

## P-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Advanced trench cell design
- Low Thermal Resistance

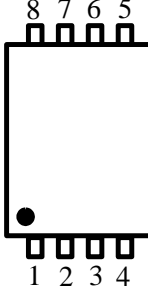
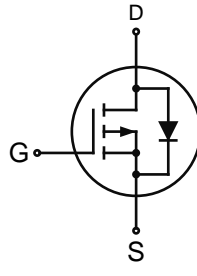
#### 1.2 Applications

- Motor drivers
- DC - DC Converter

#### 1.3 Quick reference

- $BV \geq -30\text{ V}$
- $R_{DS(ON)} \leq 7.5\text{ m}\Omega @ V_{GS} = -10\text{ V}$
- $P_{tot} \leq 76\text{ W}$
- $R_{DS(ON)} \leq 12\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$
- $I_D \leq -80\text{ A}$

### 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	$T_A = 25\text{ }^\circ\text{C}$	-30	-	V
$V_{GS}$	Gate-Source Voltage	$T_A = 25\text{ }^\circ\text{C}$	-	$\pm 20$	V
$I_D^*$	Drain Current	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = -10\text{ V}$	-	-80	A
		$T_A = 100\text{ }^\circ\text{C}, V_{GS} = -10\text{ V}$	-	-63	A
$I_{DM}^{***}$	Pulsed Drain Current	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = -10\text{ V}$	-	-360	A
$P_{tot}$	Total Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	-	76	W
$T_{stg}$	Storage Temperature		- 55	150	$^\circ\text{C}$
$T_J$	Junction Temperature		-	150	$^\circ\text{C}$
$I_S$	Diode Forward Current	$T_A = 25\text{ }^\circ\text{C}$	-	-80	A
$E_{AS}^*$	Single Pulsed Avalanche Energy	$V_{DD} = -15\text{V}, L = 0.5\text{mH}, R_G = 25\Omega$	-	135	mJ
$R_{\theta JC}^*$	Thermal Resistance- Junction to Case		-	2.5	$^\circ\text{C} / \text{W}$

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  $\leq 2\%$
- \*\*\* Limited by bonding wire

### 4. Marking Information

Product Name	Marking
KJ80P03G	<div style="display: inline-block; background-color: black; color: white; padding: 2px;">80P03 YWWXXX</div> YWWXXX: Date Code

### 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ80P03G	PDFN5x6-8L	13 inch		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 ( $T_A=25\text{ }^\circ\text{C}$ Unless Otherwise Noted )

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = -250\text{ }\mu\text{A}$	-30	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = -250\text{ }\mu\text{A}$	-1.0	-1.5	-2.0	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}$	-	-	-1	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	-	-	$\pm 100$	nA
$R_{DS(ON)}^a$	On-State Resistance	$V_{GS} = -10\text{ V}, I_D = -30\text{ A}$	-	5.8	7.5	m $\Omega$
		$V_{GS} = -4.5\text{ V}, I_D = -20\text{ A}$	-	9	12	
Diode Characteristics						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = -1\text{ A}, V_{GS} = 0\text{ V}$	-	-	-1.2	V
Dynamic Characteristics <sup>b</sup>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = -15\text{ V}$ Frequency = 1 MHz	-	4320	-	pF
$C_{oss}$	Output Capacitance		-	534	-	
$C_{rss}$	Reverse Transfer Capacitance		-	493	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = -15\text{ V}, I_{DS} = -15\text{ A}$ $V_{GEN} = -10\text{ V}, R_G = 2.5\text{ }\Omega,$	-	19	-	nS
$t_r$	Turn-on Rise Time		-	15	-	
$t_d(off)$	Turn-off Delay Time		-	65	-	
$t_f$	Turn-off Fall Time		-	36	-	
Gate Charge Characteristics <sup>b</sup>						
$Q_g$	Total Gate Charge	$V_{GS} = -10\text{ V}, V_{DS} = -15\text{ V},$ $I_{DS} = -15\text{ A}$	-	45	-	nC
$Q_{gs}$	Gate-Source Charge		-	8	-	
$Q_{gd}$	Gate-Drain Charge		-	12	-	

