快捷芯
KUAIJIEXIN

KJ80P03K

P-Channel Enhancement Power MOSFET

1. Product Information

Features

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

Applications

Synchronous Rectification
DC-DC Converters

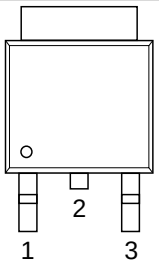
Quick reference

V_{DS} = -30V
I_D = -80A
$R_{DS(ON)}$ ≦ 7.5mΩ @ V_{GS}=-10V（Type: 6.3mΩ ）
$R_{DS(ON)}$ ≦ 12mΩ @ V_{GS}=-4.5V（Type: 10mΩ ）

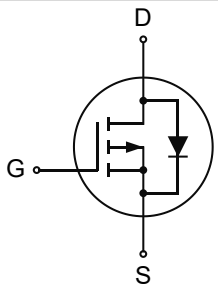
Pin Description

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

Simplified Outline	Symbol



Top View
TO-252



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape Width	Quantity
KJ80P03K	**TO-252**	**KJ80P03K**	**-**	**-**	**2500**

2. Absolute Maximum Ratings (T_c=25℃ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current @T_c=25℃	-80	A
	Continuous Drain Current @T_c=100℃	-63	A
I_{DM} [1]	Pulsed Drain Current	-360	A
E_{AS} [2]	Single Pulse Avalanche Energy	135	mJ
I_{AS}	Avalanche Current	-30	A
P_D [3]	Power Dissipation @T_c=25℃	50	W
	Power Dissipation @T_c=100℃	39.5	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~175	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance from Junction to Case	2.5	℃/W

3. 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}=0V, I_D=-250uA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V, V_{GS}=0V, T_J=25℃	-	-	-1	μA
		V_{DS}=-30V, V_{GS}=0V, T_J=100℃	-	-	-25	μA
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.0	-1.7	-2.4	V
$R_{DS(on)}$ [3]	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-20A	-	6.3	7.5	mΩ
		V_{GS}=-4.5V, I_D=-20A	-	10	12	mΩ
g_{fs} [3]	Forward Transconductance	V_{DS}=-5V, I_D=-20A	30	-	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, f=1.0MHz	-	4942	-	pF
C_{oss}	Output Capacitance		-	473	-	
C_{rss}	Reverse Transfer Capacitance		-	461	-	
t_d(on)	Turn-on Delay Time	V_{DD}=-15V, I_D=-20A, R_G=2.5Ω	-	182	-	ns
t_r	Turn-on Rise Time		-	262	-	
t_d(off)	Turn-off Delay Time		-	1.3	-	
t_f	Turn-off Fall Time		-	9.8	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DD}=-15V, V_{GS}=-10V, I_D=-20A,	-	82	-	nC
Q_{gs}	Gate-Source Charge		-	14	-	
Q_{gd}	Gate-Drain Charge		-	16	-	
Diode Characteristics						
I_S	Continuous Body Diode Current	T_C=25℃	-	-	-80	A
I_{SM}	Pulse Diode Forward Current	T_C=25℃	-	-	-360	A
V_{SD}	Body Diode Voltage	T_J=25℃, I_{SD}=-15A, V_{GS}=0V	-	-	-1.2	V
T_{rr}	Reverse Recovery Time	I_F=-15A, dI_F/dt=100A/μs	-	34	-	ns
Q_{rr}	Reverse Recovery Charge		-	79	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. I_{AS}=-30A, L=0.3mH, V_{DD}=30V, R_G=25Ω, Starting T_J=25℃
3. Pulse test: Pulse width ≤ 300μs, duty cycle ≤ 2%

