快捷芯
KUAIJIEXIN

KJ30P15K

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Advanced trench cell design
- ☑ Low Thermal Resistance

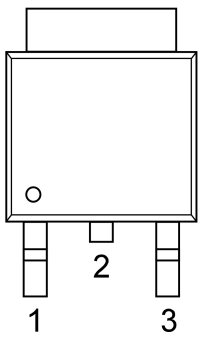
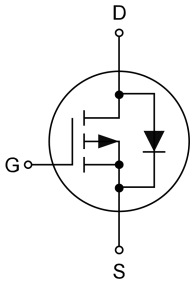
1.2 Applications

- ☑ Motor drivers
- ☑ DC\DC Converter

1.3 Quick reference

- ☑ BV ≦ -150 V
- ☑ P_{tot} ≦ 192 W
- ☑ I_D ≦ -30 A
- ☑ $R_{DS(ON)}$ ≦ 135 mΩ @V_{GS} = -10 V
- ☑ $R_{DS(ON)}$ ≦ 150 mΩ @V_{GS} = -4.5 V

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate		
2	Drain		
3	Source		

Top View
TO-252

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C=25℃	-	-150	V
V_{GS}	Gate-Source Voltage	T_C=25℃	-	±20	V
I_D	Drain Current (DC)	T_C=25℃, V_{GS}=-10 V	-	-30	A
I_D	Drain Current (DC)	T_C=100℃, V_{GS}=-10 V	-	-19	A
I_{DM}*	Pulsed Source Current	T_C=25℃, V_{GS}=-10 V	-	-120	A
P_{tot}	Total Power Dissipation	T_C=25℃	-	192	W
E_{AS}	Single Pulsed Avalanche Energy	V_{DD}=-50 V, L=3 mH	-	540	mJ
T_{stg} , T_J	Operating Junction and Storage Temperature Range		-55	150	℃
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		-	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		-	0.62	

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
KJ30P15K	KJ30P15K XXXXXX

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ30P15K	TO-252	13"	16 mm	2500

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_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_D=-250 μA	-150	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250 μA	-1.0	-	-2.5	V
I_{DSS}	Zero Gate Voltage Source Current	V_{DS}=-150 V, V_{GS}=0 V	-	-	1	μA
I_{GSS}	Gate Leakage Current	V_{DS}=0 V, V_{GS}=±20 V	-	-	±100	nA
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-10 V, I_D=-20 A	-	120	135	mΩ
		V_{GS}=-4.5V, I_D=-10 A	-	130	150	mΩ
Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD}=-20 A, V_{GS}=0 V	-	-	-1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=-20 A dI_{SD}/dt=100 A/μs	-	75	-	ns
Q_{rr}	Reverse Recovery Charge		-	250	-	nC
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0 V, V_{DS}=-75 V Frequency=1 MHz	-	2850	-	pF
C_{oss}	Output Capacitance		-	150	-	
C_{rss}	Reverse Transfer Capacitance		-	45	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=-75 V, V_{GEN}=-10 V R_G=3.3 Ω, I_D=-20 A	-	11	-	ns
t_r	Turn-on Rise Time		-	26	-	
$t_{d(off)}$	Turn-off Delay Time		-	67	-	
t_f	Turn-off Fall Time		-	60	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS}=-75 V, V_{GS}=-10 V I_{DS}=-20 A	-	55	-	nC
Q_{gs}	Gate-Source Charge		-	8.5	-	
Q_{gd}	Gate-Drain Charge		-	16.5	-	

