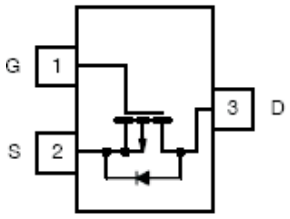
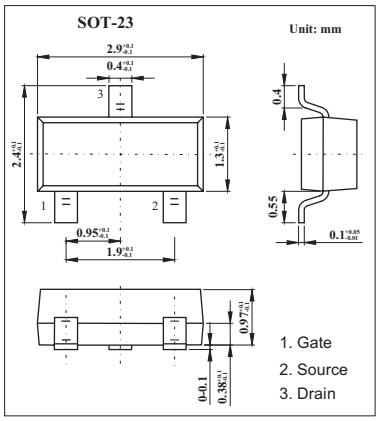
P-Channel 40-V (D-S) MOSFET

KI2319DS

■ Features

●TrenchFET Power MOSFET





■ Absolute Maximum Ratings Ta = 25℃

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℃) * 1 T_A=25℃ T_A=70℃	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℃ T_A=70℃	P_D	1.25 0.8	0.75 0.48	W
Jumction Temperature	T_j	150		℃
Storage Temperature	T_{stg}	-55 to +150		℃

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

*2 Pulse width limited by maximum junction temperature.

■ Thermal Resistance Ratings Ta = 25℃

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *1	R_{thJA}	75	100	℃/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 ≤ 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 μ A	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 μA	-1.0		-3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -40 V, V_{GS} = 0 V			-1	μ A
		V_{DS} = -40 V, V_{GS} = 0 V, T_J = 55 ℃			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS} ≤ -5 V, V_{GS} = -10V	-6			A
Drain-Source On-State Resistance *	$r_{DS(on)}$	V_{GS} = -10 V, I_D = -3.0 A		0.065	0.082	Ω
		V_{GS} = -4.5 V, I_D = -2.4 A		0.10	0.130	
Forward Transconductance *	g_{fs}	V_{DS} = -5 V, I_D = -3.0 A		7		S
Diode Forward Voltage *	V_{SD}	I_S = -1.25 A, V_{GS} = 0 V		-0.8	-1.2	V
Total Gate Charge	Q_g	V_{DS} = -20V ,V_{GS} = -10 V , I_D= -3 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} = -20V ,V_{GS} = 0 , f = 1 MHz		470		pF
Output Capacitance	C_{oss}			85		
Reverse Transfer Capacitance	C_{rss}			65		
Turn-On Time	$t_{d(on)}$	V_{DD} = -20V , R_L =20Ω , I_D = -1A , V_{GEN} =- 4.5V , R_G = 6Ω		7	15	ns
	t_r			15	25	
Turn-Off Time	$t_{d(off)}$			25	40	
	t_f			25	40	

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

■ Marking

Marking	C9