**High power & efficiency**
- Generates up to 585 W, 21.6% module efficiency with high density interconnect technology
- Maximum energy harvest from rooftops

**Easy design & installation on C&I rooftops**
- Designed for high compatibility with mainstream inverters
- Mainstream rooftop mounting methods approved

**Optimized system cost**
- Lower cost of structure, cable and electrical equipment
- Reduced installation time and labor costs
- Shorter payback time

**High reliability**
- Assembly in fully automated and state-of-the-art factories
- Beyond industry-standard hail test passed: 35 mm hail size
- Mechanical performance tested up to 5400 Pa positive load and 2400 Pa negative load

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**Vertex Warranty**

- **2 %**
  1st year max. degradation
- **0.55 %**
  Max. annual degradation from year 2 to 25
- **12 Years**
  Product Workmanship Warranty

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**Comprehensive Product and System Certificates**

- IEC61215/IEC61730/IEC61701/IEC62716
- ISO 9001: Quality Management System
- ISO 14001: Environmental Management System
- ISO 45001: Occupational Health and Safety Management System
- EU-28 WEEE
  - Recyclable Packaging

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**Product:** TSM-DE19R

**Power Range:** 565–585 W

**Maximum Power Output:** 585 W

**Positive Power Tolerance:** 0/+5 W

**Maximum Efficiency:** 21.6 %
**DIMENSIONS OF PV MODULE (mm)**

**Operational Temperature**
-40 to +85 ºC

**Maximum System Voltage**
1500 V DC (IEC)

**Modules per box:** 36 pieces
**Modules per 40’ container:** 720 pieces

**Monocrystalline Solar Cells**
Max Series Fuse Rating 30 A

**MECHANICAL DATA**

**Temperature Ratings**
-43 ºC (±2 K)

**Temperature Coefficient of Pmpp**
-0.34%/K

**Temperature Coefficient of Voc**
-0.25%/K

**Temperature Coefficient of Isc**
0.04%/K

**MECHANICAL DATA**

- **Solar Cells:** Monocrystalline
- **No. of cells:** 132 cells
- **Module Dimensions:** 2384 x 1134 x 30 mm
- **Weight:** 28.8 kg
- **Glass:** 3.2 mm, High Transmission, AR Coated Heat Strengthened Glass
- **Encapsulant material:** EVA/POE
- **Backsheet:** White
- **Frame:** 30 mm Anodized Aluminium Alloy
- **Connector:** TS4 / MC4 EVO2*

**Packaging Configuration**
- 36 pieces per box:
- 720 pieces per 40’ container

**Electrical Data (STC)**

- **Peak Power Voltage - Vmpp (V):**
- **Max Power Voltage - VMPP (V):**
- **Open Circuit Voltage - VOC (V):**
- **Short Circuit Current - ISC (A):**
- **Module Efficiency - ηm (%):**
- **Max Power - PMAX (Wp):**

**Electrical Data (NOCT)**

- **NOCT (Nominal Operating Cell Temperature):** 43 ºC (±2 K)
- **Temperature Coefficient of Pmpp:** -0.34%/K
- **Temperature Coefficient of Voc:** -0.25%/K
- **Temperature Coefficient of Isc:** 0.04%/K

**Power Tolerance - PMAX (W):**

**Warranty**
12 Year product workmanship warranty
25 Year power warranty
2% First year degradation
0.55% Annual power degradation

**Packaging Configuration**
- 36 pieces per box
- 720 pieces per 40’ container

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