Sonic-FRD
High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Single Diode

Part number  (Marking on product)
DHG 30 I 600HA

Features / Advantages:
- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

Applications:
- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package:
TO-247AD
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

### Ratings

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Definition</th>
<th>Conditions</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_{RRM} )</td>
<td>max. repetitive reverse voltage</td>
<td>( T_{VJ} = 25 , ^\circ \text{C} )</td>
<td>( 600 ) ( \text{V} )</td>
</tr>
<tr>
<td>( I_r )</td>
<td>reverse current</td>
<td>( V_R = 600 , \text{V} ); ( T_{VJ} = 25 , ^\circ \text{C} ) ( 50 ) ( \mu\text{A} )</td>
<td>( 5 ) ( \text{mA} )</td>
</tr>
<tr>
<td>( V_f )</td>
<td>forward voltage</td>
<td>( i_f = 30 , \text{A} ); ( T_{VJ} = 25 , ^\circ \text{C} )</td>
<td>( 2.36 ) ( \text{V} )</td>
</tr>
<tr>
<td>( I_{FAV} )</td>
<td>average forward current</td>
<td>rectangular, ( d = 0.5 ) ( T_C = 85 , ^\circ \text{C} )</td>
<td>( 0.70 ) ( \text{K} , \text{W} )</td>
</tr>
<tr>
<td>( V_T )</td>
<td>threshold voltage</td>
<td>( T_{VJ} = 150 , ^\circ \text{C} )</td>
<td>( 1.31 ) ( \text{V} )</td>
</tr>
<tr>
<td>( r_f )</td>
<td>slope resistance</td>
<td>( T_{VJ} = 150 , ^\circ \text{C} )</td>
<td>( 28.6 ) ( \text{m} , \Omega )</td>
</tr>
<tr>
<td>( R_{BC} )</td>
<td>thermal resistance junction to case</td>
<td></td>
<td>( 0.70 ) ( \text{K} , \text{W} )</td>
</tr>
<tr>
<td>( T_{VJ} )</td>
<td>virtual junction temperature</td>
<td></td>
<td>( -55 ) ( \text{°C} )</td>
</tr>
<tr>
<td>( P_{mR} )</td>
<td>total power dissipation</td>
<td>( T_C = 25 , ^\circ \text{C} )</td>
<td>( 0.18 ) ( \text{W} )</td>
</tr>
<tr>
<td>( I_{FDM} )</td>
<td>max. forward surge current</td>
<td>( t_p = 10 , \text{ms} (50 , \text{Hz}), \sin ) ( T_{VJ} = 45 , ^\circ \text{C} )</td>
<td>( 0.20 ) ( \text{A} )</td>
</tr>
<tr>
<td>( I_{RM} )</td>
<td>max. reverse recovery current</td>
<td>( i_f = 30 , \text{A}; ) ( T_{VJ} = 25 , ^\circ \text{C} )</td>
<td>( 12 ) ( \text{A} )</td>
</tr>
<tr>
<td>( t_{rr} )</td>
<td>reverse recovery time</td>
<td>( i_f = 30 , \text{A}; \sin ); ( V_R = 600 , \text{V} ); ( V_{VJ} = 25 , ^\circ \text{C} )</td>
<td>( 35 ) ( \text{ns} )</td>
</tr>
<tr>
<td>( C_J )</td>
<td>junction capacitance</td>
<td>( V_R = 300 , \text{V}; \ f = 1 , \text{MHz} ) ( T_{VJ} = 25 , ^\circ \text{C} )</td>
<td>( \text{pF} )</td>
</tr>
<tr>
<td>( E_{AS} )</td>
<td>non-repetitive avalanche energy</td>
<td>( i_{AS} = ) ( \text{A}; \ L = 100 , \mu\text{H} ) ( T_{VJ} = 25 , ^\circ \text{C} )</td>
<td>( \text{tbd} ) ( \text{mJ} )</td>
</tr>
<tr>
<td>( I_{AR} )</td>
<td>repetitive avalanche current</td>
<td>( V_A = 1.5 , V_A ); ( f = 10 , \text{kHz} )</td>
<td>( \text{tbd} ) ( \text{A} )</td>
</tr>
</tbody>
</table>

IXYS reserves the right to change limits, conditions and dimensions.

* Data according to IEC 60747 and per diode unless otherwise specified

© 2006 IXYS all rights reserved
**Symbol** | **Definition** | **Conditions** | **Ratings**<br>**min.**<br>**typ.**<br>**max.**<br>**Unit**
--- | --- | --- | ---
$I_{RMS}$ | RMS current | per pin* | 70<br>A
$R_{TCH}$ | thermal resistance case to heatsink | | 0.25<br>K/W
$M_o$ | mounting torque | | 0.8<br>1.2<br>Nm
$F_c$ | mounting force with clip | | 20<br>120<br>N
$T_{stg}$ | storage temperature | | -55<br>150<br>°C
**Weight** | | | 6<br>g

*Irms is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.
In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Outlines TO-247AD

IXYS reserves the right to change limits, conditions and dimensions.

* Data according to IEC 60747 and per diode unless otherwise specified

© 2006 IXYS all rights reserved