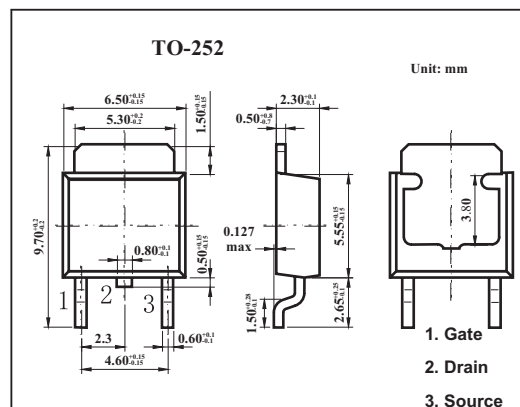
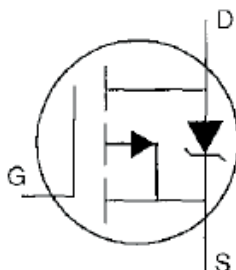


HEXFET[®] Power MOSFET

KRFR9210

■ Features

- Available in Tape & Reel
- Surface Mount
- Fast Switching
- P-Channel
- Dynamic dv/dt Rating
- Repetitive 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	-1.9	A
Continuous Drain Current, $V_{GS} @ -10V, T_c = 100^\circ\text{C}$	I_D	-1.2	
Pulsed Drain Current*1	I_{DM}	-7.6	
Power Dissipation $T_c = 25^\circ\text{C}$	P_D	25	W
Power Dissipation (PCB Mount) $T_a = 25^\circ\text{C}$	P_D	2.5	
Linear Derating Factor		0.2	W/ $^\circ\text{C}$
Linear Derating Factor (PCB Mount)		0.02	
Gate-to-Source Voltage	V_{GS}	± 20	V
Single Pulse Avalanche Energy*3	E_{AS}	300	mJ
Avalanche Current *1	I_{AR}	-1.9	A
Repetitive Avalanche Energy *1	E_{AR}	2.5	mJ
Peak Diode Recovery dv/dt *2	dv/dt	-5	V/ns
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	$^\circ\text{C}$
Junction-to-Case	$R_{\theta JC}$	5	$^\circ\text{C/W}$
Junction-to-Ambient	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Junction-to-Ambient	$R_{\theta JA}$	110	$^\circ\text{C/W}$

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

*2 $I_{SD} \leq -1.9A$, $di/dt \leq 70A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

*3 $V_{DD} = -50V$, Starting $T_J = 25^\circ\text{C}$, $L = 124 mH$, $R_G = 25 \Omega$, $I_{AS} = -1.9A$.

KRFR9210

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250 \mu A$	-200			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS} / \Delta T_J$	$I_D = -1mA$, Reference to 25°C		-0.23		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -1.1A^{*1}$			3.0	Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-2.0		-4.0	V
Forward Transconductance	g_{fs}	$V_{DS} = -50V, I_D = -1.1A^{*1}$	0.98			S
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS} = -200V, V_{GS} = 0V$			-100	μA
		$V_{DS} = -200V, V_{GS} = 0V, T_J = 150^\circ C$			-500	
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	$I_D = -1.3A$			8.9	nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -160V$			2.1	
Gate-to-Drain ("Miller") Charge	Q_{gd}	$V_{GS} = -10V,^{*1}$			3.9	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -100V$		8.0		ns
Rise Time	t_r	$I_D = -2.3A$		12		
Turn-Off Delay Time	$t_{d(off)}$	$R_G = 24 \Omega$		11		
Fall Time	t_f	$R_D = 41 \Omega^{*1}$		13		
Internal Drain Inductance	L_D	Between lead, 6 mm (0.25in.) from package and center of die contact		4.5		nH
Internal Source Inductance	L_S			7.5		nH
Input Capacitance	C_{iss}	$V_{GS} = 0V$		170		pF
Output Capacitance	C_{oss}	$V_{DS} = -25V$		54		
Reverse Transfer Capacitance	C_{rss}	$f = 1.0MHz$		16		
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.			-1.9	A
Pulsed Source Current (Body Diode) *2	I_{SM}				-7.6	
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_S = -1.9A, V_{GS} = 0V^{*1}$			-5.8	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_F = -2.3A$		110	220	ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100A/\mu s^{*1}$		0.56	1.1	μC
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