

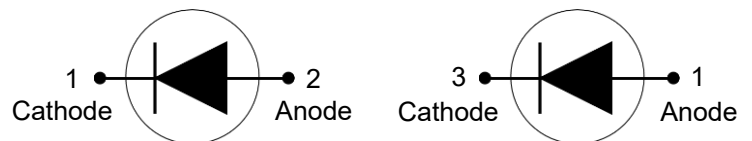
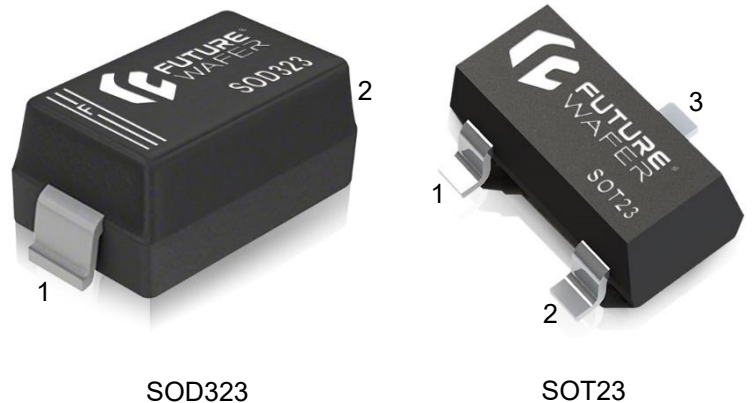
1. Synopsis

1-1. Feature List

- Fast Switching Speed
- For High-Speed Switching Application
- Ultra Small Surface Mount Package

1-2. Mechanical Characteristics

- Molded JEDEC Package: SOD323 / SOT23
- Packing: Tape and Reel
- Flammability rating UL 94V-0
- Halogen Free
- JEDEC MSL Classification: Level 1



1-3. Device Characteristics

Maximum Ratings@25°C Unless Otherwise Specified

Parameter	Symbol	BAV19	BAV20	BAV21	Units
Peak Repetitive Reverse Voltage	V_{RRM}	120	200	250	V
Working Peak Reverse Voltage	V_{RWM}	100	150	200	
DC Reverse Voltage	V_R	100	150	200	
Non-repetitive Peak Reverse Voltage	$V_{R(RMS)}$	71	106	141	
Forward Continuous Current	I_{FM}	250			mA
Non-repetitive Peak Forward Surge Current	@ $T = 1.0\mu s$	9.0			A
	@ $T = 10ms$	1.7			
Power Dissipation	P_D	200			mW
Thermal Resistance, Junction-Ambient Air	$R_{\theta JA}$	625			°C/W
Operating and Storage Temperature	T_J	-65 ~ +150			°C
	T_{STG}				

1-4. Electrical Characteristics

Parameter	Symbol	Condition	Min.	Max.	Units	
Reverse Breakdown Voltage	V_{BR}	$I_R = 100nA$	BAV19	120	-	V
			BAV20	200	-	
			BAV21	250	-	
Forward Voltage	V_F	$I_F = 100mA$	-	1.00		
		$I_F = 200mA$	-	1.25		
Reverse Leakage Current	I_R	@ V_{BR}	-	100	nA	
Reverse Recovery Time	t_{rr}	$I_F = I_R = 30mA$	-	50	nS	
Junction Capacitance	$C_{I/O}$	Diode Capacitance $V_{dc} = 0V, f = 1MHz$	-	5.0	pF	

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3. Ratings and Characteristics Curve (TA=25°C Unless Otherwise Noted)

