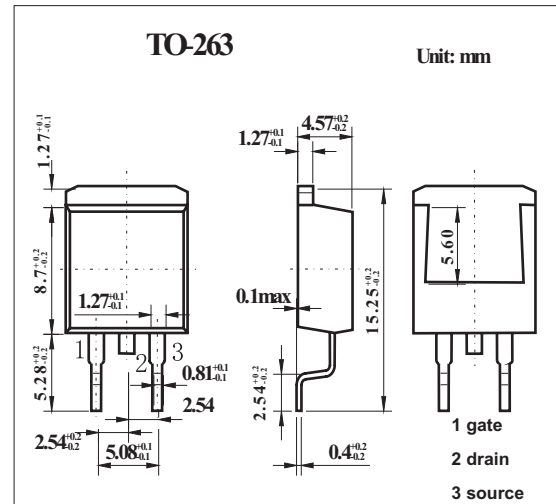
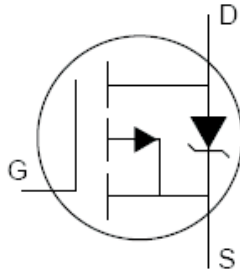


HEXFET[®] Power MOSFET

KRF4905S

■ 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 | -74 | A |
| Continuous Drain Current, $V_{GS} @ -10V, T_c = 100^\circ\text{C}$ | I_D | -52 | |
| Pulsed Drain Current*1 | I_{DM} | -260 | |
| Power Dissipation $T_a = 25^\circ\text{C}$ | P_D | 3.8 | W |
| Power Dissipation $T_c = 25^\circ\text{C}$ | | 200 | |
| Linear Derating Factor | | 1.3 | $W/^\circ\text{C}$ |
| Gate-to-Source Voltage | V_{GS} | ± 20 | V |
| Single Pulse Avalanche Energy*4 | E_{AS} | 930 | mJ |
| Avalanche Current *1 | I_{AR} | -38 | A |
| Repetitive Avalanche Energy | E_{AR} | 20 | 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 | $^\circ\text{C}$ |
| Junction-to-Case | $R_{\theta JC}$ | 0.75 | $^\circ\text{C/W}$ |
| Junction-to-Ambient | $R_{\theta JA}$ | 40 | $^\circ\text{C/W}$ |

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


*2 $I_{SD} \leq -38\text{A}$, $di/dt \leq -270\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 175^\circ\text{C}$

*3 When mounted on 1" square PCB

*4 Starting $T_J = 25^\circ\text{C}$, $L = 1.3\text{mH}$, $R_G = 25\Omega$, $I_{AS} = -38\text{A}$.

KRF4905S

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|--|---------------------------------|---|------|-------|------|------|
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250 \mu A$ | -55 | | | V |
| Breakdown Voltage Temp. Coefficient | $\Delta V_{(BR)DSS}/\Delta T_J$ | $I_D = -1mA, \text{Reference to } 25^\circ C$ | | -0.05 | | V/°C |
| Static Drain-to-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -38A^{*1}$ | | | 0.02 | mΩ |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250 \mu A$ | -2.0 | | -4 | V |
| Forward Transconductance | g_{fs} | $V_{DS} = -25V, I_D = -38A^{*1}$ | 21 | | | S |
| Drain-to-Source Leakage Current | I_{DSS} | $V_{DS} = -55V, V_{GS} = 0V$ | | | -25 | μA |
| | | $V_{DS} = -44V, V_{GS} = 0V, T_J = 150^\circ C$ | | | -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 | $I_D = -38A$ | | | 180 | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = -44V$ | | | 32 | |
| Gate-to-Drain ("Miller") Charge | Q_{gd} | $V_{GS} = -10V,^{*1}$ | | | 86 | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = -28V$ | | 18 | | ns |
| Rise Time | t_r | $I_D = -38A$ | | 99 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | $R_G = 2.5 \Omega$ | | 61 | | |
| Fall Time | t_f | $R_D = 0.72 \Omega^{*1}$ | | 96 | | |
| Internal Source Inductance | L_S | Between lead, and center of die contact | | 7.5 | | nH |
| Input Capacitance | C_{iss} | $V_{GS} = 0V$ | | 3400 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -25V$ | | 1400 | | |
| Reverse Transfer Capacitance | C_{rss} | $f = 1.0MHz$ | | 640 | | |
| Continuous Source Current (Body Diode) | I_S | MOSFET symbol showing the integral reverse p-n junction diode.  | | | -74 | A |
| Pulsed Source Current (Body Diode) *2 | I_{SM} | | | | -260 | |
| Diode Forward Voltage | V_{SD} | $T_J = 25^\circ C, I_S = -38A, V_{GS} = 0V^{*1}$ | | | -1.6 | V |
| Reverse Recovery Time | t_{rr} | $T_J = 25^\circ C, I_F = -38A$ | | 89 | 130 | ns |
| Reverse Recovery Charge | Q_{rr} | $di/dt = 100A/\mu s^{*1}$ | | 230 | 350 | 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