

P-Channel Enhancement Mode Power MOSFET

Description

The JTD2317 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

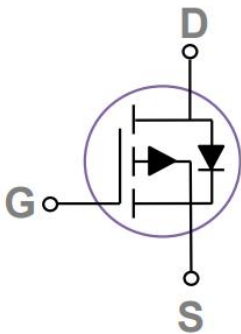
$V_{DS} = -20V$,

$I_D = -7A$

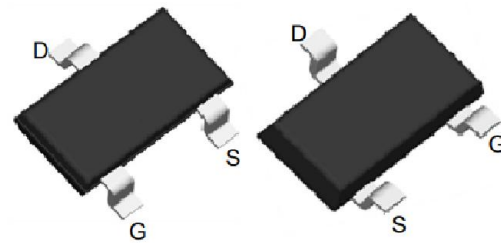
$R_{DS(ON)} : 23m\Omega$ (Typ.) @ $V_{GS} = -4.5V$

$R_{DS(ON)} : 28m\Omega$ (Typ.) @ $V_{GS} = -2.5V$

Schematic diagram



SOT23-3 Pin Assignment



Top View

Bottom View

Absolute Maximum Ratings (TA=25°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	-7	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	°C

Thermal Characteristics

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

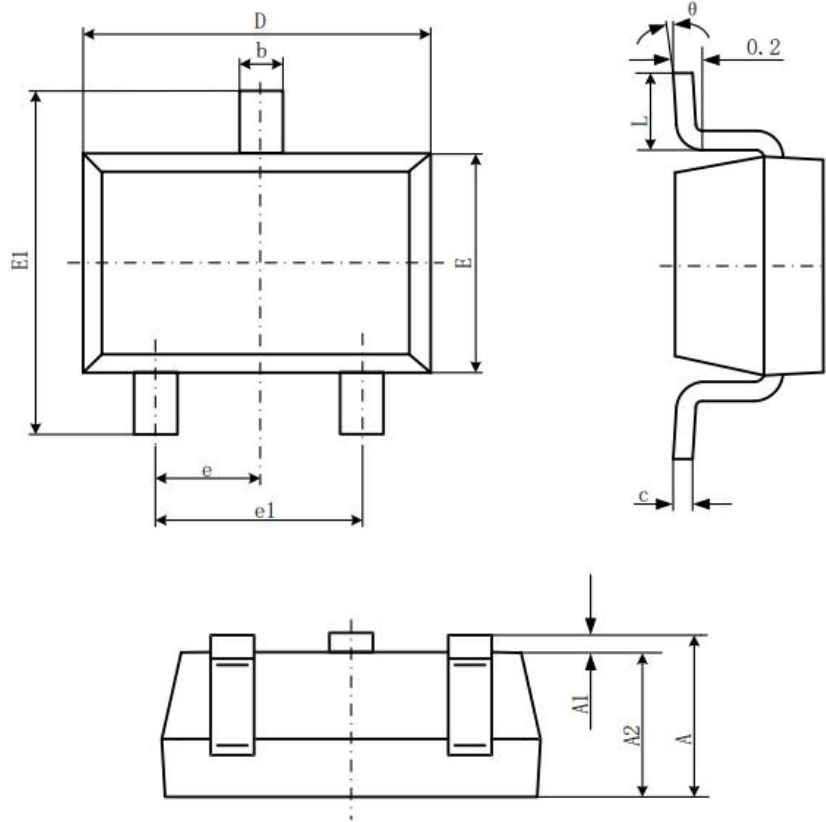
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$	-	-	-100	nA
Gate-Body Leakage	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	-0.3	-0.5	-1	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=-5A$	-	23	33	mΩ
		$V_{GS}=2.5V, I_D=-3A$	-	28	38	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-5A$	-	10	-	S
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C_{ISS}	$V_{DS}=-10V, V_{GS}=0V$ $f=1.0MHz$	-	950	-	pF
Output Capacitance	C_{OSS}		-	115	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	88	-	pF
Switching Characteristics						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = -10V$ $R_L = 1\Omega$ $V_{GEN} = -4.5V$ $R_G = 3\Omega$	-	15	-	ns
Rise Time	t_r		-	20	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	56	-	ns
Fall Time	t_f		-	50	-	ns
Total Gate Charge	Q_g	$V_{DS}=-10V, I_D=-5A,$ $V_{GS}=-4.5V$	-	13	-	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}	$V_{GS}=0V, I_S=-1.25A$		-0.55	-1.2	V

Notes

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10sec$.
3. Pulse Test: PulseWidth $\leq 300\mu S$, Duty Cycle $\leq 2\%$
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°