

## Dual N-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Surface-mounted package  
 ESD 2KV
- Advanced trench cell design

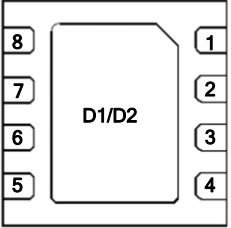
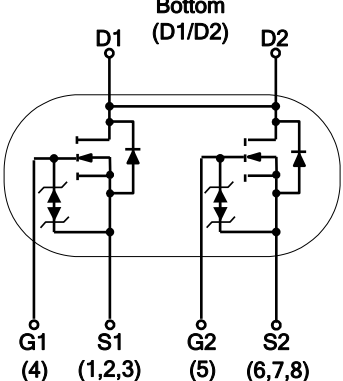
#### 1.2 Applications

- Motor application
- High power inverter system

#### 1.3 Quick reference

- $BV \geq 20\text{ V}$   
  $P_{tot} \leq 31\text{ W}$   
  $I_D \leq 49\text{ A}$
- $R_{DS(ON)} \leq 7.0\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$   
  $R_{DS(ON)} \leq 8.0\text{ m}\Omega @ V_{GS} = 3.9\text{ V}$   
  $R_{DS(ON)} \leq 9.5\text{ m}\Omega @ V_{GS} = 2.5\text{ V}$

### 2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source(S1)		
4	Gate(G1)		
5	Gate (G2)		
6,7,8	Source (S2)		
		<b>Bottom View</b> <b>DFN3X3-8L</b>	<b>Bottom</b> <b>(D1/D2)</b>



### 3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>DS</sub>	Drain-Source Voltage	T <sub>C</sub> = 25 °C	20	-	V
V <sub>GS</sub>	Gate-Source Voltage	T <sub>C</sub> = 25 °C	-	± 10	V
I <sub>D</sub> <sup>*,***</sup>	Drain Current	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = 10 V	-	49	A
I <sub>DM</sub> <sup>*,***</sup>	Pulsed Drain Current	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = 10 V	-	99	A
P <sub>tot</sub>	Total Power Dissipation	T <sub>C</sub> = 25 °C	-	31	W
T <sub>stg</sub>	Storage Temperature		- 55	150	°C
T <sub>J</sub>	Junction Temperature		- 55	150	°C
I <sub>S</sub>	Diode Forward Current	T <sub>C</sub> = 25 °C	-	49	A
R <sub>θJC</sub> <sup>*</sup>	Thermal Resistance- Junction to Ambient		-	4	°C / W

Notes :

- \* Surface Mounted on 1 in<sup>2</sup> pad area, t ≤ 10 sec
- \*\* Pulse width ≤ 300 μs, duty cycle ≤ 2 %
- \*\*\* Limited by bonding wire

### 4. Marking Information

Product Name	Marking
KJ3380Q	<div style="display: inline-block; background-color: black; color: white; padding: 2px;">3380 YWWXXX</div> YWWXXX: Date Code

### 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ3380Q	DFN3*3	6'		3000	
		13'		5000	

Note: KUIJIEXIN 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	$V_{GS} = 0\text{ V}, I_{DS} = 250\text{ }\mu\text{A}$	20	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\text{ }\mu\text{A}$	0.5	-	1.0	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	$\mu\text{A}$
		$T_J = 85\text{ }^\circ\text{C}$	-	-	30	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = \pm 10\text{ V}, V_{DS} = 0\text{ V}$	-	-	$\pm 10$	$\mu\text{A}$
$R_{DS(ON)}^a$	On-State Resistance	$V_{GS} = 4.5\text{ V}, I_{DS} = 10\text{ A}$	-	6.5	7.0	m $\Omega$
		$V_{GS} = 3.9\text{ V}, I_{DS} = 8\text{ A}$	-	7.0	8.0	
		$V_{GS} = 2.5\text{ V}, I_{DS} = 6\text{ A}$	-	8.2	9.5	
Diode Characteristics						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = 10\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.2	V
Dynamic Characteristics <sup>b</sup>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 10\text{ V}$ Frequency = 1MHz	-	1370	-	pF
$C_{oss}$	Output Capacitance		-	186	-	
$C_{riss}$	Reverse Transfer Capacitance		-	169	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 10\text{ V}, V_{GEN} = 4.5\text{ V},$ $R_G = 4.5\text{ }\Omega, R_L = 1\text{ }\Omega,$ $I_{DS} = 10\text{ A}$	-	226	-	nS
$t_r$	Turn-on Rise Time		-	487	-	
$t_d(off)$	Turn-off Delay Time		-	2534	-	
$t_f$	Turn-off Fall Time		-	5084	-	
Gate Charge Characteristics <sup>b</sup>						
$Q_g$	Total Gate Charge	$V_{GS} = 4.5\text{ V}, V_{DS} = 10\text{ V},$ $I_{DS} = 10\text{ A}$	-	20.6	-	nC
$Q_{gs}$	Gate-Source Charge		-	2.4	-	
$Q_{gd}$	Gate-Drain Charge		-	5.2	-	