Fig 1. Power Derating Curve

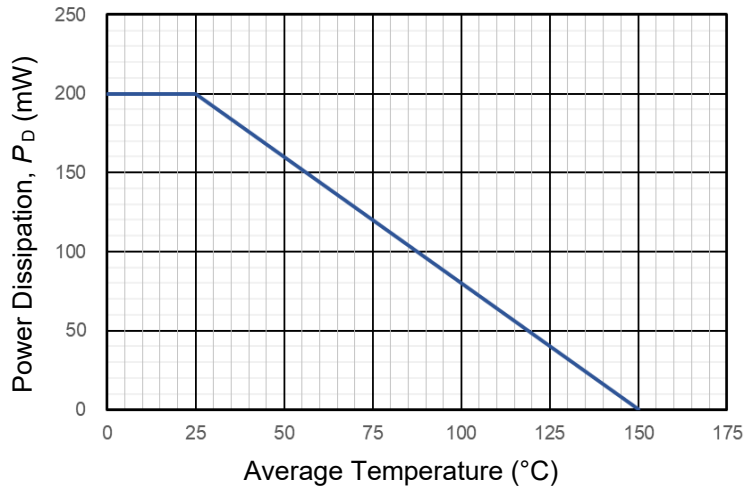


Fig 2. Forward Voltage V_F vs. I_F

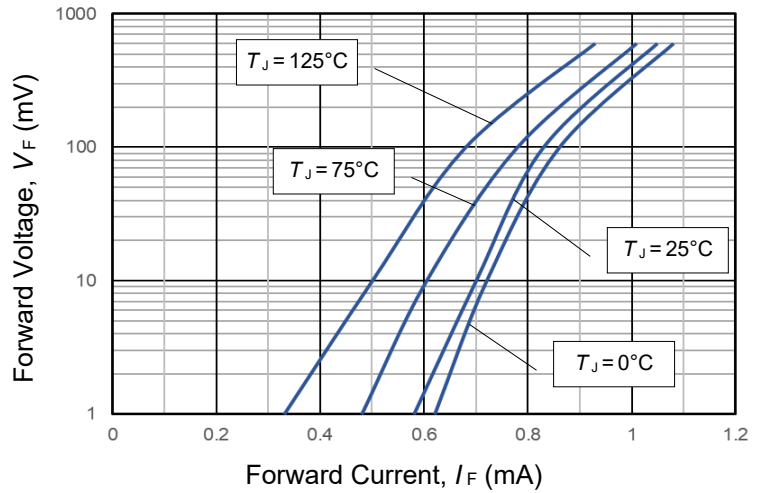


Fig 3. Typical Reverse Current Characteristics

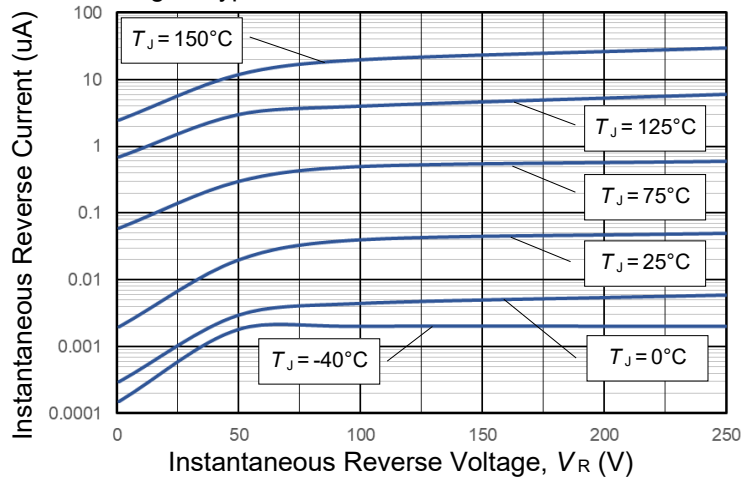


