

## P-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Advanced trench cell design
- Low Thermal Resistance

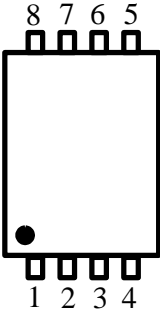
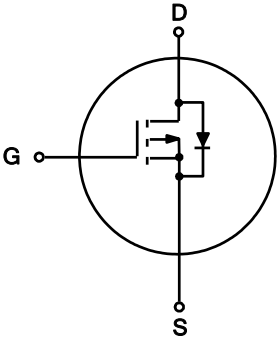
#### 1.2 Applications

- Motor driver
- DC - DC Converter

#### 1.3 Quick reference

- $BV \geq -60\text{ V}$
- $R_{DS(ON)} \leq 55\text{ m}\Omega @ V_{GS} = -10\text{ V}$
- $P_{tot} \leq 35\text{ W}$
- $R_{DS(ON)} \leq 65\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$
- $I_D \leq -25\text{ A}$

### 2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 <p style="text-align: center;">Top View PDFN5x6-8L</p>	
4	Gate		
5,6,7,8	Drain		



## 3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>DS</sub>	Drain-Source Voltage	T <sub>C</sub> = 25 °C	-60	-	V
V <sub>GS</sub>	Gate-Source Voltage	T <sub>C</sub> = 25 °C	-	± 20	V
I <sub>D</sub> *	Drain Current	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = 10 V	-	-25	A
I <sub>DM</sub> *,**,***	Pulsed Drain Current	T <sub>C</sub> = 25 °C, V <sub>GS</sub> = 10 V	-	-40	A
P <sub>tot</sub> *	Total Power Dissipation	T <sub>C</sub> = 25 °C	-	35	W
T <sub>stg</sub>	Storage Temperature		- 55	150	°C
T <sub>J</sub>	Junction Temperature		-	150	°C
I <sub>S</sub>	Diode Forward Current	T <sub>C</sub> = 25 °C	-	-19	A
R <sub>θJC</sub> *	Thermal Resistance- Junction to Case		-	3.5	°C / W
R <sub>θJA</sub> *	Thermal Resistance- Junction to Ambient		-	62.5	°C / W

Notes :

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

## 4. Marking Information

Product Name	Marking
KJ25P06G	<div style="display: inline-block; border: 1px solid black; padding: 2px;">25P06 YWWXXX</div> <span style="margin-left: 20px;">YWW: Date Code</span>

## 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ25P06G	PDFN5*6			5000	

Note: KUAJIJIXIN 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<sub>C</sub> = 25 °C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0 V, I <sub>DS</sub> = -250 μA	-60	-	-	V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>DS</sub> = -250 μA	-1.0	-	-2.0	V
I <sub>DSS</sub>	Drain Leakage Current	V <sub>DS</sub> = -48 V, V <sub>GS</sub> = 0 V	-	-	-1	μA
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> = ± 20 V, V <sub>DS</sub> = 0 V	-	-	± 100	nA
R <sub>DS(ON)</sub> <sup>a</sup>	Channel On-State Resistance	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -10 A	-	49	55	mΩ
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -5 A	-	59	65	
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>a</sup>	Diode Forward Voltage	I <sub>SD</sub> = -10 A, V <sub>GS</sub> = 0 V	-	-	-1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>SD</sub> = -10 A, dI <sub>SD</sub> /dt = 100 A / μs	-	25	-	Ns
Q <sub>rr</sub>	Reverse Recovery Charge		-	7.5	-	nC
<b>Dynamic Characteristics<sup>b</sup></b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = -30 V Frequency = 1 MHz	-	1408	-	pF
C <sub>oss</sub>	Output Capacitance		-	64	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	47	-	
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> = -30 V, V <sub>GEN</sub> = -10 V, R <sub>G</sub> = 4.5 Ω, R <sub>L</sub> = 3 Ω, I <sub>DS</sub> = -10 A	-	14	-	nS
t <sub>r</sub>	Turn-on Rise Time		-	51	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	197	-	
t <sub>f</sub>	Turn-off Fall Time		-	112	-	
<b>Gate Charge Characteristics<sup>b</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> = -10 V, V <sub>DS</sub> = -30 V, I <sub>DS</sub> = -10 A	-	23	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	6.5	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	3	-	

