL-144THC-GF-590		CSPL-144THC-GF-600	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Nominal Wattage (Pmax) Wp	580	435	585	439	590	443	600	454
No's of Cut Cells	144	144	144	144	144	144	144	144
Matrix Configuration	12x6 II 12x6		12x6 II 12x6		12x6 II 12x6		12x6 II 12x6	
Maximum Voltage (Vmp) V	44.75	42.03	44.94	42.2	45.12	42.37	43.09	41.5
Open Circuit Voltage (Voc) V	52.80	49.79	53.01	49.98	53.21	50.18	53	50.20
Maximum Current (Imp) A	12.97	10.35	13.02	10.41	13.08	10.45	13.68	10.94
Short Circuit Current (Isc) A	13.65	11.00	13.71	11.04	13.76	11.09	14.63	11.43
Fill Factor (F.F.) in %	80±5%		80±5%		80±5%		80±5%	
Module efficiency (%)	22.47		22.67		22.86		23.20	
Power Tolerance	0~+5wp		0~+5wp		0~+5wp		0~+5wp	

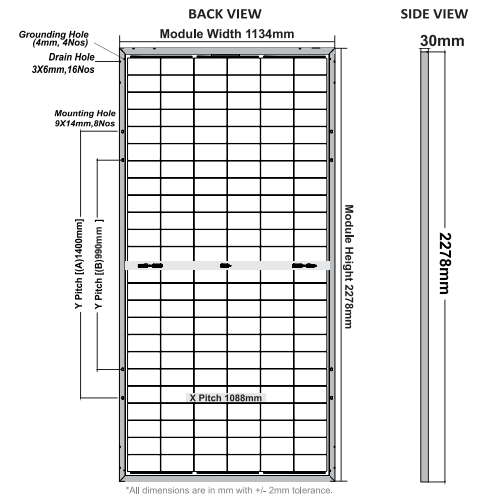


STC : 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3  
Average relative efficiency reduction of <5% at 200W/m<sup>2</sup> according to EN 60904-1

### BIFACIAL OUTPUT - BACKSIDE POWER GAIN @STC\*[ Bifaciality Factor: 80%±10%]

5%	Nominal Maximum Power (Pmax)	609	614	620
	Module Short Circuit Current / Efficiency	14.33A / 23.60%	14.39A / 23.79%	14.45A / 24.00%
10%	Nominal Maximum Power (Pmax)	638W	644W	649W
	Module Short Circuit Current / Efficiency	15.02A / 24.72%	15.08A / 24.95%	15.14A / 25.14%
25%	Nominal Maximum Power (Pmax)	725W	731W	738W
	Module Short Circuit Current / Efficiency	17.06A / 28.09%	17.13A / 28.32%	17.20A / 28.57%

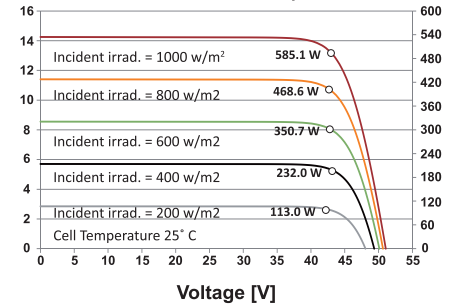
[Note: The bifacial gain depends on the power plant design and site conditions. Electrical component ratings should be selected as per actual Bifacial gain at site.]



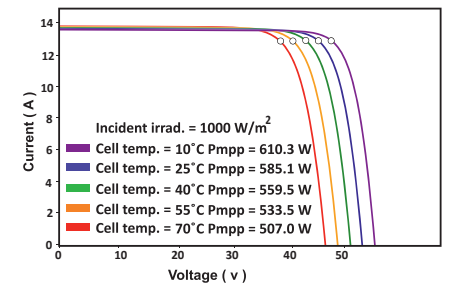
### Temperature Coefficients (Tc) permissible operating conditions

Operating Temperature (°C)	-40°C to +85°C
Maximum system voltage	1500 V
Maximum series fuse rating	30A
Temperature coefficients of Pmax	-0.2909%/°C
Temperature coefficients of Voc	-0.2261%/°C
Temperature coefficients of Isc	0.0265%/°C
Nominal operating cell temperature (NOCT)	45±2°C
Refer. Bifacial Factor	80±5%

