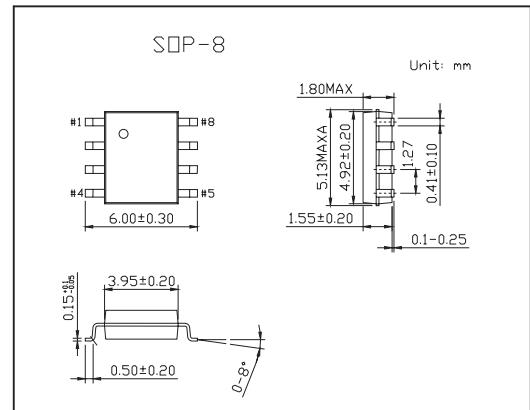
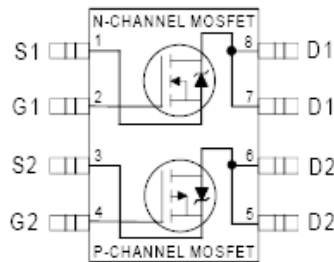


HEXFET[®] Power MOSFET

KRF7317

■ 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}	20	-20	V
Continuous Drain Current $T_a = 25^\circ\text{C}$	I_D	6.6	-5.3	A
Continuous Drain Current $T_a = 70^\circ\text{C}$	I_D	5.3	-4.3	
Pulsed Drain Current	I_{DM}	26	-21	
Continuous Source Current (Diode Conduction)	I_S	2.5	-2.5	
Power Dissipation @ $T_a = 25^\circ\text{C}$ *2	P_D	2.0		W
Power Dissipation @ $T_a = 70^\circ\text{C}$ *2		1.3		
Single Pulse Avalanche Energy	E_{AS}	100	150	mJ
Avalanche Current	I_{AR}	4.1	-2.9	A
Repetitive Avalanche Energy	E_{AR}	0.20		mJ
Peak Diode Recovery dv/dt *1	dv/dt	5.0	-5	V/ ns
Gate-to-Source Voltage	V_{GS}	± 12		V
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		$^\circ\text{C}$
Maximum Junction-to-Ambient *2	$R_{\theta JA}$	62.5		$^\circ\text{C}/\text{W}$

*1 N-Channel $I_{SD} \leq 4.1\text{A}$, $di/dt \leq 92\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

P-Channel $I_{SD} \leq -2.9\text{A}$, $di/dt \leq -77\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

*2 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	20		V
		V _{GS} = 0V, I _D = -250 μ A	P-Ch	-20		
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} / ΔT _J	I _D = 1mA, Reference to 25°C	N-Ch	0.027		V/°C
		I _D = -1mA, Reference to 25°C	P-Ch	0.031		
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 6.0A*1	N-Ch	0.023	0.029	Ω
		V _{GS} = 2.7V, I _D = 5.2A*1		0.030	0.046	
		V _{GS} = -4.5V, I _D = -2.9A*1	P-Ch	0.049	0.058	
		V _{GS} = -2.7V, I _D = -1.5A*1		0.082	0.098	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	N-Ch	0.7		V
		V _{DS} = V _{GS} , I _D = -250 μ A	P-Ch	-0.7		
Forward Transconductance	g _{fs}	V _{DS} = 10V, I _D = 6.0A*1	N-Ch	20		S
		V _{DS} = -10V, I _D = -1.5A*1	P-Ch	5.9		
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V	N-Ch		1.0	μ A
		V _{DS} = -16V, V _{GS} = 0V	P-Ch		-1.0	
		V _{DS} = 16V, V _{GS} = 0V, T _J = 55°C	N-Ch		5.0	
		V _{DS} = -16V, V _{GS} = 0V, T _J = 55°C	P-Ch		-25	
Gate-to-Source Forward Leakage	I _{GSS}	V _{GS} = ±12V	N-Ch		±100	nA
			P-Ch		±100	
Total Gate Charge	Q _g	N-Channel I _D = 6.0A, V _{DS} = 10V, V _{GS} = 4.5V	N-Ch	18	27	nC
Gate-to-Source Charge	Q _{gs}	P-Channel	N-Ch	2.2	3.3	
			P-Ch	4.0	6.1	
Gate-to-Drain ("Miller") Charge	Q _{gd}	I _D = -2.9A, V _{DS} = -16V, V _{GS} = -4.5V	N-Ch	6.2	9.3	
			P-Ch	7.7	12	
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10V, I _D = 1.0A, R _G = 6.0 Ω	N-Ch	8.1	12	ns
Rise Time	t _r	P-Channel R _D = 10 Ω	N-Ch	17	25	
			P-Ch	40	60	
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -10V, I _D = -2.9A, R _G = 6.0 Ω R _D = 3.4 Ω	N-Ch	38	57	
			P-Ch	42	63	
Fall Time	t _f		N-Ch	31	47	
			P-Ch	49	73	
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V, V _{DS} = 15V, f = 1.0MHz	N-Ch	900		
			P-Ch	780		
Output Capacitance	C _{oss}	P-Channel	N-Ch	430		
			P-Ch	470		
Reverse Transfer Capacitance	C _{rss}	V _{GS} = 0V, V _{DS} = -15V, f = 1.0MHz	N-Ch	200		
			P-Ch	240		

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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			26	A
			P-Ch			-21	
Diode Forward Voltage	VSD	TJ = 25°C, Is = 1.7A, VGS = 0V*3	N-Ch		0.72	1.0	V
		TJ = 25°C, Is = -2.9A, VGS = 0V*3	P-Ch		-0.78	-1.0	
Reverse Recovery Time	trr	N-Channel	N-Ch		52	77	ns
		TJ = 25°C, IF = 1.7A, di/dt = 100A/μs*	P-Ch		47	71	
Reverse RecoveryCharge	Qrr	P-Channel	N-Ch		58	86	nC
		TJ=25°C,IF=-2.9A,di/dt=-100A/μs*1	P-Ch		49	73	

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

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

*3 N-Channel Starting TJ = 25°C, L = 12mH RG = 25Ω, IAS = 4.1A.

P-Channel Starting TJ = 25°C, L = 35mH RG = 25Ω, IAS = -2.9A.