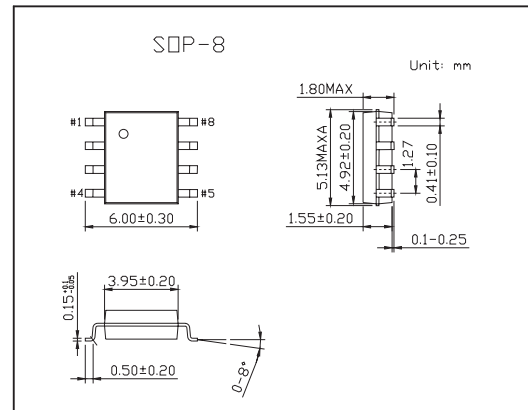
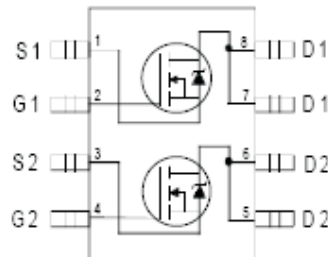


HEXFET[®] Power MOSFET

KRF7105

Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dual N and P Channel Mosfet
- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- Fast Switching



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

Parameter	Symbol	N-Channel	P-Channel	Unit
Continuous Drain Current $V_{GS} @ 10V$ $T_a = 25^\circ\text{C}$	I_D	3.5	-2.3	A
Continuous Drain Current $V_{GS} @ 10V$ $T_a = 70^\circ\text{C}$	I_D	2.8	-1.8	
Pulsed Drain Current *1	I_{DM}	14	-10	
Power Dissipation @ $T_c = 25^\circ\text{C}$	P_D	2.0		W
Linear Derating Factor		0.016		W/ $^\circ\text{C}$
Peak Diode Recovery dv/dt *2	dv/dt	3.0	-3.0	V/ ns
Gate-to-Source Voltage	V_{GS}	± 20		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		$^\circ\text{C/W}$

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

*2 N-Channel $I_{SD} \leq 3.5A$, $di/dt \leq 90A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

P-Channel $I_{SD} \leq -2.3A$, $di/dt \leq 90A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

*3 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	25			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℃	N-Ch		0.030		V/℃
		I _D = -1mA,Reference to 25℃	P-Ch		-0.015		
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1.0A*1	N-Ch		0.083	0.10	Ω
		V _{GS} = 4.5V, I _D = 0.5A*1			0.14	0.16	
		V _{GS} = -10V, I _D = -1.0A*1	P-Ch		0.16	0.25	
		V _{GS} = -4.5V, I _D = -0.50A*1			0.30	0.40	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	N-Ch	1.0		3.0	V
		V _{DS} = V _{GS} , I _D = -250 μ A	P-Ch	-1.0		-3.0	
Forward Transconductance	g _{fs}	V _{DS} =15V, I _D = 3.5A*1	N-Ch		4.3		S
		V _{DS} = -15V, I _D = -3.5A*1	P-Ch		3.1		
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V	N-Ch			2.0	μ A
		V _{DS} = -20V, V _{GS} = 0V	P-Ch			-2.0	
		V _{DS} = 20V, V _{GS} = 0V, T _J = 55℃	N-Ch			25	
		V _{DS} = -20V, 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 =2.3A,V _{DS} = 12.5V,V _{GS} =10V *1	N-Ch		9.4	27	nC
Gate-to-Source Charge	Q _{gs}	P-Channel I _D = -2.3A,V _{DS} = -12.5V,V _{GS} = -10V *1	N-Ch		1.7		
			P-Ch		1.9		
Gate-to-Drain ("Miller") Charge	Q _{gd}		N-Ch		3.1		
			P-Ch		2.8		
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 25V,I _D = 1.0A,R _G = 6.0 Ω	N-Ch		7.0		ns
Rise Time	t _r	P-Channel R _D = 25 Ω *1	P-Ch		12		
			N-Ch		9.0		
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -25V,I _D = -1.0A,R _G = 6.0 Ω R _D = 25 Ω 1*1	P-Ch		13		
			N-Ch		45		
Fall Time	t _f		P-Ch		45		
			N-Ch		25		
Internal Drain Inductace	L _D	Between lead,6mm(0.25in.)from packing and center of die contact	P-Ch		37		
			N-Ch		4.0		
Internal Source Inductance	L _S		P-Ch		4.0		
			N-Ch		6.0		
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V,V _{DS} = 15V,f = 1.0MHz *1	P-Ch		6.0		
			N-Ch		330		
Output Capacitance	C _{oss}		P-Ch		290		
			N-Ch		250		
Reverse Transfer Capacitance	C _{rss}	V _{GS} = 0V,V _{DS} = -15V,f = 1.0MHz *1	P-Ch		210		
			N-Ch		61		
				P-Ch		67	
				N-Ch			

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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			14	
			P-Ch			-9.2	
Diode Forward Voltage	VSD	TJ = 25℃, Is = 1.3A, VGS = 0V*1	N-Ch			1.2	V
		TJ = 25℃, Is = -1.3A, VGS = 0V*1	P-Ch			-1.2	
Reverse Recovery Time	trr	N-Channel	N-Ch		36	54	ns
		TJ = 25℃, IF =1.3A,di/dt = 100A/ μ s*1	P-Ch		69	100	
Reverse RecoveryCharge	Qrr	P-Channel	N-Ch		41	75	nC
		TJ=25℃,IF=-1.3A,di/dt=-100A/ μ s*1	P-Ch		90	180	
Forward Turn-On Time	ton	Intrinsic turn-on time is neglegible (turn-on is dominated by Ls+Ld)	N-Ch				
			P-Ch				

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

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