IV Curve Variation with Temperature



IV Curve Variation with Irradiance



### MECHANICAL SPECIFICATIONS

Dimensions	2278(L) x 1134(W) x 30(T)
Weight	31.5 Kg
Cell type / No Of Cell	144 Half-cut N-type TOPCon Bifacial Solar cells
Frame	Anodized Aluminum Alloy (6005, Temper T6, Silver colour)
Front Cover	Low Iron semi-Tempered AR coated Glass (2 mm thick)
Encapsulate	PID resistant and UV resistant Polymeric Film
Back Cover	Low Iron semi-Tempered Glass (2 mm thick)
Junction Box	30A Split Junction Box (3 nos. with individual Bypass Diode) – Weatherproof (IP68)
Bypass Diode	50 A, 45 V, 200 °C max. junction temperature
Cable	4 sq. mm, 300 mm length (Customised cable length available on request)
Connectors	MC4 compatible (MC4 original available on request)
Application Class Rating	Class A
Safety Class Rating	Class II
Mechanical Load Test	5400 Pa-Front; 2400 Pa-Back (as per IEC & UL)
Mounting Holes Pitch (Y)-mm	[A] 1400, [B] 990, (Holes at 400 mm Y-pitch for tracker can be provided on customer request)
Mounting Holes Pitch (X)-mm	1088

### WARRANTY AND CERTIFICATIONS

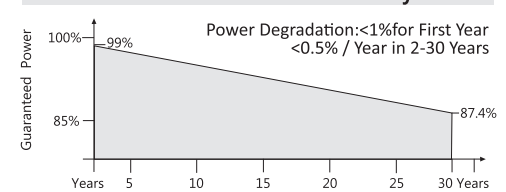
Performance Warranty**	Linear Power Warranty for 30 years, 90% for 12 years and 87.4% for 30 years
Approvals & Certificates	Products: IS:14286 / IEC:61215:2005-ED2, IEC:61730-Ed.1&ED.2

### STACKING STANDARD

	No. of Modules	No. of Pallets	Modules Per Pallet / Pallet Weight	Pallet Dimensions
19FT	256 Nos.	8 Pallets	32 Nos. / 1050 Kgs.	2300 x 1010 x 1300
32FT	384 Nos.	12 Pallets	32 Nos. / 1050 Kgs.	2300 x 1010 x 1300
40FT	704 Nos.	22 Pallets	32 Nos. / 1050 Kgs.	2300 x 1080 x 1300
20 GP Container	320 Nos.	10 Pallets	32 Nos. / 1050 Kgs.	2300 x 1080 x 1300
40 HC Container	640 Nos.	20 Pallets	32 Nos. / 1050 Kgs.	2300 x 1080 x 1300

Declaration : With the technical progress and product updates, there exists a deviation between the technical parameter of the CITIZEN SOLAR's future products and the technical parameter in this specification. The CITIZEN SOLAR reserves the right to adjust the technical parameter at any time without notifying the customers. CITIZEN SOLAR reserves the final right of interpretation.

### Linear Performance Warranty



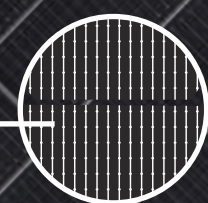
\*graphics shown herein above are reference purpose only. please consult Citizen Solar Technical Team for any further clarification.



132 Cell | 16 BB Cell  
**N-Type TOPCon**  
**G12R Series**  
 620wp to 640wp



G12R  
 SERIES



16bb Bi-Facial  
 cell technology

**TOPCon 640+Wp**



**Extra Power**



**Extra Life**



**Double-Sided Power Generation**



**Excellent anti-LeTID & anti-PID performance**



**Lower temperature coefficient**



**Lower LCOE & system cost**

N-type Citizen TOPCON Bi-facial Modules have the best efficiency >23.69% with higher power generation and reliable characteristic resistance. These panels provide efficient production under extreme weather conditions along with bifaciality with lower degradation. N-type Citizen TOPCON Bi-facial Modules generate significantly more power per watt(kwh/kw) over 30 years(Long life) of use compared to PERC panels.