Fig 4. Total Capacitance vs. V_R

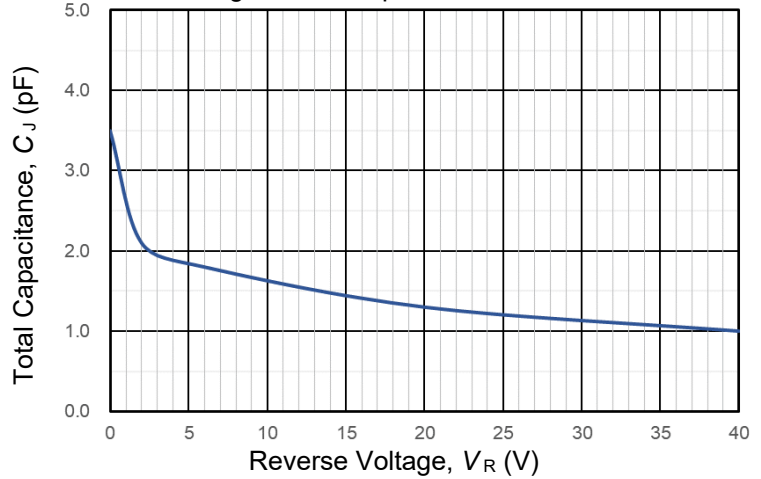
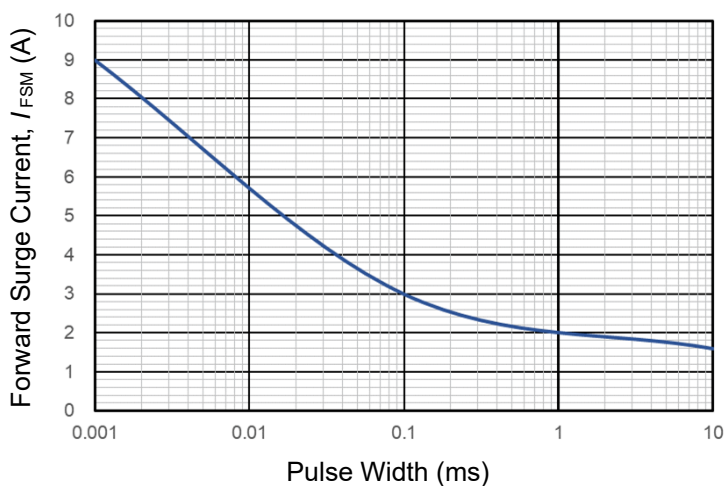


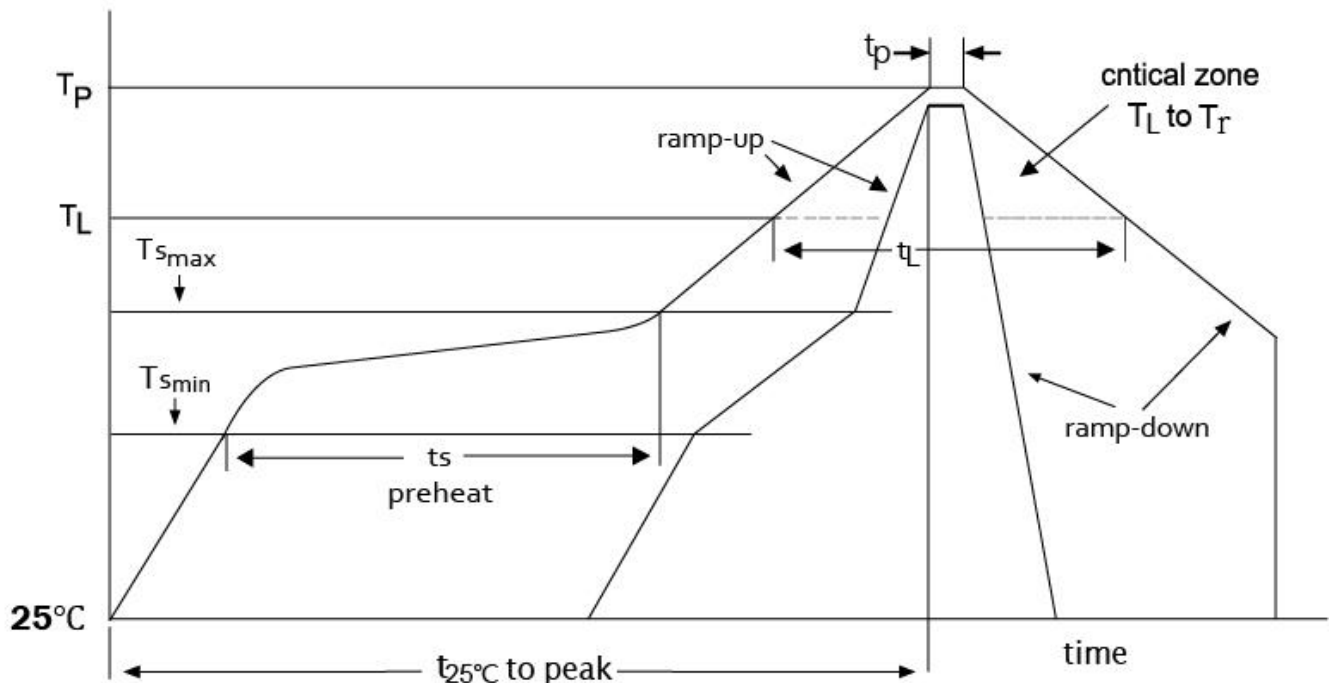
Fig 5. Maximum Non-repetitive Surge Current



