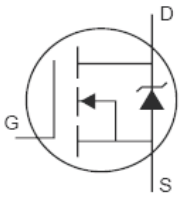
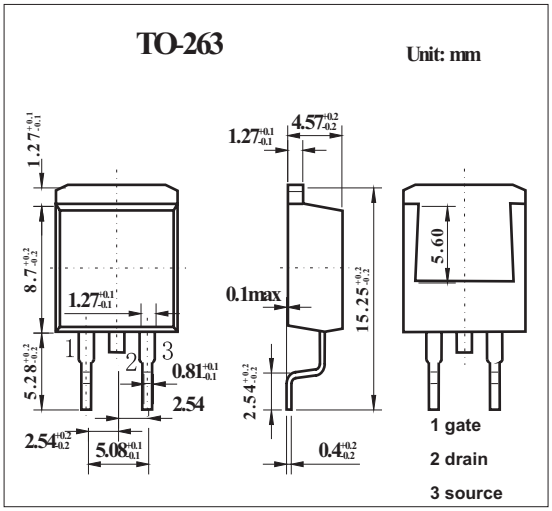
HEXFET®Power MOSFET

KRF2805S

Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dynamic dv/dt Rating
- 175℃ Operating Temperature
- Fast Switching
- Repetitive Avalanche Allowed up to Tjmax





Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Continuous Drain Current, VGS @ 10V,TC = 25℃	ID	135	A
Continuous Drain Current, VGS @ 10V,TC = 100℃	ID	96	
Pulsed Drain Current	IDM	700	
Power Dissipation TC = 25℃	PD	200	W
Linear Derating Factor		1.3	W/℃
Gate-to-Source Voltage	VGS	±20	V
Single Pulse Avalanche Energy	EAS	380	mJ
Avalanche Current*1	IAR	Fig.1.2	A
Repetitive Avalanche Energy	EAR		mJ
Peak Diode Recovery dv/dt*	dv/dt	2	V/ns
Operating Junction and Storage Temperature Range	TJ,TSTG	-55 to + 175	℃
Soldering Temperature, for 10 seconds		300	℃
Junction-to-Case	R θ JC	0.75	℃/W
Junction-to-Ambient (PCB mount)	R θ JA	40	

* ISD ≤ 104A, di/dt ≤ 240A/μs, VDD ≤ V(BR)DSS,TJ ≤ 175℃

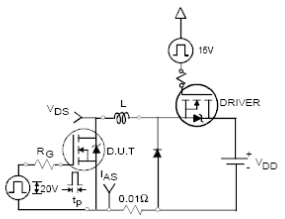


Fig1. Unclamped Inductive Test Circuit

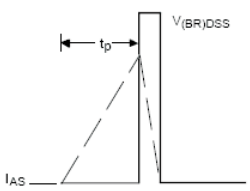
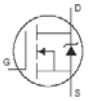


Fig 2. Unclamped Inductive Waveforms

KRF2805S

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	55			V
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	Reference to 25℃, I_D = 1mA		0.06		V/℃
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 104A *		3.9	4.7	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0		4.0	V
Forward Transconductance	g_{fs}	V_{DS} = 25V, I_D = 104A	91			S
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = 55V, V_{GS} = 0V			20	μA
		V_{DS} = 44V, V_{GS} = 0V, T_J = 150℃			250	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS} = 20V			200	nA
Gate-to-Source Reverse Leakage		V_{GS} = -20V			-200	
Total Gate Charge	Q_g	I_D = 104A		150	230	nC
Gate-to-Source Charge	Q_{gs}	V_{DS} = 44V		38	57	
Gate-to-Drain ("Miller") Charge	Q_{gd}	V_{GS} = 10V *		52	78	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 28V		14		ns
Rise Time	t_r	I_D = 104A		120		
Turn-Off Delay Time	$t_{d(off)}$	R_G = 2.5Ω		68		
Fall Time	t_f	V_{GS} = 10V *		110		
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		5110		pF
Output Capacitance	C_{oss}	V_{DS} = 25V		1190		
Reverse Transfer Capacitance	C_{rss}	f = 1.0MHz		210		
Output Capacitance	C_{oss}	V_{GS} = 0V, V_{DS} = 1.0V, f = 1.0MHz		6470		
Output Capacitance	C_{oss}	V_{GS} = 0V, V_{DS} = 44V, f = 1.0MHz		860		
Effective Output Capacitance	$C_{oss\ eff.}$	V_{GS} = 0V, V_{DS} = 0V to 44V		1600		
Continuous Source Current（Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode. 			175	A
Pulsed Source Current （Body Diode)	I_{SM}				700	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = 104A, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	T_J = 25℃, I_F = 104A		80	120	ns
Reverse RecoveryCharge	Q_{rr}	di/dt = 100A/μs *		290	430	μC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D)				

* Pulse width ≤ 400μs; duty cycle ≤ 2%.