

# N-Channel Enhancement Mode MOSFET

## 1. Product Information

### 1.1 Features

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

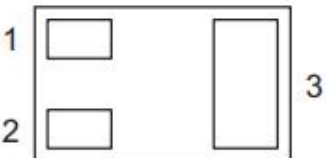
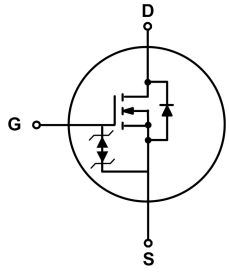
### 1.2 Applications

- Portable appliances

### 1.3 Quick reference

- $BV \geq -100\text{ V}$
- $P_{tot} \cong 0.43\text{ W}$
- $I_D \cong -0.1\text{ A}$
- $R_{DS(ON)} \leq 10\ \Omega @ V_{GS} = -10\text{ V}$
- $R_{DS(ON)} \leq 10\ \Omega @ V_{GS} = -4.5\text{ V}$

## 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	$T_A = 25\text{ }^\circ\text{C}$	-100	-	V
$V_{GS}$	Gate-Source Voltage	$T_A = 25\text{ }^\circ\text{C}$	-	$\pm 20$	V
$I_D^*$	Drain Current	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	-0.1	A
$I_{DM}^{*,**}$	Pulsed Drain Current	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	-0.4	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	$T_A = 25\text{ }^\circ\text{C}$	-	-0.1	A
$R_{\theta JA}^*$	Thermal Resistance- Junction to Ambient		-	290	$^\circ\text{C} / \text{W}$

Notes :

- \* Surface Mounted on 1 in<sup>2</sup> 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
KJ12KP10N	<b>12 KY</b>

## 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ12KP10N	DFN1006-3L			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 )

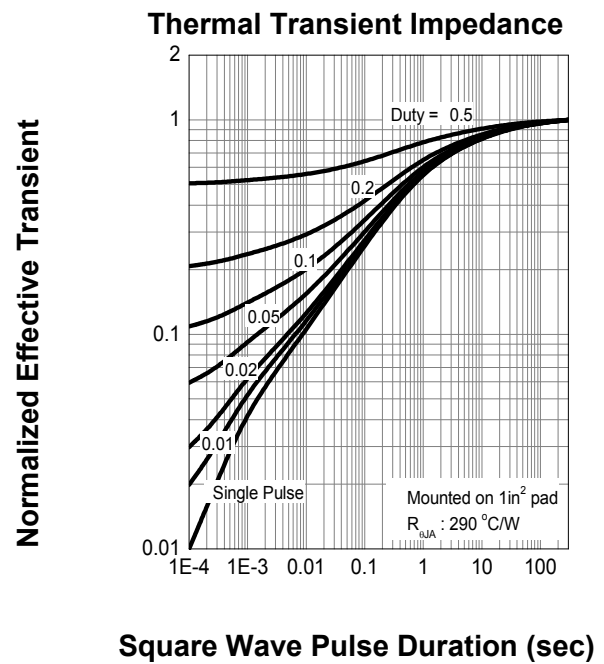
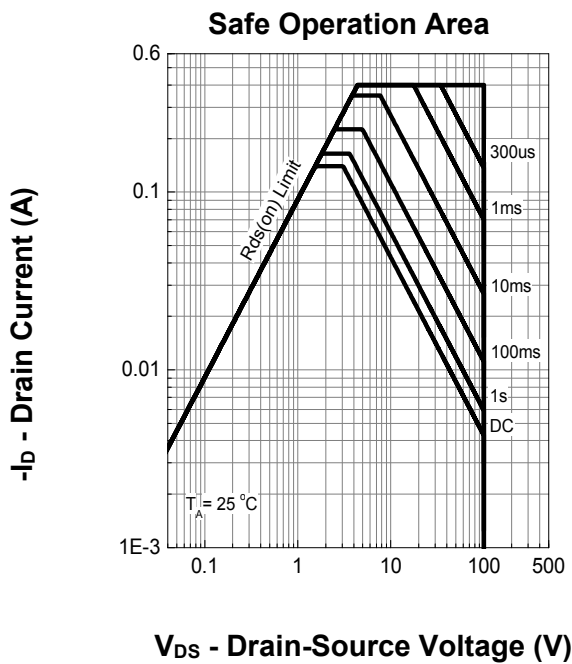
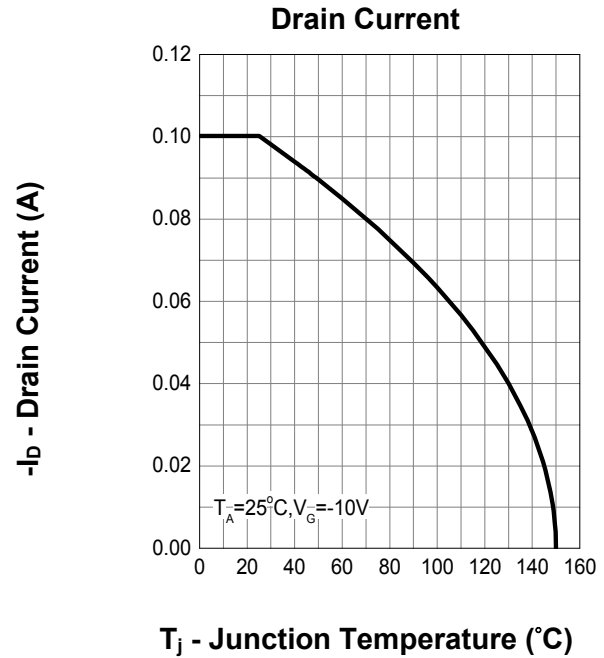
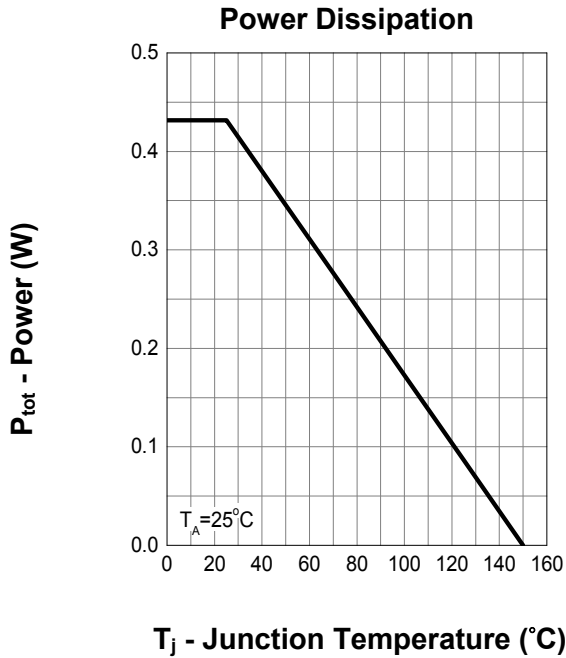
## 6. Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted )

