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# SK20KDD12SCp



**SEMITOP® 2 Press-Fit**

## SiC Bridge Rectifier

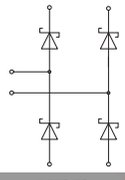
**SK20KDD12SCp**

### Features*

- 1200V SiC Schottky diodes
- High frequency rectifier
- Smart pinout to ease parallel or series modules connection
- Compact design
- One screw mounting module
- Fully compatible with other SEMITOP® Press-Fit types
- Improved thermal performance by aluminum oxide substrate
- Ultra Low inductance design
- UL recognized, file no. E63532

### Typical Applications

- Solar inverter
- UPS
- Power Supply



**KDD**

**Absolute Maximum Ratings**

| Symbol | Conditions | | Values | Unit |
|---|---|---|---|---|
| **Diode 1** | | | | |
| $V_{RRM}$ | $T_j$ = 25 °C | | 1200 | V |
| $I_F$ | P12 | $T_s$ = 25 °C | 19 | A |
| | $T_j$ = 175 °C | $T_s$ = 70 °C | 16 | A |
| $I_F$ | HPTP / HP-PCM | $T_s$ = 25 °C | 22 | A |
| | $T_j$ = 175 °C | $T_s$ = 70 °C | 18 | A |
| $I_{FSM}$ | 8.3 ms, sin 180°, | | 33 | A |
| $i^2t$ | 8.3 ms, sin 180°, $T_j$ = 150 °C | | 4 | $A^2s$ |
| $T_j$ | | | -40 ... 175 | °C |

**Absolute Maximum Ratings**

| Symbol | Conditions | Values | Unit |
|---|---|---|---|
| **Module** | | | |
| $I_{t(RMS)}$ | $\Delta T_{terminal}$ at PCB joint = 30 K, per pin | 35 | A |
| $T_{stg}$ | module without TIM | -40 ... 125 | °C |
| $V_{isol}$ | AC, sinusoidal, t = 1 min | 2500 | V |

**Characteristics**

| Symbol | Conditions | | min. | typ. | max. | Unit |
|---|---|---|---|---|---|---|
| **Diode 1** | | | | | | |
| $V_F$ | $I_F$ = 10 A | $T_j$ = 25 °C | | 1.40 | 1.60 | V |
| | chiplevel | $T_j$ = 150 °C | | 1.80 | 2.10 | V |
| $V_{F0}$ | chiplevel | $T_j$ = 25 °C | | 0.95 | 1.05 | V |
| | | $T_j$ = 150 °C | | 0.80 | 0.90 | V |
| $r_F$ | chiplevel | $T_j$ = 25 °C | | 45 | 55 | mΩ |
| | | $T_j$ = 150 °C | | 100 | 120 | mΩ |
| $C_j$ | $V_R$ = 800 V, f = 1 MHz, $T_j$ = 25 °C | | | 0.042 | | nF |
| $Q_c$ | $V_R$ = 800 V, $di/dt_{off}$ = 500 A/µs, $T_j$ = 25 °C | | | 0.034 | | µC |
| $R_{th(j-s)}$ | per Diode, P12 (Reference) | | | 2.25 | | K/W |
| $R_{th(j-s)}$ | per Diode, HPTP | | | 1.8 | | K/W |

**Characteristics**

| Symbol | Conditions | min. | typ. | max. | Unit |
|---|---|---|---|---|---|
| **Module** | | | | | |
| $M_s$ | to heatsink | 1.8 | | 2 | Nm |
| w | weight | | 19 | | g |

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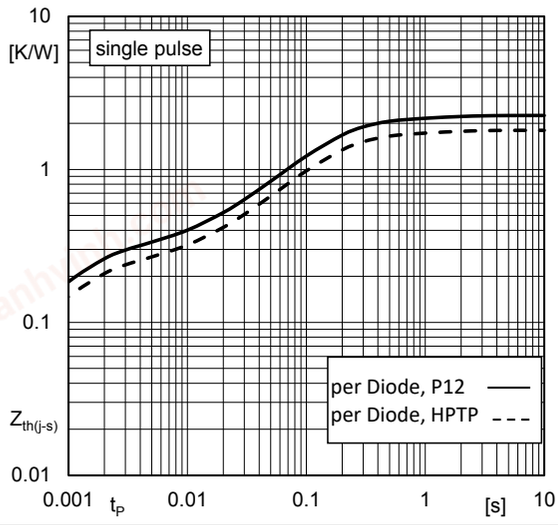



