

# CIGS-1000F Series

## High Performance CIGS Thin Film Modules

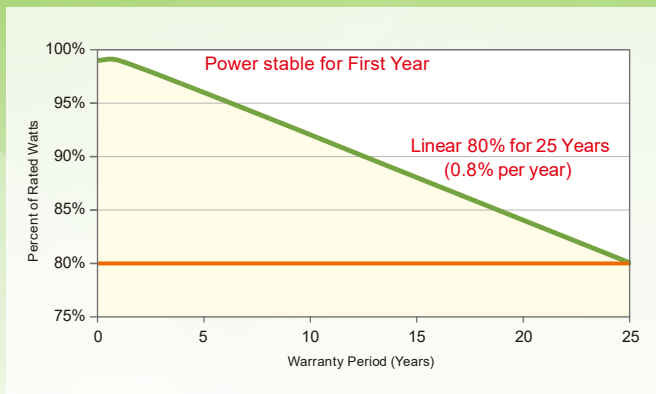
### MAX SYSTEM 1000V CIGS MODULES

#### CIGS Competitive Advantages

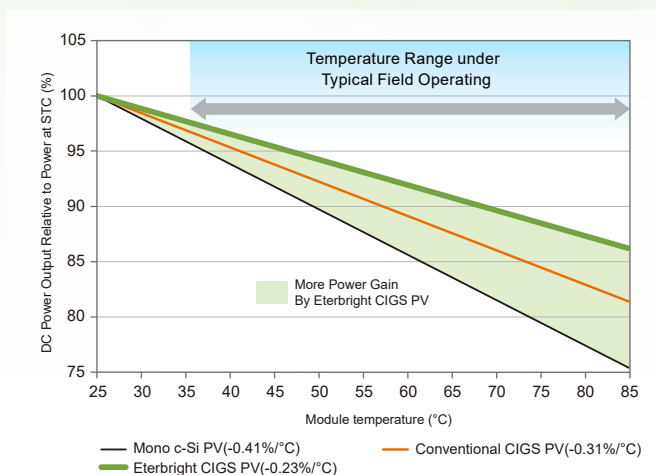
- > PID-free, LID-free
- > No microcrack problem
- > Less solder joints than c-Si
- > No glint/glare problem
- > Low shadow impact
- > RoHS compliant
- > Free of Lead, Cadmium, Tellurium, Arsenic



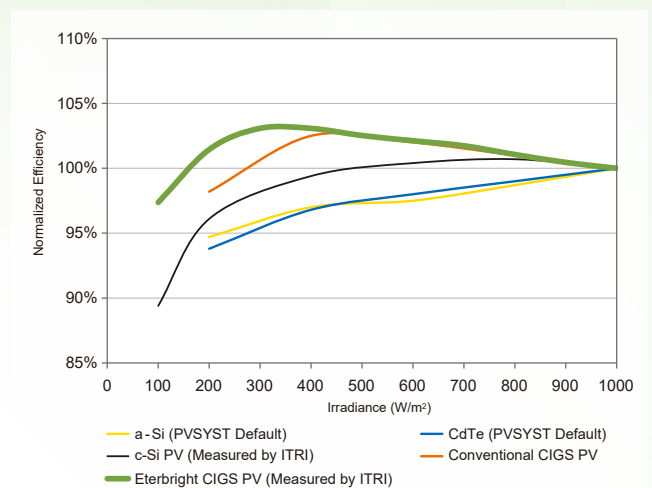
#### Linear Pmax. Performance Warranty



#### Lowest Temperature Coefficient (-0.23%/°C)



#### The Comparison of Normalized Efficiency between Eterbright CIGS and Others



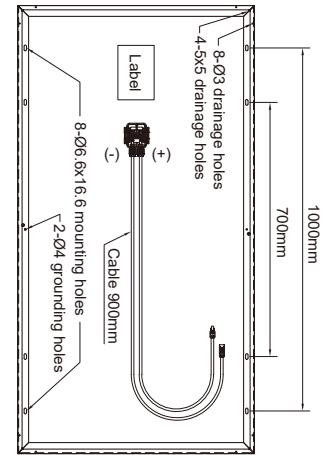
In tropical areas i.e. desert regions, equatorial regions, subtropical regions or high temperature areas, CIGS module will be the only choice.

Eterbright CIGS PV performs better normalized efficiency under lower irradiance.

