KJ028N10CA

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Advanced trench cell design
- ☑ Fast switching speed
- ☑ Low thermal impedance
- ☑ 100% Avalanche tested

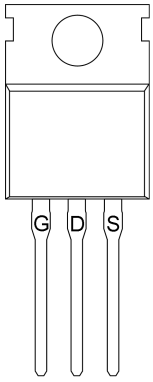
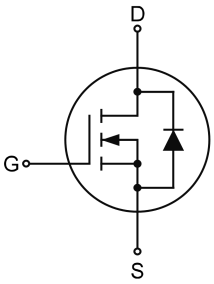
1.2 Applications

- ☑ DC/DC conversion
- ☑ Motor drives
- ☑ Power switch
- ☑ Battery management

1.3 Quick reference

- ☑ BV ≧ 100 V
- ☑ P_D ≦ 250 W
- ☑ I_D ≦ 180 A
- ☑ $R_{DS(ON)}$ ≦ 2.7 mΩ @V_{GS} = 10 V

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)		
2	Drain(D)		
3	Source(S)		

Top View
TO-220

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C=25℃	100	-	V
V_{GS}	Gate-Source Voltage	T_C=25℃	-	±20	V
I_D	Drain Current (DC)	T_C=25℃, V_{GS}=10 V	-	180	A
I_D	Drain Current (DC)	T_C=100℃, V_{GS}=10 V	-	139	A
I_{DM} *	Drain Current (Pulsed)	T_C=25℃, V_{GS}=10 V	-	720	A
P_D	Drain Power Dissipation	T_C=25℃	-	250	W
E_{AS}	Single Pulsed Avalanche Energy	V_{DD}=50 V, L=0.3 mH	-	911	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		-	40	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		-	0.5	℃/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
KJ028N10CA	KJ028N10CA XXXXXX-X

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity(pcs)
KJ028N10CA	TO-220	N/A	N/A	1000

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_J=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	100	-	-	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}=100 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}=75 A	-	2.3	2.7	mΩ
g_{FS}	Forward Transconductance	V_{GS}=5 V, I_{DS}=75 A	-	150	-	S
R_g	Gate Resistance	Frequency=1 MHz	-	1.3	-	Ω
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0 V, I_{SD}=75 A, V_{GS}=0 V	-	-	1.2	V
t_{rr}	Reverse Recovery Time	V_{DD}=50 V, V_{GS}=0 V, I_{SD}=75 A, diF/dt=100 A/μs	-	66	-	ns
Q_{rr}	Reverse Recovery Charge		-	129	-	nC
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50 V, V_{GS}=0 V, f=1.0 MHz	-	8508	-	pF
C_{oss}	Output Capacitance		-	1105	-	
C_{rss}	Reverse Transfer Capacitance		-	44	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=50 V, V_{GS}=10 V, I_D=75 A, R_{GEN}=6 Ω	-	68	-	ns
t_r	Turn-on Rise Time		-	74	-	
$t_{d(off)}$	Turn-off Delay Time		-	96	-	
t_f	Turn-off Fall Time		-	39	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS}=50 V, V_{GS}=10 V, I_D=75 A	-	140	-	nC
Q_{gs}	Gate-Source Charge		-	42	-	
Q_{gd}	Gate-Drain Charge		-	41	-	

