

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ T_J max 175°C
- ☒ Advanced trench cell design
- ☒ MSL1

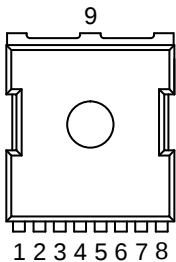
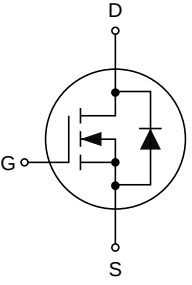
1.2 Applications

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

1.3 Quick reference

- ☒ BV ≥ 80 V
- ☒ P_{tot} ≤ 208 W
- ☒ I_D ≤ 280 A
- ☒ R_{DS(ON)} ≤ 2.0 mΩ @ V_{GS} = 10 V

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate (G)	 Top View TOLL-8L	
2,3,4,5,6,7,8	Source (S)		
9	Drain (D)		

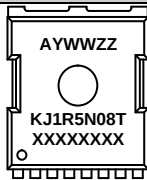
3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C=25^{\circ}\text{C}$	-	80	V
V_{GS}	Gate-Source Voltage	$T_C=25^{\circ}\text{C}$	-	± 20	V
$I_{D}^{*,**}$	Drain Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	280	A
		$T_C=100^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	160	A
$I_{DM}^{*,**}$	Drain Current (Pulsed)	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	1000	A
P_{tot}	Drain Power Dissipation	$T_C=25^{\circ}\text{C}$	-	208	W
T_J, T_{stg}	Operating Junction and Storage Temperature		-55	175	$^{\circ}\text{C}$
I_S	Diode Forward Current	$T_C=25^{\circ}\text{C}$	-	280	A
E_{AS}	Single Pulsed Avalanche Energy	$V_{DD}=50\text{ V}, L=1.0\text{ mH}$	-	2800	mJ
$R_{\theta JA}^{**}$	Thermal Resistance-Junction to Ambient		-	32.8	$^{\circ}\text{C/W}$
$R_{\theta JC}^{**}$	Thermal Resistance-Junction to Case		-	0.45	

Notes:

- * Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- ** Surface Mounted on 1 in^2 pad area, $t \leq 10\text{ sec}$
- *** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJ1R5N08T	

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ1R5N08T	TOLL-8L	-	-	2000	

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)

