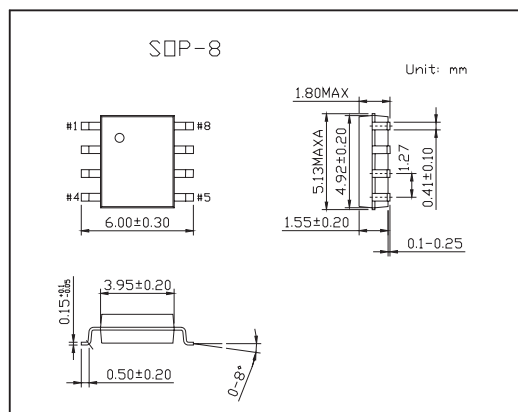
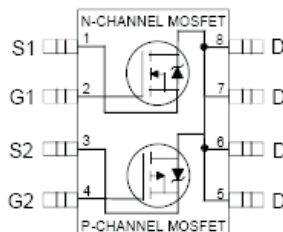


# KRF7389

## Features

- Generation V Technology
- Ultra Low On-Resistance
- Complimentary Half Bridge
- Surface Mount
- Fully Avalanche Rated



## Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	-30	V
Continuous Drain Current Ta = 25°C	I <sub>D</sub>	7.3	-5.3	A
Continuous Drain Current Ta = 70°C	I <sub>D</sub>	5.9	-4.2	
Pulsed Drain Current *1	I <sub>DM</sub>	30	-30	
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	2.5	-2.5	
Power Dissipation @Ta= 25°C	P <sub>D</sub>	2.5		W
@Ta= 70°C		1.6		
Gate-to-Source Voltage	V <sub>GS</sub>	±20		V
Single Pulse Avalanche Energy	E <sub>AS</sub>	82	140	mJ
	I <sub>AR</sub>	4.0	-2.8	A
Repetitive Avalanche Energy	E <sub>AR</sub>	0.20		mJ
Peak Diode Recovery dv/dt *2	dv/dt	3.8	-2.2	V/ns
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>	50		°C/W

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

\*2 N-Channel I<sub>SD</sub> ≤ 4.0A, di/dt ≤ 74A/μs, V<sub>DD</sub> ≤ V<sub>(BR)DSS</sub>, T<sub>J</sub> ≤ 150°C

P-Channel I<sub>SD</sub> ≤ -2.8A, di/dt ≤ 1500A/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.

■ 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	30		V
		V <sub>GS</sub> = 0V, I <sub>D</sub> = 250 μ A	P-Ch	-30		
Breakdown Voltage Temp. Coefficient	ΔV <sub>(BR)DSS</sub> /ΔT <sub>J</sub>	I <sub>D</sub> = 1mA, Reference to 25°C	N-Ch	0.022		V/°C
		I <sub>D</sub> = 1mA, Reference to 25°C	P-Ch	0.022		
Static Drain-to-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.8A*1	N-Ch	0.023	0.029	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4.7A*1		0.032	0.046	
Static Drain-to-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.9A*1	P-Ch	0.042	0.058	
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.6A*1		.076	0.098	
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		V
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μ A	P-Ch	-1.0		
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 5.8A*1	N-Ch	14		S
		V <sub>DS</sub> = -15V, I <sub>D</sub> = -4.9A*1	P-Ch	7.7		
Drain-to-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V	N-Ch		1.0	μ A
		V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V	P-Ch		-1.0	
		V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C	N-Ch		25	
		V <sub>DS</sub> = -24V, 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> = 5.8A, V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V	N-Ch	22	33	nC
Gate-to-Source Charge	Q <sub>gs</sub>	P-Channel	N-Ch	2.6	3.9	
			P-Ch	3.8	5.7	
Gate-to-Drain ("Miller") Charge	Q <sub>gd</sub>	I <sub>D</sub> = -4.9A, V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V	N-Ch	6.4	9.6	
			P-Ch	5.9	8.9	
Turn-On Delay Time	t <sub>d(on)</sub>	N-Channel V <sub>DD</sub> = 15V, I <sub>D</sub> = 1.A, R <sub>G</sub> = 6.0 Ω	N-Ch	8.1	12	
Rise Time	t <sub>r</sub>	P-Channel R <sub>D</sub> = 15 Ω	N-Ch	8.9	13	
			P-Ch	13	20	
Turn-Off Delay Time	t <sub>d(off)</sub>	V <sub>DD</sub> = -15V, I <sub>D</sub> = -1.8A, R <sub>G</sub> = 6.0 Ω R <sub>D</sub> = 15 Ω	N-Ch	26	39	
			P-Ch	34	51	
Fall Time	t <sub>f</sub>		N-Ch	17	26	
			P-Ch	32	48	
Input Capacitance	C <sub>iss</sub>	N-Channel V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1.0MHz	N-Ch	650		pF
Output Capacitance	C <sub>oss</sub>	P-Channel	P-Ch	710		
			N-Ch	320		
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -25V, f = 1.0MHz	N-Ch	130		
			P-Ch	180		
Continuous Source Current (Body Diode)	I <sub>S</sub>		N-Ch		2.5	
Pulsed Source Current (Body Diode) *2	I <sub>SM</sub>		P-Ch		-2.5	
			N-Ch		30	
			P-Ch		-30	



**KRF7389**

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit	
Diode Forward Voltage	V <sub>SD</sub>	T <sub>J</sub> = 25°C, I <sub>S</sub> = 1.7A, V <sub>GS</sub> = 0V*1	N-Ch		0.78	1.0	V
		T <sub>J</sub> = 25°C, I <sub>S</sub> = -1.7A, V <sub>GS</sub> = 0V*1	P-Ch		-0.78	-1.0	
Reverse Recovery Time	t <sub>rr</sub>	N-Channel T <sub>J</sub> = 25°C, I <sub>F</sub> = 1.7A, di/dt = 100A/μs*1	N-Ch		45	68	ns
			P-Ch		44	66	
Reverse RecoveryCharge	Q <sub>rr</sub>	P-Channel T <sub>J</sub> = 25°C, I <sub>F</sub> = -1.7A, di/dt = -100A/μs*1	N-Ch		58	87	nC
			P-Ch		42	63	

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

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