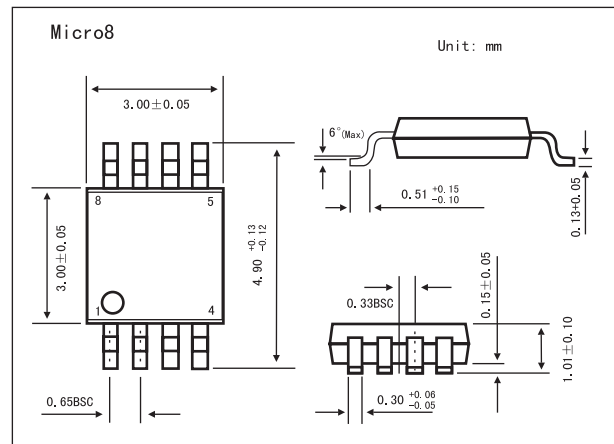
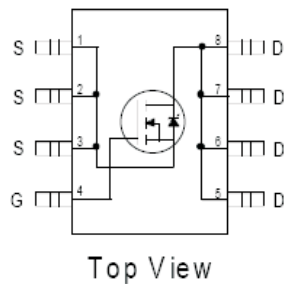


# HEXFET<sup>®</sup> Power MOSFET

## KRF7603

### ■ Features

- Generation V Technology
- Ultra Low On-Resistance
- N-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	Rating	Unit
Continuous Drain Current, $V_{GS} @ 4.5V, T_a = 25^\circ\text{C}$	$I_D$	5.6	A
Continuous Drain Current, $V_{GS} @ 4.5V, T_a = 70^\circ\text{C}$	$I_D$	4.5	
Pulsed Drain Current*1	$I_{DM}$	30	
Power Dissipation $T_a = 25^\circ\text{C}$ *1	$P_D$	1.8	W
Linear Derating Factor		14	W/°C
Gate-to-Source Voltage	$V_{GS}$	$\pm 20$	V
Peak Diode Recovery $dv/dt$ *1	$dv/dt$	5	V/ns
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	°C
Junction-to-Ambient *2	$R_{\theta JA}$	70	°C/W

\*1  $I_{SD} \leq 3.7A$ ,  $di/dt \leq 130A/\mu s$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

\*2 Surface mounted on FR-4 board,  $t \leq 10\text{sec}$ .

## KRF7603

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250 \mu A$	30			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS}/\Delta T_J$	$I_D = 1mA, \text{Reference to } 25^\circ C$		0.029		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3.7A^{*1}$			0.035	$\Omega$
		$V_{GS} = 4.5V, I_D = 1.9A^{*1}$			0.060	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1.0			V
Forward Transconductance	$g_{fs}$	$V_{DS} = 10V, I_D = 1.9A^{*1}$	4.3			S
Drain-to-Source Leakage Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1.0	$\mu A$
		$V_{DS} = 24V, V_{GS} = 0V, T_J = 125^\circ C$			25	
Gate-to-Source Forward Leakage	$I_{GSS}$	$V_{GS} = -20V$			-100	nA
Gate-to-Source Reverse Leakage		$V_{GS} = 20V$			100	
Total Gate Charge	$Q_g$	$I_D = 3.7A$ $V_{DS} = 24V$ $V_{GS} = 10V,^{*1}$		18	27	nC
Gate-to-Source Charge	$Q_{gs}$			2.4	3.6	
Gate-to-Drain ("Miller") Charge	$Q_{gd}$			5.6	8.4	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15V$ $I_D = 3.7A$ $R_G = 6.2 \Omega$ $R_D = 4.0 \Omega$		5.7		ns
Rise Time	$t_r$			28		
Turn-Off Delay Time	$t_{d(off)}$			18		
Fall Time	$t_f$			12		
Input Capacitance	$C_{iss}$	$V_{GS} = 0V$		520		pF
Output Capacitance	$C_{oss}$	$V_{DS} = 25V$		200		
Reverse Transfer Capacitance	$C_{rss}$	$f = 1.0MHz$		80		
Continuous Source Current (Body Diode)	$I_S$	MOSFET symbol showing the integral reverse p-n junction diode. 			1.8	A
Pulsed Source Current (Body Diode) *2	$I_{SM}$				30	
Diode Forward Voltage	$V_{SD}$	$T_J = 25^\circ C, I_S = 3.7A, V_{GS} = 0V^{*1}$			1.2	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ C, I_F = 3.7A, V_R = 10V$ $di/dt = 100A/\mu s^{*1}$		53	80	ns
Reverse Recovery Charge	$Q_{rr}$			87	130	

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

\*2 Repetitive rating; pulse width limited by max