HERMETIC JEDEC TO-257AA HIGH EFFICIENCY, SOFT RECOVERY RECTIFIER

FEATURES
- Small Size
- Ultra Fast Recovery
- Soft Recovery Behavior
- Extremely Low Losses At High Switching Speeds
- Low \( I_{\text{RM}} \) Rating
- Hermetic And Isolated Package
- Available Screened To MIL-S-19500, TX, TXV And S Levels

DESCRIPTION
This soft recovery, high speed rectifier is ideally suited for high performance in high voltage switching applications. The performance of this rectifier minimizes losses in power conversion and motor control circuits complementing the switching characteristics of power MOSFETs, IGBTs, and bipolar transistors.

ABSOLUTE MAXIMUM RATINGS \( T_C = 25^\circ \text{C} \)
- Peak Inverse Voltage \( \leq 800 \text{ & 1000 V} \)
- Maximum Average D.C. Output Current @ \( T_C = 100^\circ \text{C} \) \( \leq 12 \text{ A} \)
- Surge Current (Non-Repetitive 8.3 nsec) \( \leq 70 \text{ A} \)
- Thermal Resistance, Junction-To-Case \( \leq 2.0^\circ \text{C/W} \)
- Operating and Storage Temperature Range \( -55^\circ \text{C to } +150^\circ \text{C} \)

![Diagram of TO-257AA Rectifier](image)
### ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>PIV</th>
<th>Maximum Forward Voltage @ 12 A</th>
<th>Maximum Reverse Current @ 0.8x PIV</th>
<th>Maximum Reverse Recovery Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>( T_J = 25^\circ C )</td>
<td>( T_J = 150^\circ C )</td>
<td>( T_J = 25^\circ C )</td>
</tr>
<tr>
<td>OM5010ST</td>
<td>800</td>
<td>2.9 V</td>
<td>2.7 V</td>
<td>150 µA</td>
</tr>
<tr>
<td>OM5011ST</td>
<td>1000</td>
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</table>

### TURN-OFF CHARACTERISTICS

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min.</td>
</tr>
<tr>
<td>( T_{rr} )</td>
<td>( I_F = 0.5 \text{ A; } I_Q = 1 \text{ A; } T_J = 25^\circ \text{C} )</td>
</tr>
<tr>
<td></td>
<td>( I_F = 1 \text{ A; } \frac{dI}{dt} = -15 \text{ A/}\mu\text{s; } V_R = 30 \text{ V; } T_J = 25^\circ \text{C} )</td>
</tr>
<tr>
<td>( I_{RM} )</td>
<td>( V_R = 540 \text{ V; } I_F = 12 \text{ A} ) ( L_{0.05} \mu\text{H; } T_J = 100^\circ \text{C; } \frac{dI_F}{dt} = -100 \text{ A/}\mu\text{s} )</td>
</tr>
</tbody>
</table>

### DEFINITION OF TURN-OFF CHARACTERISTICS

#### TYPICAL REVERSE CURRENT

\[
i_{\text{R}} = \text{Reverse Current, mA} \\
\% \text{ of } V_{\text{RRM}}
\]

#### TYPICAL FORWARD VOLTAGE

\[
V_F = \text{Instantaneous Voltage (Volts)} \\
I_F = \text{Instantaneous Forward Current (Amps)}
\]

\( T_J = 125^\circ \text{C} \)