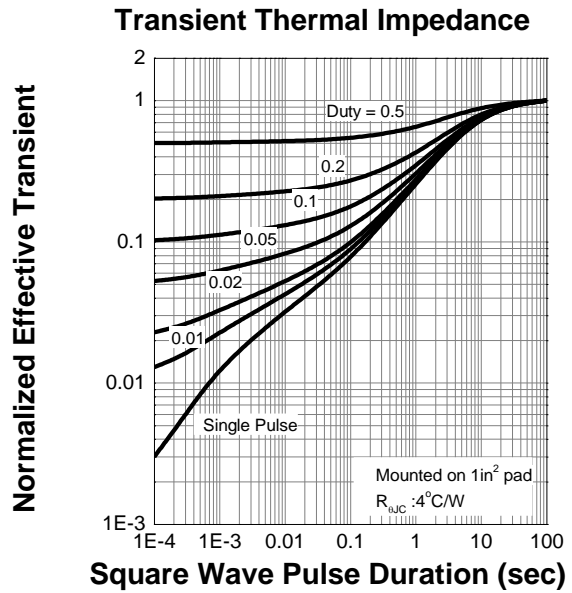
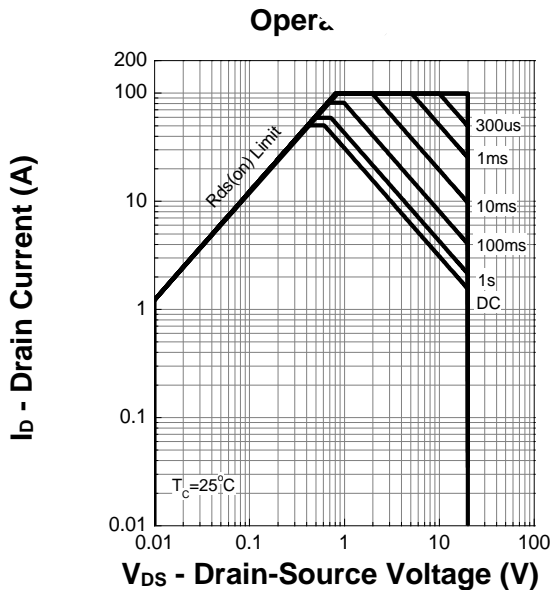
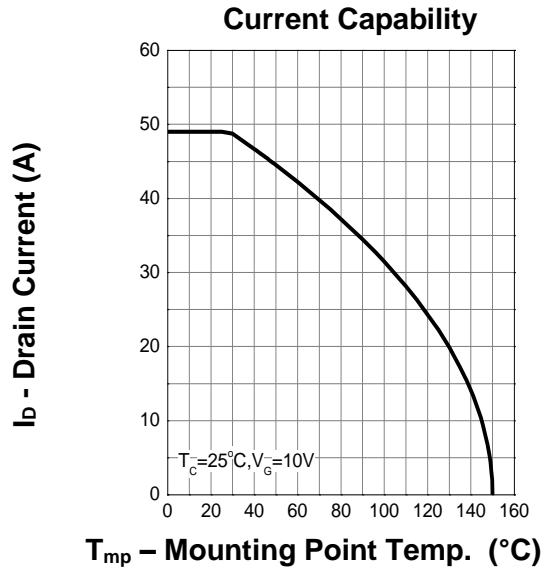
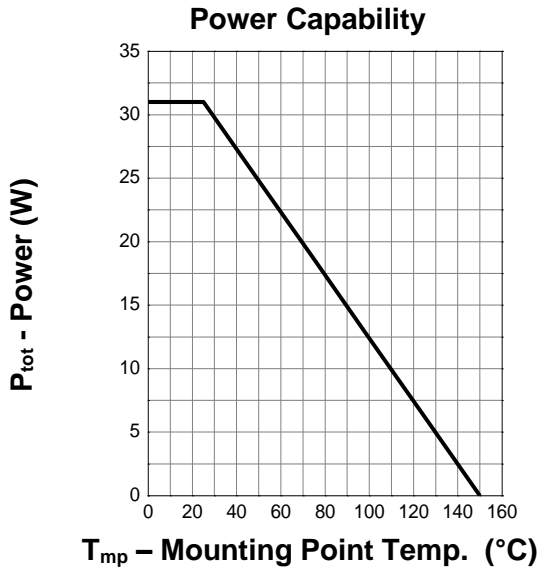
Notes :

