

## N-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Surface-mounted package
- Advanced trench cell design

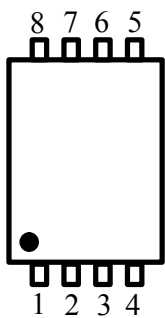
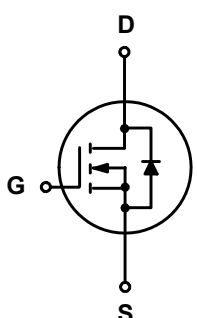
#### 1.2 Applications

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

#### 1.3 Quick reference

- $BV \geq 100\text{ V}$
- $R_{DS(ON)} \leq 6\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- $P_{tot} \leq 150\text{ W}$
- $R_{DS(ON)} \leq 8\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
- $I_D \leq 100\text{ A}$

### 2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 <p>Top View PDFN5x6-8L</p>	
4	Gate		
5,6,7,8	Drain		

### 3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DS}$	Drain-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	-	100	V
$V_{GS}$	Gate-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	-	$\pm 20$	V
$I_D^{***}$	Drain Current ( DC )	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	100	A
		$T_C = 100\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	80	A
$I_{DM}^{*,***}$	Drain Current ( Pulsed )	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	350	A
$P_{tot}$	Drain power dissipation	$T_C = 25\text{ }^\circ\text{C}$	-	150	W
$T_{stg}$	Storage Temperature		-55	150	$^\circ\text{C}$
$T_J$	Junction Temperature		-	150	$^\circ\text{C}$
$I_S$	Continuous-Source Current	$T_C = 25\text{ }^\circ\text{C}$	-	100	A
$R_{\theta JA}^{**}$	Thermal Resistance- Junction to Ambient		-	62.5	$^\circ\text{C/W}$
$R_{\theta JC}^{**}$	Thermal Resistance- Junction to Case		-	0.85	

Notes :

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

\*\* Mounted on Large Heat Sink

\*\*\* limited by bonding wire

### 4. Marking Information

Product Name	Marking
KJ0510G	

### 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ0510G	PDFN5*6			5000	

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 ( $T_A=25^\circ$ Unless Otherwise Noted )

