快捷芯
KUAIJIEXIN

KJ10N20LT1

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Advanced trench cell design
- ☑ Low thermal resistance
- ☑ T_J 175℃
- ☑ MSL1

1.2 Applications

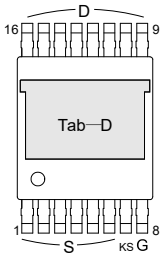
- ☑ Motor drivers
- ☑ Battery management

1.3 Quick reference

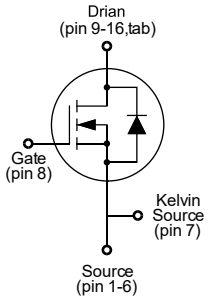
- ☑ BV ≥200 V
- ☑ $R_{DS(ON)}$ ≤ 10.2 mΩ @V_{GS} = 10 V
- ☑ P_D ≤333 W
- ☑ I_D ≤119 A

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1~6	Source		
7	Kelvin Source		
8	Gate		
9~16, Tab	Drain		



TOLT-16L



3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C=25℃	200	-	V
V_{GS}	Gate-Source Voltage	T_C=25℃	-	±20	V
I_D	Drain Current (DC)	T_C=25℃, V_{GS}=10 V	-	119	A
		T_C=100℃, V_{GS}=10 V	-	84	A
I_{DM} *	Drain Current (Pulsed)	T_C=25℃, V_{GS}=10 V	-	476	A
P_D	Drain Power Dissipation	T_C=25℃	-	333	W
I_S	Diode Forward Current	T_C=25℃	-	119	A
E_{AS}	Single Pulsed Avalanche Energy	V_{DD}=100 V, L=0.3 mH	-	972	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	175	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		-	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		-	0.45	℃/W

Notes:

* Pulse width ≤ 300 μs, duty cycle ≤ 2%.

** Surface mounted on 1 in^2 pad area, t ≤ 10 sec.

*** Limited by bonding wire.

4. Marking Information

Product Name	Marking
KJ10N20LT1	**KJ10N20LT1 XXXXXX-X**

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ10N20LT1	**TOLT-16L**	**13"**	**24 mm**	**1200**

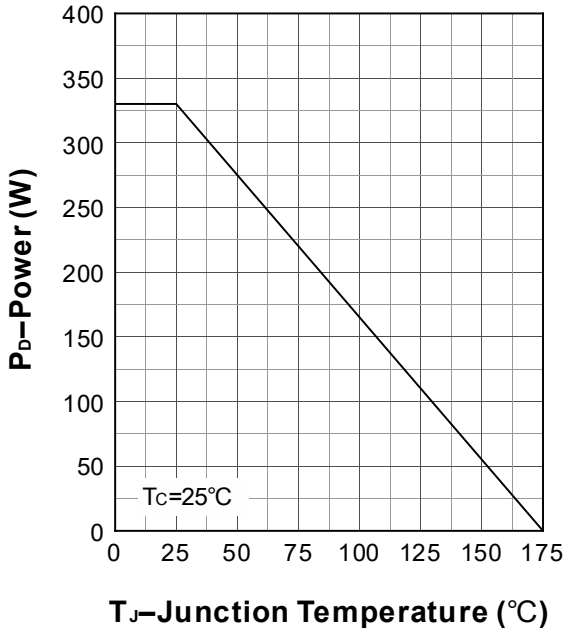
Note: KUAIJIEXIN defines “Green” as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C).

