

5.5 GHz WiFi 6E Coexistence BAW Filter

A10155

Description

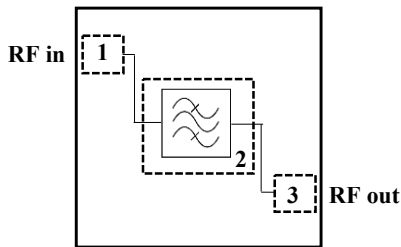
Akoustis’ A10155 is a high performance, ultra-wide bandwidth BAW RF Filter for use in WiFi 6E applications covering U-NII-1 thru U-NII-3 bands. A10155 utilizes Akoustis’ patented, XBAW technology which provides leading RF filter performance. This BAW RF filter provides low insertion loss and meets the stringent rejection requirements enabling coexistence with U-NII-5 thru 8. This device exhibits high-power handling capabilities necessary for demanding power requirements of the latest WiFi 6E standards. A10155 is a fully integrated, 50 ohm module using standard laminate packaging and is compatible with high volume, lead-free SMT soldering processes.

- Small form factor 3.5mm x 3.5mm x 1.4mm
- Single ended Tx/Rx ports.
- Ultra-wide passband covering 665MHz
- High rejection enables coexistence with adjacent WiFi UNII bands
- High power rating, maximum +27dBm
- Low insertion loss band pass filter
- Performance over -40 C to +85C
- RoHS compliant, Pb-free package

Applications

- WiFi 6E tri band routers, integrated cable modem
- WiFi 6E tri band access points
- LTE/LAA small cells

Functional Block Diagram



Pin #	Description
1	RF Input
2	Ground
3	RF Output

Ordering Information

Part Number	Description
A10155EVB	Evaluation board
A10155SP	(5) Loose pcs
A10155SR	(100) Short Reel
A10155TR1	(1000) Tape & Reel
A10155TR2	(2500) Tape & Reel

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to 125 °C
Input Power	+29 dBm

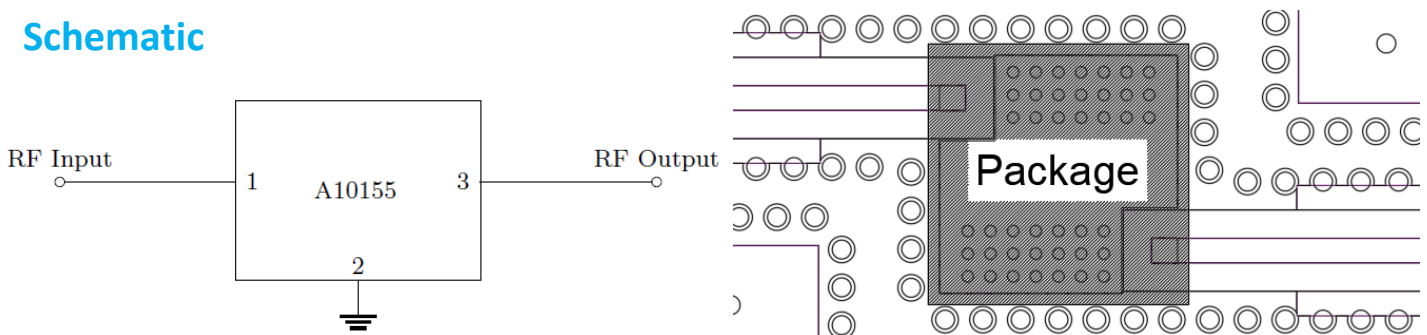
Nominal Operating Parameters

Parameter	Units	Min.	Typ.	Max.
Center Frequency (Fc)	MHz		5502.5	
Pass bandwidth	MHz		5170 – 5835	
Insertion Loss				
5170 – 5815 MHz	dB		1.8 ⁽¹⁾	2.8
5170 – 5835 MHz	dB		1.8 ⁽¹⁾	3.5
Amplitude Variation				
5170 – 5835 MHz	dB		1.5	1.8
Attenuation				
30 – 1000 MHz	dB	35	36	
1000 - 4200 MHz	dB	22	23	
4200 – 5000 MHz	dB	22	23	
5945 – 7065 MHz	dB	45	47	
7065 – 7125 MHz	dB	43	47	
7200 - 8000 MHz	dB	8	10	
Return Loss				
5170 – 5835 MHz		12	17 ⁽¹⁾	
Operating Temperature	C	-40		85
Load Impedance	Ohm		50	
Power Handling: 802.11ax MCS10, 80 MHz BW, PAR 11dB	dBm			27

