

SAW Filter Supplemental Information

This document defines additional information relating to COM DEV Surface mount SAW Filters:

- RoHS, ELV and WEEE Compliance.
- Tape and Reel Packaging.
- Handling Precautions.
- Solder Mount / Assembly Recommendations.
- Reliability / Qualification Environments.

RoHS, ELV and WEE Compliance

In response to worldwide demand for environmentally responsible products, COM DEV has elected to adopt RoHS (Restriction of Hazardous Substances) as the common standard to be applied when assessing our products' material content.

All COM DEV SAW filters designed for surface mounting and packaged ceramic SMT style packages are considered compliant to:

- RoHS - Restriction of Hazardous Substances - European Union directive 2002/95/EC.
- ELV - End of Life-Vehicle - European Union directive 2000/53/EC.
- WEEE - Waste Electrical and Electronic Equipment - European Parliament and Council Directive on Waste Electrical and Electronic Equipment directive 2002/96/EC.

Specifically, a part family will be RoHS compliant if all ratings within that part family meet the following criteria:

- <0.1% by weight of Mercury
- <0.1% by weight of hexavalent Chromium
- <0.1% by weight of PBB (polyBrominated Biphenyl)
- <0.1% by weight of PBDE (PolyBrominated Diphenyl Ether)
- <0.01% by weight of Cadmium
- and <0.1% by weight of Lead



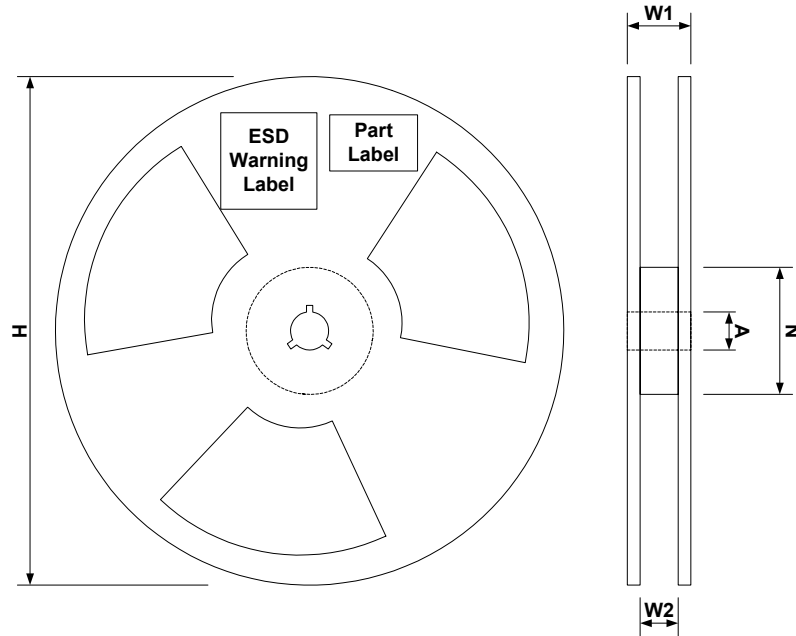
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Tape and Reel Packaging

The following shall be used unless specified on the purchase order.