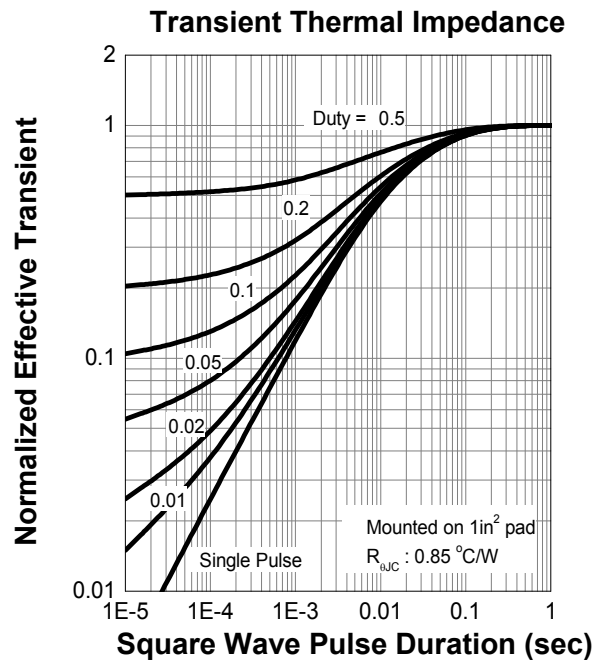
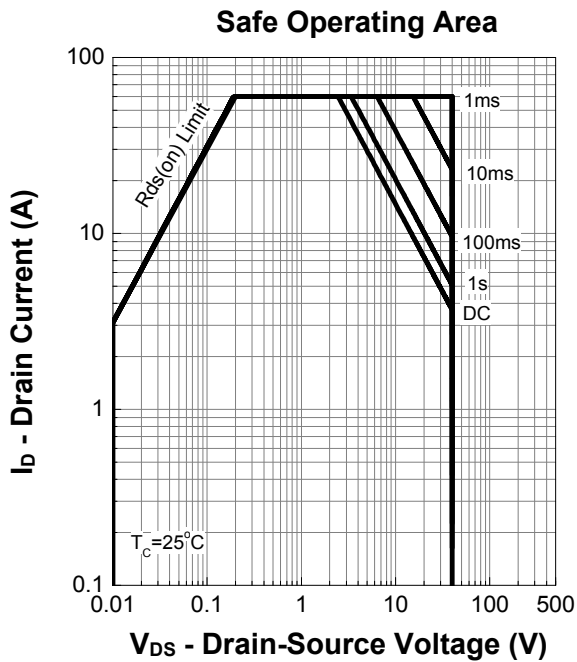
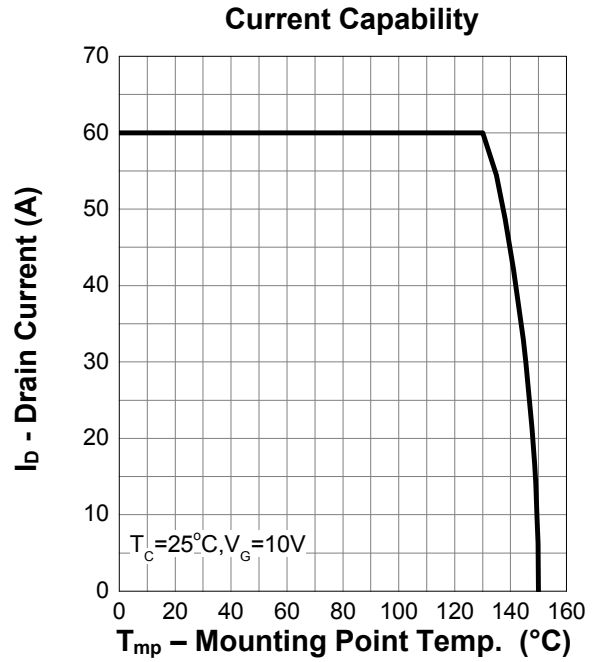
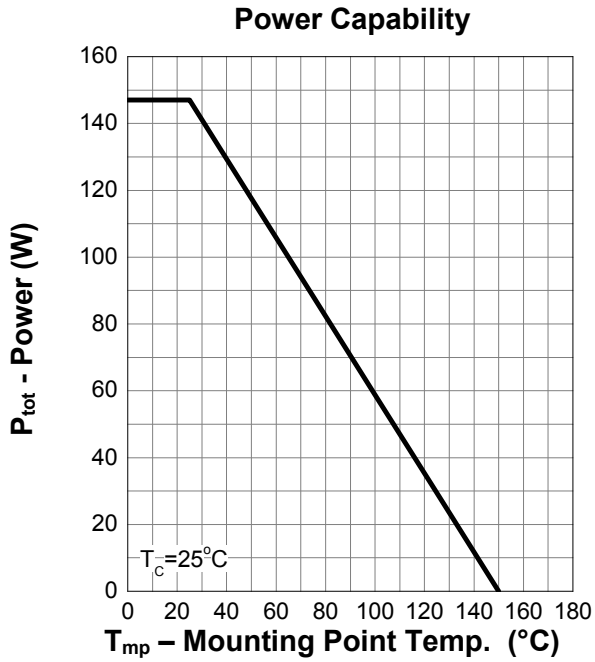
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$	100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$	1.0	-	3.0	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	$\pm 30$	nA
$R_{DS(on)}^a$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 20\text{ A}$	-	5	6	m $\Omega$
		$V_{GS} = 4.5\text{ V}, I_{DS} = 10\text{ A}$		7	8	
<b>Diode Characteristics</b>						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = 20\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.2	V
$t_{rr}$	Reverse Recovery Time	$I_{DS} = 20\text{ A}, V_{GS} = 0\text{ V}$ $di_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	61	-	nS
$Q_{rr}$	Reverse Recovery Charge		-	105	-	$\mu\text{C}$
<b>Dynamic Characteristics<sup>b</sup></b>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}$ Frequency = 1 MHz	-	3390	-	pF
$C_{oss}$	Output Capacitance		-	1940	-	
$C_{riss}$	Reverse Transfer Capacitance		-	210	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 80\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 3.3\ \Omega, R_L = 4\ \Omega,$ $I_{DS} = 20\text{ A}$	-	14	-	nS
$t_r$	Turn-on Rise Time		-	58	-	
$t_d(off)$	Turn-off Delay Time		-	38	-	
$t_f$	Turn-off Fall Time		-	64	-	
<b>Gate Charge Characteristics<sup>b</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS} = 80\text{ V}, V_{GS} = 10\text{ V},$ $I_{DS} = 20\text{ A}$	-	59	-	nC
$Q_{gs}$	Gate-Source Charge		-	11	-	
$Q_{gd}$	Gate-Drain Charge		-	15	-	