Notes :

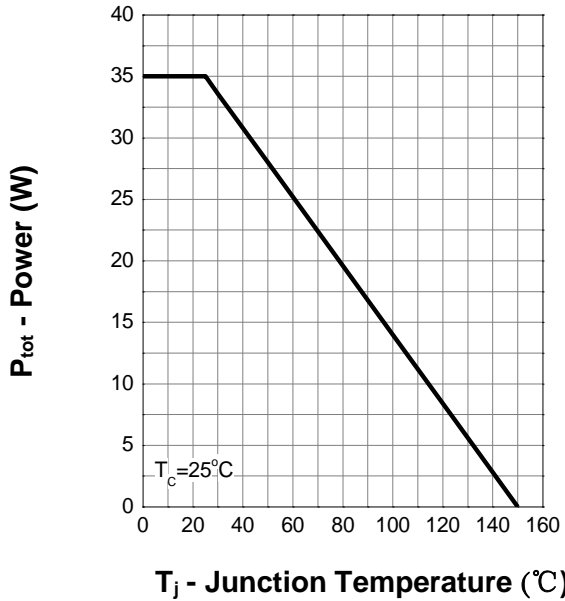
a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2 %

b : Guaranteed by design, not subject to production testing

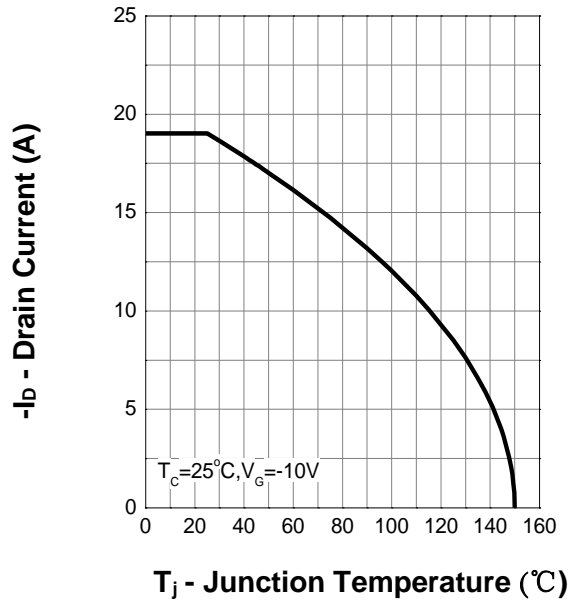


### 7. Typical Characteristics

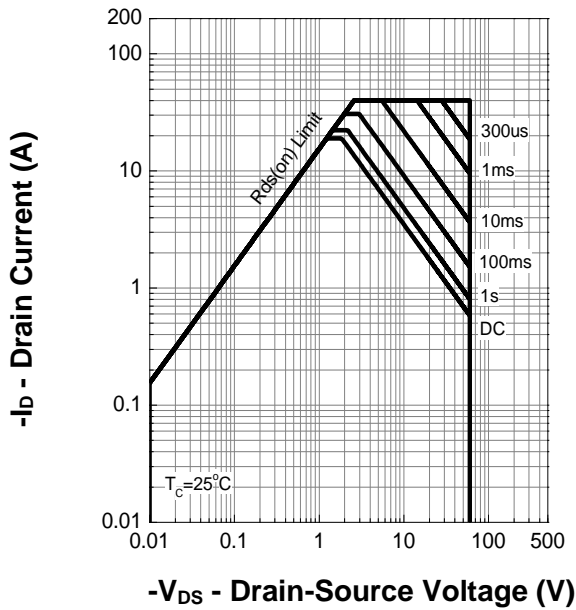
