

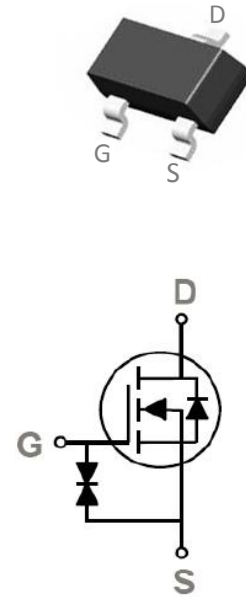
Description:

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=60V, I_D=0.2A, R_{DS(ON)} < 2100m\ \Omega @ V_{GS}=-10V$ (Typ: $1700m\ \Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.
- 6) ESD Protection
- 7) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOX2N7002B	72B	SOT- 323	3000 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_A=25^\circ\text{C}^1$	0.2	A
	Continuous Drain Current- $T_A=100^\circ\text{C}^1$	0.14	
I_{DM}	Pulsed Drain Current ²	0.8	
P_D	Power Dissipation	0.26	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	480	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=60V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	-1	1.5	2.5	V
$R_{DS(on)}$	Drain-Source On Resistance ³	$V_{GS}=-10V, I_D=0.3A$	---	1700	2100	$\text{m}\Omega$
		$V_{GS}=-4.5V, I_D=0.2A$	---	2000	2400	$\text{m}\Omega$
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1\text{MHz}$	---	28	---	pF
C_{oss}	Output Capacitance		---	11	---	
C_{rss}	Reverse Transfer Capacitance		---	4	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=10V, I_D=0.2A,$ $R_{ENG}=10\ \Omega, V_{GS}=10V$	---	2	---	ns
t_r	Rise Time		---	15.7	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	7	---	ns
t_f	Fall Time		---	21	---	ns
Q_g	Total Gate Charge		---	2	---	nC
Q_{gs}	Gate-Source Charge	$V_{GS}=4.5V, V_{DS}=10V,$	---	0.3	---	nC
Q_{gd}	Gate-Drain "Miller" Charge	$I_D=0.3A$	---	0.6	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_{SD}=0.3A$	---	---	1.2	V
I_S	Continuous Drain Current	$V_D=V_G=0V$	---	---	0.16	A
I_{SM}	Pulsed Drain Current		---	---	0.66	A

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Characteristics: ($T_A=25^\circ C$ unless otherwise noted)

