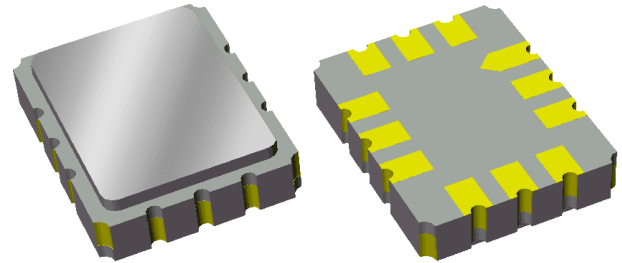


# Data Sheet

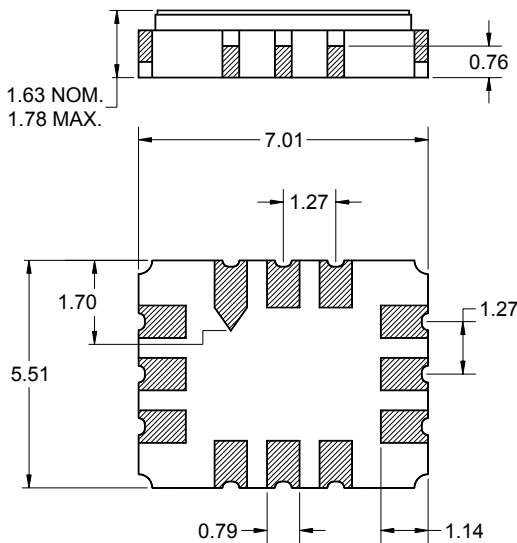
## Features

- For PCS handset IF applications
- Usable bandwidth of 1.260 MHz
- Low loss
- High attenuation at tones
- Single-ended or balanced operation
- Ceramic Surface Mount Package (SMP)
- Small size



## Package

Surface Mount 5.51 x 7.01 x 1.63 mm

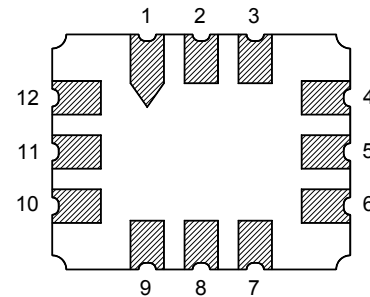


Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.15$ mm except overall  
 length and width  $\pm 0.13$ mm

Body:  $Al_2O_3$  ceramic  
 Lid: Kovar, Ni plated  
 Terminations: Au plating 0.5 - 1.0 $\mu$ m,  
 over a 2 - 6 $\mu$ m Ni plating

## Pin Configuration

Bottom View



Pin No.	Description
4	Output
6	Output return
10	Input return
12	Input
3,9	Ground
1,2,5	Case Ground
7,8,11	Case Ground

# Data Sheet

## Electrical Specifications <sup>(1)</sup>

Operating Temperature Range: <sup>(2)</sup> -30 to +80 °C

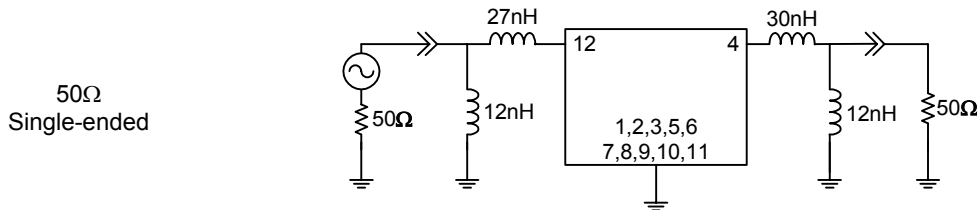
Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
Center Frequency, $f_0$	-	220.38	-	MHz
Insertion Loss at 220.38 MHz	-	7.2	9	dB
Lower 5 dB Point	-	219.64	219.75	MHz
Upper 5 dB Point	221.01	221.20	-	MHz
Lower 33 dB Point	219.13	219.29	-	MHz
Upper 33 dB Point	-	221.55	221.63	MHz
Amplitude Variation 220.08 - 220.68 MHz	-	0.5	1.2	dB p-p
Phase Ripple 219.765 - 220.995 MHz	-	2.1	3.5	deg RMS
Attenuation <sup>(4)</sup>				
219.13 MHz (+25 °C)	35	44	-	dB
221.63 MHz (+25 °C)	35	42	-	dB
218.33 MHz	-	48	-	dB
222.43 MHz	-	48	-	dB
Source Impedance <sup>(5)</sup>	-	50	-	Ω
Load Impedance <sup>(5)</sup>	-	50	-	Ω

### Notes:

1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Relative to insertion loss at 220.38 MHz
5. This is the optimum impedance in order to achieve the performance shown

