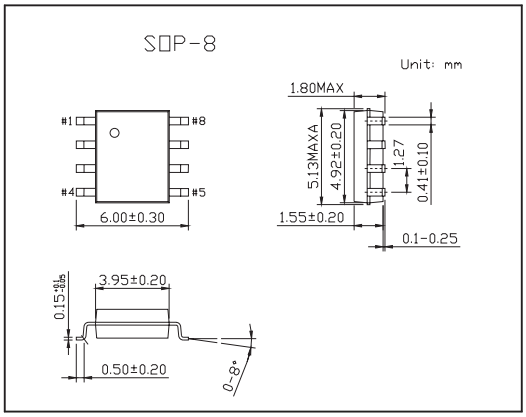
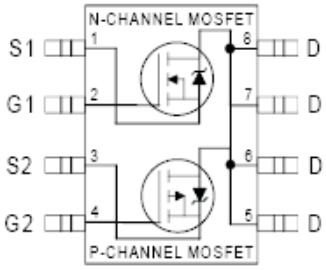
HEXFET®Power MOSFET

KRF7379



■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Complimentary Half Bridge
- Surface Mount
- Fully Avalanche Rated



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	30	-30	V
Continuous Drain Current, V_{GS} @ 10V @ T_a = 25℃	I_D	5.8	-4.3	A
Continuous Drain Current, V_{GS} @ 10V @ T_a = 70℃	I_D	4.6	-3.4	
Pulsed Drain Current *1	I_{DM}	46	-34	
Power Dissipation @T_a= 25℃	P_D	2.5		W
Linear Derating Factor		0.02		W/℃
Gate-to-Source Voltage	V_{GS}	±20		V
Peak Diode Recovery dv/dt *2	dv/dt	5.0	-5.0	V/ns
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150		℃
Maximum Junction-to-Ambient *3	$R_{\theta JA}$	50		℃/W

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

*2 N-Channel I_{SD} ≤ 2.4A, di/dt ≤ 73A/μs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150℃

P-Channel I_{SD} ≤ -1.8A, di/dt ≤ 90A/μs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150℃

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

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■ 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	30			V
		V_{GS} = 0V, I_D = 250μA	P-Ch	-30			
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = 1mA,Reference to 25℃	N-Ch		0.032		V/℃
		I_D = 1mA,Reference to 25℃	P-Ch		-0.037		
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 5.8A*1	N-Ch		0.038	0.045	Ω
		V_{GS} = 4.5V, I_D = 4.9A*1			0.055	0.075	
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4.3A*1	P-Ch		0.070	0.090	
		V_{GS} = -4.5V, I_D = -3.7A*1			0.130	0.180	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	N-Ch	1.0			V
		V_{DS} = V_{GS}, I_D = -250μA	P-Ch	-1.0			
Forward Transconductance	g_{fs}	V_{DS} = 15V, I_D = 2.4A*1	N-Ch	5.2			S
		V_{DS} = -24V, I_D = -1.8A*1	P-Ch	2.5			
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V	N-Ch			1.0	μA
		V_{DS} = -24V, V_{GS} = 0V	P-Ch			-1.0	
		V_{DS} = 24V, V_{GS} = 0V, T_J = 125℃	N-Ch			25	
		V_{DS} = -24V, V_{GS} = 0V, T_J = 125℃	P-Ch			-25	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS} = ±20V	N-Ch			±100	
			P-Ch			±100	
Total Gate Charge	Q_g	N-Channel I_D = 2.4A,V_{DS} = 24V,V_{GS} =10V	N-Ch			25	nC
			P-Ch			25	
Gate-to-Source Charge	Q_{gs}		N-Ch			2.9	
		P-Channel	P-Ch			2.9	
Gate-to-Drain ("Miller") Charge	Q_{gd}	I_D = -1.8A,V_{DS} = -24V,V_{GS} = -10V	N-Ch			7.9	
			P-Ch			9.0	
Turn-On Delay Time	$t_{d(on)}$	N-Channel V_{DD} = 15V,I_D = 2.4A,R_G = 6.0Ω	N-Ch		6.8		ns
			P-Ch		11		
Rise Time	t_r	R_D=6.2Ω	N-Ch		21		
		P-Channel	P-Ch		17		
Turn-Off Delay Time	$t_{d(off)}$	V_{DD} = -15V,I_D = -1.8A,R_G = 6.0Ω	N-Ch		22		
		R_D=8.2Ω	P-Ch		25		
Fall Time	t_f		N-Ch		7.7		
			P-Ch		18		
Internal Drain Inductace	L_D	Between lead, 6mm (0.25in.) from package 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} = 25V,f = 1.0MHz	N-Ch		520		pF
			P-Ch		440		
Output Capacitance	C_{oss}		N-Ch		180		
		P-Channel	P-Ch		200		
Reverse Transfer Capacitance	C_{rss}	V_{GS} = 0V,V_{DS} = -25V,f = 1.0MHz	N-Ch		72		
			P-Ch		93		

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Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Continuous Source Current（Body Diode)	I_S		N-Ch			3.1	A
			P-Ch			-3.1	
Pulsed Source Current （Body Diode) *2	I_{SM}		N-Ch			46	
			P-Ch			-34	
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		47	71	ns
		T_J = 25℃, I_F =2.4A,di/dt = 100A/μs*1	P-Ch		53	80	
Reverse RecoveryCharge	Q_{rr}	P-Channel	N-Ch		56	84	nC
		T_J=25℃, I_F=-1.8A,di/dt=-100A/μs*1	P-Ch		66	99	

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

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