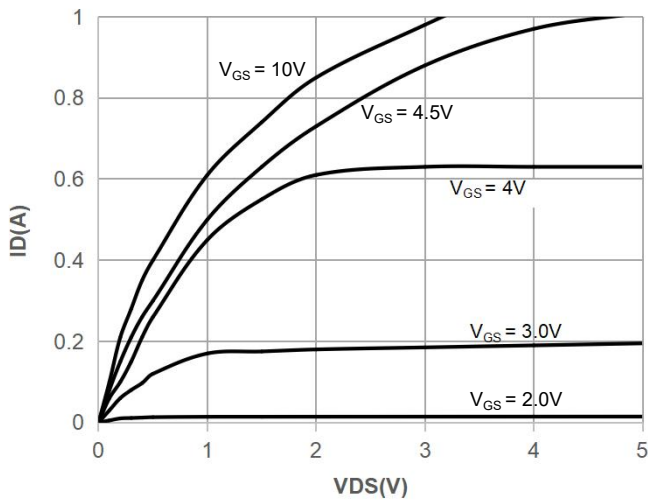


Figure 1: Output Characteristics

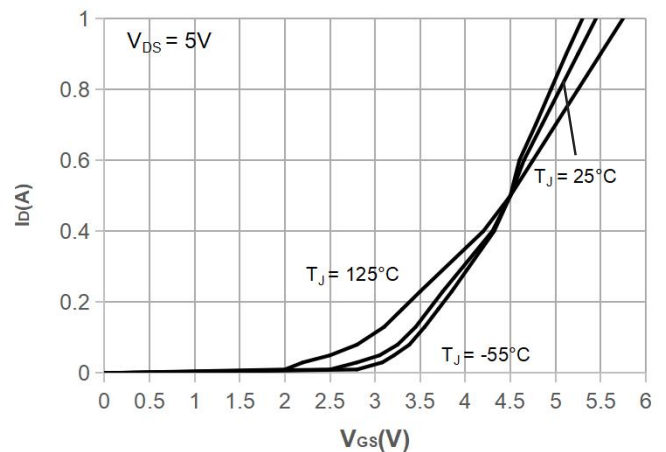


Figure 2: Typical Transfer Characteristics

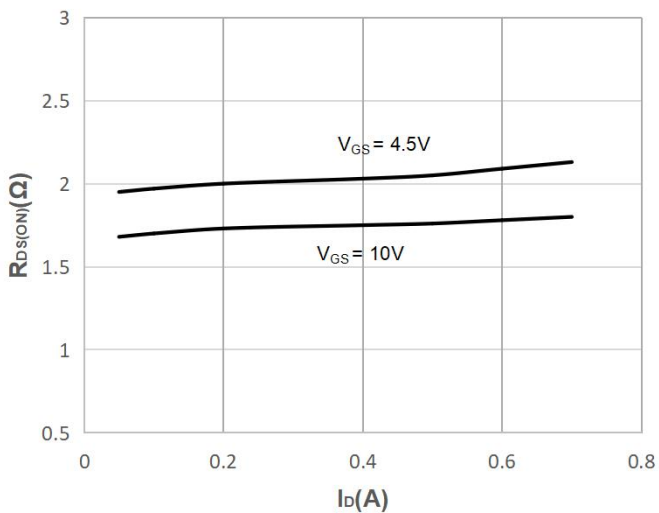


Figure 3: On-resistance vs. Drain Current

