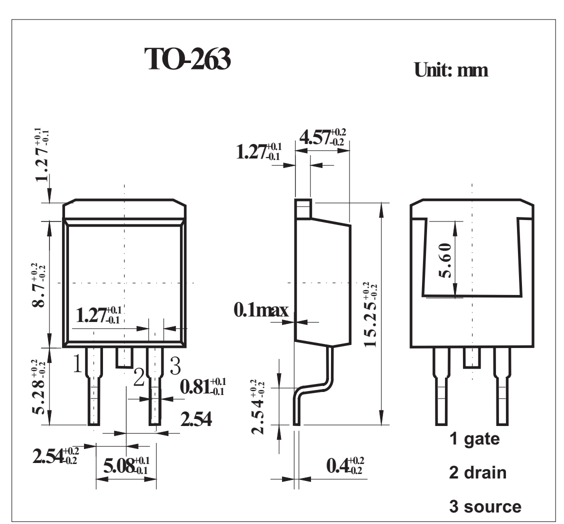
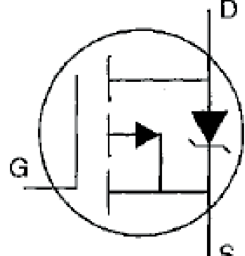
HEXFET®Power MOSFET

KRF9640S



■ Features

- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- P-Channel
- Fast Switching
- Ease of Paralleling



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Continuous Drain Current, V_{GS} @ -10V,Tc = 25℃	I_D	-11	A
Continuous Drain Current, V_{GS} @ -10V,Tc = 100℃	I_D	-6.8	
Pulsed Drain Current*1	I_{DM}	-44	
Power Dissipation Tc = 25℃	P_D	125	W
Power Dissipation (PCB Mount) Ta = 25℃ *3		3	
Linear Derating Factor		1	W/℃
Linear Derating Factor (PCB Mount) *3		0.025	
Gate-to-Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy *4	E_{AS}	700	mJ
Avalanche Current	I_{AR}	-11	A
Repetitive Avalanche Energy	E_{AR}	13	mJ
Peak Diode Recovery dv/dt *2	dv/dt	-5	V/ns
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to + 150	℃
Junction-to-Case	$R_{\theta JC}$	1	℃/W
Junction-to-Ambient (PCB Mounted) *3	$R_{\theta JA}$	40	℃/W
Junction-to-Ambient	$R_{\theta JA}$	62	℃/W

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

*2 $I_{SD} \leqslant -11A$, $di/dt \leqslant 150A/\mu s$, $V_{DD} \leqslant V_{(BR)DSS}$,$T_J \leqslant 150$℃

* 3 When mounted on 1" square PCB

*4 V_{DD}=-50V,startin T_J=25℃,L=8.7mH,R_G=25Ω,I_{AS}=-11A

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =- 250 μ A	-200			V
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = -1mA,Reference to 25℃		-0.20		V/℃
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -6.6A*1			0.5	Ω
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 μ A	-2.0		-4.0	V
Forward Transconductance	g_{fs}	V_{DS} = -50V, I_D = -6.6A*1	4.1			S
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = -200V, V_{GS} = 0V			-100	μ A
		V_{DS} = -160V, V_{GS} = 0V, T_J = 125℃			-500	
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 = -11A			44	nC
Gate-to-Source Charge	Q_{gs}	V_{DS} = -160V			7.1	
Gate-to-Drain ("Miller") Charge	Q_{gd}	V_{GS} = -10V,*1			27	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -100V		14		ns
Rise Time	t_r	I_D = -11A		43		
Turn-Off Delay Time	$t_{d(off)}$	R_G =9.1 Ω		39		
Fall Time	t_f	R_D =8.6 Ω *1		38		
Intermal Drain Inductance	L_D	Between lead, 6 mm (0.25in.) from package and center of die contact		4.5		nH
Internal Source Inductance	L_S			7.5		
Input Capacitance	C_{iss}	V_{GS} = 0V		1200		pF
Output Capacitance	C_{oss}	V_{DS} = -25V		370		
Reverse Transfer Capacitance	C_{rss}	f = 1.0MHz		81		
Continuous Source Current（Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.			-11	A
Pulsed Source Current （Body Diode) *2	I_{SM}				-44	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = -1.1A, V_{GS} = 0V*1			-5.0	V
Reverse Recovery Time	t_{rr}	T_J = 25℃, I_F = -1.1A		250	300	ns
Reverse RecoveryCharge	Q_{rr}	d_i/d_t = 100A/ μ s*1		2.9	3.6	μ C
Forward Turn-On Time	ton	Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D)				

*1 Pulse width ⩽ 300 μ s; duty cycle ⩽ 2%.

*2 Repetitive rating; pulse width limited bymax