Note:

1. S-parameter averaged over specified pass band frequency at room temperature

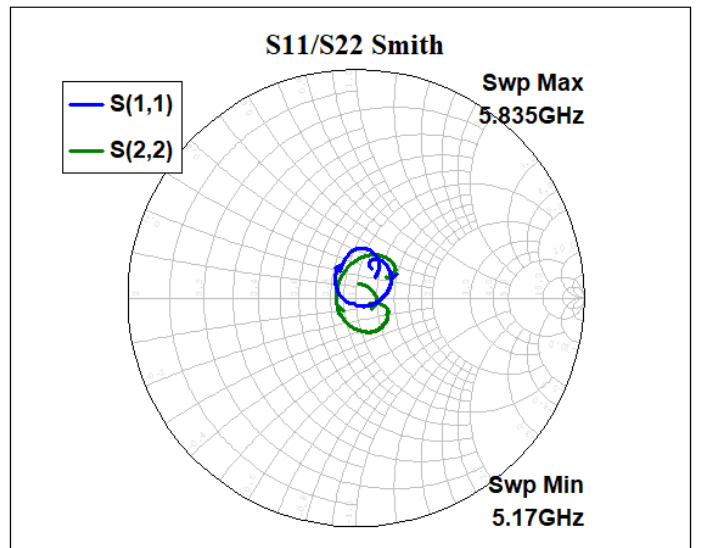
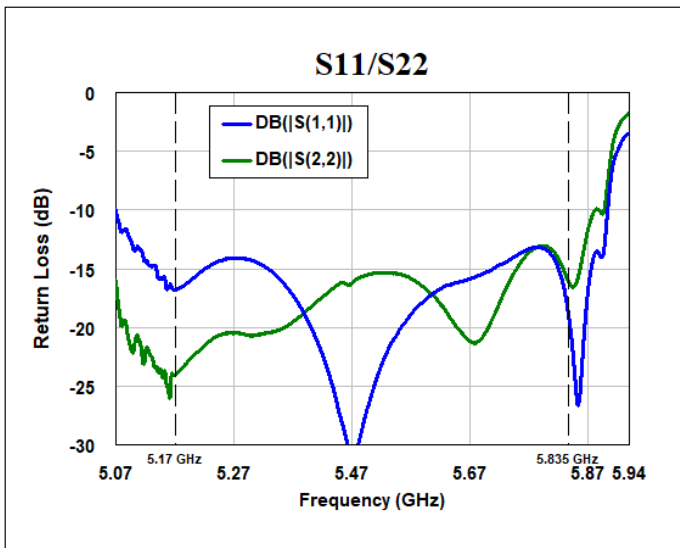
