

1. Synopsis

1-1. General Description

These Devices Employ The Schottky Barrier Principle in a Metal-to-Silicon Power Rectifier. Features Epitaxial Construction With Oxide Passivation and Metal Overlay Contact. Ideally Suited For Low Voltage, High Frequency Switching Power Supplies; Free Wheeling Diodes and Polarity Protection Diodes.

1-2. Feature List

- High Surge Current Capability
- Low Power Loss, High Efficiency
- Highly Stable Oxide Passivated Junction
- Low Forward Voltage Drop

1-3. Applications

- For Use In Low Voltage High Frequency Inverters, Freewheeling, DC/DC Converters, and Polarity Protection Applications.

1-4. Benefits

- Essentially No Switching Losses
- Higher Efficiency
- Reduction Of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway
- Higher System Reliability Due To Lower Operating Temperatures

1-5. Mechanical Characteristics

- Molded JEDEC Package:
 - SOD-123FL
 - SMAJ
 - SMAF
 - SMBJ
- Packing: Tape and Reel
- Flammability rating UL 94V-0
- Halogen Free
- JEDEC MSL Classification: Level 1



SOD-123FL



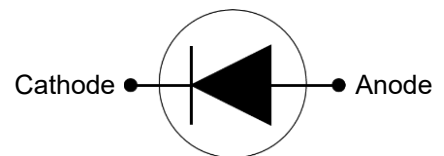
SMAJ



SMAF



SMBJ



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3. Electrical Property

3-1. Absolute Maximum Ratings

Maximum Ratings@25°C Unless Otherwise Specified					
Parameter	Symbol	Values			Units
		SS34	SS36	SS310	
Peak Reverse Voltage	V_{RRM}	40	60	100	V
Reverse Voltage	V_R				
Average Forward Current	I_F	3			A
Non-Repetitive Peak Forward Current (tp≤8.3ms)	I_{FSM}	100			
Operating Temperature	T_J	-55 ~ +150			°C
Storage Temperature	T_{STG}				

3-2. Electrical Characteristics (TA=25°C)

Maximum Ratings@25°C Unless Otherwise Specified						
Parameter	Symbol	Condition	Values			Units
			SS34	SS36	SS310	
Reverse Leakage Current	I_R	$T_A = 25^\circ\text{C}$	0.1			mA
		$T_A = 125^\circ\text{C}$	2.4			
Forward Voltage	V_F	$I_F = 3.0\text{A}$	0.50	0.70	0.85	V

3-3. Ratings and Characteristics Curve (TA=25°C unless otherwise noted)

