

TECHNICAL DATA  
DATA SHEET 4513, REV. B

## POWER SCHOTTKY RECTIFIER

### Low Reverse Leakage

**Applications:**

- Switching Power Supply • Converters • Free-Wheeling Diodes • Polarity Protection Diode

**Features:**

- Ultra Low Reverse Leakage Current
- Soft Reverse Recovery at Low and High Temperature
- Low Forward Voltage Drop
- Low Power Loss, High Efficiency
- High Surge Capacity
- Guard Ring for Enhanced Durability and Long Term Reliability
- Guaranteed Reverse Avalanche Characteristics

**Maximum Ratings:**

| Characteristics                                  | Symbol      | Condition  | Max.        | Units              |
|--|-------------|--|-------------|--------------------|
| Peak Inverse Voltage                             | $V_{RWM}$   | -  | 200         | V                  |
| Max. Average Forward Current                     | $I_{F(AV)}$ | 50% duty cycle, rectangular wave form  | 30          | A                  |
| Max. Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 8.3 ms, half Sine wave (per leg)   | 570         | A                  |
| Non-Repetitive Avalanche Energy                  | $E_{AS}$    | $T_J = 25\text{ }^\circ\text{C}$ , $I_{AS} = 1.3\text{ A}$ , $L = 40\text{mH}$ (per leg)           | 27          | mJ                 |
| Repetitive Avalanche Current                     | $I_{AR}$    | $I_{AS}$ decay linearly to 0 in $1\text{ }\mu\text{s}$ $f$ limited by $T_J\text{ max } V_A=1.5V_R$ | 1.3         | A                  |
| Thermal Resistance                               | $R_{thJC}$  | Per Package  | 0.9         | $^\circ\text{C/W}$ |
| Max. Junction Temperature                        | $T_J$       | -  | -65 to +175 | $^\circ\text{C}$   |
| Max. Storage Temperature                         | $T_{stg}$   | -  | -65 to +175 | $^\circ\text{C}$   |

**Electrical Characteristics:**

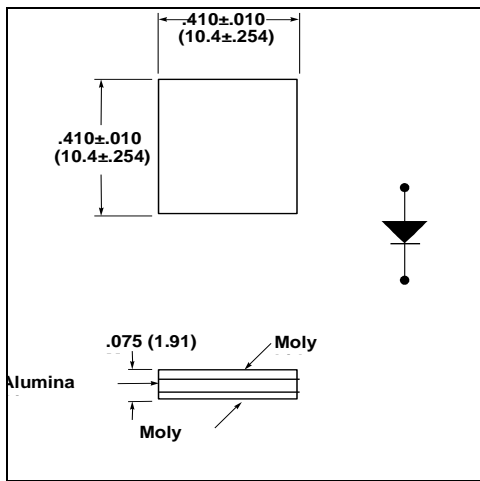
| Characteristics           | Symbol   | Condition  | Max. | Units |
|---------------------------|----------|--|------|-------|
| Max. Forward Voltage Drop | $V_{F1}$ | @ 30A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ (per leg) measured at the leads   | 0.92 | V     |
|                           | $V_{F2}$ | @ 30A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ (per leg) measured at the leads  | 0.76 | V     |
| Max. Reverse Current      | $I_{R1}$ | @ $V_R = 200\text{V}$ , Pulse, $T_J = 25\text{ }^\circ\text{C}$ (per leg)  | 0.7  | mA    |
|                           | $I_{R2}$ | @ $V_R = 200\text{V}$ , Pulse, $T_J = 125\text{ }^\circ\text{C}$ (per leg)   | 16   | mA    |
| Max. Junction Capacitance | $C_T$    | @ $V_R = 5\text{ V}$ , $T_C = 25\text{ }^\circ\text{C}$<br>$f_{SIG} = 1\text{ MHz}$ ,<br>$V_{SIG} = 50\text{mV}$ (p-p) (per leg) | 600  | pF    |

Due to the nature of the 200V Schottky devices, some degradation in  $t_{rr}$  performance at high temperatures should be expected, unlike conventional lower voltage Schottkys.

