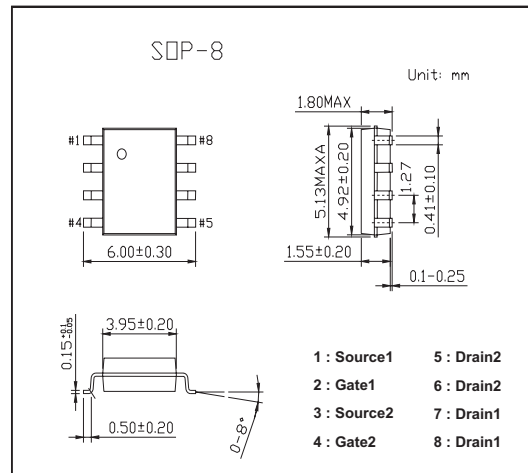
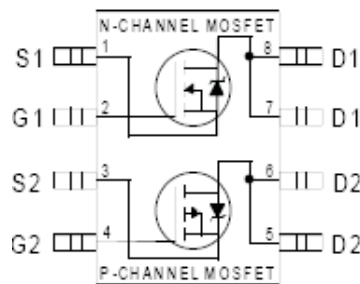


HEXFET[®] Power MOSFET

KRF9952

■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual N and P Channel MOSFET
- Surface Mount
- Very Low Gate Charge and Switching Losses
- Fully Avalanche Rated



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	30		V
Gate-to-Source Voltage	V _{GS}	±20		V
Continuous Drain Current, V _{GS} @ 10V @ Ta = 25°C	I _D	3.5	-2.3	A
Continuous Drain Current, V _{GS} @ 10V @ Ta = 70°C	I _D	2.8	-1.8	
Pulsed Drain Current *1	I _{DM}	16	-10	
Continuous Source Current (Diode Conduction)	I _S	1.7	-1.3	A
Power Dissipation @Ta= 25°C	P _D	2		W
Power Dissipation @Ta= 70°C		1.3		
Single Pulse Avalanche Energy	E _{AS}	44	57	mJ
Avalanche Current	I _{AR}	2.0	-1.3	A
Repetitive Avalanche Energy	E _{AR}	0.25		mJ
Peak Diode Recovery dv/dt *2	dv/dt	5.0	-5	V/ns
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150		°C
Maximum Junction-to-Ambient *3	R _{θJA}	62.5		°C/W

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

*2 N-Channel I_{SD} ≤ 2.0A, di/dt ≤ 100A/μs, V_{BD} ≤ V_{(BR)DSS}, T_J ≤ 150°C

P-Channel I_{SD} ≤ -1.3A, di/dt ≤ 84A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 150°C

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

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■ Electrical Characteristics Ta = 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	30		V
		V _{GS} = 0V, I _D = -250 μA	P-Ch	-30		
Breakdown Voltage Temp. Coefficient	ΔV _{(BR)DSS} /ΔT _J	I _D = 1mA, Reference to 25°C	N-Ch	0.015		V/°C
		I _D = -1mA, Reference to 25°C	P-Ch	0.015		
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 2.2A*1	N-Ch	0.08	0.10	Ω
		V _{GS} = 4.5V, I _D = 1.0A*1		0.12	0.15	
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -1.0A*1	P-Ch	0.165	0.250	Ω
		V _{GS} = -4.5V, I _D = -0.5A*1		0.290	0.400	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	N-Ch	1.0		V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-1.0		
Forward Transconductance	g _{fs}	V _{DS} = 15V, I _D = 3.5A*1	N-Ch	12		S
		V _{DS} = -15V, I _D = -2.3A*1	P-Ch	2.4		
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V	N-Ch		2.0	μA
		V _{DS} = -24V, V _{GS} = 0V	P-Ch		-2.0	
		V _{DS} = 24V, V _{GS} = 0V, T _J = 125°C	N-Ch		25	
		V _{DS} = -24V, V _{GS} = 0V, T _J = 125°C	P-Ch		-25	
Gate-to-Source Forward Leakage	I _{GSS}	V _{GS} = ±20V	N-Ch		±100	nA
			P-Ch			
Total Gate Charge	Q _g	N-Channel I _D = 1.8A, V _{DS} = 10V, V _{GS} = 10V	N-Ch	6.9	14	nC
Gate-to-Source Charge	Q _{gs}	P-Channel	N-Ch	1.0	2.0	
			P-Ch	1.7	3.4	
Gate-to-Drain ("Miller") Charge	Q _{gd}	I _D = -2.3A, V _{DS} = -10V, V _{GS} = -10V	N-Ch	1.8	3.5	
			P-Ch	1.1	2.2	
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10V, I _D = 1.0A, R _G = 6.0 Ω	N-Ch	6.2	12	ns
Rise Time	t _r	P-Channel R _D = 10 Ω	N-Ch	8.8	18	
			P-Ch	14	28	
Turn-Off Delay Time	t _{d(off)}	V _{DD} = -10V, I _D = -1.0A, R _G = 6.0 Ω R _D = 10 Ω	N-Ch	13	26	
			P-Ch	20	40	
Fall Time	t _f		N-Ch	3.0	6.0	
			P-Ch	6.9	14	
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V, V _{DS} = 15V, f = 1.0MHz	N-Ch	190		pF
			P-Ch	190		
Output Capacitance	C _{oss}	P-Channel	N-Ch	120		
			P-Ch	110		
Reverse Transfer Capacitance	C _{rss}	V _{GS} = 0V, V _{DS} = -15V, f = 1.0MHz	N-Ch	61		
			P-Ch	54		
Continuous Source Current (Body Diode)	I _S		N-Ch		1.7	A
			P-Ch		-1.3	
Pulsed Source Current (Body Diode) *2	I _{SM}		N-Ch		16	
			P-Ch		16	

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Diode Forward Voltage	V _{SD}	T _J = 25°C, I _S = 1.25A, V _{GS} = 0V*3	N-Ch	0.82	1.2	V
		T _J = 25°C, I _S = -1.25A, V _{GS} = 0V*3	P-Ch	-0.82	-1.2	
Reverse Recovery Time	t _{rr}	N-Channel	N-Ch	27	53	ns
		T _J = 25°C, I _F = 1.25A, di/dt = 100A/μs*1	P-Ch	27	54	
Reverse RecoveryCharge	Q _{rr}	P-Channel	N-Ch	28	57	nC
		T _J = 25°C, I _F = -1.25A, di/dt = -100A/μs*1	P-Ch	31	62	

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

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

*3 N-Channel Starting T_J = 25°C, L = 22mH R_G = 25 Ω, I_{AS} = 2.0A.

P-Channel Starting T_J = 25°C, L = 67mH R_G = 25 Ω, I_{AS} = -1.3A.