快捷芯
KUAIJIEXIN

KJ2N30S

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

Surface-mounted package

Excellent switching performance and avalanche energy value

Applications

LED

Quick reference

V_{DS} = 300 V

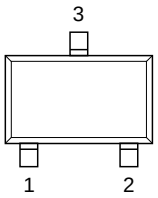
I_D = 2 A

$R_{DS(ON)}$ ≦ 4000 mΩ @ V_{GS}=10V（Type: 3000 mΩ）

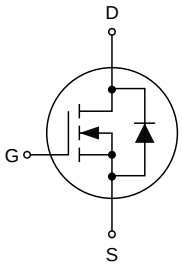
Pin Description

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

Simplified Outline	Symbol



Top View
SOT23-3L



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape Width	Quantity
KJ2N30S	SOT23-3L	2N30	7 inch	-	3000

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

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	300	V
V_{GS}	Gate-Source Voltage	±25	V
I_D	Drain Current, V_{GS}@10 V	2	A
I_{DM}	Pulsed Drain Current [1]	12	A
E_{AS}	Single Pulse Avalanche Energy [2]	30	mJ
P_D	Power Dissipation [3]	35.2	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	125	℃/W
$R_{\theta JC}$	Thermal Resistance from Junction to Case	3.55	℃/W

3. Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_D=250 μA	300	330	-	V
$V_{GS(th)}$	Gate-Threshold Voltage	V_{DS}=V_{GS}, I_D=250 μA	2.0	3.0	4.0	V
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0 V, V_{GS}=±25 V	-	-	±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=300 V, V_{GS}=0 V	-	-	1	μA
		V_{DS}=240 V, T_C=125℃	-	-	100	μA
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10 V, I_D=1.5 A	-	3000	4000	mΩ
C_{iss}	Input Capacitance	V_{DS}=25 V, V_{GS}=0 V, f=1.0 MHz	-	138	-	pF
C_{oss}	Output Capacitance		-	30	-	
C_{rss}	Reverse Transfer Capacitance		-	5	-	
Q_g	Total Gate Charge	V_{DS}=240 V, V_{GS}=10 V, I_D=3 A	-	4.4	-	nC
Q_{gs}	Gate-Source Charge		-	0.7	-	
Q_{gd}	Gate-Drain Charge		-	2	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=150 V, V_{GS}=10 V, I_D=3 A, R_G=25 Ω	-	18	-	ns
t_r	Turn-on Rise Time		-	55	-	
$t_{d(off)}$	Turn-off Delay Time		-	60	-	
t_f	Turn-off Fall Time		-	55	-	
I_S	Continuous Body Diode Current	T_C=25℃	-	-	3	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		-	-	12	A
V_{SD}	Diode Forward Voltage	V_{GS}=0 V, I_S=3 A	-	-	1.4	V
t_{rr}	Reverse Recovery Time	V_{GS}=0 V, I_S=3 A, $d_{IF/dt}$=100 A/μs	-	250	-	ns
Q_{rr}	Reverse Recovery Charge		-	1.8	-	μC

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2 OZ copper.
2. The test condition is Pulse Test: Pulse width ≤ 300 μs, Duty Cycle ≤ 1%.
3. The power dissipation is limited by 150℃ junction temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

