

## N-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Surface-mounted package
- Super Trench
- Tj max 175°C
- Advanced trench cell design
- MSL1

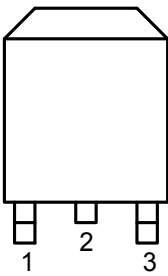
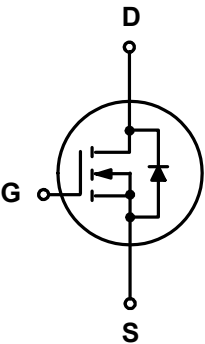
#### 1.2 Applications

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

#### 1.3 Quick reference

- BV  $\geq$  100 V
- P<sub>tot</sub>  $\leq$  156 W
- I<sub>b</sub>  $\leq$  120 A
- R<sub>DS(ON)</sub>  $\leq$  3.7mΩ @ V<sub>GS</sub> = 10 V
- R<sub>DS(ON)</sub>  $\leq$  5.7mΩ @ V<sub>GS</sub> = 4.5 V

### 2. Pin Description

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

Top View  
TO263-2L

### 3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DS}$	Drain-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	100	-	V
$V_{GS}$	Gate-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	-	$\pm 20$	V
$I_D^{***}$	Drain Current ( DC )	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	120	A
$I_{DM}^{***,***}$	Drain Current ( Pulsed )	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	180	A
$P_{tot}$	Drain power dissipation	$T_C = 25\text{ }^\circ\text{C}$	-	156	W
$T_{stg}$	Storage Temperature		-55	175	$^\circ\text{C}$
$T_J$	Junction Temperature		-	175	$^\circ\text{C}$
$I_S$	Continuous-Source Current	$T_C = 25\text{ }^\circ\text{C}$	-	120	A
$E_{AS}$	Single Pulsed Avalanche Energy	$V_{DD}=50\text{V}, L=0.1\text{mH}$	-	180	mJ
$R_{\theta JA}^{**}$	Thermal Resistance- Junction to Ambient		-	62.5	$^\circ\text{C/W}$
$R_{\theta JC}^{**}$	Thermal Resistance- Junction to Case		-	0.8	

Notes :

- \* Pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$
- \*\* Surface Mounted on minimum footprint pad area.
- \*\*\* Limited by bonding wire

### 4. Marking Information

Product Name	Marking
KJ03N10DM	<div style="display: flex; align-items: center;"> <div style="background-color: black; color: white; padding: 2px 5px; margin-right: 10px;">03N10M YWWXXX</div> <div>YWWXXX: Date Code</div> </div>

### 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ03N10DM	TO-263			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 )