### Test Circuit:

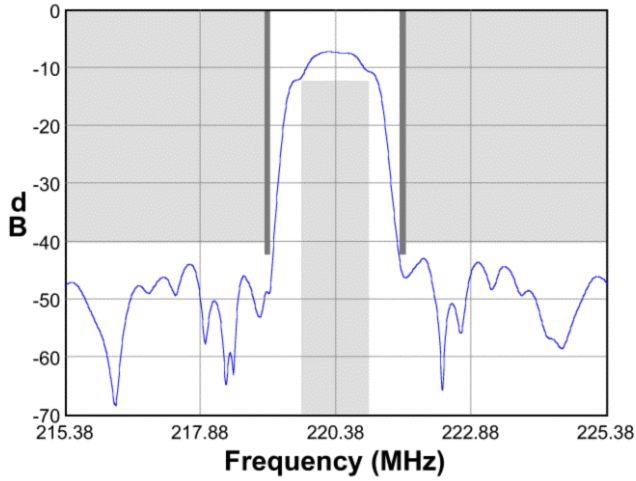
Actual matching values may vary due to PCB layout and parasitics



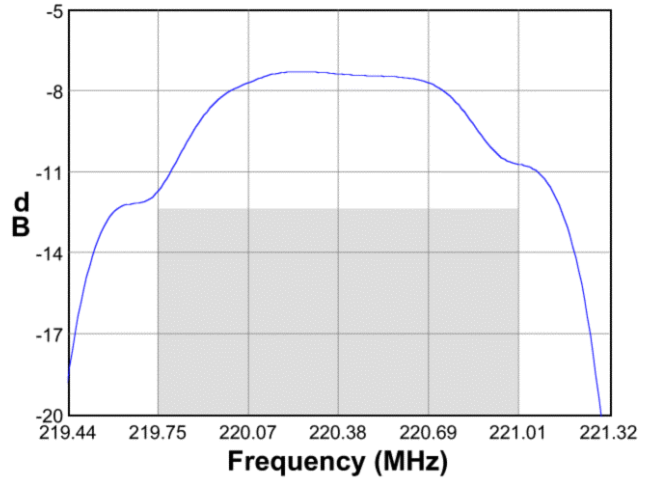
**Data Sheet**

**Typical Performance (at +25°C)**

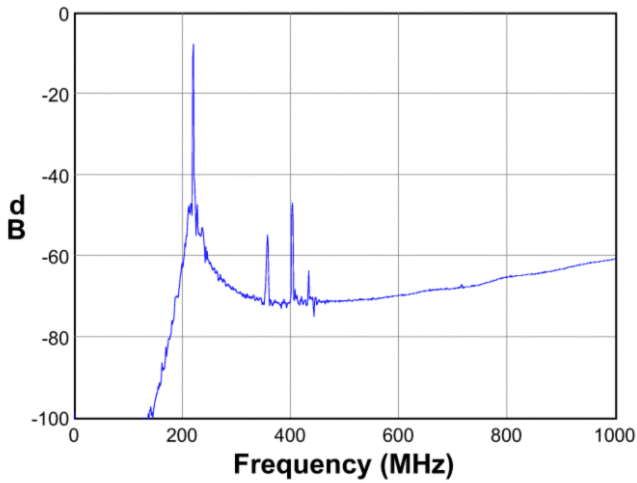
**Frequency Response**



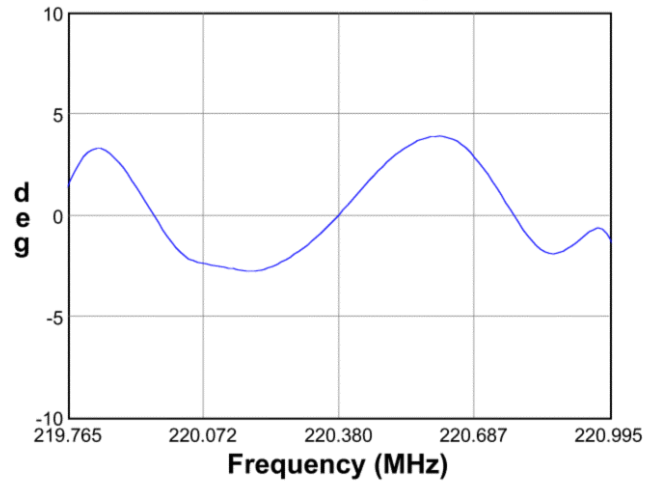
**Passband Response**



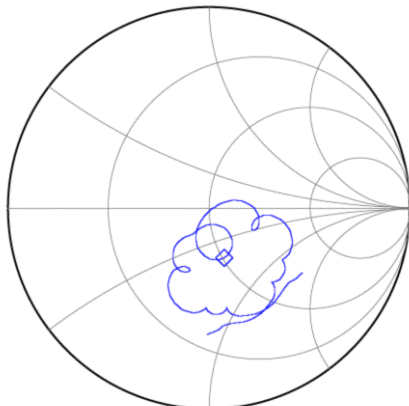
**Wideband Response**



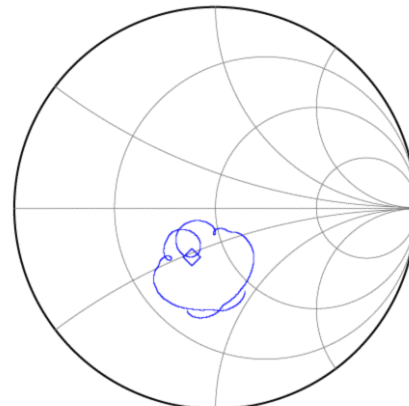
**Phase Linearity**



**Input Smith Chart**



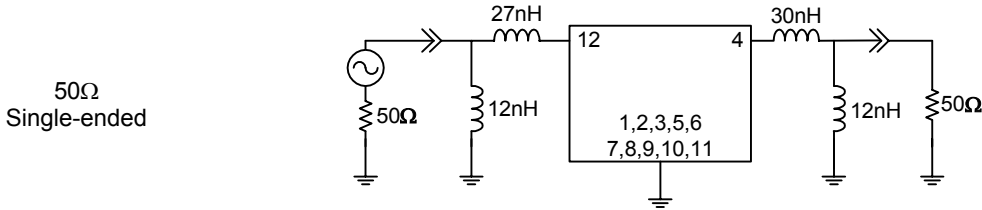
**Output Smith Chart**



**Data Sheet**

**Matching Schematics**

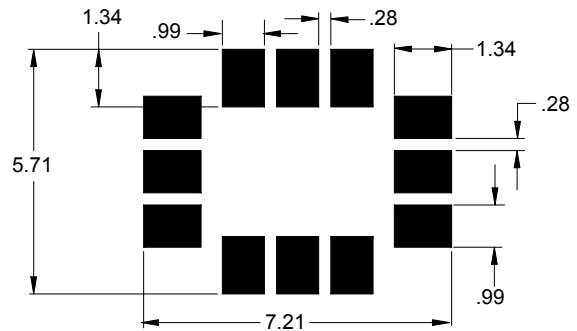
Actual matching values may vary due to PCB layout and parasitics



**Marking**

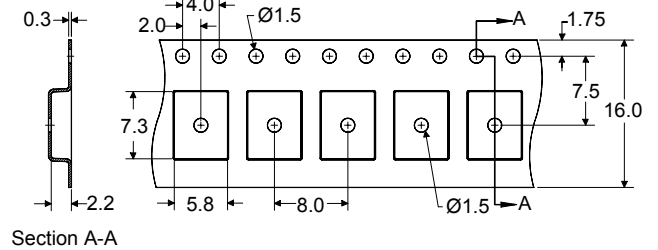
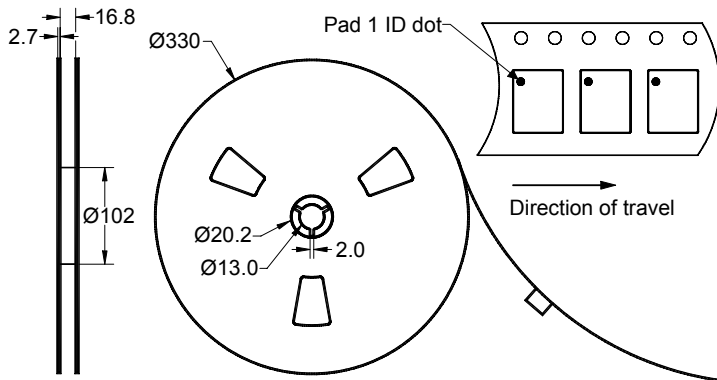


**PCB Footprint**



This footprint represents a recommendation only  
Dimensions shown are nominal in millimeters

**Tape and Reel**




Dimensions shown are nominal in millimeters  
Packaging quantity: 3000 units/reel

# Data Sheet

## Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-30	+80	°C
Storage Temperature Range	T <sub>stg</sub>	-40	+85	°C

### Warnings

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

## Links to Additional Technical Information

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[Other Technical Information](#)

## Contact Information



PO Box 609501  
Orlando, FL 32860-9501  
USA

Phone: +1 (407) 886-8860  
Fax: +1 (407) 886-7061  
Email: [custservice@sawtek.com](mailto:custservice@sawtek.com)  
Web: [www.sawtek.com](http://www.sawtek.com)

Or contact one of our worldwide  
network of [sales offices](#),  
[representatives or distributors](#)