Fig 1. Maximum Forward Current Derating Curve

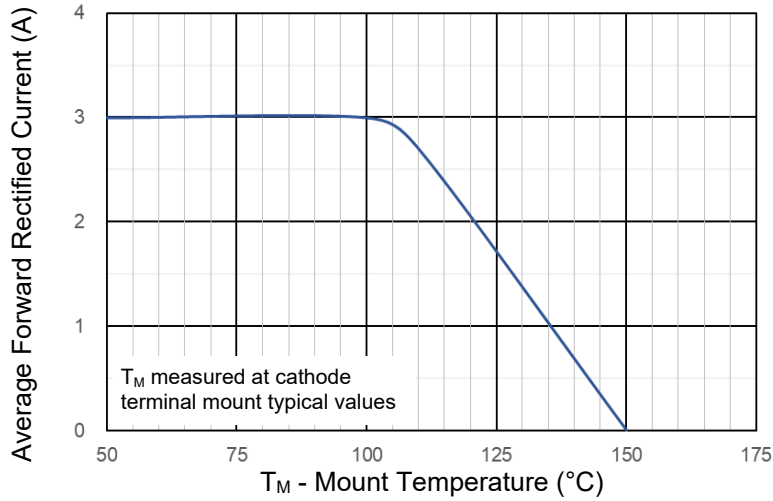


Fig 2. Typical Instantaneous Forward Characteristics

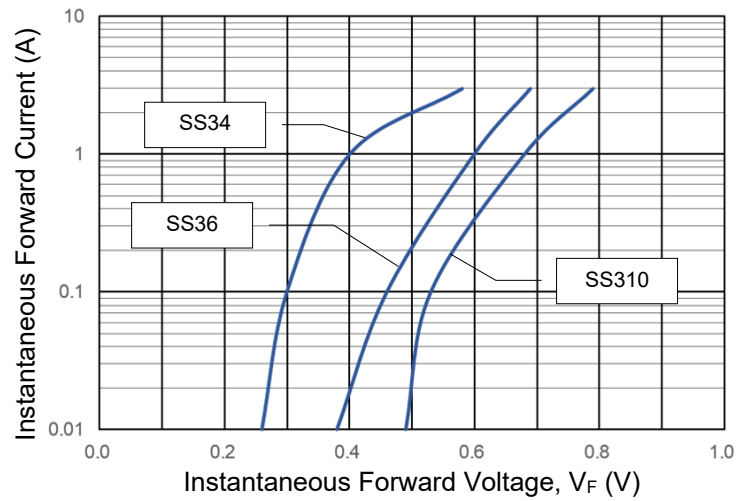


Fig 3. Typical Reverse Current Characteristics

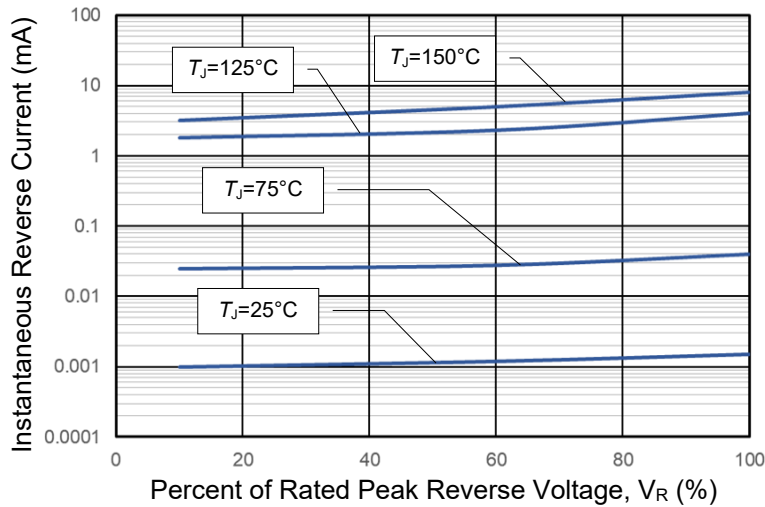
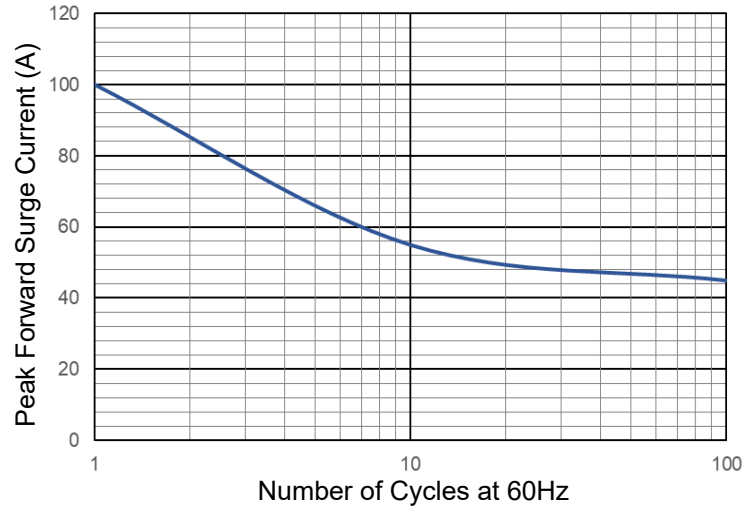


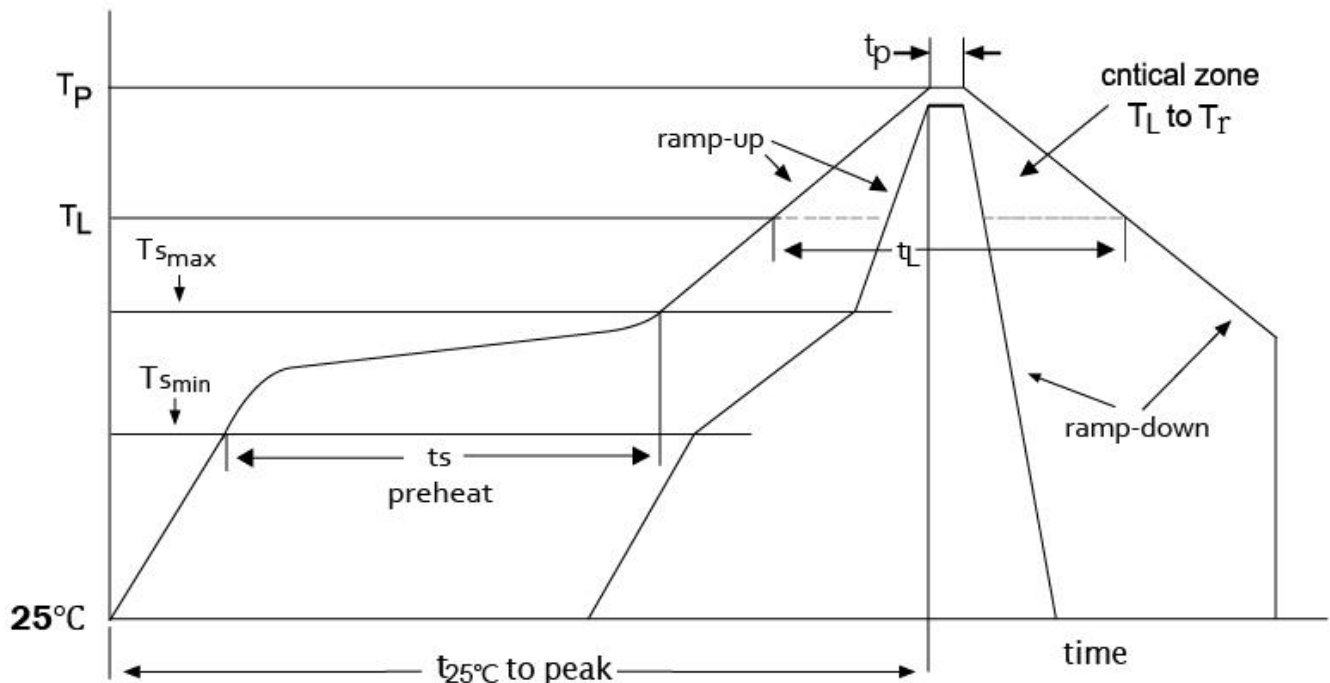
Fig 4. Maximum Non-Repetitive Forward Surge Current



