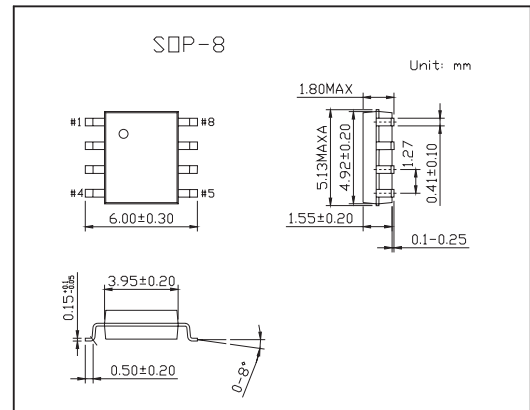
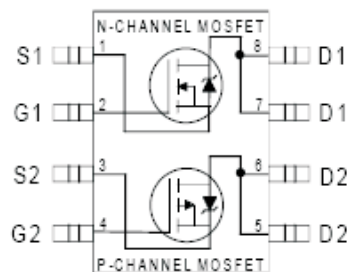


# HEXFET<sup>®</sup> Power MOSFET

## KRF7343

### ■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual N and P Channel MOSFET
- Surface Mount
- Fully Avalanche Rated



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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	$V_{DS}$	55	-55	V
Continuous Drain Current, $V_{GS}@10V$ , $T_a = 25^\circ\text{C}$	$I_D$	4.7	-3.4	A
Continuous Drain Current, $V_{GS}@10V$ , $T_a = 70^\circ\text{C}$	$I_D$	3.8	-2.7	
Pulsed Drain Current *1	$I_{DM}$	38	-27	
Power Dissipation @ $T_a = 25^\circ\text{C}$ *5	$P_D$	2.0		W
Power Dissipation @ $T_a = 70^\circ\text{C}$ *5		1.3		
Gate-to-Source Voltage	$V_{GS}$	$\pm 20$		V
Single Pulse Avalanche Energy *3	$E_{AS}$	72	114	mJ
Avalanche Current	$I_{AR}$	4.7	-3.4	A
Repetitive Avalanche Energy	$E_{AR}$	0.20		mJ
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 *5	$R_{\theta JA}$	62.5		$^\circ\text{C}/\text{W}$

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

\*2 N-Channel  $I_{SD} \leq 4.7\text{A}$ ,  $di/dt \leq 220\text{A}/\mu\text{s}$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

P-Channel  $I_{SD} \leq -3.4\text{A}$ ,  $di/dt \leq -150\text{A}/\mu\text{s}$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

\*3 N-Channel Starting  $T_J = 25^\circ\text{C}$ ,  $L = 6.5\text{mH}$   $R_G = 25\Omega$ ,  $I_{AS} = 4.7\text{A}$ .

P-Channel Starting  $T_J = 25^\circ\text{C}$ ,  $L = 20\text{mH}$   $R_G = 25\Omega$ ,  $I_{AS} = -3.4\text{A}$ .

\*5 Surface mounted on FR-4 board,  $t \leq 10\text{sec}$ .

\*4 Pulse width  $\leq 300\mu\text{s}$ ; duty cycle  $\leq 2\%$ .

## KRF7343

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250 \mu A$	N-Ch	55		V	
		$V_{GS} = 0V, I_D = -250 \mu A$	P-Ch	-55			
Breakdown Voltage Temp. Coefficient	$\frac{\Delta V_{(BR)DSS}}{\Delta T_J}$	$I_D = 1mA, \text{Reference to } 25^\circ C$	N-Ch	0.059		V/°C	
		$I_D = -1mA, \text{Reference to } 25^\circ C$	P-Ch	0.054			
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 4.7A^*1$	N-Ch	0.043	0.050	$\Omega$	
		$V_{GS} = 4.5V, I_D = 3.8A^*1$		0.056	0.065		
		$V_{GS} = -10V, I_D = -3.4A^*1$	P-Ch	0.095	0.105		
		$V_{GS} = -4.5V, I_D = -2.7A^*1$		0.150	0.170		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	N-Ch			V	
		$V_{DS} = V_{GS}, I_D = -250 \mu A$	P-Ch				
Forward Transconductance	$g_{fs}$	$V_{DS} = 10V, I_D = 4.5A^*1$	N-Ch			S	
		$V_{DS} = -10V, I_D = -3.5A^*1$	P-Ch				
Drain-to-Source Leakage Current	$I_{DSS}$	$V_{DS} = 55V, V_{GS} = 0V$	N-Ch		2.0	$\mu A$	
		$V_{DS} = -55V, V_{GS} = 0V$	P-Ch		-2.0		
		$V_{DS} = 55V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch		25		
		$V_{DS} = -55V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch		-25		
Gate-to-Source Forward Leakage	$I_{GSS}$	$V_{GS} = \pm 20V$	N-Ch		$\pm 100$	nA	
			P-Ch		$\pm 100$		
Total Gate Charge	$Q_g$	N-Channel $I_D = 4.5A, V_{DS} = 44V, V_{GS} = 10V$	N-Ch	24	36	nC	
Gate-to-Source Charge	$Q_{gs}$		P-Ch	26	38		
			N-Ch	2.3	3.4		
Gate-to-Drain ("Miller") Charge	$Q_{gd}$		P-Channel $I_D = -3.1A, V_{DS} = -44V, V_{GS} = -10V$	P-Ch	3.0		4.5
		N-Ch	7.0	10			
Turn-On Delay Time	$t_{d(on)}$	N-Channel $V_{DD} = 28V, I_D = 1.0A, R_G = 6.0 \Omega$	N-Ch	8.3	12	ns	
			P-Ch	14	22		
Rise Time	$t_r$		$R_D = 16 \Omega$	N-Ch	3.2		4.8
			P-Channel	P-Ch	10		15
Turn-Off Delay Time	$t_{d(off)}$		P-Channel $V_{DD} = -28V, I_D = -1.0A, R_G = 6.0 \Omega$	N-Ch	32		48
				P-Ch	43		64
Fall Time	$t_f$	N-Ch		13	20		
		P-Ch		22	32		
Input Capacitance	$C_{iss}$	N-Channel $V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz$		N-Ch	740		pF
				P-Ch	690		
Output Capacitance	$C_{oss}$		N-Ch	190			
			P-Ch	210			
Reverse Transfer Capacitance	$C_{rss}$		N-Ch	71			
			P-Ch	86			

## KRF7343

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit	
Continuous Source Current (Body Diode)	Is		N-Ch		2.0	A	
			P-Ch		-2.0		
Pulsed Source Current (Body Diode) *2	ISM		N-Ch		38		
			P-Ch		-27		
Diode Forward Voltage	VSD	TJ = 25°C, Is = 2.0A, VGS = 0V*1	N-Ch	0.70	1.2	V	
		TJ = 25°C, Is = -2.0A, VGS = 0V*1	P-Ch	0.80	-1.2		
Reverse Recovery Time	trr	N-Channel TJ = 25°C, IF = 2.0A, di/dt = 100A/μs*1	N-Ch	60	90	ns	
			P-Ch	54	80		
Reverse RecoveryCharge	Qrr		P-Channel TJ=25°C,IF=-2.0A,di/dt=-100A/μs*1	N-Ch	120	170	nC
				P-Ch	85	130	

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

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