

## P-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Surface-mounted package
- Advanced trench cell design

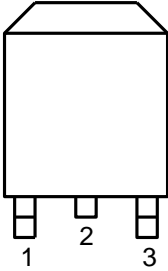
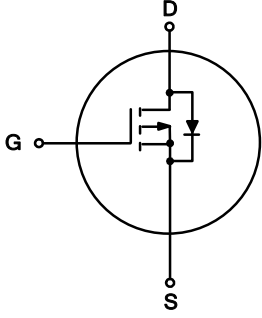
#### 1.2 Applications

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

#### 1.3 Quick reference

- $BV \geq -100\text{ V}$
- $R_{DS(ON)} \leq 60\text{m}\Omega @ V_{GS} = -10\text{ V}$
- $P_{tot} \leq 156\text{ W}$
- $R_{DS(ON)} \leq 70\text{m}\Omega @ V_{GS} = -4.5\text{ V}$
- $I_D \leq -34\text{ A}$

### 2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 <p>Top View TO263-2L</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	- 100	-	V
V <sub>GS</sub>	Gate-Source Voltage	T <sub>C</sub> = 25 °C	-	±20	V
I <sub>D</sub> *	Drain Current ( DC )	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = - 10 V	-	- 34	A
		T <sub>C</sub> = 100 °C, V <sub>GS</sub> = -10 V	-	- 21	A
I <sub>DM</sub> <sup>***,***</sup>	Drain Current ( Pulsed )	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = - 10 V	-	-120	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	-	- 34	A
E <sub>AS</sub> *	Single Pulsed Avalanche Energy	V <sub>DD</sub> = - 50 V , L= 1.0 mH	-	242	mJ
R <sub>θJA</sub> *	Thermal Resistance- Junction to Ambient		-	62.5	°C/W
R <sub>θJC</sub> *	Thermal Resistance- Junction to Case		-	0.8	

Notes :

- \* Surface Mounted on 1 in<sup>2</sup> pad area, t ≤ 10 sec
- \*\* Pulse width ≤ 300 μs, duty cycle ≤ 2 %
- \*\*\* Limited by bonding wire

### 4. Marking Information

Product Name	Marking
KJ30P10D	<b>30P10</b> YWW : <b>YWWXXX</b> Date Code

### 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ30P10D	TO263			800	

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 )