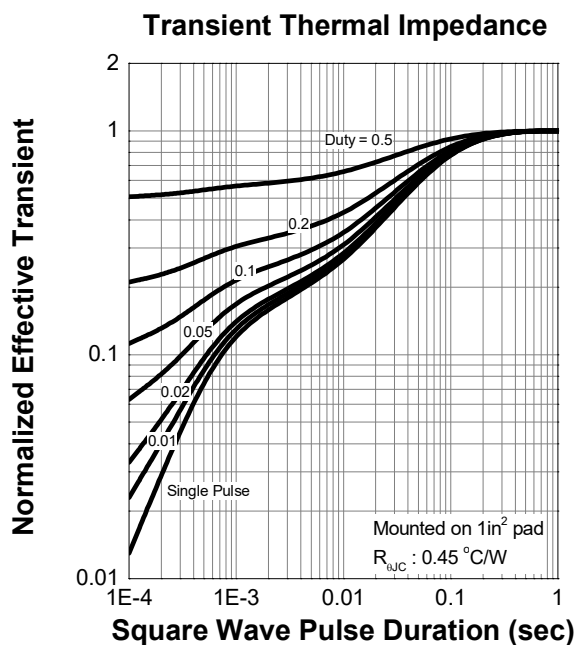
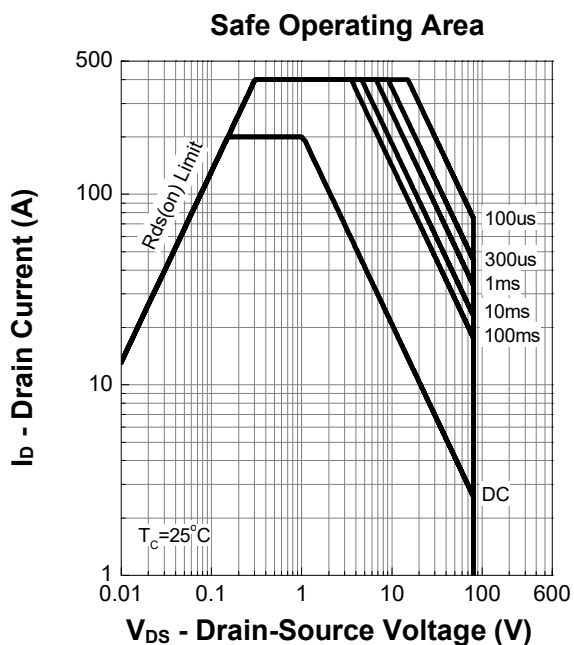
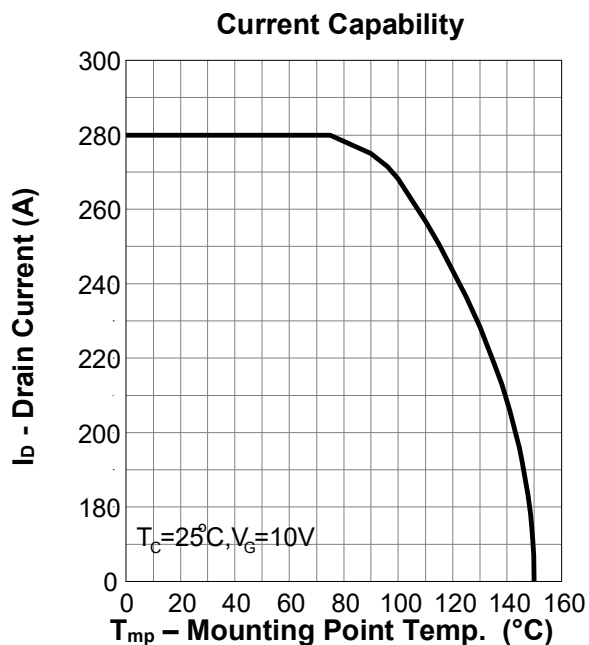
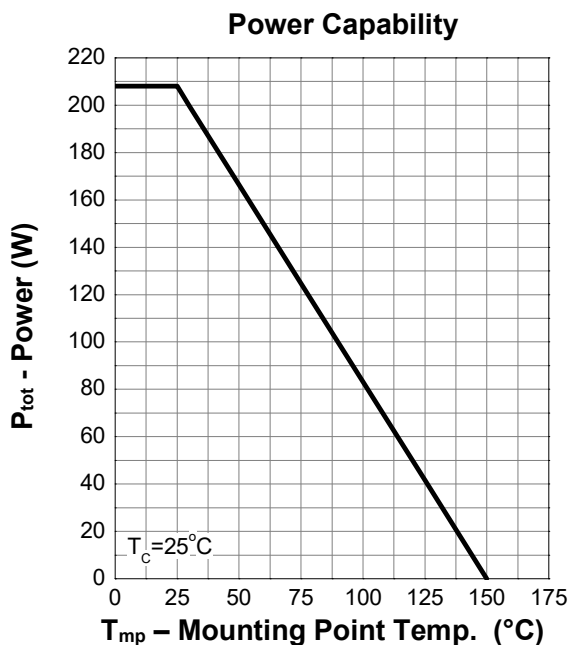
6. Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _{DS} =250 μA	80	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	2.0	-	4.0	V
I _{DSS}	Drain Gate Current	V _{DS} =64 V, V _{GS} =0 V	-	-	1	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} =30 A	-	1.5	2.0	mΩ
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =30 A, V _{GS} =0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =30 A, V _{GS} =0 V dI _{SD} /dt=100 A/μs	-	80	-	ns
Q _{rr}	Reverse Recovery Charge		-	196	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =40 V, Frequency=1 MHz	-	8237	-	pF
C _{oss}	Output Capacitance		-	1549	-	
C _{rss}	Reverse Transfer Capacitance		-	152	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =40 V, V _{GEN} =10 V, R _G =4.5 Ω, R _L =1.3 Ω, I _{DS} =30 A	-	32	-	ns
t _r	Turn-on Rise Time		-	115	-	
t _{d(off)}	Turn-off Delay Time		-	93	-	
t _f	Turn-off Fall Time		-	140	-	
Q _g	Total Gate Charge	V _{DS} =40 V, V _{GS} =10 V, I _{DS} =30 A	-	138	-	nC
Q _{gs}	Gate-Source Charge		-	39	-	
Q _{gd}	Gate-Drain Charge		-	36	-	

