CITIZEN SOLAR

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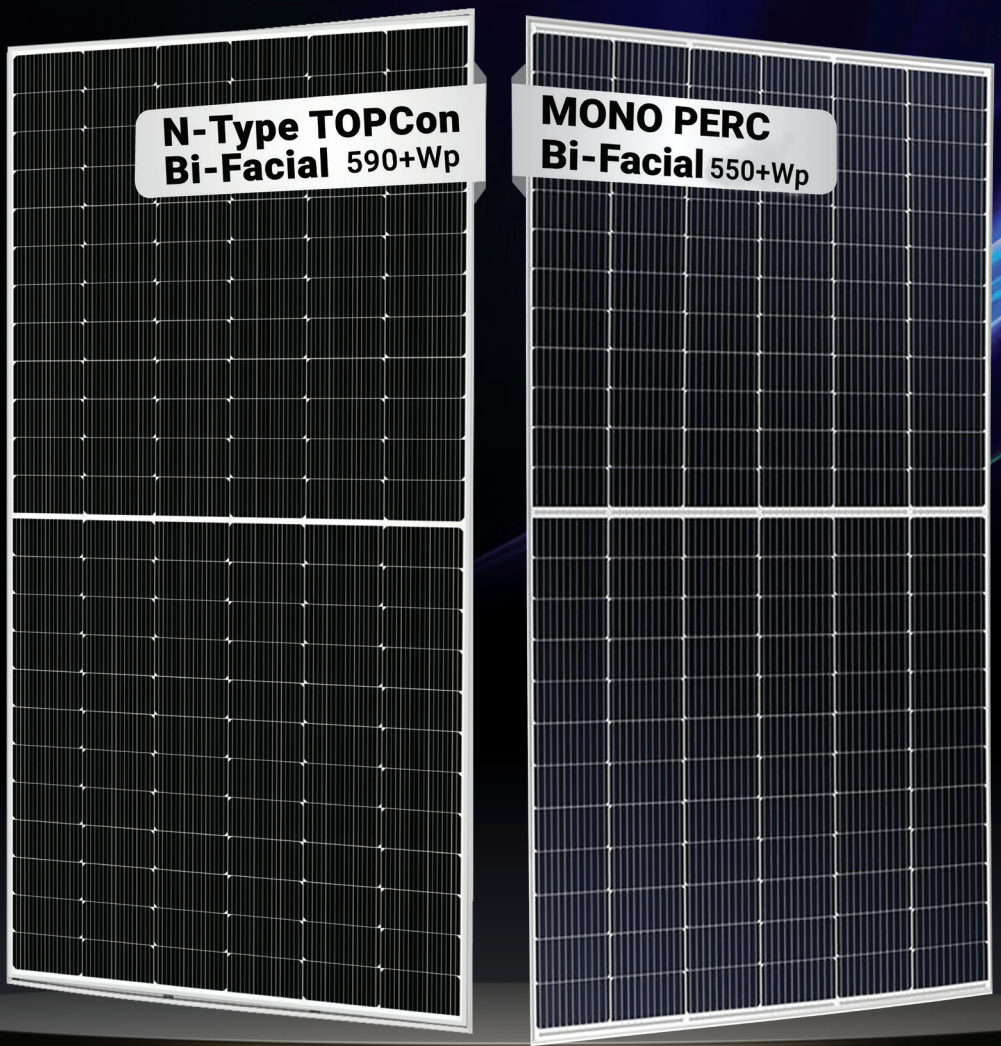

2.6 GW* SOLAR MODULE MANUFACTURING CAPACITY

30 Years Linear Power Output Warranty

12 Years Product Warranty

+91 8000 111 222

www.citizensolar.com

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About Citizen Solar

30 Years
Of Rich Industry Experience

2.6 GW* Capacity by 2026

1000+
Workforce

A **Trusted Brand** For Quality And Performance

High Efficiency PV Modules
40 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

