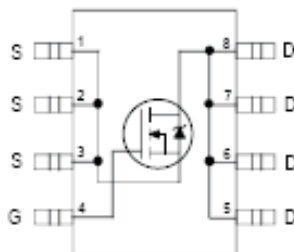


HEXFET[®] Power MOSFET

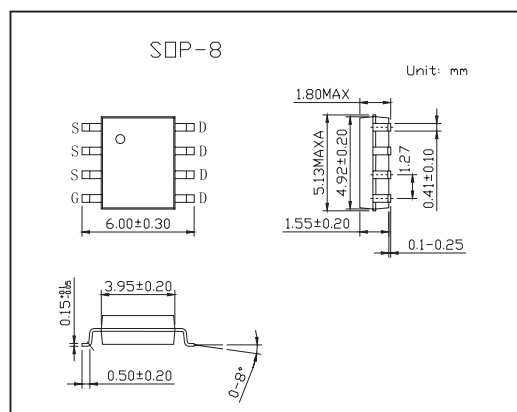
KRF7401

■ Features

- Generation V Technology
- Ultra Low On-Resistance
- N-Channel Mosfet
- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- Fast Switching



Top View



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
10 Sec. Pulsed Drain Current, V _{GS} @ 4.5V, Ta = 25°C	I _D	10	A
Continuous Drain Current, V _{GS} @ 4.5V, Ta = 25°C	I _D	8.7	
Continuous Drain Current, V _{GS} @ 4.5V, T _c = 70°C	I _D	7	
Pulsed Drain Current*1	I _{DM}	35	
Power Dissipation	P _D	2.5	W
Linear Derating Factor		0.02	W/°C
Gate-to-Source Voltage	V _{GS}	±12	V
Peak Diode Recovery dv/dt*2	dv/dt	5	V/ns
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150	°C
Maximum Junction-to-Ambient	R _{θJA}	50	°C/W

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

*2 ISD ≤ 4.1A, di/dt ≤ 100A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 150°C

KRF7401

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250A$	20			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS} / \Delta T_J$	$I_D = 1mA, \text{Reference to } 25^\circ C$		0.044		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 4.1A^{*1}$			0.022	Ω
		$V_{GS} = 2.7V, I_D = 3.5A^{*1}$			0.030	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	0.70			V
Forward Transconductance	g_{fs}	$V_{DS} = 15V, I_D = 4.1A^{*1}$	11			S
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1.0	μA
		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125^\circ C$			25	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS} = 12V$			100	nA
Gate-to-Source Reverse Leakage		$V_{GS} = -12V$			-100	
Total Gate Charge	Q_g	$I_D = 4.1A$			48	nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = 16V$			5.1	
Gate-to-Drain ("Miller") Charge	Q_{gd}	$V_{GS} = 4.5V,^{*1}$			20	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V$		13		ns
Rise Time	t_r	$I_D = 4.1A$		72		
Turn-Off Delay Time	$t_{d(off)}$	$R_G = 6.0 \Omega$		65		
Fall Time	t_f	$R_D = 2.4 \Omega^{*1}$		92		
Internal Drain Inductance	L_D	Between lead tip and center of die contact 		2.5		nH
Internal Source Inductance	L_S			4.0		
Input Capacitance	C_{iss}	$V_{GS} = 0V$		1600		pF
Output Capacitance	C_{oss}	$V_{DS} = 15V$		690		
Reverse Transfer Capacitance	C_{rss}	$f = 1.0MHz$		310		
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode. 			3.1	A
Pulsed Source Current (Body Diode) *2	I_{SM}				35	
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_S = 2.0A, V_{GS} = 0V^{*1}$			1.0	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_F = 4.1A$		39	59	ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100A/\mu s^{*1}$		42	63	μC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by $L_S + L_D$)				

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

*2 Repetitive rating; pulse width limited by max