

# N-Channel Enhancement Mode MOSFET

## 1. Product Information

### 1.1 Features

- Surface-mounted package
- Super Trench
- Advanced trench cell design

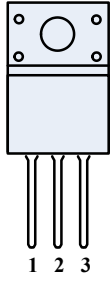
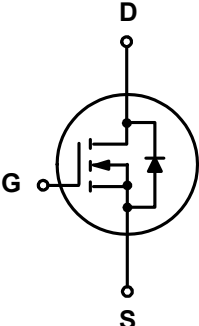
### 1.2 Applications

- LCD TV appliances
- LCDM appliances
- High power inverter system

### 1.3 Quick reference

- $BV \geq 150\text{ V}$
- $P_{\text{tot}} \leq 156\text{ W}$
- $I_D \leq 100\text{ A}$
- $R_{\text{DS(ON)}} \leq 5.5\text{m}\Omega @ V_{\text{GS}} = 10\text{ V}$
- $R_{\text{DS(ON)}} \leq 7.0\text{m}\Omega @ V_{\text{GS}} = 6\text{ V}$

## 2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 <p>Top View TO220C-3L</p>	
2	Drain(D)		
3	Source(S)		

### 3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>DS</sub>	Drain-Source Voltage	T <sub>C</sub> = 25 °C	150	-	V
V <sub>GS</sub>	Gate-Source Voltage	T <sub>C</sub> = 25 °C	-	±25	V
I <sub>D</sub> <sup>****</sup>	Drain Current ( DC )	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = 10 V	-	100	A
		T <sub>C</sub> = 100 °C, V <sub>GS</sub> = 10 V	-	66	A
I <sub>DM</sub> <sup>*****</sup>	Drain Current ( Pulsed )	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = 10 V	-	180	A
P <sub>tot</sub>	Drain power dissipation	T <sub>C</sub> = 25 °C	-	156	W
T <sub>stg</sub>	Storage Temperature		-55	150	°C
T <sub>J</sub>	Junction Temperature		-	150	°C
I <sub>S</sub>	Continuous-Source Current	T <sub>C</sub> = 25 °C	-	104	A
E <sub>AS</sub>	Single Pulsed Avalanche Energy	V <sub>DD</sub> =50V , L=1.0mH	-	1250	mJ
R <sub>θJA</sub> <sup>**</sup>	Thermal Resistance- Junction to Ambient		-	40	°C/W
R <sub>θJC</sub> <sup>**</sup>	Thermal Resistance- Junction to Case		-	0.8	

Notes :

- \* Pulse width ≤ 300 μs, duty cycle ≤ 2 %
- \*\* Surface Mounted on minimum footprint pad area.
- \*\*\* Limited by bonding wire

### 4. Marking Information

Product Name	Marking
KJ0515C	<div style="display: inline-block; background-color: black; color: white; padding: 2px;">0515</div> YWW : <div style="display: inline-block; background-color: black; color: white; padding: 2px;">YWWXXX</div> Date Code

### 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ0515C	TO220C			50	

Note: KUAJIEXIN 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** (  $T_A=25^\circ$  Unless Otherwise Noted )

