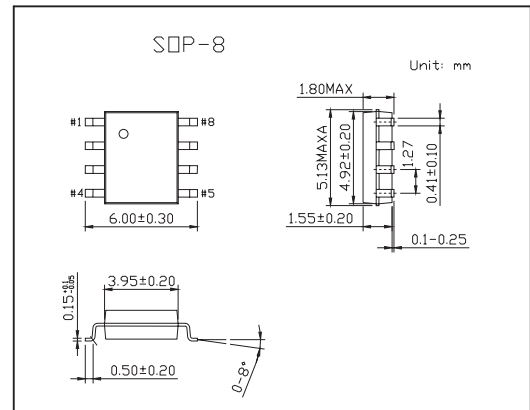
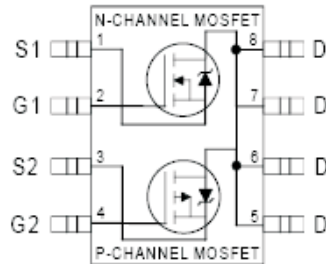


HEXFET<sup>®</sup> Power MOSFET

## KRF7379

## ■ 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, $V_{GS} @ 10V @ T_a = 25^\circ\text{C}$	$I_D$	5.8	-4.3	A
Continuous Drain Current, $V_{GS} @ 10V @ T_a = 70^\circ\text{C}$	$I_D$	4.6	-3.4	
Pulsed Drain Current *1	$I_{DM}$	46	-34	
Power Dissipation @ $T_a = 25^\circ\text{C}$	$P_D$	2.5		W
Linear Derating Factor		0.02		W/ $^\circ\text{C}$
Gate-to-Source Voltage	$V_{GS}$	$\pm 20$		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		$^\circ\text{C}$
Maximum Junction-to-Ambient *3	$R_{\theta JA}$	50		$^\circ\text{C}/\text{W}$

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

\*2 N-Channel  $I_{SD} \leq 2.4A$ ,  $di/dt \leq 73A/\mu s$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

P-Channel  $I_{SD} \leq -1.8A$ ,  $di/dt \leq 90A/\mu s$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

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

## KRF7379

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250 μA	N-Ch	30		V
		V <sub>GS</sub> = 0V, I <sub>D</sub> = 250 μA	P-Ch	-30		
Breakdown Voltage Temp. Coefficient	ΔV <sub>(BR)DSS</sub> /ΔT <sub>J</sub>	I <sub>D</sub> = 1mA, Reference to 25°C	N-Ch		0.032	V/°C
		I <sub>D</sub> = 1mA, Reference to 25°C	P-Ch		-0.037	
Static Drain-to-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.8A*1	N-Ch	0.038	0.045	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4.9A*1		0.055	0.075	
Static Drain-to-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.3A*1	P-Ch	0.070	0.090	Ω
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.7A*1		0.130	0.180	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	N-Ch	1.0		V
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	P-Ch	-1.0		
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 2.4A*1	N-Ch	5.2		S
		V <sub>DS</sub> = -24V, I <sub>D</sub> = -1.8A*1	P-Ch	2.5		
Drain-to-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V	N-Ch		1.0	μA
		V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V	P-Ch		-1.0	
		V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125°C	N-Ch		25	
		V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125°C	P-Ch		-25	
Gate-to-Source Forward Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V	N-Ch		±100	
			P-Ch		±100	
Total Gate Charge	Q <sub>g</sub>	N-Channel I <sub>D</sub> = 2.4A, V <sub>DS</sub> = 24V, V <sub>GS</sub> = 10V	N-Ch		25	nC
Gate-to-Source Charge	Q <sub>gs</sub>	P-Channel	P-Ch		25	
			N-Ch		2.9	
Gate-to-Drain ("Miller") Charge	Q <sub>gd</sub>	I <sub>D</sub> = -1.8A, V <sub>DS</sub> = -24V, V <sub>GS</sub> = -10V	P-Ch		2.9	
			N-Ch		7.9	
Turn-On Delay Time	t <sub>d(on)</sub>	N-Channel V <sub>DD</sub> = 15V, I <sub>D</sub> = 2.4A, R <sub>G</sub> = 6.0 Ω	N-Ch	6.8		ns
			P-Ch	11		
Rise Time	t <sub>r</sub>	R <sub>D</sub> = 6.2 Ω P-Channel	N-Ch	21		
			P-Ch	17		
Turn-Off Delay Time	t <sub>d(off)</sub>	V <sub>DD</sub> = -15V, I <sub>D</sub> = -1.8A, R <sub>G</sub> = 6.0 Ω R <sub>D</sub> = 8.2 Ω	N-Ch	22		
			P-Ch	25		
Fall Time	t <sub>f</sub>		N-Ch	7.7		
			P-Ch	18		
Internal Drain Inductance	L <sub>D</sub>	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 <sub>S</sub>		N-Ch	6.0		nH
			P-Ch	6.0		
Input Capacitance	C <sub>iss</sub>	N-Channel V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1.0MHz	N-Ch	520		pF
			P-Ch	440		
Output Capacitance	C <sub>oss</sub>	P-Channel	N-Ch	180		
			P-Ch	200		
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -25V, f = 1.0MHz	N-Ch	72		
			P-Ch	93		

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## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	Is		N-Ch		3.1	A
			P-Ch		-3.1	
Pulsed Source Current (Body Diode) *2	ISM		N-Ch		46	
			P-Ch		-34	
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 = 2.4A, di/dt = 100A/μs*1	N-Ch	47	71	ns
			P-Ch	53	80	
Reverse RecoveryCharge	Qrr	P-Channel TJ=25°C, IF=-1.8A, di/dt=-100A/μs*1	N-Ch	56	84	nC
			P-Ch	66	99	

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

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