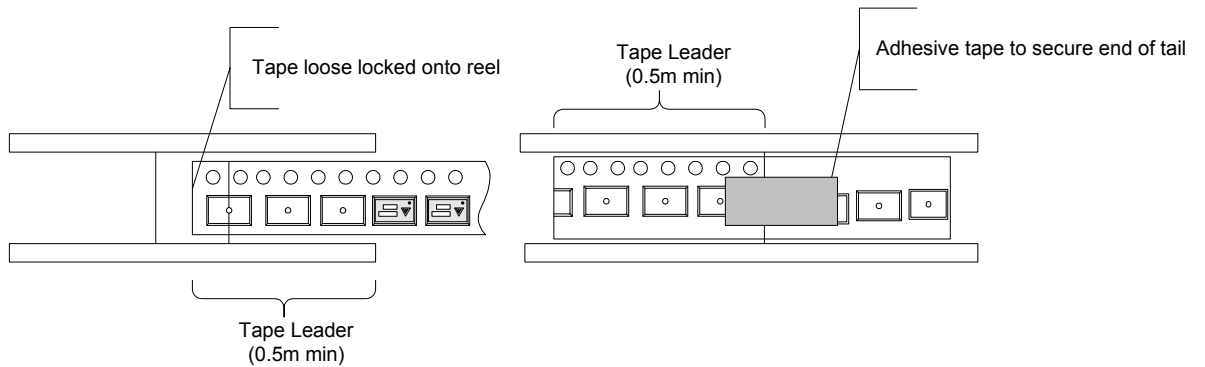
Reel Dimensions



H	A	N	W1	W2
13" (330mm)	1/2" (13mm)	4" (100mm)	W1+ 0.08" (+4mm)	See applicable tape width dimension

Note : 7" diameter reel sizes may be used for small quantities (<1000)

Leader Tapes and Tape Winding Direction

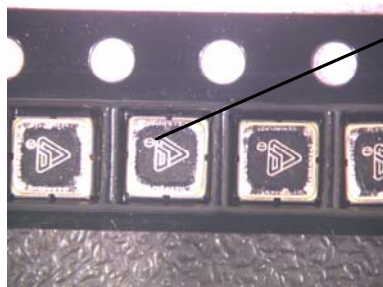


Tape Wind Direction - Viewed from above

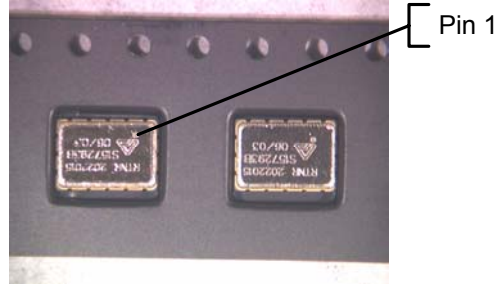
Device Orientation

Pin 1 is oriented to be closest to the tape indexing holes.

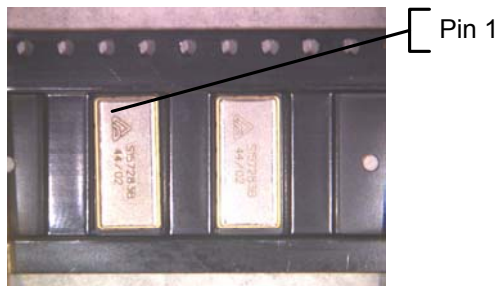
The following examples indicate device orientation within alternative tape formats.



