

# TSM-PC05 TSM-PA05

## THE UNIVERSAL SOLUTION

**15.0%**  
MAX EFFICIENCY

**245W**  
MAX POWER OUTPUT

**10 YEAR**  
PRODUCT WARRANTY

**25 YEAR**  
LINEAR POWER WARRANTY

Founded in 1997, Trina Solar is a vertically integrated PV manufacturer, involved in the production of ingots, wafers and cells to the assembly of high quality modules, using both mono and multicrystalline technologies. As of July 2011, the Company has already achieved an annualized nameplate module capacity of approximately 1.9GW. Trina Solar's wide range of products are used in residential, commercial, industrial and public utility applications throughout the world.

Only by matching an efficient cost-structure with proven performance will we as an industry achieve grid parity. And at Trina Solar, we have both.

Trina Solar Limited  
[www.trinasolar.com](http://www.trinasolar.com)



Module can bear snow loads up to **5400Pa** and wind loads up to **2400Pa**



Guaranteed power output  
**0~+3%**



High performance under low light conditions  
**Cloudy days, mornings and evenings**



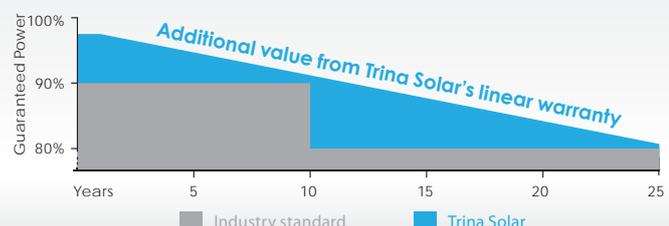
Independently certified by international certification bodies  
**IEC61215, IEC61730, UL1703, TUV Safety Class II, CE**



Manufactured according to International Quality and Environment Management System Standards  
**ISO9001, ISO14001**

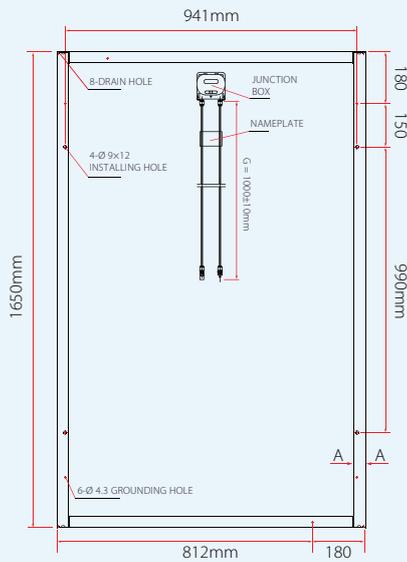
### LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty

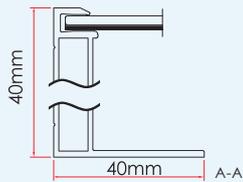


# TSM-PC05 / TSM-PA05 THE UNIVERSAL SOLUTION

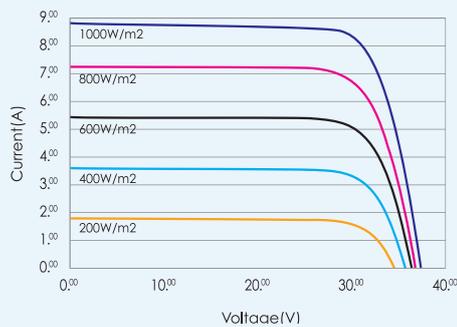
## DIMENSIONS OF PV MODULE TSM-PC/PA 05



Back View



## I-V CURVES OF PV MODULE TSM-230 PC/PA 05



Average efficiency reduction of 4.5% at 200W/m<sup>2</sup> according to EN 60904-1.

