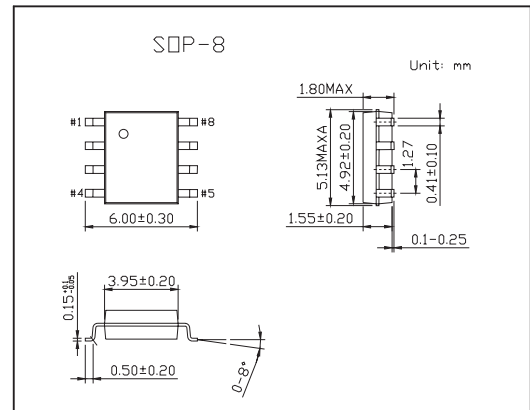
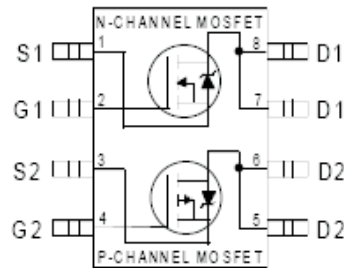


HEXFET[®] Power MOSFET

KRF7319

■ Features

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



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	30	-30	V
Continuous Drain Current *5 Ta = 25°C	I _D	6.5	-4.9	A
Continuous Drain Current *5 Ta = 70°C	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 @Ta= 25°C *4	P _D	2.0		W
Power Dissipation @Ta= 70°C *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		°C
Maximum Junction-to-Ambient *4	R _{θJA}	62.5		°C/W

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

*2 N-Channel I_{SD} ≤ 4.0A, di/dt ≤ 74A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 150°C

P-Channel I_{SD} ≤ -2.8A, di/dt ≤ 150A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 150°C

*3 N-Channel Starting T_J = 25°C, L = 10mH R_G = 25Ω, I_{AS} = 4.0A.

P-Channel Starting T_J = 25°C, L = 35mH R_G = 25Ω, I_{AS} = -2.8A.

*4 Surface mounted on FR-4 board, t ≤ 10sec.

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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-Channel	N-Ch		2.6		3.9
			P-Ch		3.8	5.7		
Gate-to-Drain ("Miller") Charge	Q_{gd}	P-Channel $I_D = -4.9A, V_{DS} = -15V, V_{GS} = -10V$	N-Ch		6.4	9.6		
			P-Ch		5.9	8.9		
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
Rise Time	t_r		P-Channel	N-Ch		13	19	
			P-Ch		8.9	13		
Turn-Off Delay Time	$t_{d(off)}$	P-Channel $V_{DD} = -28V, I_D = -1.0A, R_G = 6.0 \Omega$	N-Ch		13	20		
			P-Ch		26	39		
Fall Time	t_f	RD = 15 Ω	N-Ch		34	51		
			P-Ch		17	26		
Input Capacitance	C_{iss}	N-Channel $V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz$	N-Ch		650		pF	
			P-Channel	P-Ch		710		
Output Capacitance	C_{oss}	P-Channel	N-Ch		320			
			P-Ch		380			
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -25V, f = 1.0MHz$	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 RecoveryCharge	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.