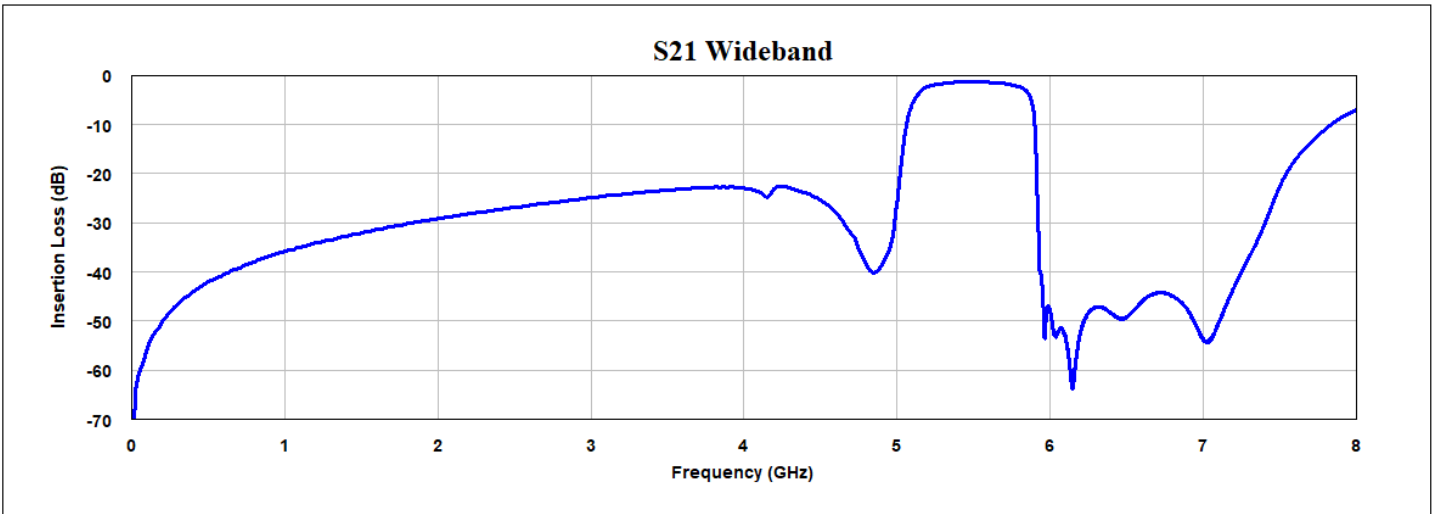
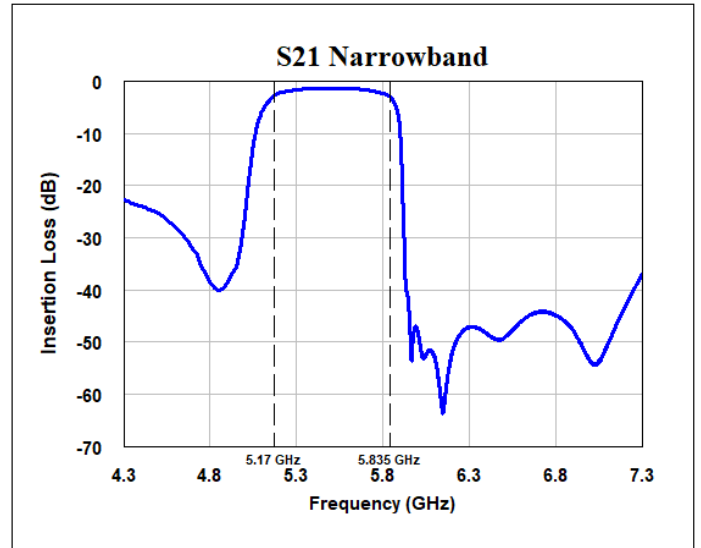
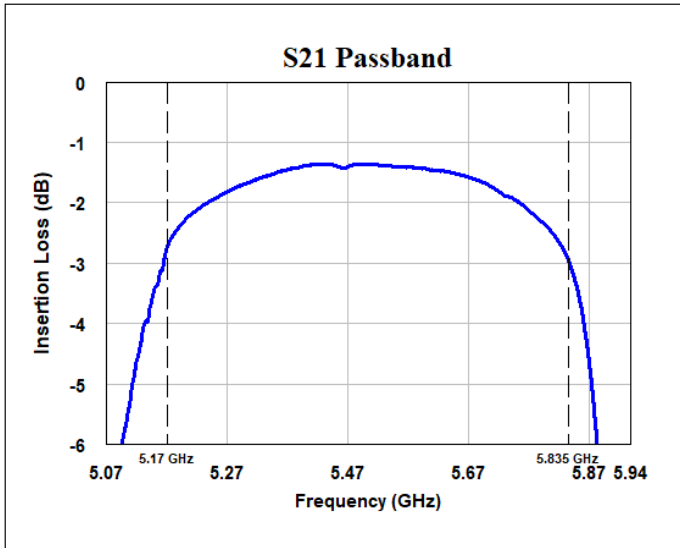
Schematic



