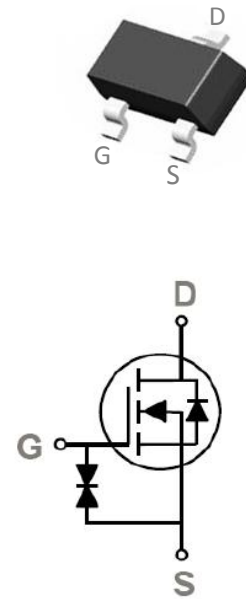


Description:

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) $V_{DS}=20V, I_D=0.9A, R_{DS(ON)} < 155m\Omega @ V_{GS}=4.5V$ (Typ: $120m\Omega$)
- 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
DOX3134A	3134K	SOT- 323	3000 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 10	V
I_D	Continuous Drain Current- $T_A=25^\circ C$	0.9	A
	Continuous Drain Current- $T_A=70^\circ C$	0.6	
I_{DM}	Pulsed Drain Current ¹	3.6	
P_D	Power Dissipation	0.22	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	573	$^\circ C/W$

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	$V_{GS}=0V, I_D=250\ \mu\text{A}$	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=20V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 10V, V_{DS}=0A$	---	---	± 10	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	0.4	0.6	1	V
$R_{DS(on)}$	Drain-Source On Resistance ²	$V_{GS}=4.5V, I_D=0.5A$	---	120	155	$\text{m}\Omega$
		$V_{GS}=2.5V, I_D=0.3A$	---	170	220	$\text{m}\Omega$
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V, f=1\text{MHz}$	---	63	---	pF
C_{oss}	Output Capacitance		---	23	---	
C_{rss}	Reverse Transfer Capacitance		---	12	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=4.5V, I_D=0.5A,$ $R_{ENG}=10\ \Omega, V_{GS}=10V$	---	2	---	ns
t_r	Rise Time		---	20	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	10.5	---	ns
t_f	Fall Time		---	24	---	ns
Q_g	Total Gate Charge		---	1	---	nC
Q_{gs}	Gate-Source Charge	$V_{GS}=4.5V, V_{DS}=10V,$	---	0.28	---	nC
Q_{gd}	Gate-Drain "Miller" Charge	$I_D=0.9A$	---	0.22	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_{SD}=0.5A$	---	---	1.2	V
I_S	Continuous Drain Current	$V_D=V_G=0V$	---	---	0.9	A
I_{SM}	Pulsed Drain Current		---	---	3.6	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