4. Soldering Parameters

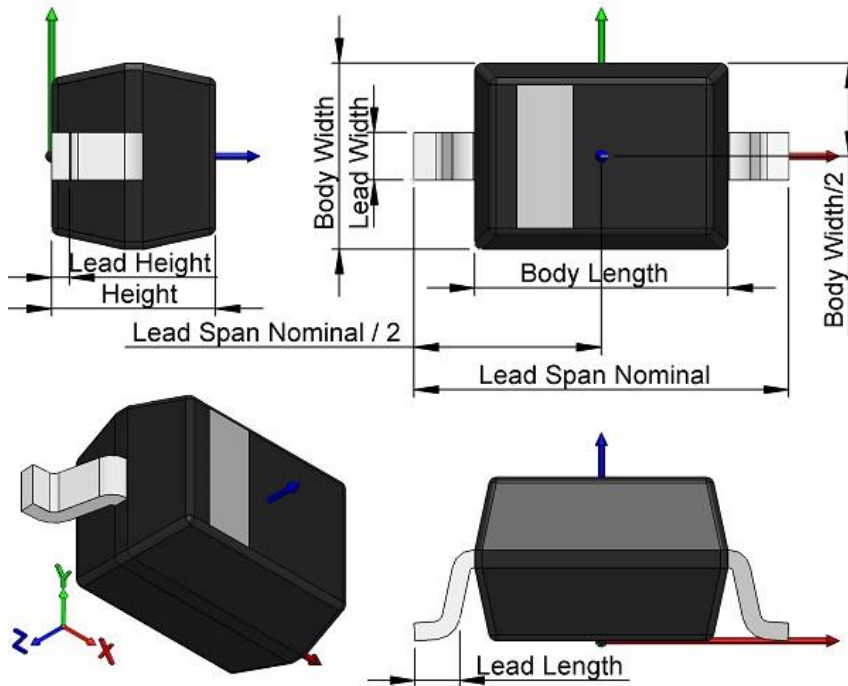
Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T _{smax} to T _p)	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (T _{smin})	100 °C	150 °C
Temperature maximum (T _{smax})	150 °C	200 °C
Time (t _{smin} to t _{smax})	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (T _L)	183 °C	217 °C
Time (t _L)	60 s to 150 s	60 s to 150 s
Peak/classification temperature (T)	235 °C	260 °C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (t _p)	10 s to 30 s	20 s to 40 s
Ramp-down rate	6 °C/s maximum	6 °C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum

temperature



5. Package Information

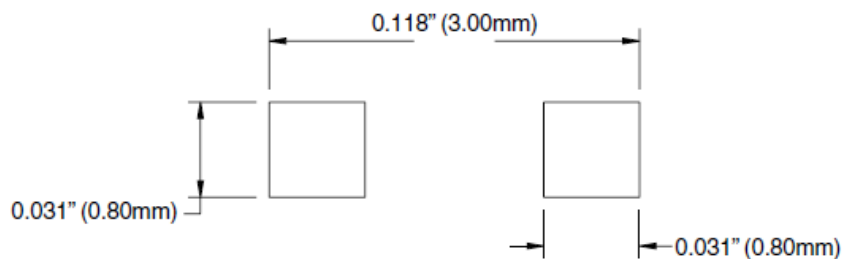
5-1. Dimension-SOD323



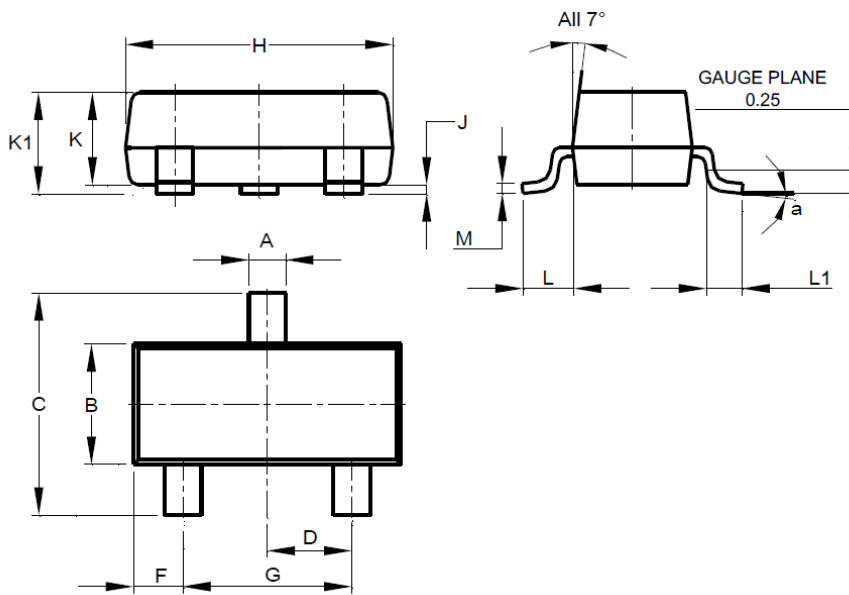
SOD323

DIM	Millimeters	
	Min.	Max.
Body Length	1.60	1.90
Body Width	1.15	1.45
Lead Span Nominal	2.39	2.70
Height	0.80	1.10
Lead Width	0.25	0.40
Lead Height	0.10	0.20
Lead Length	0.20	0.40

5-2. PCB Pad Layout Recommendation-SOD323



5-3. Dimension-SOT23

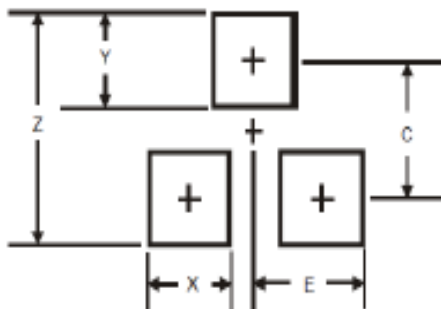


SOT23

Dim	Min.	Max.	Typ.
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.05	0.975
K1	0.903	1.15	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		

Unit:mm

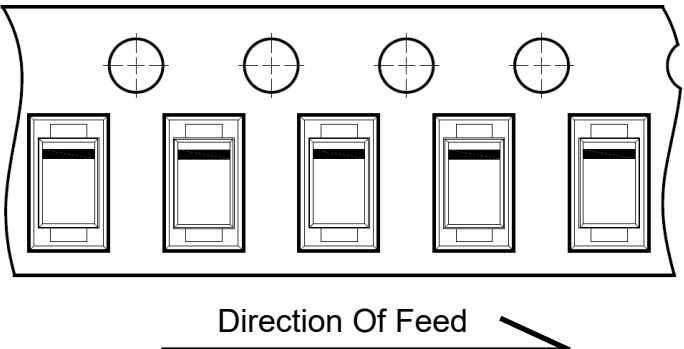
5-4. PCB Pad Layout Recommendation-SOT23