4. Soldering Parameters

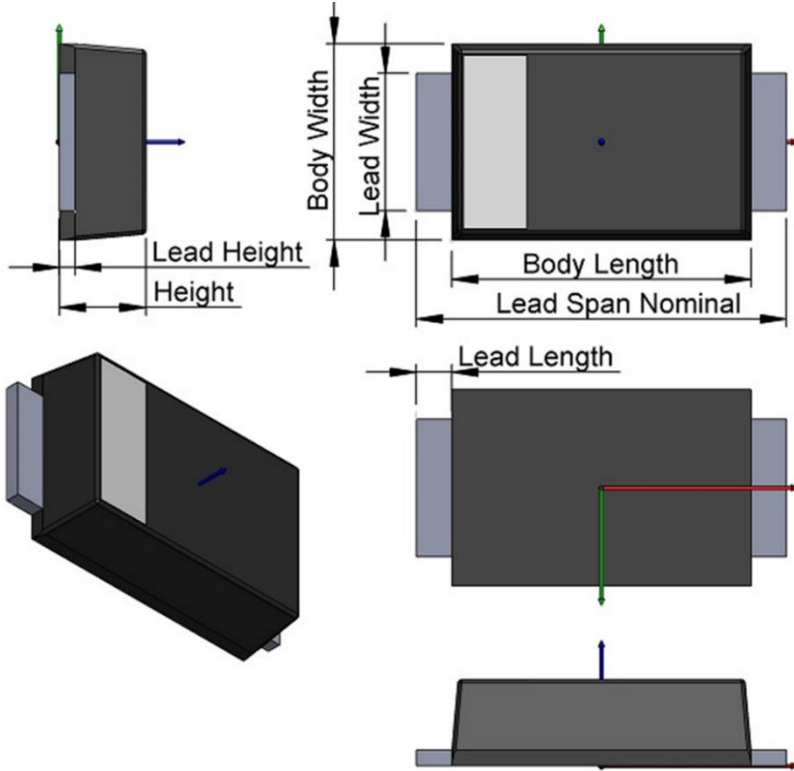
Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T _{smax} to T _p)	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (T _{smin})	100 °C	150 °C
Temperature maximum (T _{smax})	150 °C	200 °C
Time (t _{smin} to t _{smax})	60 s to 120 s	60 s to 180 s
Time maintained 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

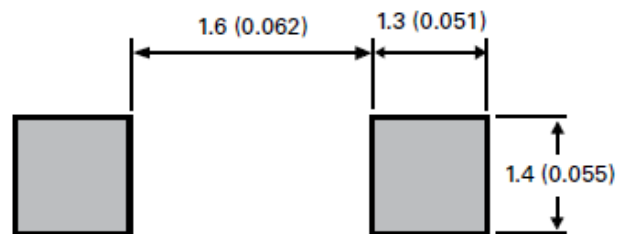
5-1. Dimension-SOD-123FL



SOD-123FL (mm)

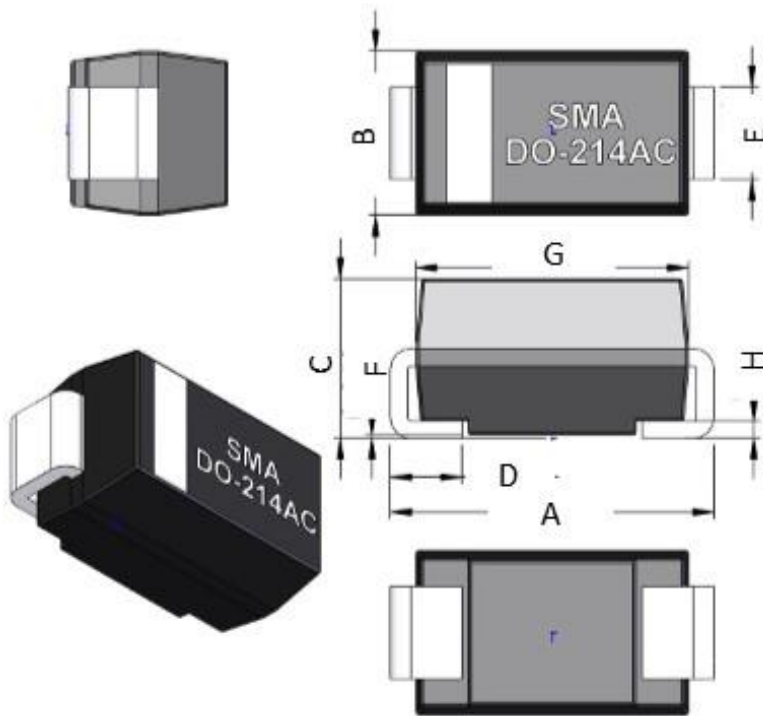
Dim	Min	Max
Body Length	2.60	3.00
Lead Span Nominal	3.50	3.90
Lead Width	0.70	1.20
Body Width	1.65	1.95
Height	0.8	1.45
Lead Height	0.195	0.205
Lead Length	0.35	0.60

5-2. PCB Pad Layout Recommendation-SOD-123FL



Unit: mm(inch)