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = -250\text{ }\mu\text{A}$	-100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = -250\text{ }\mu\text{A}$	-1	-	-3	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = -80\text{ V}, V_{GS} = 0\text{ V}$	-	-	-1	$\mu\text{A}$
		$T_J = 85\text{ }^\circ\text{C}$	-	-	-30	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	-	-	$\pm 10$	$\mu\text{A}$
$R_{DS(ON)}^a$	On-State Resistance	$V_{GS} = -10\text{ V}, I_{DS} = -0.1\text{ A}$	-	8.3	10	$\Omega$
		$V_{GS} = -4.5\text{ V}, I_{DS} = -0.1\text{ A}$	-	8.5	10	
<b>Diode Characteristics</b>						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = -0.1\text{ A}, V_{GS} = 0\text{ V}$	-	-	-1.2	V
<b>Dynamic Characteristics<sup>b</sup></b>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = -30\text{ V}$ Frequency = 1 MHz	-	56	-	pF
$C_{oss}$	Output Capacitance		-	4.7	-	
$C_{rss}$	Reverse Transfer Capacitance		-	1.9	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = -50\text{ V}, V_{GEN} = -10\text{ V},$ $R_G = 4.5\text{ }\Omega, R_L = 500\text{ }\Omega,$ $I_{DS} = -0.1\text{ A}$	-	7.2	-	nS
$t_r$	Turn-on Rise Time		-	20	-	
$t_d(off)$	Turn-off Delay Time		-	35	-	
$t_f$	Turn-off Fall Time		-	28	-	
$Q_g$	Total Gate Charge	$V_{GS} = -10\text{ V}, V_{DS} = -50\text{ V},$ $I_{DS} = -0.1\text{ A}$	-	1.6	-	pC
$Q_{gs}$	Gate-Source Charge		-	0.6	-	
$Q_{gd}$	Gate-Drain Charge		-	0.1	-	

