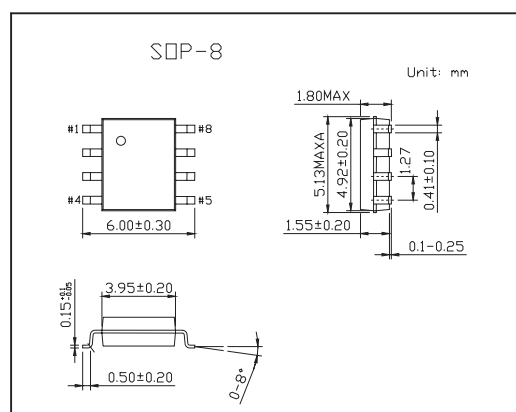
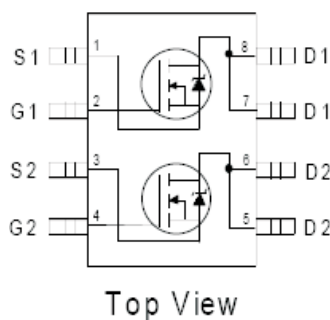


HEXFET[®] Power MOSFET

KRF7301

■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual N-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
10 Sec. Pulsed Drain Current, $V_{GS} @ 4.5V, T_a = 25^\circ\text{C}$	I_D	5.7	A
Continuous Drain Current, $V_{GS} @ 4.5V, T_a = 25^\circ\text{C}$	I_D	5.2	
Continuous Drain Current, $V_{GS} @ 4.5V, T_c = 70^\circ\text{C}$	I_D	4.1	
Pulsed Drain Current*1	I_{DM}	21	
Power Dissipation $T_a = 25^\circ\text{C}$	P_D	2	W
Linear Derating Factor		0.016	W/ $^\circ\text{C}$
Gate-to-Source Voltage	V_{GS}	± 12	V
Peak Diode Recovery dv/dt*2	dv/dt	5	V/ns
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$
Maximum Junction-to-Ambient *3	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$

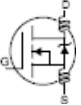
*1 Repetitive rating; pulse width limited by max. junction temperature.

*2 $I_{SD} \leq 2.6A$, $di/dt \leq 100A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

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

KRF7301

■ 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	$\Delta V_{(BR)DSS} / \Delta T_J$	$I_D = 1mA, \text{Reference to } 25^\circ C$		0.044		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 2.6A^{*1}$			0.050	Ω
		$V_{GS} = 2.7V, I_D = 2.2A^{*1}$			0.070	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	0.70			V
Forward Transconductance	g_{fs}	$V_{DS} = 15V, I_D = 2.6A^{*1}$	8.3			S
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1.0	μA
		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125^\circ C$			25	
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	$I_D = 2.6A$			20	nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = 16V$			2.2	
Gate-to-Drain ("Miller") Charge	Q_{gd}	$V_{GS} = 4.5V, ^{*1}$			8.0	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V$		9.0		ns
Rise Time	t_r	$I_D = 2.6A$		42		
Turn-Off Delay Time	$t_{d(off)}$	$R_G = 6.0 \Omega$		32		
Fall Time	t_f	$R_D = 3.8 \Omega ^{*1}$		51		
Internal Drain Inductance	L_D	Between lead tip and center of die contact 		4.0		nH
Internal Source Inductance	L_S			6.0		
Input Capacitance	C_{iss}	$V_{GS} = 0V$		660		pF
Output Capacitance	C_{oss}	$V_{DS} = 15V$		280		
Reverse Transfer Capacitance	C_{rss}	$f = 1.0MHz$		140		
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}				21	
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_S = 1.8A, V_{GS} = 0V^{*1}$			1.0	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_F = 2.6A$		29	44	ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100A/\mu s^{*1}$		22	33	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