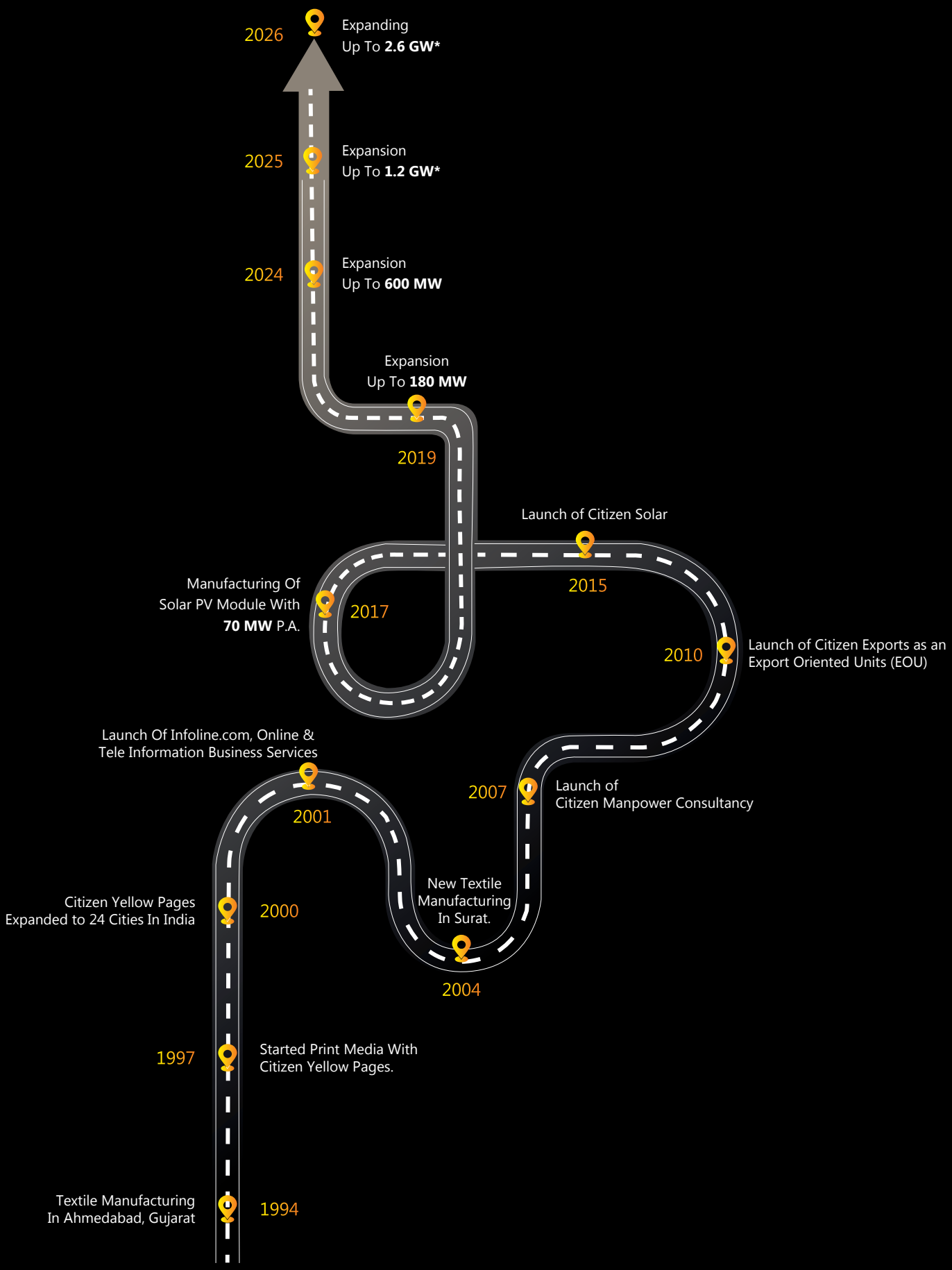
Our Vision

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 **30 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, 45001: 2018 & OHSAS 18001: 2009 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.