6. Electrical Characteristics (T_A=25℃ unless otherwise noted)

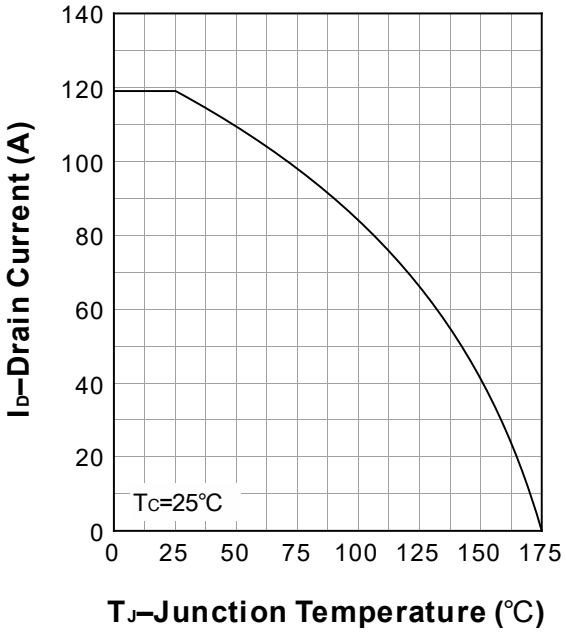
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_{DS}=250 μA	200	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250 μA	2	-	4	V
I_{DSS}	Drain Leakage Current	V_{DS}=200 V, V_{GS}=0 V	-	-	1	μA
I_{GSS}	Gate Leakage Current	V_{DS}=0 V, V_{GS}=±20 V	-	-	±100	nA
$R_{DS(ON)}$	On-State Resistance	V_{GS}=10 V, I_{DS}=50 A	-	8.3	10.2	mΩ
R_G	Gate Resistance	V_{GS}=V_{DS}=0 V, f=1 MHz	-	3.5	-	Ω
g_{FS}	Forward Transconductance	V_{DS}=5 V, I_D=50 A	-	90	-	S
Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD}=1 A, V_{GS}=0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=50 A, V_{GS}=0 V dI_{SD}/dt=100 A/μs	-	128	-	ns
Q_{rr}	Reverse Recovery Charge		-	755	-	nC
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0 V, V_{DS}=100 V, f=1 MHz	-	4822	-	pF
C_{oss}	Output Capacitance		-	410	-	
C_{rss}	Reverse Transfer Capacitance		-	26	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=100 V, V_{GEN}=10 V, R_G=2.7 Ω, I_{DS}=50 A	-	16	-	ns
t_r	Turn-on Rise Time		-	88	-	
$t_{d(off)}$	Turn-off Delay Time		-	53	-	
t_f	Turn-off Fall Time		-	82	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS}=100 V, V_{GS}=10 V, I_{DS}=50 A	-	70	-	nC
Q_{gs}	Gate-Source Charge		-	25	-	
Q_{gd}	Gate-Drain Charge		-	17	-	

