KJ80P10G

P-Channel Enhancement Mode MOSFET

1. Product Information

Features

- Advanced trench technology
- Excellent $R_{DS(ON)}$
- Low gate charge

Applications

- Brushless motor
- Load switch
- Uninterruptible power supply

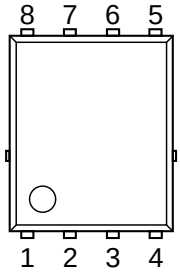
Quick reference

- V_{DS} = -100 V
- I_D = -80 A
- $R_{DS(ON)}$ ≤ 25 mΩ@V_{GS}=10 V(Type: 20 mΩ)

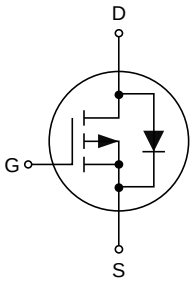
Pin Description

Pin	Description
1,2,3	Source(S)
4	Gate(G)
5,6,7,8	Drain(D)

Simplified Outline	Symbol



Top View
PDFN5x6-8L



2. Package Marking and Ordering Information

Product name	Package	Marking	Reel size	Tape width	Quantity(pcs)
KJ80P10G	PDFN5x6-8L	80P10 YWWXXX	13"	12 mm	5000

3. Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current @T_c=25℃ [1]	-80	A
	Continuous Drain Current @T_c=100℃	-56	A
I_{DM}	Pulsed Drain Current [2]	-300	A
E_{AS}	Single Pulse Avalanche Energy [3]	174	mJ
I_{AS}	Avalanche Current	-50	A
P_D	Total Power Dissipation @T_c=25℃ [4]	280	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient [1]	62	℃/W
$R_{\theta JC}$	Thermal Resistance from Junction to Case [1]	0.65	℃/W

4. Electrical Characteristics (T_J=25℃, unless otherwise noted)

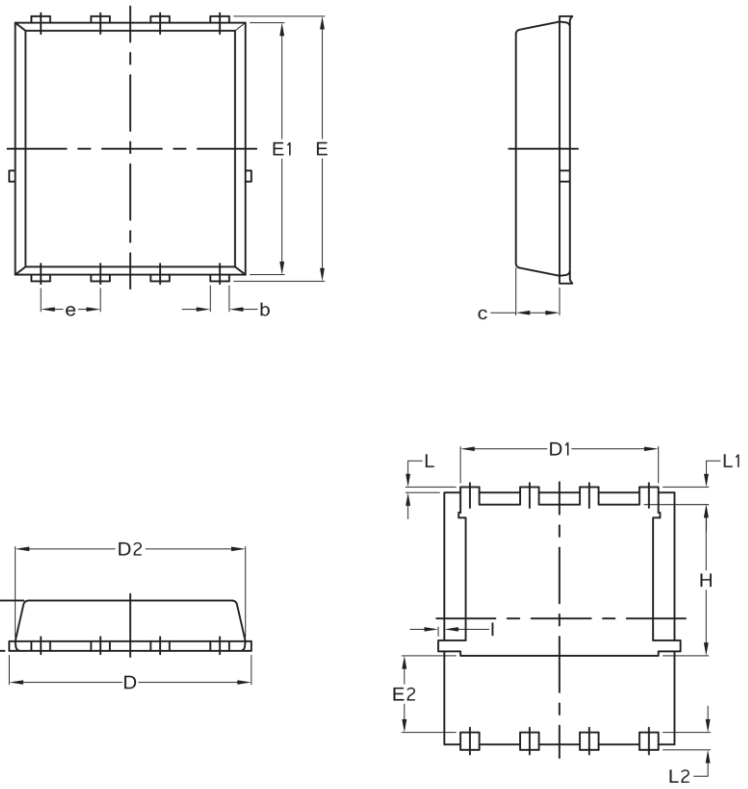
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_D=-250 μA	-100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-100 V, V_{GS}=0 V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0 V, V_{GS}=±20 V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250 μA	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS}=-10 V, I_D=-20 A	-	20	25	mΩ
		V_{GS}=-4.5 V, I_D=-10 A	-	25	30	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0 V, V_{DS}=-50 V, f=1.0 MHz	-	4230	-	pF
C_{oss}	Output Capacitance		-	388	-	
C_{rss}	Reverse Transfer Capacitance		-	26	-	
t_d(on)	Turn-on Delay Time	V_{DD}=-50 V, I_D=-5 A, R_G=6 Ω, V_{GS}=-10 V	-	26	-	ns
t_r	Turn-on Rise Time		-	78	-	
t_d(off)	Turn-off Delay Time		-	200	-	
t_f	Turn-off Fall Time		-	210	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DD}=-50 V, I_D=-5 A, V_{GS}=-10 V	-	80	-	nC
Q_{gs}	Gate-Source Charge		-	15.6	-	
Q_{gd}	Gate-Drain Charge		-	17.2	-	
Diode Characteristics						
I_S	Continuous Body Diode Current		-	-	-80	A
I_{SM}	Pulse Diode Forward Current		-	-	-280	A
V_{SD}	Body Diode Voltage	I_{SD}=-30 A, V_{GS}=0 V	-	-	-1.2	V
T_{rr}	Reverse Recovery Time	I_F=-5 A, dI_F/dt=100 A/μs	-	208	-	ns
Q_{rr}	Reverse Recovery Charge		-	560	-	nC

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2 OZ copper.
2. The data tested by pulsed , pulse width ≦ 300 μs , duty cycle ≦ 2%.
3. The E_{AS} data shows Max. rating. The test condition is V_{DD} =-72 V, V_{GS} =-10 V, L=0.1 mH, I_{AS} =-50 A.
4. The power dissipation is limited by 150℃ junction temperature.
5. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

5. Package Mechanical Data

PDFN5x6-8L Package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	-	0.0630	-
e	1.270 BSC		0.050 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	-	0.18	-	0.0070