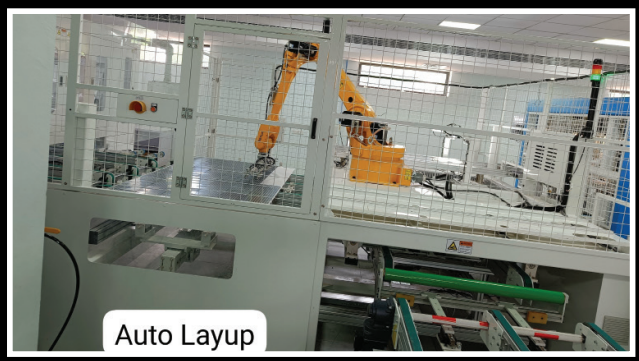
- Citizen Solar's state-of-the-art manufacturing facility is located at Chhatral Kadi Road, Gujarat having been spread over a massive 5 lakhs square feet, capable of consistently producing **1.2 GW** energy per annum and it's Corporate office is based at Ahmedabad,Gujarat.

- Citizen Solar comprises of two main divisions that includes Citizen Solar Technology which is a leading Solar Module and Solar Inverter Manufacturer with a Pan India & International presence and that is widely known for their optimum quality.

- We are currently supplying Solar PV Modules and Inverters all across the Globe.

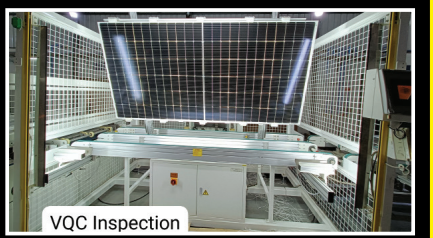
SMARTER MANUFACTURING SMARTER CHOICE


ATW Stringer


Auto Layup


Auto Bussing


Auto Tapping

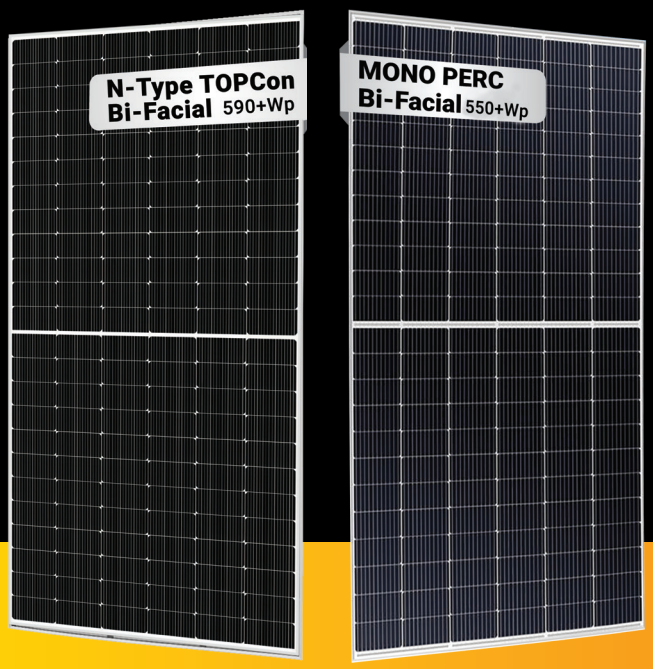

VQC Inspection


Lamination


Sun simulator

MONO PERC & TOPCon SOLAR PV MODULES

ENLIGHT SERIES
(TOPCON HALF CUT)



NEWLIGHT SERIES
(MONOPERC HALF CUT)

COMPREHENSIVE CERTIFICATES

- **IS 14286 / 61730-1 / 61730-2 • 62804 / 61701 / 61853-1**
- **ISO 9001:2015 • ISO 14001:2015 • OHSAS 18001:2007**

KEY FEATURES

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

Excellent module efficiency upto 22.86% 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.

