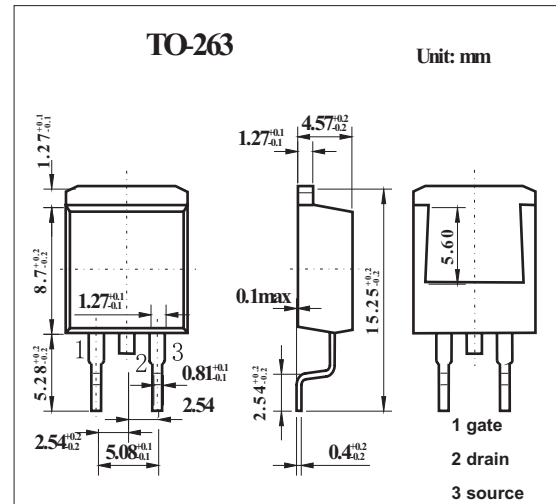
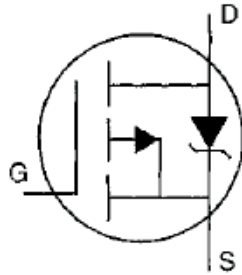


# HEXFET<sup>®</sup> Power MOSFET

## KRF9610S

### ■ Features

- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- P-Channel
- Fast Switching
- Simple Drive Requirements



### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Continuous Drain Current, V <sub>GS</sub> @ -10V, T <sub>c</sub> = 25°C	I <sub>D</sub>	-1.8	A
Continuous Drain Current, V <sub>GS</sub> @ -10V, T <sub>c</sub> = 100°C	I <sub>D</sub>	-1	
Pulsed Drain Current*1	I <sub>DM</sub>	-7	
Power Dissipation T <sub>c</sub> = 25°C	P <sub>D</sub>	20	W
Power Dissipation (PCB Mount) Ta = 25°C		3	
Linear Derating Factor		0.16	W/°C
Linear Derating Factor (PCB Mount) *3		0.025	
Gate-to-Source Voltage	V <sub>GS</sub>	±20	V
Inductive Current, Clamp	I <sub>LM</sub>	-7	A
Peak Diode Recovery dv/dt *2	dv/dt	-5	V/ns
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C
Junction-to-Case	R <sub>θJC</sub>	6.4	°C/W
Junction-to-Ambient (PCB Mounted) *3	R <sub>θJA</sub>	40	°C/W
Junction-to-Ambient	R <sub>θJA</sub>	62	°C/W

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

\*2 I<sub>SD</sub> ≤ -1.8A, di/dt ≤ 70A/μs, V<sub>DD</sub> ≤ V(BR)<sub>DSS</sub>, T<sub>J</sub> ≤ 150°C

\*3 When mounted on 1" square PCB

## KRF9610S

## ■ 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	$\Delta V_{(BR)DSS}/\Delta T_J$	$I_D = -1mA, \text{Reference to } 25^\circ C$		-0.23		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -0.9A^{*1}$			3.0	$\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-2.0		-4.0	V
Forward Transconductance	$g_{fs}$	$V_{DS} = -50V, I_D = -0.90A^{*1}$	0.90			S
Drain-to-Source Leakage Current	$I_{DSS}$	$V_{DS} = -200V, V_{GS} = 0V$			-100	$\mu A$
		$V_{DS} = -160V, V_{GS} = 0V, T_J = 125^\circ C$			-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	$Q_g$	$I_D = -3.5A$			11	nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -160V$			7.0	
Gate-to-Drain ("Miller") Charge	$Q_{gd}$	$V_{GS} = -10V, ^{*1}$			4.0	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -100V$		8.0		ns
Rise Time	$t_r$	$I_D = -0.90A$		15		
Turn-Off Delay Time	$t_{d(off)}$	$R_G = 50 \Omega$		10		
Fall Time	$t_f$	$R_D = 110 \Omega^{*1}$		8.0		
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		
Input Capacitance	$C_{iss}$	$V_{GS} = 0V$		170		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -25V$		50		
Reverse Transfer Capacitance	$C_{rss}$	$f = 1.0MHz$		15		
Continuous Source Current (Body Diode)	$I_S$	MOSFET symbol showing the integral reverse p-n junction diode.			-1.8	A
Pulsed Source Current (Body Diode) *2	$I_{SM}$				-7.0	
Diode Forward Voltage	$V_{SD}$	$T_J = 25^\circ C, I_S = -1.8A, V_{GS} = 0V^{*1}$			-5.8	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ C, I_F = -1.8A$		240	360	ns
Reverse Recovery Charge	$Q_{rr}$	$di/dt = 100A/\mu s^{*1}$		1.7	2.69	$\mu C$
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