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

b : Guaranteed by design, not subject to production testing

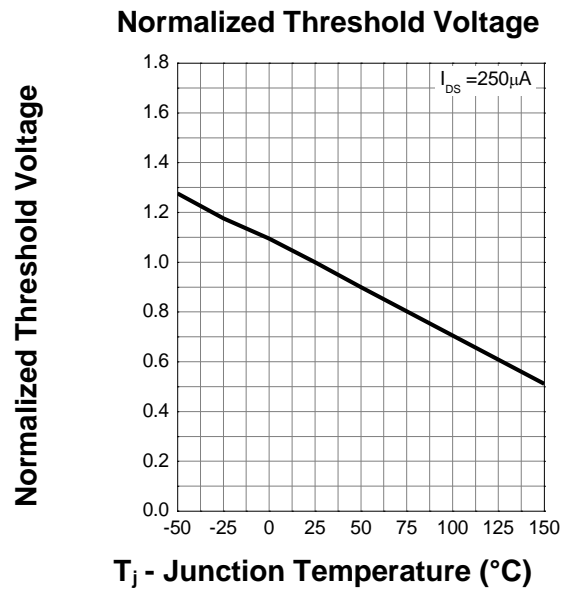
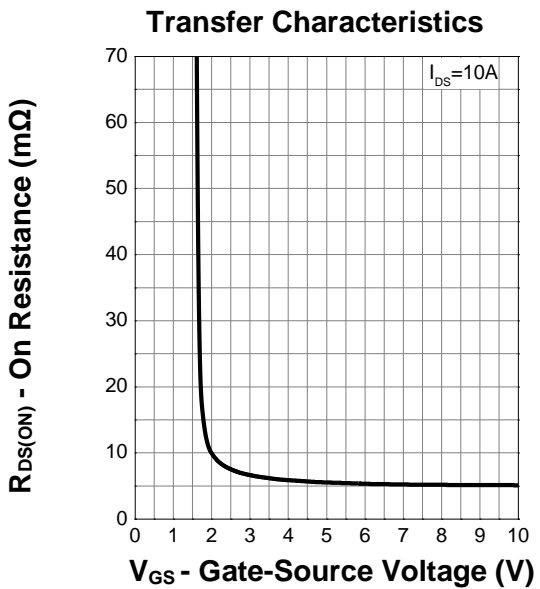
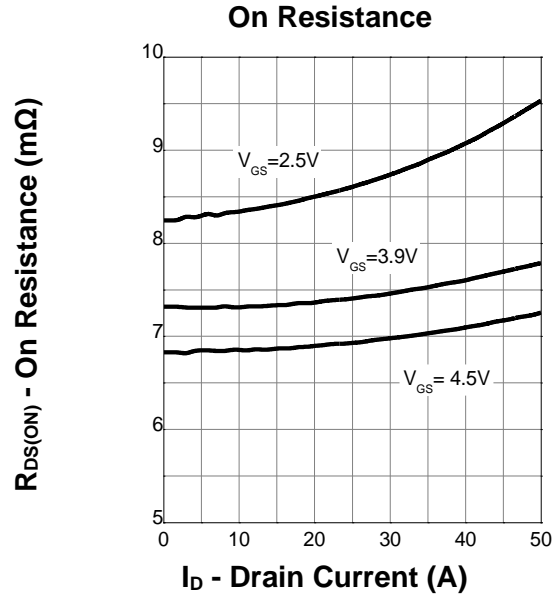
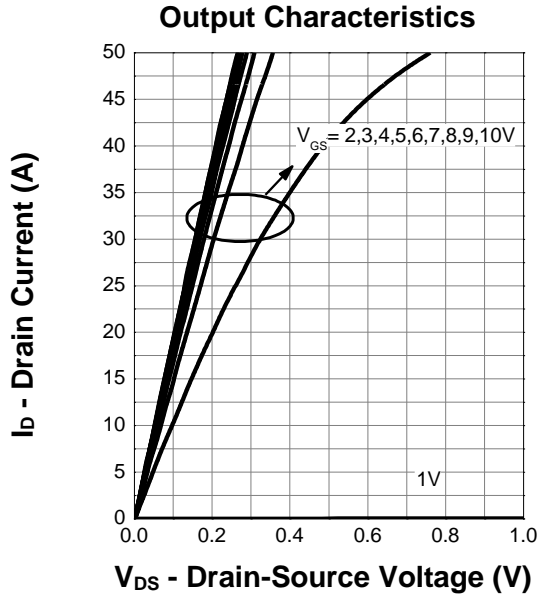