CITIZEN SOLAR

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newlight SERIES

MONO PERC 550+Wp

144 Cell | 10 BB Cell

Mono Perc Half Cut Module

520wp to 560wp

- Ideal For Large Scale Installations
- High Power
- Better Shading Tolerance
- Lower LCOE & system cost
- Excellent Temperature Performance
- Non-Destructive Cutting

- 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*

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newlight SERIES

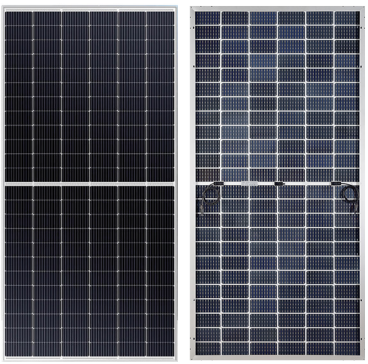
144 CELL | 10 BB CELL

144 MONO HALF CUT : CSPL 520-560WP

TECHNICAL DATA

Electrical Data : All Data refers to STC (1000W/m², AM1.5G, 25°C)

Product Model Number	CSPL-144MHC-WF-520 / CSPL-144MHC-TF-520	CSPL-144MHC-WF-525 / CSPL-144MHC-TF-525	CSPL-144MHC-WF-530 / CSPL-144MHC-TF-530	CSPL-144MHC-WF-535 / CSPL-144MHC-TF-535	CSPL-144MHC-WF-540 / CSPL-144MHC-TF-540	CSPL-144MHC-WF-545 / CSPL-144MHC-TF-545	CSPL-144MHC-WF-550 / CSPL-144MHC-TF-550	CSPL-144MHC-WF-555 / CSPL-144MHC-TF-555	CSPL-144MHC-WF-560 / 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

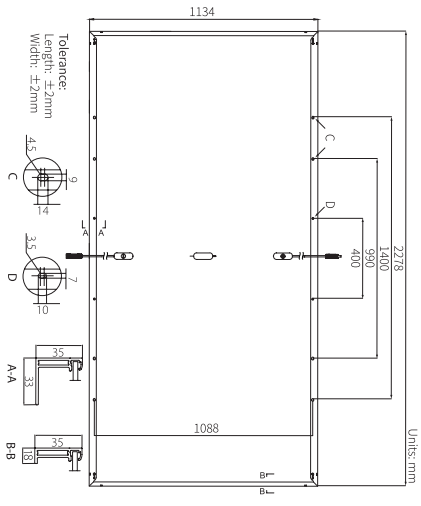


STC : 1000W/m² irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3
Average relative efficiency reduction of <5% at 200W/m² according to EN 60904-1

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/m², ambient temperature 20°C, wind speed 1 m/sec



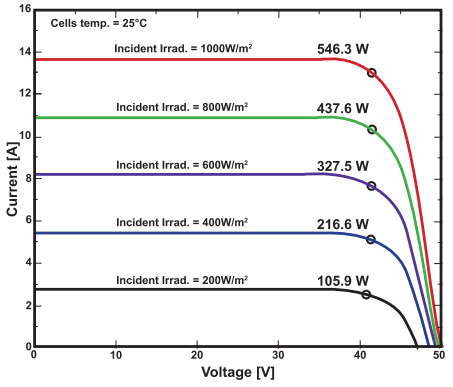
Temperature Coefficients (Tc) permissible operating conditions

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/m² Maximum Diameter Of 24mm With Hail Impact of 83Km/h

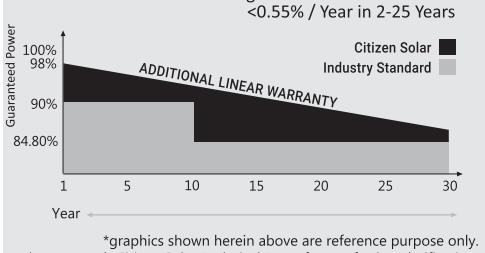
I-V CHARACTERISTICS AT DIFFERENT IRRIDANCE
PV MODULE MODEL - CSPL-144 MHC-WF-545



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

LINEAR GRAPH



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

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.

