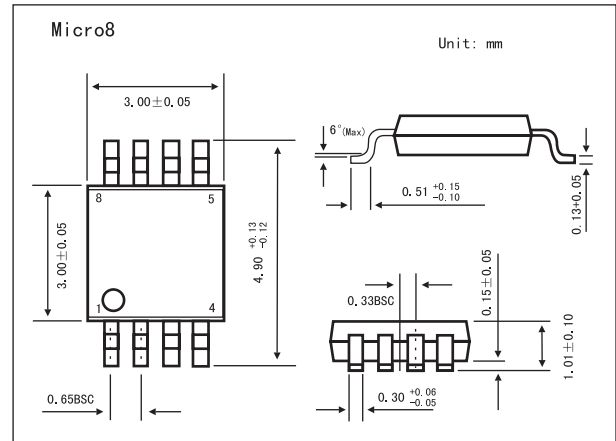
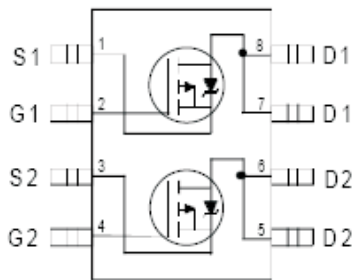


HEXFET[®] Power MOSFET

KRF7504

■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual P-Channel MOSFET
- Very Small SOIC Package
- Low Profile (<1.1mm)
- Available in Tape & Reel
- Fast Switching



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

| Parameter | Symbol | Rating | Unit |
|---------------------------------------------------------------------|-----------------|--------------|--------|
| Continuous Drain Current, $V_{GS} @ -4.5V @ T_A = 25^\circ\text{C}$ | I_D | -1.7 | A |
| Continuous Drain Current, $V_{GS} @ -4.5V @ T_A = 70^\circ\text{C}$ | I_D | -1.4 | |
| Pulsed Drain Current *1 | I_{DM} | -9.6 | |
| Power Dissipation *2 @ $T_A = 25^\circ\text{C}$ | P_D | 1.25 | W |
| Linear Derating Factor | | 10 | m W/°C |
| Gate-to-Source Voltage | V_{GS} | ± 12 | V |
| Peak Diode Recovery dv/dt *3 | dv/dt | -5.0 | V/ns |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 to + 150 | °C |
| Maximum Junction-to-Ambient *2 | $R_{\theta JA}$ | 100 | °C/W |


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

*2 Surface mounted on FR-4 board, $t \leq 10\text{sec}$

*3 $I_{SD} \leq -1.2A$, $di/dt \leq 100A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

KRF7504

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit |
|----------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|-------|----------|
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250 \mu A$ | -20 | | | V |
| Breakdown Voltage Temp. Coefficient | $\Delta V_{(BR)DSS}/\Delta T_J$ | $I_D = -1mA, \text{Reference to } 25^\circ C$ | | -0.012 | | V/°C |
| Static Drain-to-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = -4.5V, I_D = -1.2A^{*1}$ | | | 0.27 | Ω |
| | | $V_{GS} = -2.7V, I_D = -0.60A^{*1}$ | | | 0.40 | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250 \mu A$ | -0.7 | | | V |
| Forward Transconductance | g_{fs} | $V_{DS} = -10V, I_D = -0.60A^{*1}$ | 1.3 | | | S |
| Drain-to-Source Leakage Current | I_{DSS} | $V_{DS} = -16V, V_{GS} = 0V$ | | | -1.0 | μA |
| | | $V_{DS} = -16V, V_{GS} = 0V, T_J = 125^\circ C$ | | | -25 | |
| Gate-to-Source Forward Leakage | I_{GSS} | $V_{GS} = -12V$ | | | -100 | nA |
| Gate-to-Source Reverse Leakage | | $V_{GS} = 12V$ | | | 100 | |
| Total Gate Charge | Q_g | $I_D = -1.2A$ | | 5.4 | 8.2 | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = -16V$ | | 0.96 | 1.4 | |
| Gate-to-Drain ("Miller") Charge | Q_{gd} | $V_{GS} = -4.5V$ | | 2.4 | 3.6 | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = -10V$ | | 9.1 | | ns |
| Rise Time | t_r | $I_D = -1.2A$ | | 35 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | $R_D = 8.3 \Omega$ | | 38 | | |
| Fall Time | t_f | $R_g = 6 \Omega$ | | 43 | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0V$ | | 240 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -15V$ | | 130 | | |
| Reverse Transfer Capacitance | C_{rss} | $f = 1.0MHz$ | | 64 | | |
| Continuous Source Current (Body Diode) | I_S | MOSFET symbol showing the integral reverse p-n junction diode.  | | | -1.25 | A |
| Pulsed Source Current (Body Diode) *2 | I_{SM} | | | | -9.6 | |
| Diode Forward Voltage | V_{SD} | $T_J = 25^\circ C, I_S = -1.2A, V_{GS} = 0V^{*1}$ | | | -1.2 | V |
| Reverse Recovery Time | t_{rr} | $T_J = 25^\circ C, I_F = -1.2A$ | | 52 | 78 | ns |
| Reverse Recovery Charge | Q_{rr} | $di/dt = 100A/\mu s^{*1}$ | | 63 | 95 | 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. junction temperature.