KJ150P06D

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- SGT Technology
- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- Low Reverse transfer capacitances

1.2 Applications

- Battery protection
- Hard switched and high frequency circuits
- Power management

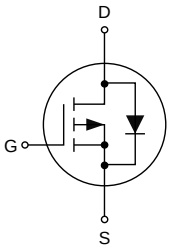
1.3 Quick reference

V_{DS} = -60 V

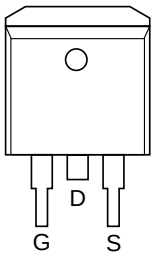
I_D = -150 A

$R_{DS(ON)}$ ≦ 4.2 mΩ@V_{GS} = 10 V(Type: 3.5 mΩ)

Schematic Diagram



Pin Assignment



Top View
TO-263

2. Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Quantity(pcs)
KJ150P06D	TO-263	KJ150P06D	13 inch	800

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

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current @T_c=25℃	-150	A
	Continuous Drain Current @T_c=100℃	-87	A
I_{DM}	Pulsed Drain Current [1]	-570	A
E_{AS}	Single Pulse Avalanche Energy [2]	1000	mJ
P_D	Power Dissipation @T_c=25℃	183	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient [1]	60	℃/W
$R_{\theta JC}$	Thermal Resistance from Junction to Case [1]	0.68	℃/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	-60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-60 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	-1.7	-2.4	-2.8	V
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-10 V, I_D=-15 A	-	3.5	4.2	mΩ
g_{FS}	Forward Transconductance	V_{GS}=-5 V, I_D=-10 A	-	30	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0 V, V_{DS}=-30 V, f=1.0 MHz	-	9000	-	pF
C_{oss}	Output Capacitance		-	1568	-	
C_{rss}	Reverse Transfer Capacitance		-	80	-	
R_g	Gate resistance	V_{GS}=0 V, V_{DS} Open	-	2.0	-	Ω
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-30 V, I_D=-20 A, R_G=3 Ω, R_L=0.75 Ω, V_{GS}=-10 V	-	70	-	ns
t_r	Turn-on Rise Time		-	45	-	
$t_{d(off)}$	Turn-off Delay Time		-	165	-	
t_f	Turn-off Fall Time		-	50	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DD}=-30 V, I_D=-15 A, V_{GS}=-10 V	-	134	-	nC
Q_{gs}	Gate-Source Charge		-	25	-	
Q_{gd}	Gate-Drain Charge		-	18	-	
Diode Characteristics						
I_S	Diode Forward Current		-	-	-150	A
I_{SM}	Pulse Diode Forward Current		-	-	-570	A
V_{SD}	Body Diode Voltage	I_{SD}=-15 A, V_{GS}=0 V	-	-	-1.2	V
T_{rr}	Reverse Recovery Time	I_F=-15 A, V_{GS}=-30 V, dI_F/dt=100 A/μs	-	45	-	ns
Q_{rr}	Reverse Recovery Charge		-	70	-	nC

Notes:
1. Repetitive rating; pulse width limited by maximum junction temperature
2. V_{DD}=-30 V, L=1.0 mH, R_G=25 Ω, Starting T_J=25℃