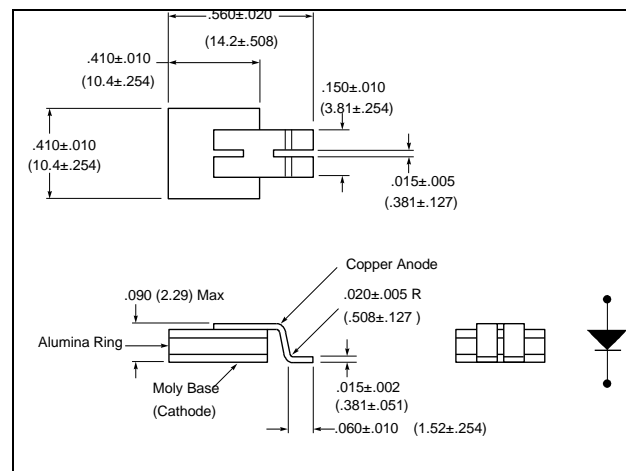
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**Mechanical Dimensions: in inches / mm**

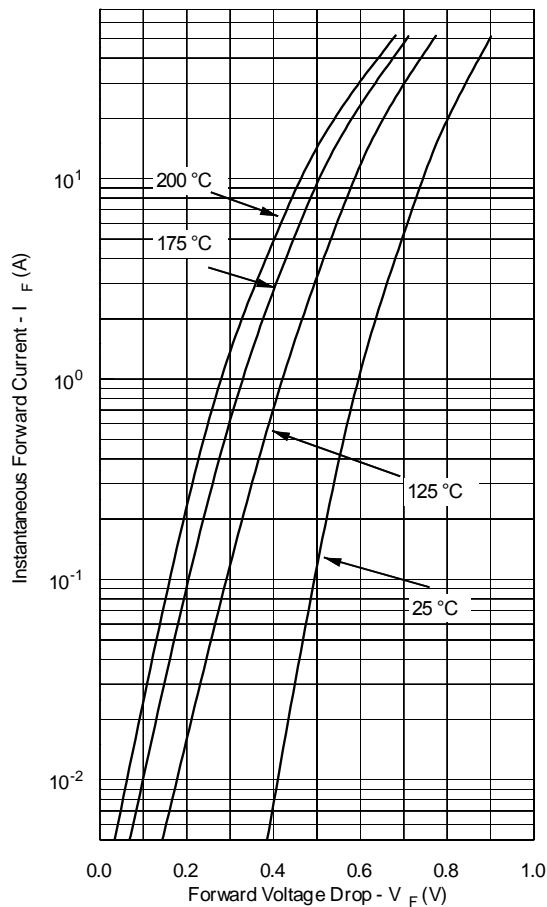


**SHD-3**

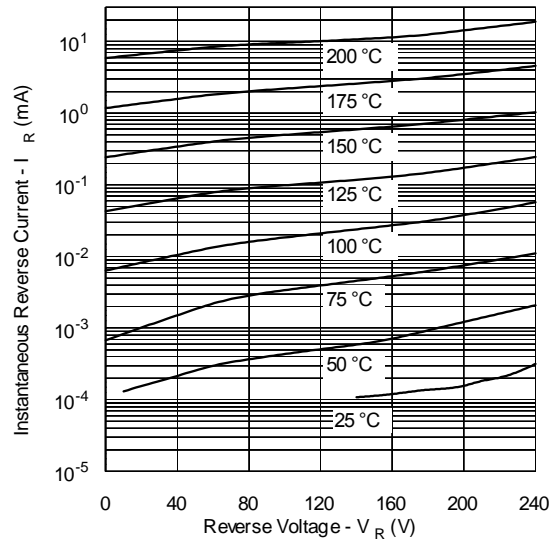


**SHD-3B**

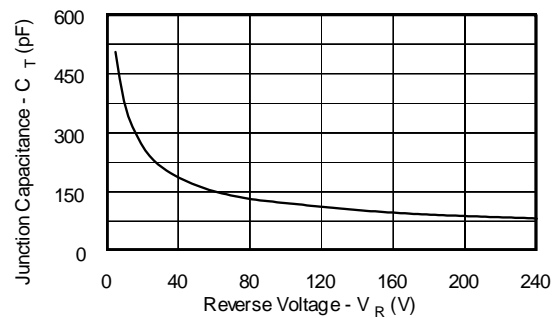
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



Vf Curves shown are for die only.

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PART ORDERING INFORMATION:

SHD11446 XX X

↓  
Part Number

**Screening Level (blank is no screening):**

| Suffix | Screened in Accordance with: |
|--------|------------------------------|
| blank  | No screening level           |
| SX*    | MIL-PRF-19500, TX Level      |
| SV*    | MIL-PRF-19500, TXV Level     |
| SS*    | MIL-PRF-19500, S Level       |

**QCI (blank is no QCI):**

| Suffix | Inspection in Accordance with: |
|--------|--------------------------------|
| blank  | No QCI                         |
| Q*     | MIL-PRF-19500 QCI              |

\*The 200V schottky diodes may be de-rated to 170V. In addition, PDA requirement may be modified to not include delta removals for reverse leakage current.

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