Fig. 1: Transient thermal impedance vs. time

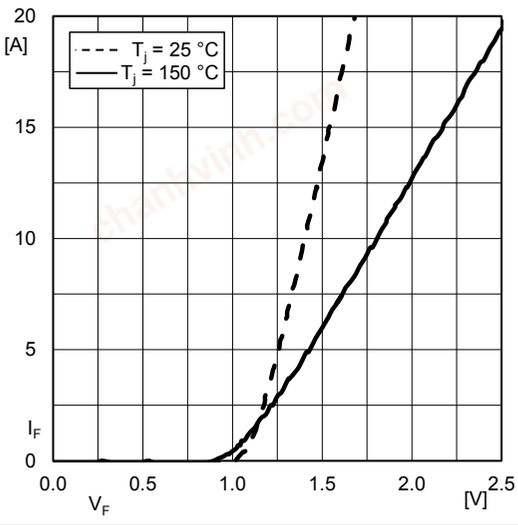



Fig. 2: Typ. Diode1 forward characteristic, incl. $R_{CC'+EE'}$

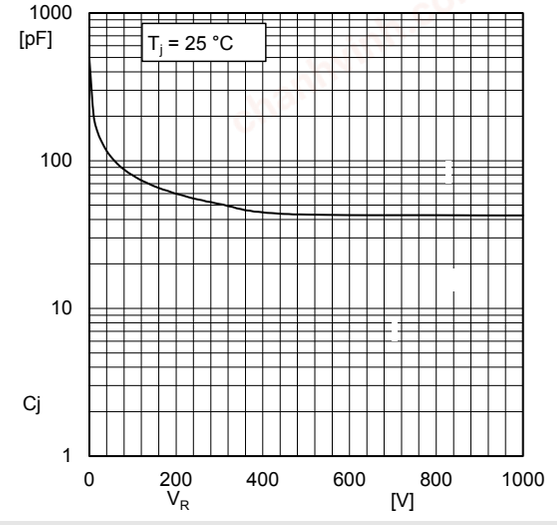


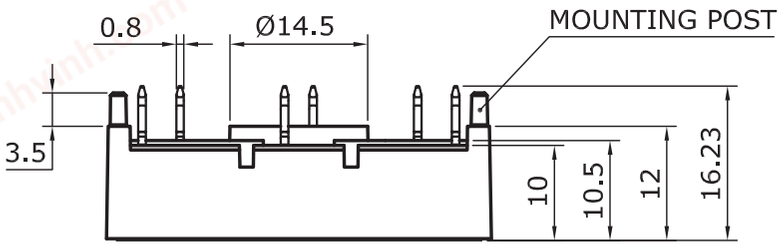

Fig. 3: Typ. capacitance-voltage charact. (1 MHz)

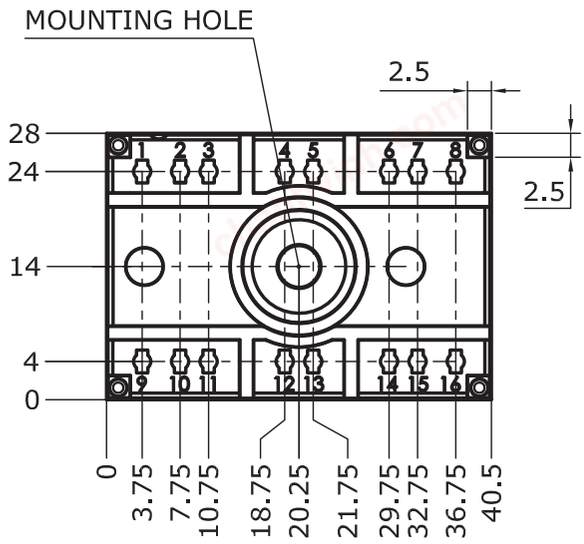
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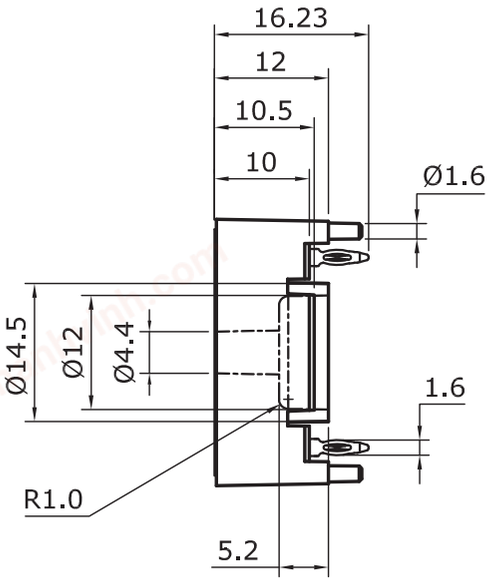
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Dimensions: mm
Tolerance system: ISO 2768-m



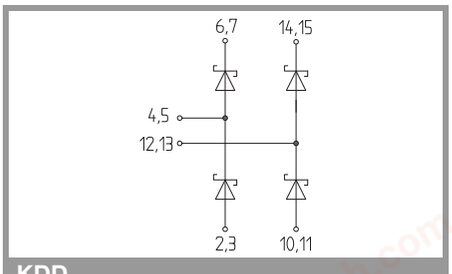




Suggested drilled hole diameter for terminal pins in the circuit board:
- refer Mounting Instruction SEMITOP® Classic

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SEMITOP 2 Press-Fit




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**IMPORTANT INFORMATION AND WARNINGS**

This is an electrostatic discharge sensitive device (ESDS) according to international standard IEC 61340.

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