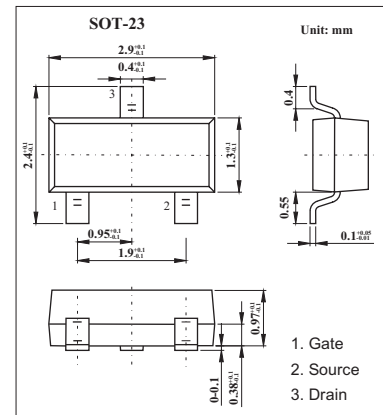
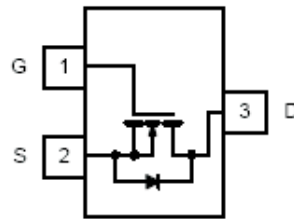


## N-Channel 30-V (D-S) MOSFET

## KI2304DS

## ■ Features

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) *2 $T_a = 25^\circ\text{C}$ $T_a = 70^\circ\text{C}$	$I_D$	2.5 2.0	A
Pulsed Drain Current *1	$I_{DM}$	10	A
Continuous Source Current (Diode Conduction)*2	$I_S$	1.25	A
Power Dissipation *2 $T_a = 25^\circ\text{C}$ $T_a = 70^\circ\text{C}$	$P_D$	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>		166	

\*1 Pulse width limited by maximum junction temperature.

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

\*3 Surface Mounted on FR4 Board.

## KI2304DS

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μ A	30			V
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μ A	1.5			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V			0.5	μ A
		V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			10	
		V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 1.0 V, T <sub>J</sub> = 25°C			1	
On-State Drain Current *	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 4.5 V, V <sub>GS</sub> = 10 V	6			A
		V <sub>DS</sub> ≥ 4.5 V, V <sub>GS</sub> = 4.5 V	4			
Drain-Source On-Resistance *	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 2.5 A		0.092	0.117	Ω
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 2.0 A		0.142	0.190	
Forward Transconductance *	g <sub>fs</sub>	V <sub>DS</sub> = 4.5 V, I <sub>D</sub> = 2.5 A		4.6		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1.25 A, V <sub>GS</sub> = 0 V		0.77	1.2	V
Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 5 V, I <sub>D</sub> = 2.5 A		2.4	4	nC
Total Gate Charge	Q <sub>gt</sub>	V <sub>DS</sub> =15V,V <sub>GS</sub> =10V,I <sub>D</sub> =2.5A		4.5	10	nC
Gate-Source Charge	Q <sub>gs</sub>			0.8		
Gate-Drain Charge	Q <sub>gd</sub>			1.0		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V,V <sub>GS</sub> =0V,f=1MHz		240		pF
Output Capacitance	C <sub>oss</sub>			110		
Reverse Transfer Capacitance	C <sub>rss</sub>			17		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =15V,R <sub>L</sub> =15Ω,I <sub>D</sub> =1A,V <sub>GEN</sub> =10V,R <sub>G</sub> =6Ω		8	20	ns
Rise Time	t <sub>r</sub>			12	30	
Turn-Off Delay Time	t <sub>d(off)</sub>			17	35	
Fall-Time	t <sub>f</sub>			8	20	

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

## ■ Marking

Marking	A4
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