7. Typical Characteristics

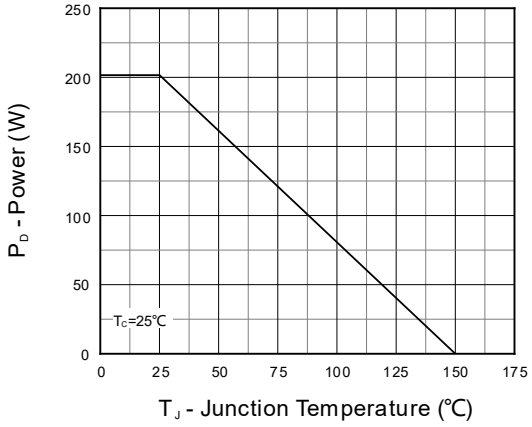


Fig 1. Power Dissipation

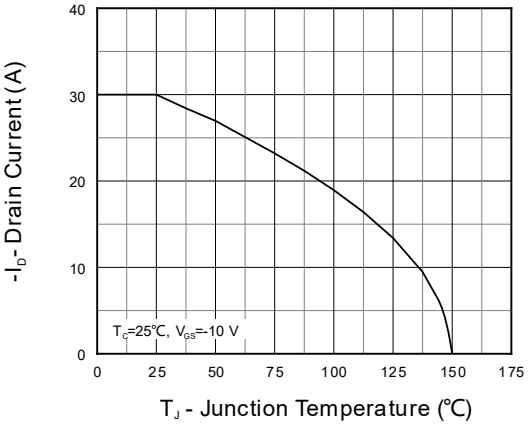


Fig 2. Current Capability

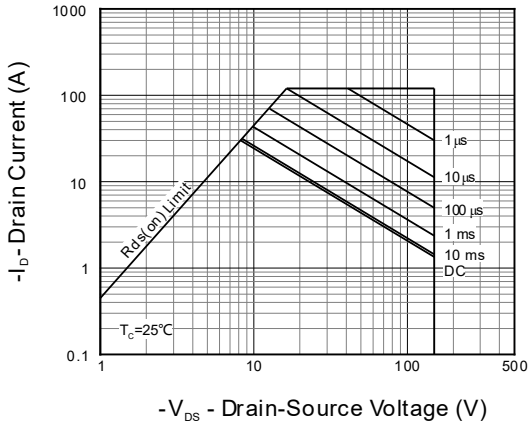


Fig 3. Safe Operation Area

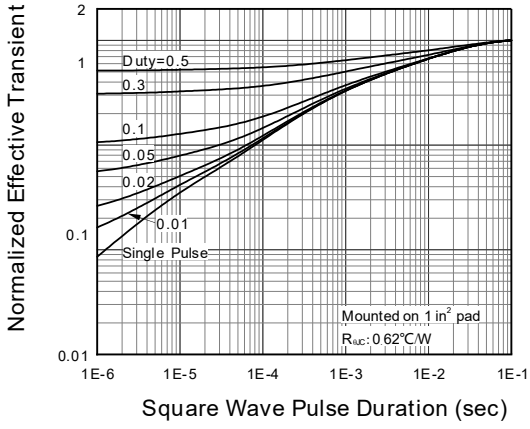


Fig 4. Transient Thermal Impedance

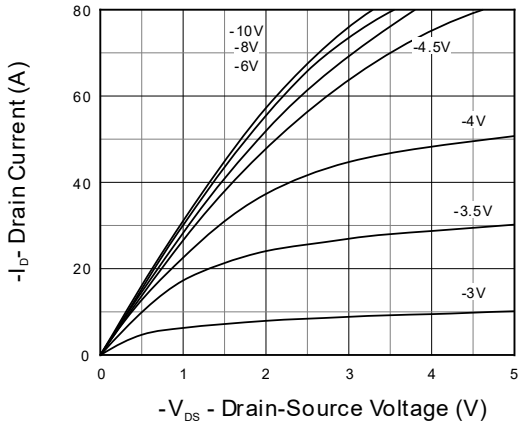


Fig 5. Output Characteristics

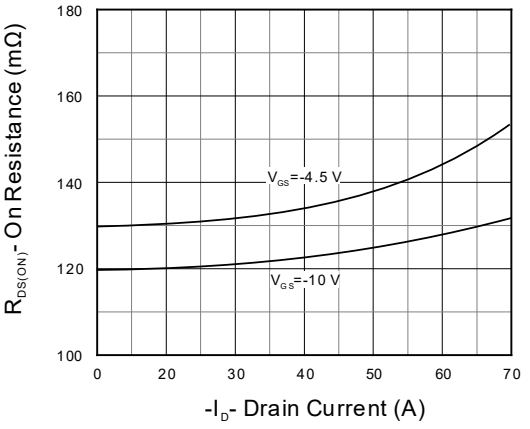


