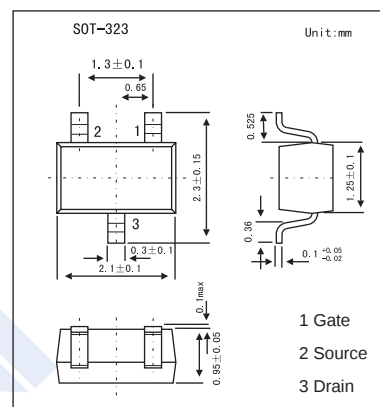
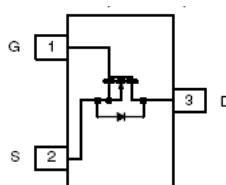


N-Channel 30-V (D-S) MOSFET

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 $360^\circ\text{C}/\text{W}$.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{ A}$	30			V
VDS Temperature Coefficient	$\Delta V_{DS}/T_J$	$I_D = 250\text{ }\mu\text{ A}$		27.3		mV/℃
VGS(th) Temperature Coefficient	$\Delta V_{GS(th)}/T_J$			3		
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{ A}$	0.6		1.3	V
Gate-body leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 12\text{ V}$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 30\text{ V}$, $V_{GS} = 0\text{ V}$			1	$\mu\text{ A}$
		$V_{DS} = 30\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 70\text{ }^\circ\text{C}$			5	
On-state drain current	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}$, $V_{GS} = 4.5\text{ V}$	4			A
Drain-source on-state resistance	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}$, $I_D = 0.9$		0.216	0.270	Ω
		$V_{GS} = 2.5\text{ V}$, $I_D = 0.75$		0.308	0.385	
Forward transconductance	g_{fs}	$V_{DS} = 15\text{ V}$, $I_D = 0.9$		2		S
Input Capacitance	C_{iss}	$V_{DS} = 15\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 1\text{ MHz}$		100		pF
Output Capacitance	C_{oss}			30		
Reverse Transfer Capacitance	C_{rss}			20		
Total gate charge *	Q_g	$V_{DS} = 15\text{ V}$, $V_{GS} = 4.5\text{ V}$, $I_D = 0.9$		1.8	2.7	nC
Total gate charge *	Q_g			1.1	1.7	
Gate-source charge *	Q_{gs}			0.4		
Gate-drain charge *	Q_{gd}			0.6		
Gate Resistance	R_g	$f = 1\text{ MHz}$		1.5	2.3	Ω
Turn-on time	$t_{d(on)}$	$V_{DD} = 15\text{ V}$, $R_L = 22\text{ }\Omega$, $I_D = 0.68\text{ A}$, $V_{GEN} = 4.5\text{ V}$, $R_G = 1\text{ }\Omega$		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	$TC = 25\text{ }^\circ\text{C}$			0.31	A
Pulse Diode Forward Current*	I_{SM}				4	
Body Diode Voltage	V_{SD}	$I_S = 0.28\text{ A}$		0.8	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 0.28\text{ A}$, $dI/dt = 100\text{ A}/\mu\text{ s}$, $T_J = 25\text{ }^\circ\text{C}$		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

