
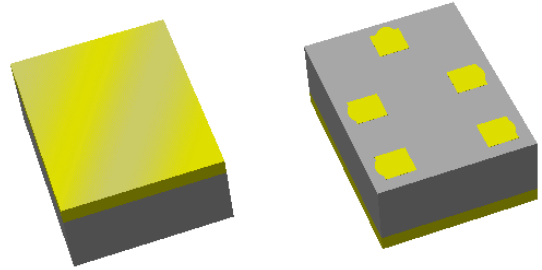


# Data Sheet

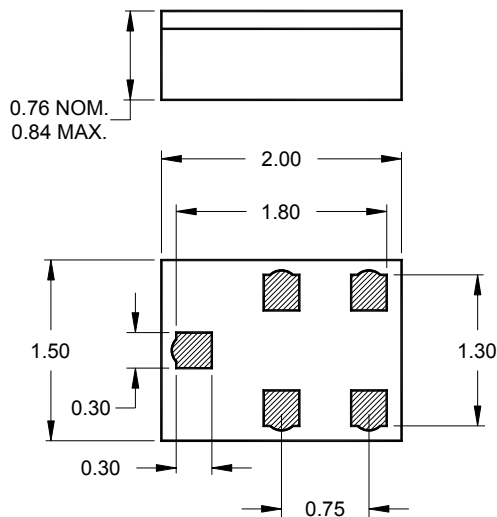
## Features

- For CDMA-ZIF applications
- Usable bandwidth 25 MHz
- Low loss
- Single-ended input, 50  $\Omega$
- Balanced output, 100  $\Omega$
- No Impedance matching required
- Superior amplitude and phase balance
- Ceramic Chip Scale Package (CSP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



## Package

Surface Mount 2.00 x 1.50 x 0.76 mm

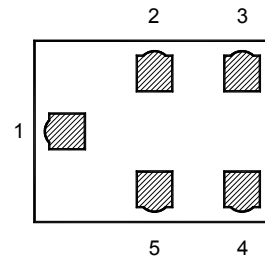


Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.10$ mm

Body:  $Al_2O_3$  ceramic  
 Lid: Kovar or Alloy 42, Au over 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
1	Input, Single-ended
3,4	Output, Balanced
2,5	Case ground

# Data Sheet

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

Operating Temperature Range: <sup>(2)</sup> -30 to +85 °C

Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
<b>Center Frequency</b>	-	881.5	-	MHz
<b>Maximum Insertion Loss</b> 869 - 894 MHz	-	2.0	2.5	dB dB
<b>Amplitude Variation</b> 869 - 894 MHz	-	0.6	1.2	dBp-p
<b>Absolute Attenuation</b> 10 - 824 MHz	50	70	-	dB
824 - 849 MHz	35	37	-	dB
914 - 960 MHz	24	27	-	dB
960 - 3000 MHz	50	56	-	dB
<b>Input/Output Return Loss</b> 869 - 894 MHz	9	12	-	dB
<b>Output Amplitude Balance ( S<sub>31</sub> / S<sub>21</sub> )</b> 869 - 894 MHz	-0.5	0	0.5	dB
<b>Output Phase Balance [<math>\phi(S_{31}) - \phi(S_{21}) + 180</math>]</b> 869 - 894 MHz	-5	0	5	degree
<b>Optimal Source Impedance <sup>(4)</sup></b>	-	50	-	$\Omega$
<b>Optimal Load Impedance <sup>(4)</sup></b>	-	188    251nH	-	$\Omega$

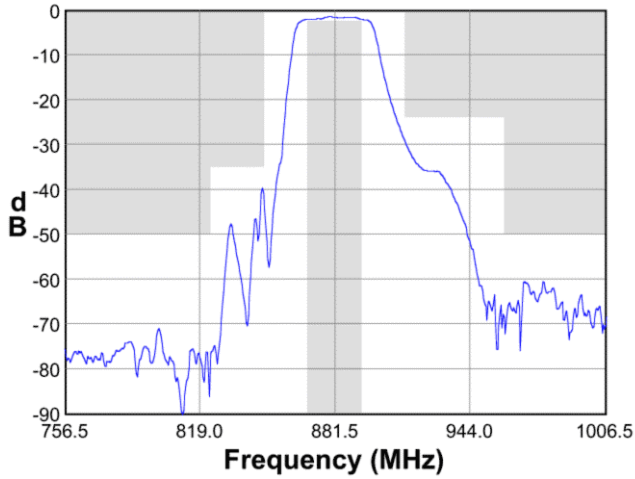
### Notes:

1. All specifications are based on the Sawtek reference test system
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. This is the optimum impedance in order to achieve the performance shown

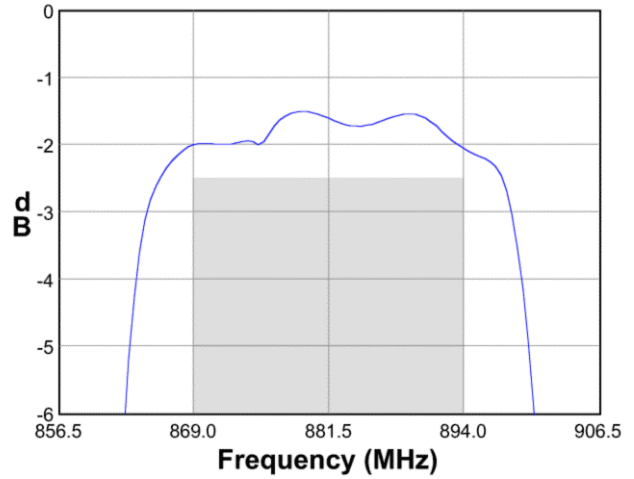
**Data Sheet**

**Typical Performance (at +25°C)**

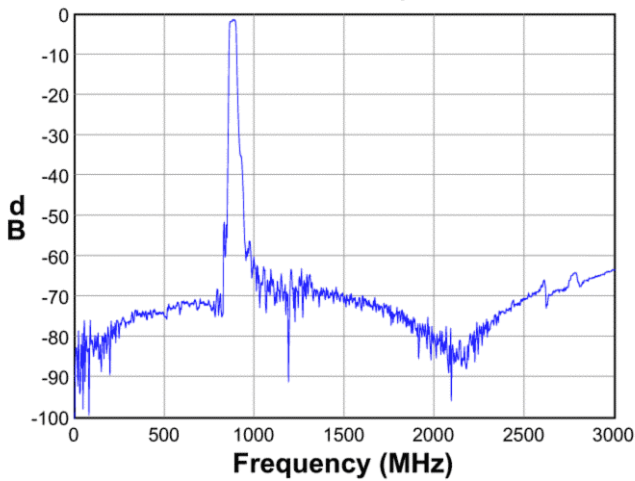
**Frequency Response**



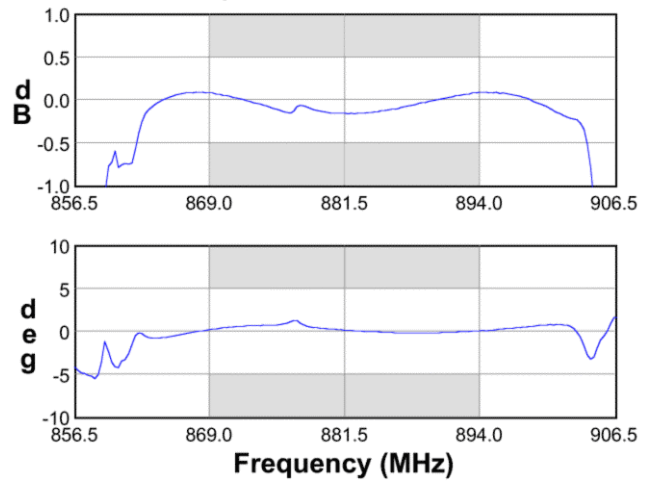
**Passband Response**



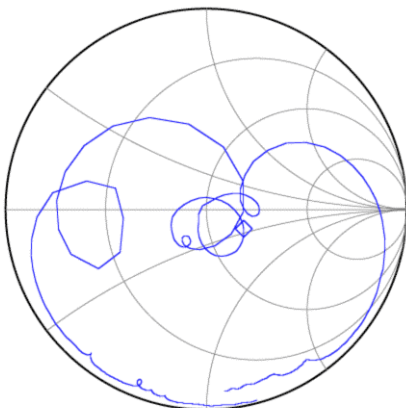
**Wideband Response**



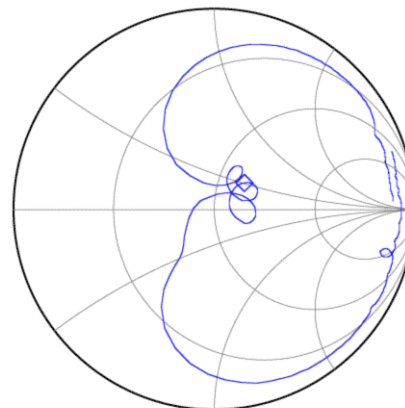
**Amplitude/Phase Balance**



**Input Smith Chart**



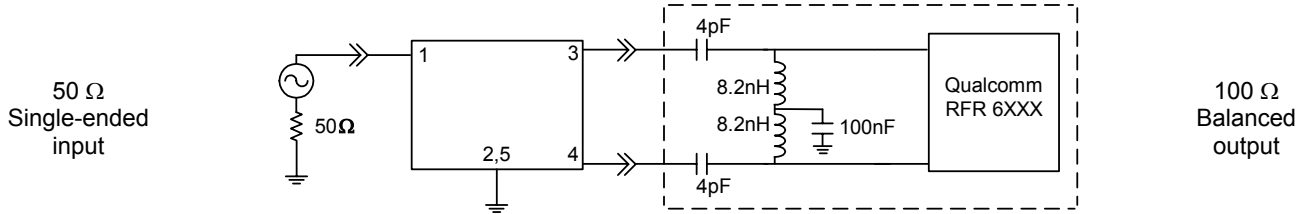
**Output Smith Chart**



**Data Sheet**

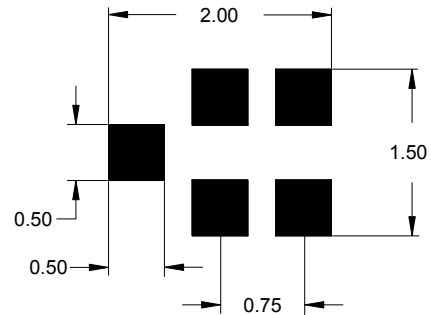
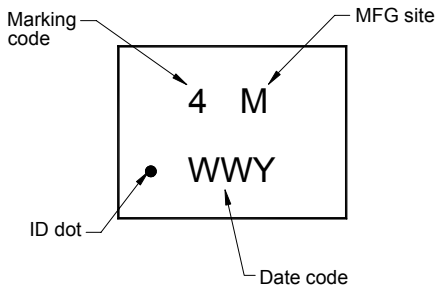
**Matching Schematics**

Actual matching values may vary due to PCB layout and parasitics



**Marking**

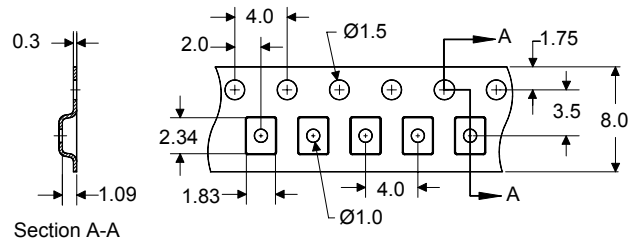
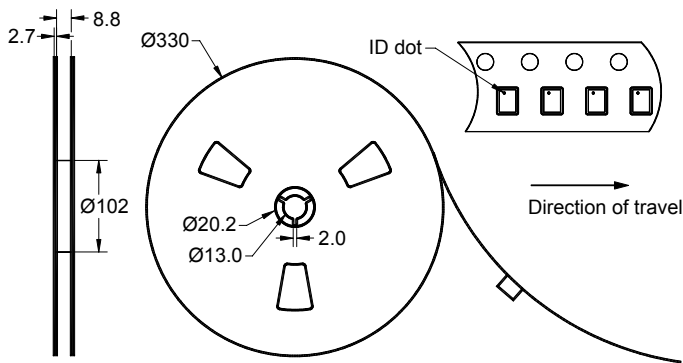
**PCB Footprint**



The date code consists of: WW = 2 digit week,  
Y = last digit of year, M = manufacturing site code

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

**Tape and Reel**



Dimensions shown are nominal in millimeters  
Packaging quantity: 10000 units/reel


# Data Sheet

## Maximum Ratings


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

## Important Notes

### Warnings

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

### RoHS Compliance

- This product complies with EU directive 2002/95/EC (RoHS) 

### Solderability

- Compatible with JEDEC J-STD-020C **Pb**-free process, **260°C** peak reflow temperature ([see soldering profile](#))

## Links to Additional Technical Information

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[RoHS information](#)

[Other Technical Information](#)

Sawtek's liability is limited only to the Surface Acoustic Wave (SAW) component(s) described in this data sheet. Sawtek does not accept any liability for applications, processes, circuits or assemblies, which are implemented using any Sawtek component described in this data sheet.

## 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](#)