快捷芯
KUAIJIEXIN

KJ3N10S

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

Shield Gate Trench technology

Extremely low combination of $R_{DS(ON)}$ and Q_g

Good stability and uniformity with high E_{AS}

Applications

PWM applications

Load switch

Quick reference

V_{DS} = 100V

I_D = 3.0A

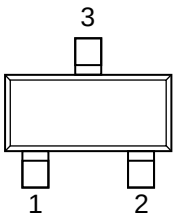
$R_{DS(ON)} \leqq$ 125mΩ@V_{GS}=10 V (Type: 100mΩ)

$R_{DS(ON)} \leqq$ 170mΩ@V_{GS}=4.5V (Type: 130mΩ)

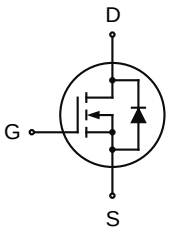
Pin Description

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

Simplified Outline	Symbol



Top View
SOT-23



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ3N10S	SOT-23	3N10	-	-	3000

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

Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{DS}	100	V
Gate-source voltage		V_{GS}	±20	V
Continuous drain current (T_J = 150℃) [a]	T_A = 25°C	I_D	3.0	A
	T_A = 70°C		2.4	
Pulsed drain current [b]		I_{DM}	12	
Power dissipation [a]	T_A = 25°C	P_D	0.72	W
	T_A = 70°C		0.46	
Operating junction and storage temperature range		T_J, T_{stg}	-55~150	°C

3. Thermal Characteristics

Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient [a]	t ≤ 10s	$R_{\theta JA}$	120	145	℃/W
	Steady-State		140	175	
Maximum Junction-to-Foot	Steady-State	$R_{\theta JC}$	62	78	

Notes

a. Surface mounted on 1" x 1" FR4 board

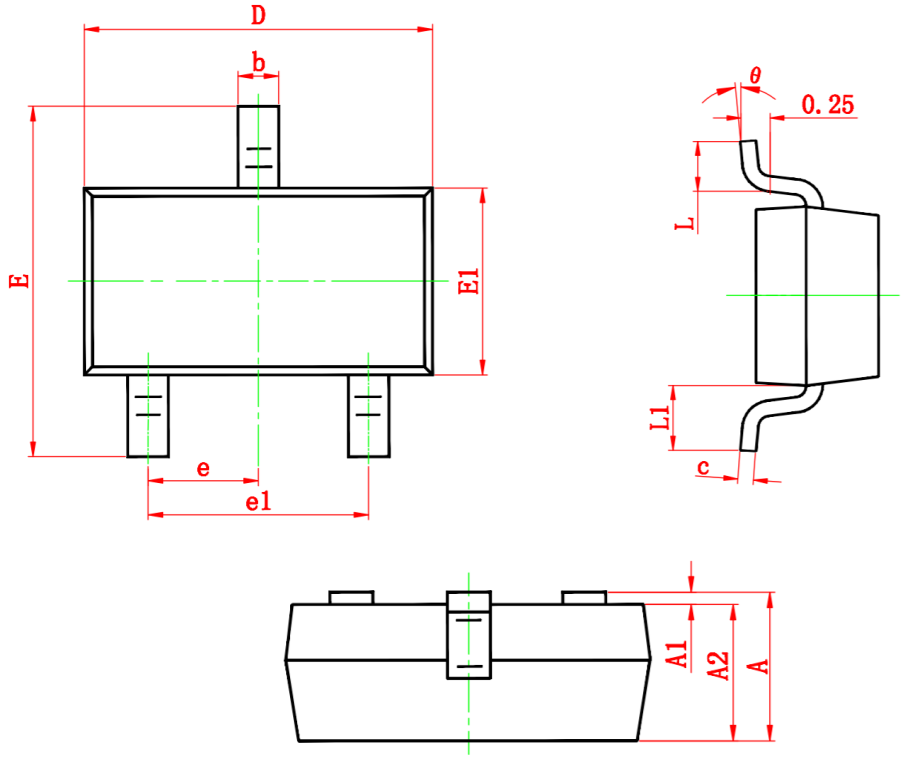
b. Pulse width limited by maximum junction temperature

4. Electrical Characteristics (T_A=25℃, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	-	-	1	μA
Gate-body leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	1.7	2.5	V
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3A	-	100	125	mΩ
		V_{GS}=4.5V, I_D=2A	-	130	170	
Forward transconductance	gfs	V_{DS}=10V, I_D=2.4A	-	10	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{GS}=0V V_{DS}=50V F=1.0MHz	-	175	-	pF
Output capacitance	C_{oss}		-	25	-	
Reverse transfer capacitance	C_{rss}		-	1	-	
Gate Resistance	R_G		4	7.5	12	Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V I_D=1.5A V_{GS}=10V R_{GEN}=6Ω	-	1.1	-	nS
Turn-on Rise Time	t_r		-	5.6	-	
Turn-off Delay Time	$t_{d(off)}$		-	11	-	
Turn-off Fall Time	t_f		-	10	-	
Total Gate Charge	Q_g	V_{DS}=50V I_D=1.5A V_{GS}=10V	-	6.5	-	nC
Gate-Source Charge	Q_{gs}		-	1.2	-	
Gate-Drain Charge	Q_{gd}		-	0.98	-	
Drain-source Diode Characteristics						
Maximum Continuous Drain-Source Diode Forward Current	I_S		-	-	1.1	A
Diode forward voltage	V_{SD}	I_{SD}=1.1A, V_{GS}=0V	-	0.76	1.2	V

5. Package Mechanical Data

SOT-23 Package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.300	0.500	0.012	0.020
L1	0.550 REF.		0.022 REF.	
θ	0°	8°	0°	8°