Preliminary

RFM products are now Murata products.

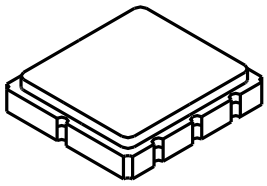
SF2356H

2535/2655MHz SAW Duplexer Filter

- ***Low Insertion Loss Duplexer SAW Filter***
- ***2.0 x 1.6 mm Surface-mount Case***
- ***Complies with Directive 2002/95/EC (RoHS)***

Absolute Maximum Ratings

Rating	Value	Units
Maximum Input Power	2.0	W
DC Voltage	0	VDC
Storage Temperature Range in Tape and Reel	-40 to +85	°C
Operating Temperature Range	-30 to +85	°C
Suitable for Lead-free Soldering - Maximum Soldering Profile	260 °C for 10 sec	
Antenna Impedance (single ended)	50	Ω
Rx Impedance (single ended)	50Ω	Ω
Tx Impedance (balanced)	100	Ω



SM2016-9

Electrical Characteristics

Ant to Rx (2535 MHz)		**Specifications (+25°C)**					
Parameter Description	**Condition**	**Sym**	**Note**	**Min**	**Typ**	**Max**	**Units**
Insertion Loss,	2500 to 2570 MHz			-	3.2	3.8	dB
Return Loss of Rx Port	2500 to 2570 MHz			5	8		
Return Loss of Ant Port	2500 to 2570 MHz			6	9		
Attenuation in RX Band,	2620 to 2690 MHz			45	51		
Attenuation in ISM Band	2400 to 2480 MHz			33	38		
Attenuation in ISM Band	2480 to 2483 MHz			30	35		
Tx to Ant (2655 MHz)							
Insertion Loss,	2620 to 2690 MHz			-	3.0		dB
Return Loss of Rx Port	2620 to 2690 MHz			5	8		
Return Loss of Ant Port	2620 to 2690 MHz			5	8		
Attenuation in Rx Band,	2500 to 2570 MHz			50	56		
Amplitude Balance ($\lvert S_{31}/S_{41}\rvert$)	2620 to 2690 MHz			-0.5	-0.3 / +0.2	+0.5	
Phase Balance $\Phi(S_{31}) - (S_{41}) + 180°$	2620 to 2690 MHz			-6.5	+1.0/ +3.5	+6.5	deg
Tx to Rx							
Isolation	2620 to 0690 MHz			54	57		dB
	2500 to 2570 MHz			45	50		

Case Style	SM2016 2.0 X 1.6 X 0.9mm Nominal Footprint
Lid Symbolization (Y=year, WW=week, S=shift) dot=pin 1 indicator	5E, YWWS

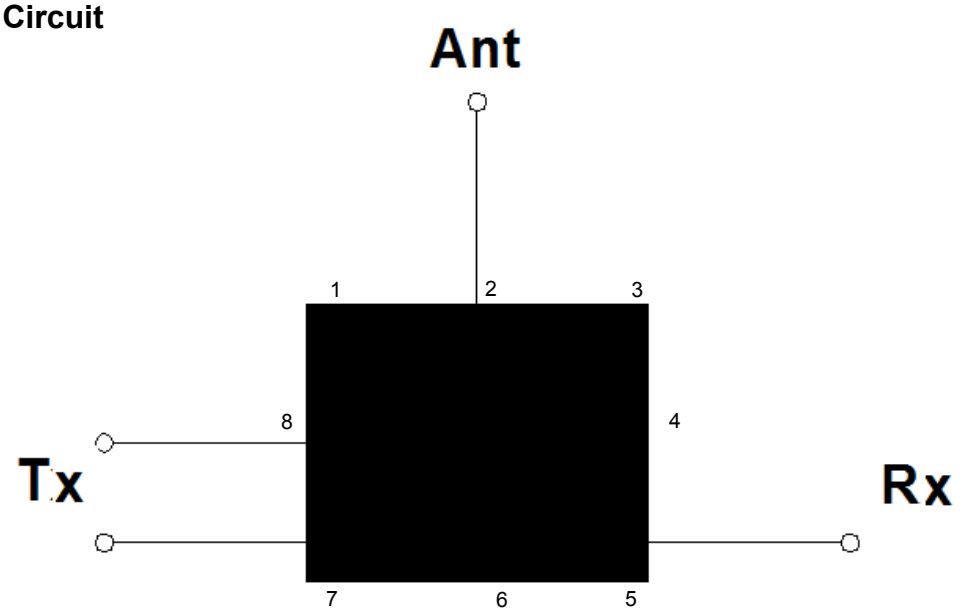
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency, fc.
3. Rejection is measured as attenuation below the minimum IL point in the passband. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
4. The design, manufacturing process, and specifications of this filter are subject to change.
5. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
6. US and international patents may apply.
7. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