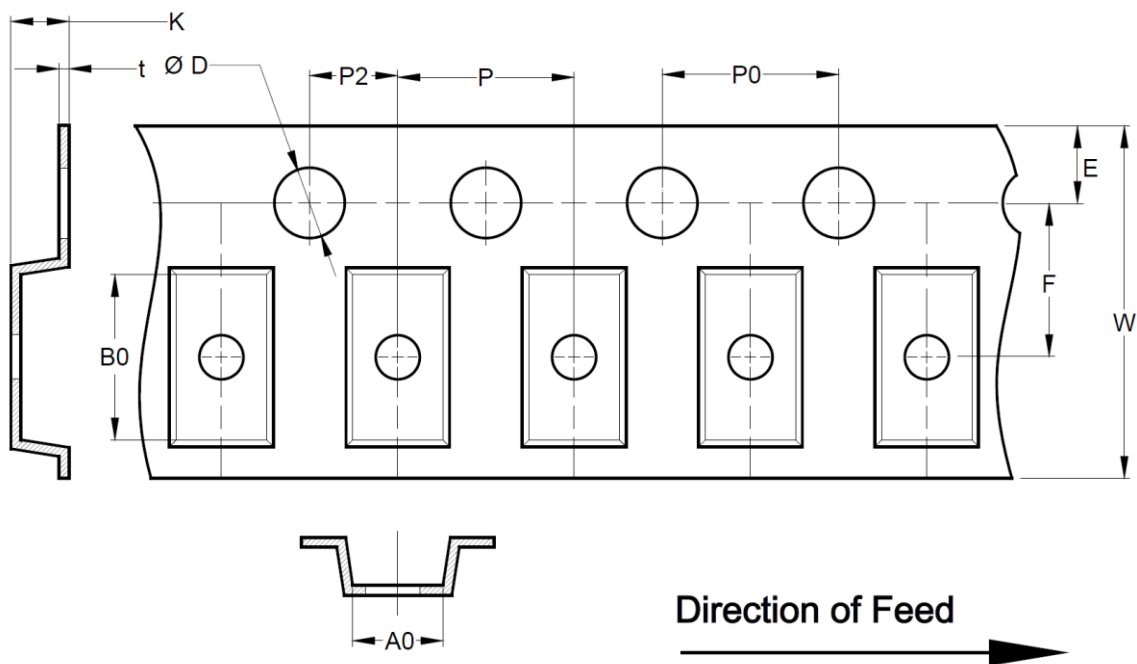
Dim	Millimeter
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

6. Packing

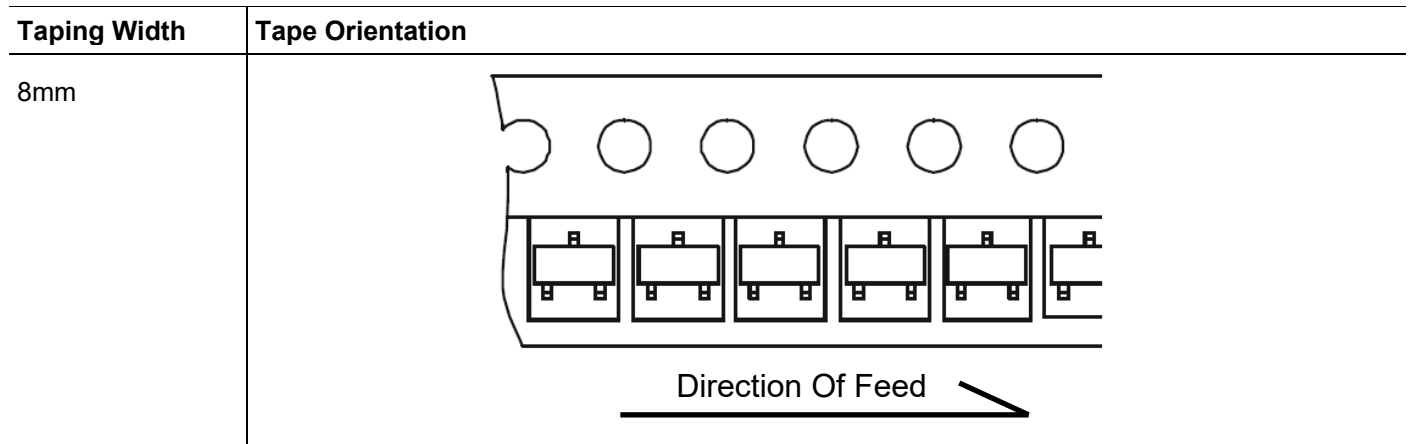
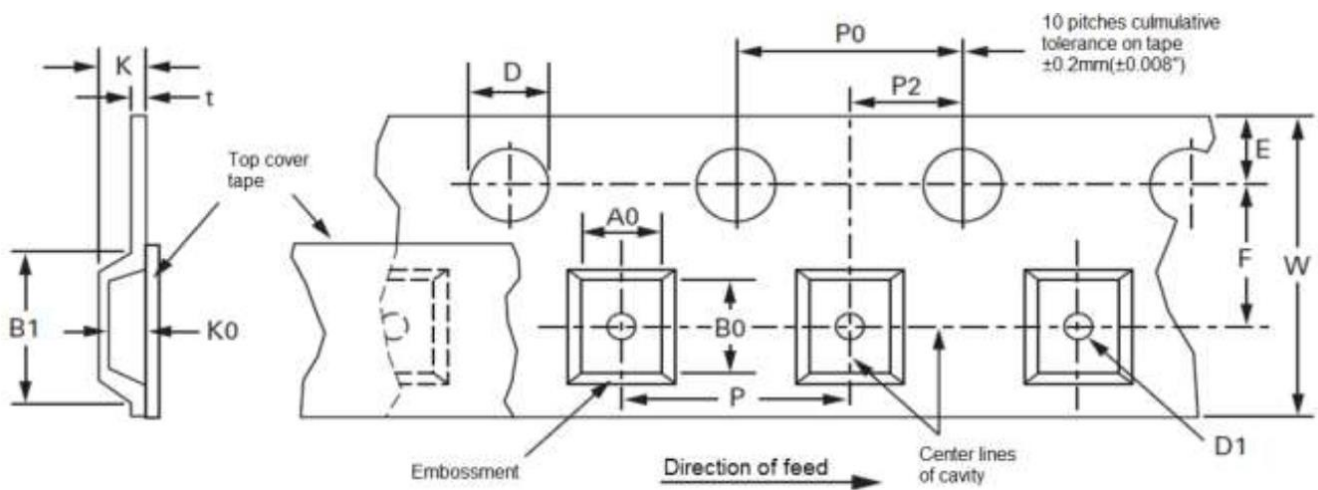
6-1. Taping and Reel Specification-SOD323