7. Typical Characteristics

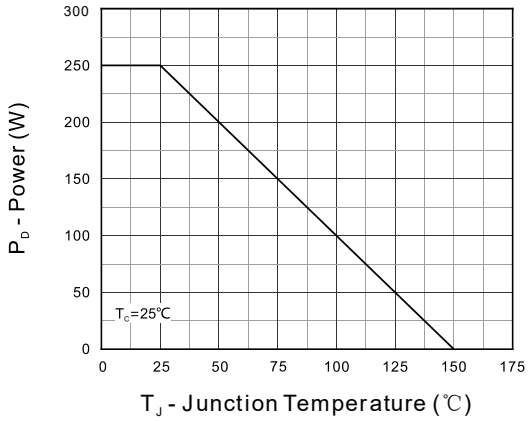


Fig 1. Power Capability

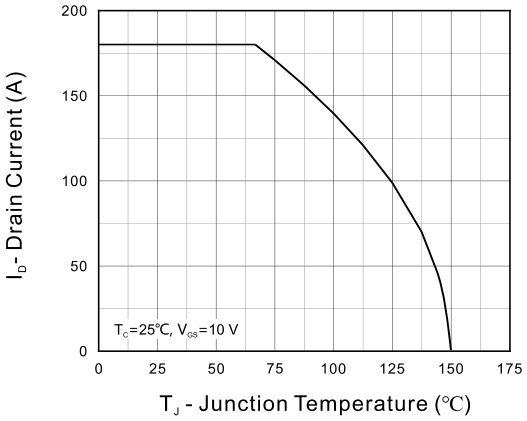


Fig 2. Current Capability

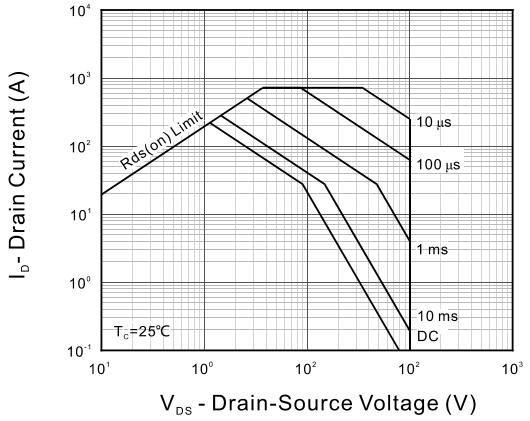


Fig 3. Safe Operation Area

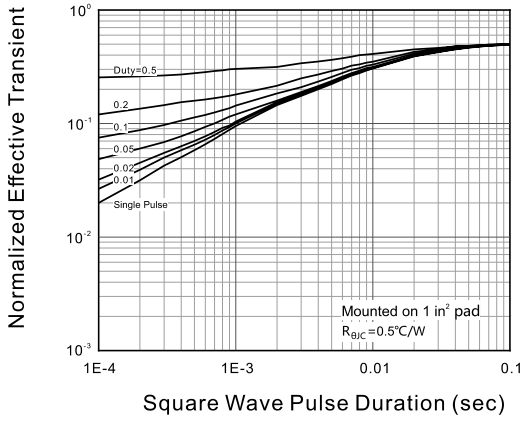


Fig 4. Transient Thermal Impedance

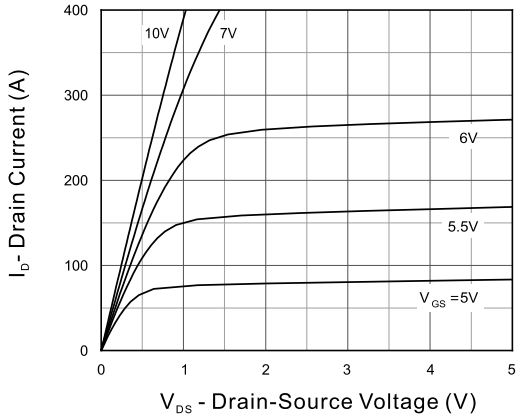


Fig 5. Output Characteristics

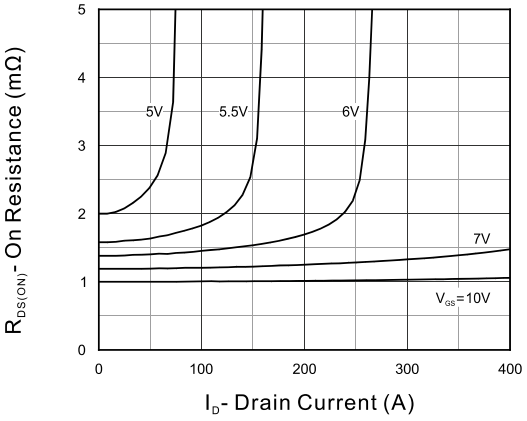


Fig 6. On Resistance

7. Typical Characteristics (cont.)

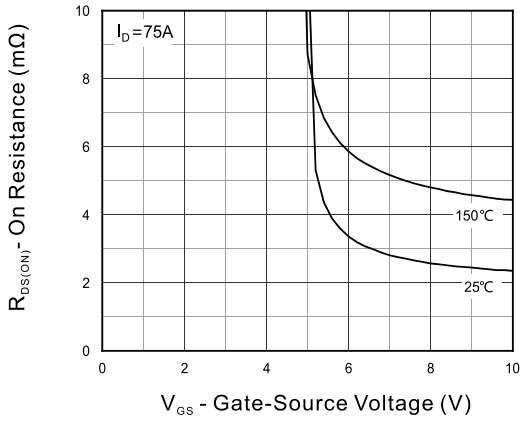


Fig 7. Transfer Characteristics

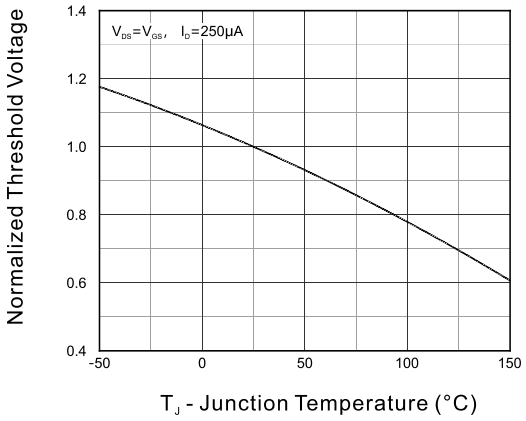