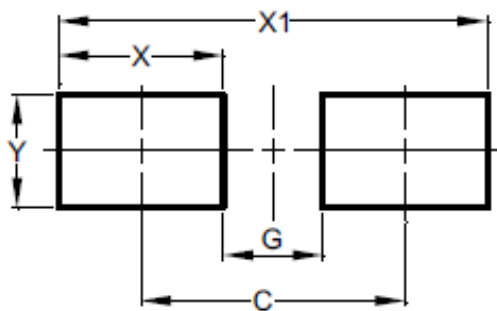
5-3. Dimension-SMAJ



SMAJ		
Symbol	Min.	Max.
A	4.75	5.25
B	2.55	2.85
C	2.00	2.50
D	0.85	1.55
E	1.35	1.65
F	-	0.40
G	4.25	4.55
H	0.15	0.30

Unit:mm

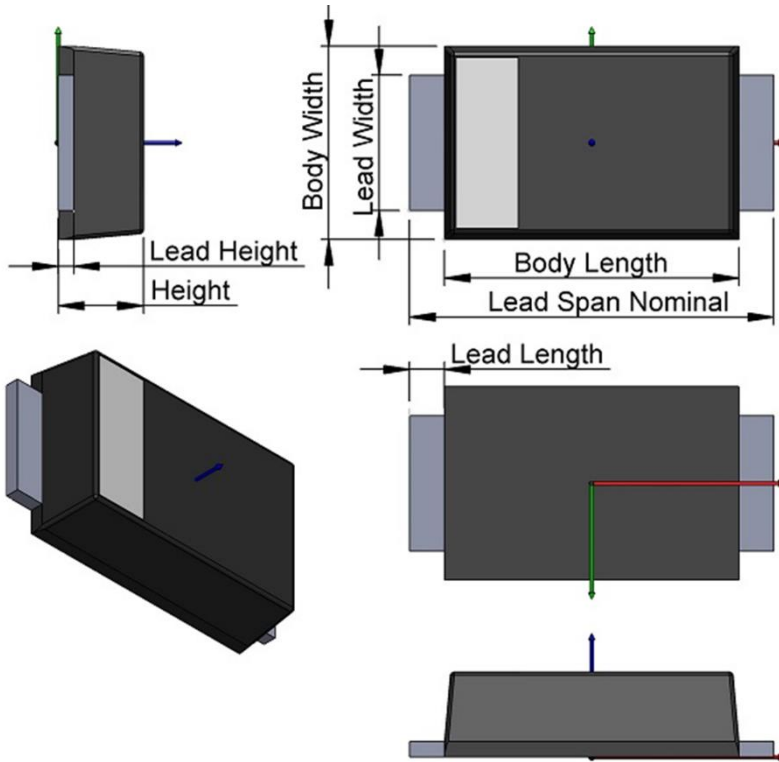
5-4. PCB Pad Layout Recommendation-SMAJ



SMAJ	
Symbol	Values
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

Unit:mm

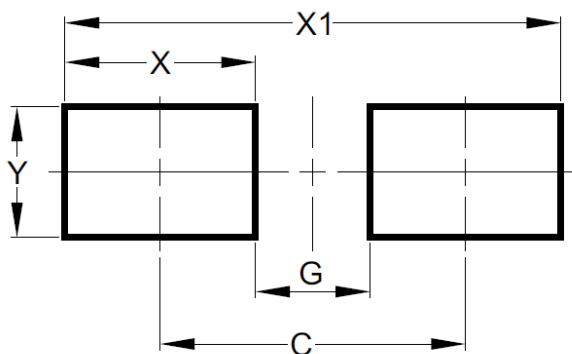
5-5. Dimension-SMAF



Slim-SMAF		
Dim	Min.	Max.
Body Length	3.30	3.60
Lead Span Nominal	4.50	4.70
Lead Width	1.35	1.45
Body Width	2.55	2.65
Height	0.90	1.30
Lead Height	0.13	0.17
Lead Length	0.70	0.85