Fig 6. On Resistance

7. Typical Characteristics (cont.)

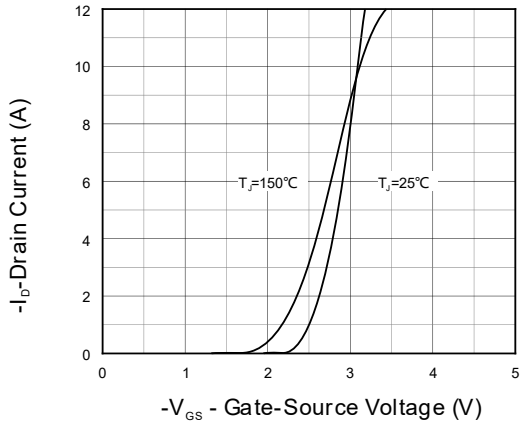


Fig 7. Transfer Characteristics

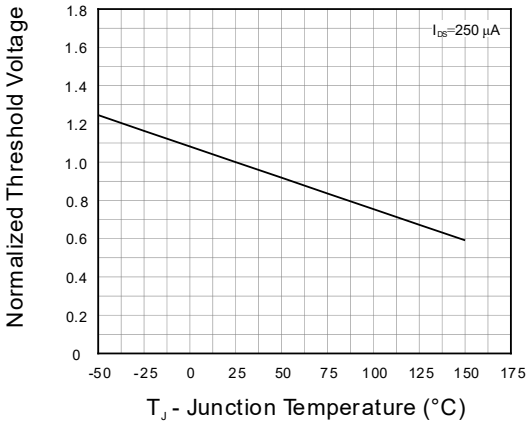


Fig 8. Normalized Threshold Voltage

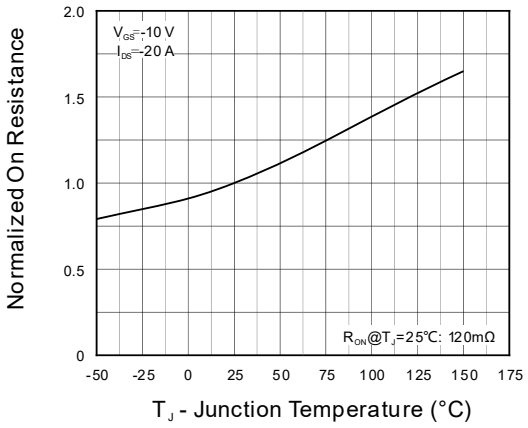


Fig 9. Normalized On Resistance

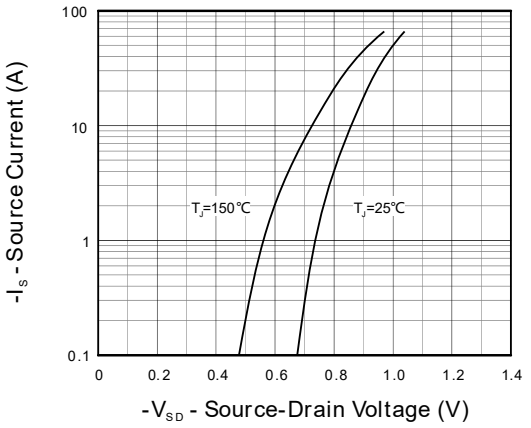


Fig 10. Diode Forward Current

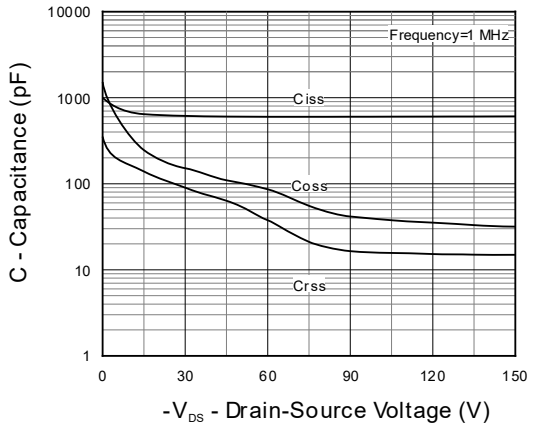


Fig 11. Capacitance

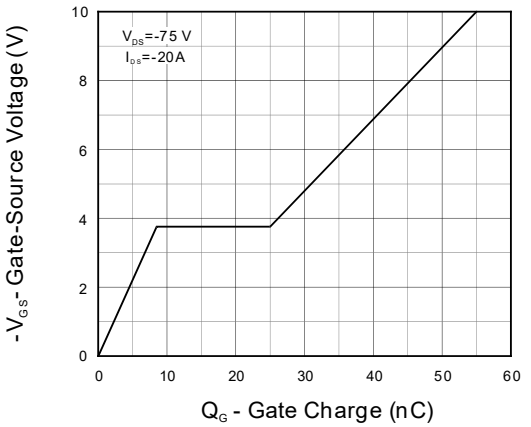