Power Dissipation



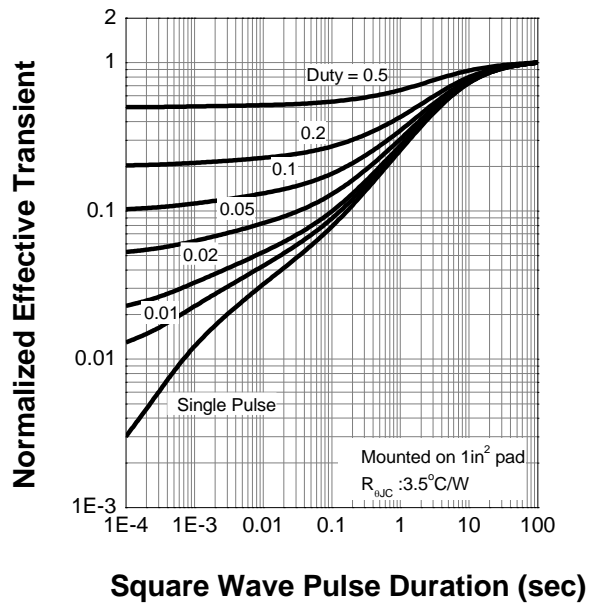
Drain Current



Safe Operation Area

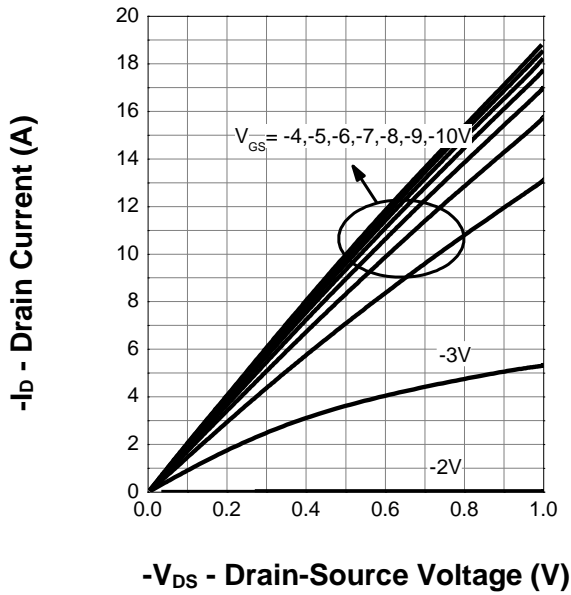


Thermal Transient Impedance

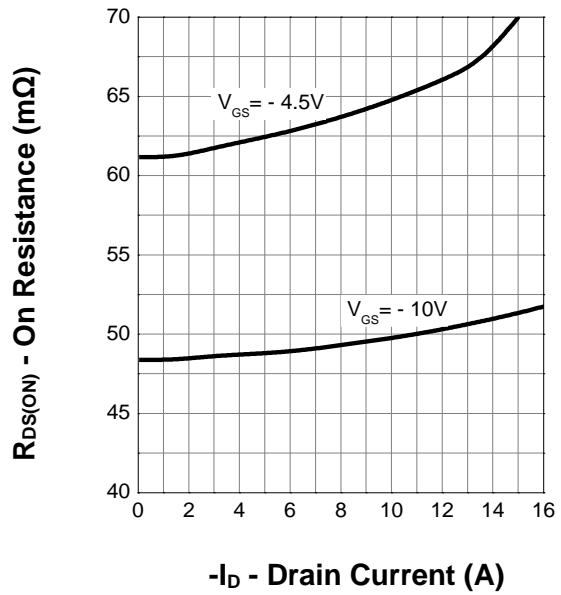


## 7. Typical Characteristics (cont.)

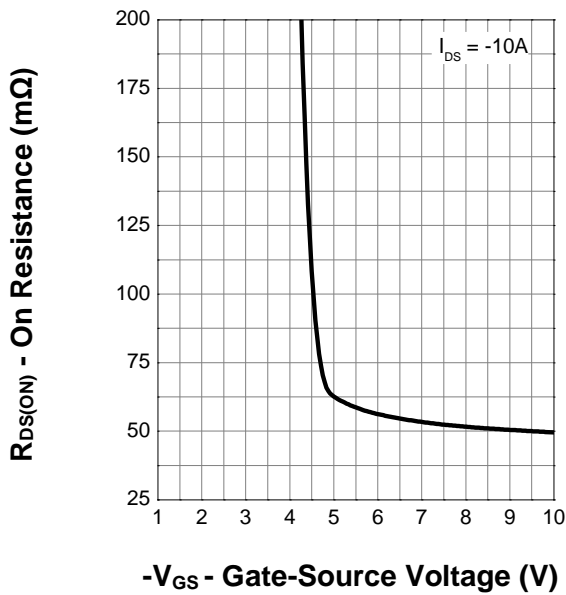