Test Circuit

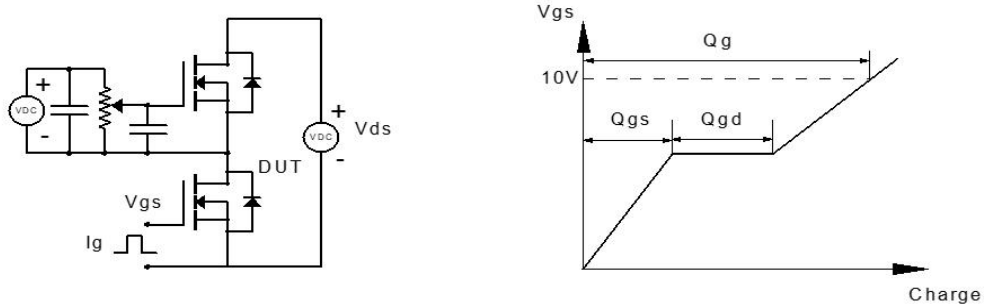


Figure 1: Gate Charge Test Circuit & Waveform

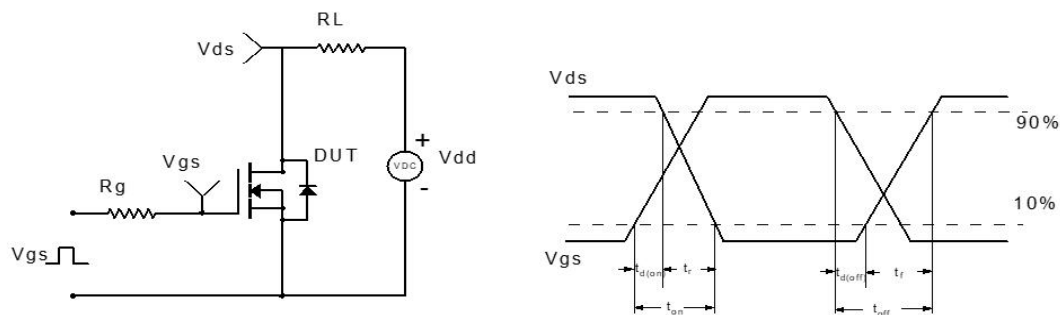


Figure 2: Resistive Switching Test Circuit & Waveform

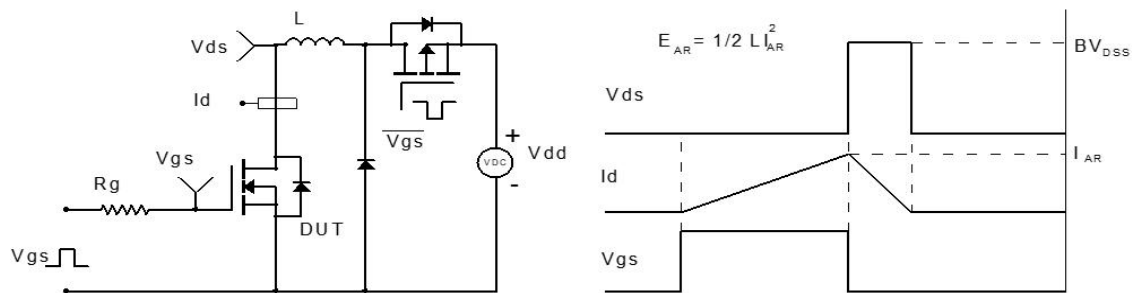


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

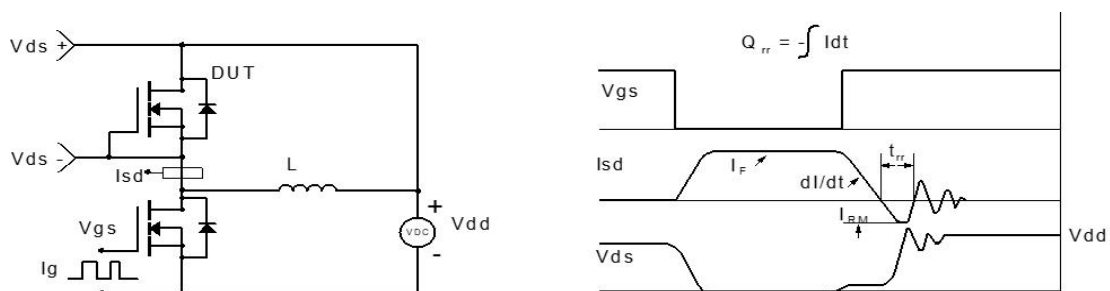
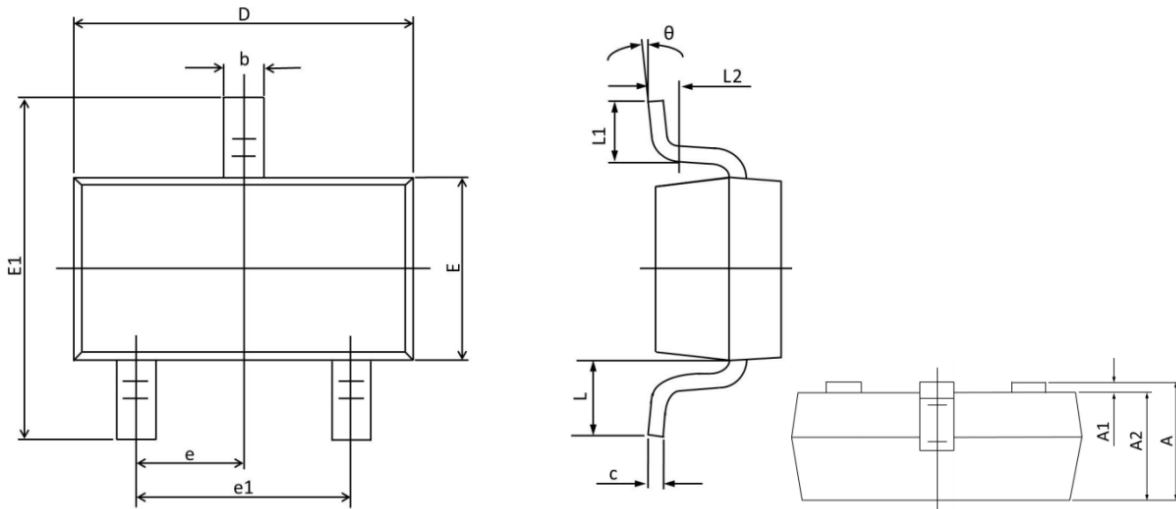