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

Figure 1: Output Characteristics

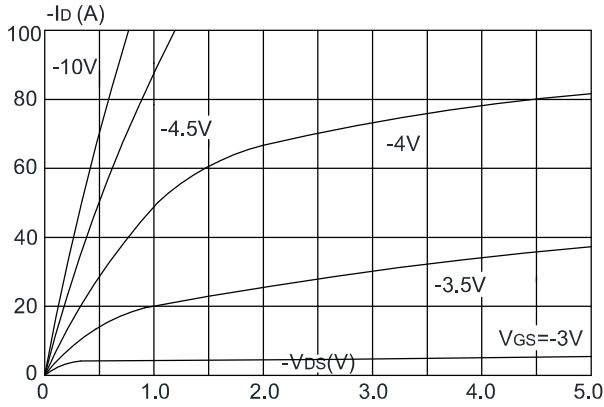


Figure 3: On-resistance vs. Drain Current

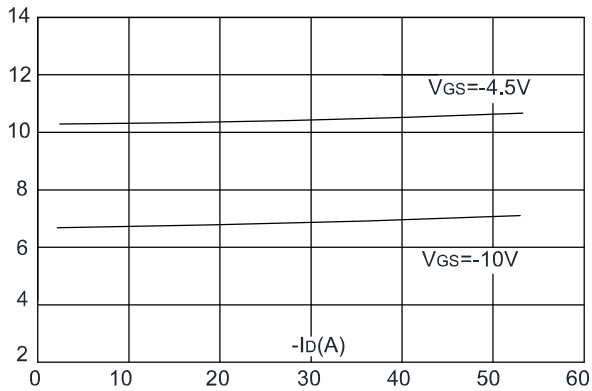


Figure 5: Gate Charge Characteristics

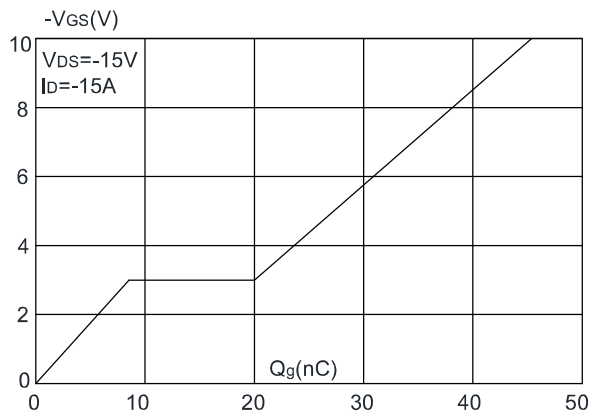


Figure 2: Typical Transfer Characteristics

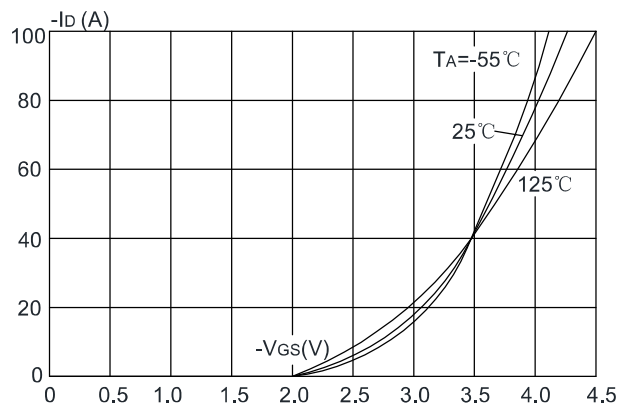