Unit:mm

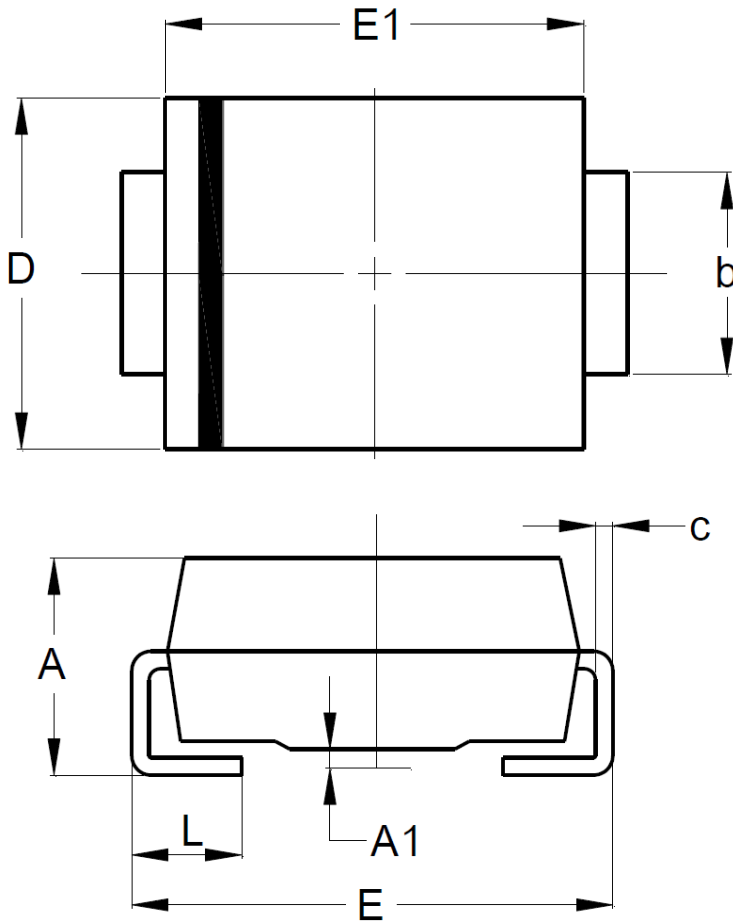
5-6. PCB Pad Layout Recommendation-SMAF



Slim-SMAF	
Dim	Values
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

Unit:mm

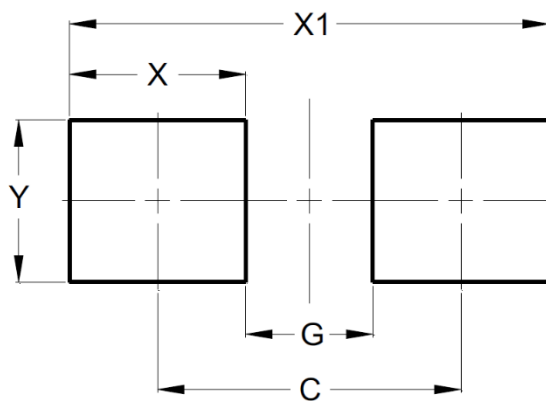
5-7. Dimension-SMBJ



SMBJ		
Dim	Min.	Max.
A	2.00	2.60
A1	0.05	0.20
b	1.85	2.20
c	0.15	0.31
D	3.30	3.94
E	5.00	5.59
E1	4.05	4.75
L	0.76	1.52