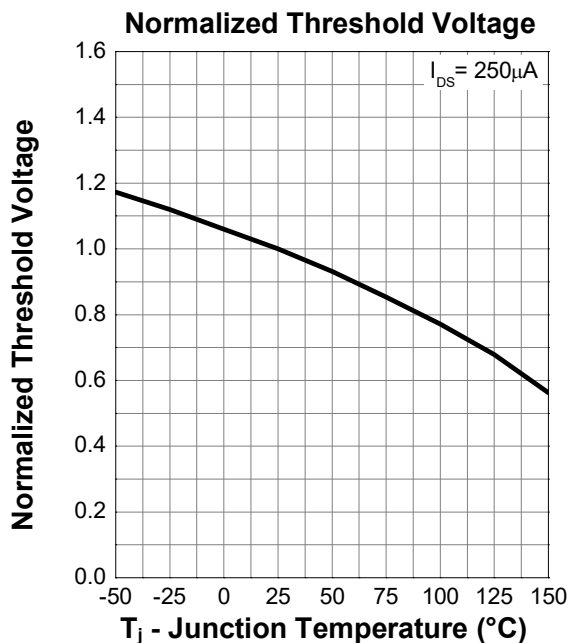
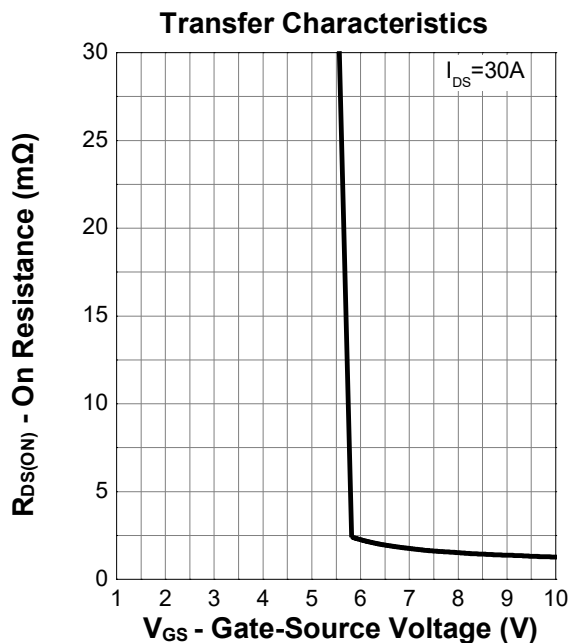
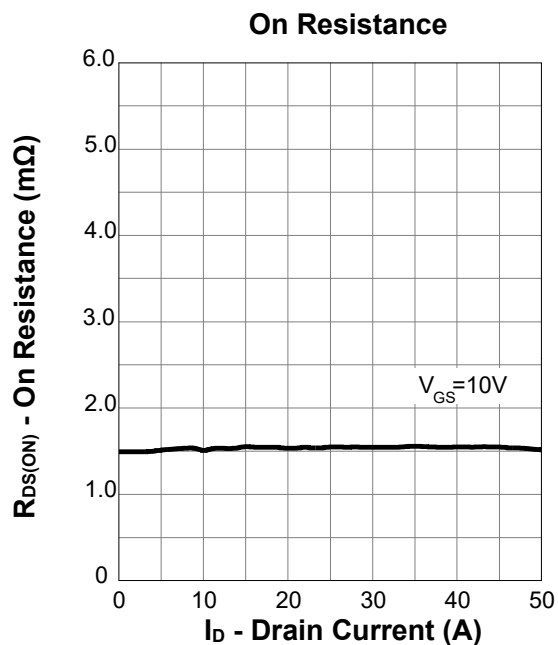
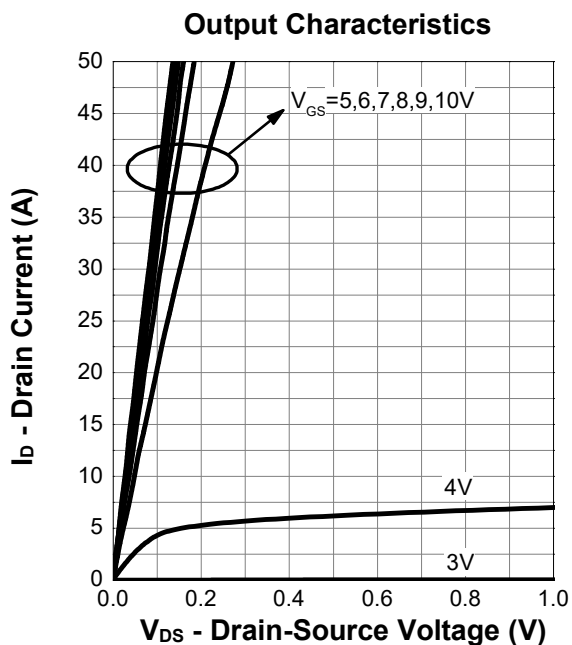
Notes:

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

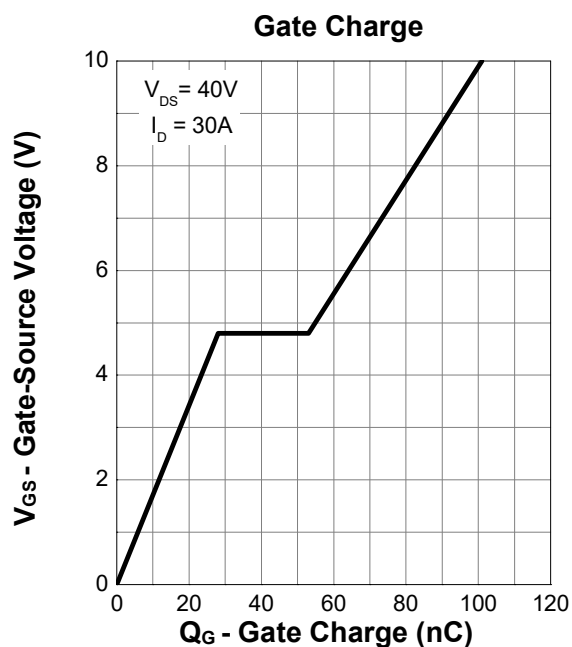
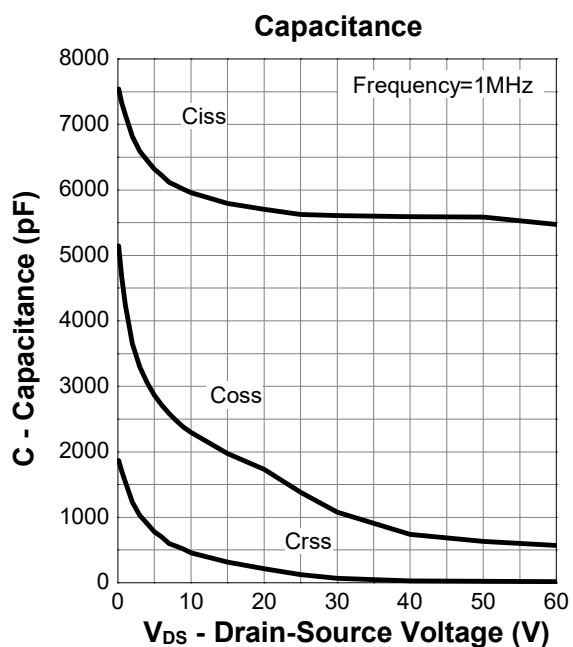
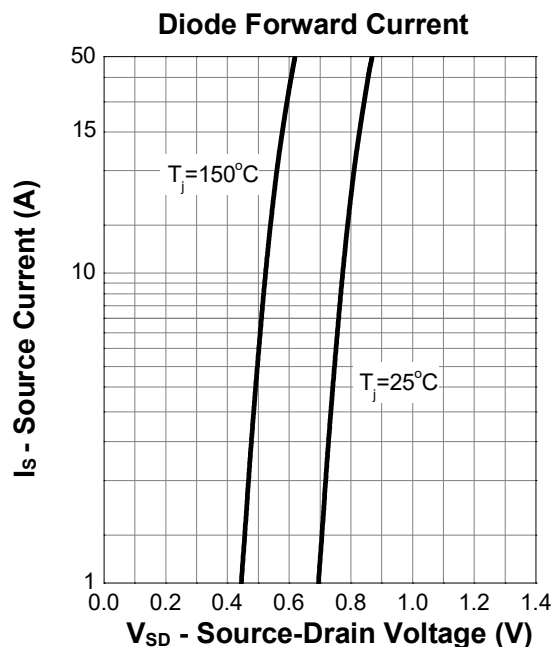
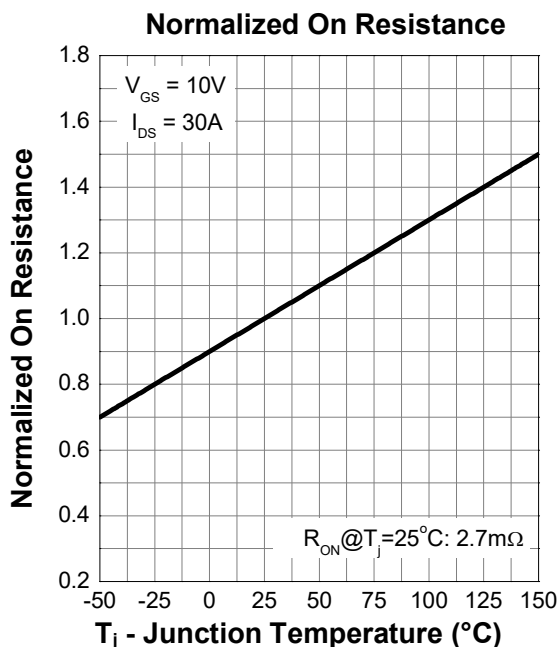
7. Typical Characteristics



