

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Surface-mounted package
- ☑ Advanced trench cell design

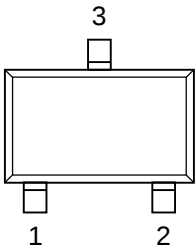
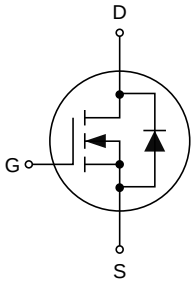
1.2 Applications

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

1.3 Quick reference

- ☑ $BV \geq 100\text{ V}$
- ☑ $R_{DS(ON)} \leq 93\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- ☑ $P_{tot} \leq 50\text{ W}$
- ☑ $R_{DS(ON)} \leq 120\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
- ☑ $I_D \leq 3\text{ A}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 Top View SOT23-3L	
2	Source(S)		
3	Drain(D)		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A=25^{\circ}\text{C}$	100	-	V
V_{GS}	Gate-Source Voltage	$T_A=25^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current	$T_A=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	3	A
$I_{DM}^{*,**}$	Pulsed Drain Current	$T_A=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	8	A
P_{tot}	Total Power Dissipation	$T_A=25^{\circ}\text{C}$	-	50	W
T_{stg}	Storage Temperature		-55	150	$^{\circ}\text{C}$
T_J	Junction Temperature		-	150	$^{\circ}\text{C}$
I_S	Diode Forward Current	$T_A=25^{\circ}\text{C}$	-	3	A
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient		-	150	$^{\circ}\text{C/W}$

Notes:

* Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$

** Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

*** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJ3N10A	03N10 YWWXXX YWWXXX: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ3N10A	SOT23-3L	-	-	3000	

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)

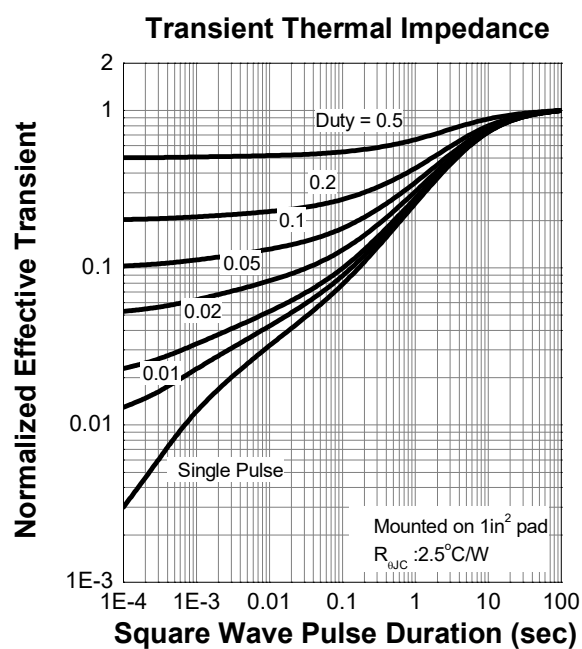
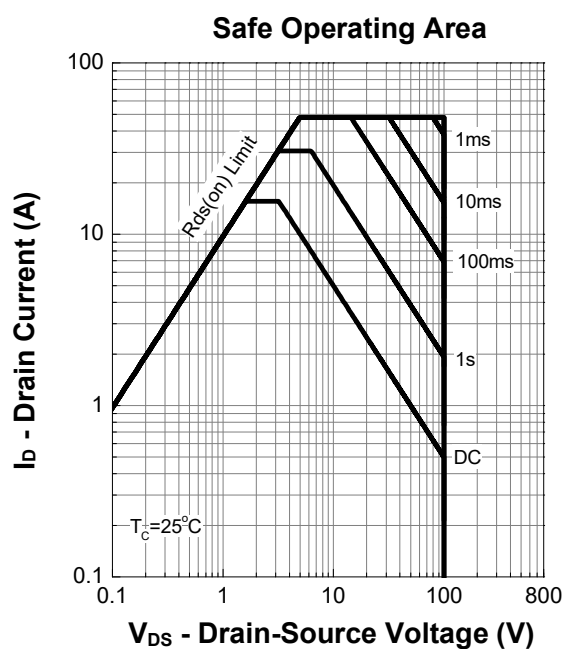
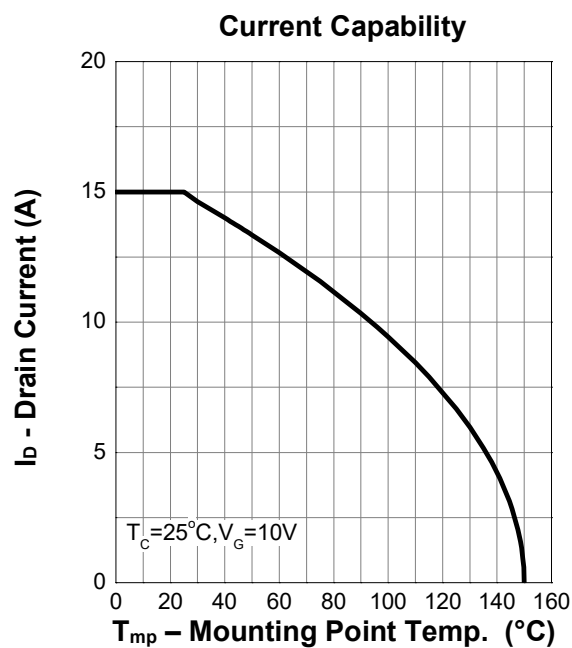
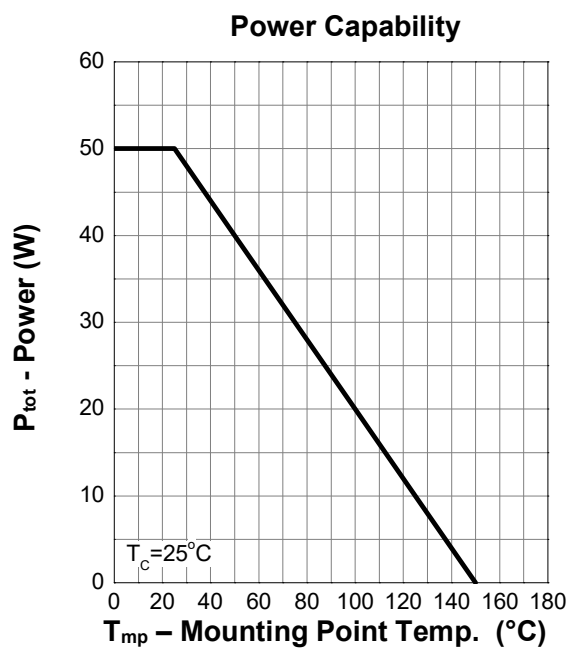
6. Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

