

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- Surface-mounted package
- Extremely low threshold voltage
- Advanced trench cell design
- ESD 2KV

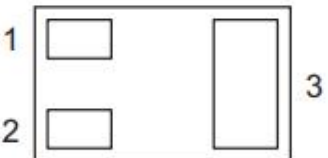
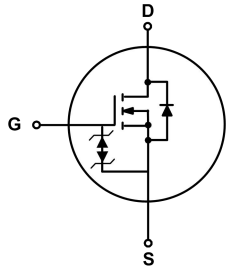
1.2 Applications

- Portable appliances

1.3 Quick reference

- $BV \geq 60\text{ V}$
- $P_{tot} \cong 0.43\text{ W}$
- $I_D \cong 0.5\text{ A}$
- $R_{DS(ON)} \leq 1.8\ \Omega @ V_{GS} = 10\text{ V}$
- $R_{DS(ON)} \leq 2.2\ \Omega @ V_{GS} = 5\text{ V}$

2. Pin Description

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

**Bottom View
DFN1006-3L**

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A = 25\text{ }^{\circ}\text{C}$	60	-	V
V_{GS}	Gate-Source Voltage	$T_A = 25\text{ }^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current	$T_A = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	0.5	A
$I_{DM}^{*,**}$	Pulsed Drain Current	$T_A = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	1.6	A
P_{tot}^*	Total Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	-	0.43	W
T_{stg}	Storage Temperature		- 55	150	$^{\circ}\text{C}$
T_J	Junction Temperature		-	150	$^{\circ}\text{C}$
I_S	Diode Forward Current	$T_A = 25\text{ }^{\circ}\text{C}$	-	0.5	A
$R_{\theta JA}^*$	Thermal Resistance- Junction to Ambient		-	290	$^{\circ}\text{C} / \text{W}$

Notes :

- * Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$
- ** Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

4. Marking Information

Product Name	Marking
KJ2N7002N1	

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ2N7002N1	DFN1006-3			10000	

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 ($T_A = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