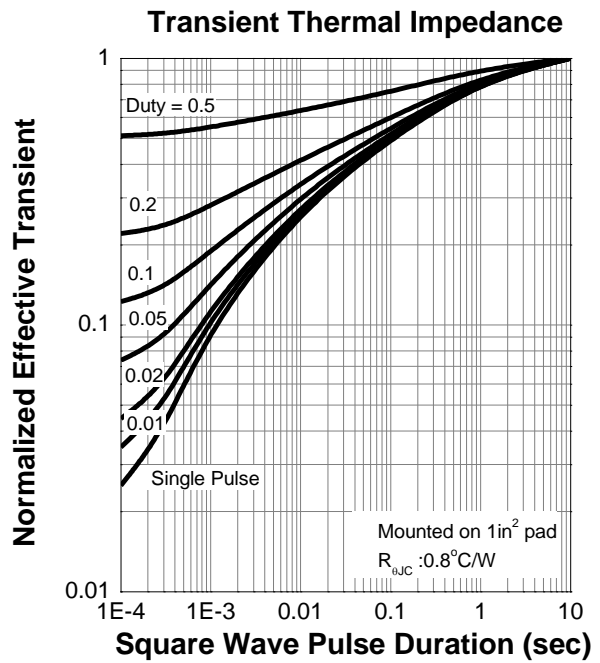
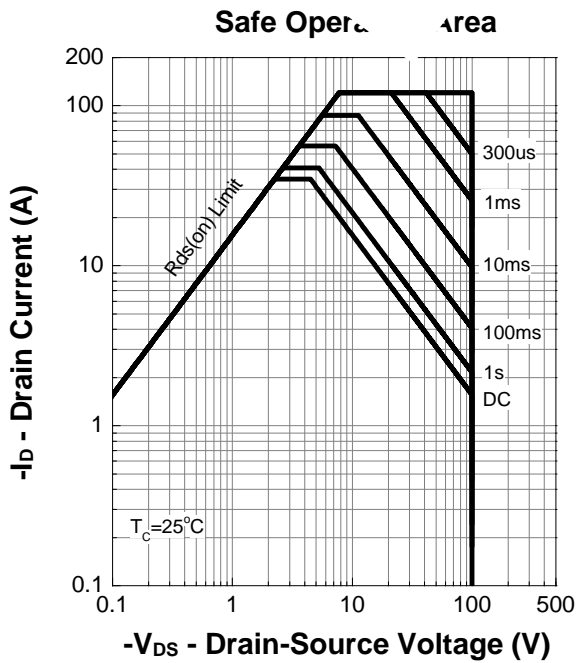
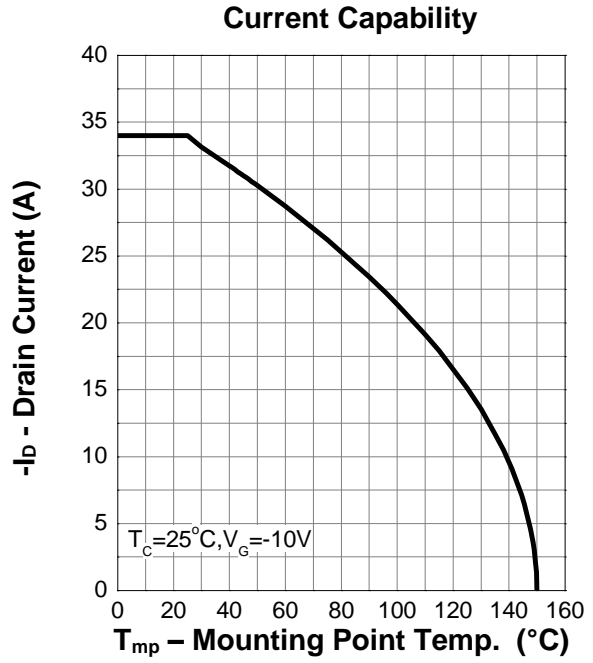
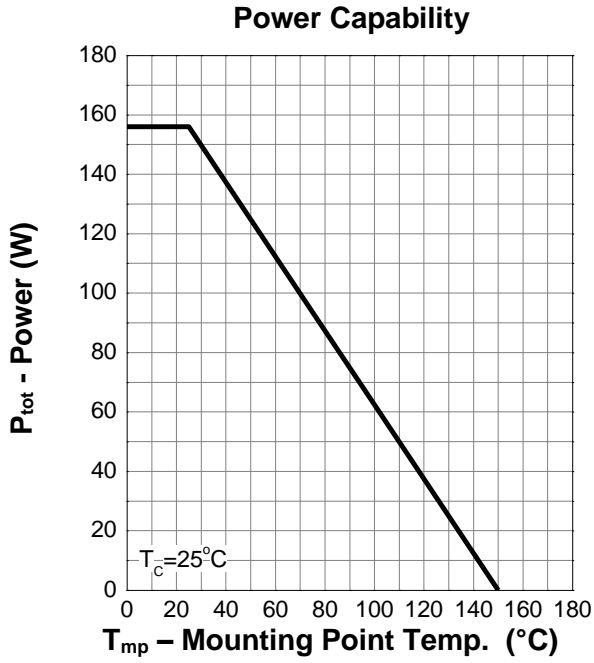
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = -250\ \mu\text{A}$	-100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = -250\ \mu\text{A}$	-1	-	-2	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = -80\text{ V}, V_{GS} = 0\text{ V}$	-	-	-1	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	$\pm 100$	nA
$R_{DS(on)}^a$	On-State Resistance	$V_{GS} = -10\text{ V}, I_{DS} = -10\text{ A}$	-	54	60	m $\Omega$
		$V_{GS} = -4.5\text{ V}, I_{DS} = -5\text{ A}$	-	60	70	
Diode Characteristics						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = -10\text{ A}, V_{GS} = 0\text{ V}$	-	-	-1.3	V
$t_{rr}$	Reverse Recovery Time	$I_{DS} = -10\text{ A}, di_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	34	-	nS
$Q_{rr}$	Reverse Recovery Charge		-	59	-	nC
Dynamic Characteristics <sup>b</sup>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = -50\text{ V}$ Frequency = 1 MHz	-	4521	-	pF
$C_{oss}$	Output Capacitance		-	97	-	
$C_{riss}$	Reverse Transfer Capacitance		-	73	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = -50\text{ V}, V_{GEN} = -10\text{ V},$ $R_G = 3.9\ \Omega, R_L = 5\ \Omega,$ $I_{DS} = -10\text{ A}$	-	9.3	-	nS
$t_r$	Turn-on Rise Time		-	23	-	
$t_d(off)$	Turn-off Delay Time		-	116	-	
$t_f$	Turn-off Fall Time		-	63	-	
Gate Charge Characteristics <sup>b</sup>						
$Q_g$	Total Gate Charge	$V_{DS} = -50\text{ V}, V_{GS} = -10\text{ V},$ $I_{DS} = -10\text{ A}$	-	73	-	nC
$Q_{gs}$	Gate-Source Charge		-	16	-	
$Q_{gd}$	Gate-Drain Charge		-	9.4	-	

