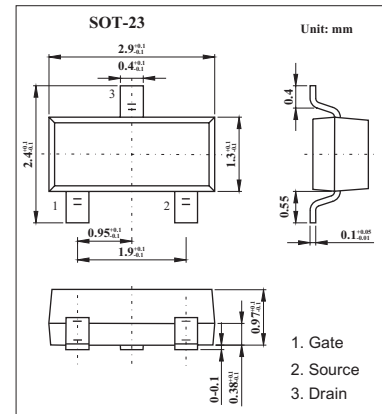
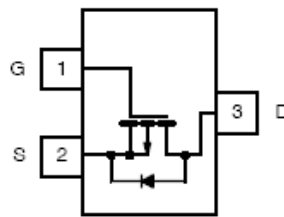


## P-Channel 30-V (D-S) MOSFET

## KI2307BDS

## ■ Features

- TrenchFET Power MOSFET
- RoHS Compliant

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

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	$V_{DS}$		-30	V
Gate-Source Voltage	$V_{GS}$		$\pm 20$	V
Continuous Drain Current ( $T_J=150^\circ\text{C}$ ) * $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	$I_D$	-3.2 -2.6	-2.5 -2.0	A
Pulsed Drain Current *	$I_{DM}$		-12	A
Continuous Source Current (diode conduction) *2	$I_S$	-1.25	-0.75	A
Power Dissipation * $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	$P_D$	1.25 0.8	0.75 0.48	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

\* Surface Mounted on FR4 Board.

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

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *1	$R_{thJA}$	80	100	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Ambient *2 Steady State		130	166	

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

\* 2. Surface Mounted on FR4 Board.

## KI2307BDS

## ■ Electrical Characteristics Ta = 25 °C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	V <sub>GS</sub> = 0 V, I <sub>D</sub> = -10 μA	-30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-1.0		-3.0	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C			-10	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≤ -10 V, V <sub>GS</sub> = -10 V	-6			A
Drain-Source On-State Resistance *	r <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -3.2 A		0.063	0.078	Ω
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -2.5 A		0.105	0.130	
Forward Transconductance *	g <sub>fs</sub>	V <sub>DS</sub> = -10 V, I <sub>D</sub> = -3.2 A		5.0		S
Diode Forward Voltage *	V <sub>SD</sub>	I <sub>S</sub> = -0.75A, V <sub>GS</sub> = 0 V		-0.85	-1.2	V
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10 V, I <sub>D</sub> = -1.7 A		9.0	15	nC
Gate-Source Charge	Q <sub>gs</sub>			1.4		
Gate-Drain Charge	Q <sub>gd</sub>			2.4		
Gate Resistance	R <sub>g</sub>	f = 1.0 MHz		8		Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0, f = 1 MHz		380		pF
Output Capacitance	C <sub>oss</sub>			100		
Reverse Transfer Capacitance	C <sub>rss</sub>			75		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V, R <sub>L</sub> = 15 Ω, I <sub>D</sub> = -1A, V <sub>GEN</sub> = -4.5V, R <sub>G</sub> = 6 Ω		9	20	ns
	t <sub>r</sub>			12	20	
Turn-Off Time	t <sub>d(off)</sub>			25	40	
	t <sub>f</sub>			14	21	

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

## ■ Marking

Marking	L7
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