Unit:mm

5-8. PCB Pad Layout Recommendation-SMBJ

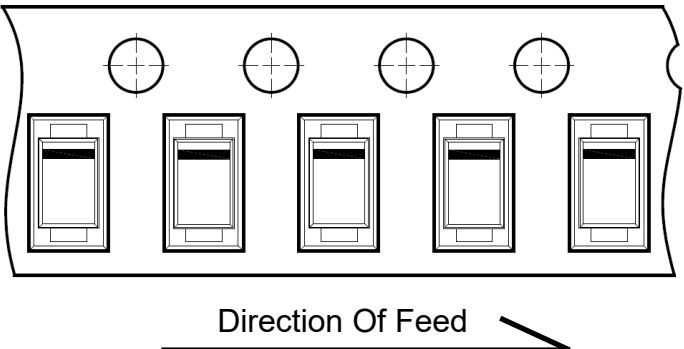


SMBJ	
Symbol	Values
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

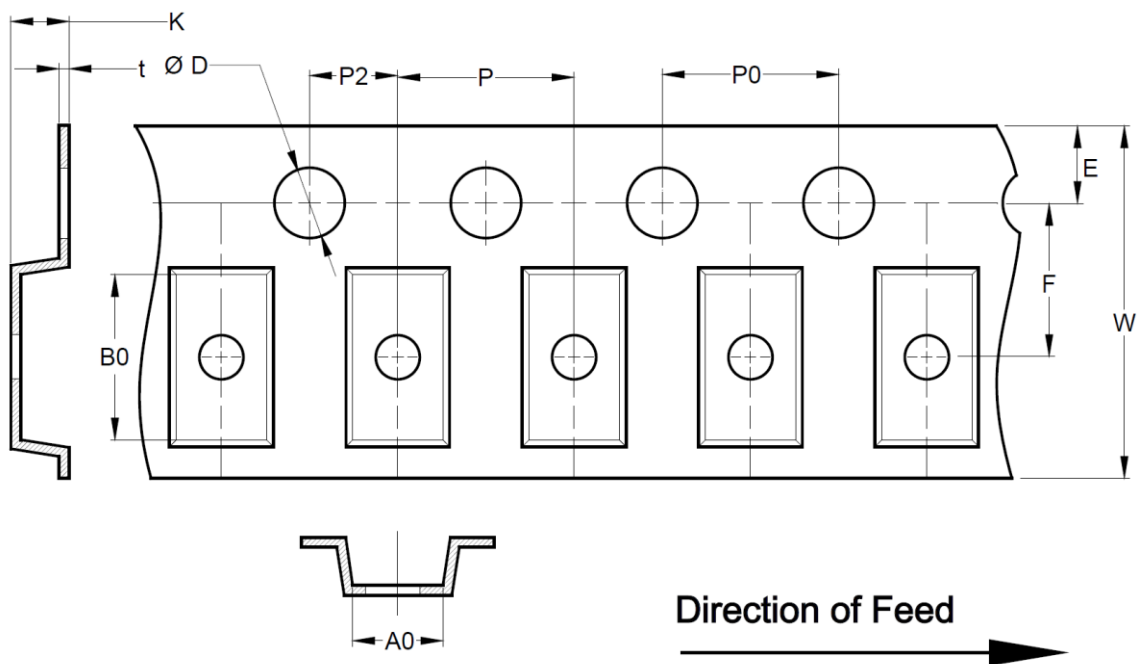
Unit:mm

6. Packing

6-1. Taping and Reel Specification-SOD-123FL

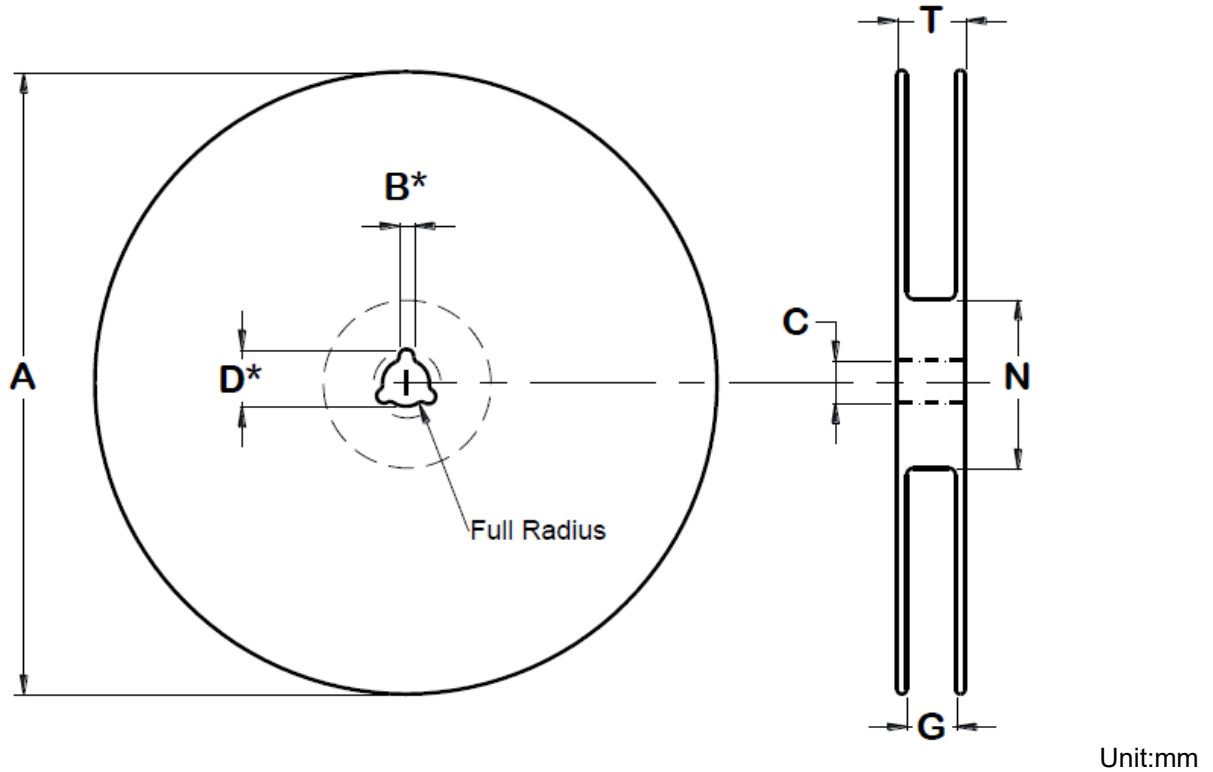
Taping Width	Tape Orientation
8mm	

6-2. Embossed Carrier Tape Specification-SOD-123FL



Dimension	W	A0	B0	D	E	F	K	P	P0	P2	t	W
Value	8 mm	2.05 ±0.10	3.75 ±0.20	1.50 ±0.10	1.75 ±0.10	3.5 ±0.05	1.32 ±0.10	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	0.23 ±0.02	8 +0.3/-0.1
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.											

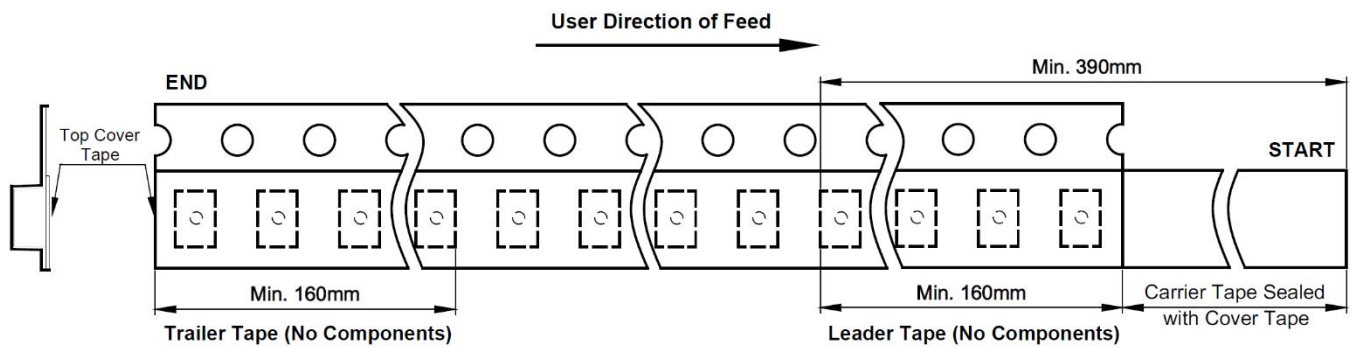
6-3. Surface Mount Reel Specification-SOD-123FL