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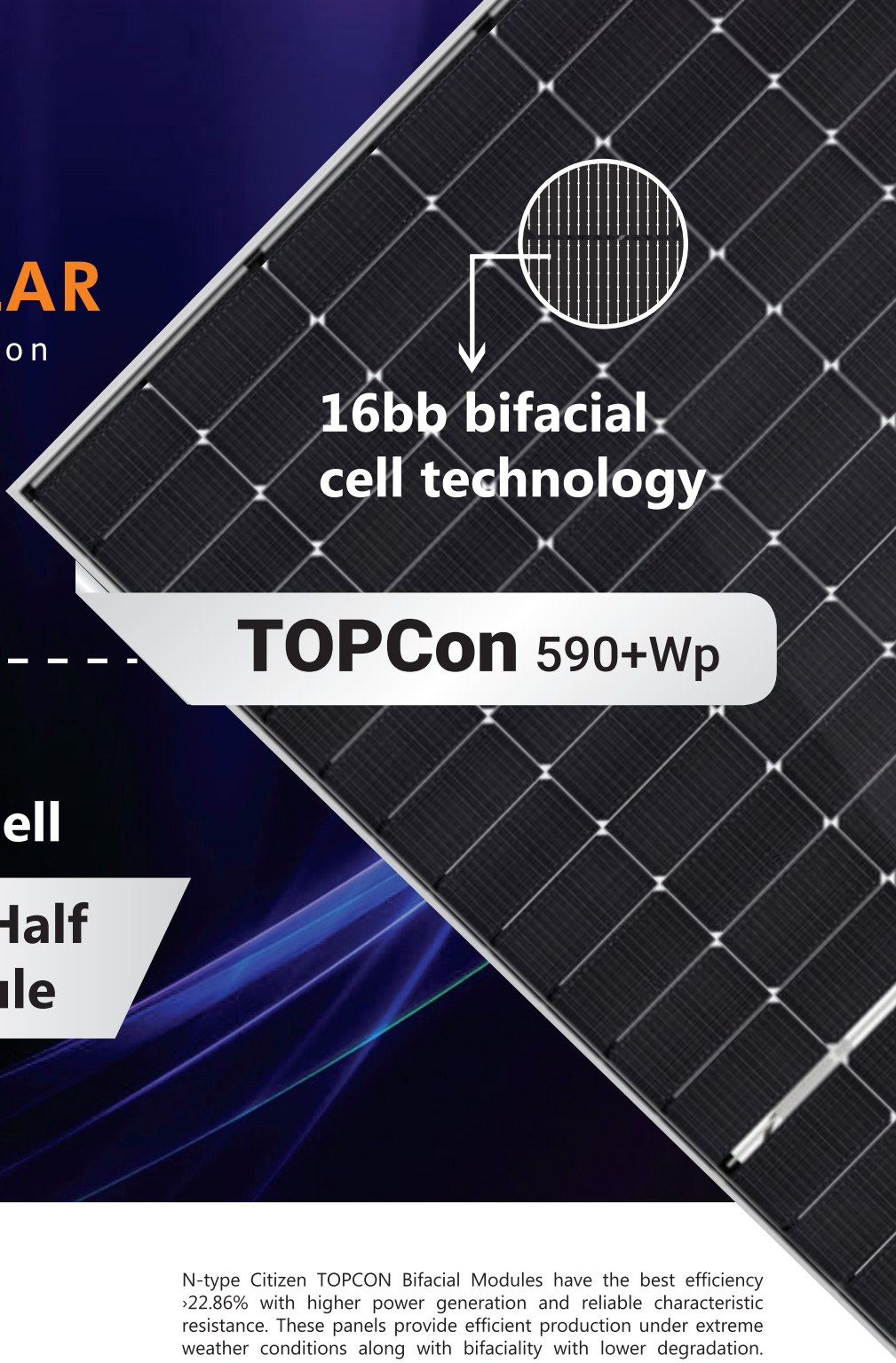
enlight SERIES



16bb bifacial cell technology

TOPCon 590+Wp

144 Cell | 16 BB Cell

N-Type TOPCon Half Cut Bifacial Module

580wp to 590wp

- 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 ›22.86% 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) of use compared to PERC panels.