Ant to Rx (2535 MHz)		Specifications (+25 °C)					
Parameter Description	**Condition**	**Sym**	**Note**	**Min**	**Typ**	**Max**	**Units**
Insertion Loss,	2500 to 2570 MHz				3.1	4.0	dB
Return Loss of Rx Port	2500 to 2570 MHz			5	8		
Return Loss of Ant Port	2500 to 2570 MHz			6	9		
Attenuation in Tx Band	2620 to 2690 MHz			45	33		
Attenuation in ISM Band	2400 to 2480 MHz			33	38		
Attenuation in ISM Band	2400 to 2480 MHz			30	35		
Tx to Ant (2655 MHz)							
Insertion Loss	2620 to 2690 MHz				3.0	4.0	dB
Return Loss of Tx Port	2620 to 2690 MHz			5	8		
Return Loss of Ant Port	2620 to 2690 MHz			5	8		
Attenuation in Rx Band	2500 to 2570 MHz			50	56		
Amplitude Balance ($\|S_{31}/S_{41}\|$)	2620 to 2690 MHz			-0.5	-0.3/+0.2	+0.5	
Phase Balance $\Phi(S_{31}) - (S_{41}) + 180°$	2620 to 2690 MHz			-10	+1.0/+3.5	+10	deg
Tx to Rx							
Isolation	2620 to 2690 MHz			48	52		dB
	2620 to 2690 MHz			53	58		