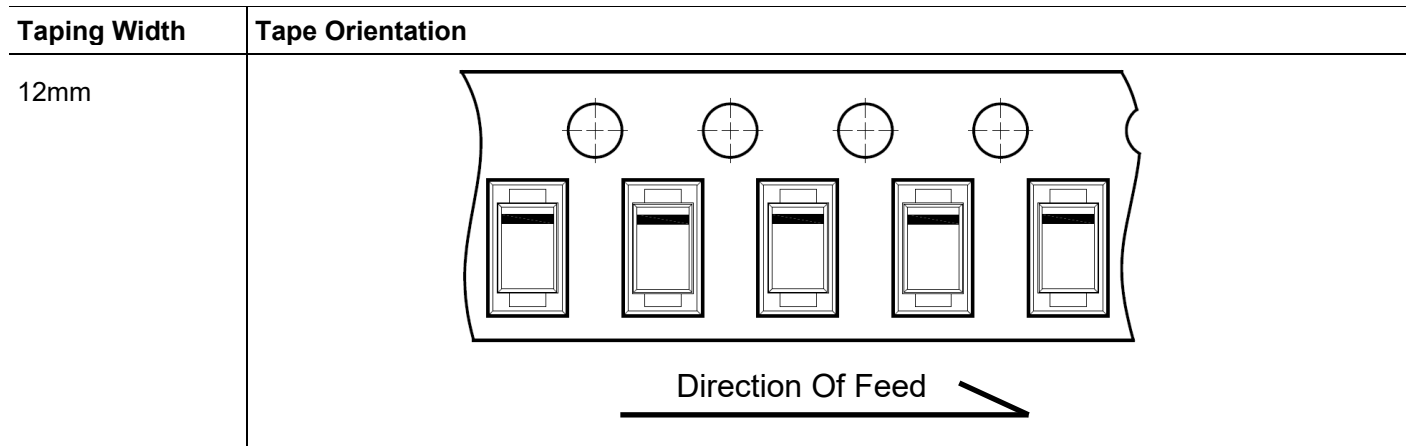
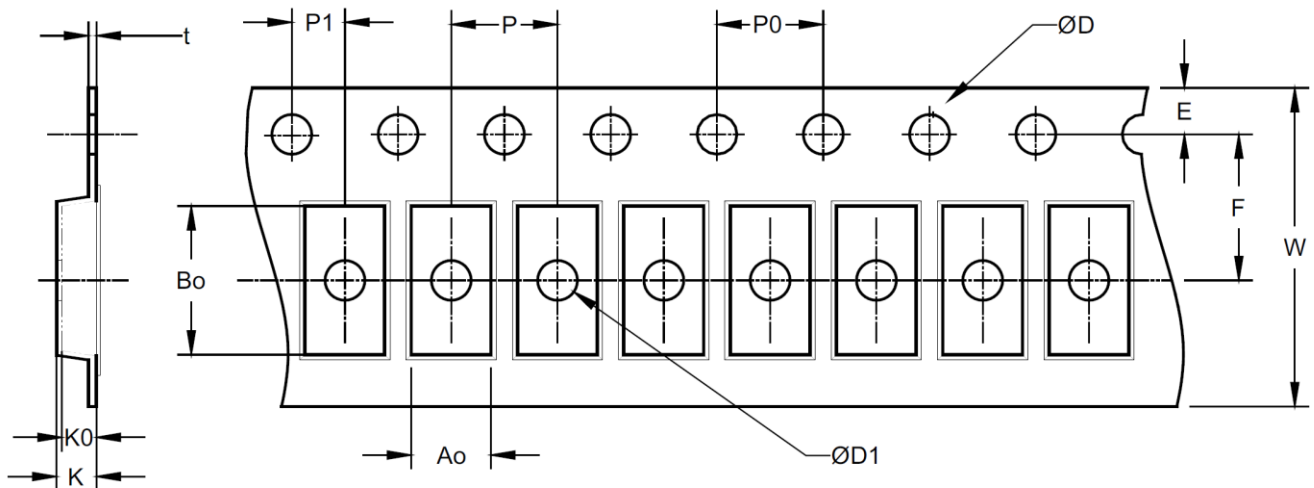