### 7. Typical Characteristics



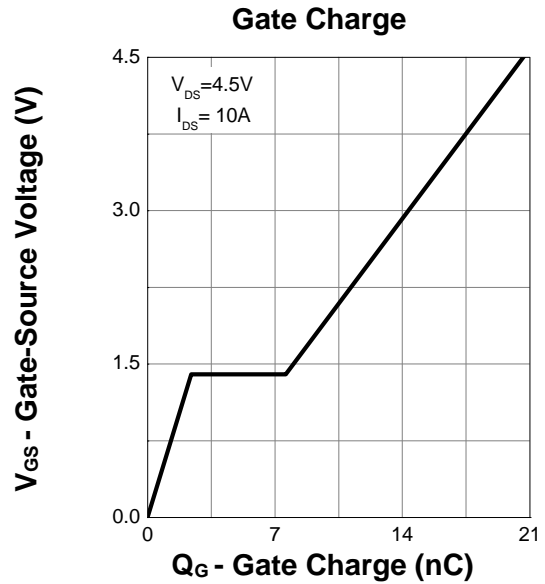
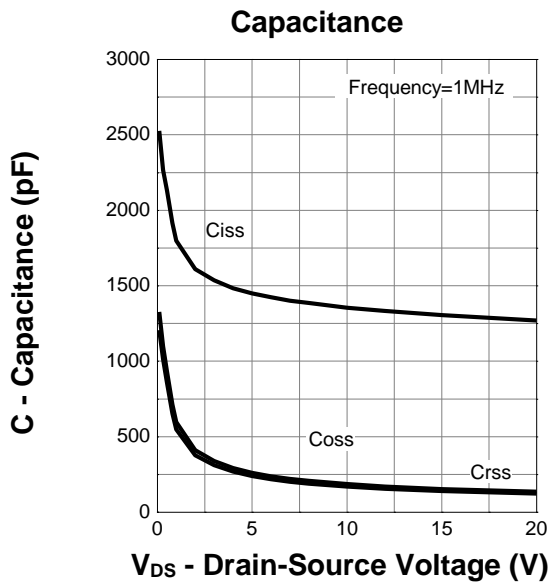
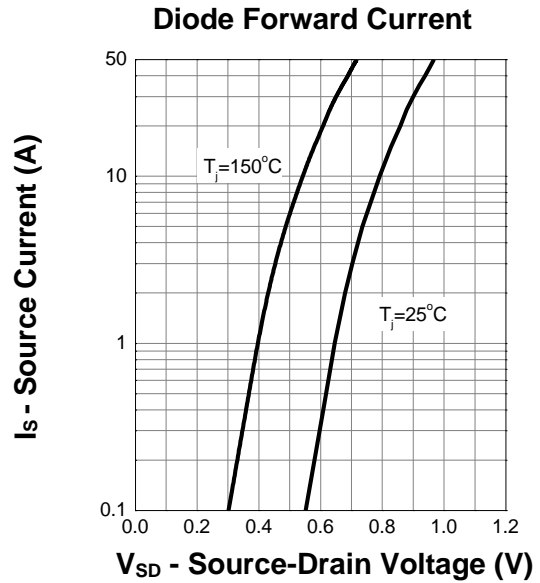
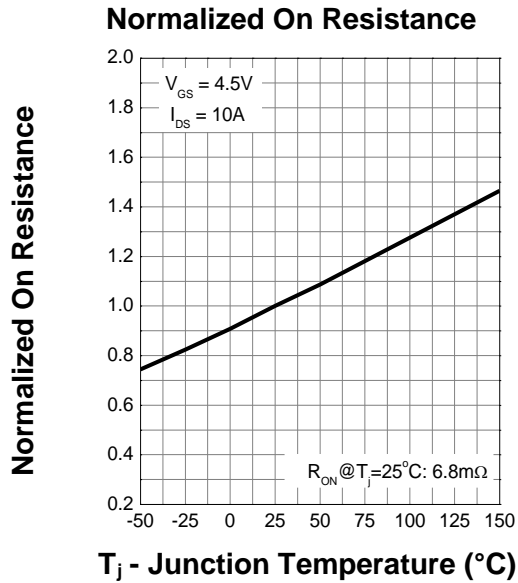