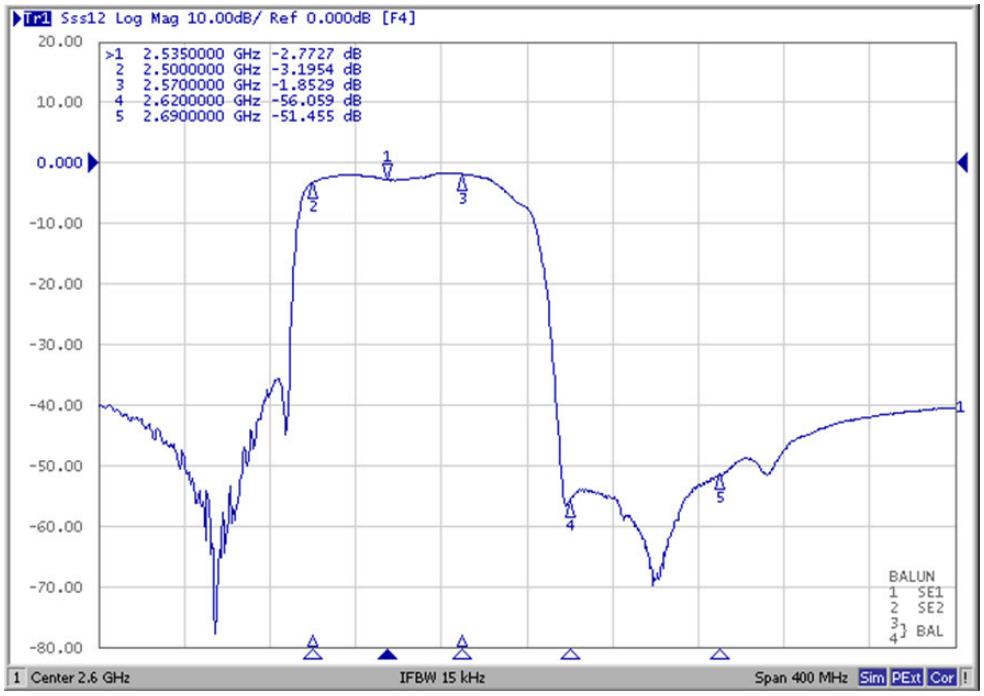
Measurement Circuit



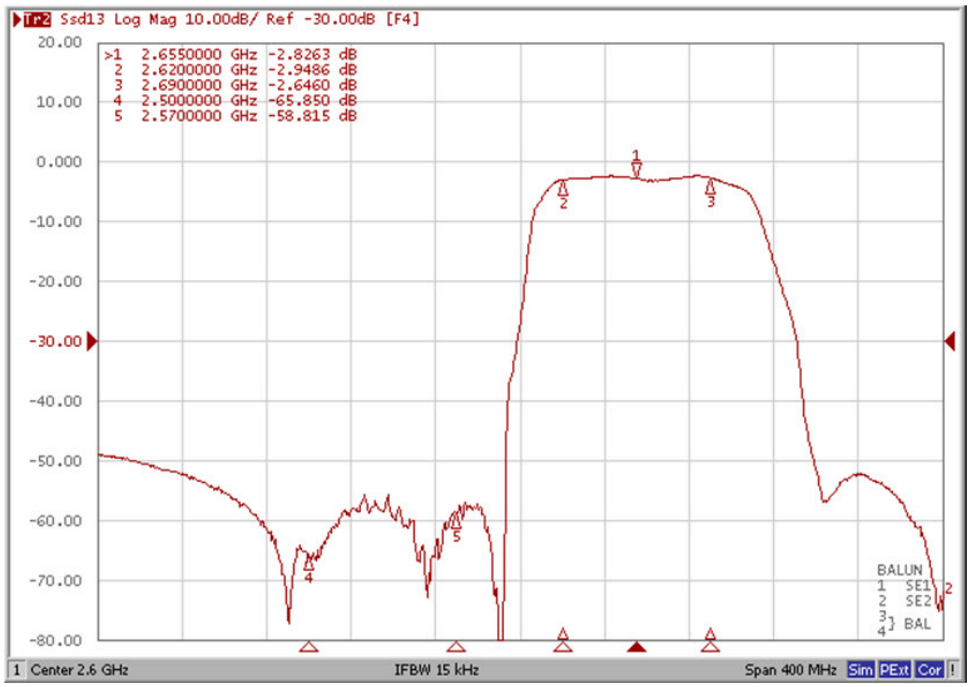
Pin Description	
1, 3, 4, 6, 9	Ground
2	Antenna
5	
7	
8	