4. Typical Characteristics

Figure 1. Output Characteristics

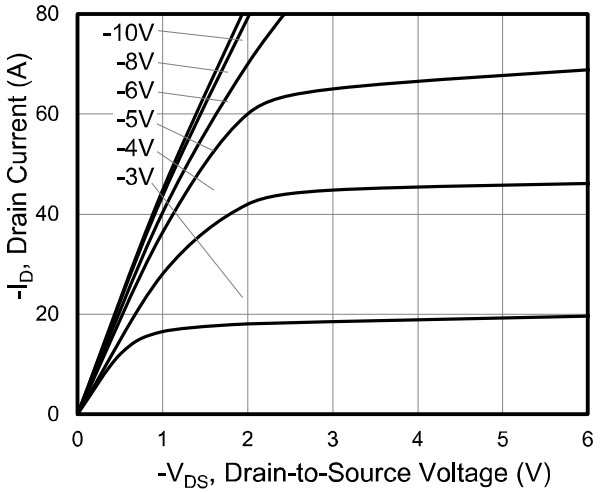


Figure 2. Transfer Characteristics

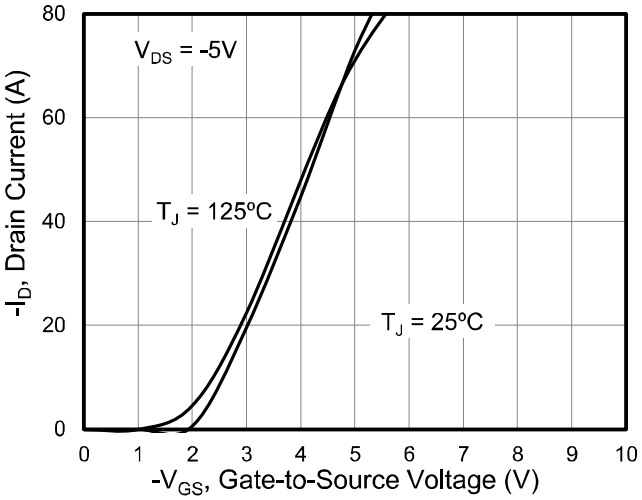


Figure 3. On-Resistance vs. Drain Current