Output Characteristics



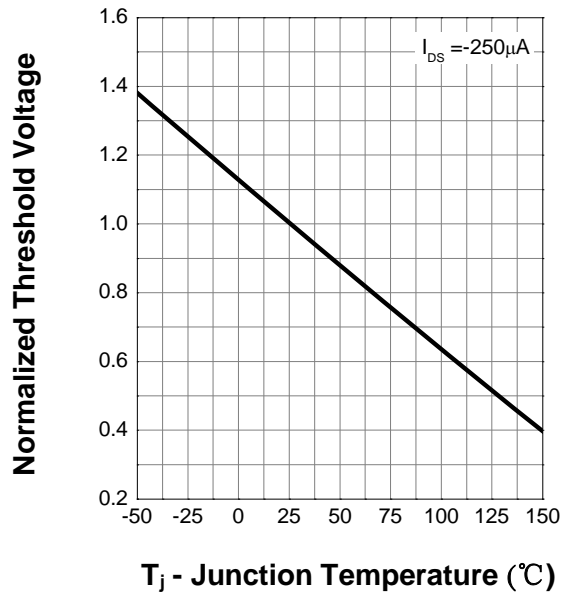
Drain-Source On Resistance



Transfer Characteristics



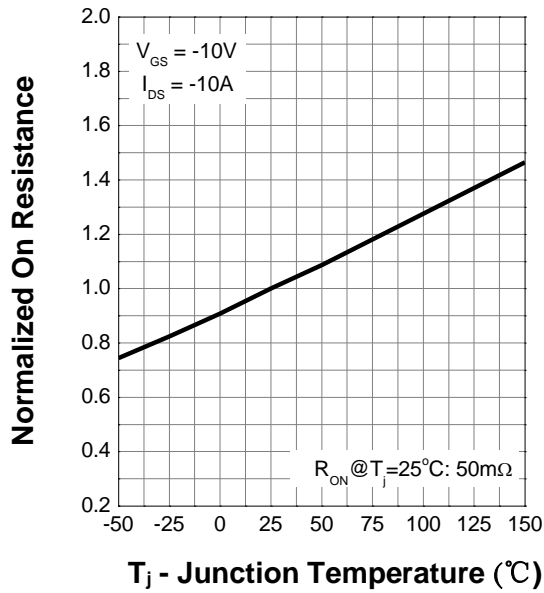
Gate Threshold Voltage



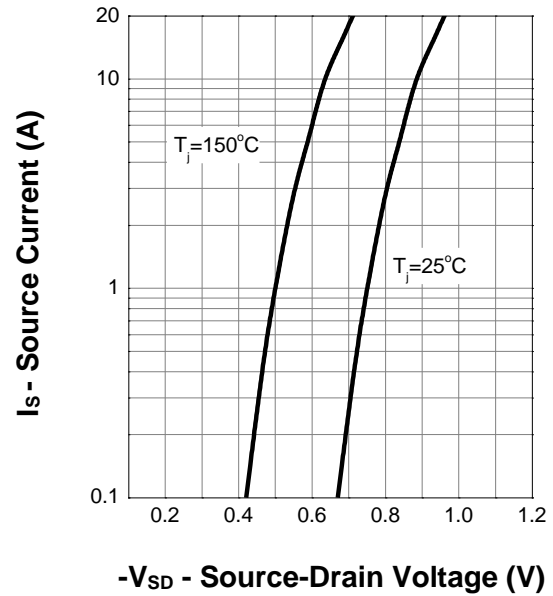