Frequency Characteristics

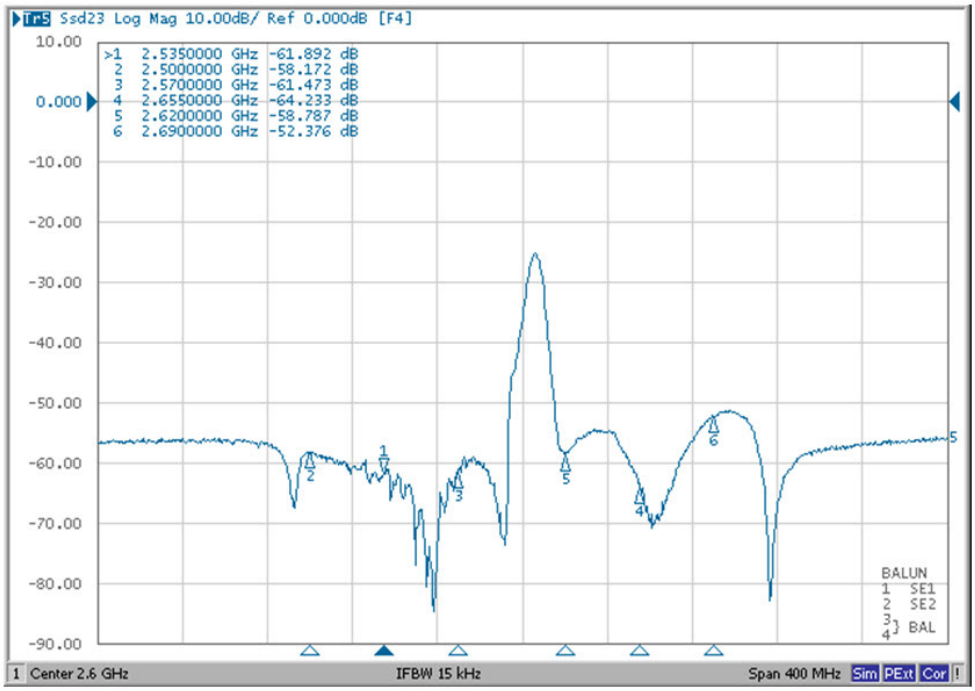
RX



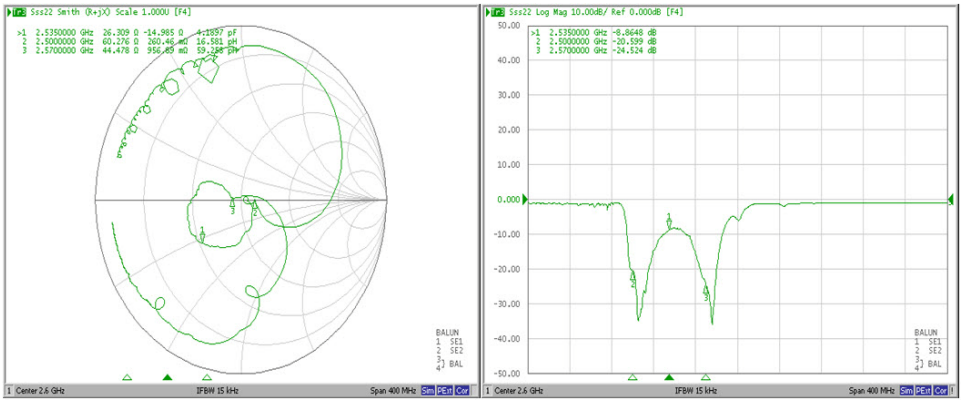
TX



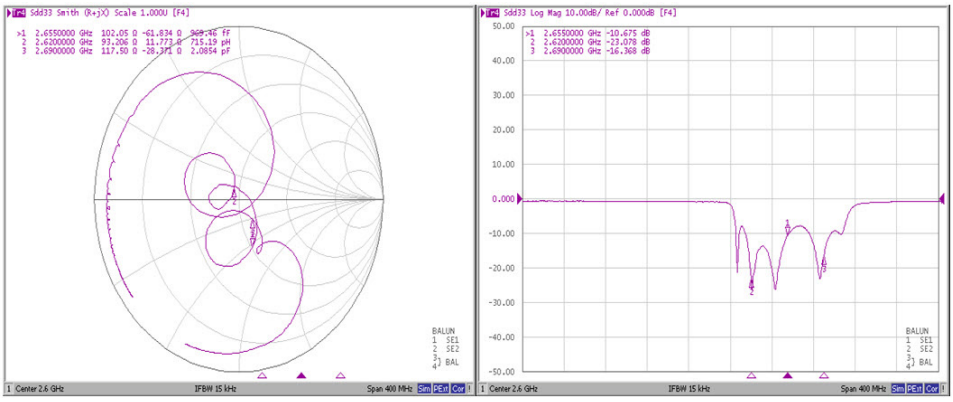
Isolation



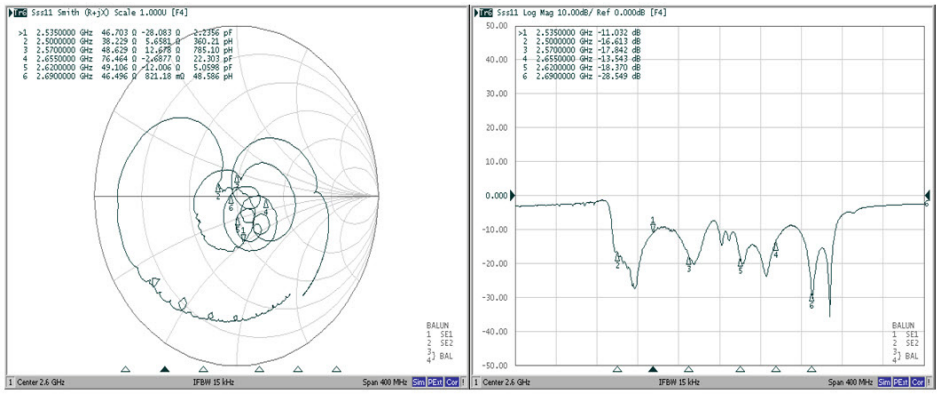
Rx Port



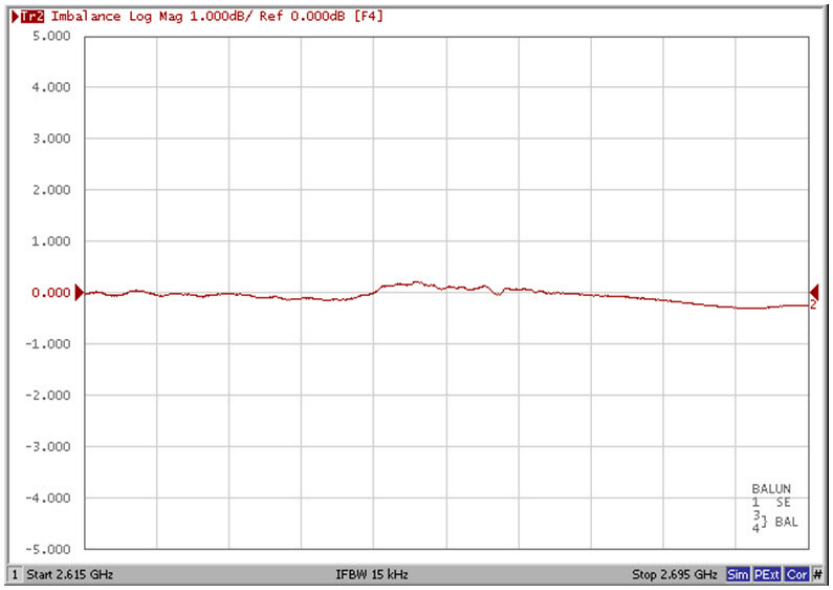
TX Port



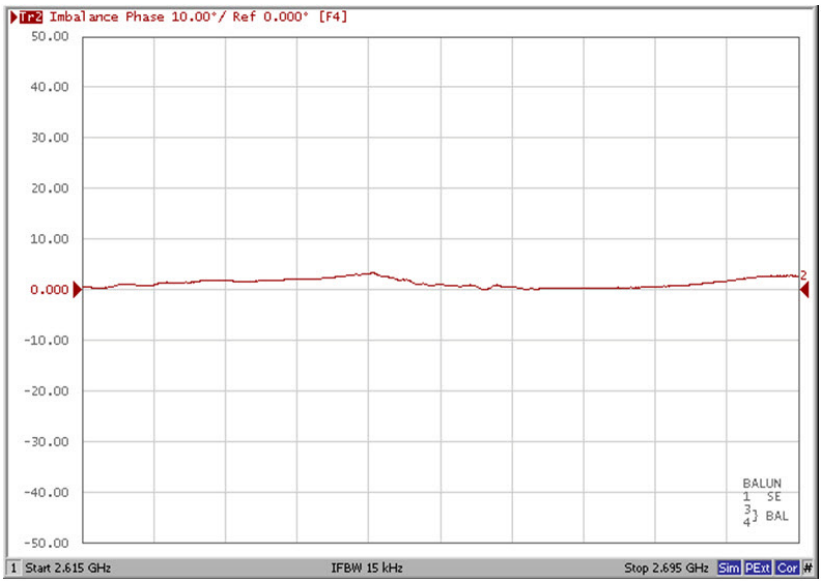
Ant Port