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	1.0	-	3.0	V
I _{DSS}	Zero Gate Voltage Source Current	V _{DS} =80 V, V _{GS} =0 V	-	-	1	μA
		T _J =85°C	-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±20 V, V _{DS} =0 V	-	-	±100	nA
R _{DS(ON)} ^a	Drain-Source On-State Resistance	V _{GS} =10 V, I _{DS} =2 A	-	86	93	mΩ
	Drain-Source On-State Resistance	V _{GS} =4.5 V, I _{DS} =2 A	-	115	120	mΩ
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =2 A, V _{GS} =0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =2 A, V _{GS} =0 V, dI _{SD} /dt=100 A/μs	-	22	-	ns
Q _{rr}	Reverse Recovery Charge		-	16.5	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =50 V, Frequency=1 MHz	-	161	-	pF
C _{oss}	Output Capacitance		-	29	-	
C _{rss}	Reverse Transfer Capacitance		-	14	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =50 V, V _{GEN} =10 V, R _G =3.9 Ω, R _L =16.6 Ω, I _{DS} =2 A	-	3.6	-	ns
t _r	Turn-on Rise Time		-	3.6	-	
t _{d(off)}	Turn-off Delay Time		-	8.8	-	
t _f	Turn-off Fall Time		-	7	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} =50 V, V _{GS} =10 V, I _{DS} =2 A	-	4.9	-	nC
Q _{gs}	Gate-Source Charge		-	1.6	-	
Q _{gd}	Gate-Drain Charge		-	0.55	-	

