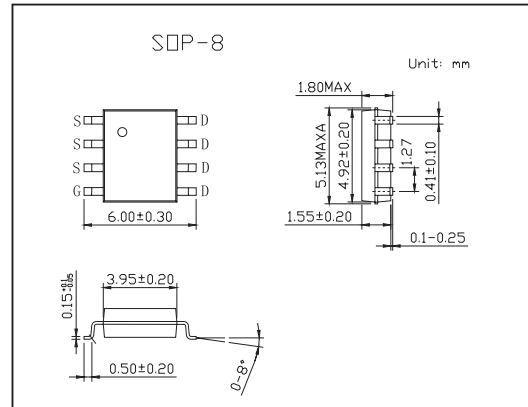
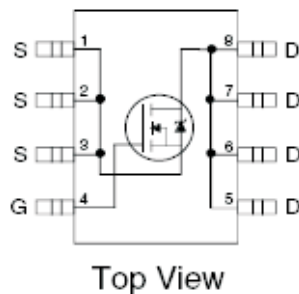


HEXFET[®] Power MOSFET

KRF7494

■ Features

- High frequency DC-DC converters



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

| Parameter | Symbol | Rating | Unit |
|---|-----------------|--------------|------|
| Continuous Drain Current, $V_{GS} @ 10V, T_a = 25^\circ\text{C}$ | I_D | 5.2 | A |
| Continuous Drain Current, $V_{GS} @ 10V, T_a = 100^\circ\text{C}$ | I_D | 3.7 | |
| Pulsed Drain Current*1 | I_{DM} | 42 | |
| Power Dissipation $T_a = 25^\circ\text{C}$ *1 | P_D | 3 | W |
| Linear Derating Factor | | 0.02 | W/°C |
| Gate-to-Source Voltage | V_{GS} | ± 20 | V |
| Drain-Source Voltage | V_{DS} | 150 | V |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to + 150 | °C |
| Junction-to-Ambient | $R_{\theta JA}$ | 50 | °C/W |
| Junction-to-Drain Lead | $R_{\theta JL}$ | 20 | °C/W |
| Single Pulse Avalanche Energy*3 | EAS | 370 | mJ |
| Avalanche Current *2 | I_{AR} | 3.1 | A |

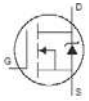
*1 Pulse width $\leq 400 \mu\text{s}$; duty cycle $\leq 2\%$.

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

*3 Starting $T_J = 25^\circ\text{C}$, $L = 77\text{mH}$, $R_G = 25 \Omega$, $I_{AS} = 3.1\text{A}$.

KRF7494

■ 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 | $\Delta V_{(BR)DSS} / \Delta T_J$ | $I_D = 1mA, \text{Reference to } 25^\circ C$ | | 0.15 | | V/°C |
| Static Drain-to-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 3.1A^{*1}$ | | 35 | 44 | mΩ |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250 \mu A$ | 2.5 | | 4.5 | V |
| Forward Transconductance | g_{fs} | $V_{DS} = 50V, I_D = 5.2A^{*1}$ | 12 | | | S |
| Drain-to-Source Leakage Current | I_{DSS} | $V_{DS} = 120V, V_{GS} = 0V$ | | | 1.0 | μA |
| | | $V_{DS} = 120V, V_{GS} = 0V, T_J = 125^\circ C$ | | | 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 | $I_D = 3.1A$ | | 36 | 54 | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = 75V$ | | 7.5 | | |
| Gate-to-Drain ("Miller") Charge | Q_{gd} | $V_{GS} = 10V,^{*1}$ | | 13 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = 100V$ | | 15 | | ns |
| Rise Time | t_r | $I_D = 3.1A$ | | 13 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | $R_G = 6.5 \Omega$ | | 36 | | |
| Fall Time | t_f | $V_{GS} = 10V$ | | 14 | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0V$ | | 1750 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = 25V$ | | 220 | | |
| Reverse Transfer Capacitance | C_{rss} | $f = 1.0MHz$ | | 100 | | |
| Output Capacitance | C_{oss} | $V_{GS} = 0V, V_{DS} = 1.0V, f = 1.0MHz$ | | 870 | | |
| Output Capacitance | C_{oss} | $V_{GS} = 0V, V_{DS} = 120V, f = 1.0MHz$ | | 120 | | |
| Effective Output Capacitance | $C_{oss \text{ eff.}}$ | $V_{GS} = 0V, V_{DS} = 0V \text{ to } 120V$ | | 170 | | |
| Continuous Source Current (Body Diode) | I_S | MOSFET symbol showing the integral reverse p-n junction diode.  | | | 2.7 | A |
| Pulsed Source Current (Body Diode) *2 | I_{SM} | | | | 42 | |
| Diode Forward Voltage | V_{SD} | $T_J = 25^\circ C, I_S = 3.1A, V_{GS} = 0V^{*1}$ | | | 1.3 | V |
| Reverse Recovery Time | t_{rr} | $T_J = 25^\circ C, I_F = 3.1A, V_{DD} = 25V$ | | 55 | | ns |
| Reverse Recovery Charge | Q_{rr} | $di/dt = 100A/\mu s^{*1}$ | | 140 | | 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 $\leq 400 \mu s$; duty cycle $\leq 2\%$.

*2 Repetitive rating; pulse width limited by max