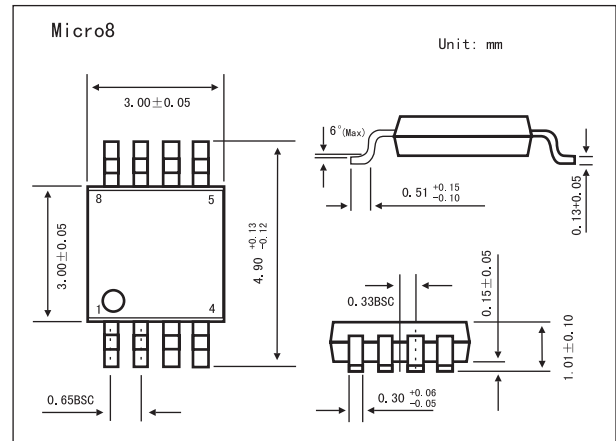
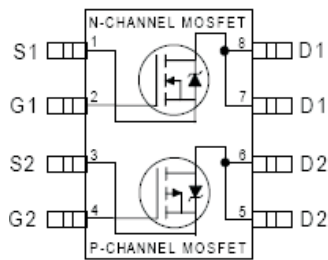


HEXFET[®] Power MOSFET

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 $V_{GS} = 25^\circ\text{C}$	I_D	2.4	-1.7	A
Continuous Drain Current $V_{GS} = 70^\circ\text{C}$	I_D	1.9	-1.4	
Pulsed Drain Current *1	I_{DM}	21	-14	
Power Dissipation @ $T_a = 25^\circ\text{C}$	P_D	1.25		W
Power Dissipation @ $T_a = 70^\circ\text{C}$		0.8		
Linear Derating Factor		10		mW/ $^\circ\text{C}$
Gate-to-Source Voltage	V_{GS}	± 12		V
Gate-to-Source Voltage Single Pulse $t_p < 10 \mu\text{s}$	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		$^\circ\text{C}$
Maximum Junction-to-Ambient*3	$R_{\theta JA}$	100		$^\circ\text{C}/\text{W}$

*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 μA	N-Ch	20			V
		V _{GS} = 0V, I _D = -250 μA	P-Ch	-20			
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} /ΔT _J	I _D = 1mA, Reference to 25°C	N-Ch		0.041		V/°C
		I _D = -1mA, Reference to 25°C	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 μA	N-Ch	0.7			V
		V _{DS} = V _{GS} , I _D = -250 μA	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	μA
		V _{DS} = -16V, V _{GS} = 0V	P-Ch			-1.0	
		V _{DS} = 16V, V _{GS} = 0V, T _J = 125°C	N-Ch			25	
		V _{DS} = -16V, V _{GS} = 0V, T _J = 125°C	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	N-Ch		5.3	8.0	nC
Gate-to-Source Charge	Q _{gs}	P-Channel I _D = -1.2A, V _{DS} = -16V, V _{GS} = -4.5V *1	P-Ch		5.4	8.2	
			N-Ch		0.84	1.3	
Gate-to-Drain ("Miller") Charge	Q _{gd}		P-Ch		0.96	1.4	
			N-Ch		2.2	3.3	
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10V, I _D = 1.7A, R _G = 6.0 Ω	N-Ch		5.7		ns
			P-Ch		9.1		
Rise Time	t _r	P-Channel R _D = 5.7 Ω *1	N-Ch		24		
			P-Ch		35		
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -10V, I _D = -1.2A, R _G = 6.0 Ω R _D = 8.3 Ω *1	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	N-Ch		260		pF
			P-Ch		240		
Output Capacitance	C _{oss}	P-Channel V _{GS} = 0V, V _{DS} = -15V, f = 1.0MHz *1	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
Pulsed Source Current (Body Diode) *2	I _{SM}		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.