Notes :

- a : Pulse test ; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$
- b : Guaranteed by design, not subject to production testing

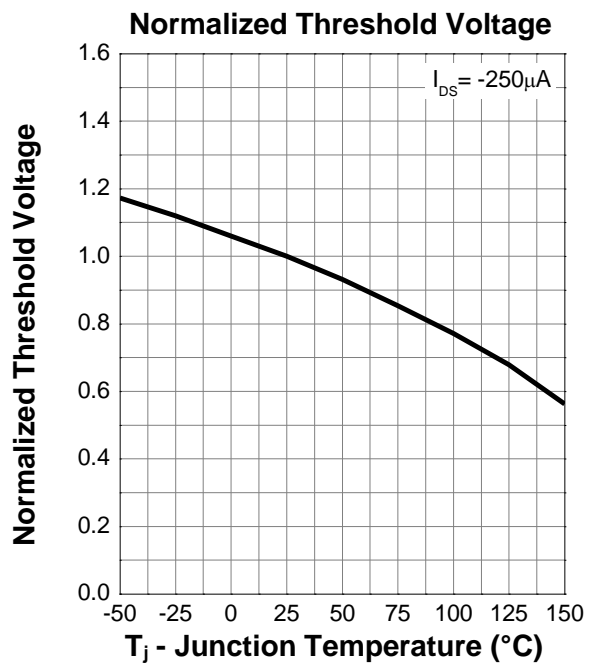
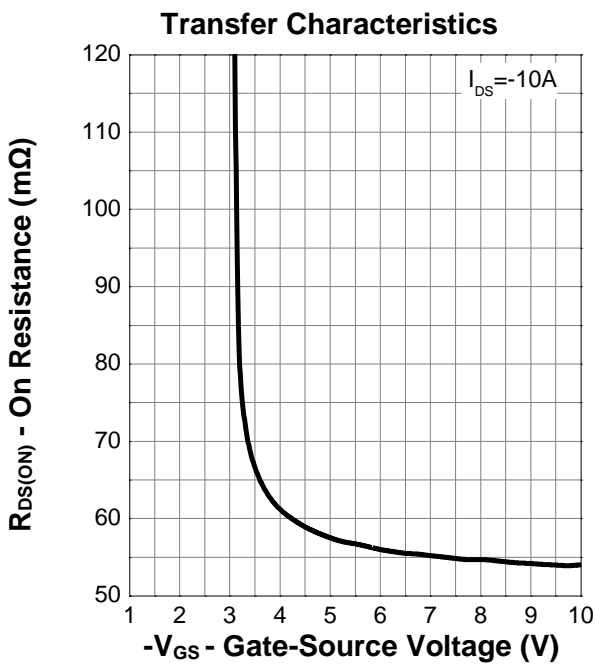
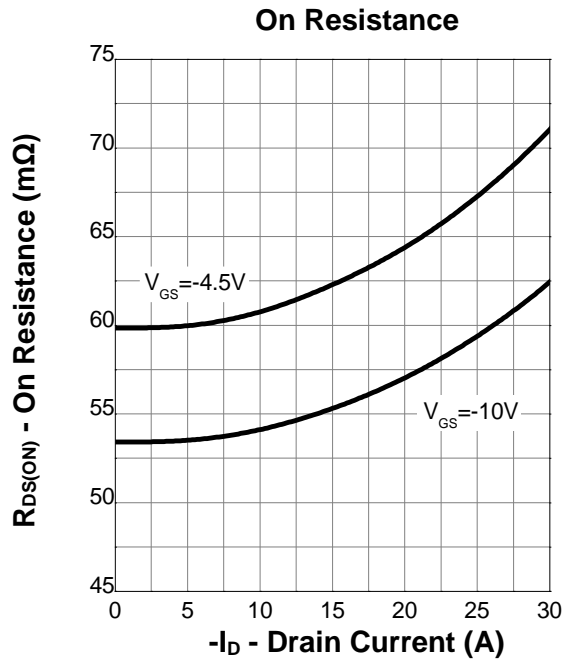
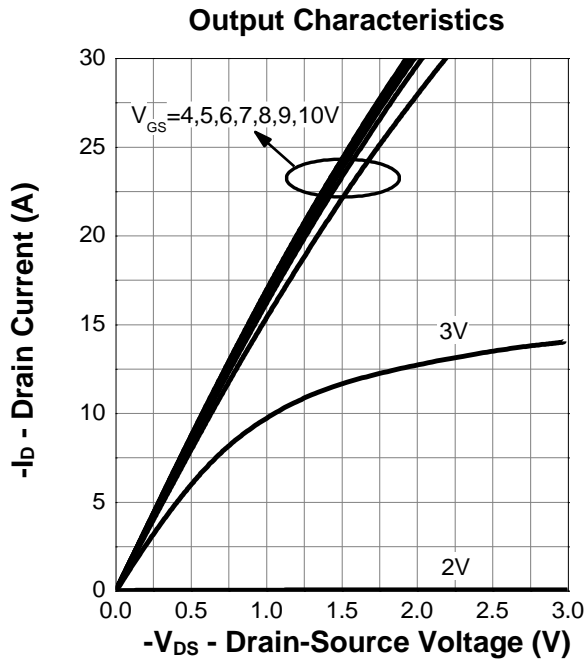