Fig 8. Normalized Threshold Voltage

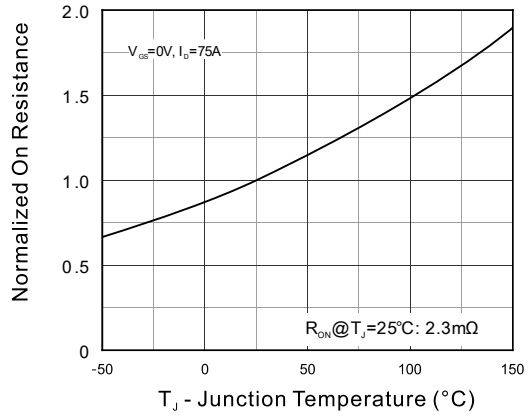


Fig 9. Normalized On Resistance

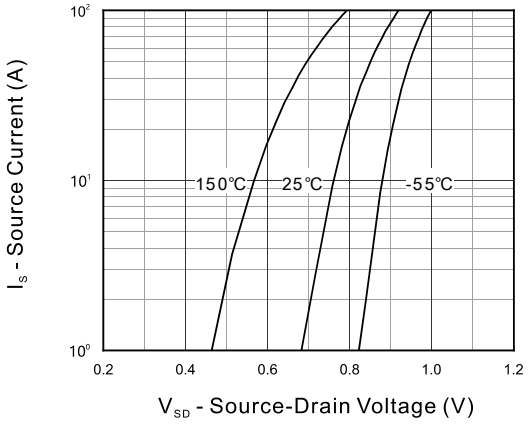


Fig 10. Diode Forward Current

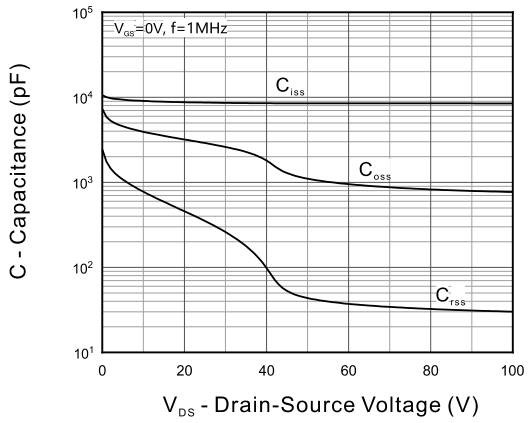


Fig 11. Capacitance

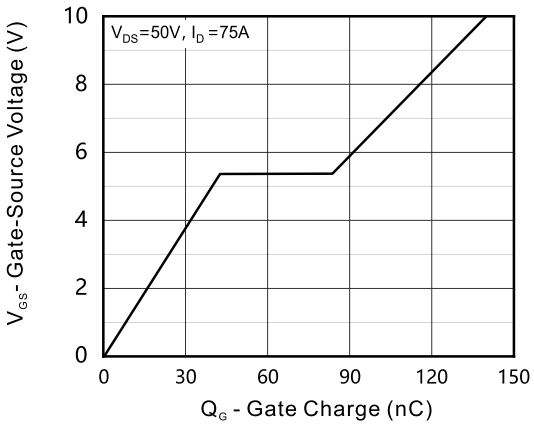
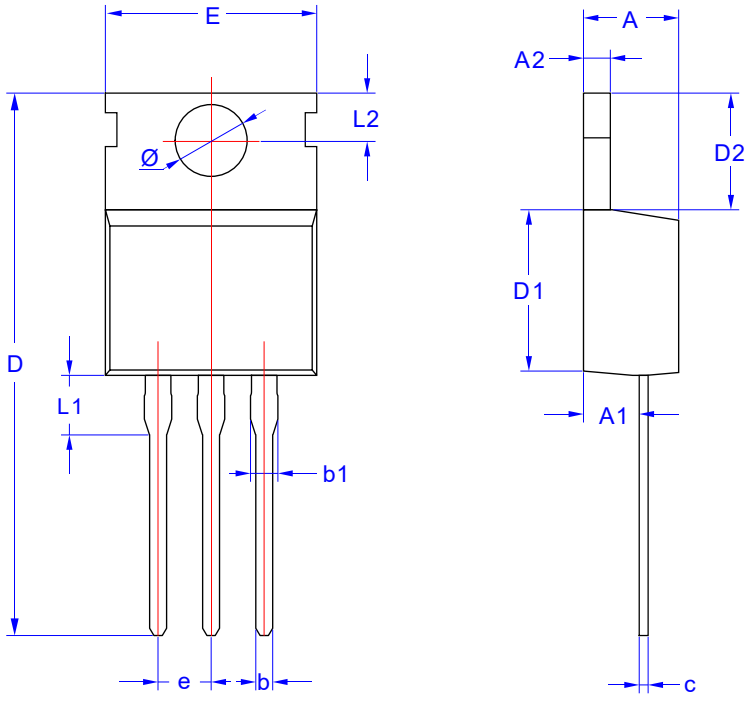


Fig 12. Gate Charge

8. Package Dimensions

TO-220 Package



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	4.24	4.70
A1	2.20	3.00
A2	1.15	1.40
b	0.70	0.95
b1	1.14	1.70
c	0.40	0.60
D	28.0	29.8
D1	8.80	9.90
D2	6.25	6.90
E	9.70	10.50
L1	3.80	
L2	2.40	3.00
e	2.54 BSC	
Φ	3.60	