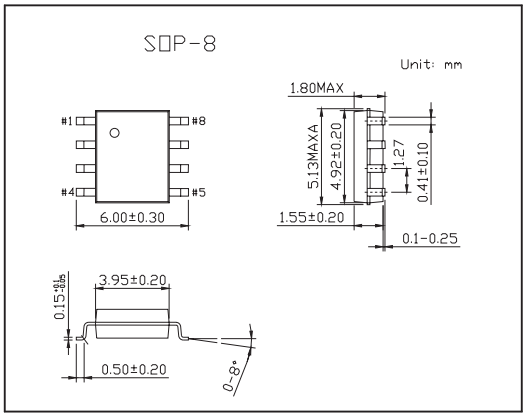
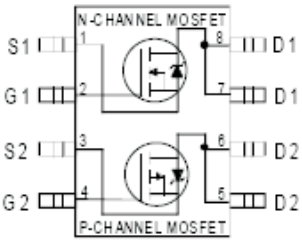
HEXFET®Power MOSFET

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 Ta = 25℃

Parameter	Symbol	N-Channel	P-Channel	Unit
10 Sec. Pulse Drain Current, V_{GS} @ 4.5V T_a = 25℃	I_D	5.7	-4.7	A
Continuous Drain Current V_{GS} @ 4.5V T_a = 25℃	I_D	5.2	-4.3	
Continuous Drain Current V_{GS} @ 4.5V T_a = 70℃	I_D	4.1	-3.4	
Pulsed Drain Current *1	I_{DM}	21	-17	
Power Dissipation @T_a= 25℃	P_D	2.0		W
Linear Derating Factor (PCB Mount)		0.016		W/℃
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		℃
Maximum Junction-to-Ambient*3	$R_{\theta JA}$	62.5		℃/W

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

*2 N-Channel I_{SD} ≤ 2.6A, di/dt ≤ 100A/μs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150℃

P-Channel I_{SD} ≤ -2.2A, di/dt ≤ 50A/μs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150℃

*3 Surface mounted on FR-4 board, t ≤ 10sec.

KRF7307

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	N-Ch	20			V
		V_{GS} = 0V, I_D = -250μA	P-Ch	-20			
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = 1mA,Reference to 25℃	N-Ch		0.044		V/℃
		I_D = -1mA,Reference to 25℃	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 = 250μA	N-Ch	0.70			V
		V_{DS} = V_{GS}, I_D = -250μA	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℃	N-Ch			25	
		V_{DS} = -16V, V_{GS} = 0V, T_J = 125℃	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	N-Ch			20	nC
		I_D =2.6A,V_{DS} = 16V,V_{GS} =4.5V *1	P-Ch			22	
Gate-to-Source Charge	Q_{gs}		N-Ch			2.2	
		P-Channel	P-Ch			3.3	
Gate-to-Drain ("Miller") Charge	Q_{gd}	I_D = -2.2A,V_{DS} = -16V,V_{GS} = -4.5V *1	N-Ch			8.0	
			P-Ch			9.0	
Turn-On Delay Time	$t_{d(on)}$	N-Channel	N-Ch		9.0		ns
		V_{DD} = 10V,I_D = 2.6A,R_G = 6.0Ω	P-Ch		8.4		
Rise Time	t_r	R_D = 3.8Ω *1	N-Ch		42		
		P-Channel	P-Ch		26		
Turn-Off Delay Time	$t_{d(off)}$	V_{DD} = -10V,I_D = -2.2A,R_G = 6.0Ω	N-Ch		32		
		RD = 4.5Ω 1*1	P-Ch		51		
Fall Time	t_f		N-Ch		51		
			P-Ch		33		
Internal Drain Inductace	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	N-Ch		660		pF
		V_{GS} = 0V,V_{DS} = 15V,f = 1.0MHz *1	P-Ch		610		
Output Capacitance	C_{oss}		N-Ch		280		
		P-Channel	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

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Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Continuous Source Current（Body Diode)	I_S		N-Ch			2.5	A
			P-Ch			-2.5	
Pulsed Source Current （Body Diode) *2	I_{SM}		N-Ch			21	
			P-Ch			-17	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = 1.8A, V_{GS} = 0V*1	N-Ch			1.0	V
		T_J = 25℃, I_S = -1.8A, V_{GS} = 0V*1	P-Ch			-1.0	
Reverse Recovery Time	t_{rr}	N-Channel	N-Ch		29	44	ns
		T_J = 25℃, I_F =2.6A,di/dt = 100A/μs*1	P-Ch		56	84	
Reverse RecoveryCharge	Q_{rr}	P-Channel	N-Ch		22	33	nC
		T_J=25℃, I_F=-2.2A,di/dt=-100A/μs*1	P-Ch		71	110	
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is neglegible (turn-on is dominated by L_S+L_D)	N-Ch				
			P-Ch				

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

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