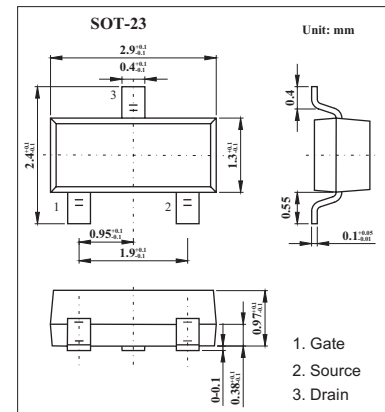
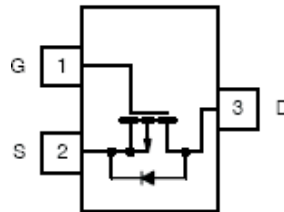


## P-Channel 40-V (D-S) MOSFET

## KI2319DS

## ■ Features

- TrenchFET Power MOSFET

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

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	$V_{DS}$	-40		V
Gate-Source Voltage	$V_{GS}$	$\pm 20$		V
Continuous Drain Current ( $T_J=150^\circ\text{C}$ ) * 1 $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	$I_D$	-3.0 -2.4	-2.3 -1.85	A
Pulsed Drain Current *2	$I_{DM}$	-12		A
Continuous Source Current (diode conduction) *1	$I_S$	-1.0	-0.62	A
Power Dissipation *1 $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	$P_D$	1.25 0.8	0.75 0.48	W
Junction Temperature	$T_J$	150		$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150		$^\circ\text{C}$

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

\*2 Pulse width limited by maximum junction temperature.

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

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *1	$R_{thJA}$	75	100	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Ambient *2 Steady State		120	166	
Maximum Junction-to-Foot (Drain) Steady State	$R_{thJF}$	40	50	

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

\* 2. Surface Mounted on FR4 Board.

## KI2319DS

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.0		-3.0	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -40\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{A}$
		$V_{DS} = -40\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^\circ\text{C}$			-10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -5\text{ V}, V_{GS} = -10\text{ V}$	-6			A
Drain-Source On-State Resistance *	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -3.0\text{ A}$		0.065	0.082	$\Omega$
		$V_{GS} = -4.5\text{ V}, I_D = -2.4\text{ A}$		0.10	0.130	
Forward Transconductance *	$g_{fs}$	$V_{DS} = -5\text{ V}, I_D = -3.0\text{ A}$		7		S
Diode Forward Voltage *	$V_{SD}$	$I_S = -1.25\text{ A}, V_{GS} = 0\text{ V}$		-0.8	-1.2	V
Total Gate Charge	$Q_g$	$V_{DS} = -20\text{ V}, V_{GS} = -10\text{ V}, I_D = -3\text{ A}$		11.3	17	nC
Gate-Source Charge	$Q_{gs}$			1.7		
Gate-Drain Charge	$Q_{gd}$			3.3		
Input Capacitance	$C_{iss}$	$V_{DS} = -20\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$		470		pF
Output Capacitance	$C_{oss}$			85		
Reverse Transfer Capacitance	$C_{rss}$			65		
Turn-On Time	$t_{d(on)}$	$V_{DD} = -20\text{ V}, R_L = 20\ \Omega, I_D = -1\text{ A}, V_{GEN} = -4.5\text{ V}, R_G = 6\ \Omega$		7	15	ns
	$t_r$			15	25	
Turn-Off Time	$t_{d(off)}$			25	40	
	$t_f$			25	40	

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

## ■ Marking

Marking	C9
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