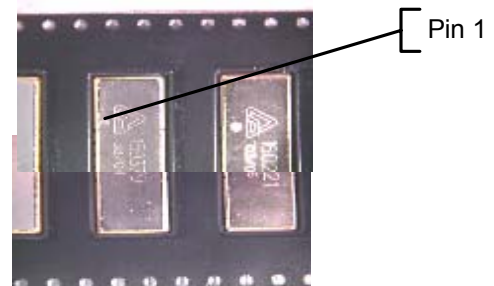
Square packages



Devices along the tape



Devices across the tape



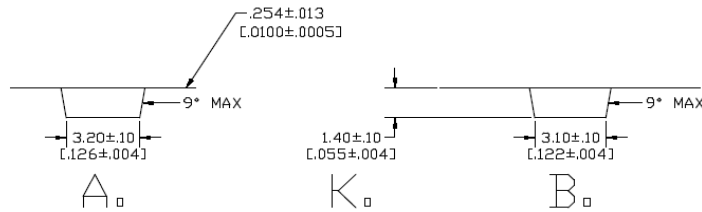
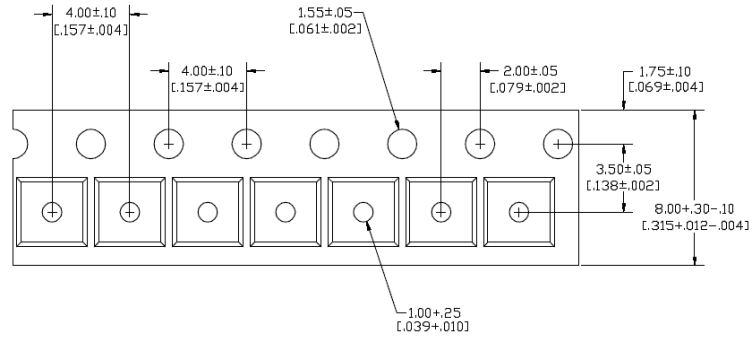
Devices using double flanged tape

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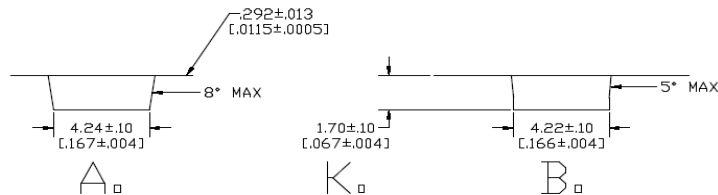
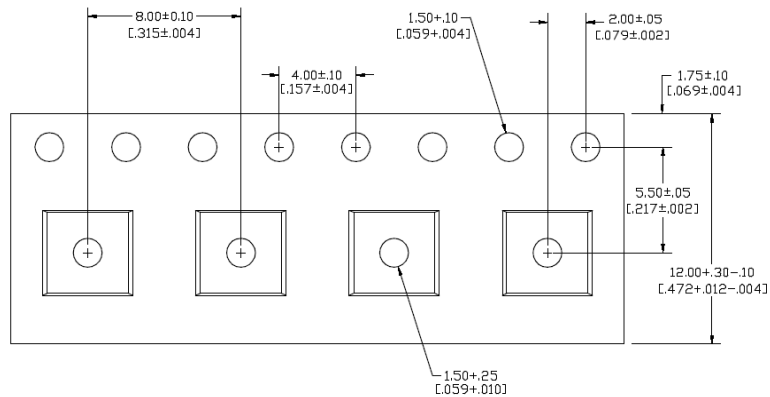
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Tape dimensions— all dimensions are millimetres (Inches)

