

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

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

Pin Description

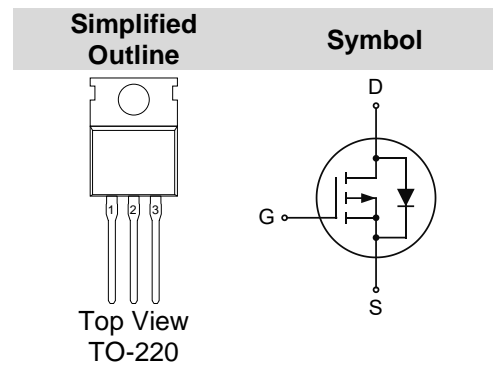
Pin	Description
1	Gate (G)
2	Drain (D)
3	Source (S)

1.2 Applications

Battery protection
Load switch
Uninterruptible power supply

1.3 Quick reference

$V_{DS} = -100\text{ V}$
 $I_D = -80\text{ A}$
 $R_{DS(ON)} \leq 25\text{ m}\Omega @ V_{GS} = 10\text{ V (Type: } 19\text{ m}\Omega)$



2. Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ80P10C	TO-220	80P10 YWWXXX	YWWXXX: Date Code		1000

3. Absolute Maximum Ratings ($T_c=25^\circ\text{C}$ 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 @ $T_c=25^\circ\text{C}$ ¹	-80	A
	Continuous Drain Current @ $T_c=100^\circ\text{C}$	-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 @ $T_c=25^\circ\text{C}$ ⁴	280	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient ¹	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance from Junction to Case ¹	0.65	$^\circ\text{C/W}$

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

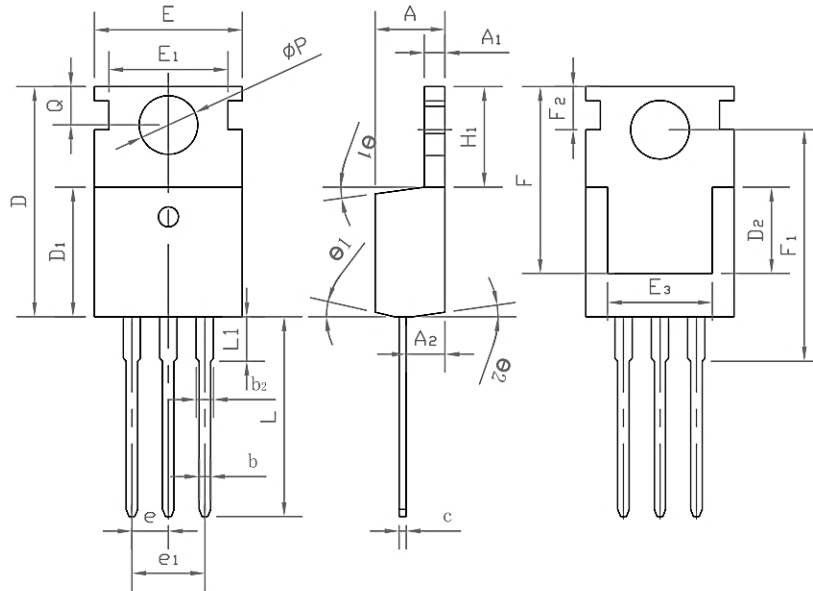
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =-250 μA	-100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100 V, V _{GS} =0 V	-	-	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} =0 V, V _{GS} =±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	-	19	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 inch² 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°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-220 Package



Symbol	Dimensions In Millimeters		
	Mim	Nom	Max
A	4.27	4.57	4.87
A1	1.15	1.30	1.45
A2	2.10	2.40	2.70
b	0.70	0.80	1.00
b2	1.17	1.27	1.50
D	0.40	0.50	0.65
D1	8.80	9.10	9.40
D2	5.70	6.70	7.00
E	9.70	10.00	10.30
E1	-	8.70	-
E2	9.63	10.00	10.35
E3	7.00	8.00	8.40
e	0.37		
e1	0.10		
H1	6.00	6.50	6.85
L	12.75	13.50	13.90
L1	-	3.10	3.40
Φp	3.45	3.60	3.75
Q	2.60	2.80	3.00
θ1	4°	7°	10°
θ2	0°	3°	6°
F	13.30	13.50	13.70
F1	15.50	15.90	16.30
F2	2.80	3.00	3.20