

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

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

1.2 Applications

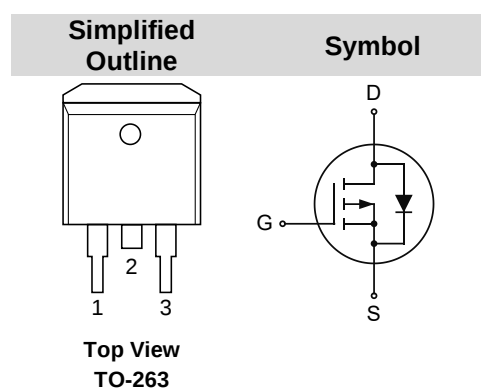
Battery protection
Load switch
Uninterruptible power supply

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 m Ω)

Pin Description

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



2. Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ80P10D	TO-263	80P10 YWWXXX	YWWXXX: Date Code		800

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
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient ¹	62	°C/W
$R_{\theta JC}$	Thermal Resistance from Junction to Case ¹	0.65	°C/W

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

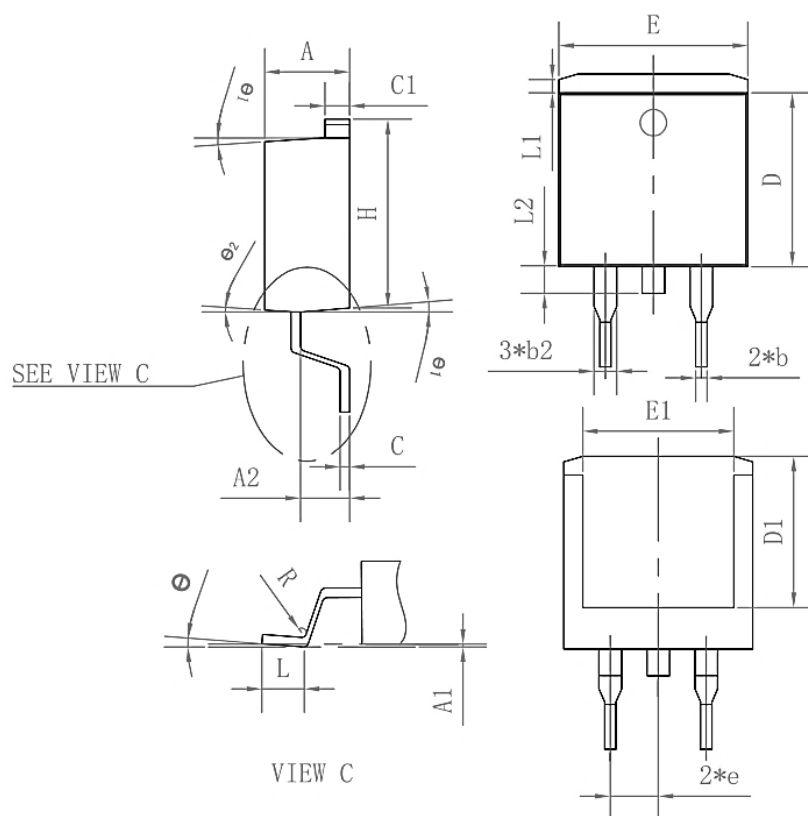
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =-250 μA	-100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100 V, V _{GS} =0 V	-	-	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} =0 V, V _{GS} =±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, dl _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-263 Package



Symbol	Dimensions In Millimeters		
	Mim	Nom	Max
A	4.35	4.47	4.60
A1	0.09	0.10	0.11
A2	2.30	2.40	2.70
b	0.70	0.80	1.00
b2	1.25	1.36	1.50
C	0.45	0.50	0.65
C1	1.29	1.30	9.40
D	9.10	9.20	9.30
D1	7.90	8.00	8.10
E	9.85	10.00	10.20
E1	7.90	8.00	8.10
H	15.30	15.50	15.70
e	-	2.54	-
L	2.34	2.54	2.74
L1	1.00	1.10	1.20
L2	1.30	1.40	1.50
R	0.24	0.25	0.26
θ	0°	4°	8°
θ_1	4°	7°	10°
θ_2	0°	3°	6°