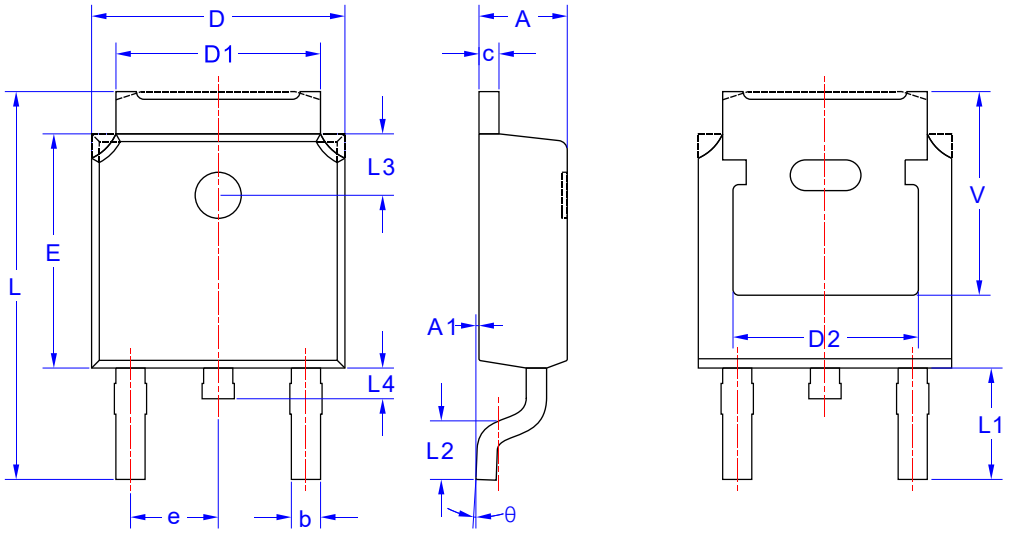


Fig 12. Gate Charge

8. Package Dimensions

TO-252 Package



Note: There are two possible shapes for the dashed area.

Symbol	Dimensions in Millimeters	
	MIN	MAX
A	2.200	2.400
A1	0	0.127
b	0.660	0.860
c	0.460	0.580
D	6.500	6.700
D1	5.100	5.460
D2	4.830 REF.	
E	6.000	6.200
e	2.186	1.386
L	9.800	10.400
L1	2.900 REF.	
L2	1.400	1.700
L3	1.600 REF.	
L4	0.600	1.000
V	5.350 REF.	
θ	0°	8°