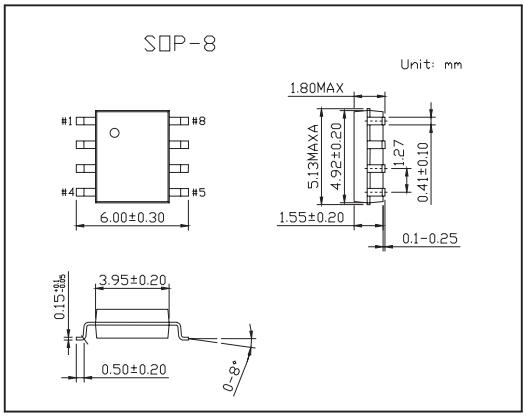
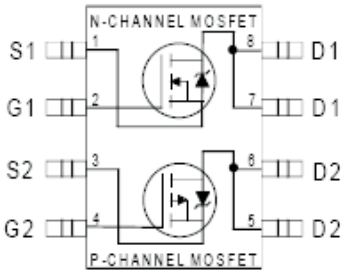
HEXFET®Power MOSFET

KRF7343



■ Features

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



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	55	-55	V
Continuous Drain Current,V_{GS}@10V , T_a = 25℃	I_D	4.7	-3.4	A
Continuous Drain Current ,V_{GS}@10V , T_a = 70℃	I_D	3.8	-2.7	
Pulsed Drain Current *1	I_{DM}	38	-27	
Power Dissipation @T_a= 25℃ *5	P_D	2.0		W
Power Dissipation @T_a= 70℃ *5		1.3		
Gate-to-Source Voltage	V_{GS}	±20		V
Single Pulse Avalanche Energy *3	E_{AS}	72	114	mJ
Avalanche Current	I_{AR}	4.7	-3.4	A
Repetitive Avalanche Energy	E_{AR}	0.20		mJ
Peak Diode Recovery dv/dt *2	dv/dt	5.0	-5.0	V/ns
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150		℃
Maximum Junction-to-Ambient *5	$R_{\theta JA}$	62.5		℃/W

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

*2 N-Channel $I_{SD} \leqslant$ 4.7A, $di/dt \leqslant$ 220A/μs, $V_{DD} \leqslant V_{(BR)DSS}$, $T_J \leqslant$ 150℃

P-Channel $I_{SD} \leqslant$ -3.4A, $di/dt \leqslant$ -150A/μs, $V_{DD} \leqslant V_{(BR)DSS}$, $T_J \leqslant$ 150℃

*3 N-Channel Starting T_J = 25℃, L = 6.5mH R_G = 25Ω, I_{AS} = 4.7A.

P-Channel Starting T_J = 25℃, L = 20mH R_G = 25Ω, I_{AS} = -3.4A.

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

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

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	N-Ch	55			V
		V_{GS} = 0V, I_D = -250μA	P-Ch	-55			
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = 1mA,Reference to 25℃	N-Ch		0.059		V/℃
		I_D = -1mA,Reference to 25℃	P-Ch		0.054		
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 4.7A*1	N-Ch		0.043	0.050	Ω
		V_{GS} = 4.5V, I_D = 3.8A*1			0.056	0.065	
		V_{GS} = -10V, I_D = -3.4A*1	P-Ch		0.095	0.105	
		V_{GS} = -4.5V, I_D = -2.7A*1			0.150	0.170	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	N-Ch				V
		V_{DS} = V_{GS}, I_D = -250μA	P-Ch				
Forward Transconductance	g_{fs}	V_{DS} = 10V, I_D = 4.5A*1	N-Ch				S
		V_{DS} = -10V, I_D = -3.5A*1	P-Ch				
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = 55V, V_{GS} = 0V	N-Ch			2.0	μA
		V_{DS} = -55V, V_{GS} = 0V	P-Ch			-2.0	
		V_{DS} = 55V, V_{GS} = 0V, T_J = 55℃	N-Ch			25	
		V_{DS} = -55V, V_{GS} = 0V, T_J = 55℃	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 =4.5A,V_{DS} = 44V,V_{GS} =10V	N-Ch		24	36	nC
			P-Ch		26	38	
Gate-to-Source Charge	Q_{gs}		N-Ch		2.3	3.4	
		P-Channel	P-Ch		3.0	4.5	
Gate-to-Drain ("Miller") Charge	Q_{gd}	I_D = -3.1A,V_{DS} = -44V,V_{GS} = -10V	N-Ch		7.0	10	
			P-Ch		8.4	13	
Turn-On Delay Time	$t_{d(on)}$	N-Channel V_{DD} = 28V,I_D = 1.0A,R_G = 6.0Ω R_D=16Ω P-Channel V_{DD} = -28V,I_D = -1.0A,R_G = 6.0Ω R_D=16Ω	N-Ch		8.3	12	ns
			P-Ch		14	22	
Rise Time	t_r		N-Ch		3.2	4.8	
			P-Ch		10	15	
Turn-Off Delay Time	$t_{d(off)}$		N-Ch		32	48	
			P-Ch		43	64	
Fall Time	t_f		N-Ch		13	20	
			P-Ch		22	32	
Input Capacitance	C_{iss}	N-Channel V_{GS} = 0V,V_{DS} = 25V,f = 1.0MHz P-Channel V_{GS} = 0V,V_{DS} = -25V,f = 1.0MHz	N-Ch		740		pF
			P-Ch		690		
Output Capacitance	C_{oss}		N-Ch		190		
			P-Ch		210		
Reverse Transfer Capacitance	C_{rss}		N-Ch		71		
			P-Ch		86		

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Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Continuous Source Current（Body Diode)	I_S		N-Ch			2.0	A
			P-Ch			-2.0	
Pulsed Source Current （Body Diode) *2	I_{SM}		N-Ch			38	
			P-Ch			-27	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = 2.0A, V_{GS} = 0V*1	N-Ch		0.70	1.2	V
		T_J = 25℃, I_S = -2.0A, V_{GS} = 0V*1	P-Ch		0.80	-1.2	
Reverse Recovery Time	t_{rr}	N-Channel	N-Ch		60	90	ns
		T_J = 25℃, I_F =2.0A,di/dt = 100A/μs*1	P-Ch		54	80	
Reverse RecoveryCharge	Q_{rr}	P-Channel	N-Ch		120	170	nC
		T_J=25℃,I_F=-2.0A,di/dt=-100A/μs*1	P-Ch		85	130	

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

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