5. Typical Characteristics

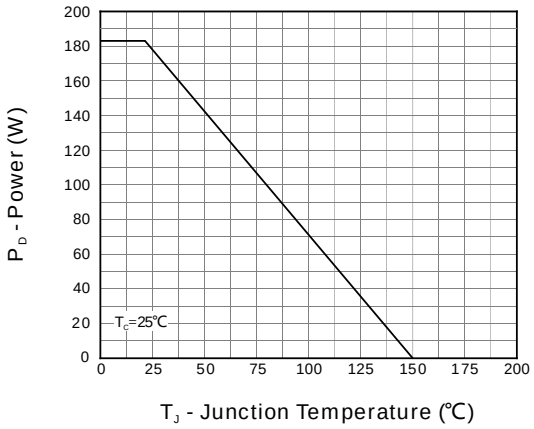


Fig 1. Power Dissipation

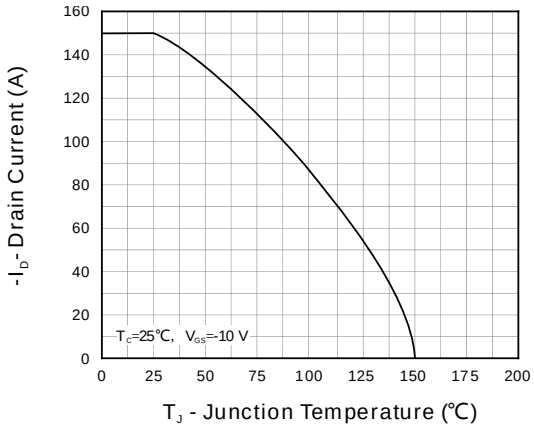


Fig 2. Current Capability

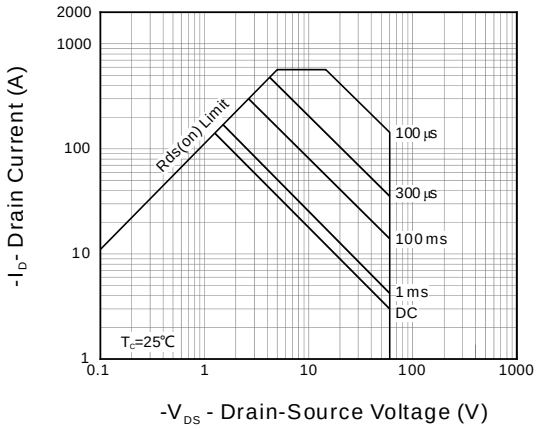


Fig 3. Safe Operation Area

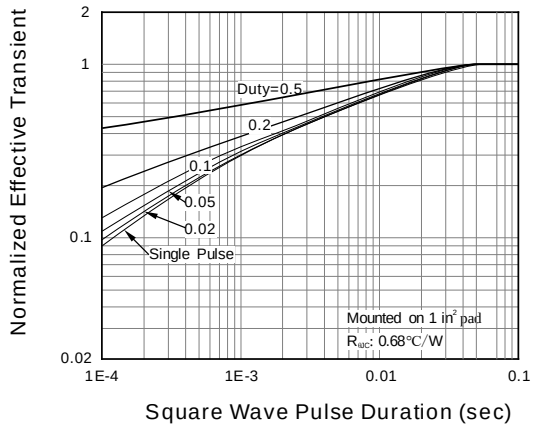


Fig 4. Transient Thermal Impedance

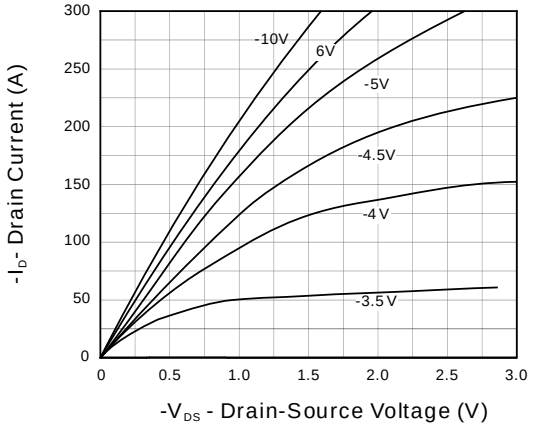


Fig 5. Output Characteristics

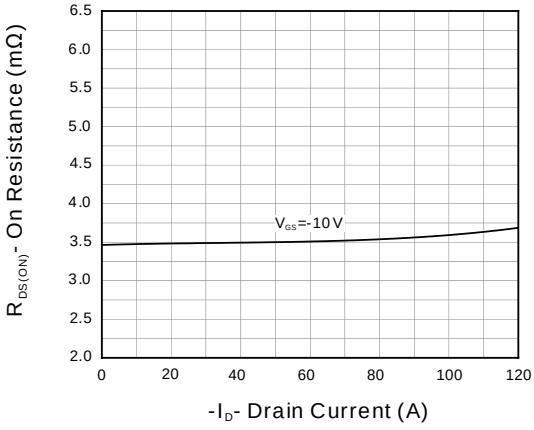


