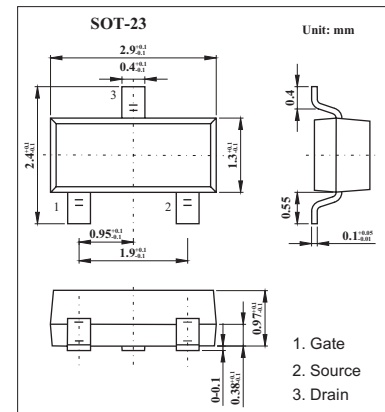
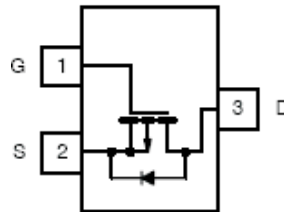


P-Channel 40-V (D-S) MOSFET

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}	± 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}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -40\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -40\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^\circ\text{C}$			-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	Ω
		$V_{GS} = -4.5\text{ V}, I_D = -2.4\text{ A}$		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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