Taping Width	Tape Orientation
8mm	

6-2. Embossed Carrier Tape Specification-SOD323



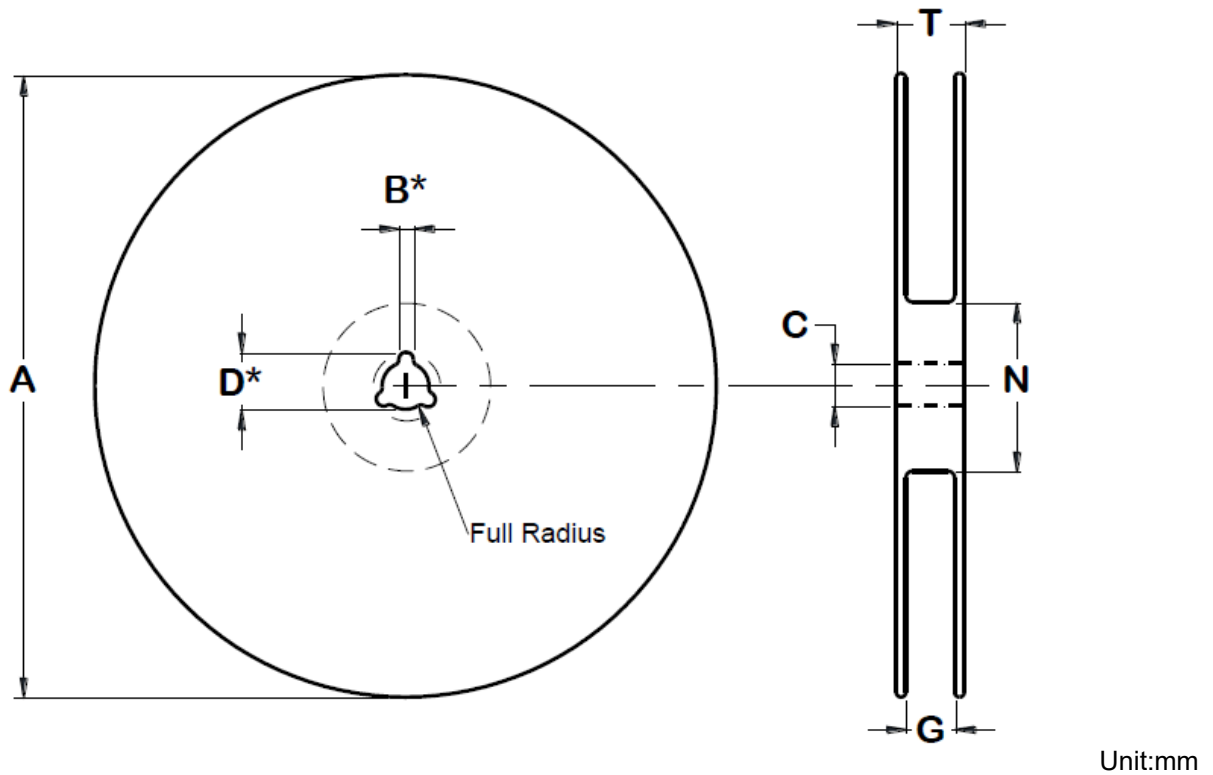
												Unit:mm
Dimension	W	A0	B0	D	E	F	K	P	P0	P2	t	W
Value	8 mm	1.55 ±0.1	2.9 ±0.1	1.5 ±0.1	1.75 ±0.1	3.5 ±0.05	1.35 ±0.1	4.0 ±0.1	4.0 ±0.1	2.0 ±0.05	0.23 ±0.02	8.0 ±0.3
A0 / B0 / K0	Determined by Component Size. The Clearance Between The Component And The Cavity Must Comply to The Rotational and Lateral Movement Requirement Provided in Figures in The "Maximum Component Movement in Tape Pocket" Section.											

