

P-Channel Enhancement Mode MOSFET

1. Product Information

Features

- Advanced trench technology
- Excellent $R_{DS(ON)}$, Low gate charge
- High power and current handling capability

Applications

- PWM applications
- Load switch

Quick reference

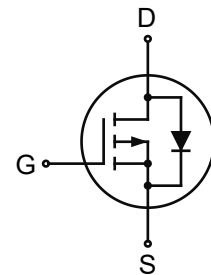
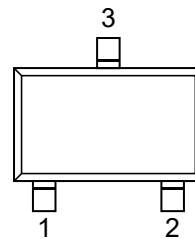
- $V_{DS} = -30\text{ V}$
- $I_D = -7\text{ A}$
- $R_{DS(ON)} \leq 26\text{ m}\Omega$ @ $V_{GS} = -10\text{ V}$ (Type: 22 m Ω)
- $R_{DS(ON)} \leq 40\text{ m}\Omega$ @ $V_{GS} = -4.5\text{ V}$ (Type: 31 m Ω)

Pin Description

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

Simplified Outline

Symbol



Top View
SOT23-3L

Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ7P03A	SOT23-3L	7P03	-	-	3000

2. Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	-7.0
		$T_A = 70^\circ\text{C}$	-5.6
Pulsed drain current ^b	I_{DM}	-28	A
Continuous source current (diode conduction) ^a	I_S	-7.0	
Power dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	1.4
		$T_A = 70^\circ\text{C}$	0.9
Operating junction and storage temperature range	T_J, T_{stg}	-55~150	$^\circ\text{C}$

3. Thermal Characteristics

Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient ^a	t ≤ 10 s	R _{θJA}	70	90	°C/W
	Steady-State		100	125	
Maximum Junction-to-Foot	Steady-State	R _{θJC}	62	80	

Notes

- Surface mounted on 1" x 1" FR4 board
- Pulse width limited by maximum junction temperature

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

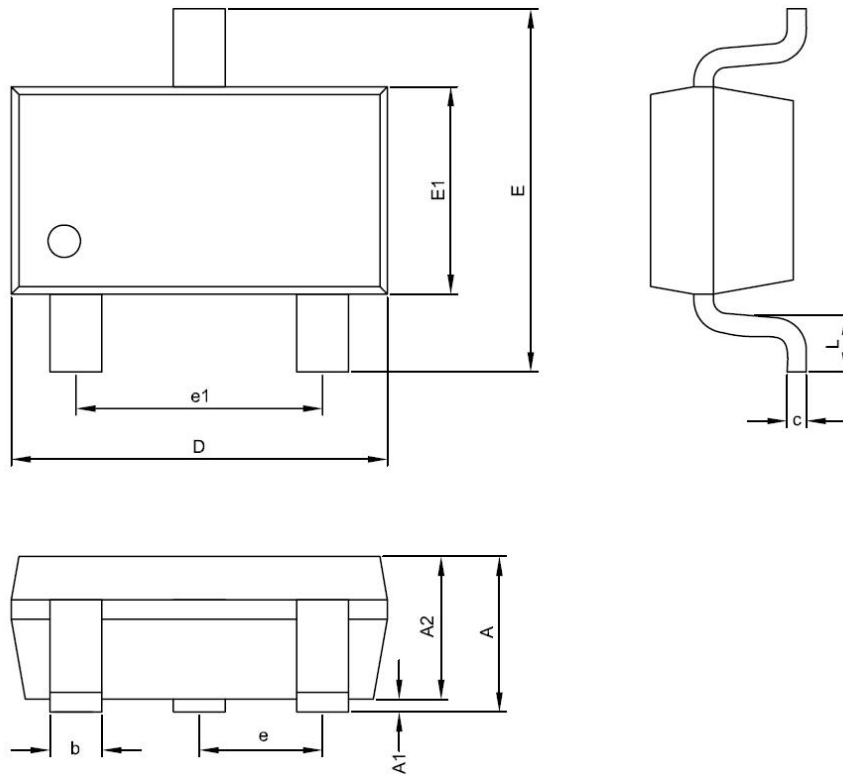
Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.0	V
Drain-source on-state resistance ^a	R _{DS(ON)}	V _{GS} =-10V, I _D =-5A	-	22	26	mΩ
		V _{GS} =-4.5V, I _D =-3A	-	31	40	
Forward transconductance ^a	g _{fs}	V _{DS} =-5V, I _D =-1A	-	14	-	S
Dynamic Characteristics ^b						
Input capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V F=1.0MHz	-	540	-	pF
Output capacitance	C _{oss}		-	110	-	
Reverse transfer capacitance	C _{rss}		-	66	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V I _D =-5A V _{GEN} =-10V R _L =1.2Ω R _{GEN} =-6Ω	-	7.7	-	nS
Turn-on Rise Time	t _r		-	5.6	-	
Turn-off Delay Time	t _{d(off)}		-	21	-	
Turn-off Fall Time	t _f		-	7	-	
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-5A V _{GS} =-10V	-	9.1	-	nC
Gate-Source Charge	Q _{gs}		-	1.6	-	
Gate-Drain Charge	Q _{gd}		-	2.4	-	
Drain-source Diode Characteristics						
Diode forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A	-	-0.75	-1.2	V

Notes

- Pulse test: Pulse width ≤ 300μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production testing

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