Notes :

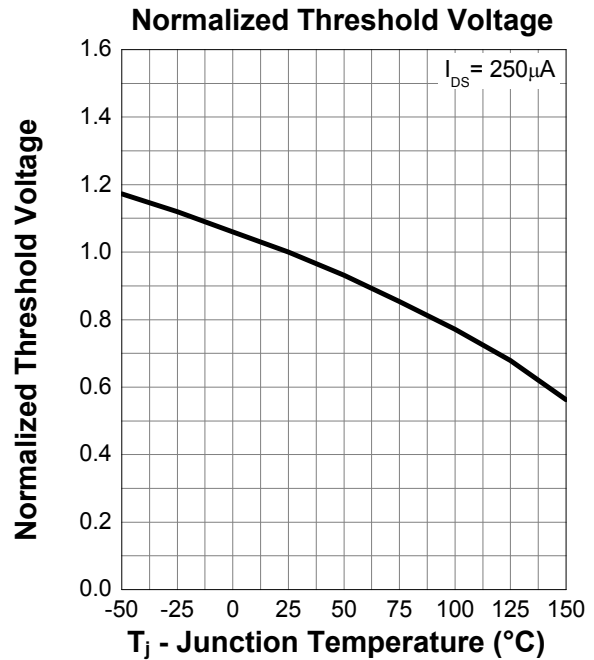
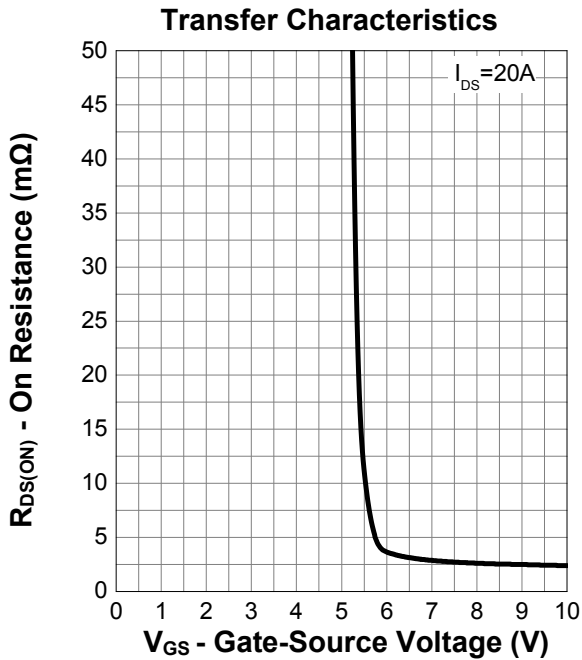
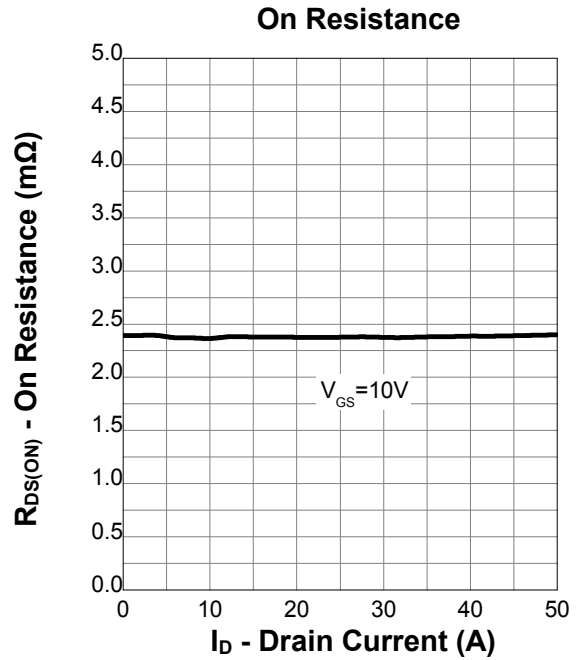
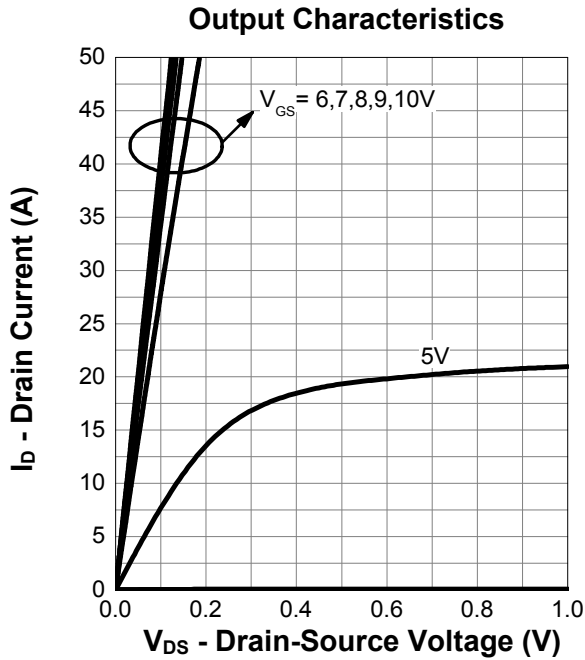
a : Pulse test ; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$

