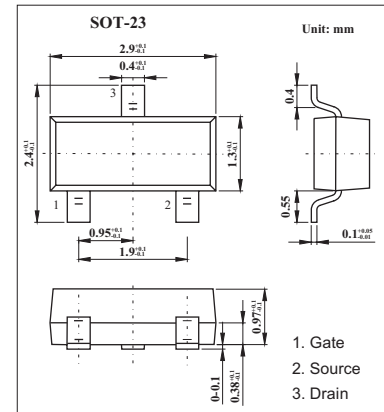
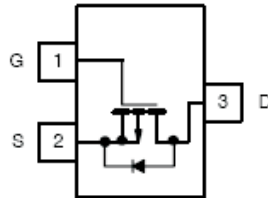


## P-Channel 2.5-V (G-S) MOSFET

## KI2301BDS

## ■ Features

- RoH Lead (Pb)-Free Version is RoHS Compliant.

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

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	$V_{DS}$		-20	V
Gate-Source Voltage	$V_{GS}$		$\pm 8$	V
Continuous Drain Current ( $T_J=150^\circ\text{C}$ ) *2 $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	$I_D$	-2.4 -1.9	-2.2 -1.8	A
Pulsed Drain Current *1	$I_{DM}$		-10	A
Continuous Source Current (diode conduction) *2	$I_S$	-0.72	-0.6	A
Power Dissipation *2 $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	$P_D$	0.9 0.57	0.7 0.45	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

\* 1. Pulse width limited by maximum junction temperature.

\* 2. Surface Mounted on FR4 Board,  $t \leq 5$  sec.

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

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *1	$R_{thJA}$	120	145	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Ambient *2		140	175	

\* 1. Surface Mounted on FR4 Board,  $t \leq 5$  sec.

\* 2. Surface Mounted on FR4 Board.

## KI2301BDS

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.45		-0.95	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{A}$
		$V_{DS} = -20\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^\circ\text{C}$			-10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -5\text{ V}, V_{GS} = -4.5\text{ V}$	-6			A
		$V_{DS} \leq -5\text{ V}, V_{GS} = -2.5\text{ V}$	-3			
Drain-Source On-State Resistance *	$r_{DS(on)}$	$V_{GS} = -4.5\text{ V}, I_D = -2.8\text{ A}$		0.08	0.1	$\Omega$
		$V_{GS} = -2.5\text{ V}, I_D = -2.0\text{ A}$		0.11	0.15	
Forward Transconductance *	$g_{fs}$	$V_{DS} = -5\text{ V}, I_D = -2.8\text{ A}$		6.5		S
Diode Forward Voltage *	$V_{SD}$	$I_S = -0.75\text{ A}, V_{GS} = 0\text{ V}$		-0.8	-1.2	V
Total Gate Charge	$Q_g$	$V_{DS} = -6\text{ V}, V_{GS} = -4.5\text{ V}, I_D = -2.8\text{ A}$		4.5	10	nC
Gate-Source Charge	$Q_{gs}$		0.7			
Gate-Drain Charge	$Q_{gd}$		1.1			
Input Capacitance	$C_{iss}$	$V_{DS} = -6\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$		375		pF
Output Capacitance	$C_{oss}$		95			
Reverse Transfer Capacitance	$C_{rss}$		65			
Turn-On Time	$t_{d(on)}$	$V_{DD} = -6\text{ V}, R_L = 6\Omega, I_D = -1\text{ A}, V_{GEN} = -4.5\text{ V}, R_G = 6\Omega$		20	30	ns
	$t_r$			40	60	
Turn-Off Time	$t_{d(off)}$			30	45	
	$t_f$			20	30	

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

## ■ Marking

Marking	L1
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