- Module Efficiency ›22.86%
- Positive Power Tolerance upto 0~+5wp
- 30 Years Performance Warranty
- 12 Years Product Warranty
- PID Resistant
- ALMM Approved List by MNRE*

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enlight SERIES

144 CELL | 16 BB CELL

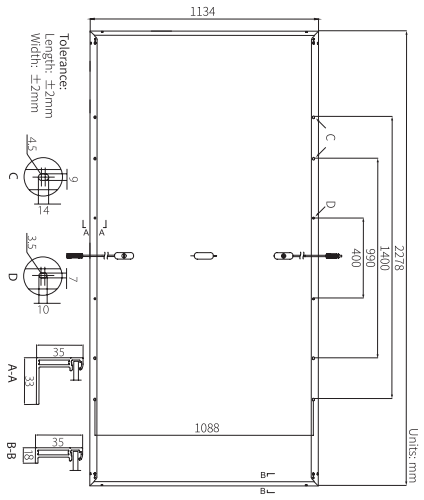
CSPL N-TYPE TOPCon ENLIGHT GTG SERIES : CSPL 580-590wp

TECHNICAL DATA

Electrical Data : All Data refers to STC (1000W/m², AM1.5G, 25°C) and NOCT irradiance 800 W/m², ambient temperature 20°C, wind speed 1 m/sec

Product Model Number	CSPL-144THC-GF-580		CSPL-144THC-GF-585		CSPL-144THC-GF-590	
	STC	NOCT	STC	NOCT	STC	NOCT
Nominal Wattage (Pmax) Wp	580	435	585	439	590	443
No's of Cut Cells	144	144	144	144	144	144
Matrix Configuration	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
Open Circuit Voltage (Voc) V	52.80	49.79	53.01	49.98	53.21	50.18
Maximum Current (Imp) A	12.97	10.35	13.02	10.41	13.08	10.45
Short Circuit Current (Isc) A	13.65	11.00	13.71	11.04	13.76	11.09
Fill Factor (F.F.) in %	80±5%		80±5%		80±5%	
Module efficiency (%)	22.47		22.67		22.86	
Power Tolerance	0~+5wp		0~+5wp		0~+5wp	

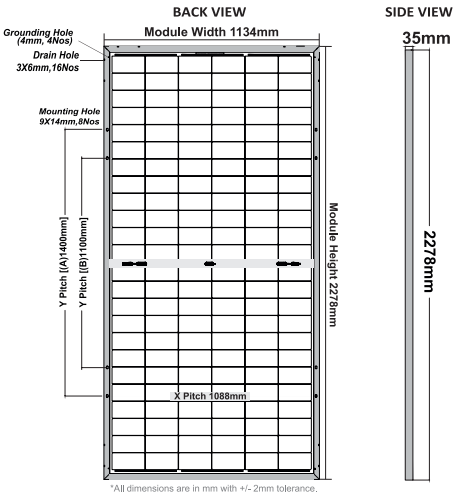
STC : 1000W/m² irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3
Average relative efficiency reduction of <5% at 200W/m² according to EN 60904-1



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

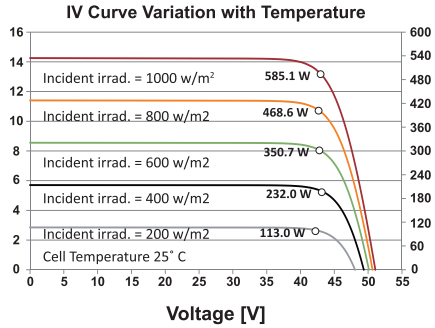
5%	Nominal Maximum Power (Pmax)	609	614	620
	Module Short Circuit Current / Efficiency	14.33A / 23.60%	14.39A / 23.79%	14.45A / 24.00%
10%	Nominal Maximum Power (Pmax)	638W	644W	649W
	Module Short Circuit Current / Efficiency	15.02A / 24.72%	15.08A / 24.95%	15.14A / 25.14%
25%	Nominal Maximum Power (Pmax)	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.



