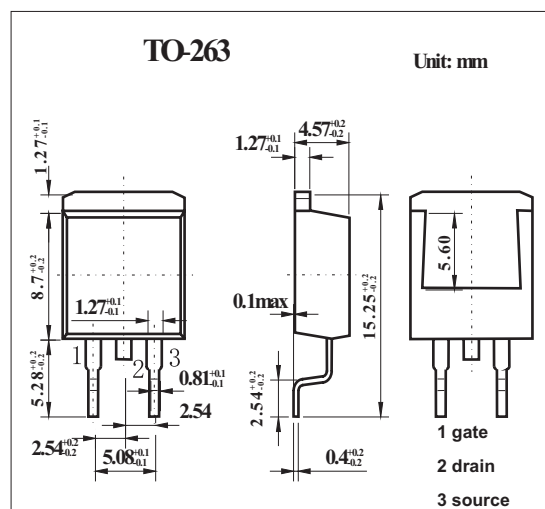
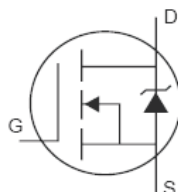


HEXFET[®] Power MOSFET

KRF2805S

■ Features

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



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Continuous Drain Current, Vgs @ 10V, Tc = 25°C	Id	135	A
Continuous Drain Current, Vgs @ 10V, Tc = 100°C	Id	96	
Pulsed Drain Current	IdM	700	
Power Dissipation Tc = 25°C	Pd	200	W
Linear Derating Factor		1.3	W/°C
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	°C
Soldering Temperature, for 10 seconds		300	°C
Junction-to-Case	R θ JC	0.75	°C/W
Junction-to-Ambient (PCB mount)	R θ JA	40	

* Isd ≤ 104A, di/dt ≤ 240A/μs, VDD ≤ V(BR)DSS, TJ ≤ 175°C

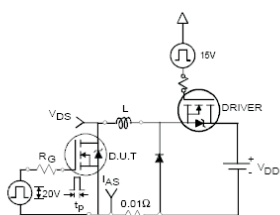


Fig1. Unclamped Inductive Test Circuit

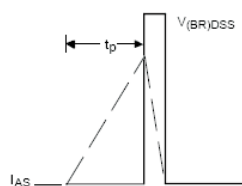


Fig 2. Unclamped Inductive Waveforms

KRF2805S

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250 \mu A$	55			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS} / \Delta T_J$	Reference to 25°C, $I_D = 1mA$		0.06		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 104A$ *		3.9	4.7	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	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
		$V_{DS} = 44V, V_{GS} = 0V, T_J = 150^\circ C$			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	$t_{d(off)}$	$R_G = 2.5 \Omega$		68		
Fall Time	t_f	$V_{GS} = 10V$ *		110		
Internal 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	$C_{oss \text{ eff.}}$	$V_{GS} = 0V, V_{DS} = 0V \text{ to } 44V$		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}	$T_J = 25^\circ C, I_S = 104A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_F = 104A$		80	120	ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100A/\mu s$ *		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 $\leq 400 \mu s$; duty cycle $\leq 2\%$.