### 7. Typical Characteristics (cont.)





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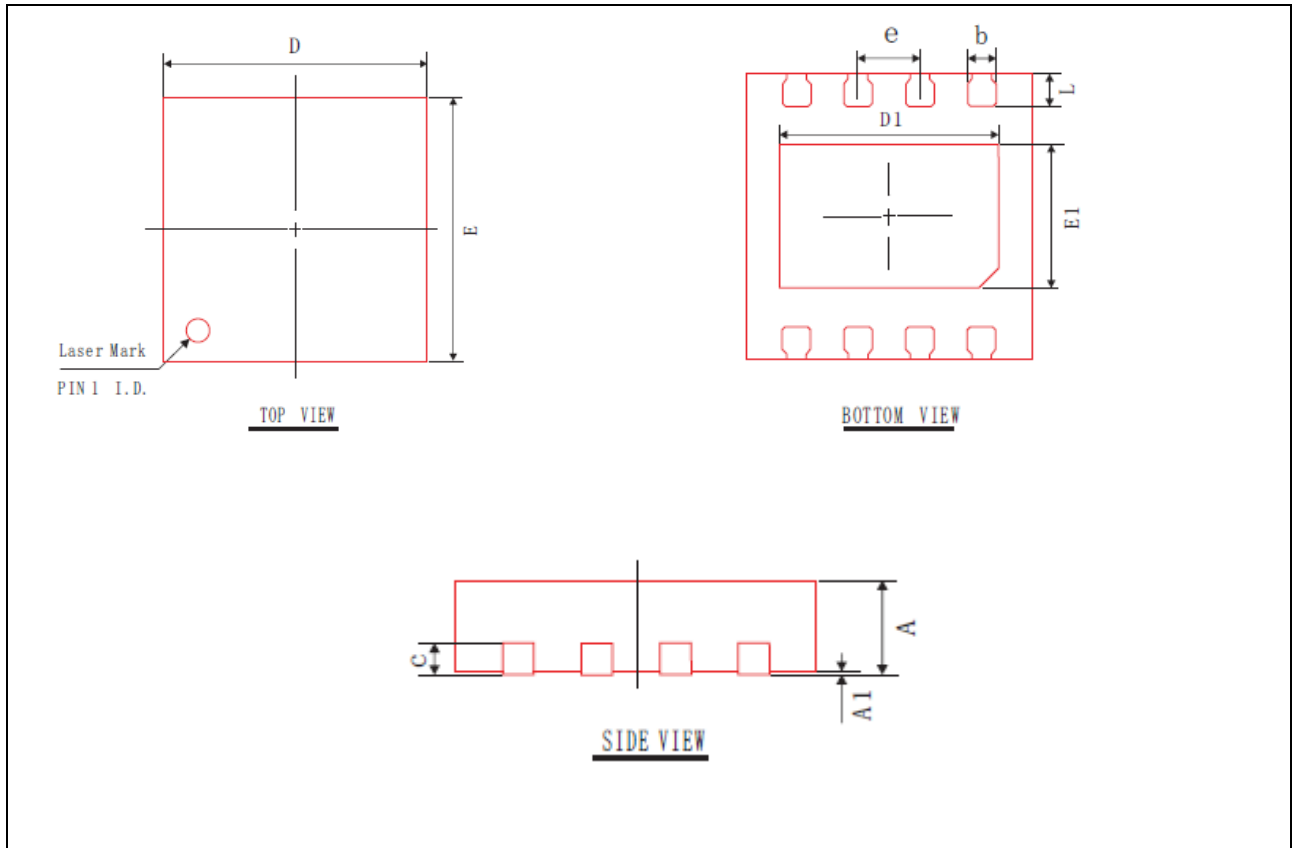


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KJ3380Q

## 8. Package Dimensions

DFN3x3 - 8L Package



PKG	DFN3*3-8L		
SYMBOL	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
c	0.203REF		
D	2.95	3.00	3.07
E	2.95	3.00	3.07
D1	2.25	2.30	2.35
E1	1.40	1.50	1.60
L	0.25	0.35	0.45
e	0.65BSC		