SM3030 (3mm) SAW Packages



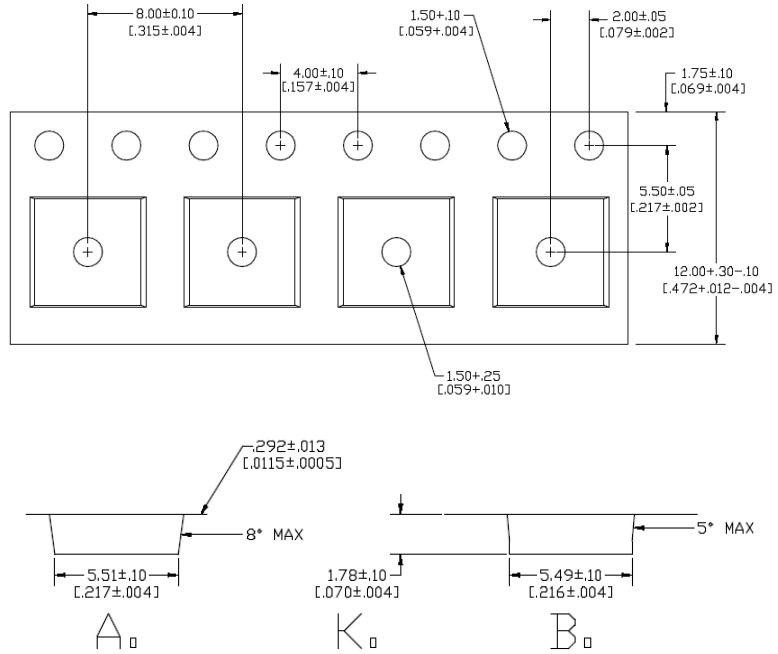
SM3838 (3.8mm) SAW Packages



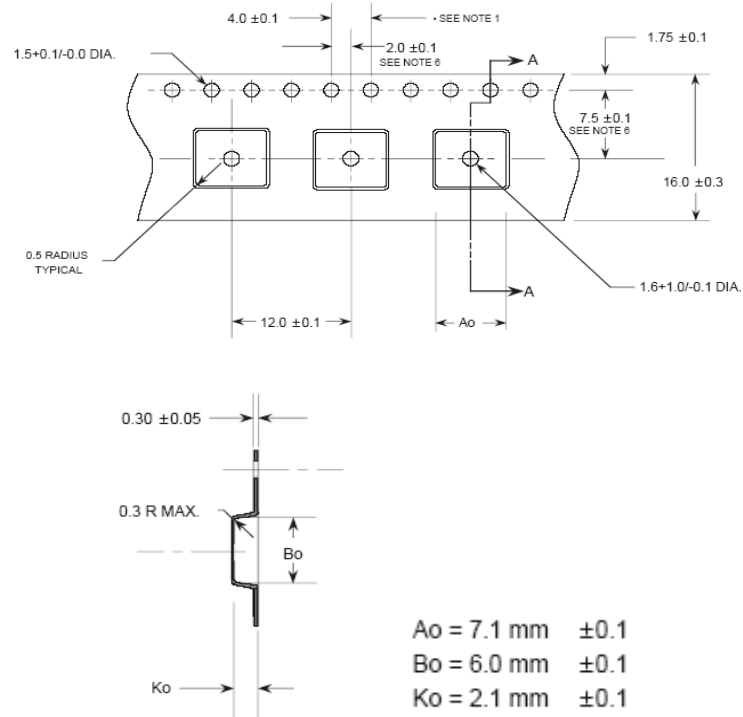
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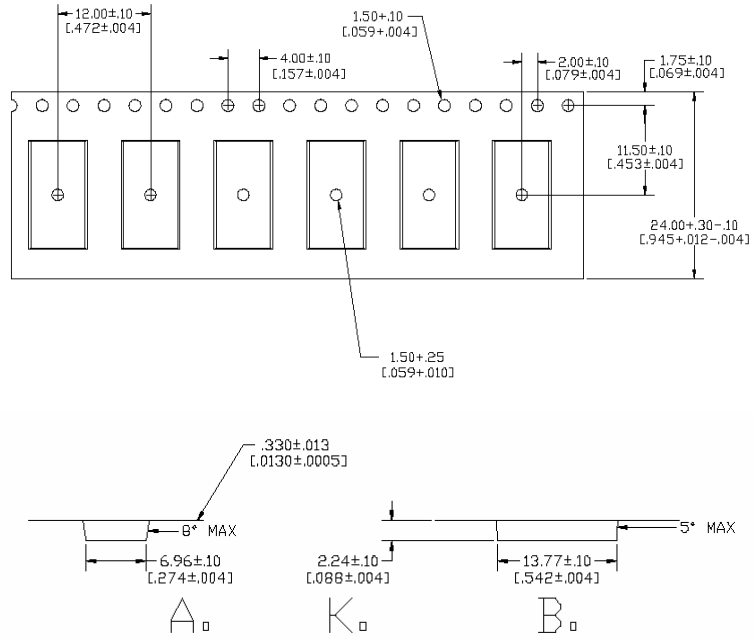
SM5050 (5mm) SAW Packages