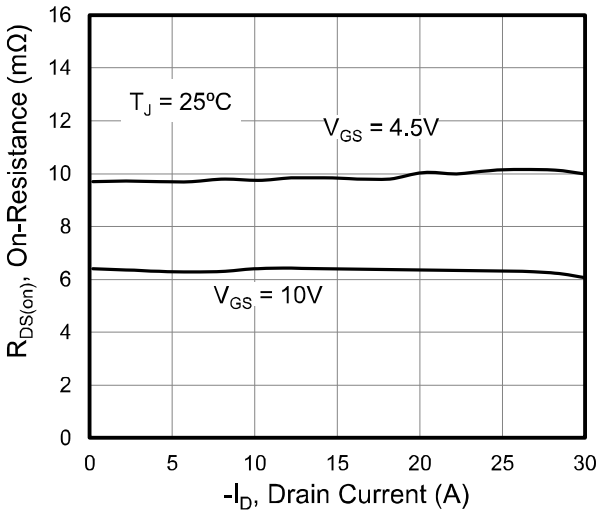


Figure 4. Capacitance

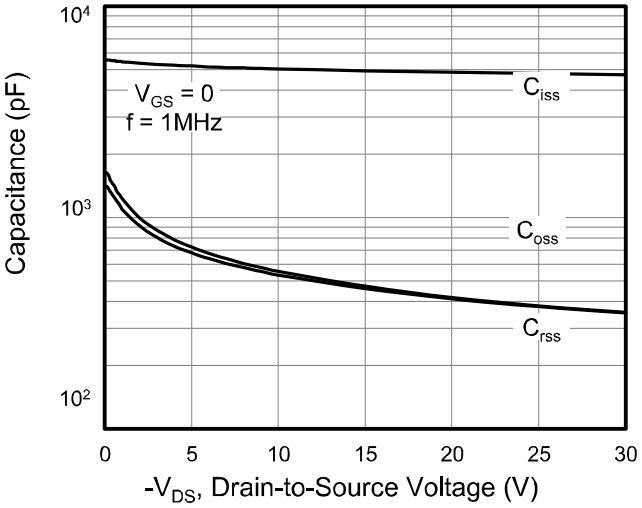


Figure 5. Gate Charge

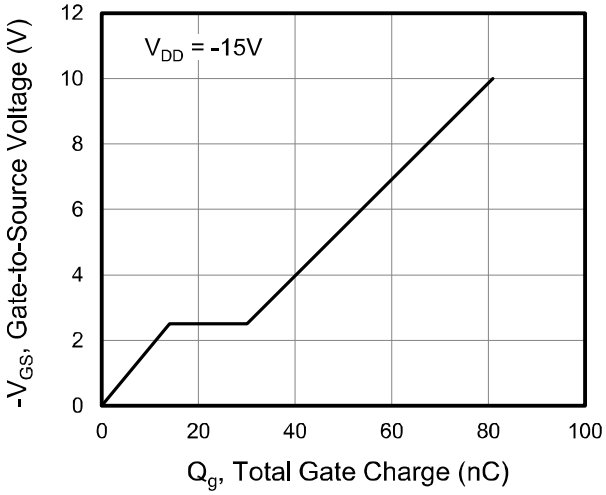
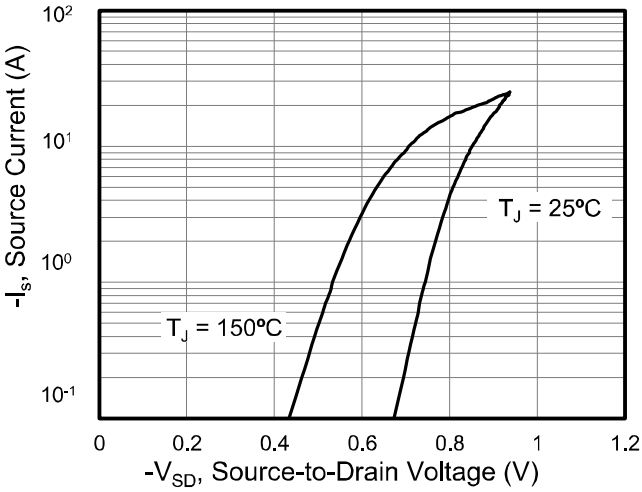