7. Typical Characteristics

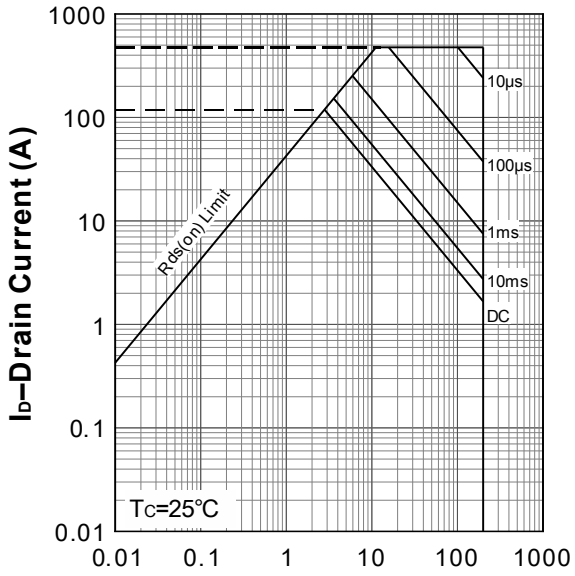
Power Capability



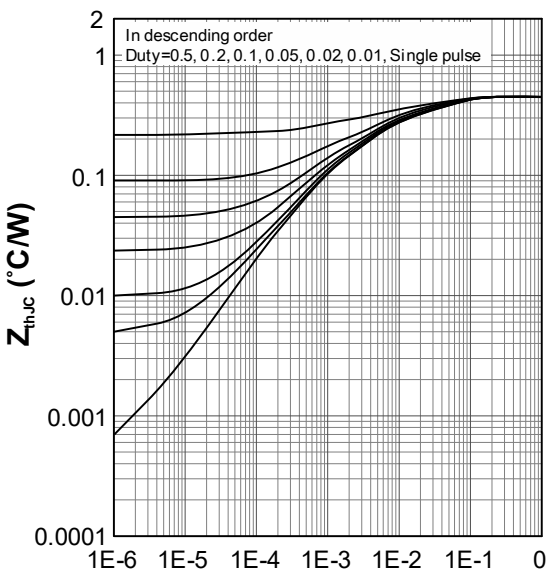
Current Capability



Safe Operating Area

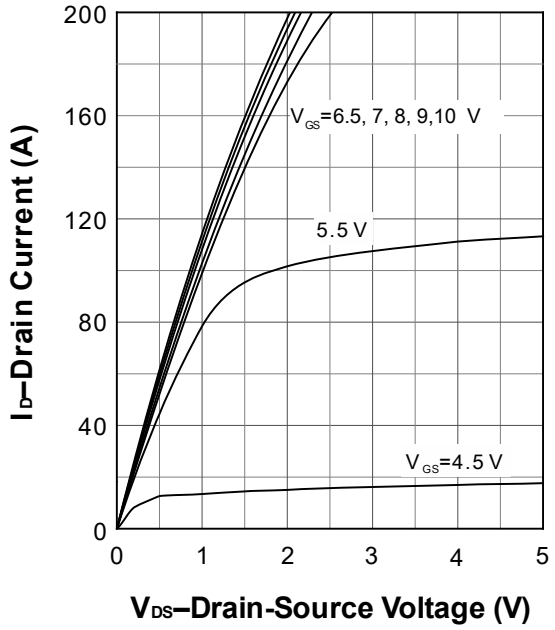


Transient Thermal Impedance

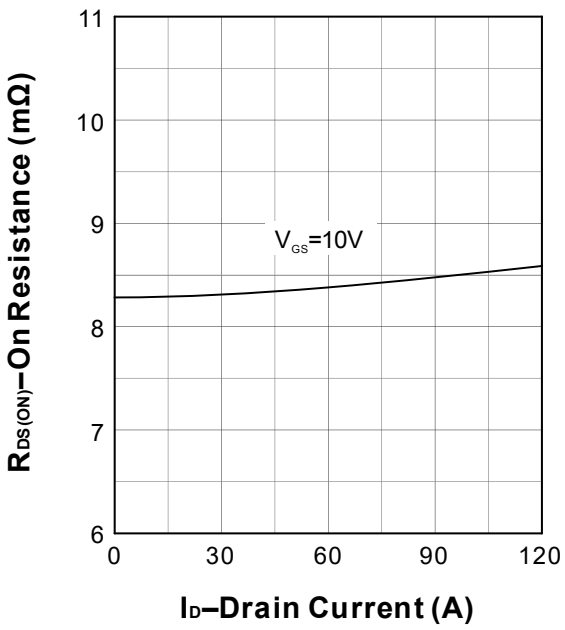


7. Typical Characteristics (cont.)

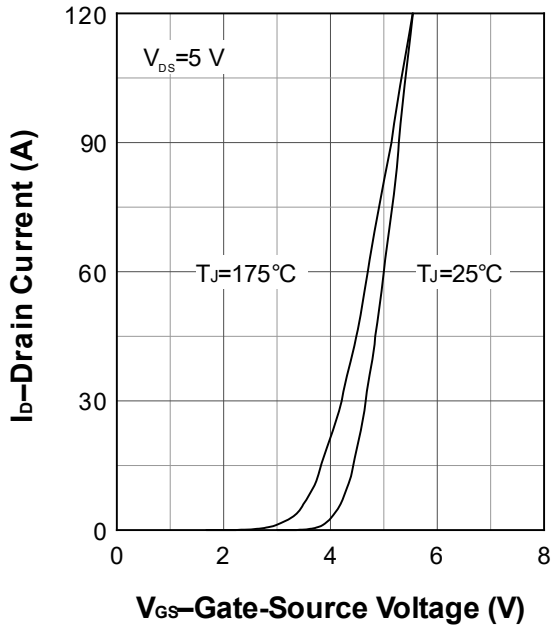
Output Characteristics