Unit:mm

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

6-4. Tape Leader and Trailer Specification-SOD-123FL

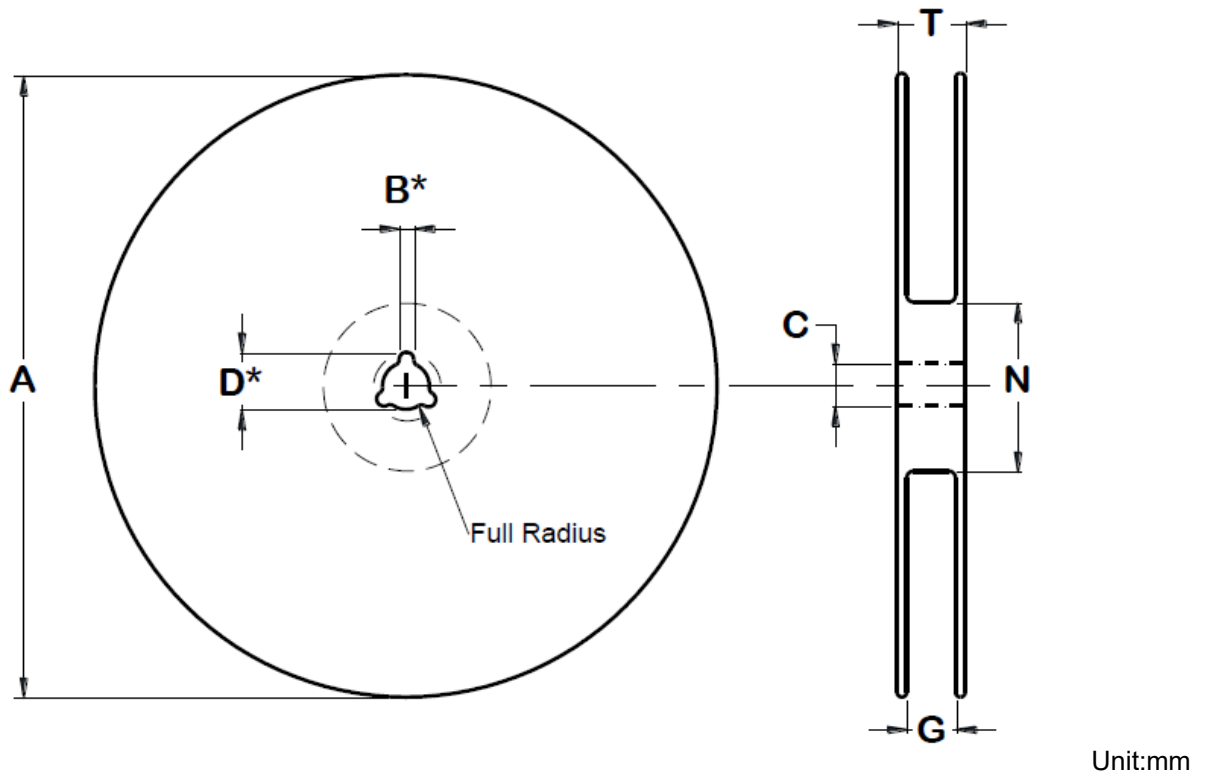


6-5. Taping and Reel Specification-SMAJ / SMAF / SMBJ

6-6. Embossed Carrier Tape Specification-SMAJ / SMAF / SMBJ


Unit:mm

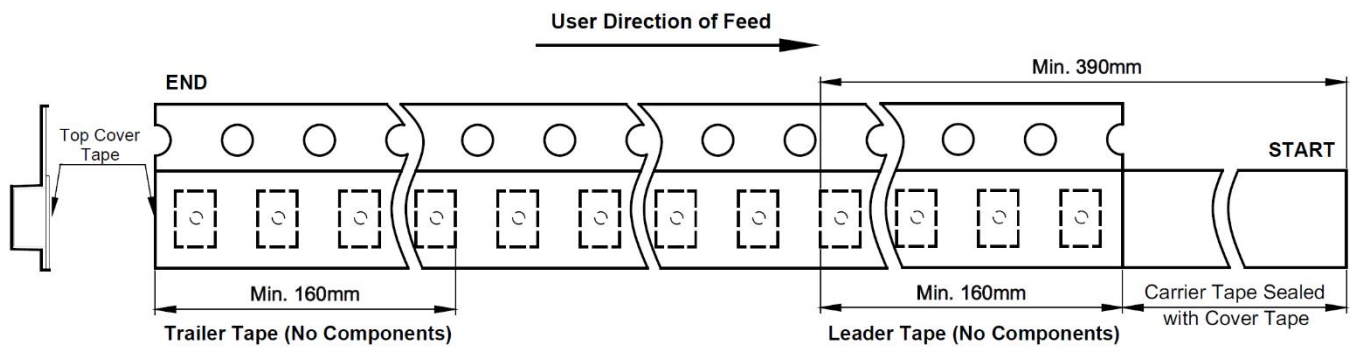
Dimension	W	Ao	Bo	D	D1	E	F	K	P	P0	P1	t	W
Value	12 mm	3.0 ±0.10	5.6 ±0.10	1.5 ±0.10	1.5 Min	1.75 ±0.10	5.5 ±0.05	1.2 ±0.10	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	0.25 ±0.05	12 ±0.2
A0 / B0 / K0	Determined by Component Size. The Clearance Between the Component And The Cavity Must Comply to The Rotational And Lateral Movement Requirement Provided in Figures in The "Maximum Component Movement in Tape Pocket" Section.												

6-7. Surface Mount Reel Specification-SMAJ / SMAF / SMBJ



Dimension	Tape Width	Reel Size	A	B	C	D	N	G	T
Value	12 mm	13"	330 ±2	2.0 +0.5-0	13 +0.5-0.2	20.5 ±0.2	100 ±2	12.4 +2.0 -0.0	18.4

6-8. Tape Leader and Trailer Specification-SMAJ / SMAF / SMBJ



7. Ordering Information

Part Number	Marking Code	Quantity	Component Package	Packaging Option
SS34FL	S34	3,000 PCS	SOD-123FL	7" Reel
SS36FL	S36			
SS310FL	S310			
SS34A	SS34A	5,000 PCS	SMAJ	13" Reel
SS36A	SS36A			
SS310A	SS310A			
SS34AF	34F / .SS34		SMAF	
SS36AF	36F / .SS36			
SS310AF	310F / .SS310			
SS34B	S34	3,000 PCS	SMBJ	
SS36B	S36			
SS310B	S310			

8. Version

8-1. History

Version	Date	File No.	Recording	Basis
A	06-May-2018	F41808N	New Create	Market
B	13-Jun-2019		Update Company Info.	System
2.0	13-Apr-2021		Update Version	System
2.1	30-Sep-2021		Update Version	System
2.2	06-Oct-2021		Update Version	System
2.3	17-Mar-2022		Update I _R Values	Engineer