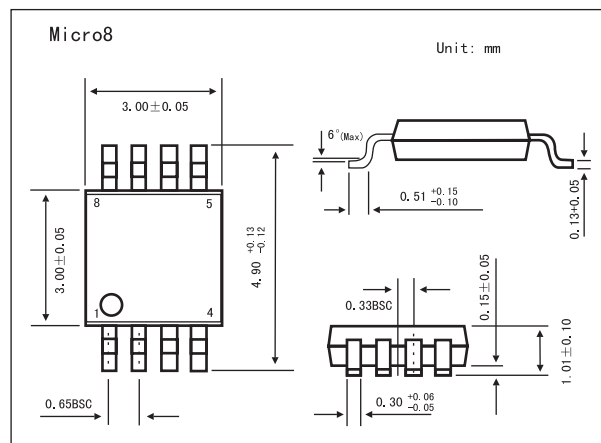
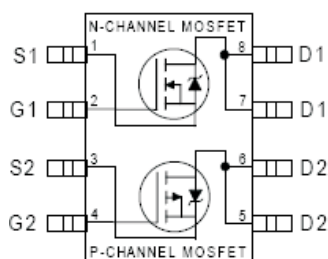


HEXFET[®] Power MOSFET

KRF7507

■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual N and P Channel MOSFET
- Very Small SOIC Package
- Low Profile (<1.1mm)
- Available in Tape & Reel
- Fast Switching



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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	20	-20	V
Continuous Drain Current V _{GS} T _a = 25℃	I _D	2.4	-1.7	A
Continuous Drain Current V _{GS} T _a = 70℃	I _D	1.9	-1.4	
Pulsed Drain Current *1	I _{DM}	21	-14	
Power Dissipation @T _a = 25℃	P _D	1.25		W
Power Dissipation @T _a = 70℃		0.8		
Linear Derating Factor		10		mW/℃
Gate-to-Source Voltage	V _{GS}	±12		V
Gate-to-Source Voltage Single Pulse tp<10 μ S	V _{GSM}	16		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		℃
Maximum Junction-to-Ambient*3	R θ JA	100		℃/W

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

*2 N-Channel $I_{SD} \leq 1.7\text{A}$, $di/dt \leq 100\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

P-Channel $I_{SD} \leq -1.2\text{A}$, $di/dt \leq 50\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$

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

■ Electrical Characteristics T_J = 25°C

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit	
Drain-to-Source Breakdown Voltage	V(BR)DSS	VGS = 0V, ID = 250 μ A	N-Ch	20			V	
		VGS = 0V, ID = -250 μ A	P-Ch	-20				
Breakdown Voltage Temp. Coefficient	ΔV(BR)DSS/ ΔTJ	ID = 1mA,Reference to 25℃	N-Ch		0.041		V/℃	
		ID = -1mA,Reference to 25℃	P-Ch		0.012			
Static Drain-to-Source On-Resistance	RDS(on)	VGS = 4.5V, ID = 1.7A*1	N-Ch		0.085	0.14	Ω	
		VGS = 2.7V, ID = 0.85A*1			0.120	0.20		
		VGS = -4.5V, ID = -1.2A*1	P-Ch		0.17	0.27		
		VGS = -2.7V, ID = -0.6A*1			0.28	0.40		
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250 μ A	N-Ch	0.7			V	
		VDS = VGS, ID = -250 μ A	P-Ch	-0.7				
Forward Transconductance	gfs	VDS =10V, ID = 0.85A*1	N-Ch	2.6			S	
		VDS = -10V, ID = -0.6A*1	P-Ch	1.3				
Drain-to-Source Leakage Current	IDSS	VDS = 16V, VGS = 0V	N-Ch			1.0	μ A	
		VDS = -16V, VGS = 0V	P-Ch			-1.0		
		VDS = 16V, VGS = 0V, TJ = 125℃	N-Ch			25		
		VDS = -16V, VGS = 0V, TJ = 125℃	P-Ch			-25		
Gate-to-Source Forward Leakage	IGSS	VGS = ±12V	N-Ch			±100	nA	
			P-Ch			±100		
Total Gate Charge	Qg	N-Channel ID =1.7A,VDS = 16V,VGS =4.5V *1	N-Ch		5.3	8.0	nC	
Gate-to-Source Charge	Qgs		P-Ch		5.4	8.2		
			N-Ch		0.84	1.3		
			P-Ch		0.96	1.4		
Gate-to-Drain ("Miller") Charge	Qgd	ID = -1.2A,VDS = -16V,VGS = -4.5V *1	N-Ch		2.2	3.3		
			P-Ch		2.4	3.6		
Turn-On Delay Time	td(on)	N-Channel VDD = 10V,ID = 1.7A,RG = 6.0 Ω RD = 5.7 Ω *1 P-Channel VDD = -10V,ID = -1.2A,RG = 6.0 Ω RD = 8.3 Ω *1	N-Ch		5.7		ns	
Rise Time	tr		P-Ch		9.1			
			N-Ch		24			
			P-Ch		35			
Turn-Off Delay Time	td(off)		N-Ch		15			
			P-Ch		38			
Fall Time	tf		N-Ch		16			
			P-Ch		43			
Input Capacitance	Ciss	N-Channel VGS = 0V,VDS = 15V,f = 1.0MHz *1 P-Channel VGS = 0V,Vbs = -15V,f = 1.0MHz *1	N-Ch		260		pF	
Output Capacitance	Coss		P-Ch		240			
			N-Ch		130			
			P-Ch		130			
Reverse Transfer Capacitance	Crss		N-Ch		61			
			P-Ch		64			
Continuous Source Current （Body Diode）	Is		N-Ch			1.25	A	
Pulsed Source Current （Body Diode）*2	ISM		P-Ch			-1.25		
			N-Ch			19		
			P-Ch			-14		

KRF7507■ Electrical Characteristics $T_J = 25^\circ\text{C}$

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ\text{C}$, $I_S = 1.7\text{A}$, $V_{GS} = 0\text{V}^{*1}$			1.2	V
		$T_J = 25^\circ\text{C}$, $I_S = -1.2\text{A}$, $V_{GS} = 0\text{V}^{*1}$			-1.2	
Reverse Recovery Time	t_{rr}	N-Channel		39	59	ns
		$T_J = 25^\circ\text{C}$, $I_F = 1.7\text{A}$, $di/dt = 100\text{A}/\mu\text{s}^{*1}$		52	78	
Reverse RecoveryCharge	Q_{rr}	P-Channel		37	56	nC
		$T_J = 25^\circ\text{C}$, $I_F = -1.2\text{A}$, $di/dt = -100\text{A}/\mu\text{s}^{*1}$		63	95	

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

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