Amplitude Imbalance



Phase Imbalance



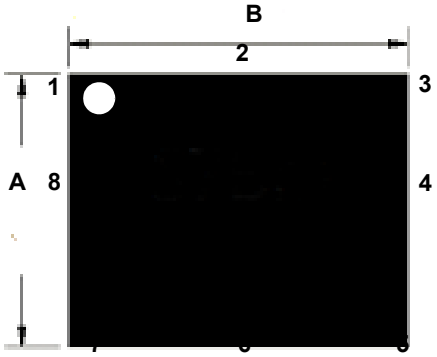
SMD2520-9 Case

Case Dimensions

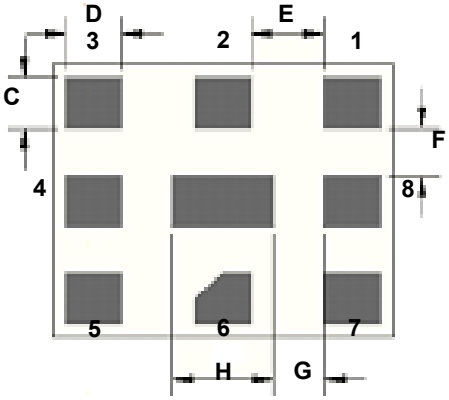
Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.58	1.60	1.62	0.062	0.0629	0.063
B	1.98	2.00	2.02	0.077	0.078	0.079
C	0.29	0.30	0.31	0.011	0.0114	0.012
D	0.32	0.33	0.34	0.0125	0.0129	0.013
E	0.42	0.43	0.44	0.016	0.0169	0.017
F	0.274	0.275	0.276	0.010	0.0108	0.01086
G	0.294	0.295	0.296	0.011	0.0116	0.01165
H	0.59	0.60	0.61	0.023	0.0236	0.024
I	-	-	0.90			

Materials	
Solder Pad Plating	0.3 to 1.0 µm Gold over 1.27 to 8.89 µm Nickel
Lid Plating	2.0 to 3.0 µm Nickel
Body	Al_2O_3 Ceramic
Pb Free	

