

# 6.5 GHz Wi-Fi 6E & 7 Coexistence BAW Filter

**A10765**

## Description

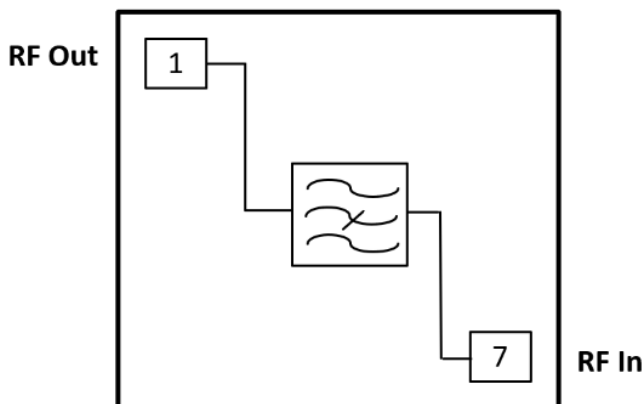
Akoustis' A10765 is a high-performance, ultra-wide bandwidth BAW RF Filter for use in Wi-Fi 6E & 7 applications covering U-NII-5 thru U-NII-8 bands. A10765 utilizes Akoustis' patented, XBAW® technology which provides leading RF filter performance. This BAW RF filter provides low insertion loss and meets the stringent rejection requirements enabling coexistence with U-NII-1 thru 3. This device exhibits high-power handling capabilities necessary for demanding power requirements of the latest Wi-Fi 6E & 7 standards. A10765 uses standard laminate packaging and is compatible with high volume, lead-free SMT soldering processes.

- Small form factor 1.6mm x 1.8mm x 0.63mm
- Single-ended 50Ω Tx/Rx ports (no external matching required)
- Ultra-wide passband covering 1180MHz
- High rejection enables coexistence with adjacent WiFi UNII bands
- High power rating, maximum +30 dBm
- Low insertion loss bandpass filter
- Temperature range -30 C to +95C
- RoHS compliant, Pb-free package

## Applications

- Wi-Fi 6E & 7 tri-band routers, integrated cable modem
- Wi-Fi 6E & 7 tri-band access points
- LTE/LAA small cells

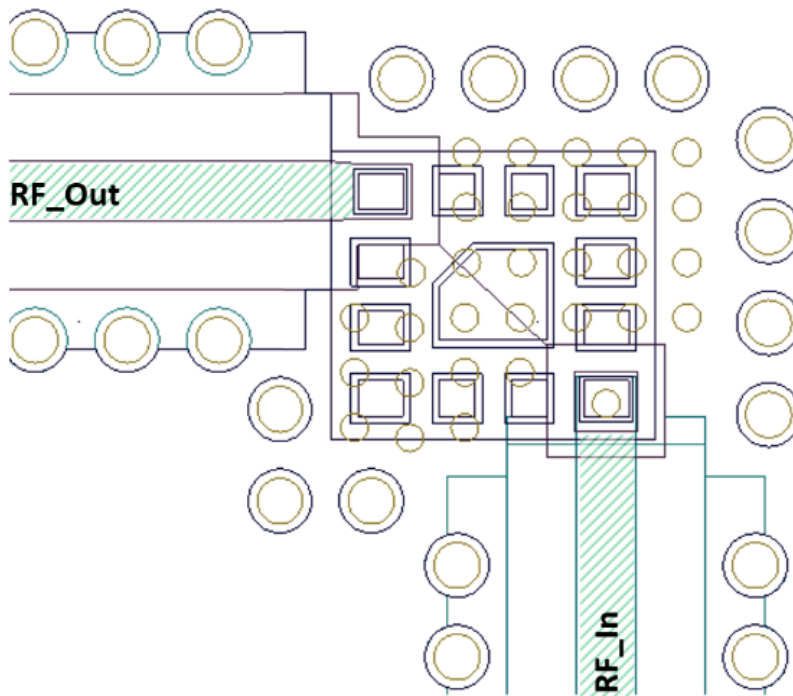
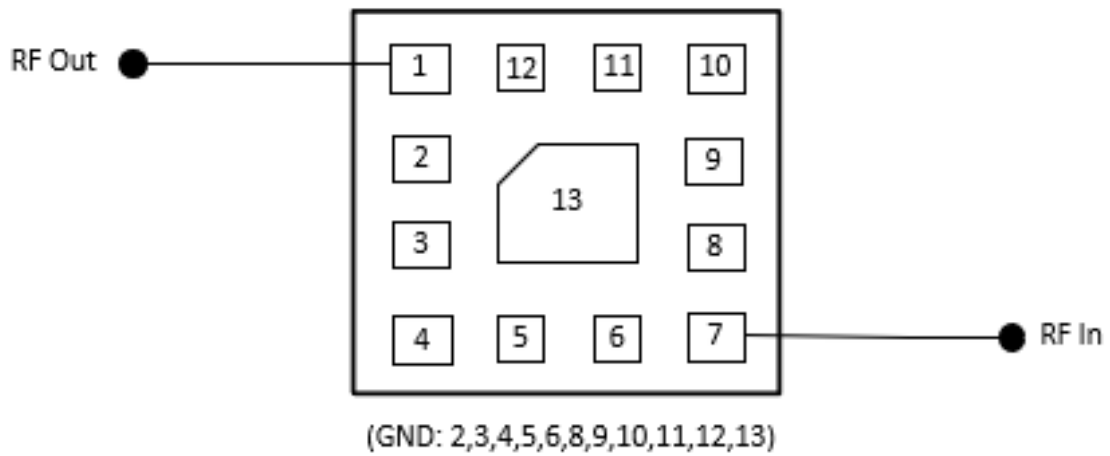
## Block Diagram