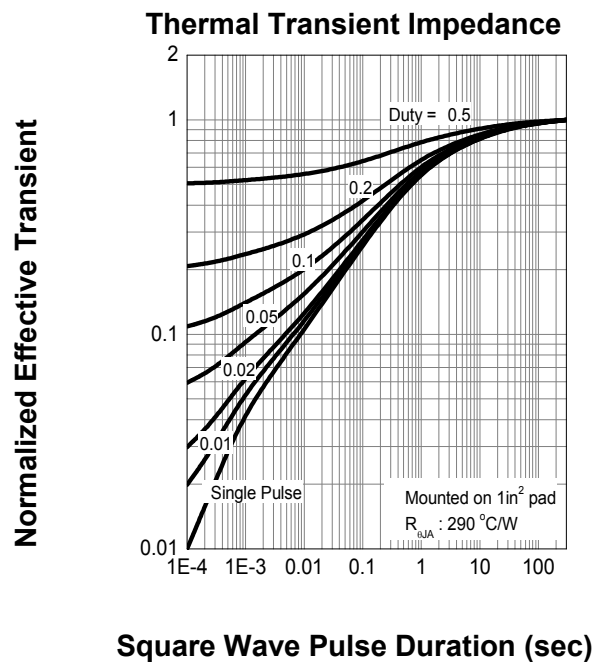
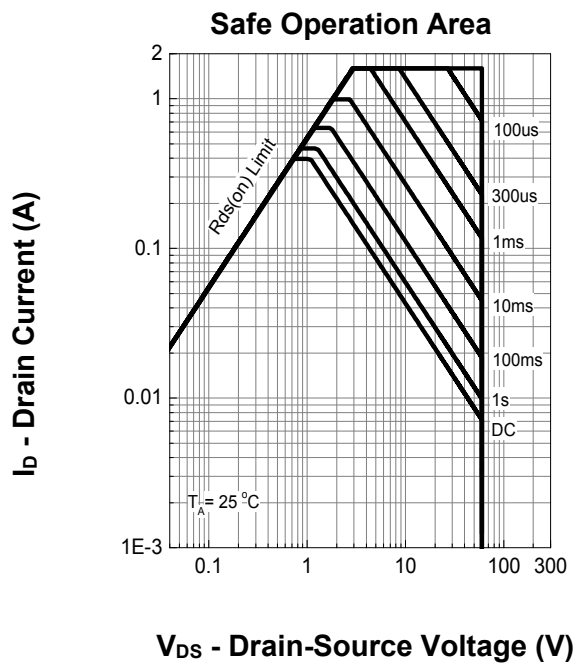
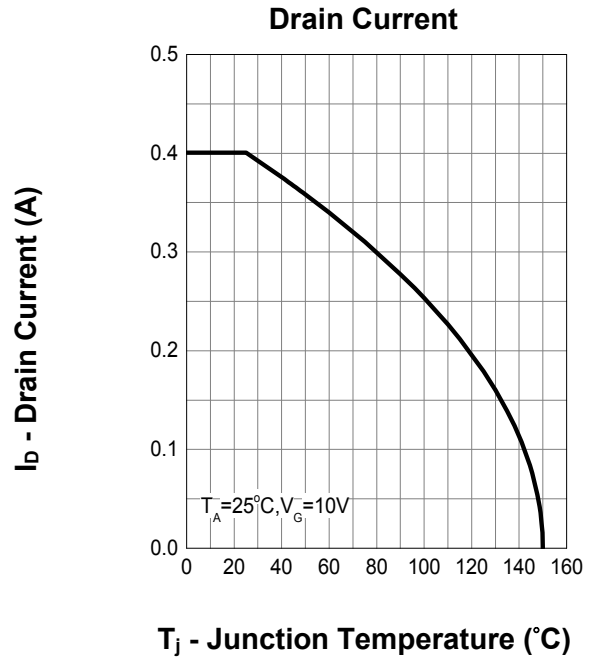
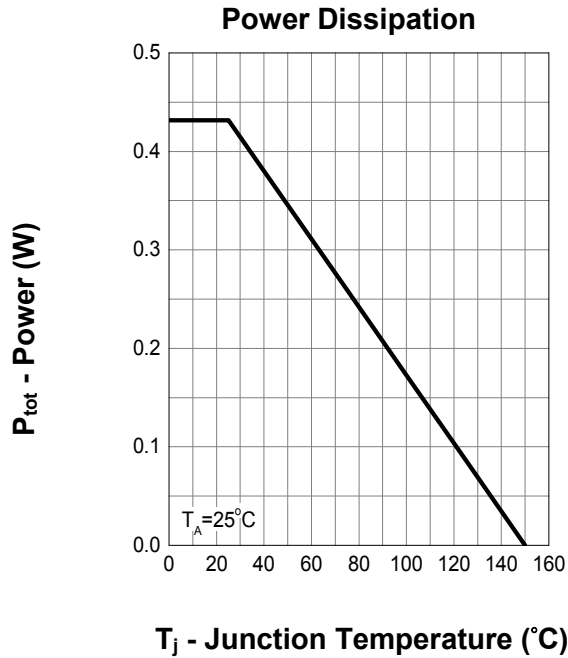
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\text{ }\mu\text{A}$	60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\text{ }\mu\text{A}$	1	-	2	V
I_{DSS}	Drain Leakage Current	$V_{DS} = 48\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	μA
		$T_J = 85\text{ }^\circ\text{C}$	-	-	30	μA
I_{GSS}	Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	-	-	± 10	μA
$R_{DS(ON)}^a$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 0.2\text{ A}$	-	1.5	1.8	Ω
		$V_{GS} = 5\text{ V}, I_{DS} = 0.1\text{ A}$	-	1.9	2.2	
Diode Characteristics						
V_{SD}^a	Diode Forward Voltage	$I_{SD} = 0.2\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.1	V
Dynamic Characteristics^b						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}$ Frequency = 1 MHz	-	16	-	pF
C_{oss}	Output Capacitance		-	2.3	-	
C_{rss}	Reverse Transfer Capacitance		-	0.4	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 30\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 4.5\text{ }\Omega, R_L = 150\text{ }\Omega,$ $I_{DS} = 0.2\text{ A}$	-	2.1	-	nS
t_r	Turn-on Rise Time		-	1.9	-	
$t_d(off)$	Turn-off Delay Time		-	4	-	
t_f	Turn-off Fall Time		-	4.7	-	
Q_g	Total Gate Charge	$V_{GS} = 10\text{ V}, V_{DS} = 30\text{ V},$ $I_{DS} = 0.2\text{ A}$	-	1.2	-	nC
Q_{gs}	Gate-Source Charge		-	0.5	-	
Q_{gd}	Gate-Drain Charge		-	0.1	-	

