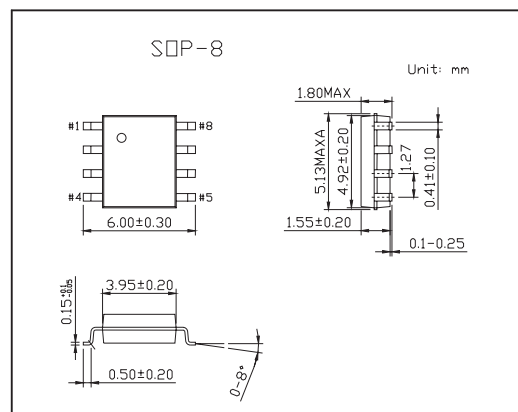
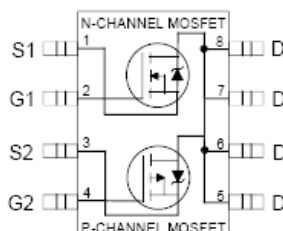


HEXFET[®] Power MOSFET

KRF7389

■ Features

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

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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	30	-30	V
Continuous Drain Current T _a = 25℃	I _D	7.3	-5.3	A
Continuous Drain Current T _a = 70℃	I _D	5.9	-4.2	
Pulsed Drain Current *1	I _{DM}	30	-30	
Continuous Source Current (Diode Conduction)	I _S	2.5	-2.5	
Power Dissipation @T _a = 25℃	P _D	2.5		W
@T _a = 70℃		1.6		
Gate-to-Source Voltage	V _{GS}	± 20		V
Single Pulse Avalanche Energy	E _{AS}	82	140	mJ
	I _{AR}	4.0	-2.8	A
Repetitive Avalanche Energy	E _{AR}	0.20		mJ
Peak Diode Recovery dv/dt *2	dv/dt	3.8	-2.2	V/ns
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150		℃
Maximum Junction-to-Ambient *3	R θ JA	50		℃/W

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

*2 N-Channel $I_{SD} \leq 4.0\text{A}$, $di/dt \leq 74\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

P-Channel $I_{SD} \leq -2.8\text{A}$, $di/dt \leq 1500\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

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

KRF7389

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250 μ A	N-Ch	30			V
		V _{GS} = 0V, I _D = 250 μ A	P-Ch	-30			
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} /ΔT _J	I _D = 1mA,Reference to 25℃	N-Ch		0.022		V/℃
		I _D = 1mA,Reference to 25℃	P-Ch		0.022		
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 5.8A*1	N-Ch		0.023	0.029	Ω
		V _{GS} = 4.5V, I _D = 4.7A*1			0.032	0.046	
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -4.9A*1	P-Ch		0.042	0.058	
		V _{GS} = -4.5V, I _D = -3.6A*1			.076	0.098	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	N-Ch	1			V
		V _{DS} = V _{GS} , I _D = -250 μ A	P-Ch	-1.0			
Forward Transconductance	g _{fs}	V _{DS} = 15V, I _D = 5.8A*1	N-Ch		14		S
		V _{DS} = -15V, I _D = -4.9A*1	P-Ch		7.7		
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V	N-Ch			1.0	μ A
		V _{DS} = -24V, V _{GS} = 0V	P-Ch			-1.0	
		V _{DS} = 24V, V _{GS} = 0V, T _J = 55℃	N-Ch			25	
		V _{DS} = -24V, 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 = 5.8A,V _{DS} = 15V,V _{GS} =10V	N-Ch		22	33	nC
Gate-to-Source Charge	Q _{gs}		P-Ch		23	34	
		Gate-to-Drain ("Miller") Charge	Q _{gd}	P-Channel I _D = -4.9A,V _{DS} = -15V,V _{GS} = -10V	N-Ch		
P-Ch					3.8	5.7	
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 15V,I _D = 1.A,R _G = 6.0 Ω	N-Ch		8.1	12	ns
			P-Ch		13	19	
Rise Time	t _r	P-Channel R _D =15 Ω	N-Ch		8.9	13	
			P-Ch		13	20	
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -15V,I _D = -1.8A,R _G = 6.0 Ω R _D =15 Ω	N-Ch		26	39	
			P-Ch		34	51	
Fall Time	t _f		N-Ch		17	26	
			P-Ch		32	48	
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V,V _{DS} = 25V,f = 1.0MHz	N-Ch		650		pF
			P-Ch		710		
Output Capacitance	C _{oss}	P-Channel	N-Ch		320		
			P-Ch		380		
Reverse Transfer Capacitance	C _{rss}	V _{GS} = 0V,V _{DS} = -25V,f = 1.0MHz	N-Ch		130		
			P-Ch		180		
Continuous Source Current （Body Diode）	I _S		N-Ch			2.5	A
Pulsed Source Current （Body Diode）*2	I _{SM}		P-Ch			-2.5	
			N-Ch			30	
			P-Ch			-30	

KRF7389

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Diode Forward Voltage	V _{SD}	T _J = 25℃, I _S = 1.7A, V _{GS} = 0V*1	N-Ch		0.78	1.0	V
		T _J = 25℃, I _S = -1.7A, V _{GS} = 0V*1	P-Ch		-0.78	-1.0	
Reverse Recovery Time	t _{rr}	N-Channel T _J = 25℃, I _F = 1.7A, di/dt = 100A/μs*1	N-Ch		45	68	ns
			P-Ch		44	66	
Reverse Recovery Charge	Q _{rr}	P-Channel T _J = 25℃, I _F = -1.7A, di/dt = -100A/μs*1	N-Ch		58	87	nC
			P-Ch		42	63	

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

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