### 7. Typical Characteristics



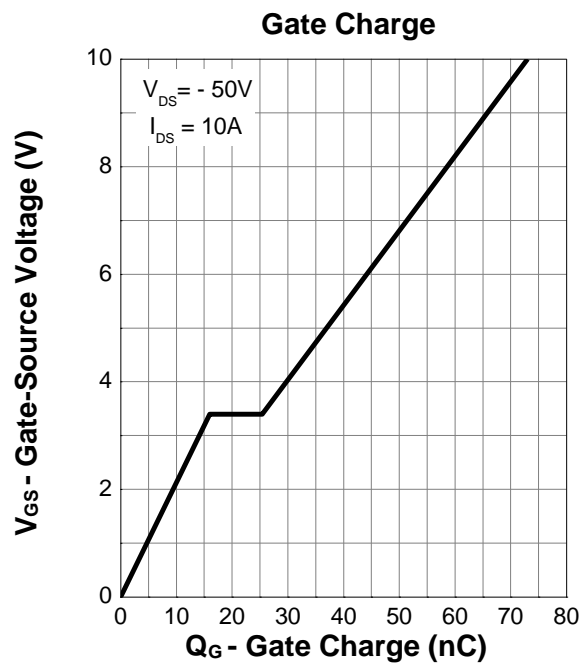
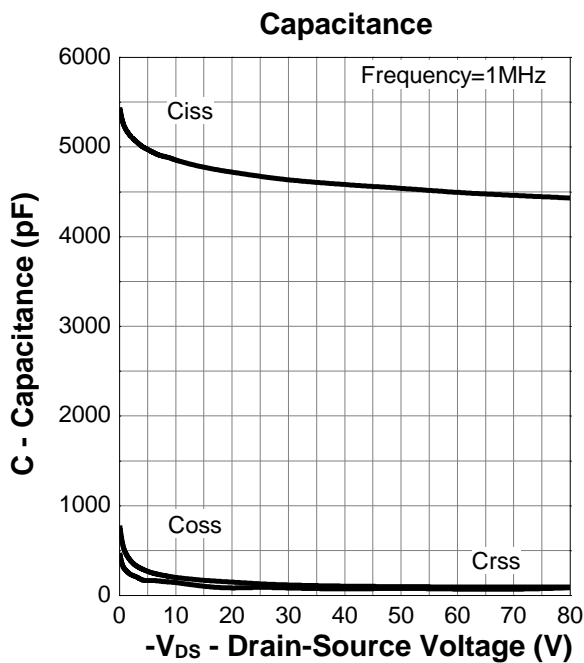
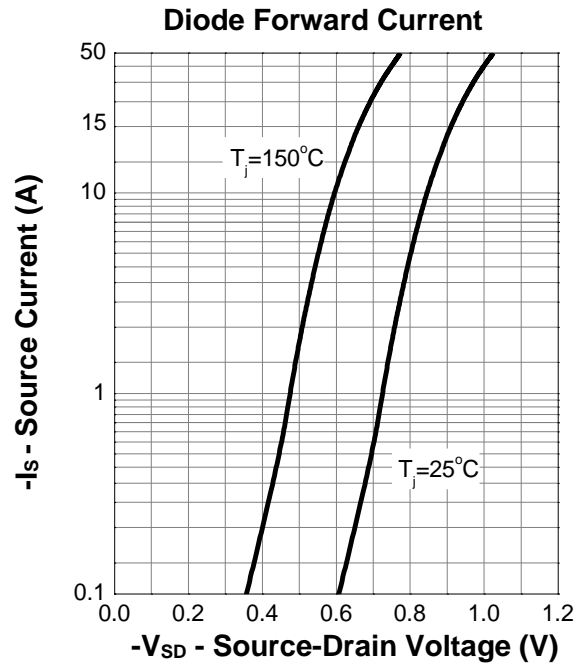
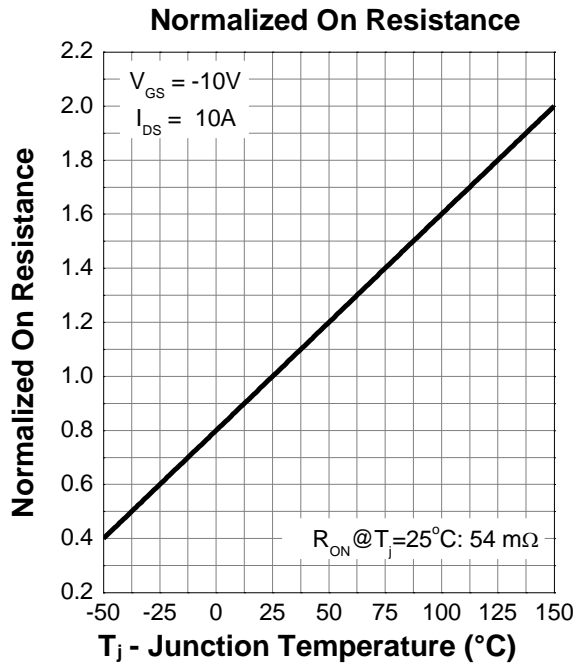