**Module Efficiency**  
 >23.69%

**Positive Power Tolerance upto**  
 0~+5wp

**30 Years Performance Warranty**

**12 Years Product Warranty**

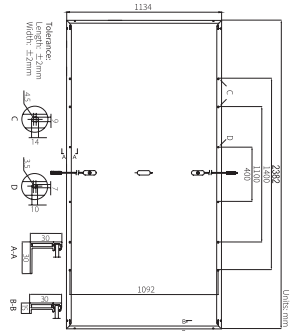
**PID Resistant**

**Outstanding Aesthetic Design**

## TECHNICAL DATA

Electrical Data : All Data refers to STC (1000W/m<sup>2</sup>, AM1.5G, 25°C) and NOCT irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C, wind speed 1 m/sec

Product Model Number	CSPL-132G12R-GF-620		CSPL-132G12R-GF-625		CSPL-132G12R-GF-630		CSPL-132G12R-GF-635		CSPL-132G12R-GF-640	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Nominal Wattage (Pmax) Wp	620	455.94	625	459.63	630	463.65	635	467.07	640	475.52
No's of Cut Cells	132	132	132	132	132	132	132	132	132	132
Matrix Configuration	11x6 II 11x6		11x6 II 11x6		11x6 II 11x6		11x6 II 11x6		11x6 II 11x6	
Maximum Voltage (Vmp) V	41.45	37.60	41.55	37.73	41.63	37.85	41.74	37.97	41.94	38.03
Open Circuit Voltage (Voc) V	48.61	43.72	48.72	43.85	48.83	43.97	48.95	44.09	49.30	45.85
Maximum Current (Imp) A	14.98	12.13	15.07	12.18	15.16	12.25	15.24	12.30	15.64	12.70
Short Circuit Current (Isc) A	15.65	12.60	15.68	12.61	15.71	12.62	15.74	12.63	16.35	13.28
Fill Factor (F.F.) in %	80±5%		80±5%		80±5%		80±5%		80±5%	
Module efficiency (%)	22.95		23.14		23.32		23.51		23.69	
Power Tolerance	0~+5wp		0~+5wp		0~+5wp		0~+5wp		0~+5wp	

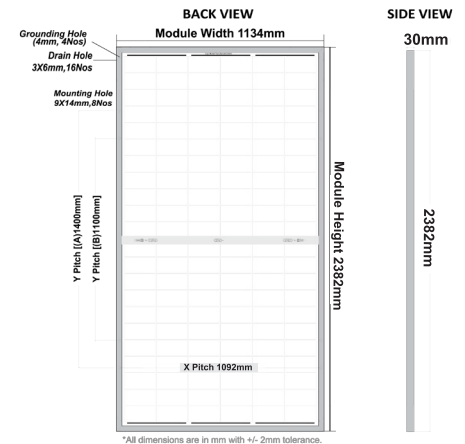


STC : 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3  
Average relative efficiency reduction of <5% at 200W/m<sup>2</sup> according to EN 60904-1

BIFACIAL OUTPUT - BACKSIDE POWER GAIN @STC*[ Bifaciality Factor: 80%±10%]						
5%	Nominal Maximum Power (Pmax)	650.81	656.08	661.81	666.70	699
10%	Nominal Maximum Power (Pmax)	681.80	687.33	693.33	698.45	704
20%	Nominal Maximum Power (Pmax)	743.78	749.81	756.36	761.95	736
30%	Nominal Maximum Power (Pmax)	805.76	812.29	819.39	825.44	768

[Note: The bifacial gain depends on the power plant design and site conditions. Electrical component ratings should be selected as per actual Bifacial gain at site.