Figure 6. Body Diode Forward Voltage



4. Typical Characteristics (cont.)

Figure 7. On-Resistance vs. Junction Temperature

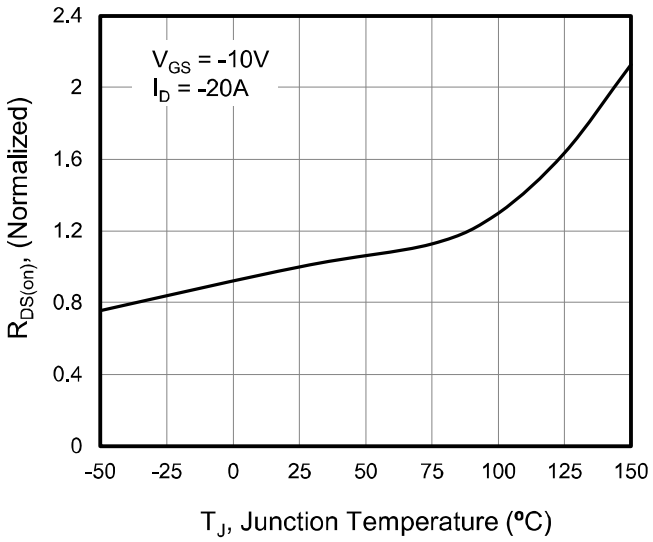


Figure 8. Threshold Voltage vs. Junction Temperature

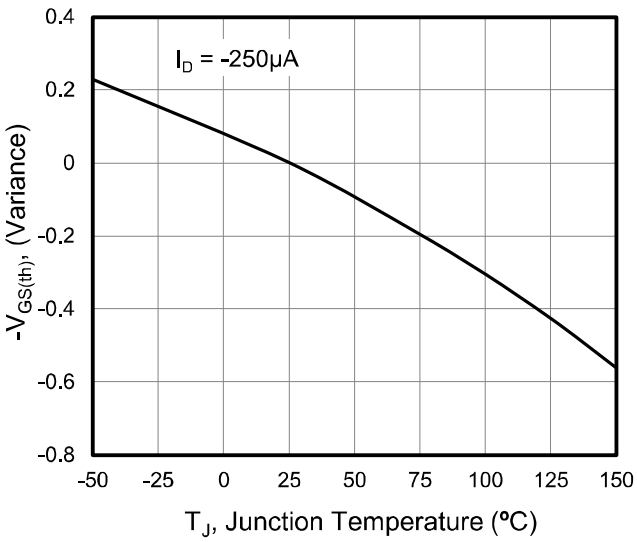


Figure 9. Transient Thermal Impedance

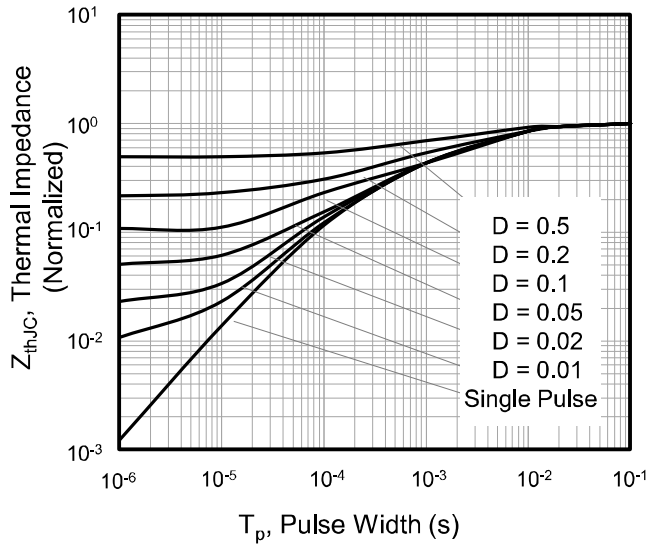


Figure 10. Safe operation area