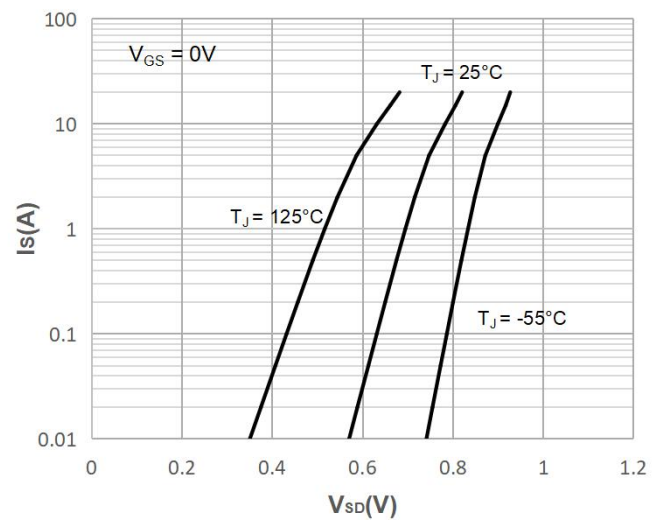


Figure 4: Body Diode Characteristics

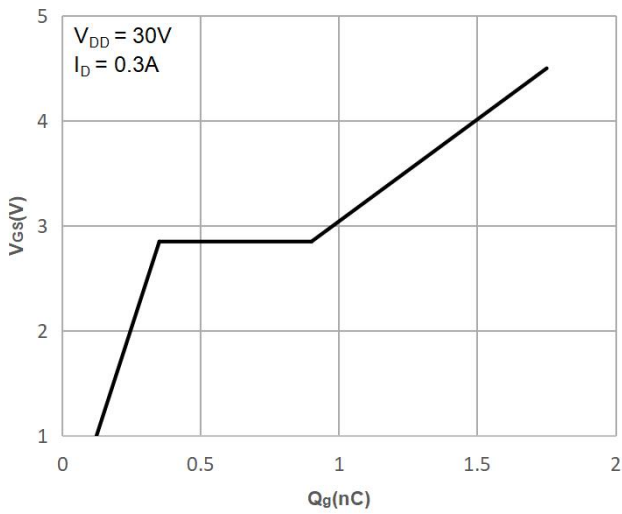


Figure 5: Gate Charge Characteristics

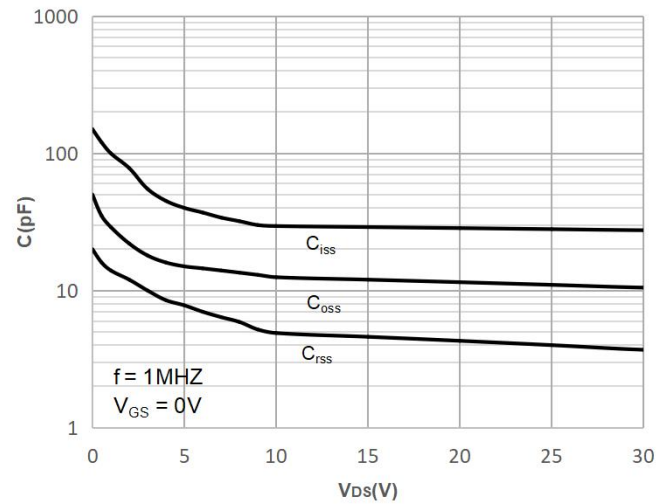


Figure 6: Capacitance Characteristics

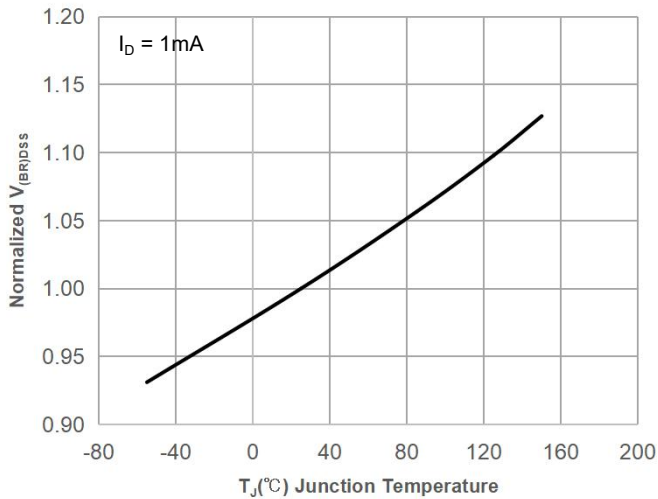