6-3. Taping and Reel Specification-SOT23

6-4. Embossed Carrier Tape Specification-SOT23


Unit:mm

Dimension	W	B1	D	D1	E	F	K	P	P0	P2	t	W
Value	8 mm	4.5 Max.	1.5 ±0.10	0.35 min.	1.75 ±0.10	3.5 ±0.05	2.4 Max.	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	0.4 Max.	8.0 ±0.30
A0 / B0 / K0	Determined by Component Size. The Clearance Between The Component And The Cavity Must Comply to The Rotational and Lateral Movement Requirement Provided in Figures in The "Maximum Component Movement in Tape Pocket" Section.											

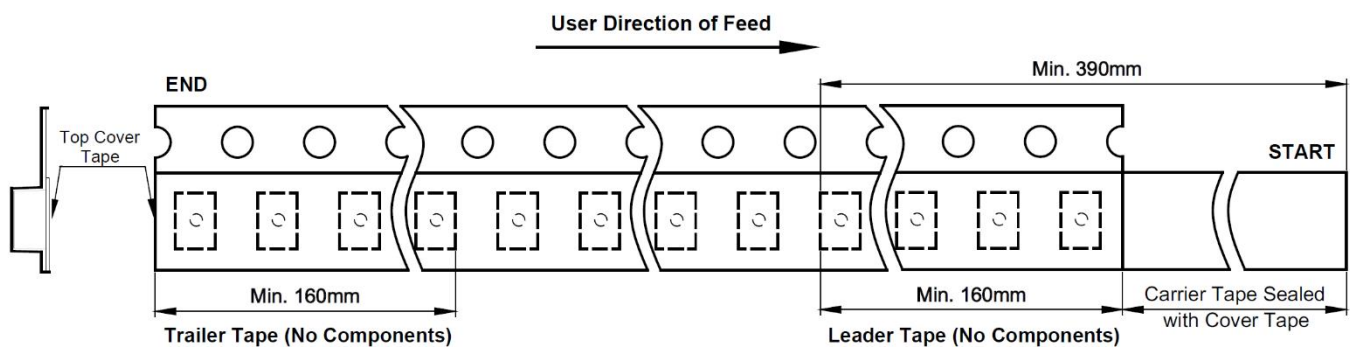
6-5. Surface Mount Reel Specification



Unit:mm

Dimension	Tape Width	Reel Size	A	B	C	D	N	G	T
Value	8 mm	7"	178 ±2	2.0 +0.5-0	13 +0.5-0.2	20.5 ±0.2	55 ±5	8.4 +1.5/ -0.0	14.4

6-6. Tape Leader and Trailer Specification



7. Ordering Information

Part Number	Marking Code	Quantity	Component Package	Packaging Option
BAV19WS	WO9	3,000PCS	SOD323	Tape & Reel- 8mm tape / 7"reel
BAV20WS	WO2			
BAV21WS	WO			
BAV19L	HC		SOT23	
BAV20L	HC			
BAV21L	HC			

8. Version

8-1. History

Version	Date	File No.	Recording	Basis
A	10-Aug-2018	F31835S	New Create	Market
B	13-Aug-2019		Update Company Info.	System
2.0	11-Oct-2021		Update Version	System
2.1	29-Nov-2021		Update Version	System