## Mechanical Specification

Dimensions	1234mm x 652mm x 35mm (48.6 inches x 25.7 inches x 1.38 inches)
Weight	12.9 kg (28.44lbs)
Cell type	CIGS thin film
Front cover	3.2mm tempered glass with ARC
Cell substrates	1.8mm ultra-thin soda lime glass
Back cover	Al back sheet
Encapsulant	EVA
Frame	Anodized Al frame (black) with L-Key mounting
Junction Box	IP67 rated with bypass diode
Connectors	MC4 compatible
Cable length	900mm (35.4 inches)

## Module Drawing



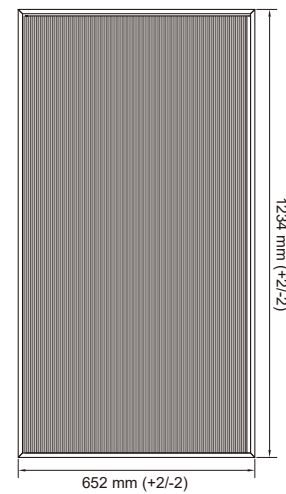
## Electrical Specification

Power performance at STC (STC: 1000W/m<sup>2</sup>, 25°C/77°F, AM 1.5)\*

Module Models	CIGS-	1000F	1050F	1100F	1150F	1175F	1200F
Nominal power	P <sub>MPP</sub> [W]	100	105	110	115	117.5	120
Open circuit voltage	V <sub>OC</sub> [V]	72.4	72.8	73.3	73.7	74.0	74.2
Short circuit current	I <sub>SC</sub> [A]	2.19	2.21	2.23	2.25	2.32	2.32
Voltage at P <sub>max</sub>	V <sub>MPP</sub> [V]	54.5	55.4	56.3	57.2	56.2	57.1
Current at P <sub>max</sub>	I <sub>MPP</sub> [A]	1.84	1.89	1.95	2.01	2.09	2.10
Module efficiency	[%]	≥ 12.4	≥ 13.1	≥ 13.7	≥ 14.3	≥ 14.6	≥ 14.9

Power performance at NMOT (NMOT: 800W/m<sup>2</sup>, 20°C/68°F, AM1.5)\*

Module Models	CIGS-	1000F	1050F	1100F	1150F	1175F	1200F
Nominal power	P <sub>MPP</sub> [W]	74.7	78.6	82.4	86.2	88.0	90.0
Open circuit voltage	V <sub>OC</sub> [V]	68.8	69.2	69.7	70.2	70.4	70.6
Short circuit current	I <sub>SC</sub> [A]	1.75	1.77	1.79	1.80	1.86	1.86
Voltage at P <sub>max</sub>	V <sub>MPP</sub> [V]	50.9	51.8	52.7	53.6	52.6	53.5
Current at P <sub>max</sub>	I <sub>MPP</sub> [A]	1.47	1.52	1.56	1.61	1.67	1.68



\*All STC characteristics are measured after pre-treatment of 43kWh/m<sup>2</sup> light soaking. The nominal power is based on the measurement value of stabilized product. The value applies to measurement uncertainty: P<sub>max</sub>: +5%/-3%; I<sub>sc</sub>, V<sub>oc</sub>, I<sub>max</sub>, V<sub>max</sub>: ±10%.

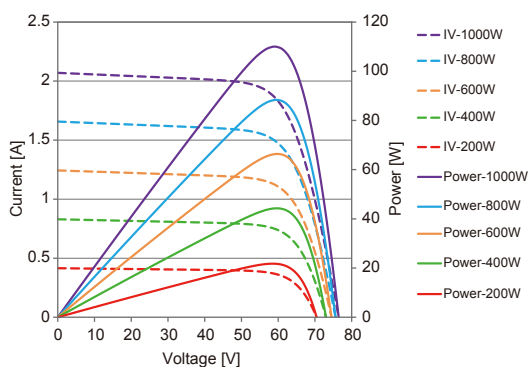
### Temperature coefficients

NMOT	TC I <sub>sc</sub> (α)	TC V <sub>oc</sub> (β)	TC P <sub>MPP</sub> (δ)
46°C	+0.01%/°C	-0.31%/°C	-0.23%/°C

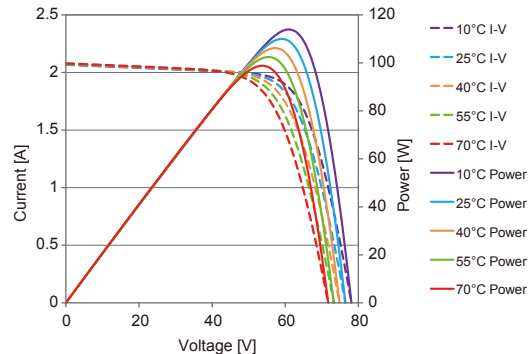
### Properties for solar system construction design

Max. system voltage (V <sub>sys</sub> )	Max. series overcurrent protective devices	Mechanical load	Safety class	Fire rating	Operating temperature
1000V	5A	2400Pa	II	Class C(IEC)	-40 ~ 85°C

I-V curves at various irradiation



I-V curves at various temperature



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\*The color of each individual product might be slightly different but does not affect the output power performance.