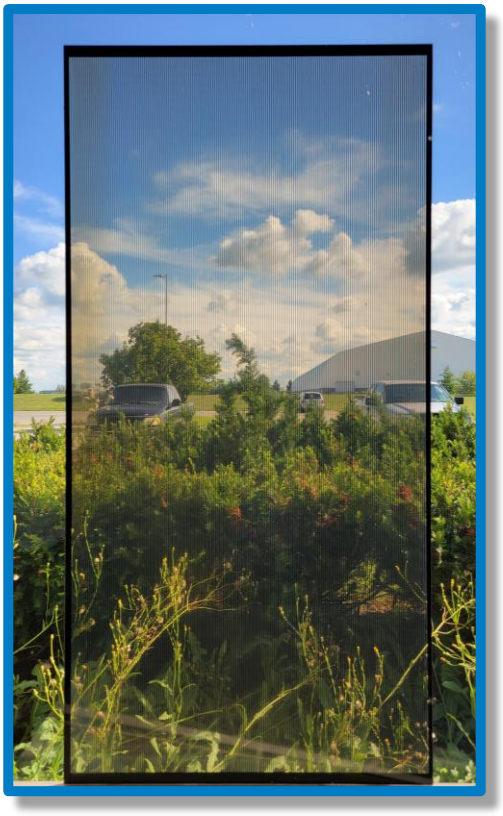
TS2-50ST 55 Watt

High Performance Semitransparent Photovoltaic Modules



Product Certifications

UL 61730-1 1500V, UL 617300-2 1500V, UL 61215-1 1500V, UL 61215-2 1500V, CE Compliant

Compliant with European Directives

PID-Free

ISO 9001:2015 Certified

ISO 14001:2015 Compliant

CEC (California, USA)

IEC 61646 1500V, IEC 61215-1 1500V, IEC 61215-2 1500V, IEC 61730-1 1500V, IEC 61730-2 1500 V Compliant

IEC 61701 Salt Mist Corrosion Compliant

IEC 60068-2-68 Dust and Sand Resistance Compliant

*Ratings are +/- 10% unless otherwise specified
*Specifications are subject to change without notice

Manufactured in America

100% manufactured in the USA using a proprietary, advanced deposition process in our production plant located in Perrysburg, OH

Superior Semiconductor

Cadmium Telluride will generally produce more electricity than silicon modules with a comparable power reading in real world conditions – between 7% and 10%

Impact Resistant and Environmentally Stable

Heat strengthened front glass with semiconductor film stack is laminated to the tempered back glass to form a hermetically sealed and impact resistant module

High Transparency

Semi-transparent modules allow for mounting as windows or skylights on houses, businesses, and more

Warranty

30

Fifteen year on workmanship and material
Thirty year on power output with 90% of minimum rated power for the first 10 years and 80% for 30 years

Sustainability

Toledo Solar offers no-cost reclamation and recycling of modules at the end of their life cycle

TOLEDO SOLAR

1775 Progress Drive, Perrysburg, Ohio 43551, USA
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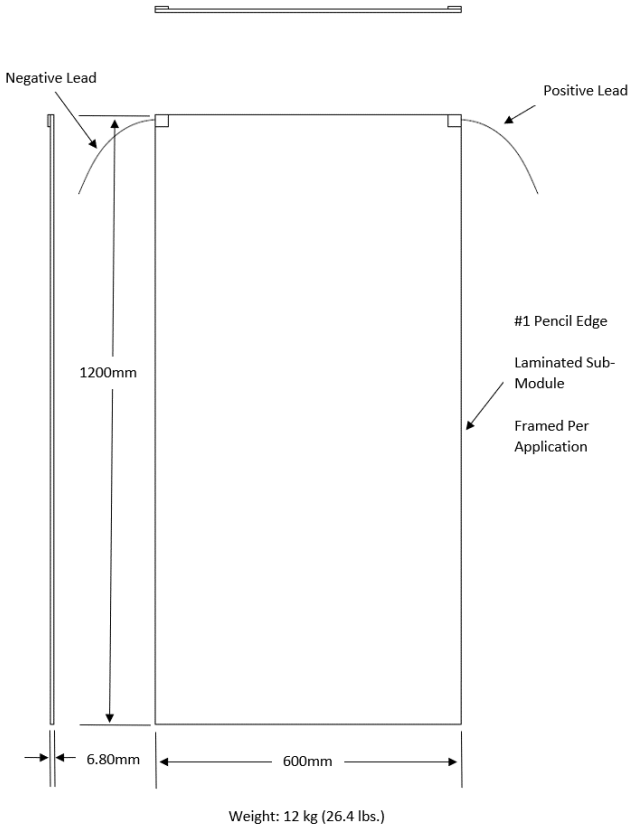
Mechanical Specification

Cell Type	CdTe thin cell semiconductor, 108 active cells
Dimensions (L x W)	1200 mm x 600 mm
	47.24" x 23.62"
Thickness	6.80 mm
	0.27"
Weight	12 kg (26.4 lbs)
Front Cover Type	3.2 mm Heat Strengthened Glass
Back Cover Type	3.2 mm Tempered Glass
Encapsulant	Ionomer
Bypass Diode	None
Frame	Frameless



Weight: 12 kg (26.4 lbs.)

System Properties

Maximum System Voltage	1500 V (1000 V UL)
Safety Class	Class II
Application Class	Class A
Fire Rating	Type 3
Temperature Coefficient of P_{mpp}	-0.33% / °C (from 25° C to 75° C)
Temperature Coefficient of V_{oc}	-0.30% / °C
Temperature Coefficient of I_{sc}	+0.03% / °C
Efficiency at 200W/m^2	2% greater than efficiency at 1000 W/m^2
Normal Operating Cell Temperature (NOCT)	45°C
Limiting Reverse Current (I_R)	4A
Maximum Source Circuit Fuse (I_{CF})	4A

Electrical Characteristics

Module Name	TS2-50ST-50		TS2-50ST-50+		TS2-50ST-55		TS2-50ST-60	
Test Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (P_{mp}, W) (-0/+5W)	50.3	42.9	52.5	44.7	55.2	47.0	60.0	48.7
Voltage @ Max Power (V_{mp}, V)	54.7	52.9	57.1	55.2	60.0	58.0	63.5	60.1
Current @ Max Power (I_{mp}, A)	0.92	0.81	0.92	0.81	0.92	0.81	0.94	0.81
Open Circuit Voltage (V_{oc}, V)	69.5	65.7	72.5	68.6	76.2	72.0	79.0	74.7
Short Circuit Current (I_{sc}, A)	0.99	0.88	0.99	0.88	1.00	0.88	1.00	0.88

*STC is 1000 W/m^2 Irradiance, 25°C Cell Temperature, and AM 1.5 Spectrum
*NOTC is 800 W/m2 Irradiance, 45°C Cell Temperature, and AM 1.5 Spectrum

Packaging Information

				lbs/kg	53'	40'
50 Modules	54" 1372 mm	44" 1118 mm	35" 889 mm	1440 lbs (653.1 kg)	30 Pallets	32 Pallets
52 Modules				1490 lbs (675.9 kg)		

About Toledo Solar

Toledo Solar's mission is to domestically produce cost effective, energy efficient solar modules while managing all aspects of the product life cycle; from raw material sourcing, through end-of-life collection and recycling. Toledo Solar manages product life cycle while maintaining continuous improvement of our environmental health and safety management systems, and in the quality of our products, processes, and services.

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