



CSG bbbM2 220 W-245 W

### Typical Electrical Characteristics

Solar cells	Poly-Crystalline Silicon 156 × 156mm 60pcs(6 × 10)—3 bus bars					
Max-power	220Wp	225Wp	230Wp	235Wp	240Wp	245Wp
Power Tolerance	0 to +3%					
Voltage at Pmax(Vmp)	29.9 V	30.0V	30.2 V	30.3 V	30.5 V	30.7 V
Current at Pmax(Imp)	7.36 A	7.50 A	7.62A	7.76 A	7.87 A	7.98 A
Open-Circuit Voltage(Voc)	36.5 V	36.7 V	36.9V	37.1 V	37.3 V	37.5 V
Short-Circuit Current(Isc)	7.80 A	8.12 A	8.22 A	8.24 A	8.46 A	8.58 A
Max-System Voltage(VDC)	1000 V(IEC),600V (UL)					
Cell Efficiency	15.3%	15.6%	16.0%	16.3%	16.7%	17.0%
Module Efficiency	13.5%	13.8%	14.1%	14.4%	14.7%	15.0%
No.of Bypass Diodes(pcs.)	3					
Max.Series Fuse(A)	15A					
Temperature Coefficient of pmax	-0.48%/°C					
Temperature Coefficient of Voc	-0.34%/°C					
Temperature Coefficient of Isc	0.02%/°C					
Nominal Operating Cell Temperature	47 ± 2 °C					

### Mechanical Characteristics

Cable type,Diameter and Length	Φ=4mm <sup>2</sup> ,L=900mm
Type of Connector	Compatible type MC4
Dimension A × B × C	1640 × 992 × 45mm ( 64.57 × 39.06 × 1.77inch )
Weight	19.6kg ( 43.1lb )
No.of Draining Holes In Frame	16
Construction	Glass:High Transmission,Low Iron, Tempered Glass 3.2mm Encapsulation:EVA Back side:Tedlar,white
Junction Box	IP 65 Rated
Frame	Clear anodized aluminum alloy type 6063T5 frame

### Qualification Test Parameters

Dielectric Insulation Voltage	3000 VDC max
Operating Temperature	-40°C to +85°C
Max load	5400 Pa
Hailstone impact	25 mm ( 1 inch ) at 23 m/s ( 52mph )

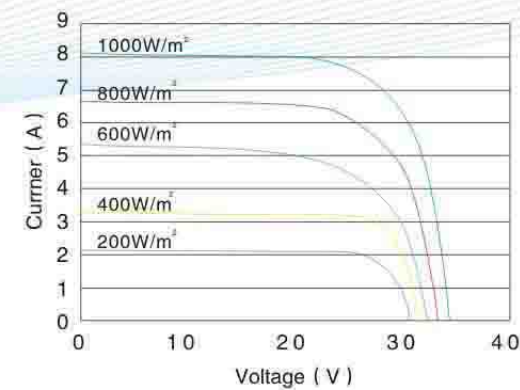
### Packaging Configuration

Packaging Configuration	22 pcs./box	2 pcs./box	
Quantity/Pallet	1 box/pallet	18 box/pallet	20 box/pallet
Loading Capacity	616pcs./40' HQ	216pcs./20' GP	560pcs./40' HQ

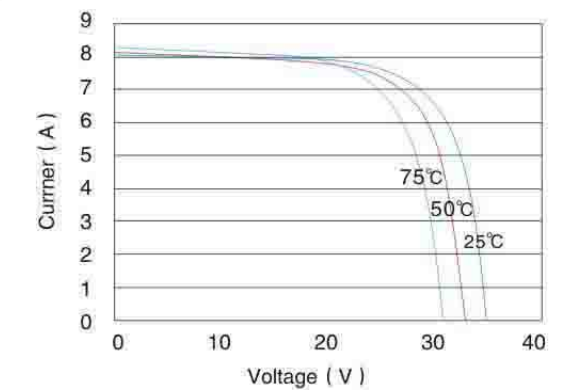
\*STC Conditions ( 1000W/m<sup>2</sup>; 1.5AM and 25°C Cell temperature )

