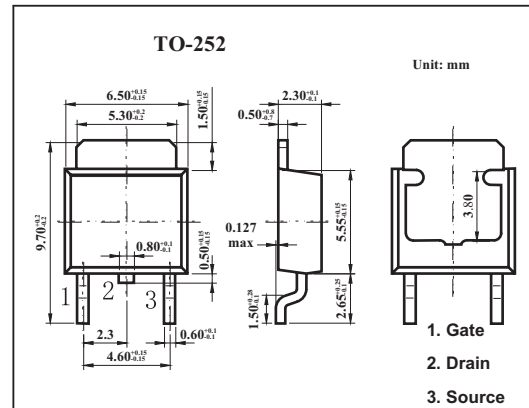
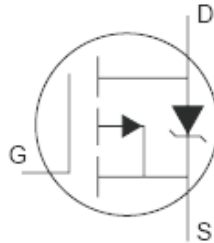


HEXFET[®] Power MOSFET

KRFR6215

■ Features

- Advanced Process Technology
- Surface Mount
- 175°C Operating Temperature
- Fast Switching
- P-Channel
- Fully Avalanche Rated



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Rating | Unit |
|---|-----------------|--------------|------|
| Continuous Drain Current, $V_{GS} @ 10V, T_c = 25^\circ\text{C}$ | I_D | -13 | A |
| Continuous Drain Current, $V_{GS} @ 10V, T_c = 100^\circ\text{C}$ | I_D | -9 | |
| Pulsed Drain Current*1 | I_{DM} | -44 | |
| Power Dissipation $T_C = 25^\circ\text{C}$ | P_D | 110 | W |
| Linear Derating Factor | | 0.71 | W/°C |
| Gate-to-Source Voltage | V_{GS} | ± 20 | V |
| Single Pulse Avalanche Energy*3 | E_{AS} | 310 | mJ |
| Avalanche Current *1 | I_{AR} | -6.6 | A |
| Repetitive Avalanche Energy | E_{AR} | 11 | mJ |
| Peak Diode Recovery dv/dt *2 | dv/dt | 5 | V/ns |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to + 175 | °C |
| Junction-to-Case | $R_{\theta JC}$ | 1.4 | °C/W |
| Junction-to-Ambient | $R_{\theta JA}$ | 50 | °C/W |
| Junction-to-Ambient | $R_{\theta JA}$ | 110 | °C/W |

*1 Repetitive rating; pulse width limited by max. junction temperature.

*2 $I_{SD} \leq -6.6A, di/dt \leq -620A/\mu s, V_{DD} \leq V_{(BR)DSS}, T_J \leq 175^\circ\text{C}$

*3 Starting $T_J = 25^\circ\text{C}, L = 14mH, R_G = 25\Omega, I_{AS} = -6.6A.$

KRFR6215

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit |
|--|---------------------------------|---|------|-------|-------|----------|
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250 \mu A$ | -150 | | | V |
| Breakdown Voltage Temp. Coefficient | $\Delta V_{(BR)DSS}/\Delta T_J$ | $I_D = -1mA, \text{Reference to } 25^\circ C$ | | -0.02 | | V/°C |
| Static Drain-to-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -6.6A^*1$ | | | 0.295 | Ω |
| | | $V_{GS} = -10V, I_D = -6.6A, T_J = 150^\circ C^*1$ | | | 0.58 | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250 \mu A$ | -2.0 | | -4.0 | V |
| Forward Transconductance | g_{fs} | $V_{DS} = -50V, I_D = -6.6A^*1$ | 3.6 | | | S |
| Drain-to-Source Leakage Current | I_{DSS} | $V_{DS} = -150V, V_{GS} = 0V$ | | | -25 | μA |
| | | $V_{DS} = -120V, V_{GS} = 0V, T_J = 150^\circ C$ | | | -250 | |
| Gate-to-Source Forward Leakage | I_{GSS} | $V_{GS} = 20V$ | | | 100 | nA |
| Gate-to-Source Reverse Leakage | | $V_{GS} = -20V$ | | | -100 | |
| Total Gate Charge | Q_g | $I_D = -6.6A$ | | | 66 | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = -120V$ | | | 8.1 | |
| Gate-to-Drain ("Miller") Charge | Q_{gd} | $V_{GS} = -10V, ^*1$ | | | 35 | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = -75V$ | | 14 | | ns |
| Rise Time | t_r | $I_D = -6.6A$ | | 36 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | $R_G = 6.8 \Omega$ | | 53 | | |
| Fall Time | t_f | $R_D = 12 \Omega ^*1$ | | 37 | | |
| Internal Drain Inductance | L_D | Between lead, 6mm (0.25in.) from package and center of die contact | | 4.5 | | nH |
| Internal Source Inductance | L_S | | | 7.5 | | nH |
| Input Capacitance | C_{iss} | $V_{GS} = 0V$ | | 860 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -25V$ | | 220 | | |
| Reverse Transfer Capacitance | C_{rss} | $f = 1.0MHz$ | | 130 | | |
| Continuous Source Current (Body Diode) | I_S | MOSFET symbol showing the integral reverse p-n junction diode. | | | -13 | A |
| Pulsed Source Current (Body Diode) *2 | I_{SM} | | | | -44 | |
| Diode Forward Voltage | V_{SD} | $T_J = 25^\circ C, I_S = -6.6A, V_{GS} = 0V^*1$ | | | -1.6 | V |
| Reverse Recovery Time | t_{rr} | $T_J = 25^\circ C, I_F = -6.6A$ | | 160 | 240 | ns |
| Reverse Recovery Charge | Q_{rr} | $di/dt = 100A/\mu s^*1$ | | 1.2 | 1.7 | nC |
| Forward Turn-On Time | t_{on} | Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D) | | | | |

*1 Pulse width $\leq 300 \mu s$; duty cycle $\leq 2\%$.

*2 Repetitive rating; pulse width limited by max