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

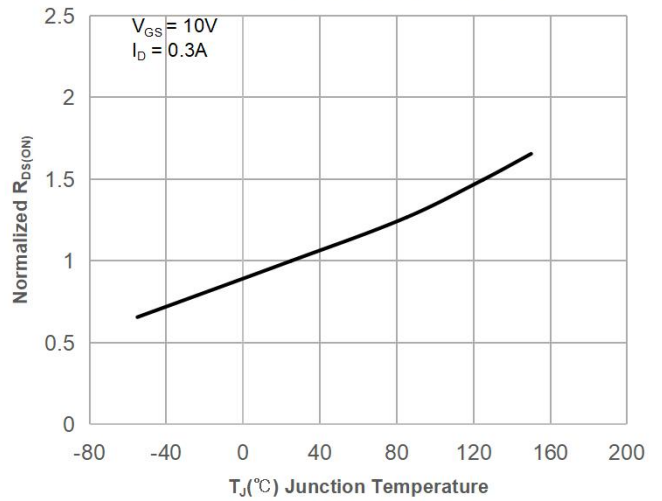


Figure 8: Normalized on Resistance vs. Junction Temperature

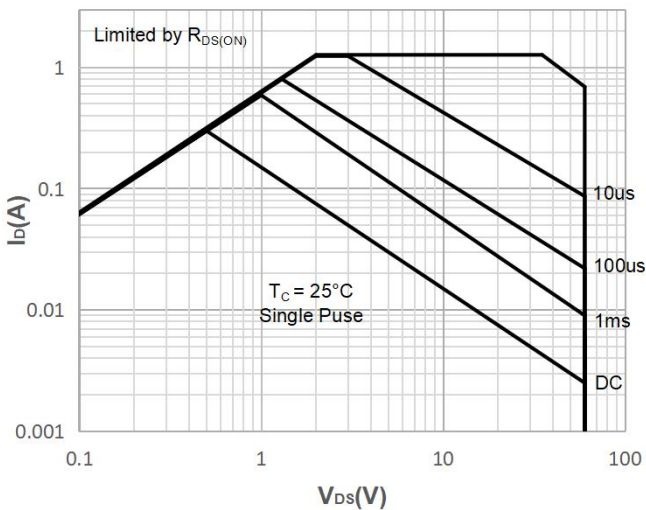


Figure 9: Maximum Safe Operating Area