4. Typical Characteristics

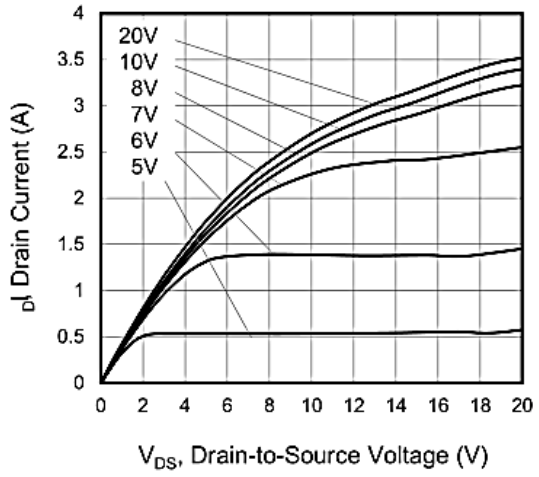


Figure 1. Output Characteristics

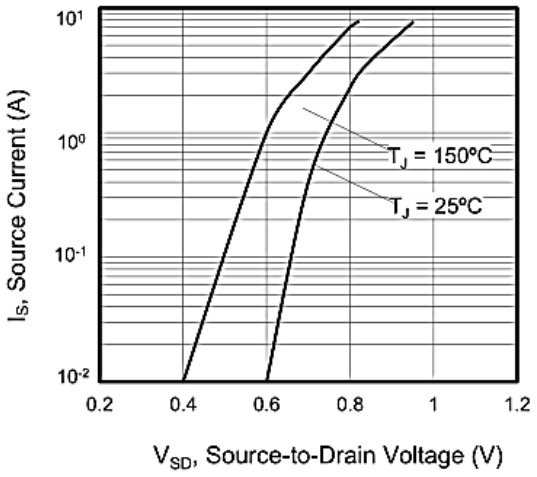


Figure 2. Body Diode Forward Voltage

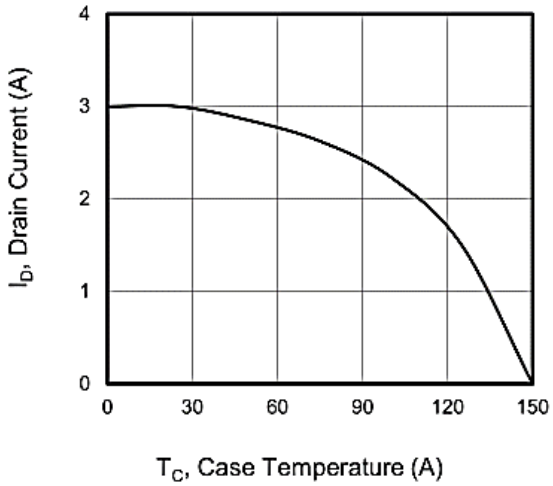


Figure 3. Drain Current vs.Temperature

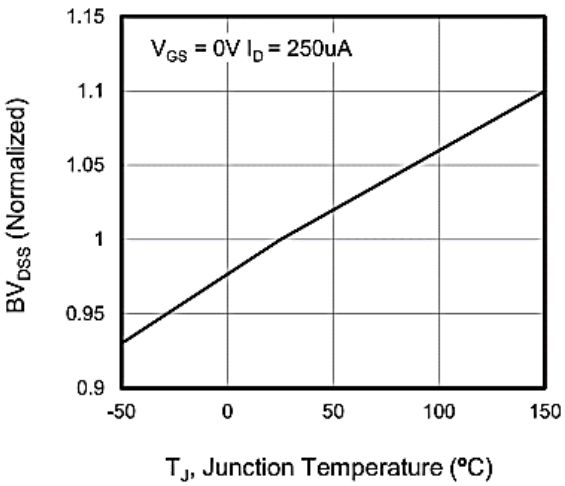


Figure 4. BV_{DSS} Variation vs. Temperature

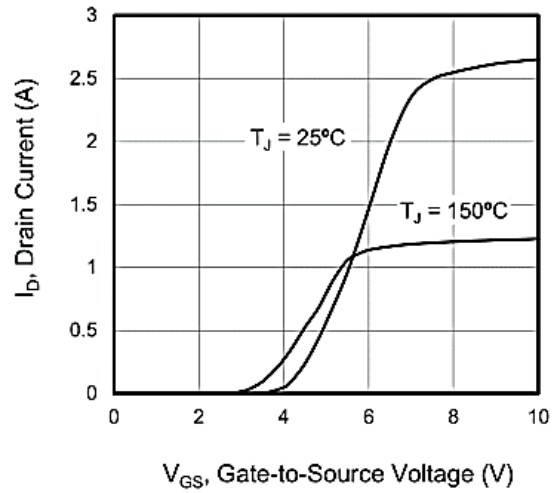


Figure 5. Transfer Characteristics

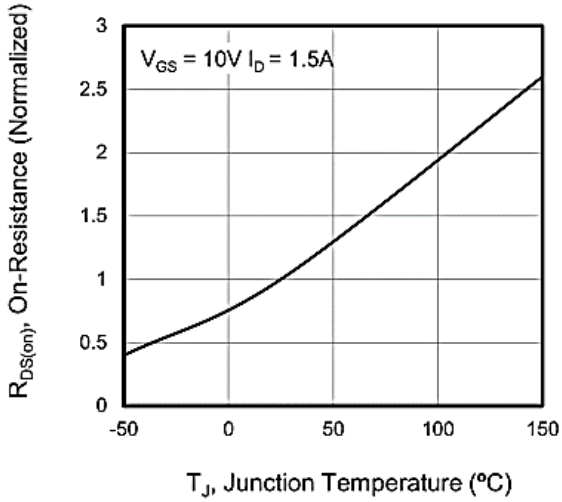


Figure 6. On-Resistance vs. Temperature

