

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

Advanced Trench Technology
Excellent $R_{DS(ON)}$
Low gate charge

1.2 Applications

Brushless motor
Load switch
Uninterruptible power supply

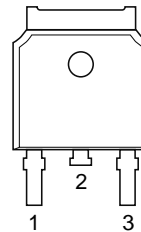
1.3 Quick reference

$V_{DS} = -100V$
 $I_D = -80A$
 $R_{DS(ON)} \leq 25m\Omega @ V_{GS}=10V$ (Type: 20m Ω)

Pin Description

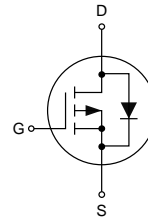
Pin	Description
1	Gate(G)
2	Drain(D)
3	Source(S)

Simplified Outline



Top View
TO-252

Symbol



2. Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ80P10K	TO-252	80P10 YWWXXX	YWWXXX: Date Code		2500

3. Absolute Maximum Ratings (T_c=25°C 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°C ¹	-80	A
	Continuous Drain Current @ T _c =100°C	-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°C ⁴	280	W
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55~150	°C
R _{θJA}	Thermal Resistance from Junction to Ambient ¹	62	°C/W
R _{θJC}	Thermal Resistance from Junction to Case ¹	0.65	°C/W

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

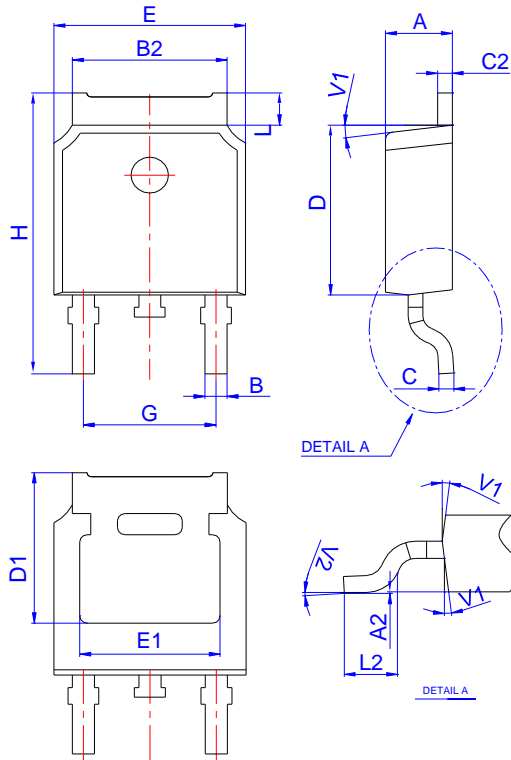
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100V, V _{GS} =0V	-	-	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.6	-2.5	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-20A	-	20	25	mΩ
		V _{GS} =-4.5V, I _D =-10A	-	25	30	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-50V, f=1.0MHz	-	4230	-	pF
C _{oss}	Output Capacitance		-	388	-	
C _{rss}	Reverse Transfer Capacitance		-	26	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =-50V, I _D =-5A, R _G =6Ω, V _{GS} =-10V	-	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} =-50V, I _D =-5A, V _{GS} =-10V	-	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} =-30A, V _{GS} =0V	-	-	-1.2	V
T _{rr}	Reverse Recovery Time	I _F =-5A, dI _F /dt=100A/μs	-	208	-	ns
Q _{rr}	Reverse Recovery Charge		-	560	-	nC

Notes:

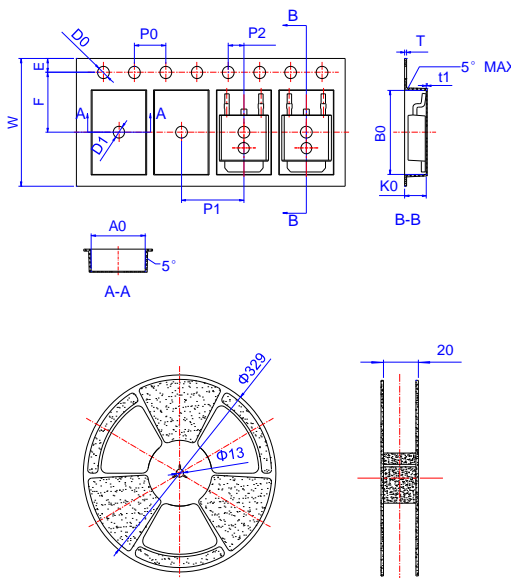
1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≤ 300μs , duty cycle ≤ 2%
3. The E_{AS} data shows Max. rating. The test condition is V_{DD}=-72V, V_{GS}=-10V, L=0.1mH, I_{AS}=-50A
4. The power dissipation is limited by 150°C junction 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

TO-252 Package



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.63	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.27	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583