

P-Channel Enhancement Mode MOSFET

1. Product Information

Features

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

Pin Description

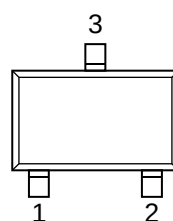
Pin	Description
1	Gate(G)
2	Source(S)
3	Drain(D)

Applications

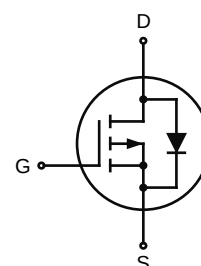
PWM applications
Load switch

Quick reference

$V_{DS} = -12\text{ V}$
 $I_D = -6\text{ A}$
 $R_{DS(ON)} \leq 32\text{ m}\Omega$ @ $V_{GS} = -4.5\text{ V}$ (Type: 27 m Ω)
 $R_{DS(ON)} \leq 46\text{ m}\Omega$ @ $V_{GS} = -2.5\text{ V}$ (Type: 35 m Ω)



Top View
SOT23-3L



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ1205A	SOT23-3L	1205	-	-	3000

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

Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{DS}	-12	V
Gate-source voltage		V_{GS}	± 12	V
Continuous drain current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-6	A
	$T_A = 70^\circ\text{C}$		-4.8	
Pulsed drain current ^b		I_{DM}	-24	
Continuous source current (diode conduction) ^a		I_S	-6	
Power dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.4	W
	$T_A = 70^\circ\text{C}$		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	$t \leq 5\text{ s}$	$R_{\theta JA}$	70	90	°C/W
	Steady-State		100	125	
Maximum Junction-to-Foot	Steady-State	$R_{\theta JC}$	63	80	

Notes

- a. Surface mounted on 1" x 1" FR4 board
b. Pulse width limited by maximum junction temperature $c:t = 5\text{ s}$

4. Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

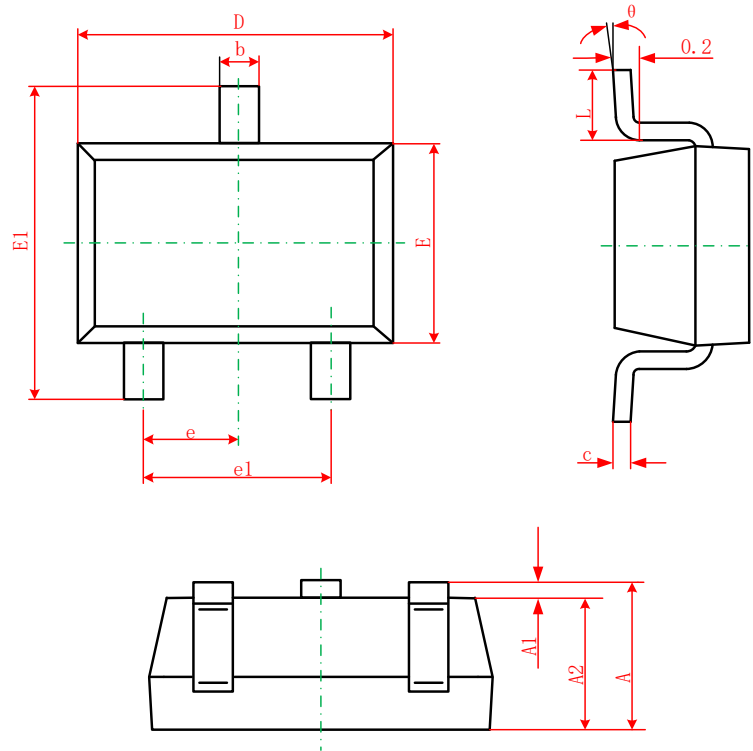
Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-12	-16.5	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V	-	-	-1	μA
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.45	-0.7	-1.2	V
Drain-source on-state resistance ^a	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-6A	-	27	32	mΩ
		V _{GS} =-2.5V, I _D =-4A	-	35	46	
Forward transconductance ^a	g _{fs}	V _{DS} =-5V, I _D =-4A	8.5	-	-	S
Dynamic Characteristics ^b						
Input capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V F=1.0MHz	-	740	-	pF
Output capacitance	C _{oss}		-	290	-	
Reverse transfer capacitance	C _{rss}		-	190	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DS} =-10V I _D =-3A V _{GEN} =-4.5V R _L =10Ω R _{GEN} =-60Ω	-	12.5	-	nS
Turn-on Rise Time	t _r		-	35	-	
Turn-off Delay Time	t _{d(off)}		-	30	-	
Turn-off Fall Time	t _f		-	10	-	
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-3A V _{GS} =-4.5V	-	7.8	-	nC
Gate-Source Charge	Q _{gs}		-	1.2	-	
Gate-Drain Charge	Q _{gd}		-	1.6	-	
Drain-source Diode Characteristics						
Diode forward voltage	V _{SD}	V _{GS} =0V, I _S =-4A	-	-0.81	-1.2	V

Notes

- a. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
b. Guaranteed by design, not subject to production testing

5.Package Mechanical Data

SOT23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 (BSC)		0.037 (BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°