Notes :

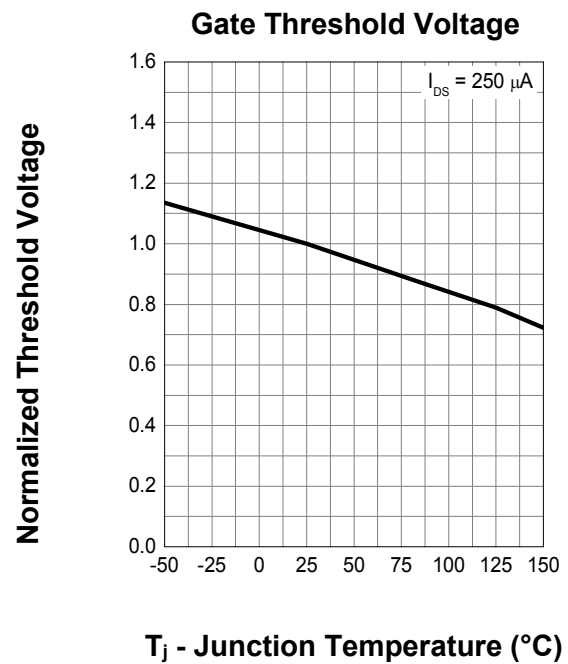
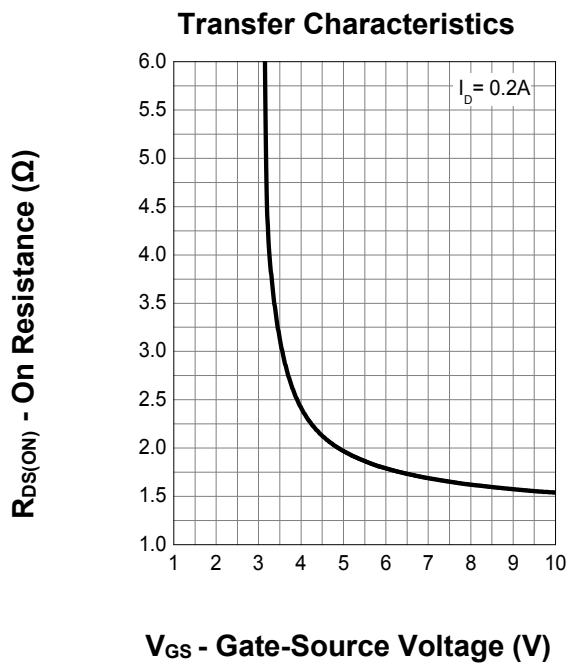
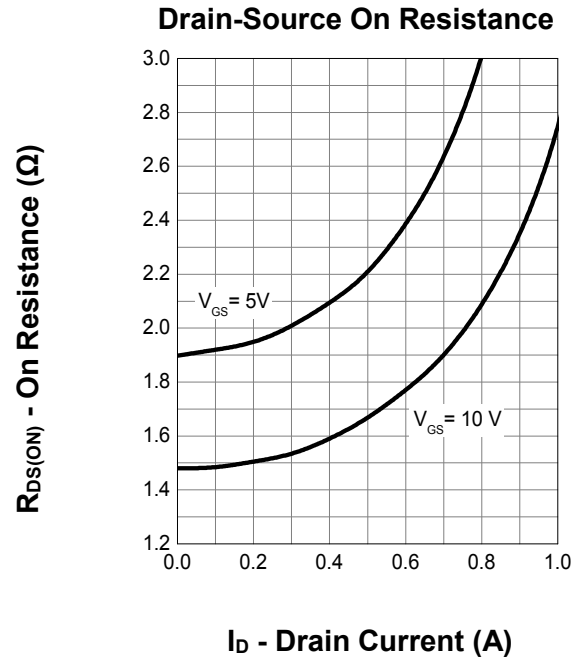
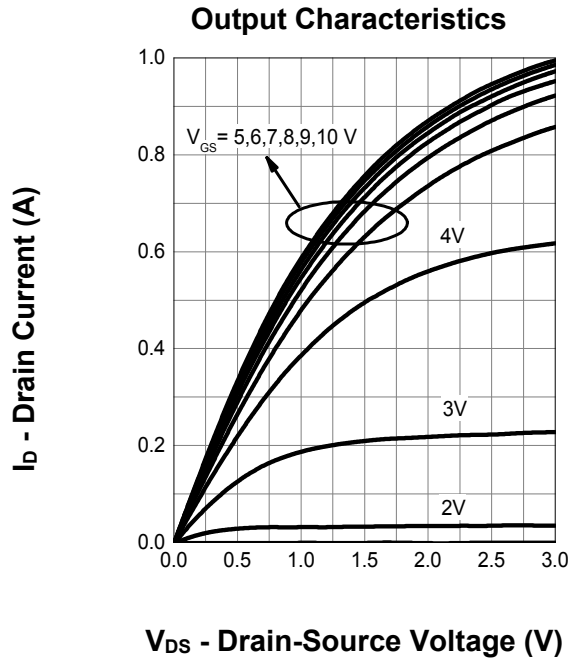
 a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