b : Guaranteed by design, not subject to production testing

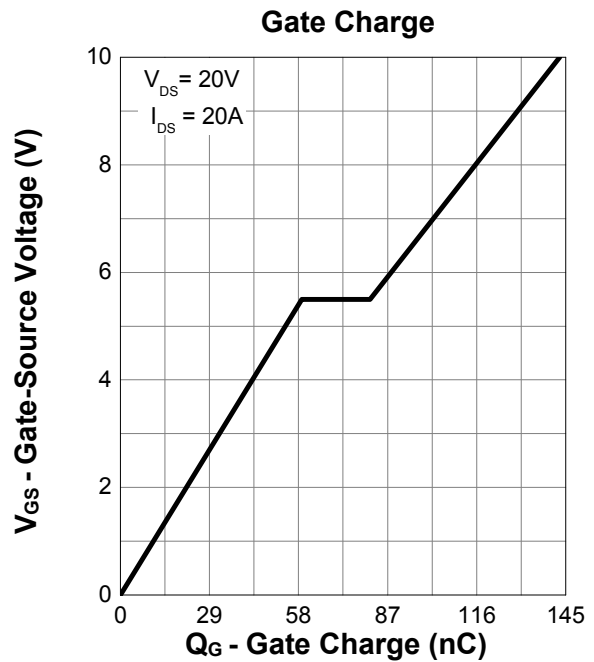
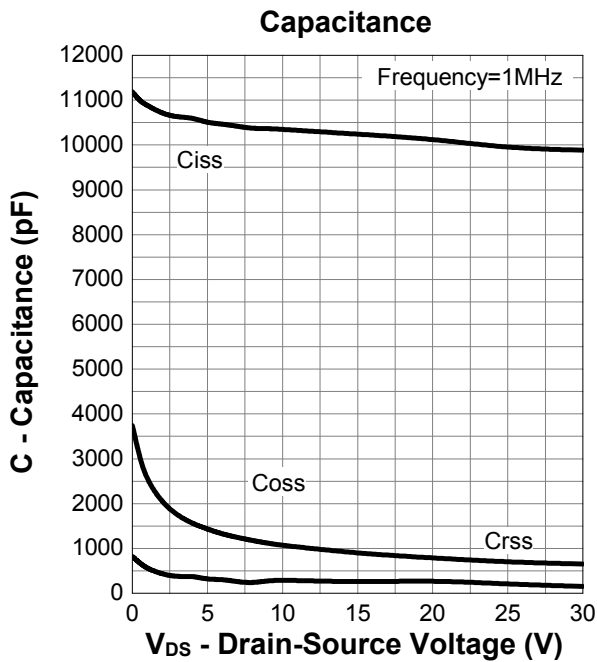
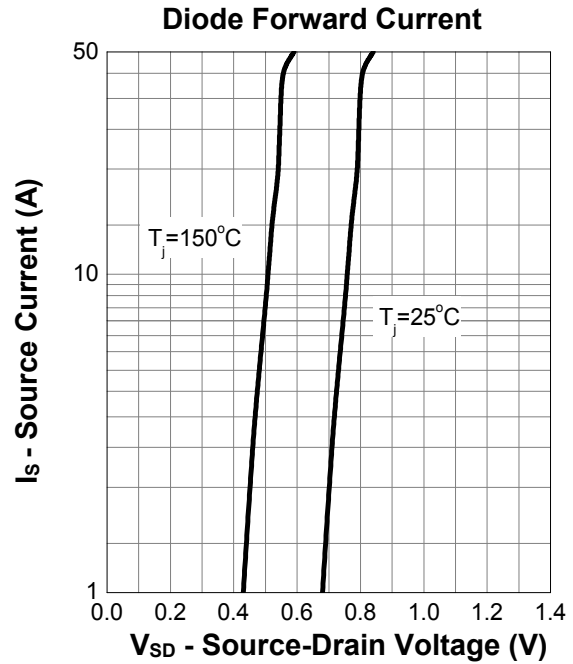
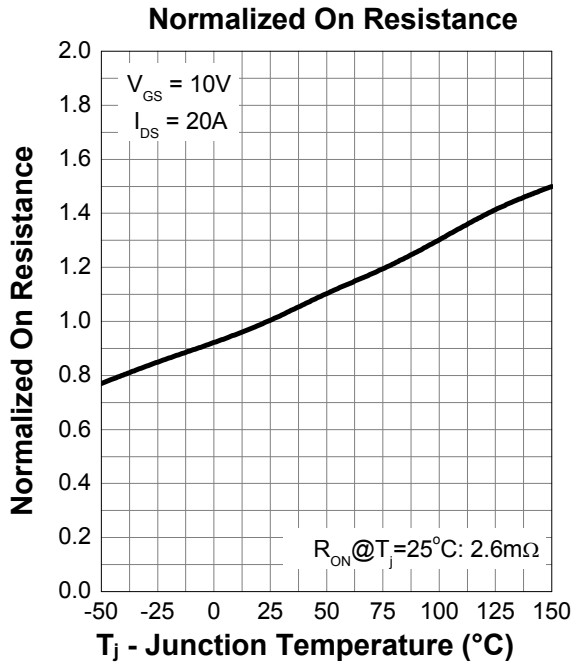
## 7. Typical Characteristics