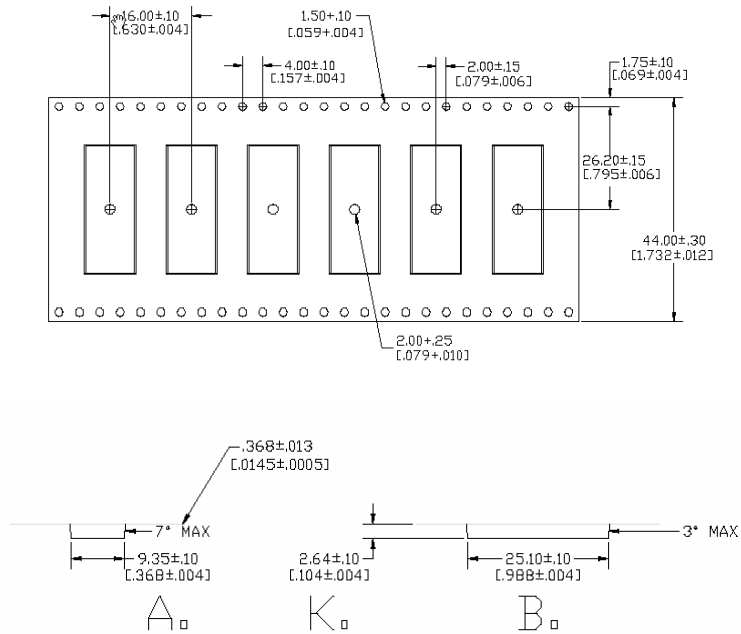
5 x 7mm SAW Packages



SM13065 (13mm) SAW Packages



SM24690 (24mm) SAW Packages



Shipping Packaging and Identification

Reel Identification



Each reel contains a minimum of one ESD warning label and one Identification Label



Label Contents

Labels typically contain the following information:

- COM DEV Logo
- Device Description
- Part No.
- Date Code
- Batch No.
- Quantity

Internal Packaging

Reels are vacuum sealed in individual ESD safe bags.



Bags contain repeat labelling identifying internal components

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Outer packaging

Reels are packaged in cardboard protective boxes.



Box dimensions (L x W x H): 13" x 13" x various (approx). Height to suit reel width and component size.

These may be packed in larger boxes for multi-reel shipments.

Component Handling

It is recommended that:

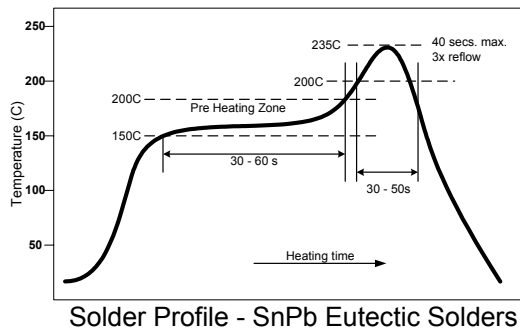
- SAW Filters be opened only on ESD protected workstations. Unless specified otherwise, SAW filters should be considered sensitive per ANSI ESD-STM 5.1 Human Body Model Electrostatic Discharge Sensitivity Testing, Class 1a (250 – 500v) and Class 1 per MIL-STD-883 method 3015.
- If required, components should be cleaned using only alcohol or aqueous based solvents.
- Ultrasonic cleaning of any type should not be used.
- Devices should be dried immediately after cleaning.

Assembly Recommendations

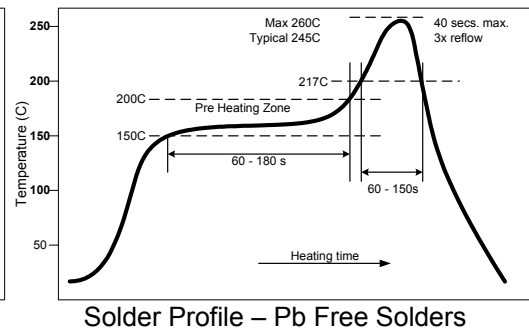
COM DEV SAW Filters are designed to utilize the following processes:

- Hand Soldering
- Automatic Soldering (forced convection, IR or Wave)
- Adhesive (silver epoxy based)

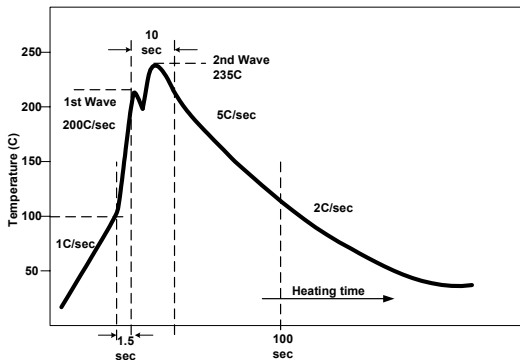
Solders may be SnPb or Pb free. Processing parameters are dependent on customer requirements, the following recommended solder profiles are provided for guidance. Maximum temperature should not be exceeded without consultation with COM DEV.



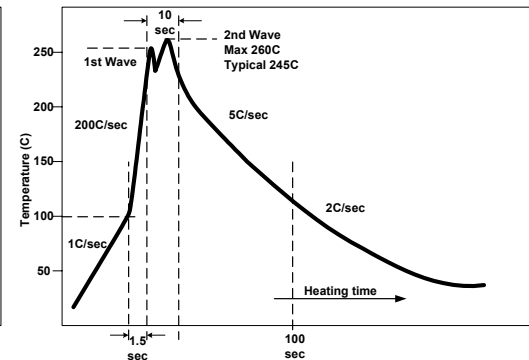
Solder Profile - SnPb Eutectic Solders



Solder Profile - Pb Free Solders



SnPb Eutectic Wave Solder Profile



Pb Free Wave Solder Profile

Qualification / Reliability

COM DEV SAW Filters - as a minimum are designed to the following qualification / reliability levels.

<u>Property</u>	<u>Environmental Specification</u>
Physical Dimensions	Within Specified tolerances per package and lid drawings.
Operating temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Temperature Cycling	MIL-STD-883, method 1010, condition A. Electrical Performance within specification after 100 cycles over full storage temperature range (-55°C to +85°C), 10 min dwell at temperature extremes
Vibration	MIL-STD-883, method 2007, condition A. Electrical performance within specification after vibrate: 100Hz - 2kHz, 20g, 20 cycles, 3 axis.
Mechanical Shock	MIL-STD-883, method 2002 Electrical Performance within specification after 1500 Gs, 0.5ms, half sine wave, 3 impacts per axis in each direction
Constant Acceleration	MIL-STD-883, method 2001, condition A 5000g for 60 seconds applied perpendicular to die surface.
Solder heat Resistance	Electrical performance within specification and marking legible after 2 cycles of recommended Pb free reflow cycle.
Lead Integrity (Where applicable)	MIL-STD-883, method 2004 Hermetic after 8oz for 30 seconds on all leads.
Solderability	MIL-STD-883, method 2003 +245°C ± 5°C; 95% coverage, no steam ageing.
Wirebond Strength	MIL-STD-883, Method 2017
Die Attach Strength	MIL-STD-883, method 2019 or equivalent (package dependant)
Internal Inspection	COM DEV Specification: SPC/SAW/001
Assembly Materials	COM DEV drawing and COM DEV Specification: SPC/SAW/001
Hermeticity	MIL-STD-883, method 1014 conditions A2 and C
Flammability	Non-flammable
Resistance to Solvents	Package totally immune to all common solvents and surfactants (Hermetically sealed) Marking resistant to same
Marking	Parts laser marked per COM DEV Drawing
Internal Water Vapour	MIL-STD-883, Method 1018.
Handling Precautions	ESD Sensitive - Class 1 per MIL-STD-883 method 3015. Do not subject to ultrasonic cleaning – may result in degradation of wirebonds