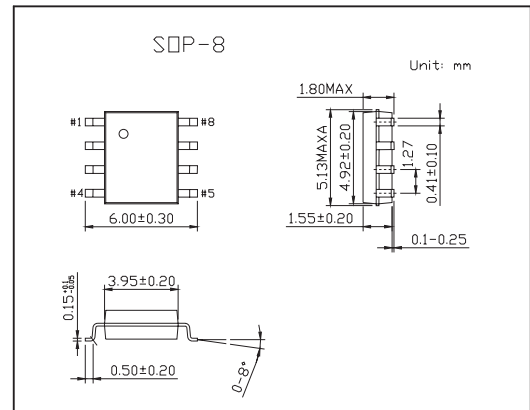
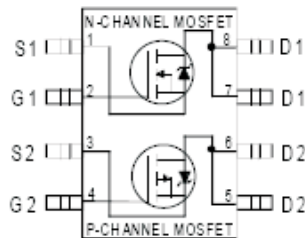


HEXFET[®] Power MOSFET

KRF7307

■ Features

- Generation V 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
10 Sec. Pulse Drain Current, $V_{GS} @ 4.5V$ $T_a = 25^\circ\text{C}$	I_D	5.7	-4.7	A
Continuous Drain Current $V_{GS} @ 4.5V$ $T_a = 25^\circ\text{C}$	I_D	5.2	-4.3	
Continuous Drain Current $V_{GS} @ 4.5V$ $T_a = 70^\circ\text{C}$	I_D	4.1	-3.4	
Pulsed Drain Current *1	I_{DM}	21	-17	
Power Dissipation @ $T_a = 25^\circ\text{C}$	P_D	2.0		W
Linear Derating Factor (PCB Mount)		0.016		W/ $^\circ\text{C}$
Peak Diode Recovery dv/dt *2	dv/dt	5.0	-5.0	V/ns
Gate-to-Source Voltage	V_{GS}	± 12		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		$^\circ\text{C}/\text{W}$

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

*2 N-Channel $I_{SD} \leq 2.6A$, $di/dt \leq 100A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

P-Channel $I_{SD} \leq -2.2A$, $di/dt \leq 50A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

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

KRF7307

■ 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 μA	N-Ch	20		V
		V _{GS} = 0V, I _D = -250 μA	P-Ch	-20		
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} / ΔT _J	I _D = 1mA, Reference to 25°C	N-Ch	0.044		V/°C
		I _D = -1mA, Reference to 25°C	P-Ch	-0.012		
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 2.6A*1	N-Ch		0.050	Ω
		V _{GS} = 2.7V, I _D = 2.2A*1			0.070	
		V _{GS} = -4.5V, I _D = -2.2A*1	P-Ch		0.090	
		V _{GS} = -2.7V, I _D = -1.8A*1			0.140	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	N-Ch	0.70		V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-0.70		
Forward Transconductance	g _{fs}	V _{DS} = 15V, I _D = 2.6A*1	N-Ch	8.30		S
		V _{DS} = -15V, I _D = -2.2A*1	P-Ch	4.00		
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V	N-Ch		1.0	μA
		V _{DS} = -16V, V _{GS} = 0V	P-Ch		-1.0	
		V _{DS} = 16V, V _{GS} = 0V, T _J = 125°C	N-Ch		25	
		V _{DS} = -16V, V _{GS} = 0V, T _J = 125°C	P-Ch		-25	
Gate-to-Source Forward Leakage	I _{GSS}	V _{GS} = ±12V	N-Ch		±100	nA
			P-Ch		±100	
Total Gate Charge	Q _g	N-Channel I _D = 2.6A, V _{DS} = 16V, V _{GS} = 4.5V *1	N-Ch		20	nC
Gate-to-Source Charge	Q _{gs}	P-Channel	P-Ch		22	
			N-Ch		2.2	
Gate-to-Drain ("Miller") Charge	Q _{gd}	I _D = -2.2A, V _{DS} = -16V, V _{GS} = -4.5V *1	P-Ch		3.3	
			N-Ch		8.0	
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10V, I _D = 2.6A, R _G = 6.0 Ω	N-Ch	9.0		ns
			P-Ch	8.4		
Rise Time	t _r	R _D = 3.8 Ω *1 P-Channel	N-Ch	42		
			P-Ch	26		
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -10V, I _D = -2.2A, R _G = 6.0 Ω R _D = 4.5 Ω *1	N-Ch	32		
			P-Ch	51		
Fall Time	t _f		N-Ch	51		
			P-Ch	33		
Internal Drain Inductance	L _D	Between lead tip and center of die contact	N-Ch	4.0		nH
			P-Ch	4.0		
Internal Source Inductance	L _S		N-Ch	6.0		
			P-Ch	6.0		
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V, V _{DS} = 15V, f = 1.0MHz *1	N-Ch	660		pF
			P-Ch	610		
Output Capacitance	C _{oss}	P-Channel	N-Ch	280		
			P-Ch	310		
Reverse Transfer Capacitance	C _{rss}	V _{GS} = 0V, V _{DS} = -15V, f = 1.0MHz *1	N-Ch	140		
			P-Ch	170		

KRF7307

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	Is		N-Ch		2.5	A
			P-Ch		-2.5	
Pulsed Source Current (Body Diode) *2	ISM		N-Ch		21	
			P-Ch		-17	
Diode Forward Voltage	VSD	TJ = 25°C, Is = 1.8A, VGS = 0V*1	N-Ch		1.0	V
		TJ = 25°C, Is = -1.8A, VGS = 0V*1	P-Ch		-1.0	
Reverse Recovery Time	trr	N-Channel TJ = 25°C, IF = 2.6A, di/dt = 100A/μs*1	N-Ch	29	44	ns
			P-Ch	56	84	
Reverse Recovery Charge	Qrr	P-Channel TJ = 25°C, IF = -2.2A, di/dt = -100A/μs*1	N-Ch	22	33	nC
			P-Ch	71	110	
Forward Turn-On Time	ton	Intrinsic turn-on time is negligible (turn-on is dominated by Ls+Ld)	N-Ch			
			P-Ch			

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

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