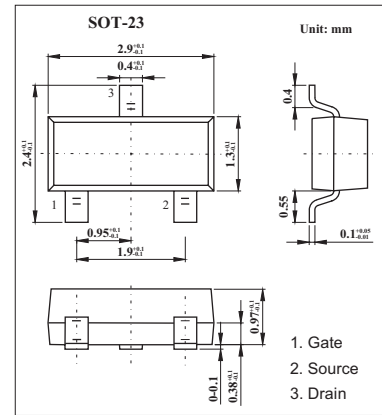
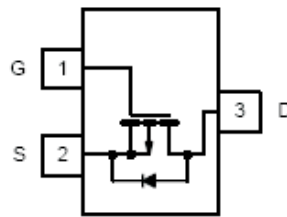


## P-Channel 60-V (D-S) MOSFET

## 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	$V_{GS}$	$\pm 20$	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	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	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	$\Omega$
		$V_{GS} = 4.5\text{ V}, I_D = -1\text{ A}$		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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