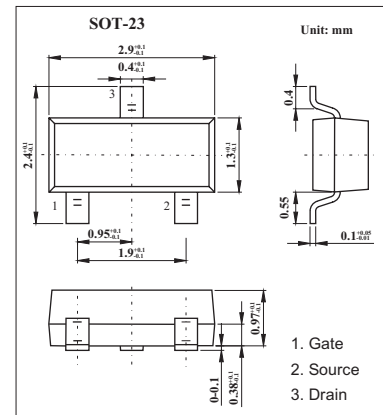
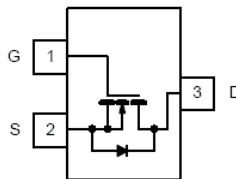


## N-Channel 1.25-W, 2.5-V MOSFET

## KI2302DS

## ■ Features

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) *2 $T_A = 70^\circ\text{C}$	$I_D$	2.8 2.2	A
Pulsed Drain Current *1	$I_{DM}$	10	A
Continuous Source Current (Diode Conduction)*2	$I_S$	1.6	A
Power Dissipation *2 $T_A = 70^\circ\text{C}$	$P_D$	1.25 0.80	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient <sup>b</sup>	$R_{thJA}$	100	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Ambient <sup>c</sup>	$R_{thJA}$	166	$^\circ\text{C}/\text{W}$

\*1 Pulse width limited by maximum junction temperature.

\*2 Surface Mounted on FR4 Board,  $t \leq 5$  sec.

\*3 Surface Mounted on FR4 Board.

## KI2302DS

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 10\ \mu\text{A}$	20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 50\ \mu\text{A}$	0.65			
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20\text{ V}, V_{GS} = 0\text{ V}$			1	$\mu\text{A}$
		$V_{DS} = 20\text{ V}, V_{GS} = 0\text{ V}, T_J = 55^\circ\text{C}$			10	
On-State Drain Current *	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}, V_{GS} = 4.5\text{ V}$	6			A
		$V_{DS} \geq 5\text{ V}, V_{GS} = 2.5\text{ V}$	4			
Drain-Source On-Resistance *	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}, I_D = 3.6\text{ A}$		0.07	0.085	$\Omega$
		$V_{GS} = 2.5\text{ V}, I_D = 3.1\text{ A}$		0.085	0.115	
Forward Transconductance *	$g_{fs}$	$V_{DS} = 5\text{ V}, I_D = 3.6\text{ A}$		10		S
Diode Forward Voltage	$V_{SD}$	$I_S = 1.6\text{ A}, V_{GS} = 0\text{ V}$		0.76	1.2	V
Total Gate Charge	$Q_g$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=3.6\text{A}$		5.4	10	nC
Gate-Source Charge	$Q_{gs}$			0.65		
Gate-Drain Charge	$Q_{gd}$			1.60		
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		340		pF
Output Capacitance	$C_{oss}$			115		
Reverse Transfer Capacitance	$C_{rss}$			33		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10\text{V}, R_L=5.5\ \Omega, I_D=3.6\text{A}, V_{GEN}=4.5\text{V}, R_G=6\ \Omega$		12	25	ns
Rise Time	$t_r$			36	60	
Turn-Off Delay Time	$t_{d(off)}$			34	60	
Fall-Time	$t_f$			10	25	

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

## ■ Marking

Marking	A2
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