Fig 6. On Resistance

5. Typical Characteristics (Cont.)

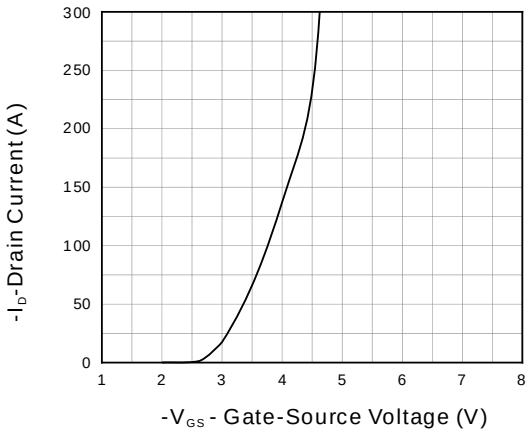


Fig 7. Transfer Characteristics

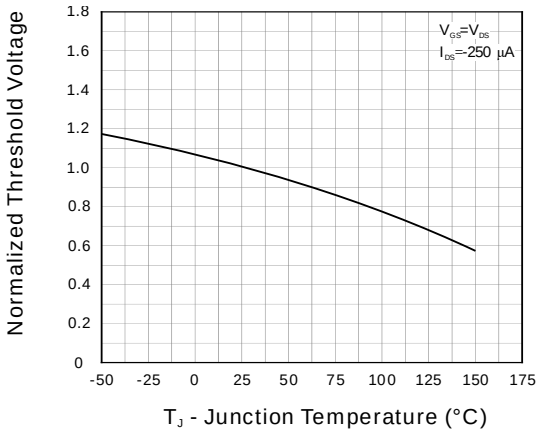


Fig 8. Gate Threshold Voltage

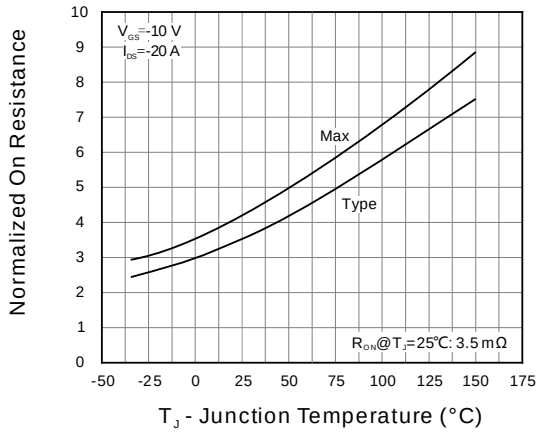


Fig 9. Normalized On Resistance

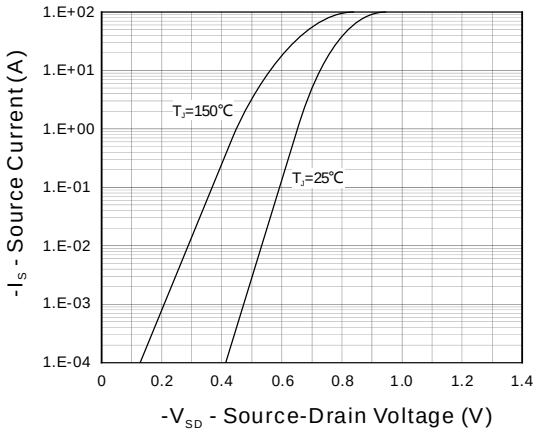


Fig 10. Diode Forward Current

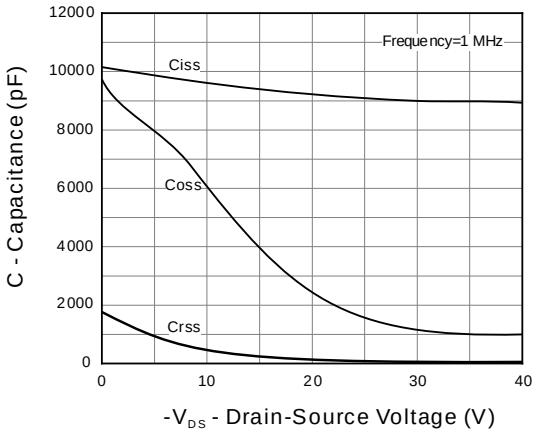