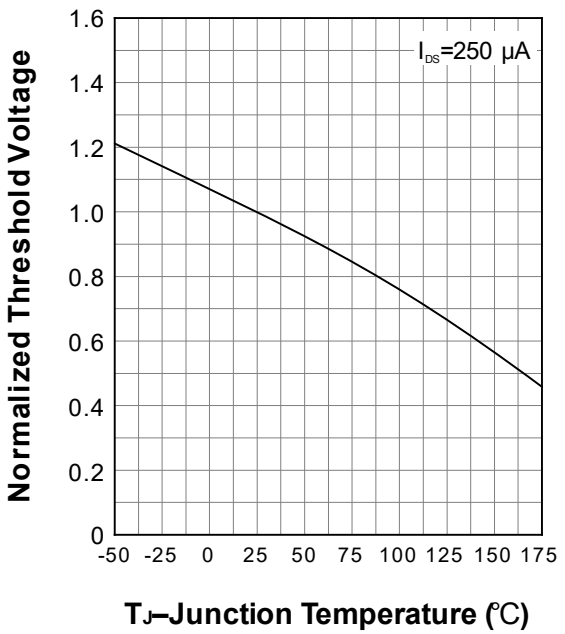
On Resistance



Transfer Characteristics

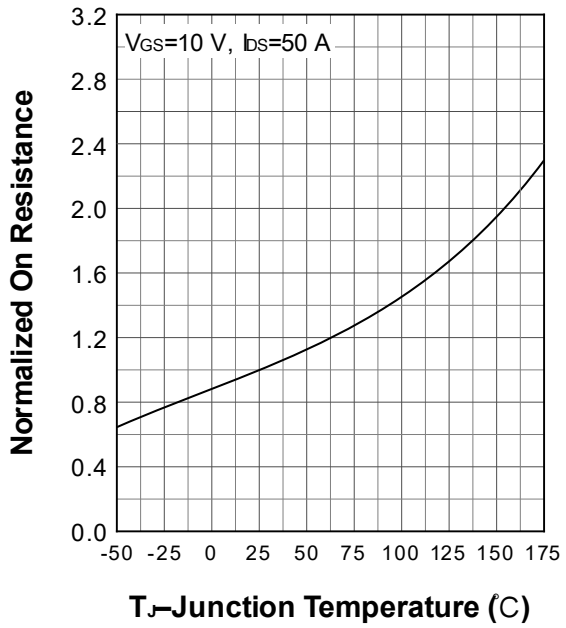


Normalized Threshold Voltage

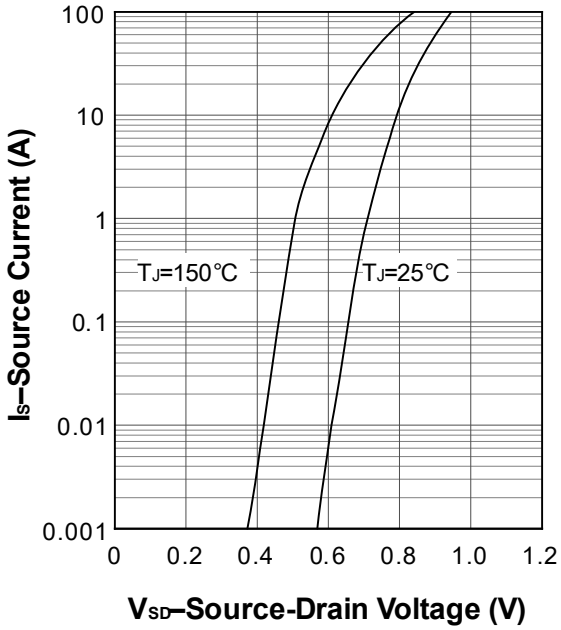


7. Typical Characteristics (cont.)

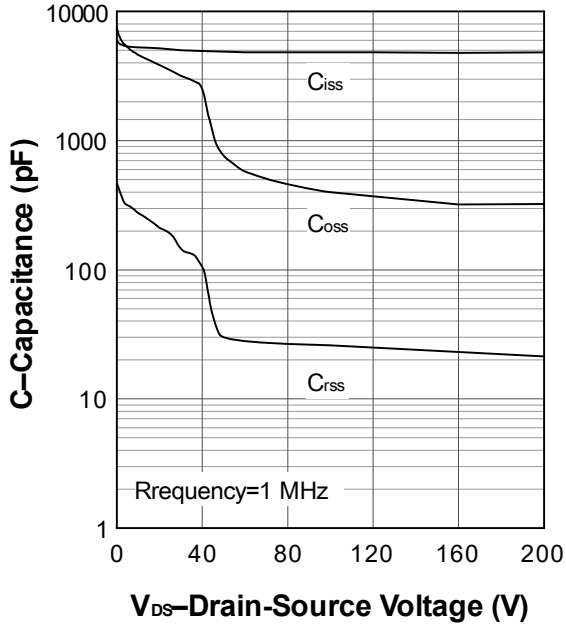
Normalized On Resistance



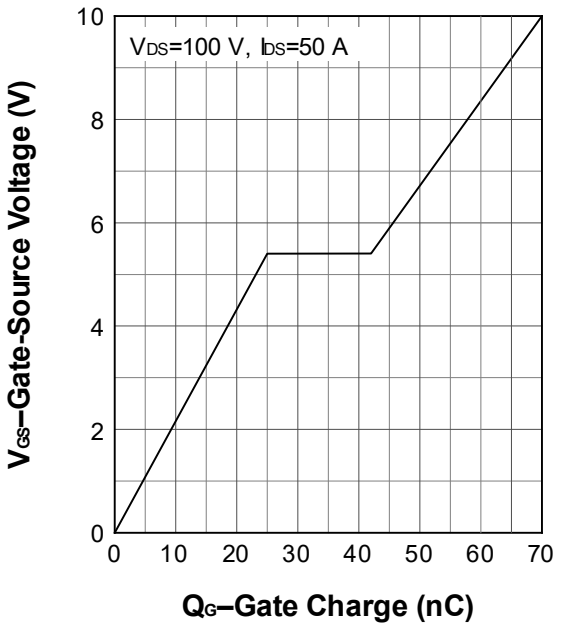
Diode Forward Current



Capacitance

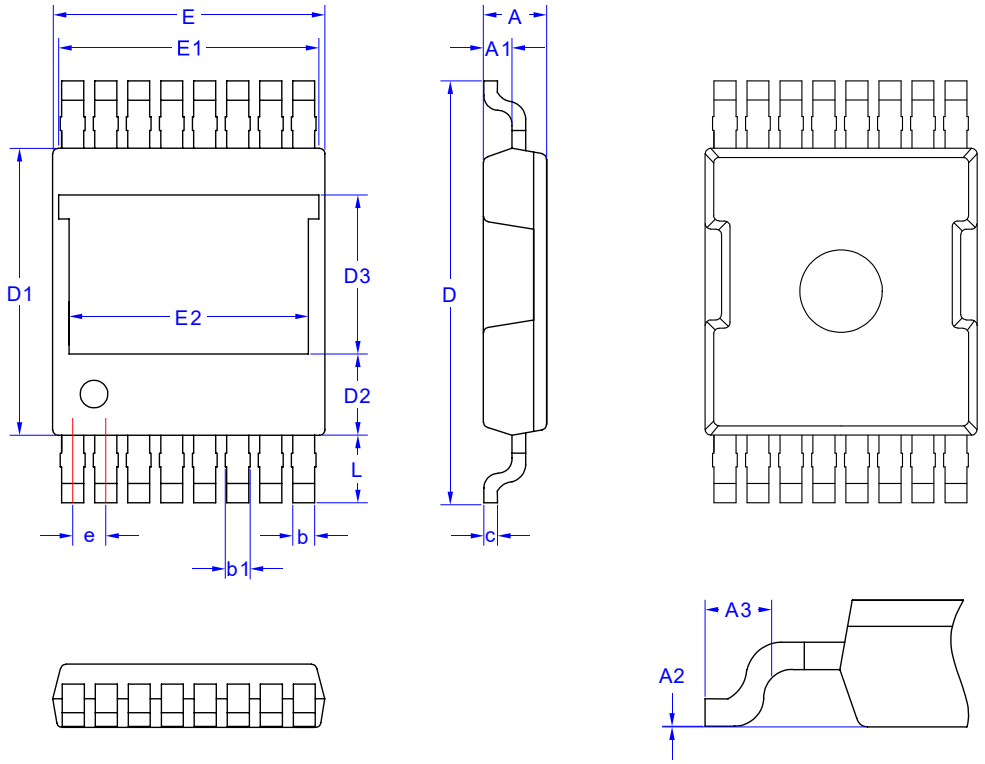


Gate Charge



8. Package Dimensions

TOLT-16L Package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.99	1.04	1.09
A2	0.00	0.08	0.16
A3		1.50 REF	
b	0.70	0.75	0.80
b1	0.65	0.70	0.75
c	0.45	0.50	0.55
D	14.50	15.00	15.50

Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
D1	9.60	10.10	10.60
D2	2.30	2.80	3.30
D3		5.77 REF	
E	9.40	9.90	10.40
E1		9.46 REF	
E2		8.70 REF	
e	1.15	1.20	1.25
L	2.40	2.45	2.50