## Ordering Information

Part Number	Description
A10765EVB	Evaluation board
A10765SP	(5) Loose pcs
A10765SR	(100) Short Reel (7" Reel)
A10765TR1	(1000) Tape & Reel (7" Reel)
A10765TR2	(2500) Tape & Reel (7" Reel)

## EVB Schematic & Layout



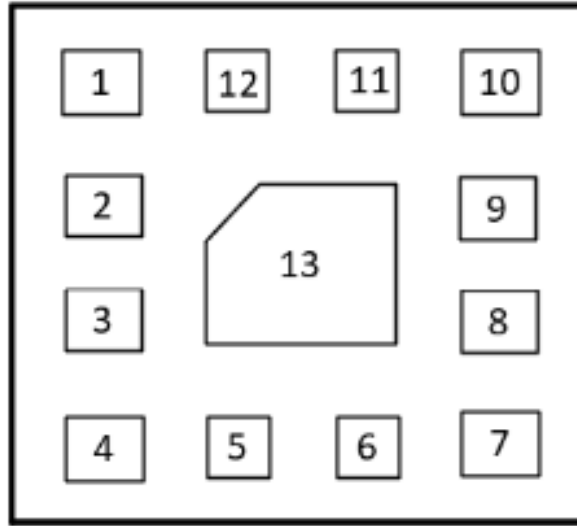
Notes:

- 1) Filter ground vias are 6mil. Other ground vias 10mil diameter.
- 2) Input trace on bottom layer
- 3) Emulate Akoustis EVB as close as possible, particularly the via ground pattern.

### Bill of Materials

Reference Des.	Value	Description	Manufacturer	Part Number
PCB	N/A	4 layer	Multiple	AA4-1816-412-A04-4-1
U1	N/A	6.5 GHz BAW Filter	Akoustis	A10765

### Pin Description

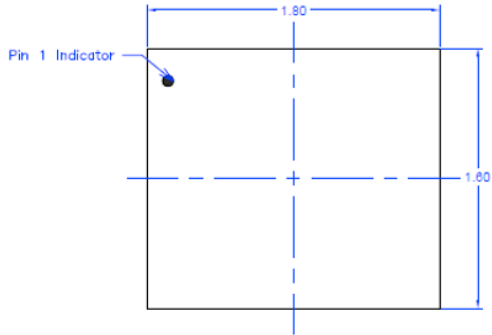


**Top View**

Pin	Name	Description
1	RF Out	Antenna
7	RF In	TX (high power input)
2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13	GND	Ground

