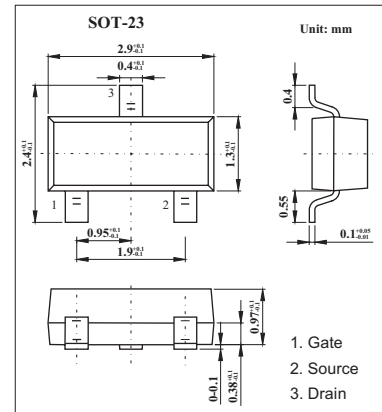
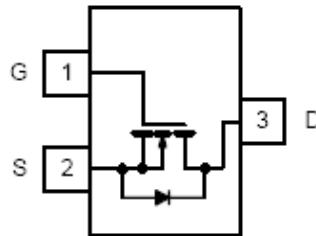


## N-Channel 20-V (D-S) MOSFET KI2314EDS

### ■ 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	$V_{GS}$	$\pm 12$		
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	$^\circ\text{C/W}$
		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	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 4.5\text{ V}$			$\pm 1.5$	$\mu\text{ A}$
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	$\Omega$
		$V_{GS} = 2.5\text{ V}, I_D = 4.5\text{ A}$		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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