Figure 4: Body Diode Characteristics

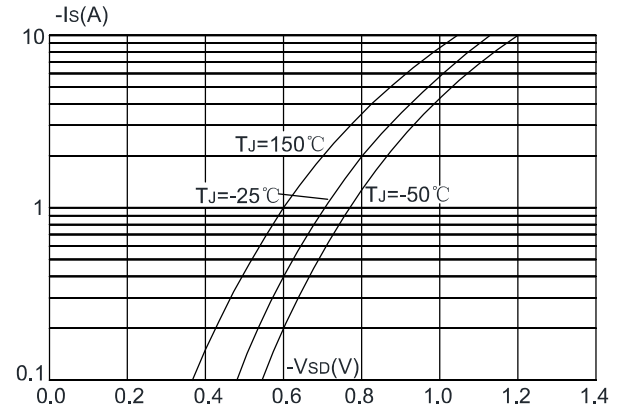
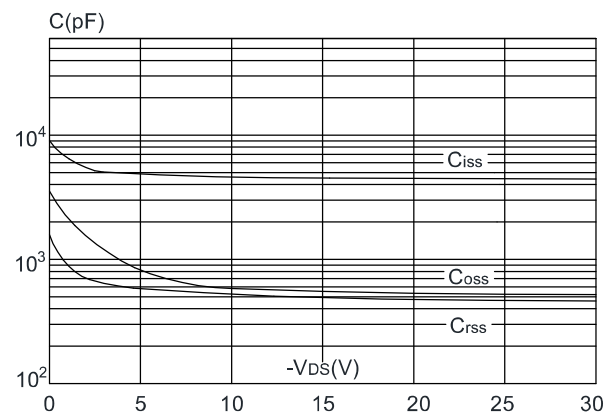


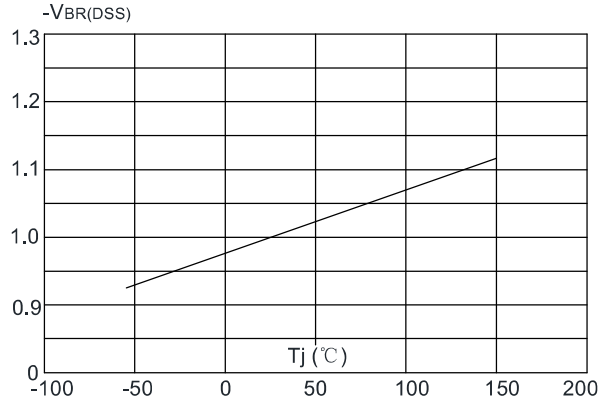
Figure 6: Capacitance Characteristics



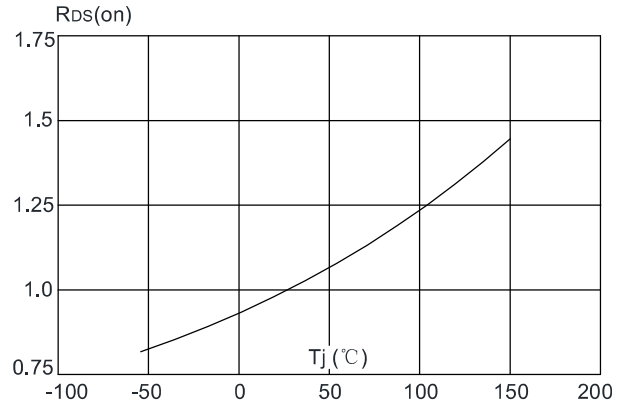


## 7. Typical Characteristics (cont.)

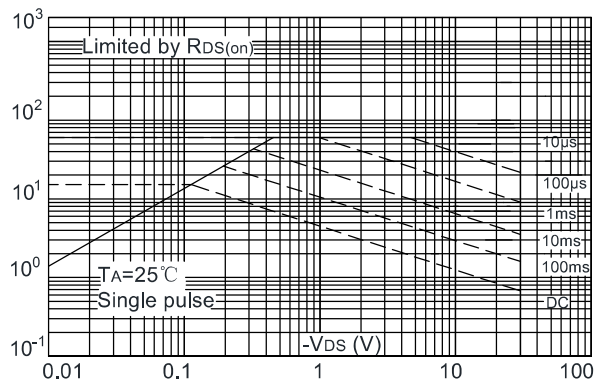
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