### I-V Curves

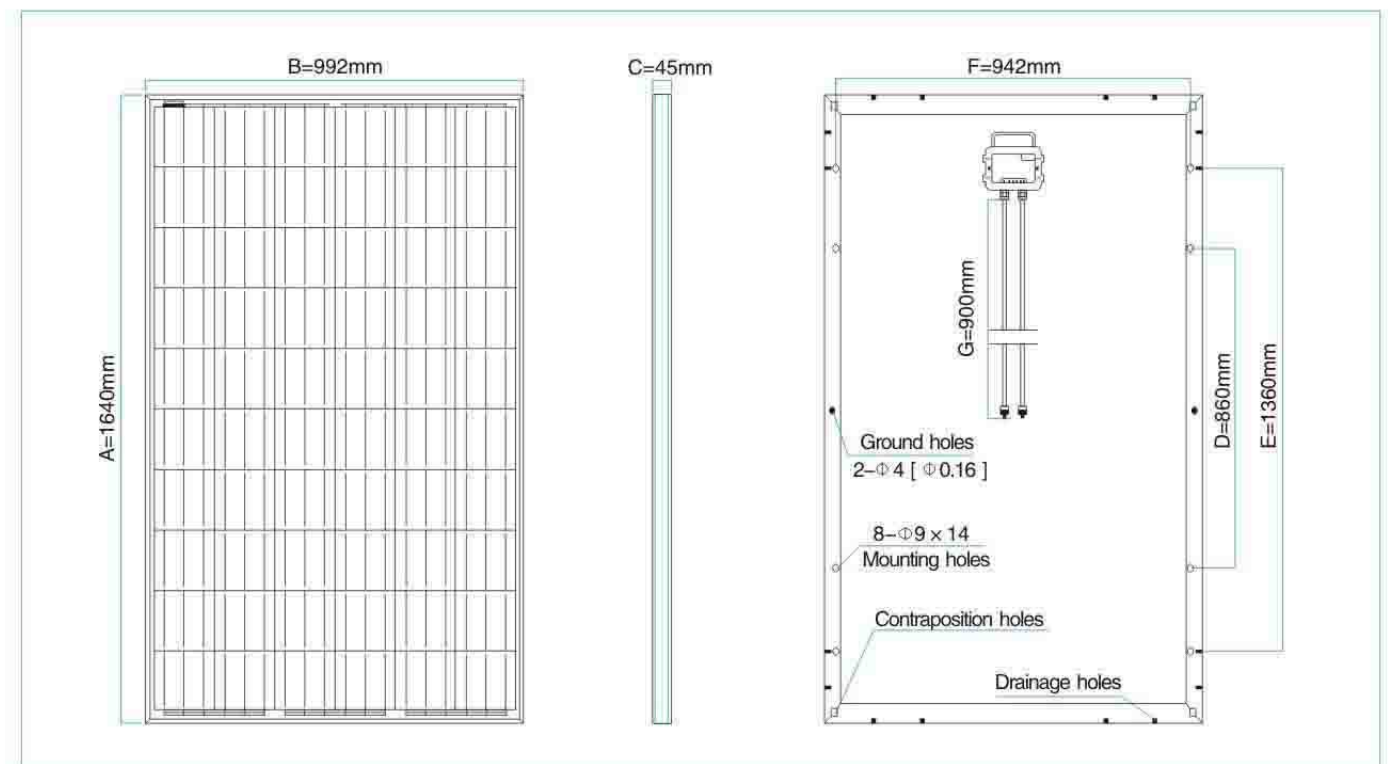
I-V Curves of PV module CSG 230W at different light power



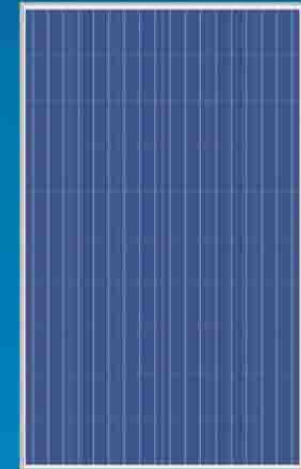
I-V Curves of PV module CSG 230W at various cell temperatures



### Dimensions



Dimensions A × B × C	1640 × 992 × 45mm ( 64.57 × 39.06 × 1.77inch )
Installation Hole D × E × F	860 × 1360mm × 942mm ( 33.86 × 53.54 × 37.09inch )
Cable Length G	900mm ( 35.43inch )



High Efficiency Polycrystalline Solar Modules

#### WARRANTY

- ▶ Product: 5 years
- ▶ Power production: 90% 10years  
80% 25years



▶ Caution: Read Safety And Installation Instructions Before Using This Product  
www.csgpvtech.com Email:pv@csgholding.com