Fig 11. Capacitance

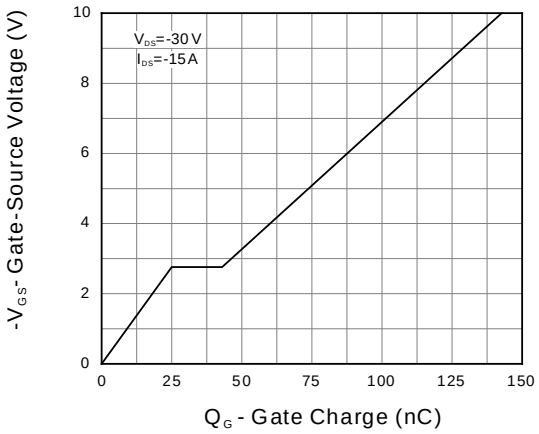
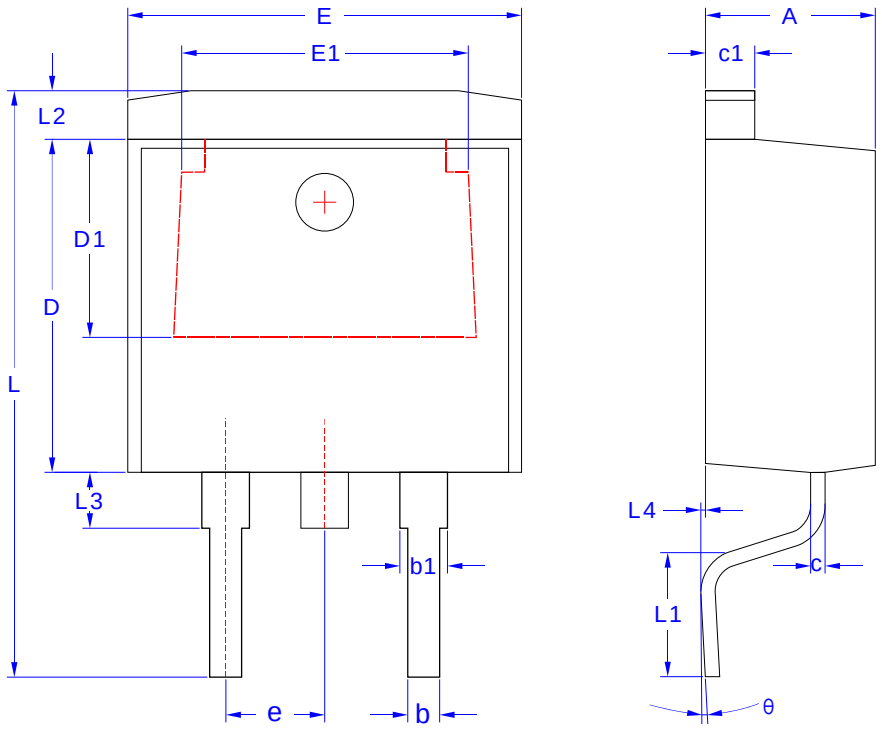


Fig 12. Gate Charge

6. Package Mechanical Data

TO-263 Package



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	4.40	4.80
b	0.76	1.00
b1	1.17	1.47
c	0.36	0.50
c1	1.25	1.45
D	8.60	9.00
D1	5.10 REF	
E	9.80	10.40
E1	7.40 REF	
e	2.54 REF	
L	14.6	15.8
L1	2.29	2.79
L2	1.27 REF	
L3	1.50 REF	
L4	0.00	0.25
θ	0° ± 3°	