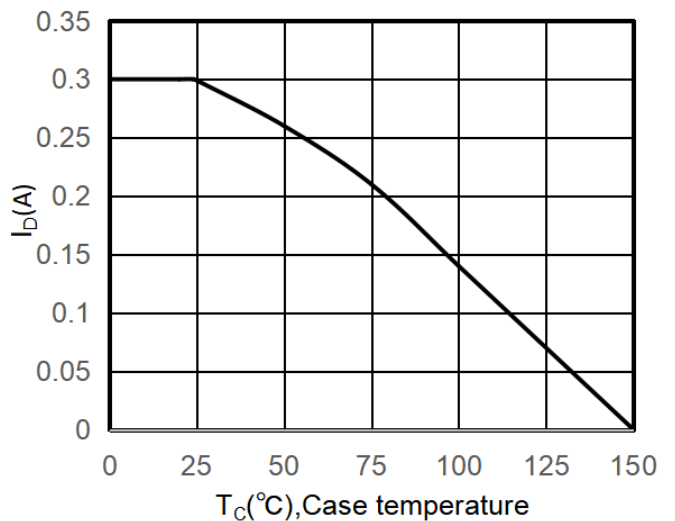


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

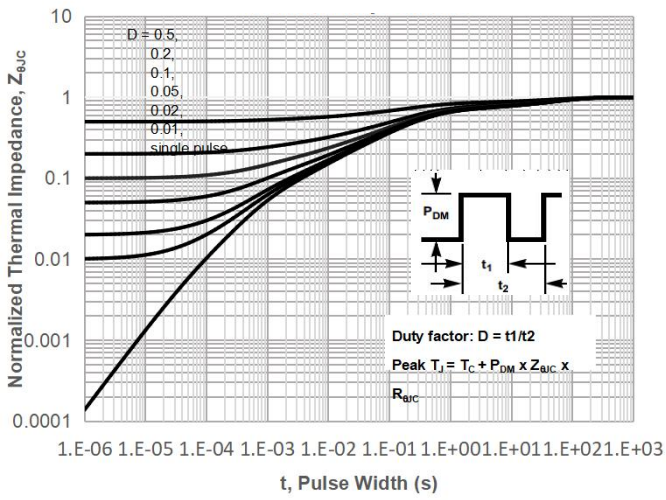


Figure 11: Normalized Maximum Transient Thermal Impedance

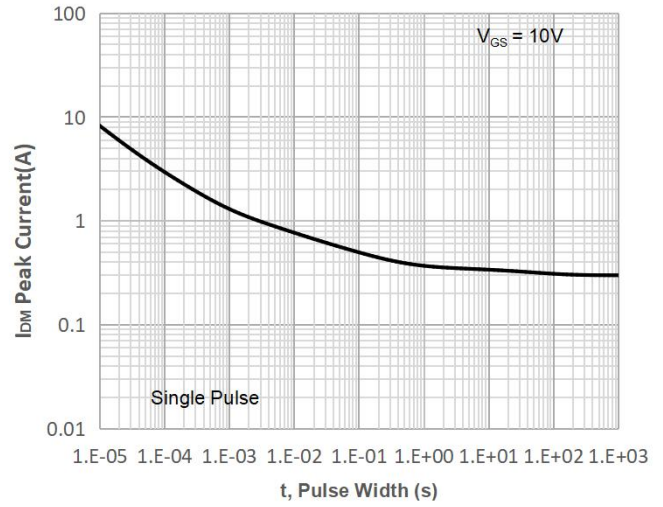
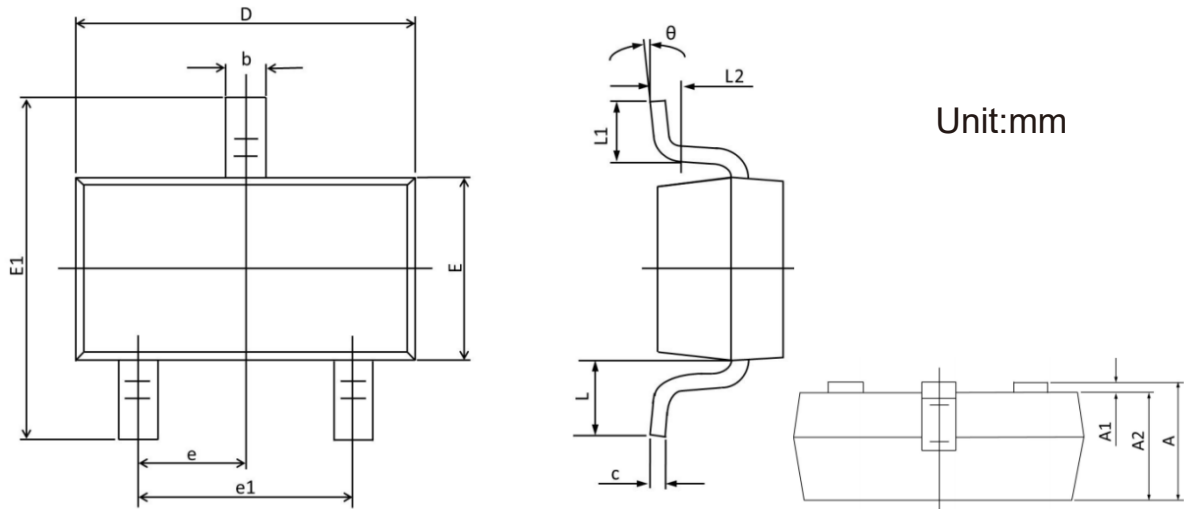