# Package Outline Drawing (POD) & PCB Patterns

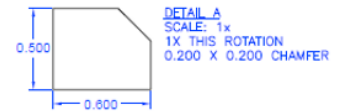
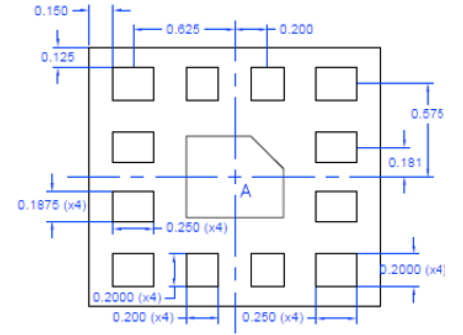
Unless Otherwise Specified:  
- All units in mm



Top View



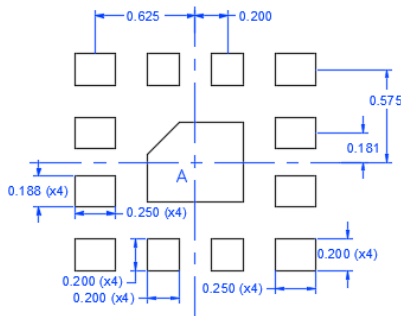
Side View



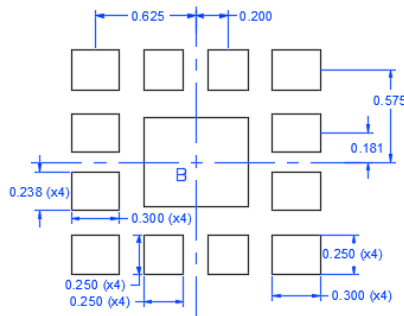
Bottom View

**NOTES:**

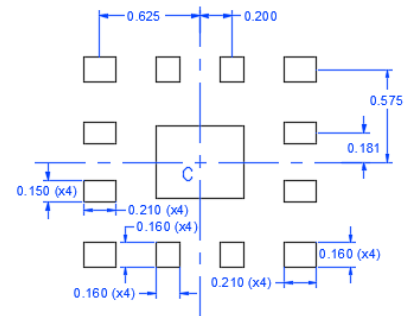
- Terminal Finish:  
Electroless Ni/Electroless Pd/Immersion Au



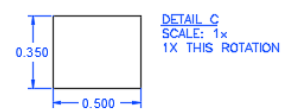
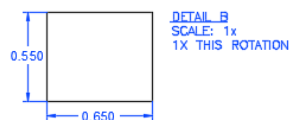
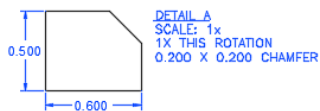
Recommended PCB  
Metal Top View



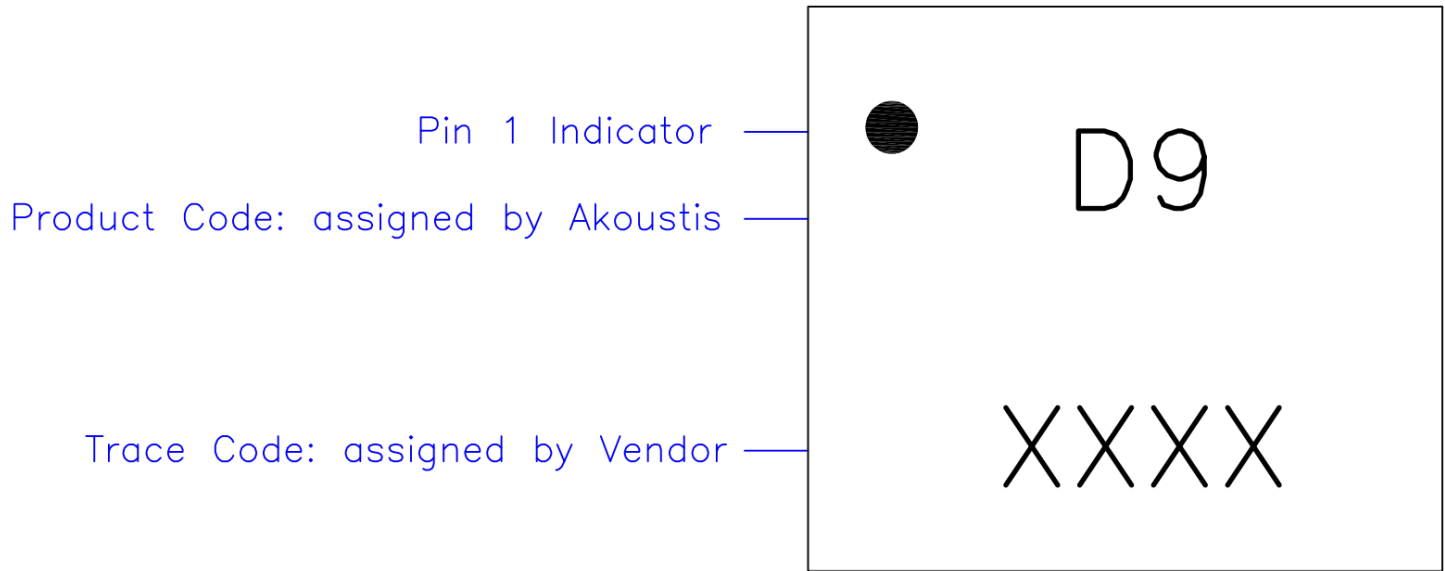
Recommended  
Solder Mask Opening  
Top View



