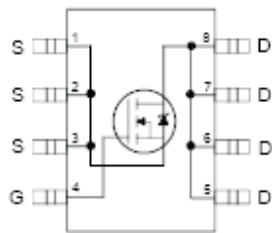


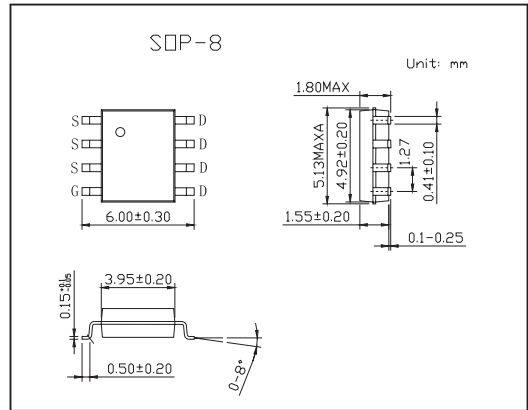
# KRF7805Z

■ Features

- 



Top View



■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$

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

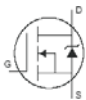
\*1 Pulse width  $\leq 400 \mu\text{s}$ ; duty cycle  $\leq 2\%$ .

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

\*3 Starting  $T_J = 25^\circ\text{C}$ ,  $L = 0.94\text{mH}$ ,  $R_G = 25 \Omega$ ,  $I_{AS} = 12\text{A}$ .

# KRF7805Z

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250 \mu A$	30			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS} / \Delta T_J$	$I_D = 1mA, \text{Reference to } 25^\circ C$		0.023		V/°C
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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1.35		2.25	V
Gate Threshold Voltage Coefficient	$\Delta V_{GS(th)}$			-4.7		mV/°C
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
		$V_{DS} = 24V, V_{GS} = 0V, T_J = 125^\circ C$			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 ( $Q_{gs2} + Q_{gd}$ )	$Q_{sw}$			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	$V_{SD}$	$T_J = 25^\circ C, I_S = 12A, V_{GS} = 0V^{*1}$			1.0	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ C, I_F = 12A, V_{DD} = 15V$		29	440	ns
Reverse Recovery Charge	$Q_{rr}$	$di/dt = 100A/\mu s^{*1}$		20	30	nC
Forward Turn-On Time	$t_{on}$	Intrinsic turn-on time is negligible (turn-on is dominated by $L_s + L_d$ )				

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

\*2 Repetitive rating; pulse width limited by max