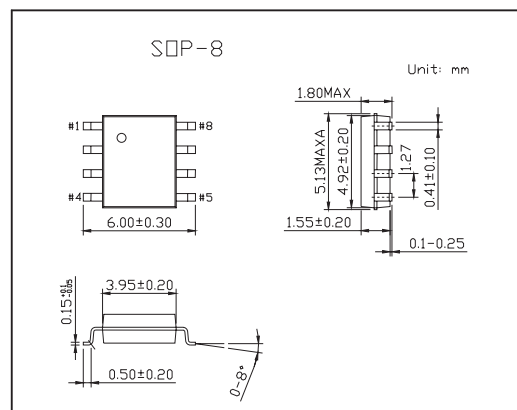
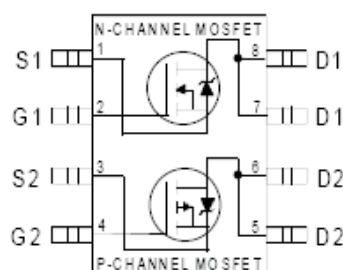


HEXFET[®] Power MOSFET

KRF7319

■ Features

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

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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	30	-30	V
Continuous Drain Current *5 T _a = 25℃	I _D	6.5	-4.9	A
Continuous Drain Current *5 T _a = 70℃	I _D	5.2	-3.9	
Pulsed Drain Current	I _{DM}	30	-30	
Continuous Source Current (Diode Conduction)	I _S	2.5	-2.5	
Power Dissipation @T _a = 25℃ *4	P _D	2.0		W
Power Dissipation @T _a = 70℃ *4		1.3		
Single Pulse Avalanche Energy	E _{AS}	82	140	mJ
Avalanche Current	I _{AR}	4.0	-2.8	A
Repetitive Avalanche Energy	E _{AR}	0.20		mJ
Peak Diode Recovery dv/dt *2	dv/dt	5.0	-5	V/ ns
Gate-to-Source Voltage	V _{GS}	±20		V
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150		℃
Maximum Junction-to-Ambient *4	R θ JA	62.5		℃/W

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

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

P-Channel $I_{SD} \leq -2.8\text{A}$, $di/dt \leq 150\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

*3 N-Channel Starting $T_J = 25^\circ\text{C}$, $L = 10\text{mH}$ $R_G = 25\Omega$, $I_{AS} = 4.0\text{A}$.

P-Channel Starting $T_J = 25^\circ\text{C}$, $L = 35\text{mH}$ $R_G = 25\Omega$, $I_{AS} = -2.8\text{A}$.

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

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250 \mu A$	N-Ch	30			V
		$V_{GS} = 0V, I_D = -250 \mu A$	P-Ch	-30			
Breakdown Voltage Temp. Coefficient	$\frac{\Delta V_{(BR)DSS}}{\Delta T_J}$	$I_D = 1mA, \text{Reference to } 25^\circ C$	N-Ch		0.022		V/°C
		$I_D = -1mA, \text{Reference to } 25^\circ C$	P-Ch		0.022		
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5.8A^*1$	N-Ch		0.023	0.029	Ω
		$V_{GS} = 4.5V, I_D = 4.7A^*1$			0.032	0.046	
		$V_{GS} = -10V, I_D = -4.9A^*1$	P-Ch		0.042	0.058	
		$V_{GS} = -4.5V, I_D = -3.6A^*1$			0.076	0.098	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	N-Ch	1.0			V
		$V_{DS} = V_{GS}, I_D = -250 \mu A$	P-Ch	-1.0			
Forward Transconductance	g_{fs}	$V_{DS} = 15V, I_D = 5.8A^*1$	N-Ch		14		S
		$V_{DS} = -15V, I_D = -4.9A^*1$	P-Ch		7.7		
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$	N-Ch			1.0	μA
		$V_{DS} = -24V, V_{GS} = 0V$	P-Ch			-1.0	
		$V_{DS} = 24V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch			25	
		$V_{DS} = -24V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch			-25	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS} = \pm 20V$	N-Ch			± 100	nA
			P-Ch			± 100	
Total Gate Charge	Q_g	N-Channel $I_D = 5.8A, V_{DS} = 15V, V_{GS} = 10V$	N-Ch		22	33	nC
Gate-to-Source Charge	Q_{gs}		P-Ch		23	34	
Gate-to-Drain ("Miller") Charge	Q_{gd}	P-Channel $I_D = -4.9A, V_{DS} = -15V, V_{GS} = -10V$	N-Ch		2.6	3.9	
			P-Ch		3.8	5.7	
Turn-On Delay Time	$t_{d(on)}$	N-Channel $V_{DD} = 15V, I_D = 1.0A, R_G = 6.0 \Omega$	N-Ch		8.1	12	ns
			P-Ch		13	19	
Rise Time	t_r	RD = 15 Ω P-Channel	N-Ch		8.9	13	
			P-Ch		13	20	
Turn-Off Delay Time	$t_{d(off)}$	VDD = -28V, $I_D = -1.0A, R_G = 6.0 \Omega$ RD = 15 Ω	N-Ch		26	39	
			P-Ch		34	51	
Fall Time	t_f		N-Ch		17	26	
			P-Ch		32	48	
Input Capacitance	C_{iss}	N-Channel $V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz$	N-Ch		650		pF
Output Capacitance	C_{oss}		P-Ch		710		
Reverse Transfer Capacitance	C_{rss}	P-Channel $V_{GS} = 0V, V_{DS} = -25V, f = 1.0MHz$	N-Ch		320		
			P-Ch		380		
			N-Ch		130		
			P-Ch		180		

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	Is		N-Ch			2.5	A
			P-Ch			-2.5	
Pulsed Source Current (Body Diode) *2	ISM		N-Ch			30	
			P-Ch			-30	
Diode Forward Voltage	VSD	TJ = 25°C, Is = 1.7A, VGS = 0V*1	N-Ch		0.78	1.0	V
		TJ = 25°C, Is = -1.7A, VGS = 0V*1	P-Ch		-0.78	-1.0	
Reverse Recovery Time	trr	N-Channel TJ = 25°C, IF = 1.7A, di/dt = 100A/μs*1	N-Ch		45	68	ns
			P-Ch		44	66	
Reverse Recovery Charge	Qrr	P-Channel TJ = 25°C, IF = -1.7A, di/dt = -100A/μs*1	N-Ch		58	87	nC
			P-Ch		42	63	

*1 Pulse width ≤ 300 μs; duty cycle ≤ 2%.

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