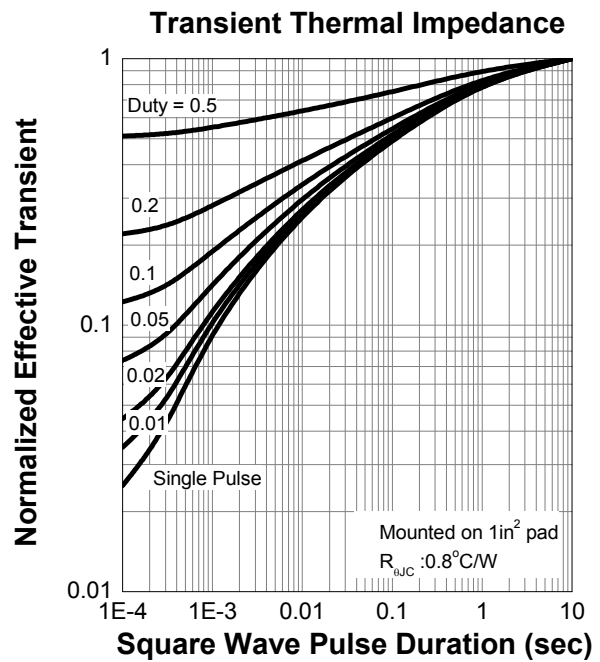
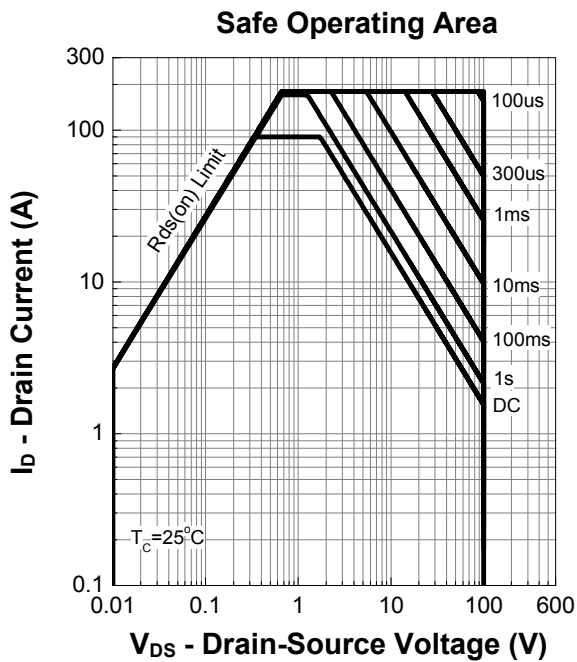
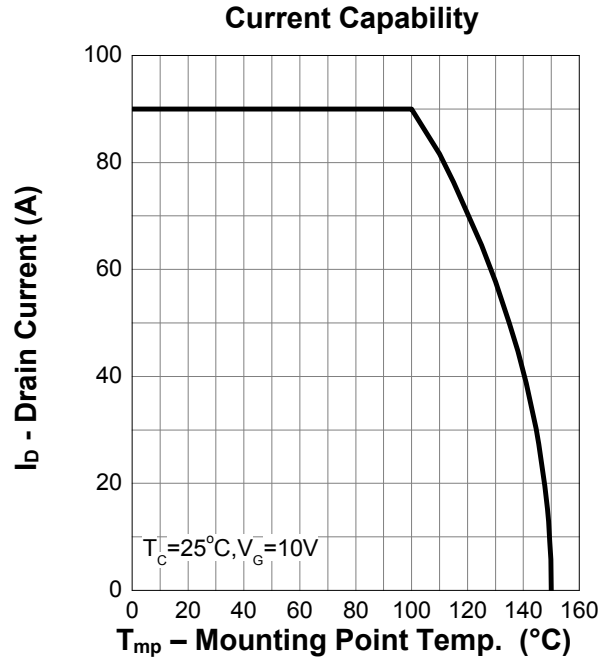
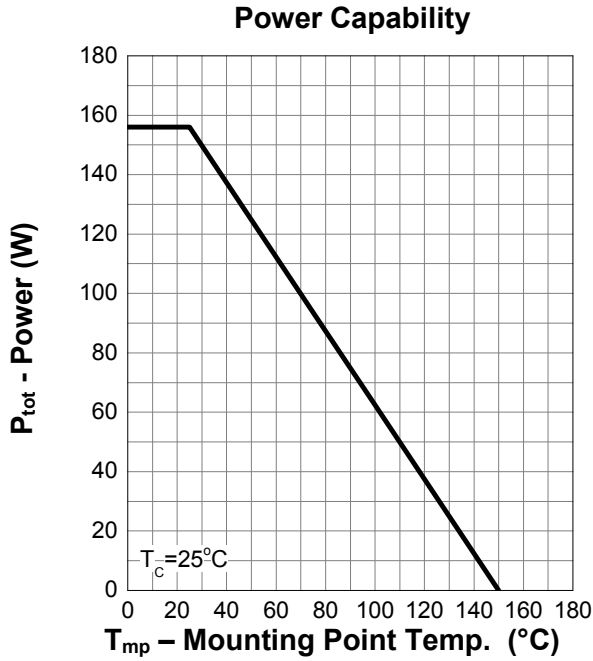
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$	100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$	1	-	3	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}$	-	-	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	$V_{GS} = 10\text{ V}, I_{DS} = 60\text{ A}$	-	3.1	3.7	m $\Omega$
		$V_{GS} = 4.5\text{ V}, I_{DS} = 50\text{ A}$	-	4.3	5.0	
Diode Characteristics						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = 20\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.3	V
$t_{rr}$	Reverse Recovery Time	$I_{DS} = 20\text{ A}, V_{GS} = 0\text{ V}$	-	82	-	nS
$Q_{rr}$	Reverse Recovery Charge	$di_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	154	-	nC
Dynamic Characteristics <sup>b</sup>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}$ Frequency = 1 MHz	-	4748	-	pF
$C_{oss}$	Output Capacitance		-	788	-	
$C_{rss}$	Reverse Transfer Capacitance		-	46	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 50\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 4.5\ \Omega, R_L = 2.5\ \Omega,$ $I_{DS} = 20\text{ A}$	-	14	-	nS
$t_r$	Turn-on Rise Time		-	47	-	
$t_d(off)$	Turn-off Delay Time		-	81	-	
$t_f$	Turn-off Fall Time		-	102	-	
Gate Charge Characteristics <sup>b</sup>						
$Q_g$	Total Gate Charge	$V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V},$ $I_{DS} = 20\text{ A}$	-	96	-	nC
$Q_{gs}$	Gate-Source Charge		-	17	-	
$Q_{gd}$	Gate-Drain Charge		-	23	-	