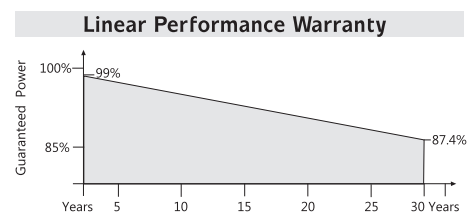
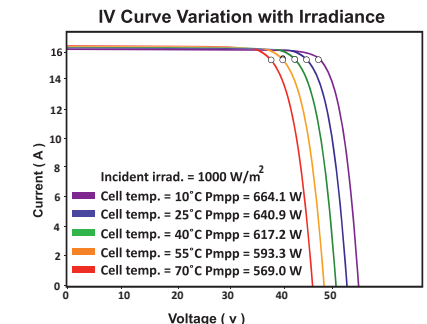
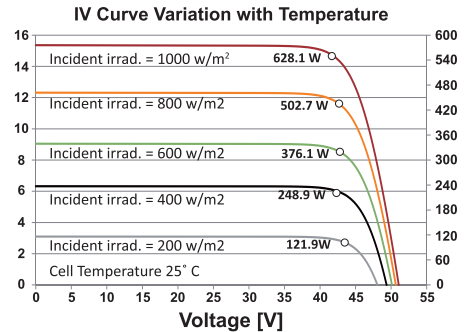
Temperature Coefficients (Tc) permissible operating conditions	
Operating Temperature (°C)	-40°C to +85°C
Temperature coefficients of Pmax	-0.29%/°C
Temperature coefficients of Voc	-0.23%/°C
Temperature coefficients of Isc	0.04%/°C
Nominal operating cell temperature (NOCT)	45±2°C



MECHANICAL SPECIFICATIONS	
Dimensions	2382(L) x 1134(W) x 30(T)
Weight	34.5 kg
Cell type / No Of Cell	132 Half-cut N-type TOPCon Bifacial Solar cells
Cell Size	16BB TOPCon G12R - 210mm x 182.3mm (105 x 182 + 105 x 182)
Frame	Anodized Aluminum Alloy (6005, Temper T6, Silver colour)
Front Cover	Low Iron semi-Tempered AR coated Glass (2 mm thick)
Encapsulate	PID resistant and UV resistant Polymeric Film
Back Cover	Low Iron semi-Tempered Glass (2 mm thick)
Junction Box	35A Split Junction Box (3 nos. with individual Bypass Diode) – Weatherproof (IP68)
Bypass Diode	50 A, 45 V, 200 °C max. junction temperature
Cable	4 sq. mm, 300 mm length (Customised cable length available on request)
Connectors	MC4 compatible (MC4 original available on request)
Application Class Rating	Class A
Safety Class Rating	Class II
Mechanical Load Test	5400 Pa-Front; 2400 Pa-Back (as per IEC & UL)
Mounting Holes Pitch (Y)-mm	[A] 1400, [B] 1100, (Holes at 400 mm Y-pitch for tracker can be provided on customer request)
Mounting Holes Pitch (X)-mm	1092

WARRANTY AND CERTIFICATIONS	
Performance Warranty**	Linear Power Warranty for 30 years, 90% for 12 years and 87.4% for 30 years.
Approvals & Certificates	Products: IS:14286 / IEC:61215:2005-ED2, IEC:61730-Ed.1&ED.2

STACKING STANDARD				
19FT	No. of Modules	No. of Pallets	Modules Per Pallet / Pallet Weight	Pallet Dimensions
32FT	256 Nos.	8 Pallets	32 Nos. / 1130 Kgs.	2400 x 1000 x 1300
40FT	384 Nos.	12 Pallets	32 Nos. / 1130 Kgs.	2400 x 1000 x 1300
20 GP Container	704 Nos.	22 Pallets	32 Nos. / 1130 Kgs.	2400 x 1000 x 1300
40 HC Container	320 Nos.	10 Pallets	32 Nos. / 1130 Kgs.	2400 x 1000 x 1300
	640 Nos.	20 Pallets	32 Nos. / 1130 Kgs.	2400 x 1000 x 1300



\*graphics shown herein above are reference purpose only. please consult Citizen Solar Technical Team for any further clarification.

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144 Cell | 10 BB Cell

Mono Perc Half Cut Module

520wp to 560wp



**MONO PERC 560+Wp**

newlight  
SERIES



**Ideal For Large Scale Installations**



**High Power**



**Better Shading Tolerance**



**Lower LCOE & system cost**



**Excellent Temperature Performance**



**Non-Destructive Cutting**

MONOPERC CITIZEN Half-Cut Modules have high efficiency >21.70% with higher power output, reliable PID/LID resistance, and lower degradation. Designed for extreme conditions, they ensure long-term performance and higher energy yield over 30 years.

