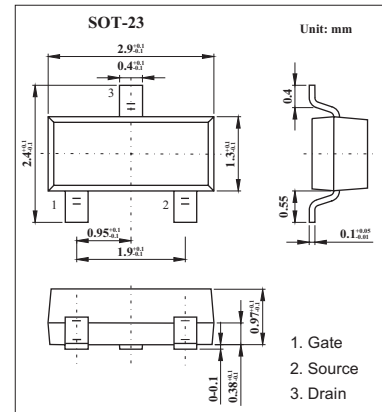
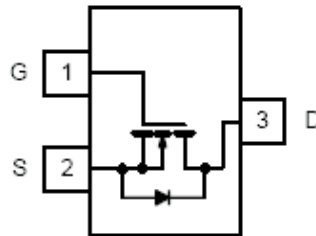


N-Channel 20-V (D-S) MOSFET KI2314EDS

Features

- TrenchFET Power MOSFET
- ESD Protected: 3000 V



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

Parameter	Symbol	5secs	Steady State	Unit
Drain-Source Voltage	V_{DS}	20		V
Gate-Source Voltage	V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$)*1 $T_A = 25^\circ\text{C}$ $T_A = 70^\circ\text{C}$	I_D	4.9	3.77	A
		3.9	3	
Pulsed Drain Current	I_{DM}	15		
Avalanche Current*2 $L = 0.1\text{ mH}$	I_{AS}	15		
Single Avalanche Energy $L = 0.1\text{ mH}$	E_{AS}	11.25		
Continuous Source Current (Diode Conduction)*1	I_S	1		
Power Dissipation *1 $T_A = 25^\circ\text{C}$ $T_A = 70^\circ\text{C}$	P_D	1.25	0.75	W
		0.8	0.48	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$

*1 Surface Mounted on 1"X 1" FR4 Board.

*2 Pulse width limited by maximum junction temperature.

Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient *	R_{thJA}	$t \leq 5\text{ sec}$	75	100	$^\circ\text{C}/\text{W}$
		Steady-State	120	166	
Maximum Junction-to-Foot (Drain)	R_{thJF}	40	50		

* Surface Mounted on 1"X 1" FR4 Board.

KI2314EDS

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{ A}$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{ A}$	0.45			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 4.5\text{ V}$			± 1.5	$\mu\text{ A}$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}$			1	$\mu\text{ A}$
		$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}, T_J = 70^\circ\text{C}$			75	
On-State Drain Current*	$I_{D(on)}$	$V_{DS} \geq 10\text{ V}, V_{GS} = 4.5\text{ V}$	15			A
Drain Source On State Resistance*	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}, I_D = 5.0\text{ A}$		0.027	0.033	Ω
		$V_{GS} = 2.5\text{ V}, I_D = 4.5\text{ A}$		0.033	0.040	
		$V_{GS} = 1.8\text{ V}, I_D = 4.0\text{ A}$		0.042	0.051	
Forward Transconductance	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 5.0\text{ A}$		40		S
Schottky Diode Forward Voltage*	V_{SD}	$I_S = 1.0\text{ A}, V_{GS} = 0\text{ V}$		0.8	1.2	V
Total Gate Charge	Q_g	$V_{DS} = 10\text{ V}, V_{GS} = 4.5\text{ V}, I_D = 5.0\text{ A}$		11.0	14.0	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\text{ V}, R_L = 10\ \Omega, I_D = 1.0\text{ A}, V_{GEN} = 4.5\text{ V}, R_G = 6\ \Omega$ *		0.53	0.8	ns
Rise Time	t_r			1.4	2.2	
Turn-Off Delay Time	$t_{d(off)}$			13.5	20	
Fall Time	t_f			5.9	9	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.0\text{ A}, di/dt = 100\text{ A}/\mu\text{ s}$		13	25	ns

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

■ Marking

Marking	C4
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