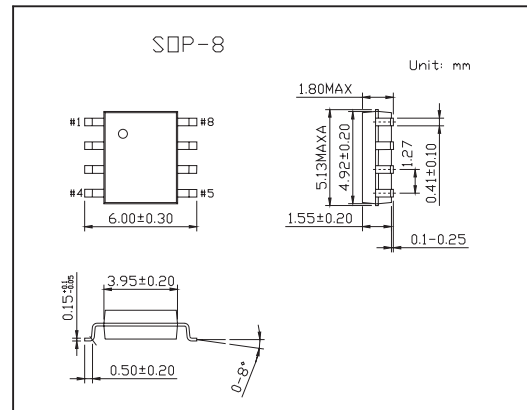
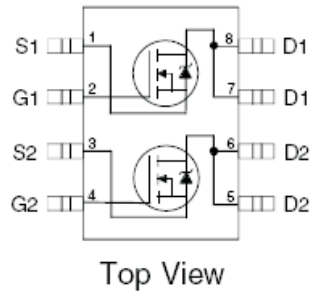


HEXFET[®] Power MOSFET

KRF7313

■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual N-Channel Mosfet
- Surface Mount
- Fully Avalanche Rated

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

Parameter	Symbol	Rating	Unit
Drain- Source Voltage	V_{DS}	30	V
Gate-to-Source Voltage	V_{GS}	± 20	
Continuous Drain Current, $T_a = 25^\circ\text{C}$ *3	I_D	6.5	A
Continuous Drain Current, $T_c = 70^\circ\text{C}$ *3	I_D	30	
Pulsed Drain Current	I_{DM}	2.5	
Maximum Power Dissipation $T_a = 25^\circ\text{C}$ *3	P_D	2	W
Maximum Power Dissipation $T_a = 70^\circ\text{C}$ *3		1.3	
Single Pulse Avalanche Energy *4	E_{AS}	82	mJ
Avalanche Current	I_{AR}	4	A
Repetitive Avalanche Energy	E_{AR}	0.2	mJ
Peak Diode Recovery dv/dt *2	dv/dt	5.8	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	$^\circ\text{C}/\text{W}$

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


*2 $I_{SD} \leq 4.0\text{A}$, $di/dt \leq 74\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

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

*4 Starting $T_J = 25^\circ\text{C}$, $L = 10\text{mH}$, $R_G = 25\Omega$, $I_{AS} = 4.0\text{A}$

KRF7313

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250A$	30			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	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5.8A^{*1}$		0.023	0.029	Ω
		$V_{GS} = 4.5V, I_D = 4.7A^{*1}$		0.032	0.046	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1.0			V
Forward Transconductance	g_{fs}	$V_{DS} = 15V, I_D = 5.8A^{*1}$		14		S
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1.0	μA
		$V_{DS} = 24V, V_{GS} = 0V, T_J = 55^\circ C$			25	
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	$I_D = 5.8A$		22	33	nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = 15V$		2.6	3.9	
Gate-to-Drain ("Miller") Charge	Q_{gd}	$V_{GS} = 10V,^{*1}$		6.4	9.6	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15V$		8.1	12	ns
Rise Time	t_r	$I_D = 1.0A$		8.9	13	
Turn-Off Delay Time	$t_{d(off)}$	$R_G = 6.0 \Omega$		26	39	
Fall Time	t_f	$R_D = 15 \Omega^{*1}$		17	26	
Input Capacitance	C_{iss}	$V_{GS} = 0V$		650		pF
Output Capacitance	C_{oss}	$V_{DS} = 25V$		320		
Reverse Transfer Capacitance	C_{rss}	$f = 1.0MHz$		130		
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}				30	
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_S = 1.7A, V_{GS} = 0V^{*1}$		0.78	1.0	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_F = 1.7A$		45	68	ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100A/\mu s^{*1}$		58	87	μC

*1 Pulse width $\leq 300 \mu s$; duty cycle $\leq 2\%$.

*2 Repetitive rating; pulse width limited by max