Bill of Materials

Reference Des.	Value	Description	Manufacturer	Part Number
PCB	N/A	4 layer	Multiple	
U1	N/A	5.65 GHz BAW Filter	Akoustis	A10155

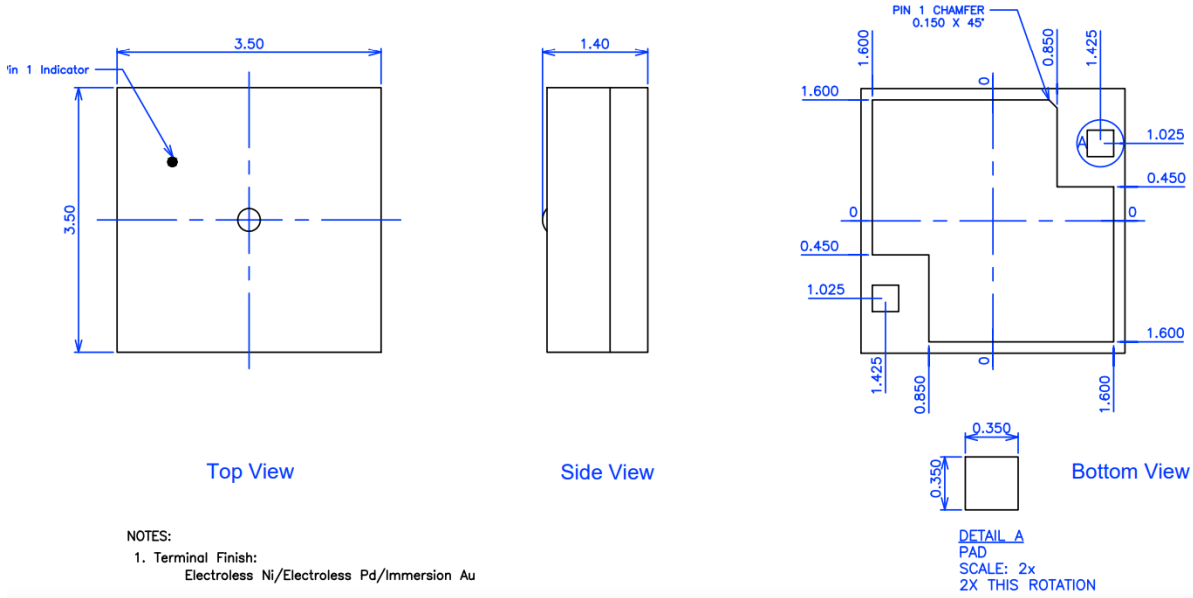
Performance Plots



PRELIMINARY A10155

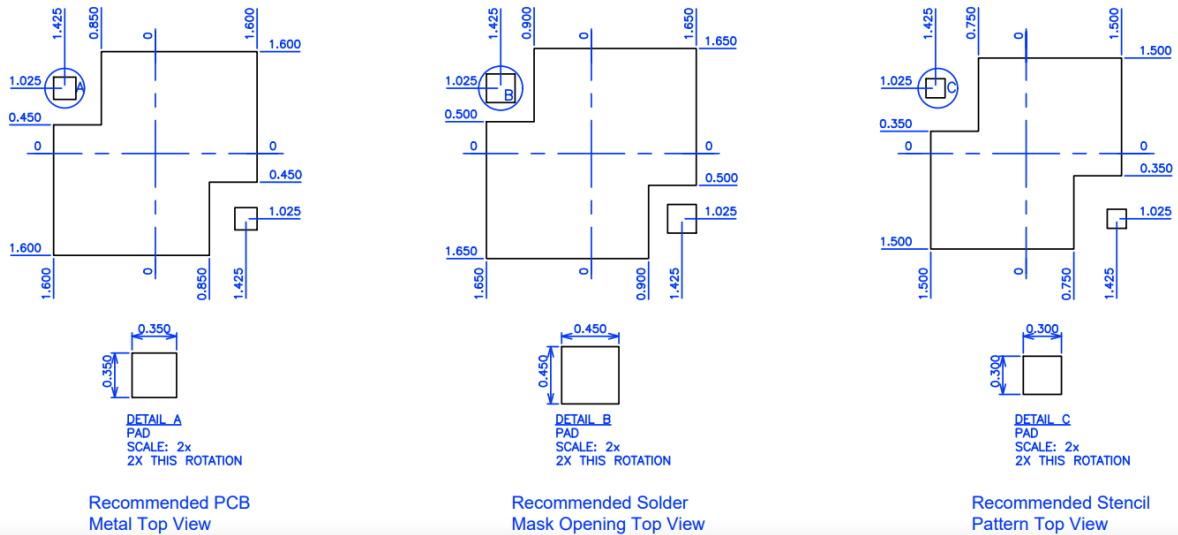
Package Drawing & Pin Description

- Notes:
- All Units are in mm unless otherwise stated
 - General Tolerance:
 Linear X.XXX = $\pm 0.050\text{mm}$
 X.XX = $\pm 0.10\text{mm}$

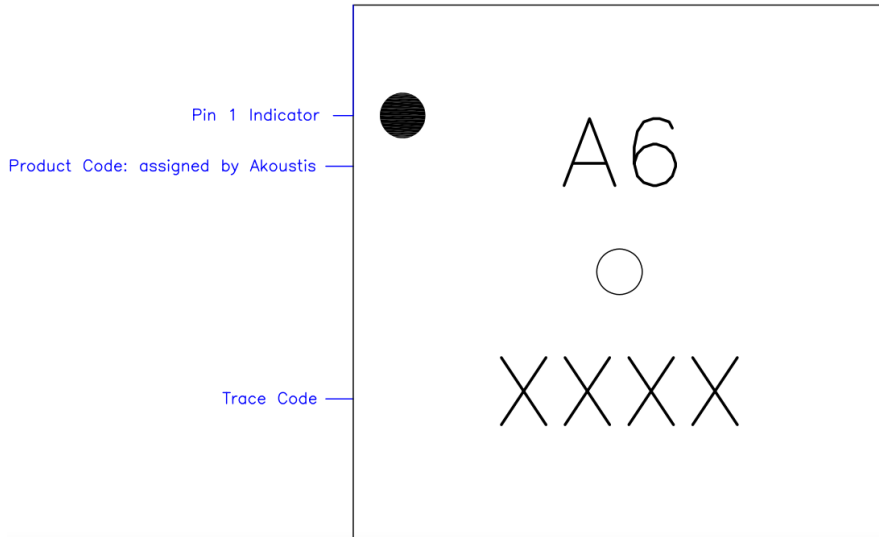


PCB Mounting Pattern

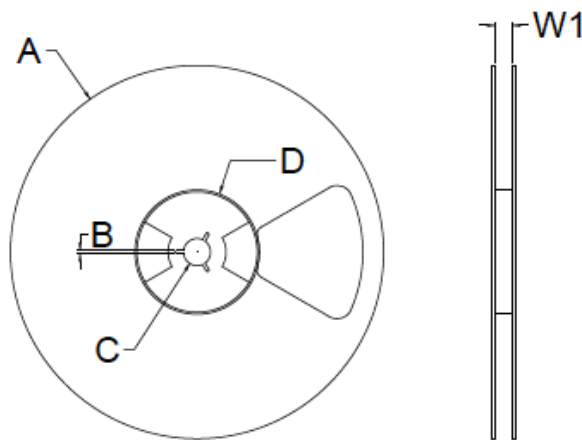
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Typical Part Marking

