

Description

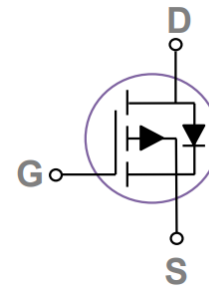
The JTD2307A uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It can be used in a wide variety of applications.

General Features

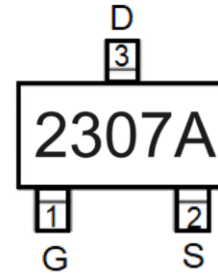
- ◆ $V_{DS} = -20V$, $I_D = -10A$
- ◆ $R_{DS(ON)} : 16.8m\Omega$ (Typ.) @ $V_{GS} = -4.5V$
- ◆ $R_{DS(ON)} : 20.8m\Omega$ (Typ.) @ $V_{GS} = -2.5V$
- ◆ High Power and current handing capability
- ◆ Lead free product is acquired
- ◆ Surface Mount Package

Application

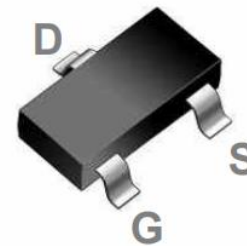
- ◆ PWM applications
- ◆ Load switch
- ◆ Power management



Schematic diagram



Marking and Pin Assignment



SOT23-3L Top view

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	-20	V	
Gate-Source Voltage	V_{GS}	± 12	V	
Drain Current-Continuous	I_D	$T_A = 25^\circ C$	-10	A
		$T_A = 100^\circ C$	-8	A
Pulsed Drain Current ^(Note 1)	I_{DM}	-24	A	
Maximum Power Dissipation	P_D	1.2	W	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$	

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{th JA}$	100	$^\circ C/W$
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Electrical Characteristics (T_A=25°C unless otherwise noted)

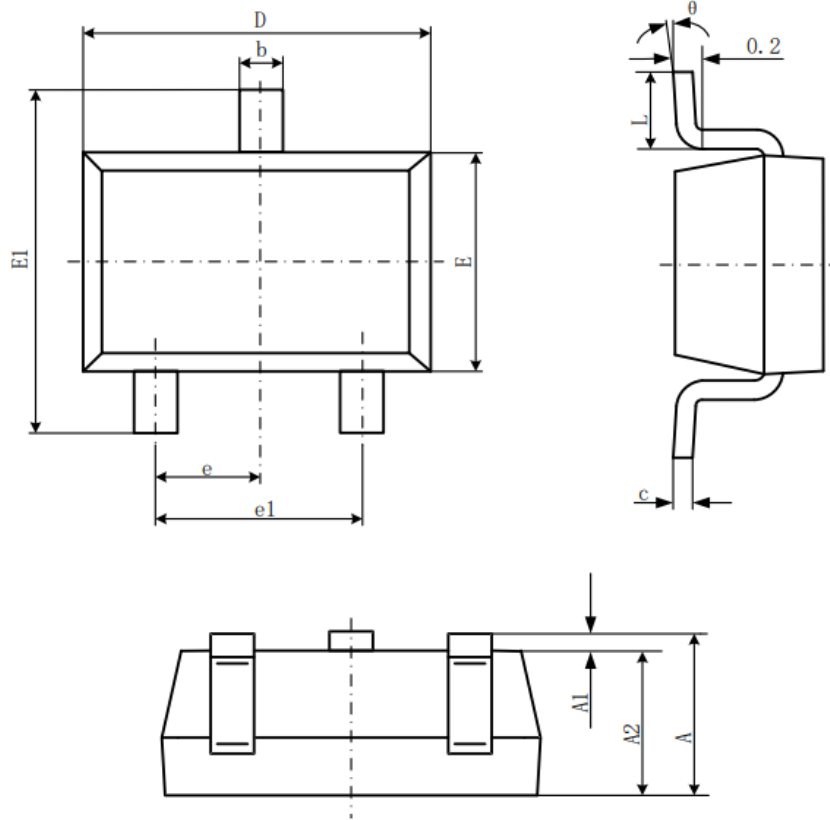
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	± 100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	-0.4	-0.68	-1.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =-5A	-	16.8	19.5	mΩ
		V _{GS} =2.5V, I _D =-3A	-	20.8	25	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-5A	-	5	-	S
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C _{ISS}	V _{DS} =-6V V _{GS} =0V f=1.0MHz	-	1280	-	pF
Output Capacitance	C _{OSS}		-	300	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	280	-	pF
Switching Characteristics						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -10V R _L = 10 Ω I _D = -2.8A, V _{GEN} = -4.5V R _G = 6 Ω	-	15	-	ns
Rise Time	t _r		-	60	-	ns
Turn-Off Delay Time	t _{D(OFF)}		-	70	-	ns
Fall Time	t _f		-	65	-	ns
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-5A, V _{GS} =-4.5V	-	14	-	nC
Gate-Source Charge	Q _{gs}		-	3	-	nC
Gate-Drain Charge	Q _{gd}		-	3.5	-	nC
Drain-Source Diode Characteristics ^(Note 3)						
Diode forward voltage	V _{SD}	V _{GS} =0V, I _S =-1.25A		-0.76	-1.2	V

Notes

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10sec.
3. Pulse Test: PulseWidth ≤ 300uS, Duty Cycle ≤ 2%
4. Guaranteed by design, not subject to production testing.

Package Information

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°