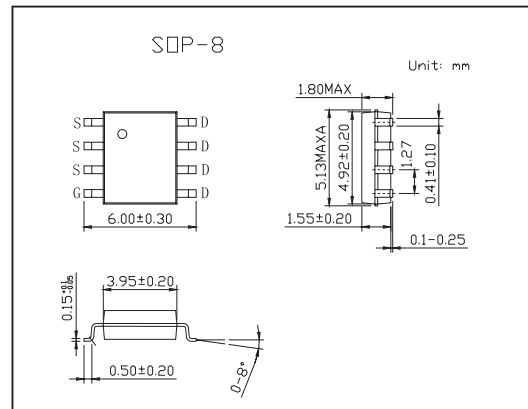
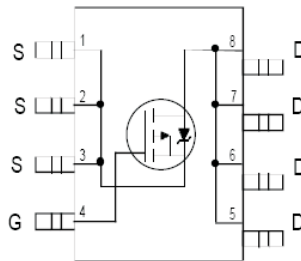


# HEXFET<sup>®</sup> Power MOSFET

## KRF7204

### ■ Features

- Advanced Process Technology
- Ultra Low On-Resistance
- P-Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- Fast Switching



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

Parameter	Symbol	Rating	Unit
Continuous Drain Current, $V_{GS} @ 10V @ T_A = 25^\circ\text{C}$	$I_D$	-5.3	A
Continuous Drain Current, $V_{GS} @ 10V @ T_A = 70^\circ\text{C}$	$I_D$	-4.2	
Pulsed Drain Current *1	$I_{DM}$	-21	
Power Dissipation @ $T_C = 25^\circ\text{C}$	$P_D$	2.5	W/°C
Linear Derating Factor		0.02	V
Gate-to-Source Voltage	$V_{GS}$	$\pm 12$	V/nS
Peak Diode Recovery dv/dt *2	dv/dt	-1.7	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	°C
Maximum Junction-to-Ambient *3	$R_{\theta JA}$	50	°C/W



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

\*2  $I_{SD} \leq -5.3A$ ,  $di/dt \leq 90A/\mu s$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

\*3 Surface mounted on FR-4 board,  $t \leq 10\text{sec}$ .

## KRF7204

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250A$	-20			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS}/\Delta T_J$	$I_D = -1mA, \text{Reference to } 25^\circ C$		-0.022		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5.3A^{*1}$			0.060	$\Omega$
		$V_{GS} = -4.5V, I_D = -2.0A^{*1}$			0.10	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-1.0		-2.5	V
Forward Transconductance	$g_{fs}$	$V_{DS} = -15V, I_D = -5.3A^{*1}$		7.9		S
Drain-to-Source Leakage Current	$I_{DSS}$	$V_{DS} = -16V, V_{GS} = 0V$			-2.5	$\mu A$
		$V_{DS} = -16V, V_{GS} = 0V, T_J = 125^\circ C$			-250	
Gate-to-Source Forward Leakage	$I_{GSS}$	$V_{GS} = -12V$			-100	nA
Gate-to-Source Reverse Leakage		$V_{GS} = 12V$			100	
Total Gate Charge	$Q_g$	$I_D = -5.3A$ $V_{DS} = -10V$ $V_{GS} = -10V,^{*1}$		25		nC
Gate-to-Source Charge	$Q_{gs}$			5.0		
Gate-to-Drain ("Miller") Charge	$Q_{gd}$			8.0		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10V$ $I_D = -1.0A$ $R_G = 6.0 \Omega$ $R_D = 10 \Omega^{*1}$		14	30	ns
Rise Time	$t_r$			26	60	
Turn-Off Delay Time	$t_{d(off)}$			100	150	
Fall Time	$t_f$			68	100	
Internal Source Inductance	$L_S$	Between lead, 6mm(0.25in.) from package and center of die contact 		2.5		nH
Internal Drain Inductance	$L_D$				4.0	
Input Capacitance	$C_{iss}$	$V_{GS} = 0V$ $V_{DS} = -10V$ $f = 1.0MHz$		860		pF
Output Capacitance	$C_{oss}$			750		
Reverse Transfer Capacitance	$C_{rss}$			230		
Continuous Source Current (Body Diode)	$I_S$	MOSFET symbol showing the integral reverse p-n junction diode. 			-2.5	A
Pulsed Source Current (Body Diode) *2	$I_{SM}$				-15	
Diode Forward Voltage	$V_{SD}$	$T_J = 25^\circ C, I_S = -1.25A, V_{GS} = 0V^{*1}$			-1.2	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ C, I_F = -2.4A$ $di/dt = 100A/\mu s^{*1}$		85	100	ns
Reverse Recovery Charge	$Q_{rr}$			77	120	
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