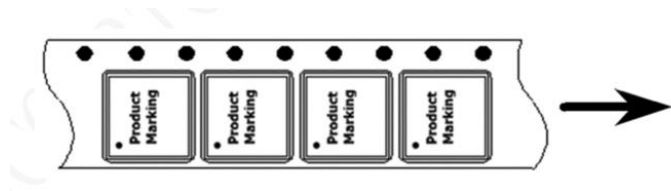
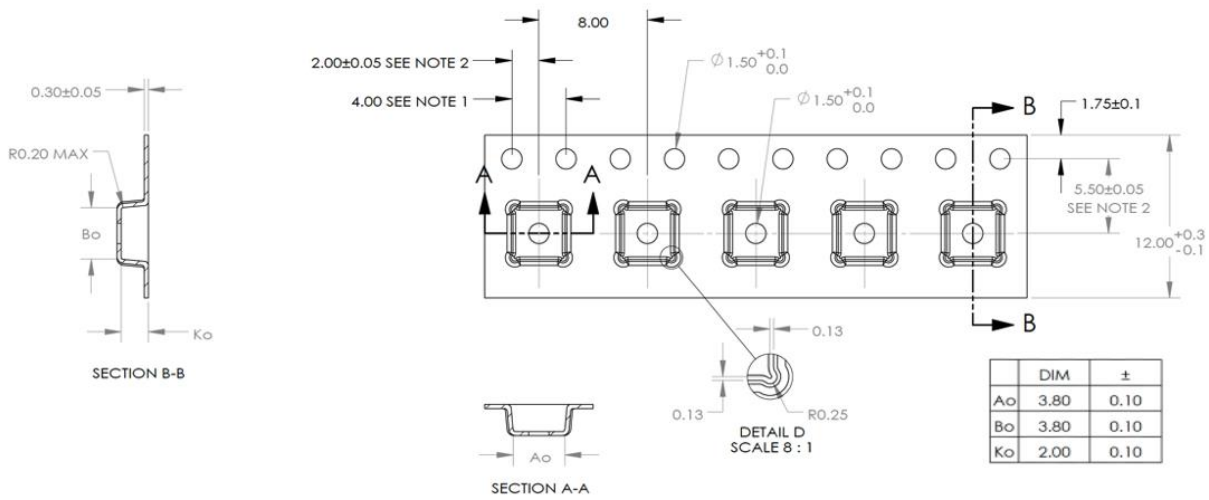


Reel Dimension For 12mm Tape Width



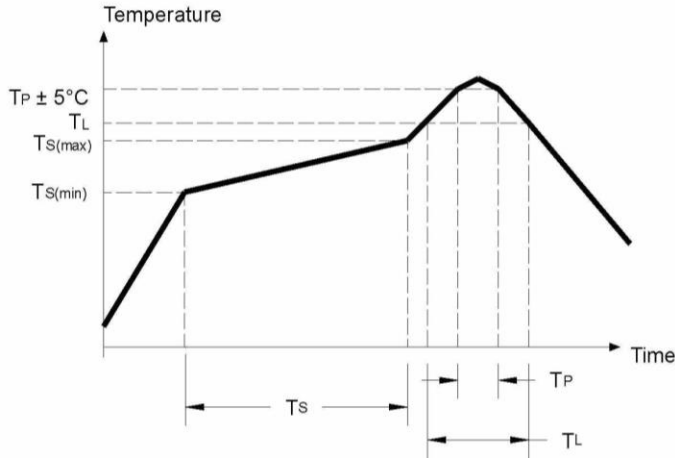
Reel Dimensions					
Tape Width	A	B	C	D	W1 *measured at hub
8 mm	180 +0/-2.0 mm	1.5mm Min	13.0 + 0.5 / -0 mm	60.0 mm	8.40 + 1.5 / -0 mm
12 mm	180 +0/-2.0 mm	1.5mm Min	13.0 + 0.5 / -0 mm	60.0 mm	12.40 + 2.0 / -0 mm
16 mm	180 +0/-2.0 mm	1.5mm Min	13.0 + 0.5 / -0 mm	60.0 mm	16.40 + 2.0 / -0 mm

Tape Dimension



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 (min) - T_S (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



Product Compliance Information

ESD Sensitivity Ratings

Human Body Model (HBM) Test

Rating: TBD

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

Charged Device Model (CDM)

Rating: TBD

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

MSL Rating

TBD

RoHS

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

Contact Information

All contents specified in datasheet are subject to change. Please contact Akoustis for the latest on our products and company information.

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