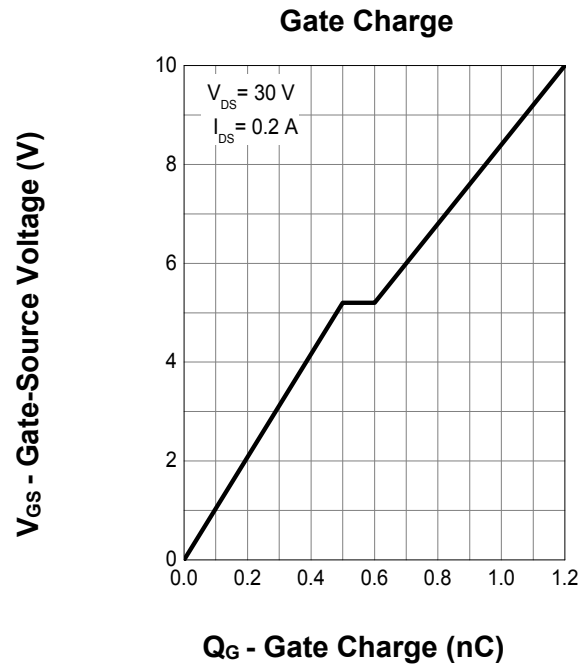
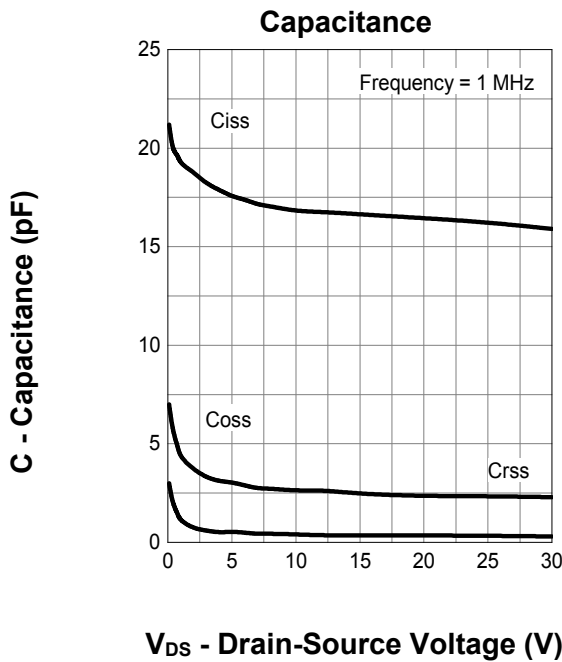
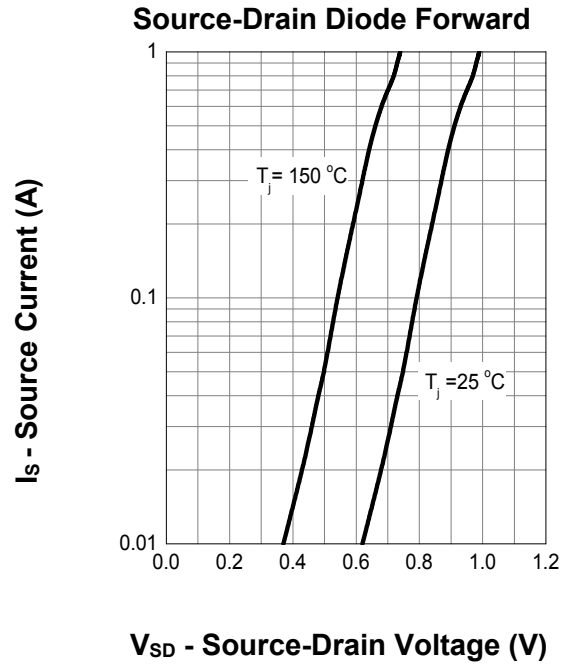
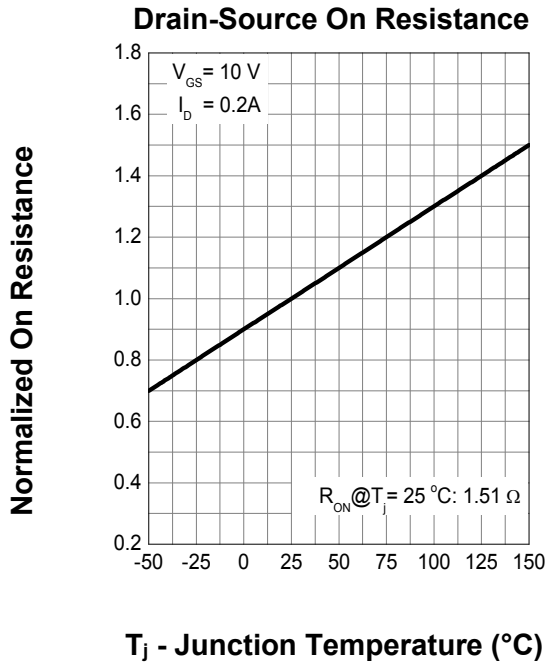
7. Typical Characteristics