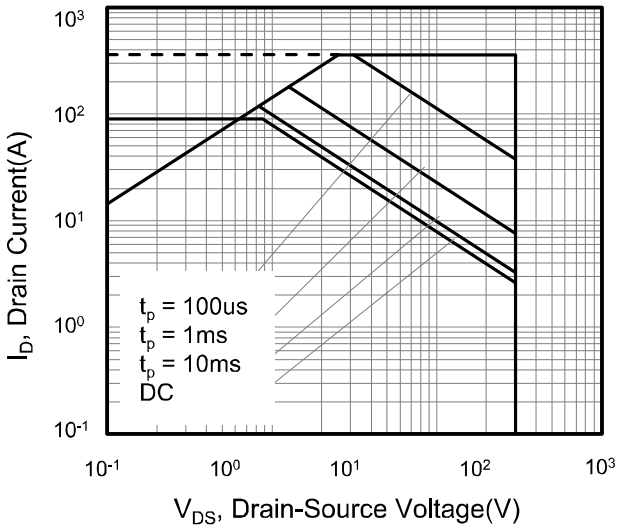


Figure A：Gate Charge Test Circuit and Waveform

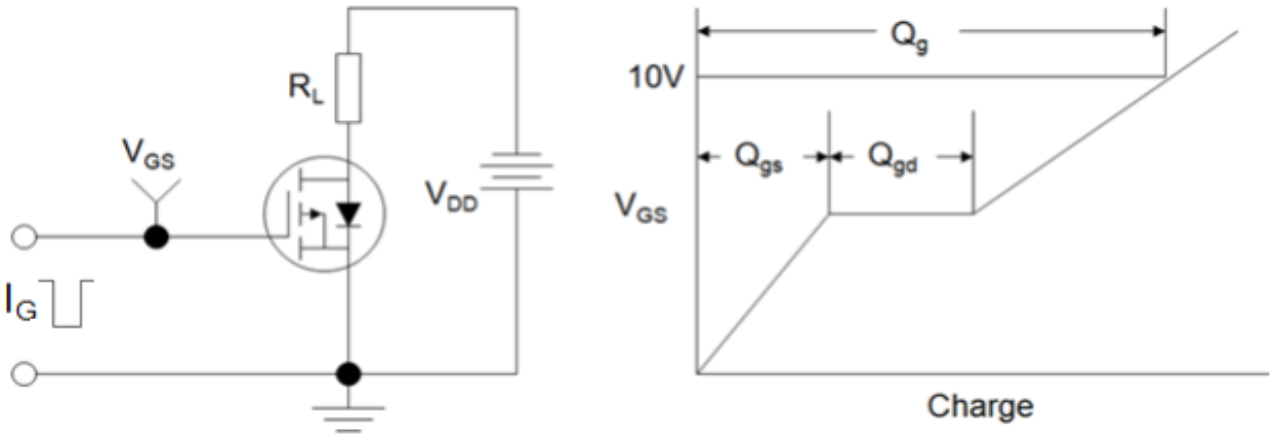


Figure B：Resistive Switching Test Circuit and Waveform

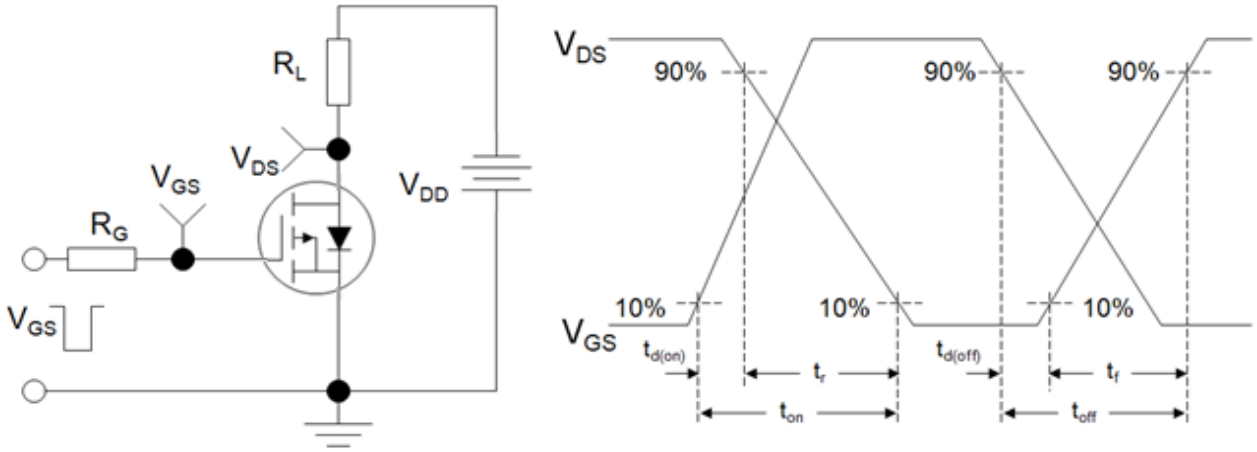
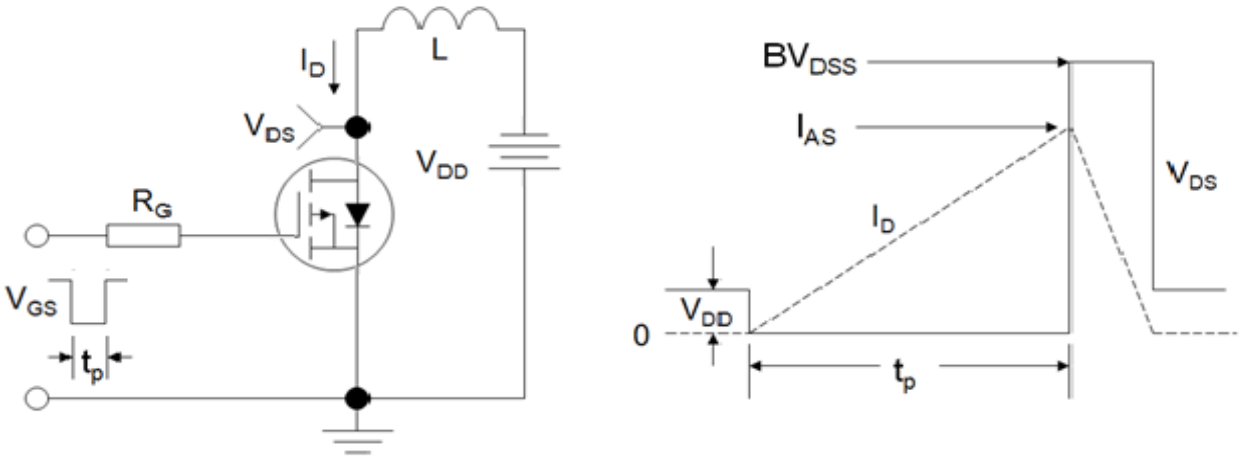
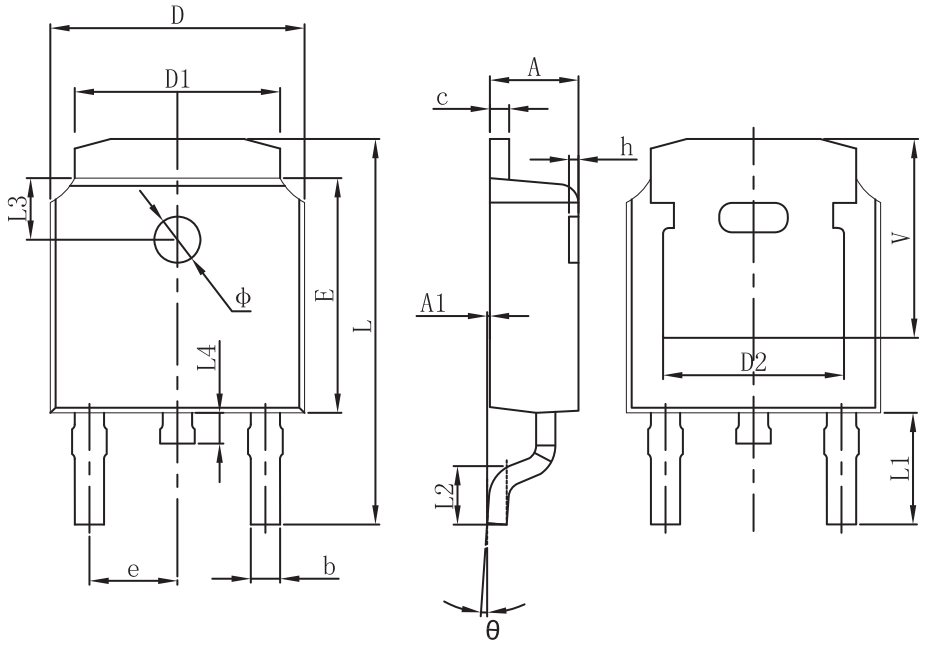


Figure C：Unclamped Inductive Switching Test Circuit and Waveform



5. Package Dimensions

TO-252 Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	2.200	2.400
A1	0.020	0.200
b	0.635	0.770
c	0.460	0.580
D	6.500	6.700
D1	5.100	5.460
D2	4.830 REF	
E	6.000	6.200
e	2.186	2.386
L	9.712	10.312
L1	2.900 REF	
L2	1.400	1.700
L3	1.600 REF	
L4	0.600	1.000
Φ	1.100	1.300
θ	0°	8°
H	0.000	0.300
V	5.250 REF	