4. Typical Characteristics (Cont.)

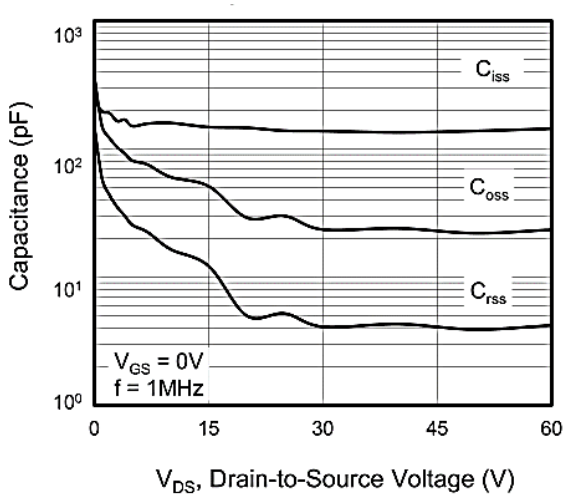


Figure 7. Capacitance

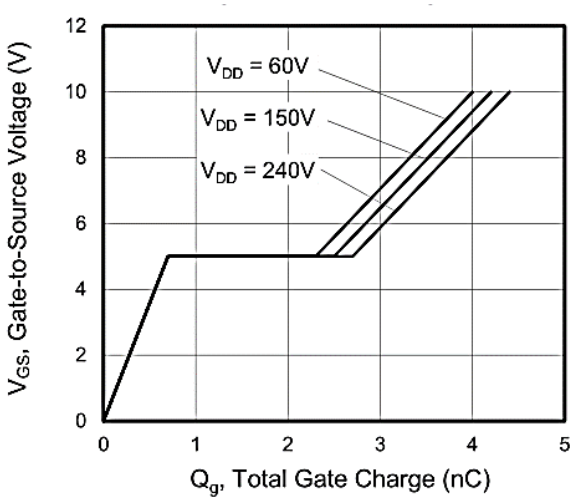


Figure 8. Gate Charge

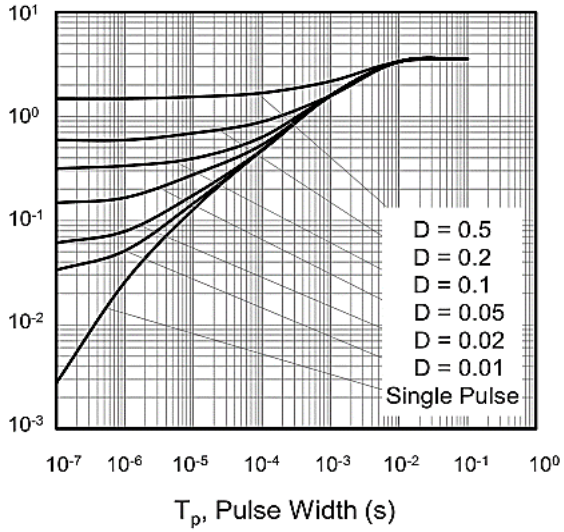
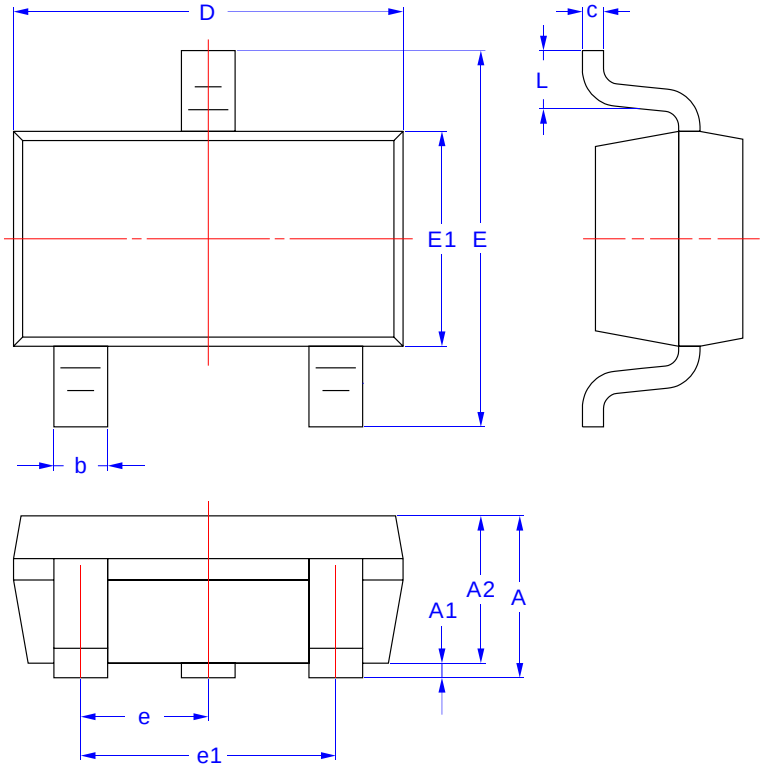


Figure 9. Transient Thermal Impedance

5. Package Mechanical Data

SOT23-3L Package



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.00	1.45
A1	0.00	0.15
A2	1.00	1.30
D	2.70	3.10
E	2.60	3.00
E1	1.50	1.70
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.30	0.60