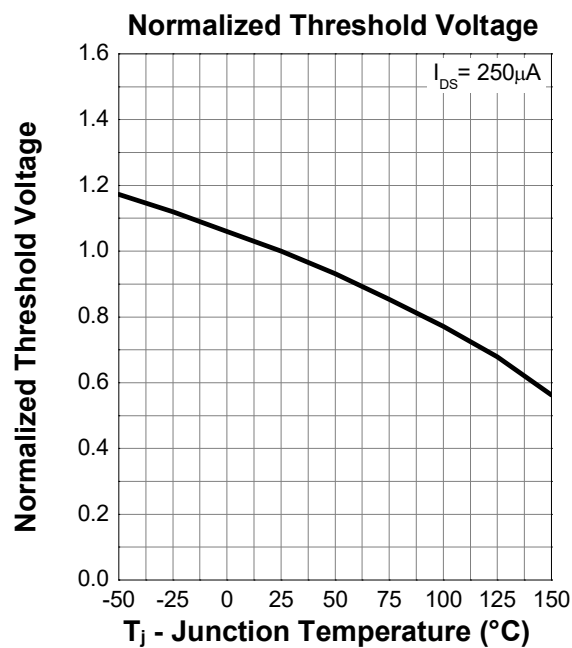
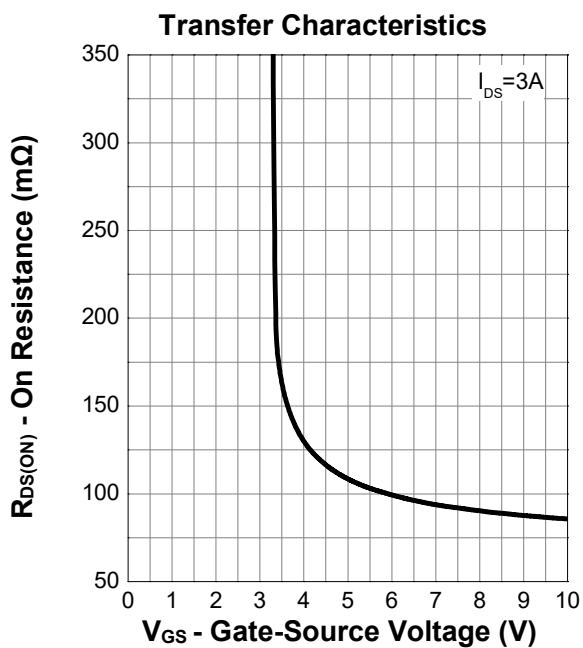
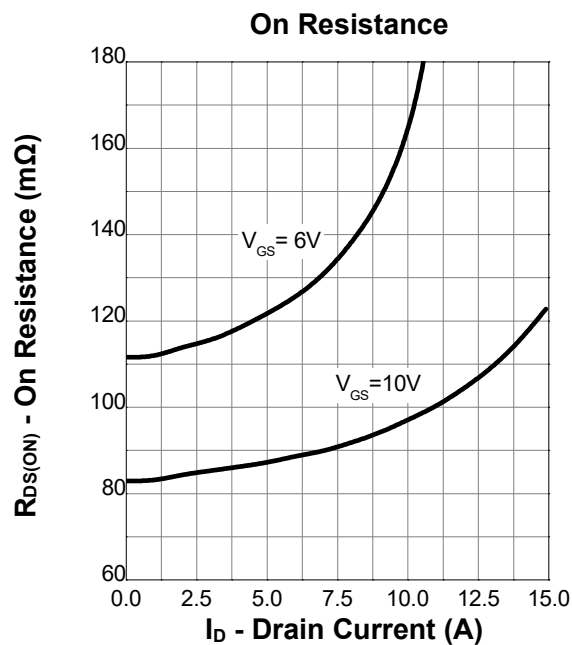
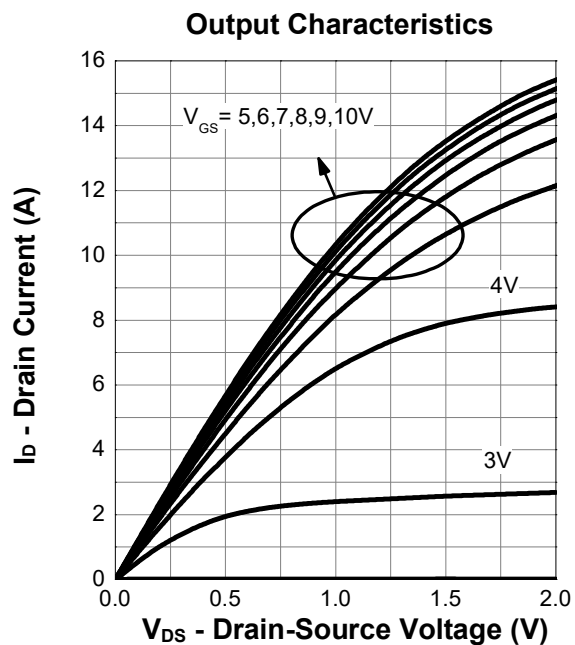
Notes:

- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production testing

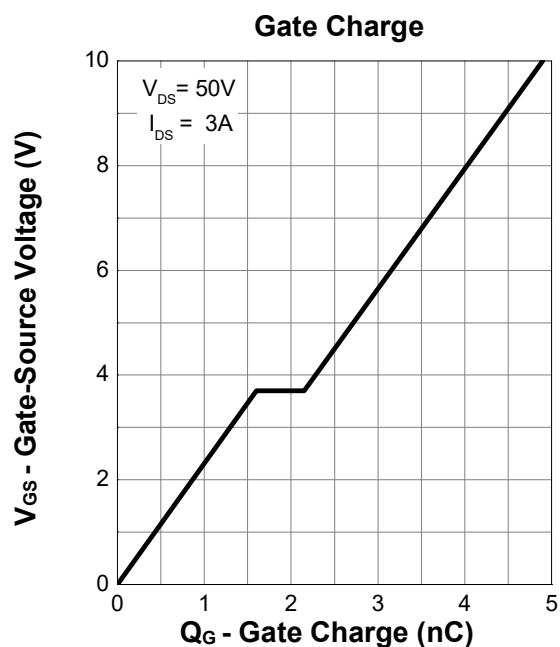
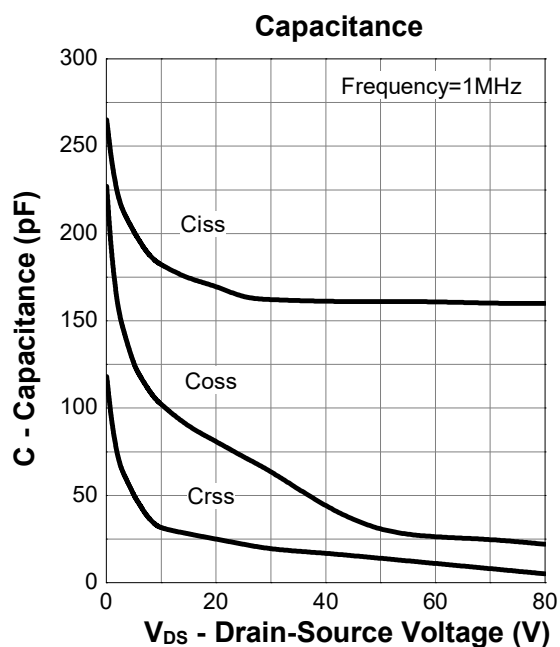
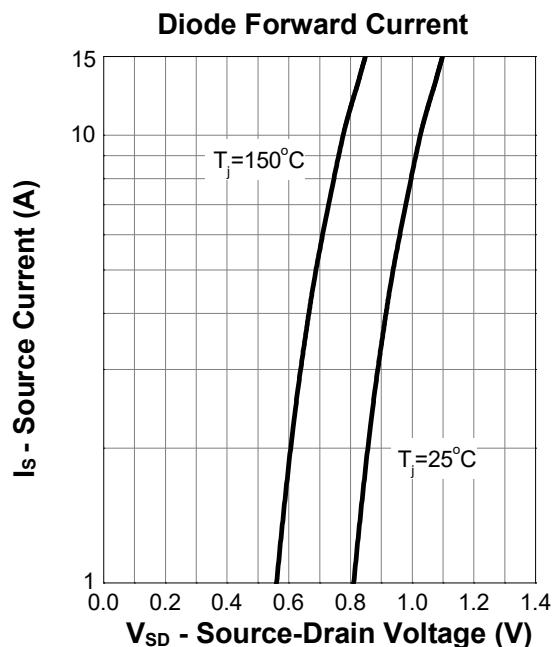
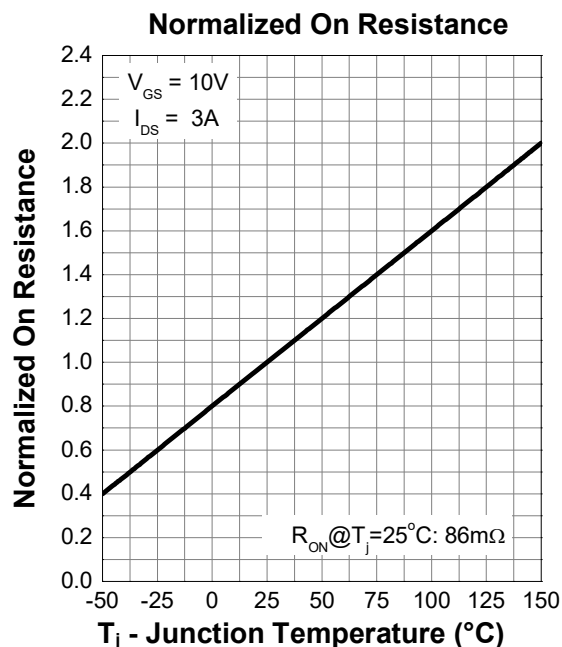
7. Typical Characteristics



