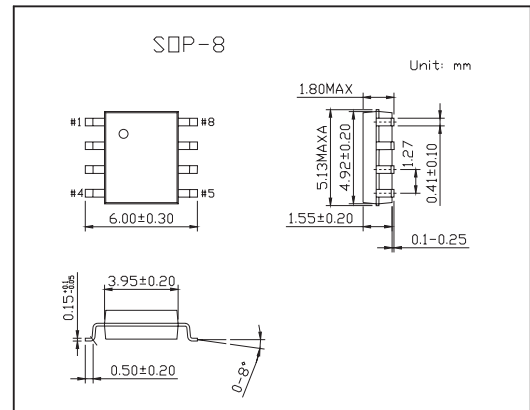
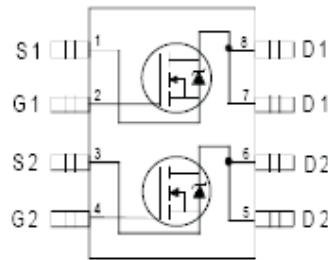


# HEXFET<sup>®</sup> Power MOSFET

## KRF7105

### ■ Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dual N and P Channel Mosfet
- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- Fast Switching



### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	N-Channel	P-Channel	Unit
Continuous Drain Current V <sub>GS</sub> @ 10V Ta = 25°C	I <sub>D</sub>	3.5	-2.3	A
Continuous Drain Current V <sub>GS</sub> @ 10V Ta = 70°C	I <sub>D</sub>	2.8	-1.8	
Pulsed Drain Current *1	I <sub>DM</sub>	14	-10	
Power Dissipation @T <sub>c</sub> = 25°C	P <sub>D</sub>	2.0		W
Linear Derating Factor		0.016		W/°C
Peak Diode Recovery dv/dt *2	dv/dt	3.0	-3.0	V/ ns
Gate-to-Source Voltage	V <sub>GS</sub>	±20		V
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to + 150		°C
Maximum Junction-to-Ambient*3	R <sub>θJA</sub>	62.5		°C/W

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

\*2 N-Channel I<sub>SD</sub> ≤ 3.5A, di/dt ≤ 90A/μs, V<sub>DD</sub> ≤ V<sub>(BR)DSS</sub>, T<sub>J</sub> ≤ 150°C

P-Channel I<sub>SD</sub> ≤ -2.3A, di/dt ≤ 90A/μs, V<sub>DD</sub> ≤ V<sub>(BR)DSS</sub>, T<sub>J</sub> ≤ 150°C

\*3 Surface mounted on FR-4 board, t ≤ 10sec.

## KRF7105

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250 μ A	N-Ch	25		V
		V <sub>GS</sub> = 0V, I <sub>D</sub> = -250 μ A	P-Ch	-20		
Breakdown Voltage Temp. Coefficient	ΔV <sub>(BR)DSS</sub> /ΔT <sub>J</sub>	I <sub>D</sub> = 1mA, Reference to 25°C	N-Ch	0.030		V/°C
		I <sub>D</sub> = -1mA, Reference to 25°C	P-Ch	-0.015		
Static Drain-to-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 1.0A*1	N-Ch	0.083	0.10	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.5A*1		0.14	0.16	
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -1.0A*1	P-Ch	0.16	0.25	
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -0.50A*1		0.30	0.40	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μ A	N-Ch	1.0	3.0	V
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μ A	P-Ch	-1.0	-3.0	
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 3.5A*1	N-Ch	4.3		S
		V <sub>DS</sub> = -15V, I <sub>D</sub> = -3.5A*1	P-Ch	3.1		
Drain-to-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V	N-Ch		2.0	μ A
		V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V	P-Ch		-2.0	
		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C	N-Ch		25	
		V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C	P-Ch		-25	
Gate-to-Source Forward Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V	N-Ch		±100	nA
			P-Ch		±100	
Total Gate Charge	Q <sub>g</sub>	N-Channel I <sub>D</sub> = 2.3A, V <sub>DS</sub> = 12.5V, V <sub>GS</sub> = 10V *1	N-Ch	9.4	27	nC
Gate-to-Source Charge	Q <sub>gs</sub>	P-Channel	N-Ch	1.7		
			P-Ch	1.9		
Gate-to-Drain ("Miller") Charge	Q <sub>gd</sub>	I <sub>D</sub> = -2.3A, V <sub>DS</sub> = -12.5V, V <sub>GS</sub> = -10V *1	N-Ch	3.1		
			P-Ch	2.8		
Turn-On Delay Time	t <sub>d(on)</sub>	N-Channel V <sub>DD</sub> = 25V, I <sub>D</sub> = 1.0A, R <sub>G</sub> = 6.0 Ω	N-Ch	7.0		ns
Rise Time	t <sub>r</sub>	P-Channel R <sub>D</sub> = 25 Ω *1	N-Ch	9.0		
			P-Ch	13		
Turn-Off Delay Time	t <sub>d(off)</sub>	V <sub>DD</sub> = -25V, I <sub>D</sub> = -1.0A, R <sub>G</sub> = 6.0 Ω R <sub>D</sub> = 25 Ω 1*1	N-Ch	45		
			P-Ch	45		
Fall Time	t <sub>f</sub>		N-Ch	25		
			P-Ch	37		
Internal Drain Inductace	L <sub>D</sub>	Between lead, 6mm(0.25in.) from packing and center of die contact	N-Ch	4.0		
			P-Ch	4.0		
Internal Source Inductance	L <sub>S</sub>		N-Ch	6.0		
			P-Ch	6.0		
Input Capacitance	C <sub>iss</sub>	N-Channel V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1.0MHz *1	N-Ch	330		pF
			P-Ch	290		
Output Capacitance	C <sub>oss</sub>	P-Channel	N-Ch	250		
			P-Ch	210		
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1.0MHz *1	N-Ch	61		
			P-Ch	67		

## KRF7105

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	Is		N-Ch		2.0	A
			P-Ch		-2.0	
Pulsed Source Current (Body Diode) *2	ISM		N-Ch		14	
			P-Ch		-9.2	
Diode Forward Voltage	VSD	TJ = 25°C, Is = 1.3A, VGS = 0V*1	N-Ch		1.2	V
		TJ = 25°C, Is = -1.3A, VGS = 0V*1	P-Ch		-1.2	
Reverse Recovery Time	trr	N-Channel TJ = 25°C, IF = 1.3A, di/dt = 100A/μs*1	N-Ch	36	54	ns
			P-Ch	69	100	
Reverse RecoveryCharge	Qrr	P-Channel TJ = 25°C, IF = -1.3A, di/dt = -100A/μs*1	N-Ch	41	75	nC
			P-Ch	90	180	
Forward Turn-On Time	ton	Intrinsic turn-on time is negligible (turn-on is dominated by Ls+Ld)	N-Ch			
			P-Ch			

\*1 Pulse width ≤ 300 μs; duty cycle ≤ 2%.

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