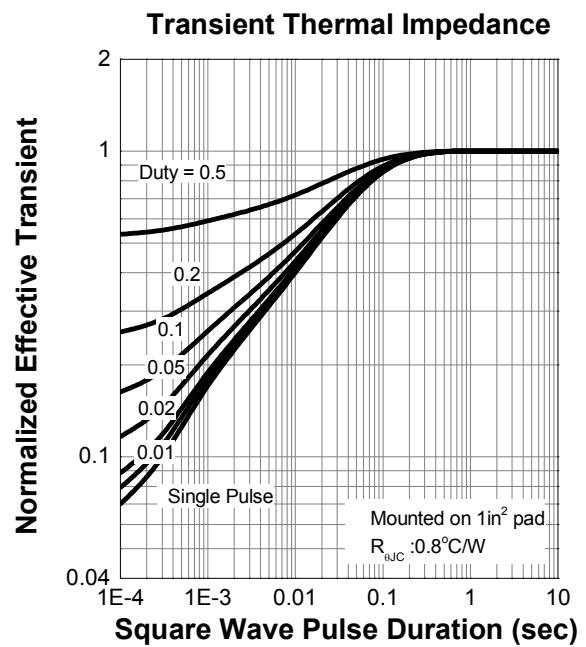
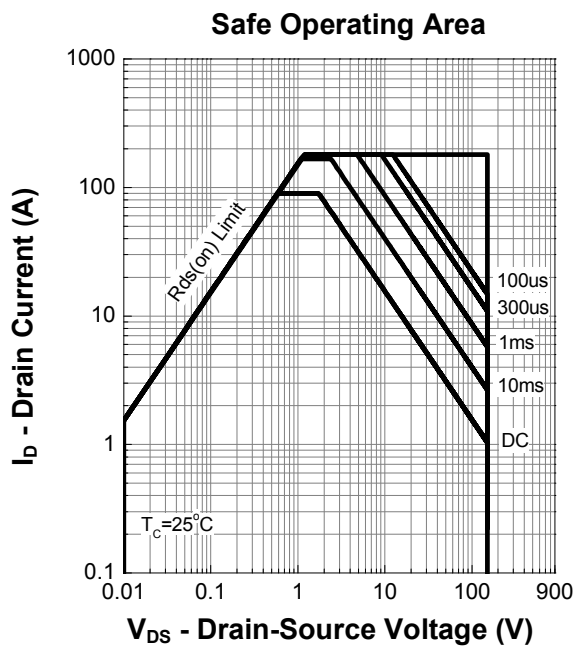
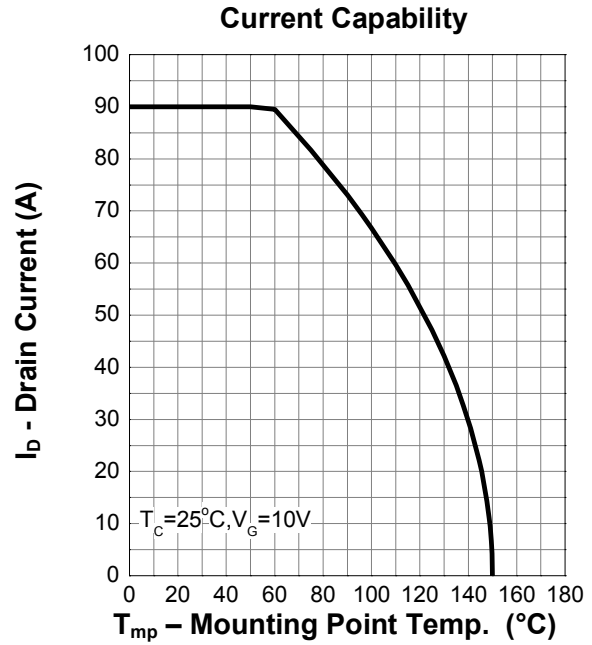
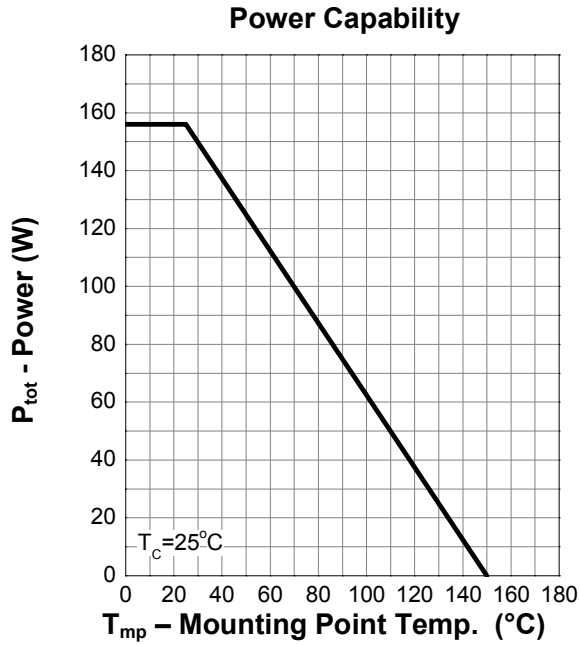
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
$V_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$	150	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$	2	-	4	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{GS} = \pm 25\text{ V}$	-	-	$\pm 100$	nA
$R_{DS(on)}^a$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 50\text{ A}$	-	4.8	5.5	m $\Omega$
		$V_{GS} = 6\text{ V}, I_{DS} = 30\text{ A}$	-	6.5	7.0	
<b>Diode Characteristics</b>						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = 50\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.3	V
$t_{rr}$	Reverse Recovery Time	$I_{DS} = 50\text{ A}, V_{GS} = 0\text{ V}$ $di_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	112	-	nS
$Q_{rr}$	Reverse Recovery Charge		-	475	-	nC
<b>Dynamic Characteristics<sup>b</sup></b>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 75\text{ V}$ Frequency = 1 MHz	-	9019	-	pF
$C_{oss}$	Output Capacitance		-	583	-	
$C_{rss}$	Reverse Transfer Capacitance		-	63	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 75\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 3.9\ \Omega, R_L = 1.5\ \Omega,$ $I_{DS} = 50\text{ A}$	-	23	-	nS
$t_r$	Turn-on Rise Time		-	66	-	
$t_d(off)$	Turn-off Delay Time		-	89	-	
$t_f$	Turn-off Fall Time		-	70	-	
<b>Gate Charge Characteristics<sup>b</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS} = 75\text{ V}, V_{GS} = 10\text{ V},$ $I_{DS} = 50\text{ A}$	-	131	-	nC
$Q_{gs}$	Gate-Source Charge		-	47	-	
$Q_{gd}$	Gate-Drain Charge		-	24	-	