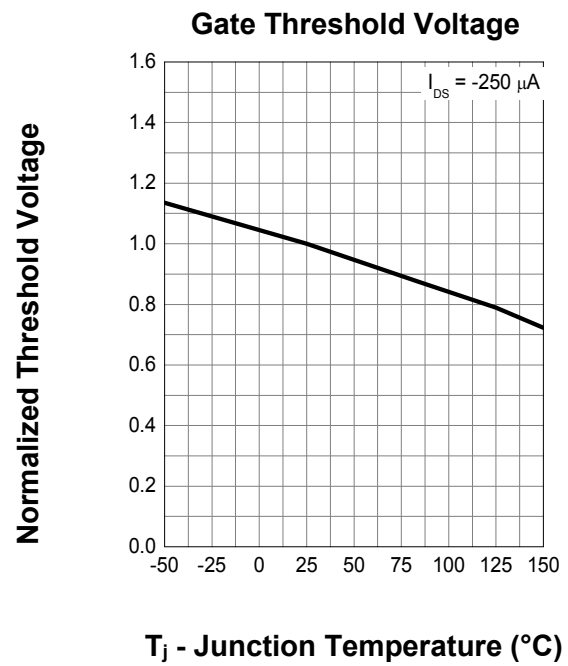
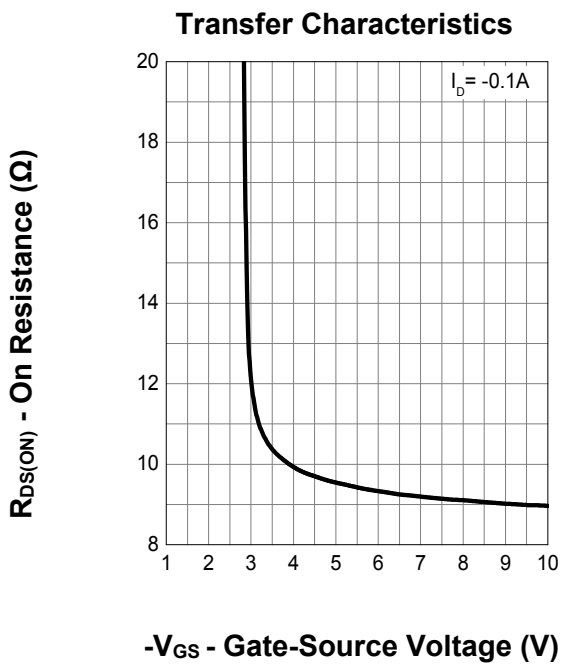
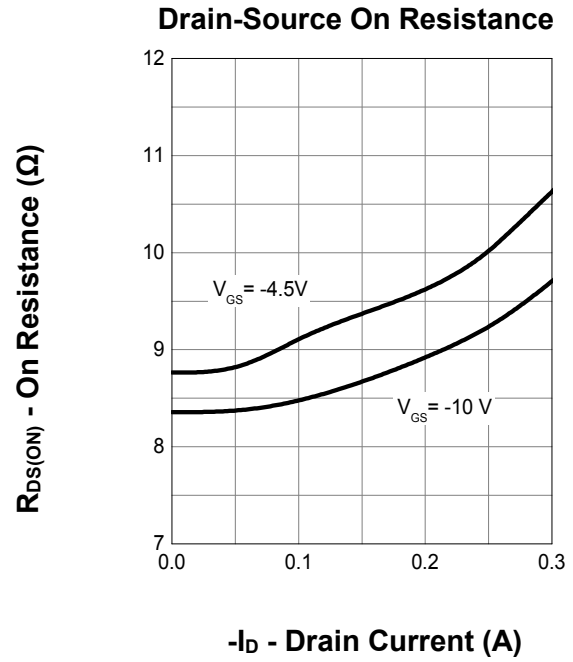
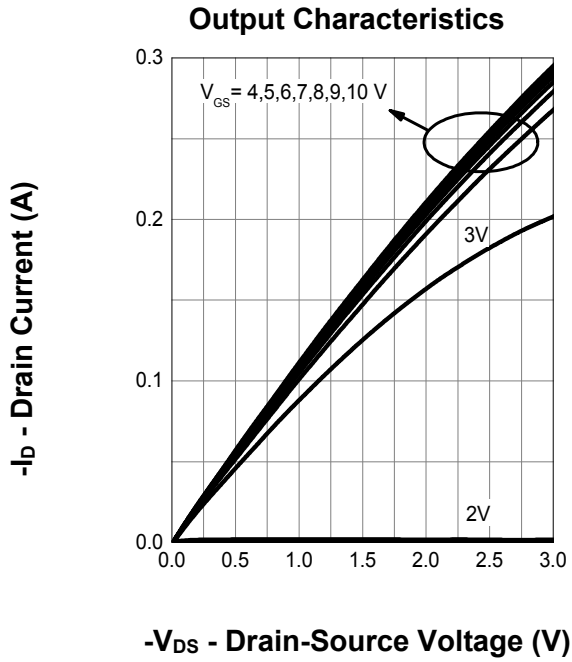
Notes :

- 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.)

