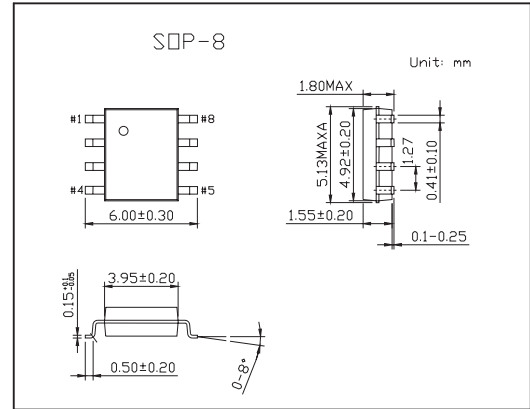
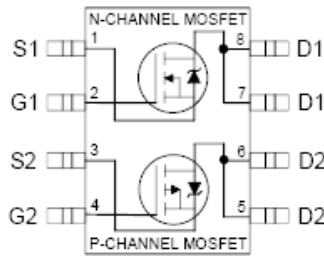


HEXFET[®] Power MOSFET

KRF7338

■ Features

- Ultra Low On-Resistance
- Dual N and P Channel MOSFET
- Surface Mount
- Available in Tape & Reel



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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	12	-12	V
Continuous Drain Current, $V_{GS}@10V$, $T_a = 25^\circ\text{C}$	I_D	6.3	-3.0	A
Continuous Drain Current, $V_{GS}@10V$, $T_a = 70^\circ\text{C}$	I_D	5.2	-2.5	
Pulsed Drain Current *1	I_{DM}	26	-13	
Power Dissipation @ $T_a = 25^\circ\text{C}$ *3	P_D	2.0		W
Power Dissipation @ $T_a = 70^\circ\text{C}$ *3		1.3		
Linear Derating Factor		16		$\text{mW}/^\circ\text{C}$
Gate-to-Source Voltage	V_{GS}	± 12 *4	± 8.0	V
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		$^\circ\text{C}$
Maximum Junction-to-Ambient *3	$R_{\theta JA}$	62.5		$^\circ\text{C}/\text{W}$
Junction-to-Drain Lead	$R_{\theta JL}$	20		

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

*2 Pulse width $\leq 400 \mu\text{s}$; duty cycle $\leq 2\%$.

*3 Surface mounted on 1 in square Cu board.

*4 The N-channel MOSFET can withstand 15V V_{GS} max for up to 24 hours over the life of the device.

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250 \mu A$	N-Ch	12		V
		$V_{GS} = 0V, I_D = -250 \mu A$	P-Ch	-12		
Breakdown Voltage Temp. Coefficient	$\frac{\Delta V_{(BR)DSS}}{\Delta T_J}$	$I_D = 1mA, \text{Reference to } 25^\circ C$	N-Ch		0.01	V/°C
		$I_D = -1mA, \text{Reference to } 25^\circ C$	P-Ch		-0.01	
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 6.0A*1$	N-Ch		0.034	Ω
		$V_{GS} = 3.0V, I_D = 2.0A*1$			0.060	
		$V_{GS} = -4.5V, I_D = -2.9A*1$	P-Ch		0.150	
		$V_{GS} = -2.7V, I_D = -1.5A*1$			0.200	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	N-Ch	0.6	1.5	V
		$V_{DS} = V_{GS}, I_D = -250 \mu A$	P-Ch	-0.40	-1.0	
Forward Transconductance	g_{fs}	$V_{DS} = 6V, I_D = 6.0A*1$	N-Ch	9.2		S
		$V_{DS} = -6.0V, I_D = -1.5A*1$	P-Ch	3.5		
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS} = 9.6V, V_{GS} = 0V$	N-Ch		20	μA
		$V_{DS} = -9.6V, V_{GS} = 0V$	P-Ch		-1.0	
		$V_{DS} = 9.6V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch		50	
		$V_{DS} = -9.6V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch		-25	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS} = \pm 12V$	N-Ch		± 100	nA
		$V_{GS} = \pm 8V$	P-Ch		± 100	
Total Gate Charge	Q_g	N-Channel $I_D = 6.0A, V_{DS} = 6.0V, V_{GS} = 4.5V$	N-Ch		8.6	nC
Gate-to-Source Charge	Q_{gs}	P-Channel $I_D = -2.9A, V_{DS} = -9.6V, V_{GS} = -4.5V$	N-Ch		1.9	
			P-Ch		1.3	
Gate-to-Drain ("Miller") Charge	Q_{gd}		N-Ch		3.9	
			P-Ch		1.6	
Turn-On Delay Time	$t_{d(on)}$	N-Channel $V_{DD} = 6V, I_D = 1.0A, R_G = 6.0 \Omega$	N-Ch		6.0	ns
Rise Time	t_r	P-Channel $V_{GS} = 4.5V$	N-Ch		7.6	
			P-Ch		13	
Turn-Off Delay Time	$t_{d(off)}$	N-Channel $V_{DD} = -28V, I_D = -1.0A, R_G = 6.0 \Omega$	N-Ch		26	
			P-Ch		27	
Fall Time	t_f	P-Channel $V_{GS} = -4.5V$	N-Ch		34	
			P-Ch		25	
Input Capacitance	C_{iss}	N-Channel $V_{GS} = 0V, V_{DS} = 9.0V, f = 1.0MHz$	N-Ch		640	pF
			P-Ch		490	
Output Capacitance	C_{oss}	P-Channel $V_{GS} = 0V, V_{DS} = -9.0V, f = 1.0MHz$	N-Ch		340	
			P-Ch		80	
Reverse Transfer Capacitance	C_{rss}		N-Ch		110	
			P-Ch		58	

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	Is		N-Ch		6.3	A
			P-Ch		-3.0	
Pulsed Source Current (Body Diode) *2	ISM		N-Ch		26	A
			P-Ch		-13	
Diode Forward Voltage	VSD	TJ = 25°C, Is = 1.7A, VGS = 0V*1	N-Ch		1.3	V
		TJ = 25°C, Is = -2.9A, VGS = 0V*1	P-Ch		-1.2	
Reverse Recovery Time	trr	N-Channel TJ = 25°C, IF = 1.7A, di/dt = 100A/μs*1	N-Ch		51	ns
			P-Ch		37	
Reverse RecoveryCharge	Qrr	P-Channel TJ=25°C, IF=-2.9A, di/dt=-100A/μs*1	N-Ch		43	nC
			P-Ch		20	

*1 Pulse width $\leq 400 \mu s$; duty cycle $\leq 2\%$.

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