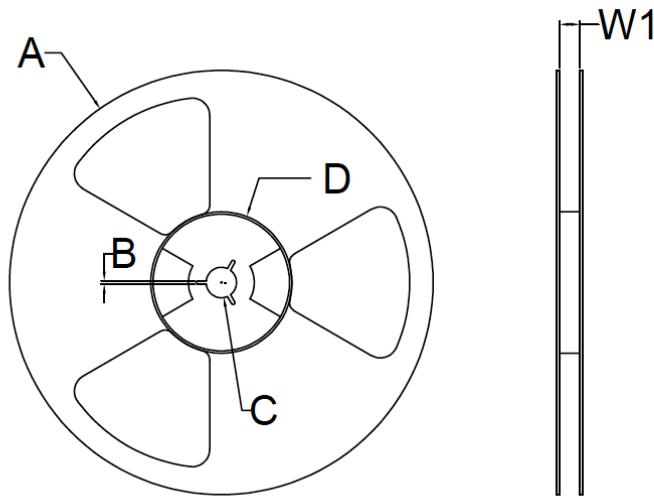
Recommended Stencil  
Pattern Top View



### Typical Part Marking



### Reel Dimensions

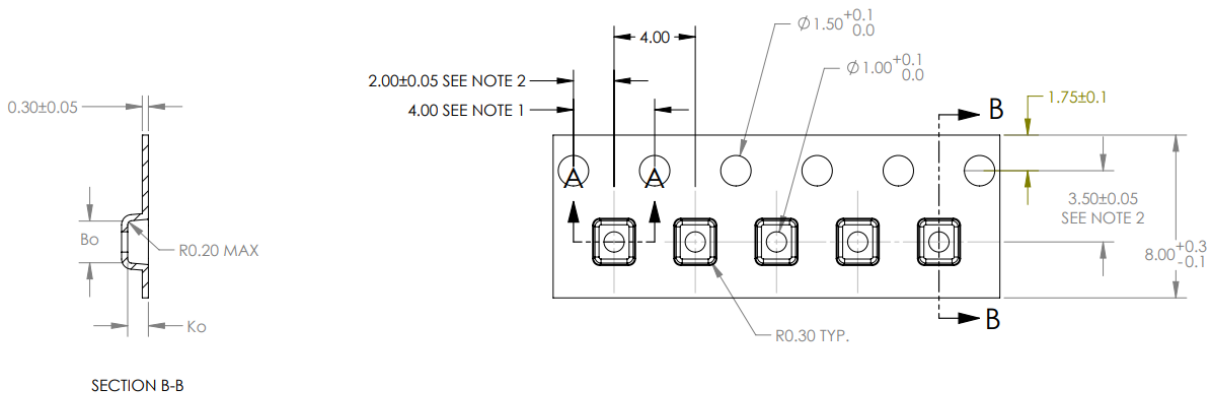


Reel Dimensiones						
Reel Size	Tape Width	A	B	C	D	W1 *measured at hub
7 Inch	8 mm	180 +0/-2.0 mm	2.0mm +/-0.5	13.0 +0.5 / -0 mm	60.0 +/- 2.0 mm	8.40 + 1.5 / -0 mm
	12 mm	180 +0/-2.0 mm	2.0mm +/-0.5	13.0 +0.5 / -0 mm	60.0 +/- 2.0 mm	12.40 + 2.0 / -0 mm
	16 mm	180 +0/-2.0 mm	2.0mm +/-0.5	13.0 +0.5 / -0 mm	60.0 +/- 2.0 mm	16.40 + 2.0 / -0 mm
13 Inch	8 mm	330 +/- 2.0 mm	2.0mm +/-0.5	13.0 +0.5 / -0.2 mm	102 +/- 2.0 mm	8.8 + 2.0 / -0 mm
	12 mm	330 +/- 2.0 mm	2.0mm +/-0.5	13.0 +0.5 / -0.2 mm	102 +/- 2.0 mm	12.8 + 2.0 / -0 mm
	16 mm	330 +/- 2.0 mm	2.0mm +/-0.5	13.0 +0.5 / -0.2 mm	102 +/- 2.0 mm	16.8 + 2.0 / -0 mm

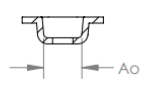
Note: 7 Inch Reel Only Has One Opening

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## Tape Dimension



SECTION B-B

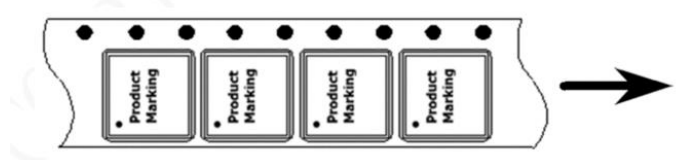


SECTION A-A

	DIM	±
Ao	1.85	0.1
Bo	2.05	0.1
Ko	1.02	0.1

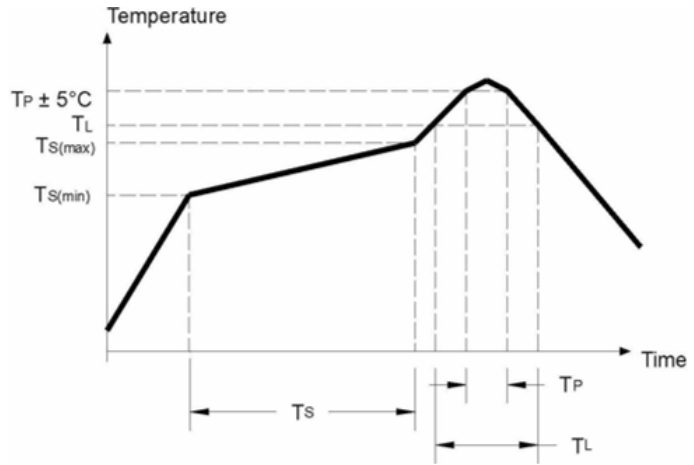


SCALE 1:1



## Recommended Solder Profile

Parameter	Eutectic Sn/Pb	Pb Free
