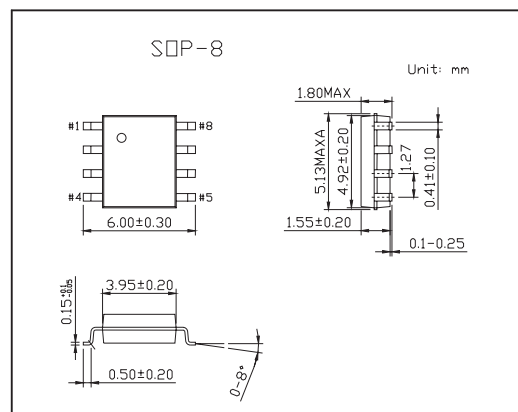
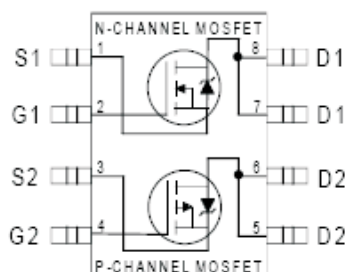


HEXFET[®] Power MOSFET

KRF7343

■ Features

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

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

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 _{θJA}	62.5		℃/W

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

*2 N-Channel $I_{SD} \leq 4.7A$, $di/dt \leq 220A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

P-Channel $I_{SD} \leq -3.4A$, $di/dt \leq -150A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

*3 N-Channel Starting $T_J = 25^\circ\text{C}$, $L = 6.5mH$, $R_G = 25\Omega$, $I_{AS} = 4.7A$.

P-Channel Starting $T_J = 25^\circ\text{C}$, $L = 20mH$, $R_G = 25\Omega$, $I_{AS} = -3.4A$.

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

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

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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	55			V
		$V_{GS} = 0V, I_D = -250 \mu A$	P-Ch	-55			
Breakdown Voltage Temp. Coefficient	$\frac{\Delta V_{(BR)DSS}}{\Delta T_J}$	$I_D = 1mA, \text{Reference to } 25^\circ C$	N-Ch		0.059		V/°C
		$I_D = -1mA, \text{Reference to } 25^\circ C$	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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	N-Ch				V
		$V_{DS} = V_{GS}, I_D = -250 \mu A$	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	
		$V_{DS} = 55V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch			25	
		$V_{DS} = -55V, V_{GS} = 0V, T_J = 55^\circ C$	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 $I_D = 4.5A, V_{DS} = 44V, V_{GS} = 10V$	N-Ch		24	36	nC
			P-Ch		26	38	
Gate-to-Source Charge	Q_{gs}	P-Channel $I_D = -3.1A, V_{DS} = -44V, V_{GS} = -10V$	N-Ch		2.3	3.4	
			P-Ch		3.0	4.5	
Gate-to-Drain ("Miller") Charge	Q_{gd}		N-Ch		7.0	10	ns
			P-Ch		8.4	13	
Turn-On Delay Time	$t_{d(on)}$	N-Channel $V_{DD} = 28V, I_D = 1.0A, R_G = 6.0 \Omega$	N-Ch		8.3	12	
			P-Ch		14	22	
Rise Time	t_r	P-Channel $R_D = 16 \Omega$	N-Ch		3.2	4.8	ns
			P-Ch		10	15	
Turn-Off Delay Time	$t_{d(off)}$	N-Channel $V_{DD} = -28V, I_D = -1.0A, R_G = 6.0 \Omega$	N-Ch		32	48	
			P-Ch		43	64	
Fall Time	t_f	$R_D = 16 \Omega$	N-Ch		13	20	pF
			P-Ch		22	32	
Input Capacitance	C_{iss}	N-Channel $V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz$	N-Ch		740		
			P-Ch		690		
Output Capacitance	C_{oss}	P-Channel	N-Ch		190		pF
			P-Ch		210		
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -25V, f = 1.0MHz$	N-Ch		71		
			P-Ch		86		

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	Is		N-Ch			2.0	A
			P-Ch			-2.0	
Pulsed Source Current (Body Diode) *2	ISM		N-Ch			38	
			P-Ch			-27	
Diode Forward Voltage	VSD	TJ = 25°C, Is = 2.0A, VGS = 0V*1	N-Ch		0.70	1.2	V
		TJ = 25°C, Is = -2.0A, VGS = 0V*1	P-Ch		0.80	-1.2	
Reverse Recovery Time	trr	N-Channel	N-Ch		60	90	ns
		TJ = 25°C, IF = 2.0A, di/dt = 100A/μs*1	P-Ch		54	80	
Reverse Recovery Charge	Qrr	P-Channel	N-Ch		120	170	nC
		TJ=25°C, IF=-2.0A, di/dt=-100A/μs*1	P-Ch		85	130	

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

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