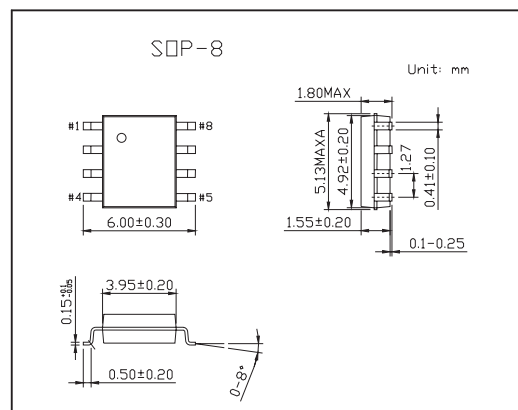
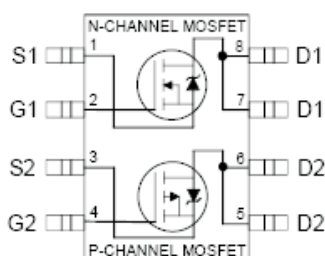


HEXFET[®] Power MOSFET

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℃	I _D	6.3	-3.0	A
Continuous Drain Current , V _{GS} @10V , T _a = 70℃	I _D	5.2	-2.5	
Pulsed Drain Current *1	I _{DM}	26	-13	
Power Dissipation @T _a = 25℃ *3	P _D	2.0		W
Power Dissipation @T _a = 70℃ *3		1.3		
Linear Derating Factor		16		mW/℃
Gate-to-Source Voltage	V _{GS}	± 12 *4	± 8.0	V
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150		℃
Maximum Junction-to-Ambient *3	R _{θJA}	62.5		℃/W
Junction-to-Drain Lead	R _{θJL}	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 μ A	N-Ch	12			V		
		V _{GS} = 0V, I _D = -250 μ A	P-Ch	-12					
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} / ΔT _J	I _D = 1mA,Reference to 25℃	N-Ch		0.01		V/℃		
		I _D = -1mA,Reference to 25℃	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 μ A	N-Ch	0.6		1.5	V		
		V _{DS} = V _{GS} , I _D = -250 μ 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	μ A		
		V _{DS} = -9.6V, V _{GS} = 0V	P-Ch			-1.0			
		V _{DS} = 9.6V, V _{GS} = 0V, T _J = 55℃	N-Ch			50			
		V _{DS} = -9.6V, V _{GS} = 0V, T _J = 55℃	P-Ch			-25			
Gate-to-Source Forward Leakage	I _{GSS}	V _{GS} = ± 12V	N-Ch			± 100	nA		
		V _{GS} = ± 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 P-Ch	 	 	8.6 6.6	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 Ω V _{GS} = 4.5V P-Channel V _{DD} = -28V,I _D = -1.0A,R _G = 6.0 Ω V _{GS} = -4.5V	N-Ch P-Ch	 	6.0 9.6	 	ns		
Rise Time	t _r		N-Ch P-Ch	 	7.6 13	 			
			Turn-Off Delay Time	t _{d(off)}	N-Ch P-Ch	 		26 27	
Fall Time	t _f				N-Ch P-Ch	 		34 25	
			Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V,V _{DS} = 9.0V,f = 1.0MHz P-Channel V _{GS} = 0V,V _{DS} = -9.0V,f = 1.0MHz	N-Ch P-Ch		 	640 490
Output Capacitance	C _{oss}					N-Ch P-Ch		 	340 80
			Reverse Transfer Capacitance	C _{rss}		N-Ch P-Ch	 	110 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	
			P-Ch			-13	
Diode Forward Voltage	VSD	TJ = 25℃, Is = 1.7A, VGS = 0V*1	N-Ch			1.3	V
		TJ = 25℃, Is = -2.9A, VGS = 0V*1	P-Ch			-1.2	
Reverse Recovery Time	trr	N-Channel	N-Ch		51	76	ns
		TJ = 25℃, IF = 1.7A, di/dt = 100A/ μ s*1	P-Ch		37	56	
Reverse RecoveryCharge	Qrr	P-Channel	N-Ch		43	64	nC
		TJ=25℃, IF=-2.9A, di/dt=-100A/ μ s*1	P-Ch		20	30	

*1 Pulse width ≤ 400 μs; duty cycle ≤ 2%.

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