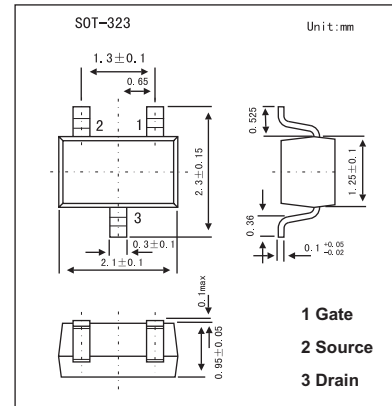
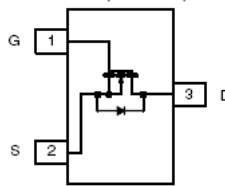


N-Channel 30-V (D-S) MOSFET

KI1304BDL

■ Features

- TrenchFET Power MOSFET
- 100% Rg Tested

■ 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}	± 12	V
Continuous drain current ($T_J = 150^\circ\text{C}$)	I_D	$T_c=25^\circ\text{C}$ 0.90 $T_c=70^\circ\text{C}$ 0.71	A
Continuous drain current ($T_J = 150^\circ\text{C}$)	I_D	$T_a=25^\circ\text{C}$ $0.85^{*1,2}$ $T_a=70^\circ\text{C}$ $0.68^{*1,2}$	A
Pulsed drain current	I_{DM}	4	A
Continuous Source Drain Diode Current	I_S	$T_c=25^\circ\text{C}$ 0.31 $T_a=25^\circ\text{C}$ 0.28	A
Power dissipation	P_D	$T_c=25^\circ\text{C}$ 0.37 $T_c=70^\circ\text{C}$ 0.24	W
Power dissipation	P_D	$T_a=25^\circ\text{C}$ $0.34^{*1,2}$ $T_a=70^\circ\text{C}$ $0.22^{*1,2}$	W
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 $t = 5$ sec

■ Thermal Resistance Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient*1,2	R_{thJA}	315	375	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Foot (Drain)	R_{thJF}	285	340	

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

*2 Maximum under steady state conditions is $360^\circ\text{C}/\text{W}$.

KI1304BDL

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	30			V	
VDS Temperature Coefficient	ΔV _{DS} /T _J	I _D = 250 μA		27.3		mV/°C	
VGS(th) Temperature Coefficient	ΔV _{GS(th)} /T _J			3			
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6		1.3	V	
Gate-body leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V			±100	nA	
Zero gate voltage drain current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA	
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 70 °C			5		
On-state drain current	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	4			A	
Drain-source on-state resistance	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 0.9		0.216	0.270	Ω	
		V _{GS} = 2.5V, I _D = 0.75		0.308	0.385		
Forward transconductance	g _{fs}	V _{DS} = 15 V, I _D = 0.9		2		S	
Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz		100		pF	
Output Capacitance	C _{oss}			30			
Reverse Transfer Capacitance	C _{rss}			20			
Total gate charge *	Q _g	V _{DS} = 15V, V _{GS} = 4.5 V, I _D = 0.9		1.8	2.7	nC	
Total gate charge *	Q _g			1.1	1.7		
Gate-source charge *	Q _{gs}		V _{DS} = 15V, V _{GS} = 2.5 V, I _D = 0.9		0.4		
Gate-drain charge *	Q _{gd}				0.6		
Gate Resistance	R _g	f = 1MHz		1.5	2.3	Ω	
Turn-on time	t _{d(on)}	V _{DD} = 15V, R _L = 22 Ω, I _D = 0.68A, V _{GEN} = 4.5V, R _G = 1 Ω		10	15	ns	
	t _r			30	45		
Turn-off time	t _{d(off)}			5	25		
	t _f			10	15		
Continuous Source-Drain Diode Current	I _S	TC = 25°C			0.31	A	
Pulse Diode Forward Current*	I _{SM}				4		
Body Diode Voltage	V _{SD}	I _S = 0.28 A		0.8	1.2	V	
Body Diode Reverse Recovery Time	t _{rr}	I _F = 0.28A, di/dt = 100A/μs, T _J = 25°C		50	75	ns	
Body Diode Reverse Recovery Charge	Q _{rr}			105	160	nC	
Reverse Recovery Fall Time	t _a			34		ns	
Reverse Recovery Rise Time	t _b			16		ns	

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

■ Marking

Marking	KF
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