### 7. Typical Characteristics (cont.)





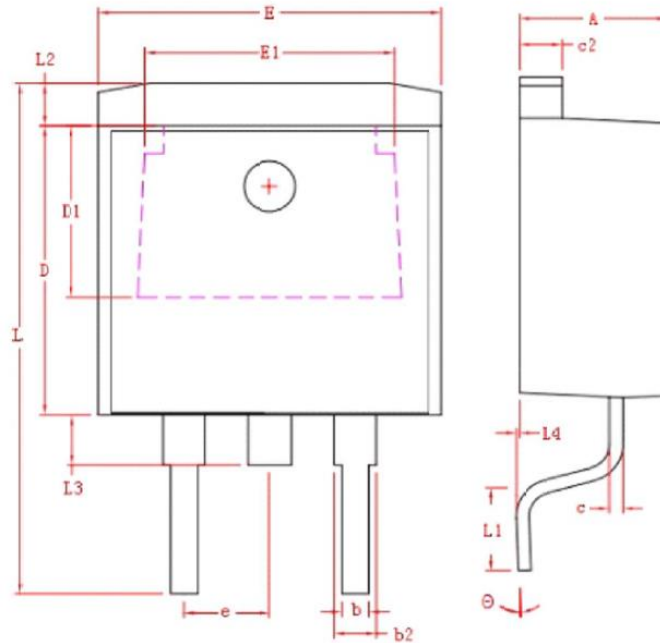
### 7. Typical Characteristics (cont.)





### 8.Package Dimensions

TO263-2L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.40	4.80
b	0.76	1.00
L4	0.00	0.25
C	0.36	0.50
L3	1.50 REF	
L1	2.29	2.79
E	9.80	10.40
E1	7.40 REF	
c2	1.25	1.45
b2	1.17	1.47
D	8.60	9.00
D1	5.10 REF	
e	2.54 REF	
L	14.6	15.8
$\theta$	$0^\circ \pm 3^\circ$	
L2	1.27 REF	