7. Typical Characteristics (cont.)

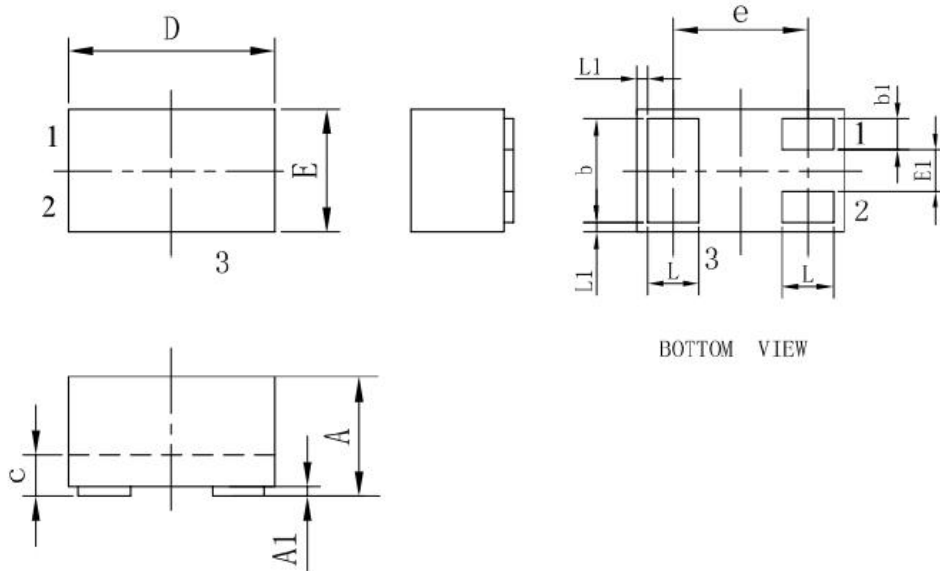


7. Typical Characteristics (cont.)



8. Package Dimensions

DFN1006-3L



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
c	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
E1	0.15	0.20	0.25
L	0.20	0.25	0.30
L1	0.05REF		