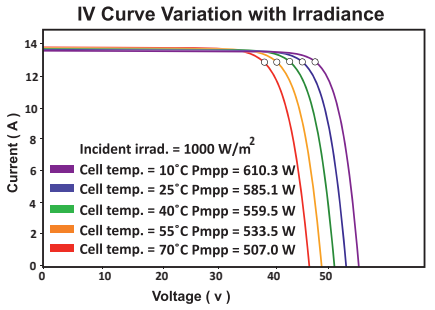
Temperature Coefficients (Tc) permissible operating conditions

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%



MECHANICAL SPECIFICATIONS

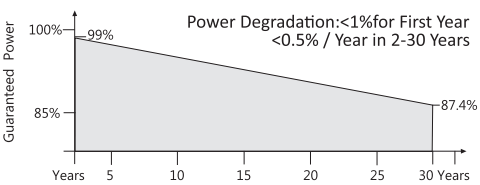
Dimensions	2278(L) x 1134(W) x 35(T)
Weight	33 kg
Cell type / No Of Cell	144 Half-cut N-type TOPCon Bifacial Solar cells
Frame	Anodized Aluminum Alloy (6005, Temper T6, Silver colour)
Front Cover	Low Iron semi-Tempered AR coated Glass (2 mm thick)
Encapsulate	PID resistant and UV resistant Polymeric 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] 1100, (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

Linear Performance Warranty



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CS SERIES

ON-GRID PV INVERTERS

Single Phase For Residence
CS 1KW to 6Kw

Three Phase For Residence
CS 5KW to 12Kw

Three Phase For Commercial And Industry
CS 15Kw to 110kw

5G PRO
Grid Tie Inverter

5G PRO MEGA
HV Grid Tie Inverter

10 YEAR WARRANTY

CONVENIENT & RELIABLE,
CUSTOMER ORIENTED

PRE SALES SUPPORT

- Tailored Solutions
- Specialized Product Consulting
- One-on-One Application Coaching
- Systematic & Consistent Product Training

AFTER SALES SERVICE

Sufficient Warranty Period

- 96 months standard warranty for On-Grid inverters. (from the date of Tax Invoice)
- 24 months standard warranty for Hybrid inverters. (from the date of Tax Invoice)
- 24 months standard warranty for accessories. (from the date of Tax Invoice)

Replacement Service

- Spare units will be sent to customer for immediate resolution.
- The remaining warranty period of the defective unit will be transferred automatically to the replacement unit, if a replacement occurred within warranty.