## 7. Typical Characteristics (cont.)

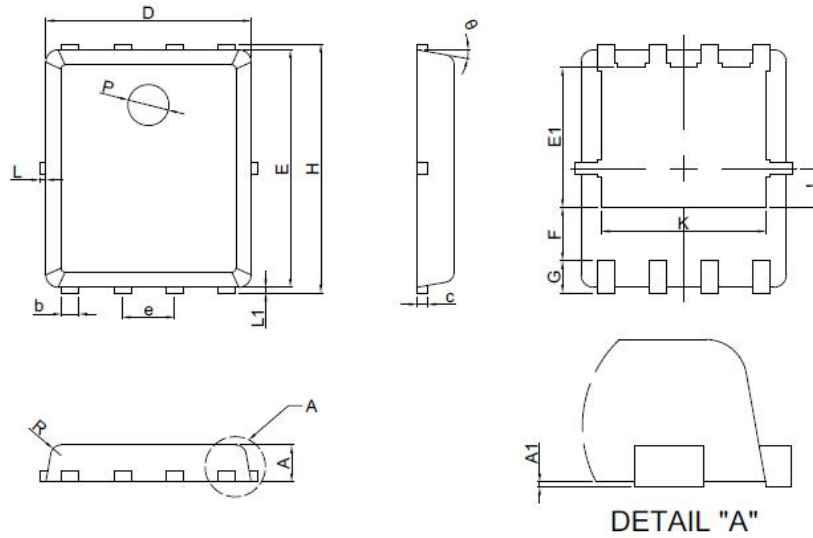


## 7. Typical Characteristics (cont.)



## 8. Package Dimensions

PDFN5x6 - 8L Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	0.80	1.00
A1	0.00	0.05
b	0.35	0.49
c	0.254REF	
D	4.90	5.10
F	1.40REF	
E	5.70	5.90
e	1.27BSC	
H	5.95	6.20
L1	0.10	0.18
G	0.60REF	
K	4.00REF	
L	-	0.15
J	0.95BSC	
P	1.00REF	
E1	3.40REF	
θ	6°	14°
R	0.25REF	