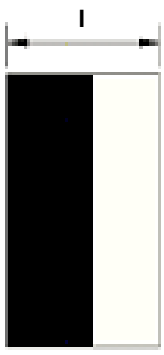
TOP VIEW



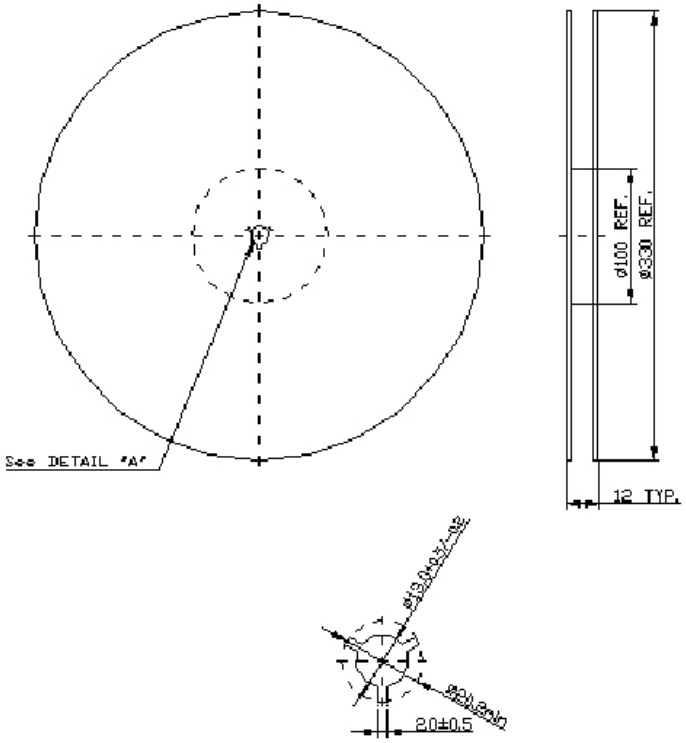
BOTTOM VIEW



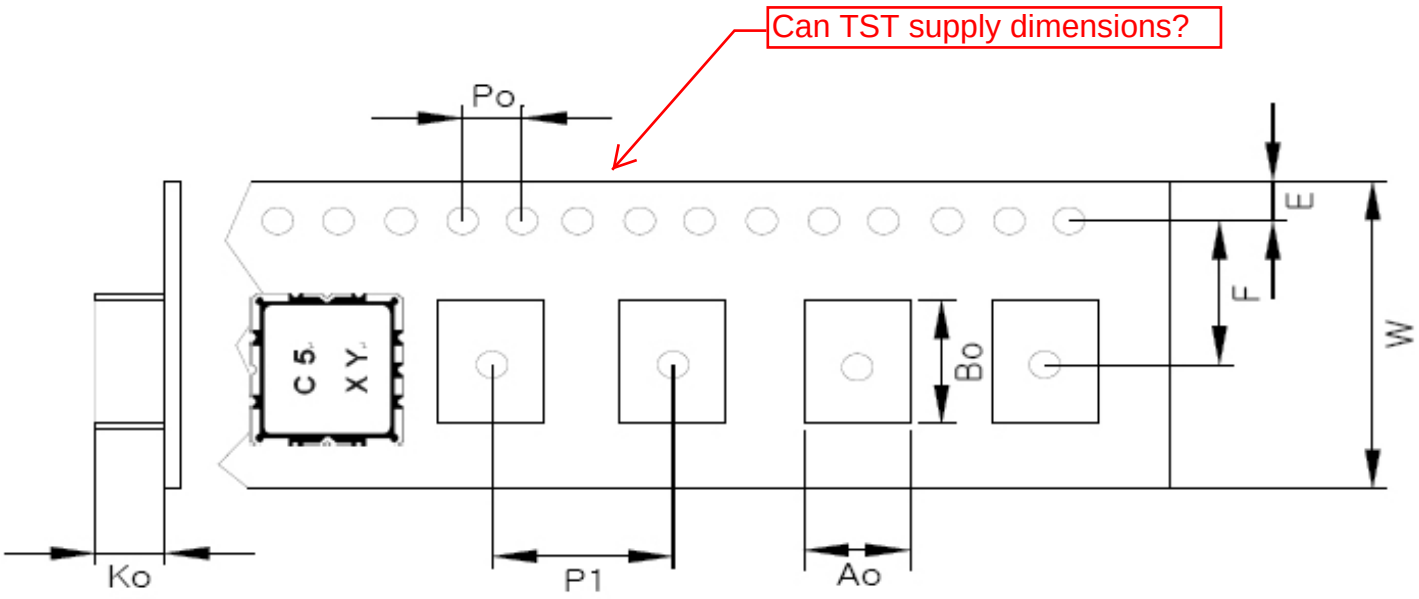
SIDE VIEW



Tape and Reel Specifications



Component Orientation and Dimensions



Recommended Reflow Profile