HEXFET®Power MOSFET

KRF7805Z

■ Features

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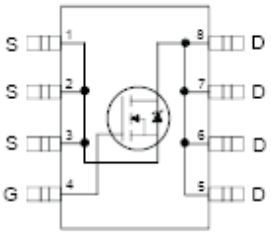
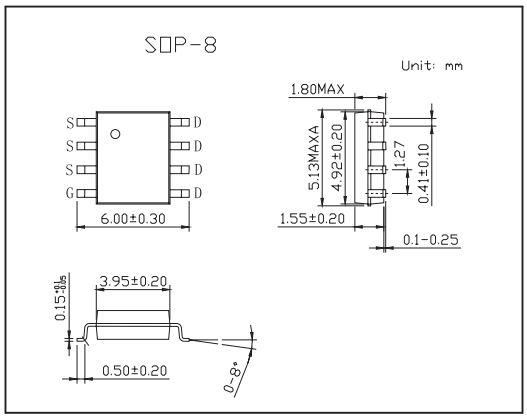


Top View



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Continuous Drain Current, V_{GS} @ 10V,T_A = 25℃	I_D	16	A
Continuous Drain Current, V_{GS} @ 10V,T_A = 70℃	I_D	12	
Pulsed Drain Current*1	I_{DM}	120	
Power Dissipation Ta = 25℃ *1	P_D	2.5	W
Power Dissipation Ta = 70℃ *1	P_D	1.6	W
Linear Derating Factor		0.02	W/℃
Gate-to-Source Voltage	V_{GS}	±20	V
Drain-Source Voltage	V_{DS}	30	V
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to + 150	℃
Junction-to-Ambient	$R_{\theta JA}$	50	℃/W
Junction-to-Drain Lead	$R_{\theta JL}$	20	℃/W
Single Pulse Avalanche Energy*3	E_{AS}	72	mJ
Avalanche Current *2	I_{AR}	12	A

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

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

*3 Starting T_J = 25℃, L = 0.94mH,R_G = 25Ω, I_{AS} = 12A.

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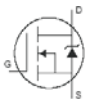
■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = 1mA,Reference to 25℃		0.023		V/℃
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 16A*1		5.5	44	mΩ
		V_{GS} =4.5V, I_D = 13A*1		7.0		
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.35		2.25	V
Gate Threshold Voltage Coefficient	$\triangle V_{GS(th)}$			-4.7		mV/℃
Forward Transconductance	g_{fs}	V_{DS} = 15V, I_D = 12A*1	64			S
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1.0	μA
		V_{DS} = 24V, V_{GS} = 0V, T_J = 125℃			150	
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 = 12A,V_{DS} = 15V,V_{GS} = 4.5V,*1		18	27	nC
Gate-to-Source Charge	Q_{gs1}			4.7		
Gate-to-Source Charge	Q_{gs2}			1.6		
Gate-to-Drain ("Miller") Charge	Q_{gd}			6.2		
Gate Charge Overdrive	Q_{godr}			5.5		
Switch Charge (Qgs2 + Qgd)	Q_{sw}			7.8		
Output Charge	Q_{oss}	V_{DS} = 16V, V_{GS} = 0V		10		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V		11		ns
Rise Time	t_r	I_D = 12A		10		
Turn-Off Delay Time	$t_{d(off)}$	V_{GS}=4.5V		14		
Fall Time	t_f	Clamped Inductive Load		3.7		
Input Capacitance	C_{iss}	V_{GS} = 0V		2080		pF
Output Capacitance	C_{oss}	V_{DS} = 15V		480		
Reverse Transfer Capacitance	C_{rss}	f= 1.0MHz		220		
Continuous Source Current（Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode. 			3.1	A
Pulsed Source Current （Body Diode) *2	I_{SM}				120	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = 12A, V_{GS} = 0V*1			1.0	V
Reverse Recovery Time	t_{rr}	T_J = 25℃, I_F = 12A.V_{DD}=15V		29	440	ns
Reverse RecoveryCharge	Q_{rr}	di/dt = 100A/μs*1		20	30	nC
Forward Turn-On Time	ton	Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D)				

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

*2 Repetitive rating; pulse width limited bymax