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

KI2306DS

■ Features

● TrenchFET Power MOSFET

● 100% Rg Tested

SOT-23
Unit: mm

1. Gate
2. Source
3. Drain
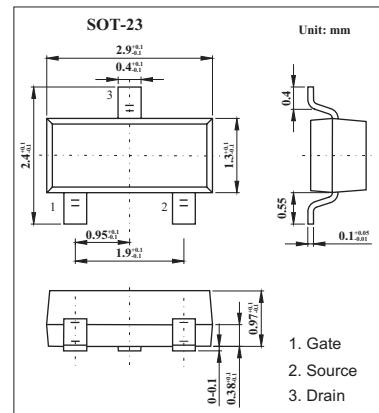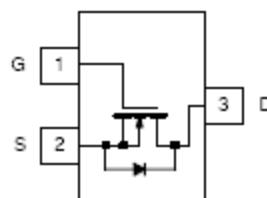
■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current (T_J = 150℃) *1,2 TA=25℃ TA=70℃	I_D	3.5 2.8	A
Pulsed drain current	I_{DM}	16	A
Continuous source current (diode conduction) *1,2	I_S	1.25	A
Maximum Power dissipation *1,2 TA=25℃ TA=70℃	P_D	1.25 0.8	W
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	℃
Maximum Junction to Ambienta t≤5 sec Steady State	R_{thJA}	100 130	℃/W

*1 Surface Mounted on FR4 Board.

 *2 t≤5 sec

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-source breakdown voltage	V(BR)DSS	VGS = 0 V, ID = 250 µA	30			V
Gate threshold voltage	VGS(th)	VDS = VGS, ID = 250 µA	1			
Gate-body leakage	IGSS	VDS = 0 V, VGS = ± 20 V			±100	nA
Zero gate voltage drain current	IDSS	VDS = 30V, VGS = 0 V			0.5	µA
		VDS =30V, VGS = 0 V, TJ = 55 ℃			10	
On-state drain current	ID(on)	VDS ⩾ 4.5 V, VGS = 10 V	6			A
		VDS ⩾ 4.5 V, VGS = 4.5 V	4			
Drain-source on-state resistance	rDS(on)	VGS = 10 V, ID = 3.5 A		0.046	0.057	Ω
		VGS =4.5 V, ID =2.8 A		0.070	0.094	
Forward transconductance	gfs	VDS =4.5 V, ID = 3.5 A		6.9		S
Diode forward voltage	VSD	IS = 1.25 A, VGS = 0 V		0.8	1.2	V
gate charge *	Qg	VDS = 15V ,VGS =5V , ID= 3.5 A		4.2	7	nC
Total gate charge *	Qgt	VDS = 15V ,VGS = 10 V , ID= 3.5 A		8.5	15	nC
Gate-source charge *	Qgs			1.9		
Gate-drain charge *	Qgd			1.35		
Gate Resistance	Rg		0.5		2.4	Ω
Input capacitance *	Ciss	VDS = 15V ,VGS = 0 , f = 1 MHz		555		pF
Output capacitance *	Coss			120		
Reverse transfer capacitance *	Crss			60		
Turn-on time	td(on)	VDD = 15V , RL = 15Ω , ID = 1A , VGEN =-10V , RG = 6Ω		9	20	ns
	tr			7.5	18	
Turn-off time	td(off)			17	35	
	tf			5.2	12	

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

■ Marking

Marking	A6