7. Typical Characteristics (Cont.)

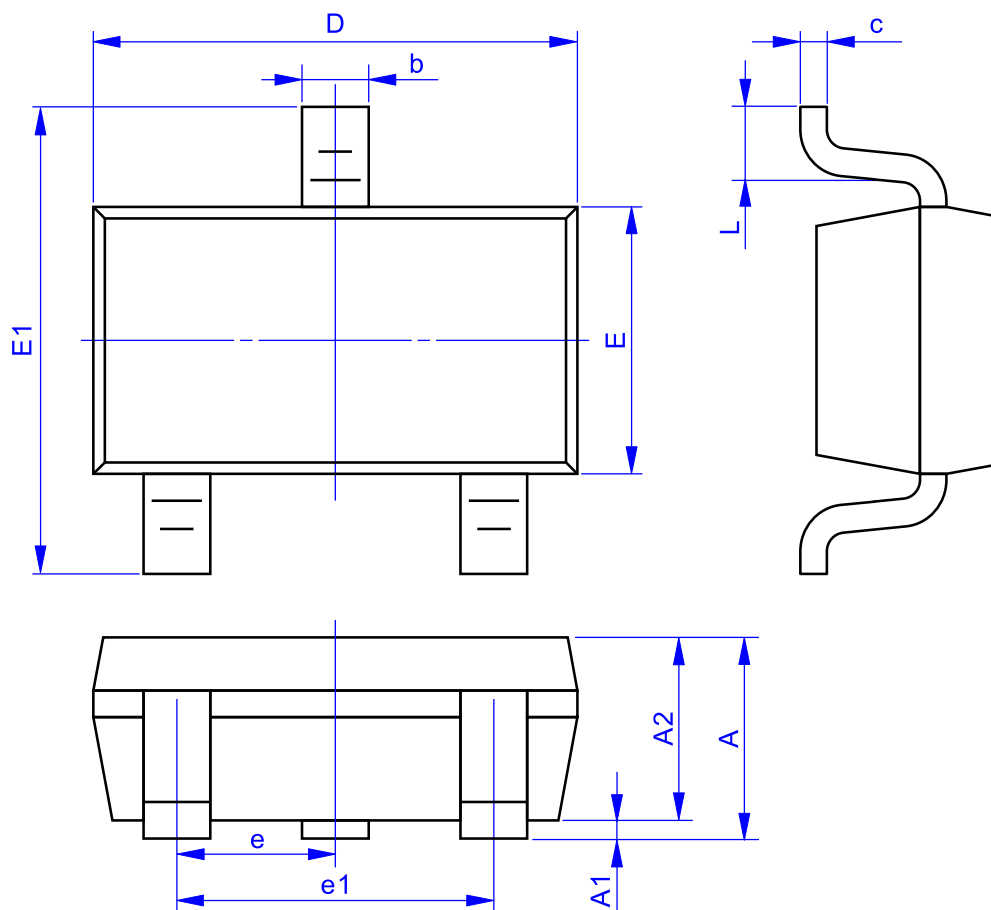


7. Typical Characteristics (Cont.)



8. Package Dimensions

SOT23-3L Package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN.	MAX.	MIN.	MAX.
A	1.00	1.45	0.039	0.057
A1	0.00	0.15	0.000	0.006
A2	1.00	1.30	0.039	0.051
D	2.70	3.10	0.106	0.122
E1	2.60	3.00	0.102	0.118
E	1.50	1.70	0.059	0.067
c	0.08	0.25	0.003	0.010
b	0.30	0.50	0.012	0.020
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024