Figure 12: Peak Current Capacity

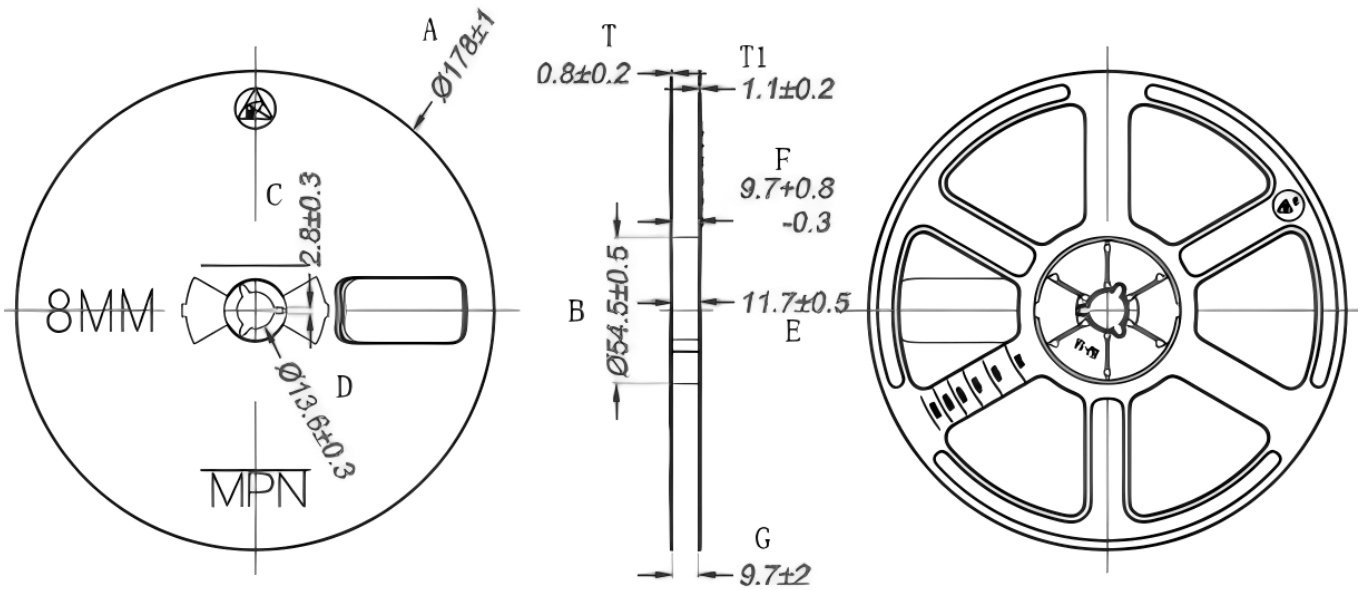
SOT- 323 Mechanical Data



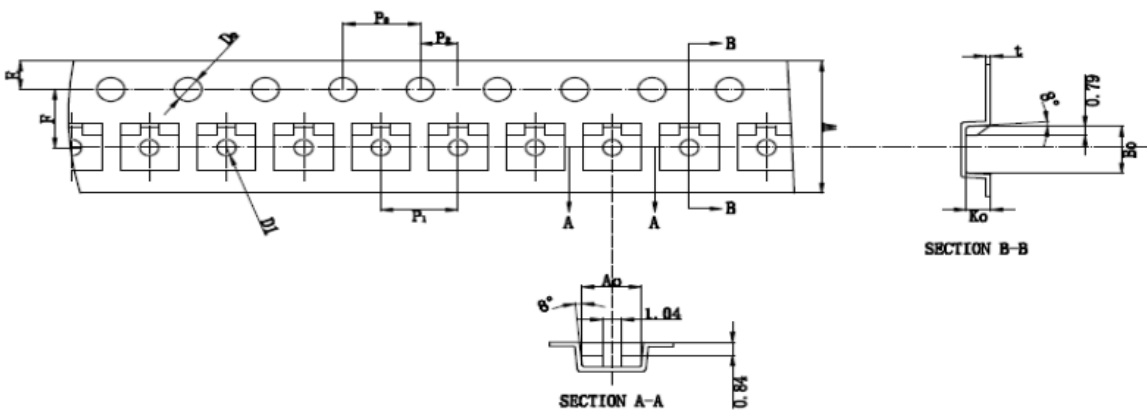
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.400	0.200	0.016	0.008
c	0.250	0.080	0.010	0.003
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.450	1.800	0.096	0.071
e	0.65BSC		0.026BSC	
e1	1.400	1.200	0.055	0.047
L	0.525REF.		0.021REF.	
L1	0.460	0.150	0.018	0.006
L2	0.200	0.000	0.008	0.000
θ	8°	0°	8°	0°

Tape & Reel Information

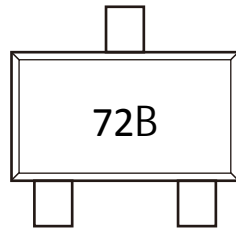
Dimensions in mm



PKG TYPE	W	P	E	F	D	D1	Po	Po10	P2	A0	B0	K0	T
SOT-323	8.00	4.00	1.75	3.50	1.55	1.00	4.00	40.00	2.00	3.17	2.77	1.28	0.20
Tolerance	+0.3/-0.1	±0.1	±0.1	±0.05	±0.1	±0.1	±0.1	±0.2	±0.05	±0.1	±0.1	±0.1	±0.03




Pulling direction →

Marking Information:**Previous Version**

Version	Date	Subjects (major changes since last revision)
1.0	2025-08-25	Release of final version

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