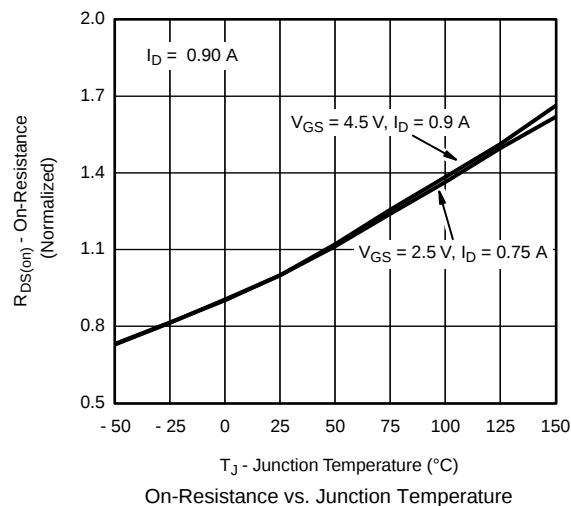
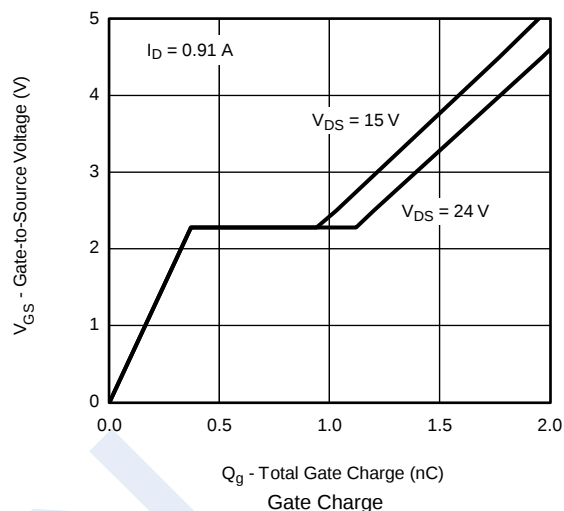
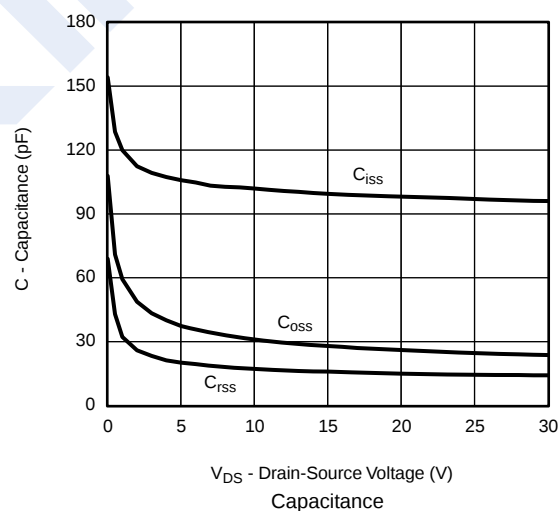
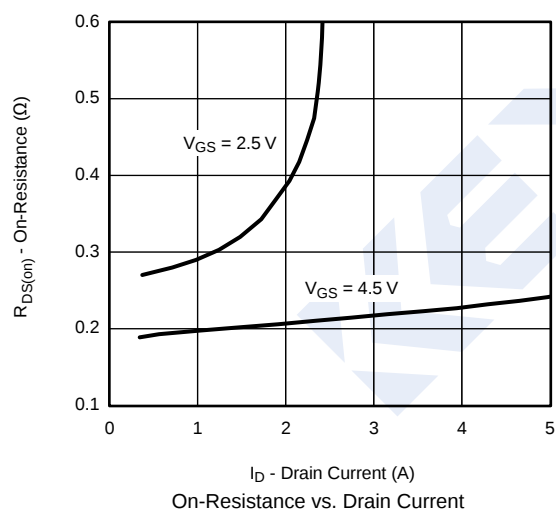
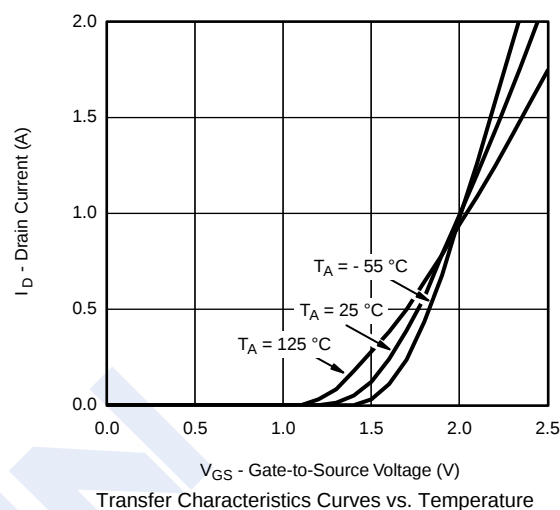
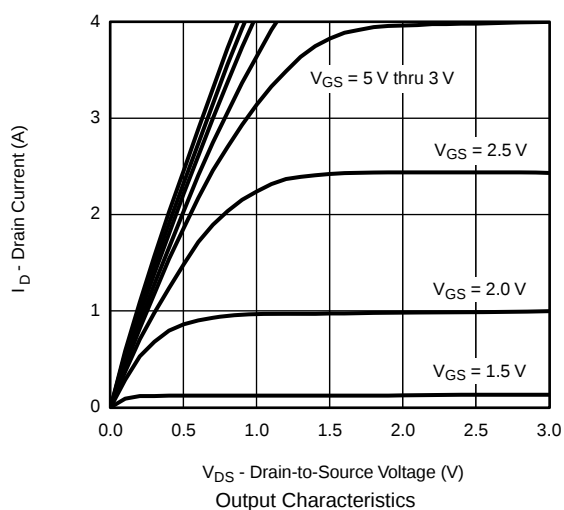
* Pulse test: $PW \leq 300\text{ }\mu\text{s}$ is duty cycle $\leq 2\%$.

■ Marking

Marking	0A3 ‡
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KI1304BDL

■ Typical Characteristics (25 °C, unless otherwise noted)



KI1304BDL