**Module Efficiency >21.7%**

**Positive Power Tolerance upto 0~+5wp**

**30 Years Performance Warranty**

**12 Years Product Warranty**

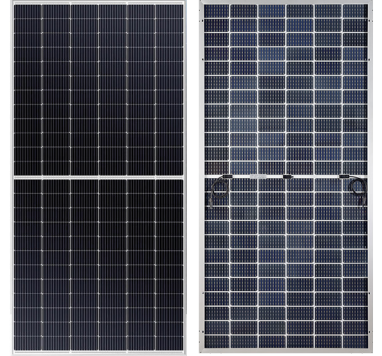
**PID Resistant**

**ALMM Approved List by MNRE\***

## TECHNICAL DATA

Electrical Data : All Data refers to STC (1000W/m<sup>2</sup>, AM1.5G, 25°C)

Product Model Number	CSPL-144MHC -WF-520	CSPL-144MHC -WF-525	CSPL-144MHC -WF-530	CSPL-144MHC -WF-535	CSPL-144MHC -WF-540	CSPL-144MHC -WF-545	CSPL-144MHC -WF-550	CSPL-144MHC -WF-555	CSPL-144MHC -WF-560
	CSPL-144MHC -TF-520	CSPL-144MHC -TF-525	CSPL-144MHC -TF-530	CSPL-144MHC -TF-535	CSPL-144MHC -TF-540	CSPL-144MHC -TF-545	CSPL-144MHC -TF-550	CSPL-144MHC -TF-555	CSPL-144MHC -TF-560
Nominal Wattage (Pmax) Wp	520	525	530	535	540	545	550	555	560
No's of Cut Cells	144	144	144	144	144	144	144	144	144
Matrix Configuration	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6	12x6 II 12x6
Maximum Voltage (Vmp) V	41.14	41.29	41.45	41.60	41.75	41.90	41.95	42.10	42.25
Open Circuit Voltage (Voc) V	49.01	49.16	49.31	49.46	49.61	49.76	49.80	49.95	50.10
Maximum Current (Imp) A	12.65	12.73	12.80	12.88	12.95	13.02	13.12	13.19	13.26
Short Circuit Current (Isc) A	13.55	13.63	13.69	13.76	13.83	13.90	13.98	14.04	14.10
Fill Factor (F.F.) in %	78.37	78.45	78.60	78.61	78.71	78.80	79.00	79.15	79.28
Module efficiency (%)	20.14	20.33	20.53	20.72	20.91	21.11	21.3	21.5	21.7
Power Tolerance	0~+5wp	0~+5wp	0~+5wp	0~+5wp	0~+5wp	0~+5wp	0~+5wp	0~+5wp	0~+5wp



STC : 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3  
Average relative efficiency reduction of <5% at 200W/m<sup>2</sup> according to EN 60904-1

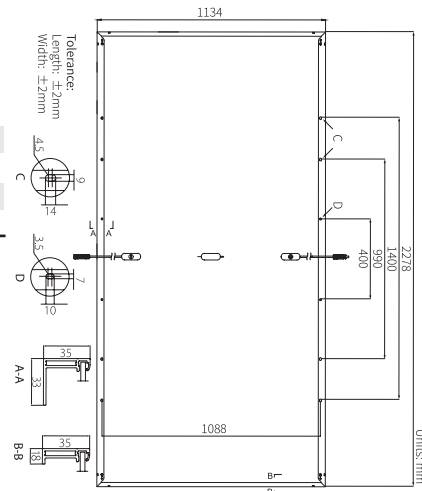
### Electrical Parameters at NOCT

Maximum Power Pmax (Wp)	388.20	393.20	397.50	401.30	405.00	408.80	411.1	414.8	418.6
Maximum Power Voltage (V)	38.09	38.29	38.48	38.68	38.79	38.80	38.97	39.11	39.25
Maximum Power Current (A)	10.15	10.27	10.33	10.39	10.46	10.53	10.56	10.61	10.67
Open Circuit Voltage Voc (V)	45.75	45.94	46.17	46.41	46.54	46.49	46.82	46.97	47.11
Short Circuit Current Isc (A)	10.68	10.78	10.85	10.91	10.98	11.08	11.31	11.35	11.40

