HiPerFRED™ Epitaxial Diode with soft recovery (Electrically Isolated Back Surface)

Preliminary Data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Conditions</th>
<th>Maximum Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_{FRMS}$</td>
<td>$T_C = 95°C$; rectangular, $d = 0.5$</td>
<td>13 A</td>
</tr>
<tr>
<td>$I_{FAVM}$</td>
<td>$I_P &lt; 10 \mu A$; rep. rating, pulse width limited by $T_{VJM}$</td>
<td>9 A</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>$T_{VJ} = 45°C$; $t_p = 10$ ms (50 Hz), sine</td>
<td>80 A</td>
</tr>
<tr>
<td>$E_{AS}$</td>
<td>$T_{VJ} = 25°C$; non-repetitive</td>
<td>0.5 mJ</td>
</tr>
<tr>
<td>$I_{AR}$</td>
<td>$V_A = 1.5 \cdot V_R$ typ.; $f = 10$ kHz; repetitive</td>
<td>0.2 A</td>
</tr>
<tr>
<td>$T_{VJ}$</td>
<td>$-55...+175$ °C</td>
<td></td>
</tr>
<tr>
<td>$T_{VJM}$</td>
<td>$-55...+150$ °C</td>
<td></td>
</tr>
<tr>
<td>$P_{RM}$</td>
<td>$T_C = 25°C$</td>
<td>60 W</td>
</tr>
<tr>
<td>$V_{ISOL}$</td>
<td>50/60 Hz RMS; $I_{ISOL} \leq 1$ mA</td>
<td>2.5 kV</td>
</tr>
<tr>
<td>Weight</td>
<td>typical</td>
<td>6 g</td>
</tr>
</tbody>
</table>

Features

- Silicon chip on Direct-Copper-Bond substrate
- High power dissipation
- Isolated mounting surface
- 2500V electrical isolation
- Low cathode to tab capacitance (<25pF)
- International standard package
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low $I_{RM}$ values
- Soft recovery behaviour
- Epoxy meets UL 94V-0
- Isolated and UL registered E153432

Applications

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low $I_{RM}$ reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

Dimensions see IXYS CD 2000

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