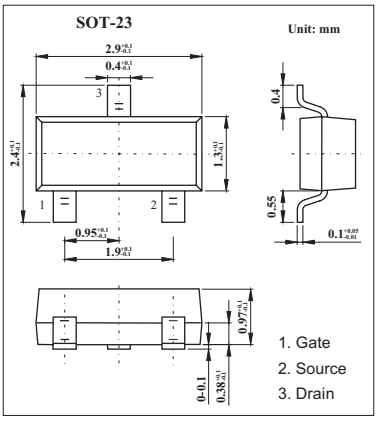
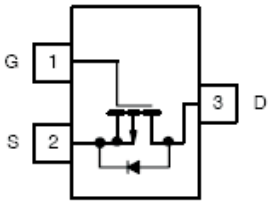
P-Channel 2.5-V (G-S) MOSFET

KI2301BDS



■ Features

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



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	V_{DS}	-20		V
Gate-Source Voltage	V_{GS}	±8		V
Continuous Drain Current (T_J=150℃) *2 T_A=25℃ T_A=70℃	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℃ T_A=70℃	P_D	0.9 0.57	0.7 0.45	W
Jumction Temperature	T_j	150		℃
Storage Temperature	T_{stg}	-55 to +150		℃

* 1. Pulse width limited by maximum junction temperature.

* 2. Surface Mounted on FR4 Board, t ≤ 5 sec.

■ Thermal Resistance Ratings Ta = 25℃

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *1	R_{thJA}	120	145	℃/W
Maximum Junction-to-Ambient *2		140	175	

* 1. Surface Mounted on FR4 Board, t ≤ 5 sec.

* 2. Surface Mounted on FR4 Board.

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■ Electrical Characteristics Ta = 25℃

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

* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

■ Marking

Marking	L1