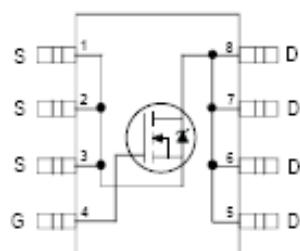


HEXFET® Power MOSFET

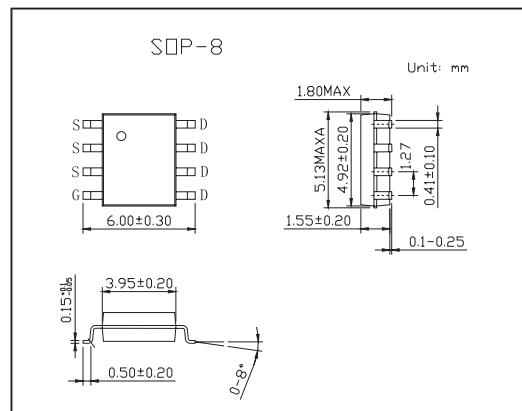
KRF7401

■ 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, Vgs @ 4.5V, Ta = 25°C	Id	10	A
Continuous Drain Current, Vgs @ 4.5V, Ta = 25°C	Id	8.7	
Continuous Drain Current, Vgs @ 4.5V, Tc = 70°C	Id	7	
Pulsed Drain Current*1	Idm	35	
Power Dissipation	Pd	2.5	W
Linear Derating Factor		0.02	W/°C
Gate-to-Source Voltage	Vgs	±12	V
Peak Diode Recovery dv/dt*2	dv/dt	5	V/ns
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 to + 150	°C
Maximum Junction-to-Ambient	Rθ JA	50	°C/W

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

*2 ISD≤4.1A, di/dt≤100A/ μ s, VDD≤V(BR)DSS, TJ≤150°C

KRF7401■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0\text{V}, I_D = 250\text{A}$	20			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(\text{BR})\text{DSS}}/\Delta T_J$	$I_D = 1\text{mA}$, Reference to 25°C		0.044		$\text{V}/^\circ\text{C}$
Static Drain-to-Source On-Resistance	$R_{\text{DS(on)}}$	$V_{\text{GS}} = 4.5\text{V}, I_D = 4.1\text{A}^*1$		0.022		Ω
		$V_{\text{GS}} = 2.7\text{V}, I_D = 3.5\text{A}^*1$		0.030		
Gate Threshold Voltage	$V_{\text{GS(th)}}$	$V_{\text{DS}} = V_{\text{GS}}, I_D = 250\text{\mu A}$	0.70			V
Forward Transconductance	g_{fs}	$V_{\text{DS}} = 15\text{V}, I_D = 4.1\text{A}^*1$	11			S
Drain-to-Source Leakage Current	I_{DSS}	$V_{\text{DS}} = 16\text{V}, V_{\text{GS}} = 0\text{V}$		1.0		\mu A
		$V_{\text{DS}} = 16\text{V}, V_{\text{GS}} = 0\text{V}, T_J = 125^\circ\text{C}$		25		
Gate-to-Source Forward Leakage	I_{GSS}	$V_{\text{GS}} = 12\text{V}$		100		nA
Gate-to-Source Reverse Leakage		$V_{\text{GS}} = -12\text{V}$		-100		
Total Gate Charge	Q_g	$I_D = 4.1\text{A}$		48		nC
Gate-to-Source Charge	Q_{gs}	$V_{\text{DS}} = 16\text{V}$		5.1		
Gate-to-Drain ("Miller") Charge	Q_{gd}	$V_{\text{GS}} = 4.5\text{V}, ^*1$		20		
Turn-On Delay Time	$t_{\text{d(on)}}$	$V_{\text{DD}} = 10\text{V}$	13			ns
Rise Time	t_r	$I_D = 4.1\text{A}$		72		
Turn-Off Delay Time	$t_{\text{d(off)}}$			65		
Fall Time	t_f	$R_G = 6.0\Omega$		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}	$V_{\text{GS}} = 0\text{V}$	1600			pF
Output Capacitance	C_{oss}	$V_{\text{DS}} = 15\text{V}$	690			
Reverse Transfer Capacitance	C_{rss}	$f = 1.0\text{MHz}$	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}	$T_J = 25^\circ\text{C}, I_S = 2.0\text{A}, V_{\text{GS}} = 0\text{V}^*1$			1.0	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ\text{C}, I_F = 4.1\text{A}$		39	59	ns
Reverse Recovery Charge	Q_{rr}	$dI/dt = 100\text{A}/\text{\mu s}^*1$		42	63	\mu C
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by L_s+L_d)				

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

*2 Repetitive rating; pulse width limited by max