Notes :

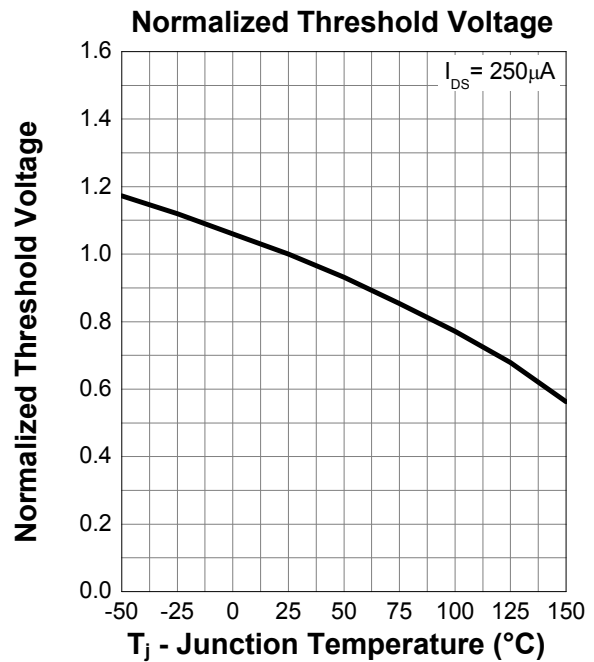
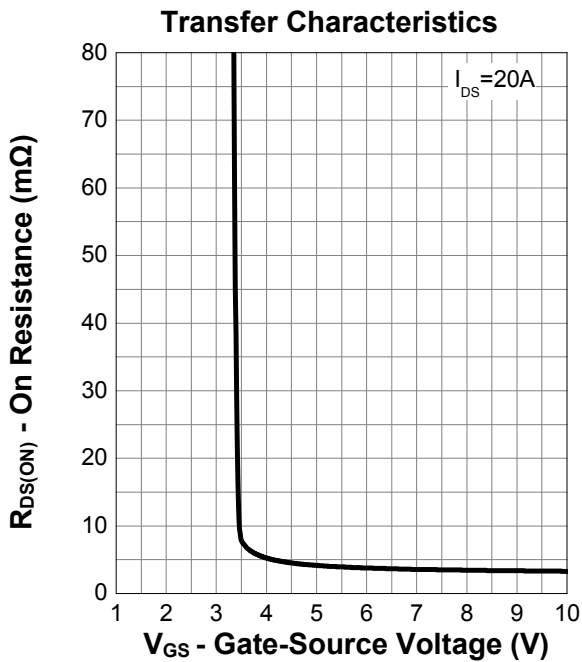
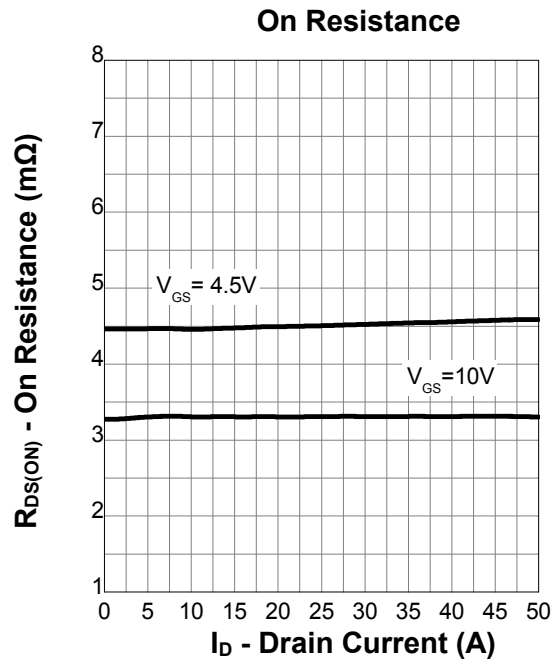
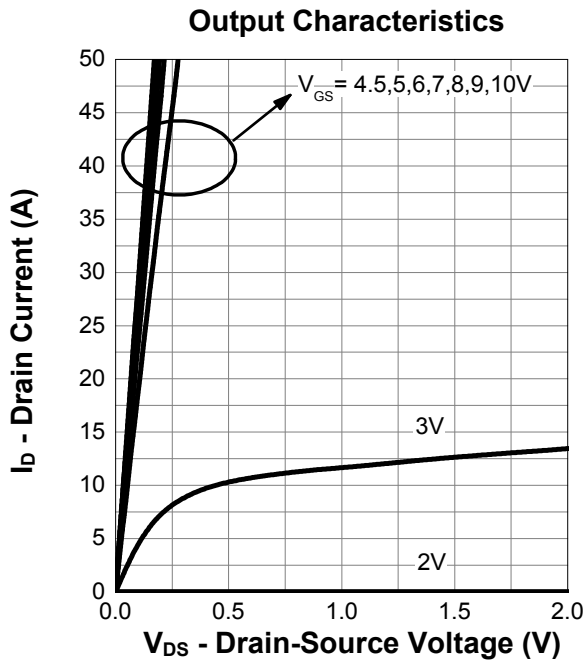
a : Pulse test ; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$

