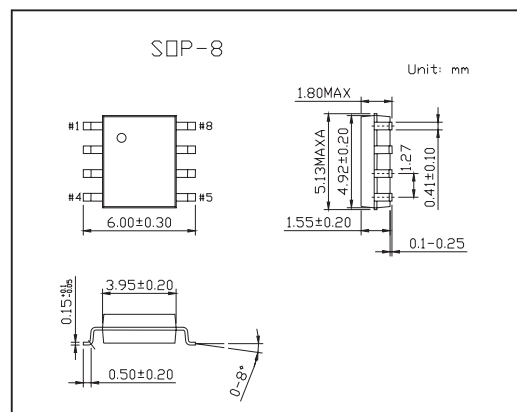
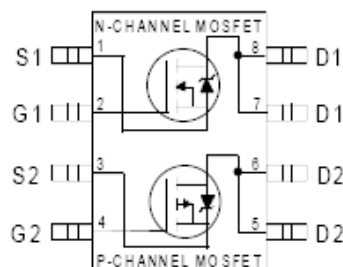


HEXFET[®] Power MOSFET

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	Testconditons		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250 μ A	N-Ch	30			V
		V _{GS} = 0V, I _D = -250 μ A	P-Ch	-30			
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} /ΔT _J	I _D = 1mA,Reference to 25°C	N-Ch		0.022		V/°C
		I _D = -1mA,Reference to 25°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 μ A	N-Ch	1.0			V
		V _{DS} = V _{GS} , I _D = -250 μ 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	μ A
		V _{DS} = -24V, V _{GS} = 0V	P-Ch			-1.0	
		V _{DS} = 24V, V _{GS} = 0V, T _J = 55°C	N-Ch			25	
		V _{DS} = -24V, V _{GS} = 0V, T _J = 55°C	P-Ch			-25	
Gate-to-Source Forward Leakage	I _{GSS}	V _{GS} = ±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 I _D = -4.9A,V _{DS} = -15V,V _{GS} = -10V	P-Ch		23	34	
			N-Ch		2.6	3.9	
Gate-to-Drain ("Miller") Charge	Q _{gd}		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 Ω	N-Ch		8.1	12	ns
			P-Ch		13	19	
Rise Time	t _r	R _D = 15 Ω P-Channel	N-Ch		8.9	13	
			P-Ch		13	20	
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -28V,I _D = -1.0A,R _G = 6.0 Ω R _D = 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
			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	Testconditons		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℃, Is = 1.7A, VGS = 0V*1	N-Ch		0.78	1.0	V
		TJ = 25℃, Is = -1.7A, VGS = 0V*1	P-Ch		-0.78	-1.0	
Reverse Recovery Time	trr	N-Channel	N-Ch		45	68	ns
		TJ = 25℃, IF = 1.7A, di/dt = 100A/ μ s*1	P-Ch		44	66	
Reverse RecoveryCharge	Qrr	P-Channel	N-Ch		58	87	nC
		TJ=25℃, IF=-1.7A, di/dt=-100A/ μ s*1	P-Ch		42	63	

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

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