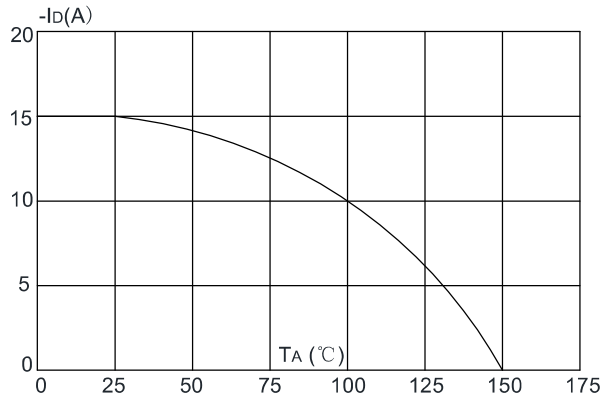
**Figure 8:** Normalized on Resistance vs. Junction Temperature



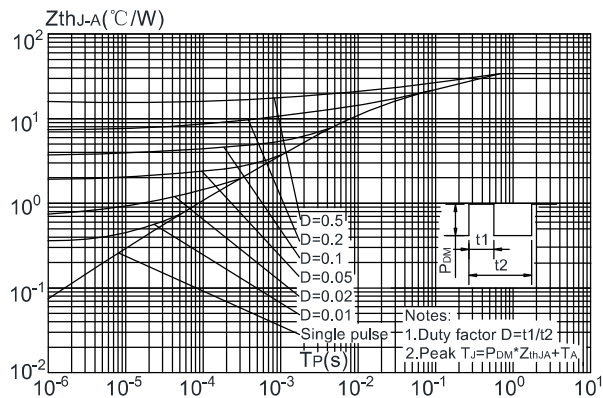
**Figure 9:** Maximum Safe Operating Area



**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature



**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



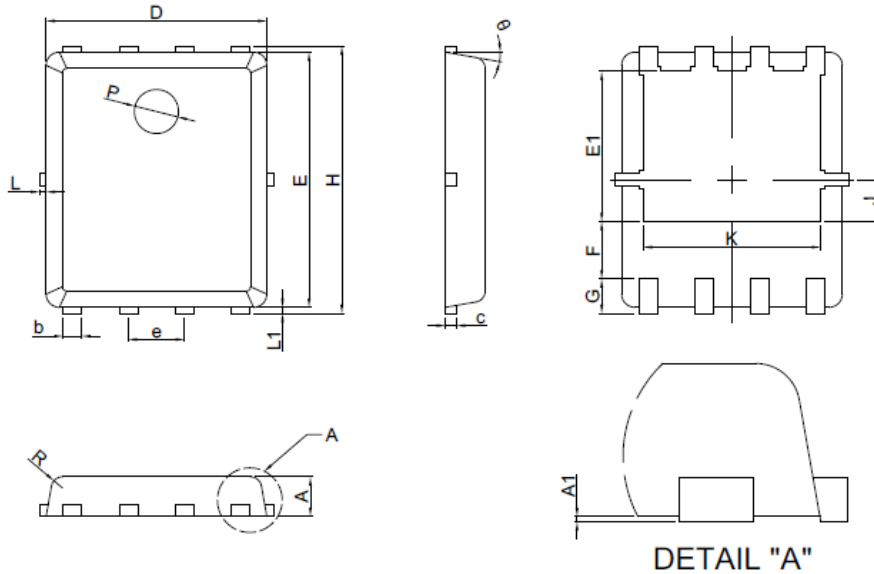


快捷芯

KJ80P03G

## 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	