Notes :

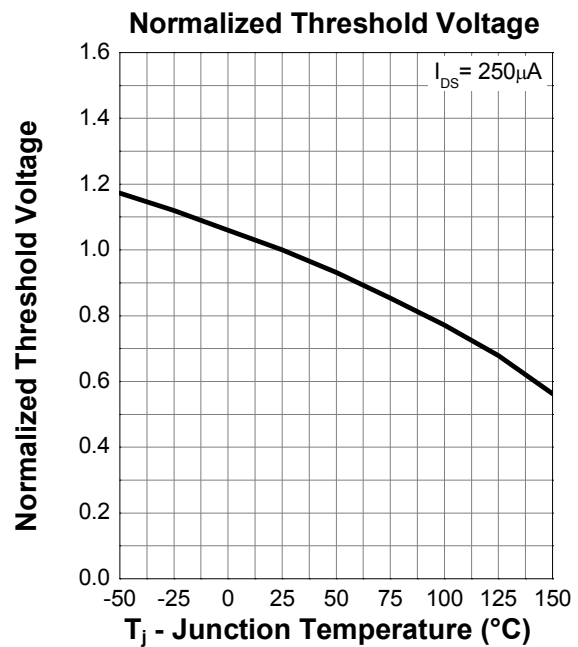
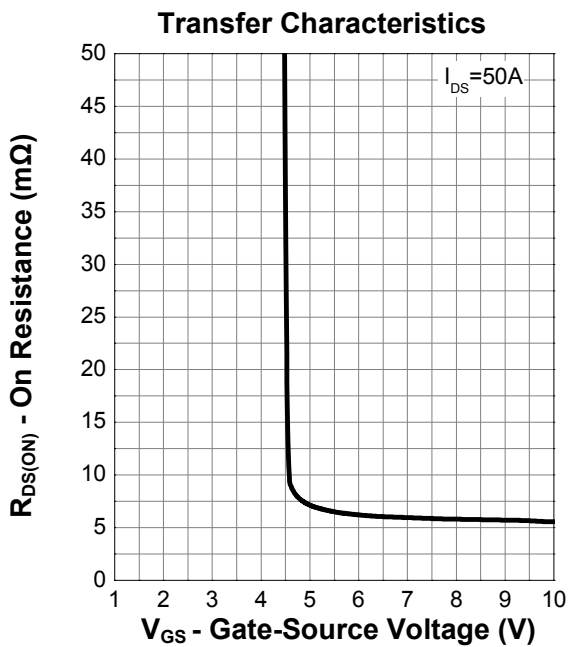
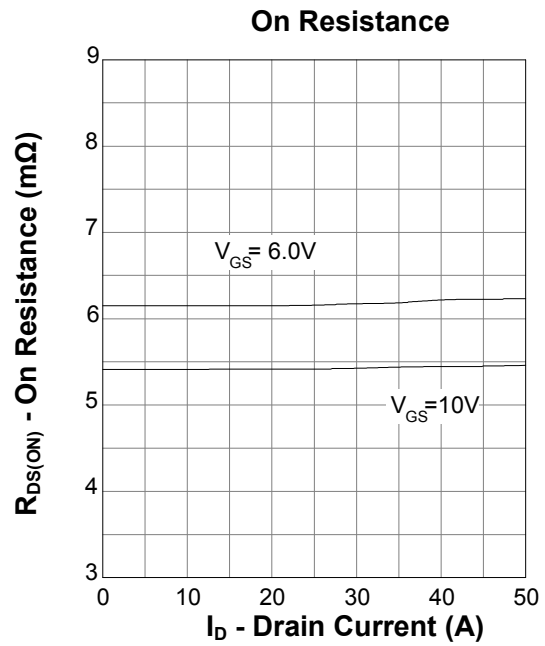
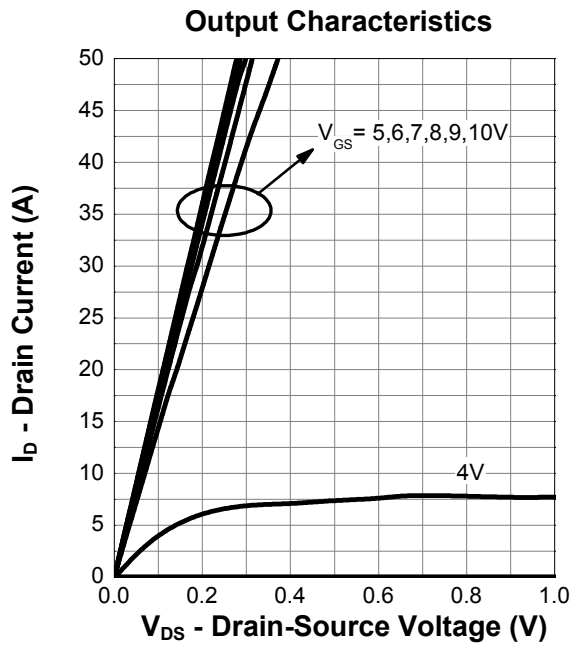
a : Pulse test ; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ 