### 7. Typical Characteristics (cont.)

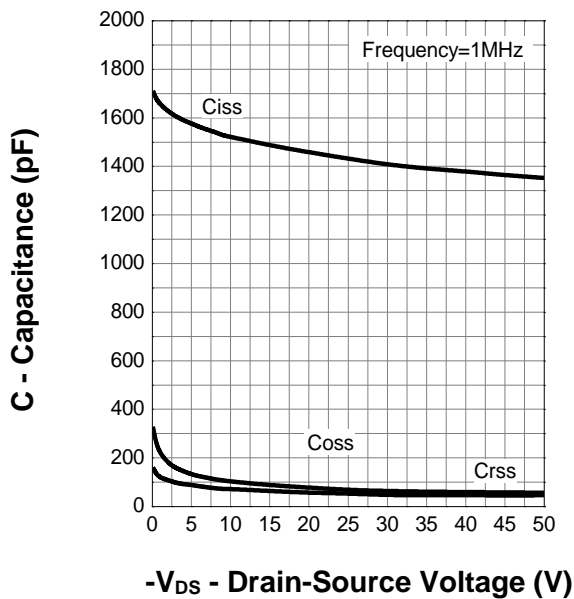
Drain-Source On Resistance



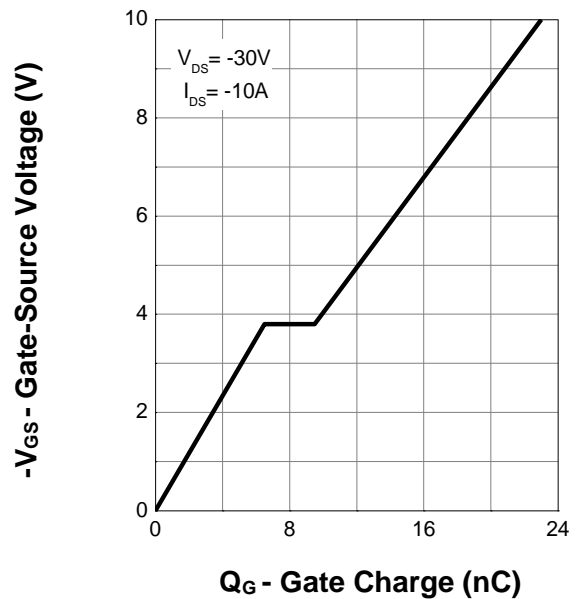
Source-Drain Diode Forward



Capacitance



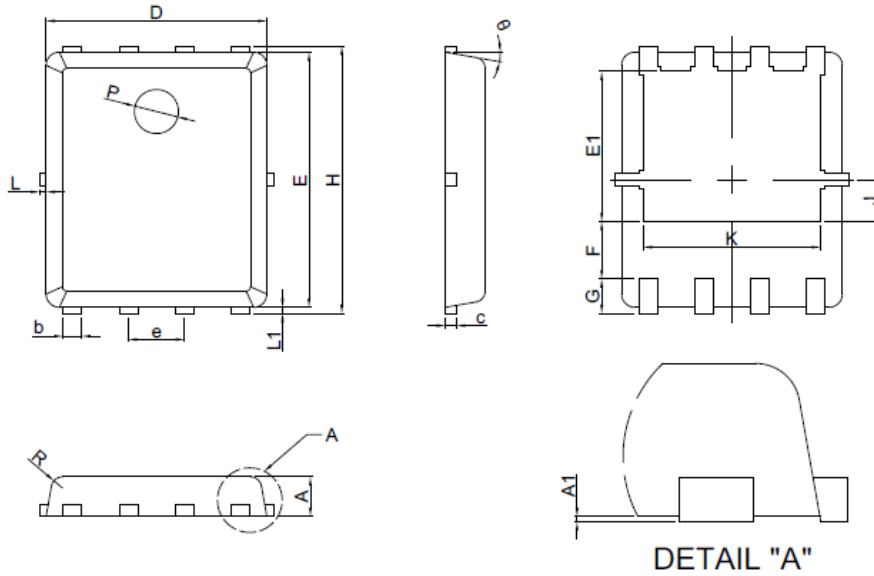
Gate Charge





## 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	