b : Guaranteed by design, not subject to production testing

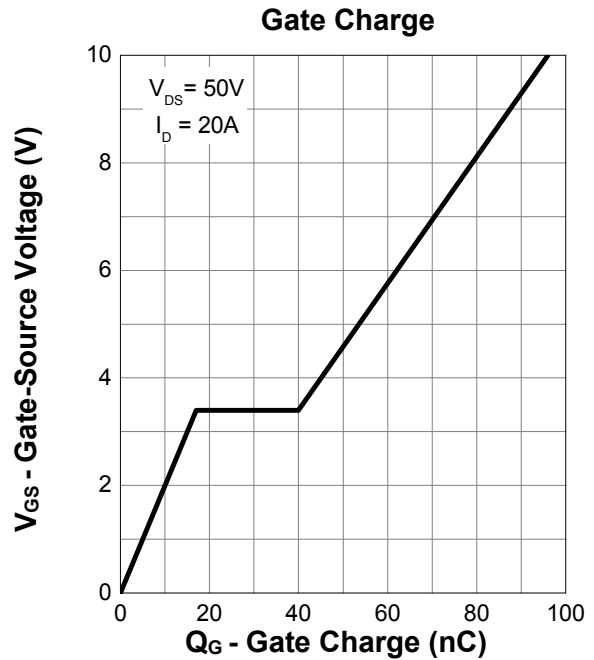
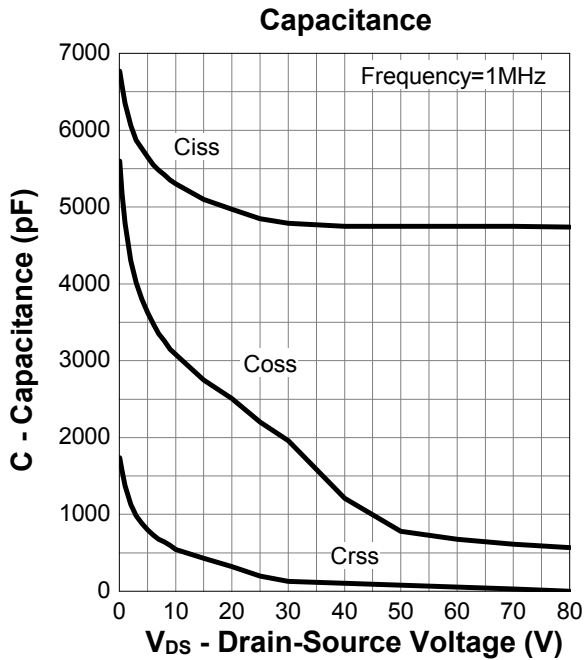
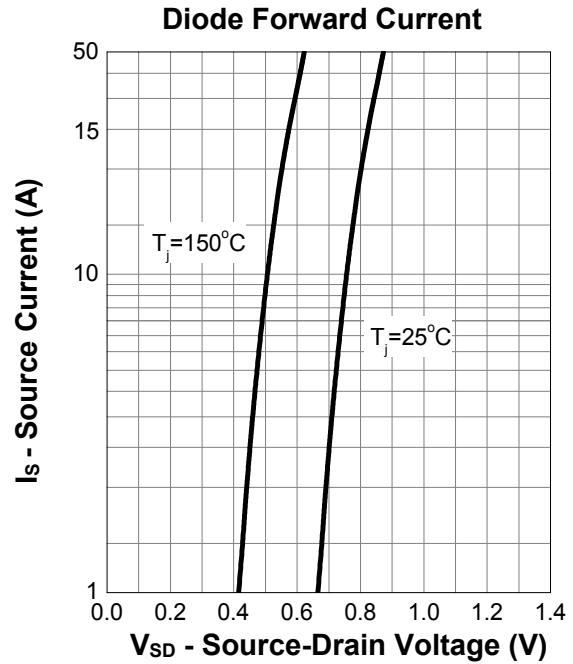
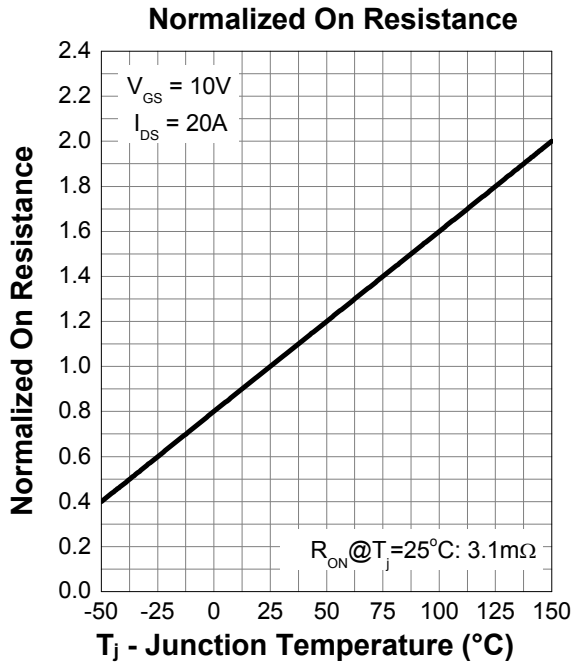
## 7. Typical Characteristics



## 7. Typical Characteristics (cont.)

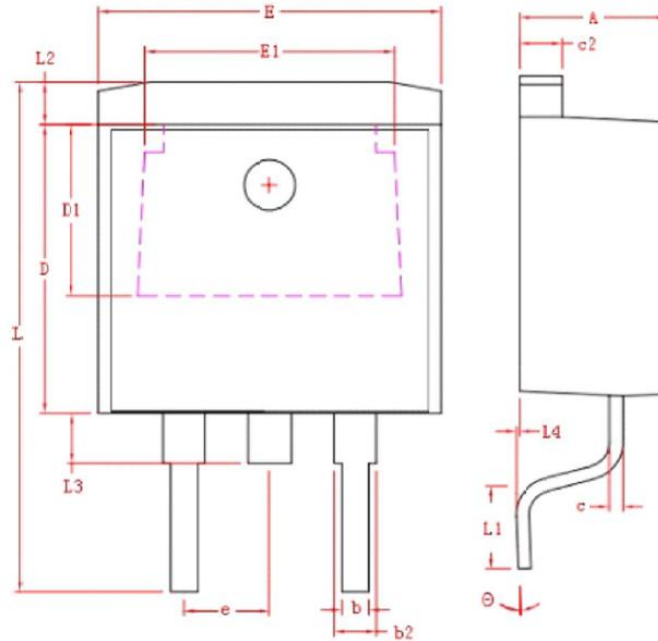


## 7. Typical Characteristics (cont.)



## 8.Package Dimensions

T0263-2L



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	