HiPerFET™
Power MOSFETs

Single Die MOSFET

Preliminary data sheet

Symbol | Test Conditions | Maximum Ratings
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**Symbol** | **Test Conditions** | **Characteristic Values**
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## Symbol Test Conditions Characteristic Values

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Characteristic Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>$g_{ds}$</td>
<td>$V_{DS} = 10 \text{ V}; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>min. typ. max.</td>
</tr>
<tr>
<td>$C_{iss}$</td>
<td>$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$</td>
<td>9400 pF</td>
</tr>
<tr>
<td>$C_{oss}$</td>
<td>$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$</td>
<td>1280 pF</td>
</tr>
<tr>
<td>$C_{rss}$</td>
<td>$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$</td>
<td>460 pF</td>
</tr>
<tr>
<td>$t_{f(0n)}$</td>
<td>$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS} ; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>45 ns</td>
</tr>
<tr>
<td>$t_f$</td>
<td>$R_g = 2 \Omega \text{ (External)}$ , $V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS}$</td>
<td>60 ns</td>
</tr>
<tr>
<td>$t_{f(0n)}$</td>
<td>$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS} ; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>120 ns</td>
</tr>
<tr>
<td>$t_r$</td>
<td>$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS} ; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>45 ns</td>
</tr>
<tr>
<td>$Q_{on}$</td>
<td>$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS} ; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>330 nC</td>
</tr>
<tr>
<td>$Q_{gs}$</td>
<td>$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS} ; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>55 nC</td>
</tr>
<tr>
<td>$Q_{gd}$</td>
<td>$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \text{ V} \text{ DSS} ; I_D = 0.5 \text{ } I_{D_{25}}$</td>
<td>155 nC</td>
</tr>
<tr>
<td>$R_{thJC}$</td>
<td>$V_{GS} = 0 \text{ V}$</td>
<td>0.22 K/W</td>
</tr>
<tr>
<td>$R_{thCK}$</td>
<td></td>
<td>0.15 K/W</td>
</tr>
</tbody>
</table>

### Source-Drain Diode

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Characteristic Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_S$</td>
<td>$V_{GS} = 0 \text{ V}$</td>
<td>min. typ. max.</td>
</tr>
<tr>
<td>$I_{SM}$</td>
<td>Repetitive; pulse width limited by $T_{SM}$</td>
<td>min. typ. max.</td>
</tr>
<tr>
<td>$V_{SD}$</td>
<td>$I_P = I_S$, $V_{GS} = 0 \text{ V}$</td>
<td>Note 1</td>
</tr>
<tr>
<td>$t_r$</td>
<td></td>
<td>250 ns</td>
</tr>
<tr>
<td>$Q_{RM}$</td>
<td>$I_P = 25 \text{ A}, \text{di/dt = 100 A/\mu s}, V_R = 100 \text{ V}$</td>
<td>1.0 $\mu$C</td>
</tr>
<tr>
<td>$I_{RM}$</td>
<td></td>
<td>10 A</td>
</tr>
</tbody>
</table>

**Note:** 1. Pulse test, $t \leq 300 \mu$s, duty cycle $d \leq 2 \%$
Figure 1. Output Characteristics at 25°C

Figure 2. Output Characteristics at 125°C

Figure 3. $R_{DS(ON)}$ normalized to 0.5

Figure 4. $R_{DS(ON)}$ normalized to 0.5

Figure 5. Drain Current vs. Case Temperature

Figure 6. Admittance Curves
IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592, 4,881,106, 5,017,508, 5,049,961, 5,187,117, 5,486,715, 6,306,728B1, 4,931,844, 5,034,796, 5,063,307, 5,237,481, 5,381,025.
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Datasheets for electronics components.