b : Guaranteed by design, not subject to production testing

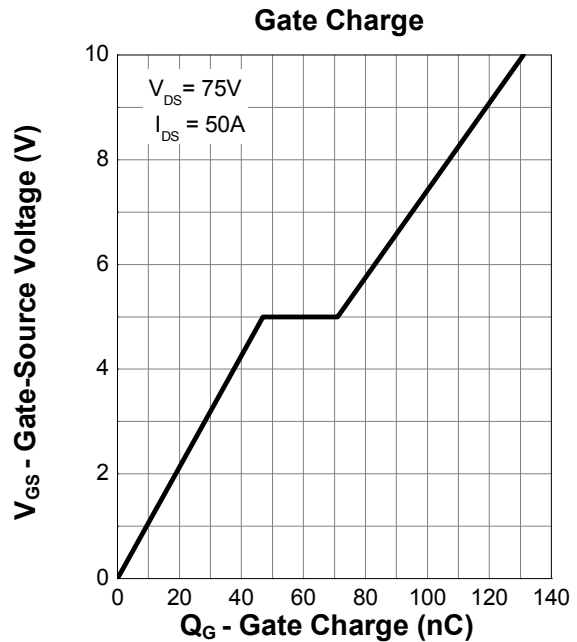
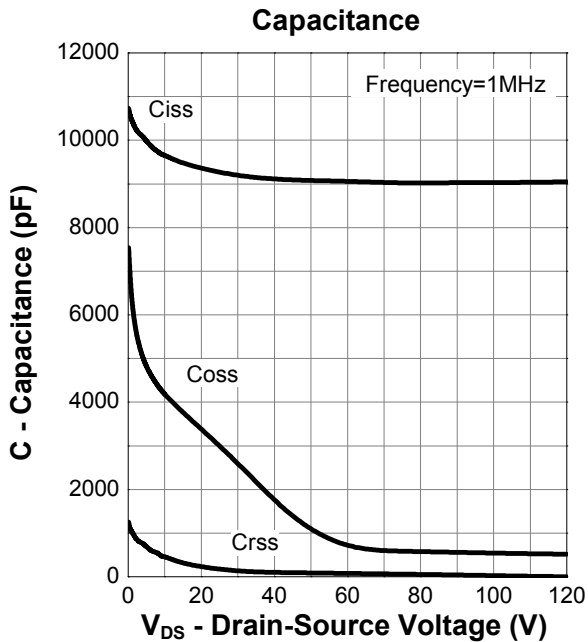
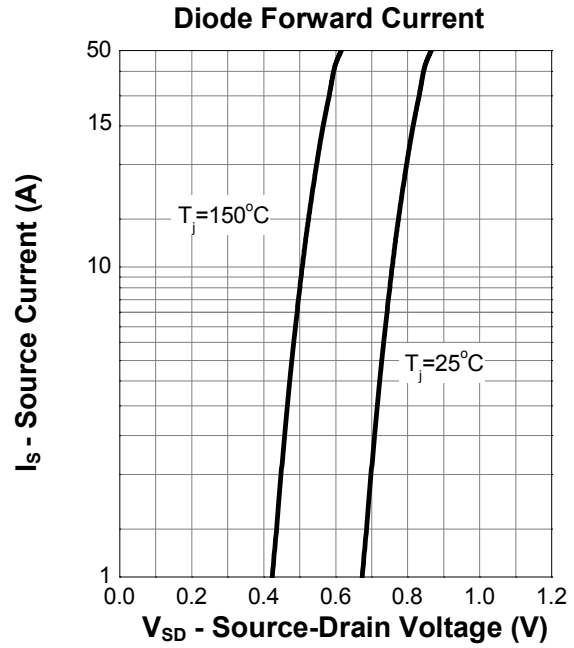
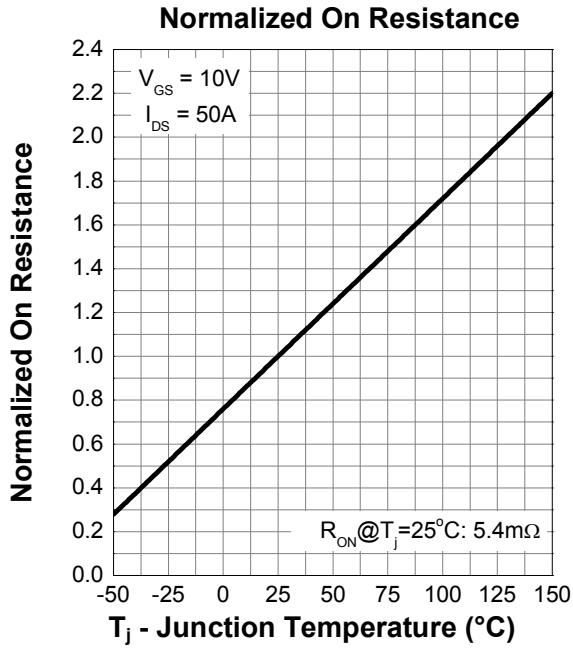
## 7. Typical Characteristics