NOCT irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C, wind speed 1 m/sec

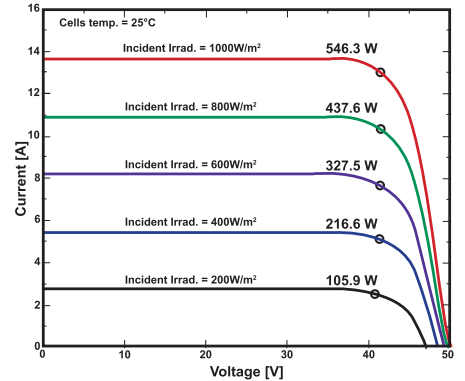
### Temperature Coefficients (Tc) permissible operating conditions

Maximum Series Fuse Ratings	25A
Maximum System Voltage	DC1500V(IEC/UL)



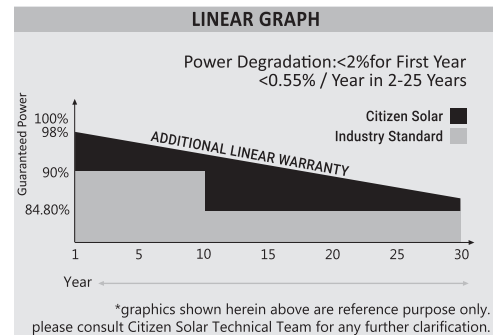
MECHANICAL DATA	
Length x Width x Height (in mm)	2278 x 1134 x 35 (±1.5mm)
Weight	28 kg
Split Type Junction Box	IP68 Rated With 3 Bypass Diodes
Cable & Connectors	4sqm (12AWG) Solar Cable 300mm x 2nos black MC4 Compatible Connectors
Application Class	Class A (Safety Class II)
Substrate (Glass)	High Transmission, Low Iron, Tempered Glass, AR Coated
Solar Cells & Orientation	144 No's Half Cut Mono PERC Solar Cells
Cells Encapsulant	EVA (Ethylene Vinyl Acetate)
Back Sheet	Composite Film - White / Transparent
Frame	Silver Anodized Aluminium Frame With Twin Wall Profile
Mechanical Load Test	Sustain Heavy Wind & Snow Load (2400Pa & 5400Pa Or 550Kg/m <sup>2</sup> Maximum Diameter Of 24mm With Hail Impact of 83Km/h

### I-V CHARACTERISTICS AT DIFFERENT IRRIDANCE PV MODULE MODEL - CSPL-144 MHC-WF-545



WARRANTY AND CERTIFICATIONS	
Performance Warranty**	Linear Power Warranty for 30 years, 90% for 12 years and 80% for 30 years.
Approvals & Certificates	Products: IS:14286 / IEC:61215:2005-ED2, IEC:61730-Ed.1&ED.2

STACKING STANDARD				
	No. of Modules	No. of Pallets	Modules Per Pallet / Pallet Weight	Pallet Dimensions
19FT	224 Nos.	8 Pallets	28 Nos. / 850 Kgs.	2300 x 1010 x 1300
32FT	336 Nos.	12 Pallets	28 Nos. / 850 Kgs.	2300 x 1010 x 1300
40FT	616 Nos.	22 Pallets	28 Nos. / 850 Kgs.	2300 x 1080 x 1300
20 GP Container	310 Nos.	10 Pallets	31 Nos. / 945 Kgs.	2300 x 1080 x 1300
40 HC Container	620 Nos.	20 Pallets	31 Nos. / 945 Kgs.	2300 x 1080 x 1300



Declaration : With the technical progress and product updates, there exists a deviation between the technical parameter of the CITIZEN SOLAR's future products and the technical parameter in this specification. The CITIZEN SOLAR reserves the right to adjust the technical parameter at any time without notifying the customers. CITIZEN SOLAR reserves the final right of interpretation.