Quick Response RMA (Return Material Authorization) Service

- RMA responses within 3 working days after on-site inspection is performed

Customer Care
+91 8000 111 222

TECHNICAL DATASHEET

Model (CS)	Single Phase																Three Phase																							
	1 KW	2 KW	3 KW	4 KW	5 KW	6 KW	1.2 KW	2.2 KW	2.3 KW	3.2 KW	3.3 KW	3.8 KW	4.2 KW	4.6 KW	5.2 KW	5.3 KW	6.2 KW	5 KW	6 KW	7 KW	8 KW	10 KW	12 KW	15 KW	20 KW	25 KW	25 KW	33 KW	35 KW	40 KW	50 KW	60 KW	70 KW	75 KW	80 KW	100 KW	100 KW	110 KW
Input (DC)																																								
Max Peak DC Input Power (KW)	1.1	2.2	3.3	4.4	5.5	6.6	1.1	2.2	2.3	3.2	3.3	3.8	4.4	5.06	5.5	5.83	6.6	6.5	7.8	9.1	10.4	12	13.2	16.5	24	27.5	30	36	38.5	48	60	72	77	90	96	100	120	132
Max. DC I/P (V dc)	500V DC			500/600V DC			500V DC				500/600V DC							1000 VDC					1000 VDC				1000 VDC											
Max. MPPT I/P Current (A)	10A			10A			10A				10A							10A				10A/ 10A+ 20A	10/ 20A	25A	28.5 A	28.5A				40A							
MPPT Short Circuit Current (A)	15A																	15A				21.7A		36A	40A	57A											
MPPT Tracking Voltage (Vdc)	100-500V																	200-850V								250-850V											
Min. Start Voltage (V)	100/120V																	250V DC																			
Number Of MPPT Tracker	1			2			1						2					2						2			3	3/4	4			6	6				
Strings Per MPPT Tracker	1																	1					2/1	2	2	3	3	3/4	3	3/4		4	4	4			
Output (AC)																																								
Rated Output Power (KW)	1	2	3	4	5	6	1	2	2	3	3.3	3.8	4	4.6	5	5.3	6	5	6	7	8	10	12	15	20	25	25	30	35	40	50	60	70	75	80	100	100	110
Rated Grid Voltage (V)	230V																	400VAC																					
Nominal Grid Freq. (Hz)	50Hz																	50Hz																					
Max. Output Current AC (A)	4.37	8.69	13	17.4	21.7	26	4.37	8.69	8.69	13	14.34	16.52	17.4	20	21.7	23.04	26	7.2	8.7	10.1	11.6	14.5	17.4	21.17	29	36.2	36.2	47.8	50.7	58	72.4	87	101.4	108.7	115.9	144.5	144.5	159
AC Connection (With PE)	P + N +E																	3P + N +E																					
THD (%)	2.5-5%																	2.5-5%								<3%											
Output Power Factor (%)	>0.99%																	>0.99%																					
Efficiency																																								
Max. Conversion Eff. (%)	97.5%			97.6%			97.5%				97.6%							98%		97%																			
Max. Euro Efficiency (%)	97%																	97.50%		98.5 %	98.2%																		
Max. MPPT Efficiency (%)	>99%																	>99%		>99%																			
Physical Parameters																																								
Dimensions (LxHxW) mm	310x330x115			310x330x172			310x330x115				310x330x172							385x453.39x177.13		380x 453x 190	400x520 x240				485x630x270							520x700x270			577x 838x 323	577x 838x 323	
Weight (Kg)	6			11			6				11							18		18	31				38	68					80			83			
Enclosure Color	PANTONE Cool Grey3 C																	PANTONE Cool Grey3 C																					
Color Thickness	100-250μ (Micron)																	100-250μ (Micron)																					
General Data																																								
Operating Temperature	-25° to +60°																	-25° to +60°																					
Operating Surrounding Humidity	0-100%																	0-100%																					
Design Life	Over 25 Years																	Over 25 Years																					
Night Con. (W) / Noise Level	<0.2/<30dB																	<1W/<30dB																					
Heat Dissipation	Natural Convection																	Natural Convection			Intelligent Forced Cooling + Natural Convection																		
RH / Max. Altitude	0% to 98%. No Condensation / <2000 Without Power Derating																	0% to 98%. No Condensation / <2000 Without Power Derating																					
Display	Graphical-LED With LCD Display																	Graphical-LED With LCD Display																					
DC / AC Connectors (IP-65)	MC-4																	MC-4																					
Communication Interface	WIFI / GPRS / RS 485 / RS 232 / ETHERNET LAN																	WIFI / GPRS / RS 485 / RS 232 / ETHERNET LAN / Local Monitoring																					
Standard Warranty	5 Years (Extendable Upto 10 Year)																	5,7 Years(Extendable Upto 10 Years)							7 Years (Extendable Upto 10 Years)													
Standards, Safety & Protections																																								
DC Switch	Optional																	Inbuilt																					
SPD (Surge Protection Device)	Type - 3 SPD (With GDT Optional)																	Type-3 SPD (With GDT Optional)																				Type-2 / Type-3 SPD / GDT	
MPPT Efficiency	IEC 61683																	IEC 61683																					
Inverter Efficiency	IEC 61683																	IEC 61683																					
Over Voltage Category	IEC 62109-1																	IEC 62109-1																					
Safety Standard	IEC 62109-1&2																	IEC 62109-1&2																					
EMC Standard	IEC 61000-6-1/2/3/4																	IEC 61000-6-1/2/3/4																					
Emnvironment Protection	IEC 60068-2-1/2/14/15																	IEC 60068-2-1/2/14/15																					
Anti-Islanding	IEC-62116																	IEC-62116																					
Ingress Protection	IP 65																	IP 65																					
Protection & Safety	PV Lightening, DC Input Short Circuit, DC O/V & U/V, Insulation Resistance Detection, RCCB / ELCB, Output Over / Under Voltage, Output Over Current, Output Over / Under Frequency, Over Temperature, GDT (Optional), SPD As Per Requirement Type-1&2, AC Output PF Control, AC Output Power Control By Using External Limiter For Zero Export Protection, Defined Remote Grid Monitoring Setting & Anti-Islanding.																																							

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