## CERTIFICATION



| ELECTRICAL DATA @ STC                       | TSM-225 PC/PA05 | TSM-230 PC/PA05 | TSM-235 PC/PA05 | TSM-240 PC/PA05 | TSM-245 PC/PA05 |
|---------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Peak Power Watts-P <sub>MAX</sub> (Wp)      | 225             | 230             | 235             | 240             | 245             |
| Power Output Tolerance-P <sub>MAX</sub> (%) | 0/+3            | 0/+3            | 0/+3            | 0/+3            | 0/+3            |
| Maximum Power Voltage-V <sub>MP</sub> (V)   | 29.4            | 29.8            | 30.1            | 30.4            | 30.7            |
| Maximum Power Current-I <sub>MPP</sub> (A)  | 7.66            | 7.72            | 7.81            | 7.89            | 7.98            |
| Open Circuit Voltage-V <sub>OC</sub> (V)    | 36.9            | 37.0            | 37.1            | 37.2            | 37.3            |
| Short Circuit Current-I <sub>SC</sub> (A)   | 8.20            | 8.26            | 8.31            | 8.37            | 8.47            |
| Module Efficiency η <sub>m</sub> (%)        | 13.7            | 14.1            | 14.4            | 14.7            | 15.0            |

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C).

| ELECTRICAL DATA @ NOCT    | TSM-225 PC/PA05 | TSM-230 PC/PA05 | TSM-235 PC/PA05 | TSM-240 PC/PA05 | TSM-245 PC/PA05 |
|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Maximum Power (W)         | 164             | 168             | 172             | 175             | 178             |
| Maximum Power Voltage (V) | 26.9            | 27.1            | 27.4            | 27.7            | 27.8            |
| Maximum Power Current (A) | 6.12            | 6.20            | 6.27            | 6.32            | 6.41            |
| Open Circuit Voltage (V)  | 33.8            | 33.9            | 34.0            | 34.1            | 34.2            |
| Short Circuit Current (A) | 6.62            | 6.68            | 6.70            | 6.75            | 6.83            |

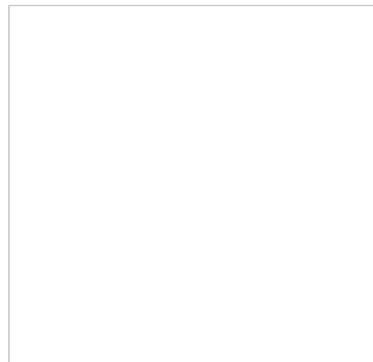
NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1M/s.

| MECHANICAL DATA    |                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------|
| Solar cells        | Multicrystalline 156 × 156mm (6 inches)                                                                       |
| Cell orientation   | 60 cells (6 × 10)                                                                                             |
| Module dimension   | 1650 × 992 × 40mm (64.95 × 39.05 × 1.57 inches)                                                               |
| Weight             | 19.5kg (43.0 lb)                                                                                              |
| Glass              | High transparency solar glass 3.2mm (0.13 inches)                                                             |
| Frame              | Anodized aluminium alloy                                                                                      |
| J-Box              | IP 65 rated                                                                                                   |
| Cables / Connector | Photovoltaic Technology cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), 1000mm (39.4 inches), MC4 / H4 |

| TEMPERATURE RATINGS                         |             | MAXIMUM RATINGS         |                            |
|---------------------------------------------|-------------|-------------------------|----------------------------|
| Nominal Operating Cell Temperature (NOCT)   | 46°C (±2°C) | Operational Temperature | -40~+85°C                  |
| Temperature Coefficient of P <sub>MAX</sub> | - 0.43%/°C  | Maximum System Voltage  | 1000V DC(IEC)/ 600V DC(UL) |
| Temperature Coefficient of V <sub>OC</sub>  | - 0.32%/°C  | Max Series Fuse Rating  | 15A                        |
| Temperature Coefficient of I <sub>SC</sub>  | 0.047%/°C   |                         |                            |

| WARRANTY                                       |  |
|------------------------------------------------|--|
| 10 year workmanship warranty                   |  |
| 25 year linear performance warranty            |  |
| (Please refer to product warranty for details) |  |

| PACKAGING CONFIGURATION            |  |
|------------------------------------|--|
| Modules per box: 25 pcs            |  |
| Modules per 40' container: 650 pcs |  |



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Authorized Distributor

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CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
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