Max Ramp Up Rate	6 Deg C/Second	6 Deg C/Second
Soak Temp Time $T_S(\text{min}) - T_S(\text{max})$	135 - 155 Deg C	150-200 Deg C
Max Soak Time $T_S$	2 minutes	3 minutes
Liquidous Temp $T_L$	183 Deg C	220 Deg C
Max Time Above $T_L$	150 Seconds	150 Seconds
Max Peak Temperature $T_P$	225 Deg C	260 Deg C
Max Time at Peak $T_P$	30 Seconds	30 Seconds
Max Ramp Down Rate	10 Deg C/Second	10 Deg C/Second



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## Product Compliance Information

### ESD Sensitivity Ratings

Human Body Model (HBM) Test

Rating: CLASS 0B

Standard: ANSI/ESDA/JEDEC JS-001-2017

Charged Device Model (CDM)

Rating: CLASS C2b

Standard: ANSI/ESDA/JEDEC JS-002-2018

### MSL Rating

MSL3

### RoHS

This part is compliant with the 2011/65EU RoHS directive on the restrictions of the use of certain hazardous substances in electrical and electronic equipment as amended by Directive (EU) 2015/863

## Contact Information

All contents specified in the datasheet are subject to change without notice. Please contact Akoustis for the latest on our products and company information.

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