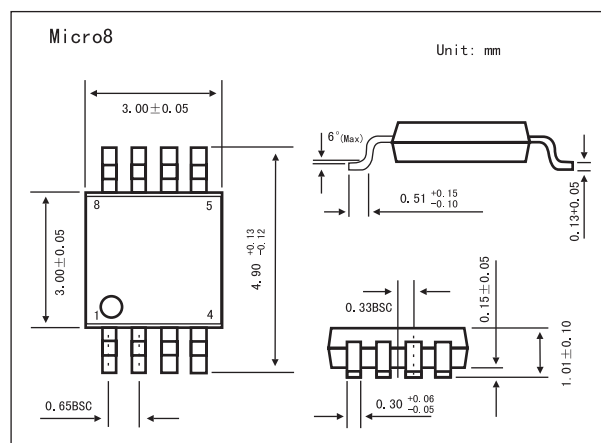
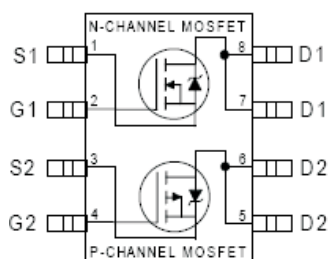


HEXFET[®] Power MOSFET

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°C	I _D	2.4	-1.7	A
Continuous Drain Current V _{GS} T _a = 70°C	I _D	1.9	-1.4	
Pulsed Drain Current *1	I _{DM}	21	-14	
Power Dissipation @T _a = 25°C	P _D	1.25		W
Power Dissipation @T _a = 70°C		0.8		
Linear Derating Factor		10		mW/°C
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		°C
Maximum Junction-to-Ambient*3	R θ JA	100		°C/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	Testconditons		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250 μ A	N-Ch	20			V
		V _{GS} = 0V, I _D = -250 μ A	P-Ch	-20			
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} / ΔT _J	I _D = 1mA,Reference to 25℃	N-Ch		0.041		V/℃
		I _D = -1mA,Reference to 25℃	P-Ch		0.012		
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 1.7A*1	N-Ch		0.085	0.14	Ω
		V _{GS} = 2.7V, I _D = 0.85A*1			0.120	0.20	
		V _{GS} = -4.5V, I _D = -1.2A*1	P-Ch		0.17	0.27	
		V _{GS} = -2.7V, I _D = -0.6A*1			0.28	0.40	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	N-Ch	0.7			V
		V _{DS} = V _{GS} , I _D = -250 μ A	P-Ch	-0.7			
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D = 0.85A*1	N-Ch	2.6			S
		V _{DS} = -10V, I _D = -0.6A*1	P-Ch	1.3			
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V	N-Ch			1.0	μ A
		V _{DS} = -16V, V _{GS} = 0V	P-Ch			-1.0	
		V _{DS} = 16V, V _{GS} = 0V, T _J = 125℃	N-Ch			25	
		V _{DS} = -16V, V _{GS} = 0V, T _J = 125℃	P-Ch			-25	
Gate-to-Source Forward Leakage	I _{GSS}	V _{GS} = ±12V	N-Ch			±100	nA
			P-Ch			±100	
Total Gate Charge	Q _g	N-Channel I _D =1.7A,V _{DS} = 16V,V _{GS} =4.5V *1 P-Channel I _D = -1.2A,V _{DS} = -16V,V _{GS} = -4.5V *1	N-Ch		5.3	8.0	nC
			P-Ch		5.4	8.2	
Gate-to-Source Charge	Q _{gs}		N-Ch		0.84	1.3	
			P-Ch		0.96	1.4	
Gate-to-Drain ("Miller") Charge	Q _{gd}		N-Ch		2.2	3.3	
			P-Ch		2.4	3.6	
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10V,I _D = 1.7A,R _G = 6.0 Ω R _D = 5.7 Ω *1 P-Channel V _{DD} = -10V,I _D = -1.2A,R _G = 6.0 Ω R _D = 8.3 Ω 1*1	N-Ch		5.7		ns
			P-Ch		9.1		
Rise Time	t _r		N-Ch		24		
			P-Ch		35		
Turn-Off Delay Time	t _{d(off)}		N-Ch		15		
			P-Ch		38		
Fall Time	t _f		N-Ch		16		
			P-Ch		43		
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V,V _{DS} = 15V,f = 1.0MHz *1 P-Channel V _{GS} = 0V,V _{DS} = -15V,f = 1.0MHz *1	N-Ch		260		pF
			P-Ch		240		
Output Capacitance	C _{oss}		N-Ch		130		
			P-Ch		130		
Reverse Transfer Capacitance	C _{rss}		N-Ch		61		
			P-Ch		64		
Continuous Source Current （Body Diode）	I _S		N-Ch			1.25	A
			P-Ch			-1.25	
Pulsed Source Current （Body Diode）*2	I _{SM}		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.