Figure 4: Diode Recovery Test Circuit & Waveform

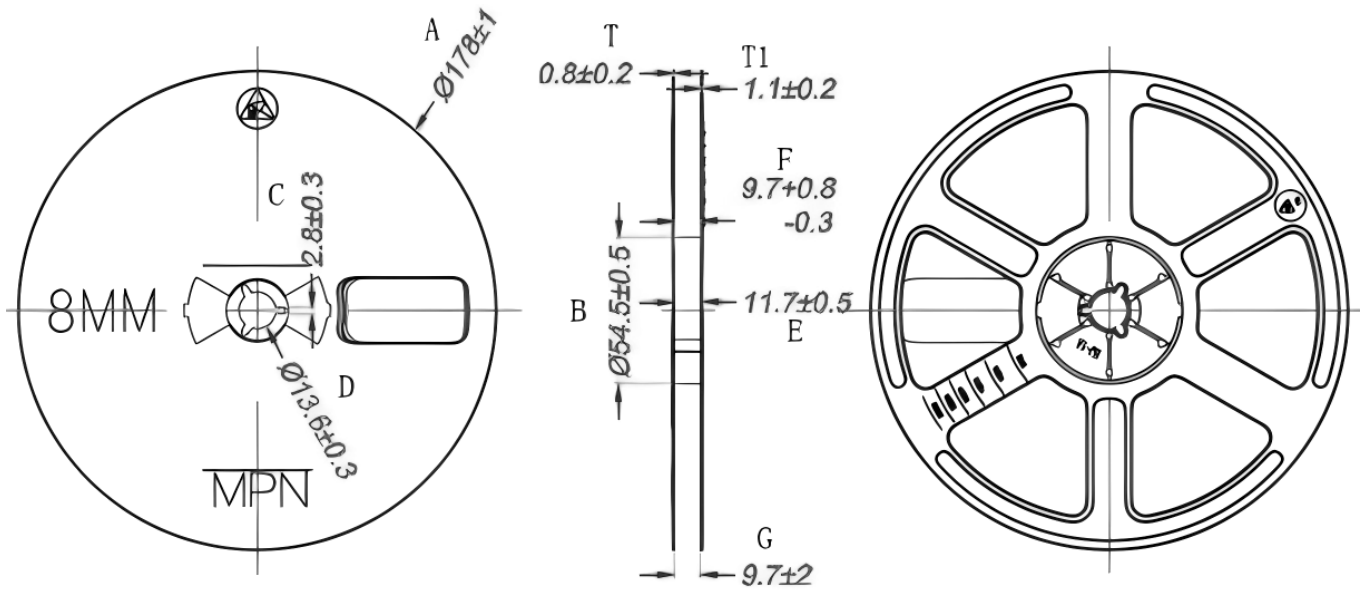
SOT- 323 Mechanical Data



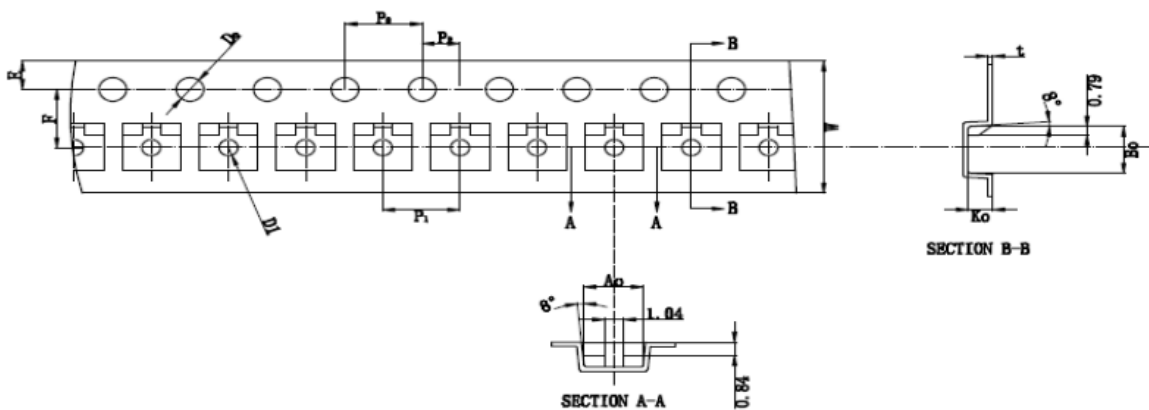
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.400	0.200	0.016	0.008
c	0.250	0.080	0.010	0.003
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.450	1.800	0.096	0.071
e	0.65BSC		0.026BSC	
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°

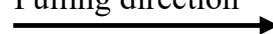
Tape & Reel Information

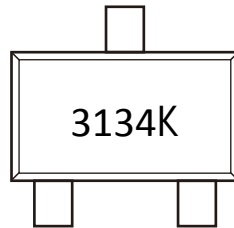
Dimensions in mm



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	2024-12-19	Release of final version

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