7. Typical Characteristics (Cont.)

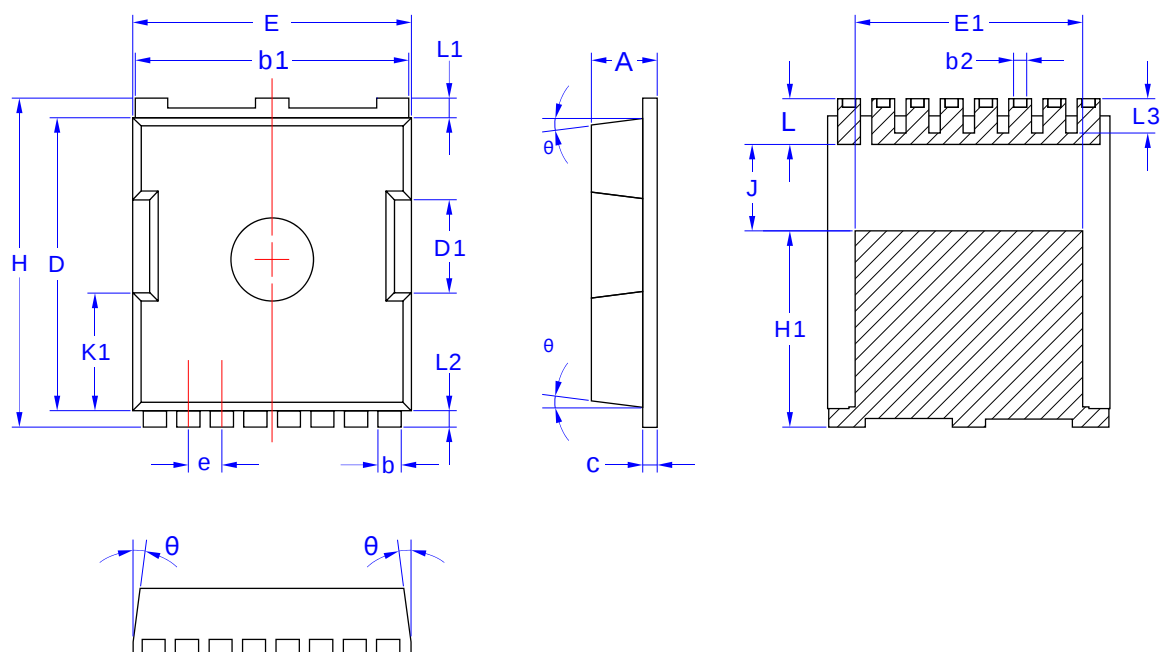


7. Typical Characteristics (Cont.)



8. Package Dimensions

TOLL-8L Package



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	2.20	2.40
b	0.70	0.90
b1	9.70	9.90
b2	0.42	0.50
c	0.40	0.60
D	10.28	10.58
D1	3.10	3.50
E	9.70	10.10
E1	7.90	8.30
e	1.20 BSC	
H	11.48	11.88
H1	6.75	7.15
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L3	1.00	1.30
θ	4°	10°