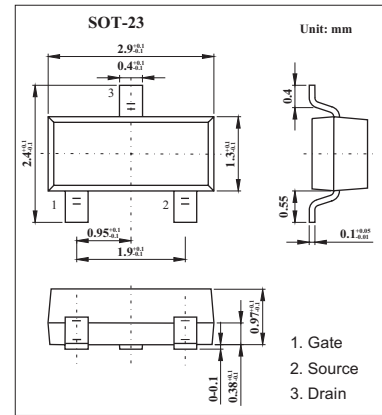
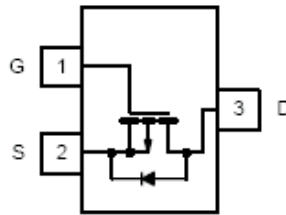


P-Channel 60-V (D-S) MOSFET

KI2309DS

■ Features

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

Parameter	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	-60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ($T_J = 150^\circ\text{C}$)*1,2 $T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$	I_D	-1.25 -0.85	A
Pulsed drain current	I_{DM}	-8	A
Avalanche Current $L = 0.1 \text{ mH}$	I_{AS}	-5	A
Maximum Power dissipation *1,2 $T_A = 25^\circ\text{C}$ $T_A = 70^\circ\text{C}$	P_D	1.25 0.8	W
Operating junction and storage temperature range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

*1 Surface Mounted on FR4 Board.

*2 $t \leq 5 \text{ sec}$

■ Thermal Resistance Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction to Ambient* $t \leq 5 \text{ sec}$ Steady State	R_{thJA}		100	$^\circ\text{C/W}$
		130	166	
Maximum Junction-to-Lead* Steady State	R_{thJL}	45	60	

* Surface Mounted on FR4 Board.

KI2309DS

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{ A}$	-60			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{ A}$	-1			
Gate-body leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -48\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{ A}$
		$V_{DS} = -48\text{ V}, V_{GS} = 0\text{ V}, T_J = 125\text{ }^\circ\text{C}$			-50	
On-state drain current	$I_{D(on)}$	$V_{DS} \geq -4.5\text{ V}, V_{GS} = -10\text{ V}$	-6			A
Drain-source on-state resistance	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -1.25\text{ A}$		0.275	0.340	Ω
		$V_{GS} = 4.5\text{ V}, I_D = -1\text{ A}$		0.406	0.550	
Forward transconductance	g_{fs}	$V_{DS} = -4.5\text{ V}, I_D = -1\text{ A}$		1.9		S
Total gate charge *	Q_g	$V_{DS} = -30\text{ V}, V_{GS} = -10\text{ V}, I_D = -1.25\text{ A}$		5.4	12	nC
Gate-source charge *	Q_{gs}			1.15		
Gate-drain charge *	Q_{gd}			0.92		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -30\text{ V}, R_L = 30\ \Omega, I_D = -1\text{ A}, V_{GEN} = -4.5\text{ V}, R_G = 6\ \Omega$		10.5	20	ns
Rise Time	t_r			11.5	20	
Turn-Off Delay Time	$t_{d(off)}$			15.5	30	
Fall Time	t_f			7.5	15	
Continuous Current	I_S				-1.25	A
Pulsed Current	I_{SM}				-8	A
Diode Forward Voltage*	V_{SD}	$I_S = -1.25\text{ A}, V_{GS} = 0\text{ V}$		-0.82	-1.2	V
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.25\text{ A}, di/dt = 100\text{ A}/\mu\text{ s}$		30	55	ns

* Pulse test: $PW \leq 300\ \mu\text{ s}$ duty cycle $\leq 2\%$.

■ Marking

Marking	A9
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