## 7. Typical Characteristics (cont.)

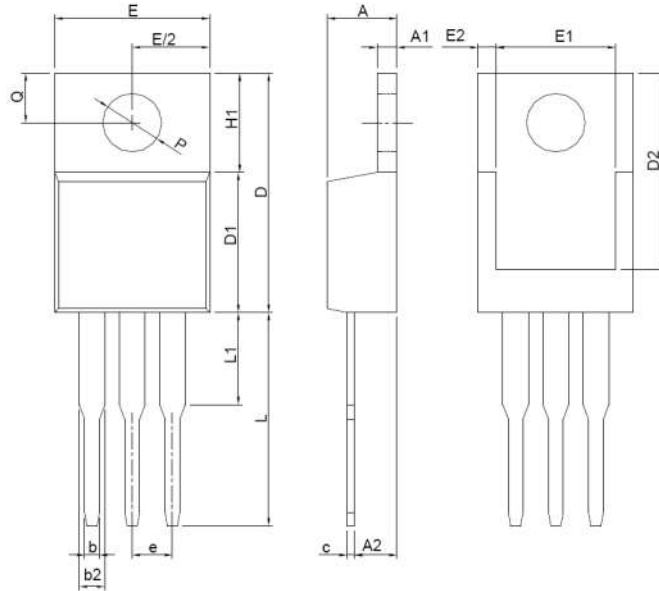


## 7. Typical Characteristics (cont.)



## 8.Package Dimensions

TO-220-3L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	3.56	4.83
A1	0.51	1.40
A2	2.03	2.92
b	0.38	1.02
b2	1.14	1.78
c	0.36	0.61
D	14.22	16.51
D1	8.38	9.02
D2	12.19	12.88
E	9.65	10.67
E1	6.86	8.89
E2	0.76BSC	
e	2.54BSC	
H1	5.84	6.86
L	12.70	14.73
L1	6.35BSC	
P	3.53	4.09
Q	2.54	3.43