
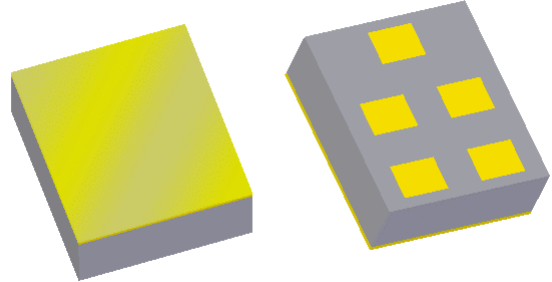


# Data Sheet

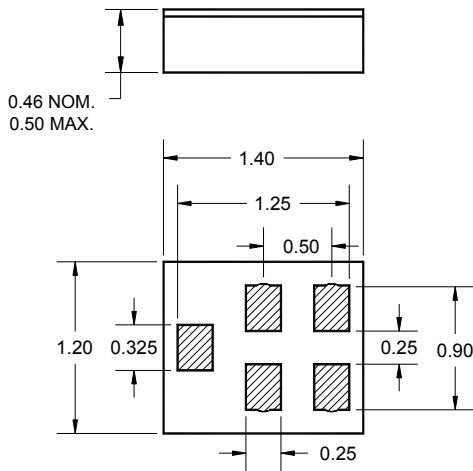
## Features

- For Bluetooth applications
- Usable bandwidth of 83.5 MHz
- Low loss
- Low profile
- High attenuation
- Single-ended operation
- Excellent selectivity and stop band rejection
- Ceramic Chip Scale Package (CSP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



## Package

Surface Mount 1.40 x 1.20 x 0.46 mm

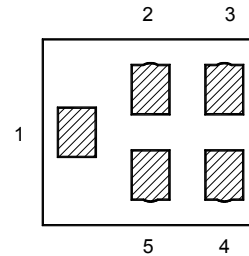


Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.10\text{mm}$

Body:  $\text{Al}_2\text{O}_3$  ceramic  
 Lid: Kovar or Alloy 42, Au over Ni plated  
 Terminations: Au plating 0.5 - 1.0  $\mu\text{m}$ ,  
 over a 2 - 6  $\mu\text{m}$  Ni plating

## Pin Configuration

Bottom View



Pin No.	Description
1	Input
4	Output
3	N/C
2,5	Case ground

# Data Sheet

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

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

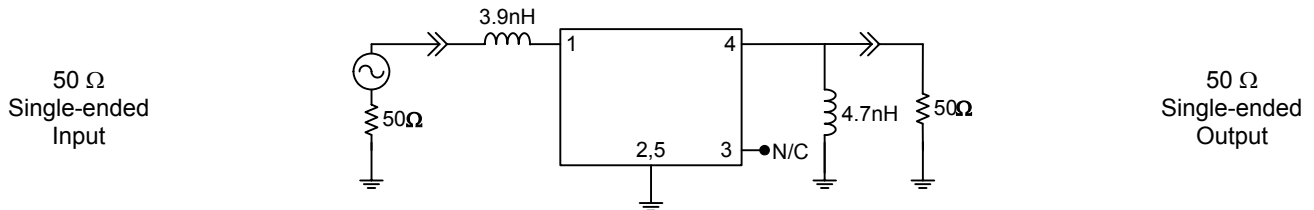
Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
<b>Center Frequency</b>	-	2441	-	MHz
<b>Maximum Insertion Loss</b> <sup>(4)</sup> 2400 - 2483.5 MHz	-	2.0	3.5	dB
<b>Amplitude Ripple</b> <sup>(5)</sup> 2400 - 2483.5 MHz	-	0.8	2.0	dB
<b>Absolute Attenuation</b>				
10 - 1000 MHz	35	40	-	dB
1000 - 1500 MHz	30	35	-	dB
1500 - 2250 MHz	25	30	-	dB
2250 - 2300 MHz	20	28	-	dB
2700 - 3200 MHz	22	28	-	dB
3200 - 3500 MHz	20	25	-	dB
3500 - 4000 MHz	27	32	-	dB
4000 - 4500 MHz	25	33	-	dB
4500 - 5000 MHz	20	28	-	dB
<b>Source Impedance</b> <sup>(6)</sup>	-	50	-	Ω
<b>Load Impedance</b> <sup>(6)</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. Range determined by requirements in the Bluetooth Specification version 1.1
5. Maximum peak to adjacent valley measured over the indicated range
6. This is the optimum impedance in order to achieve the performance shown

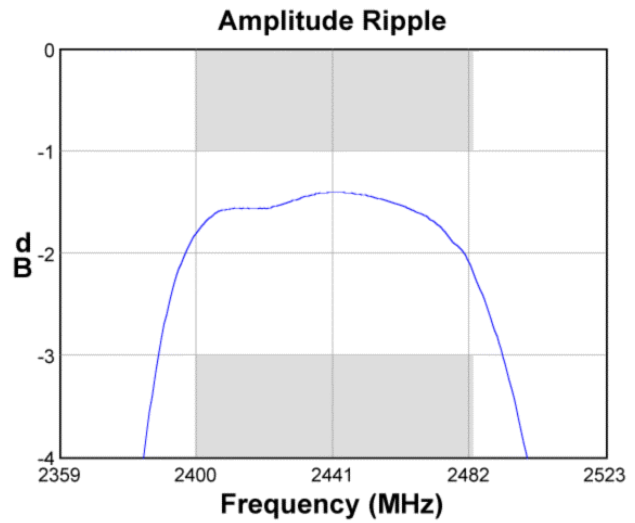
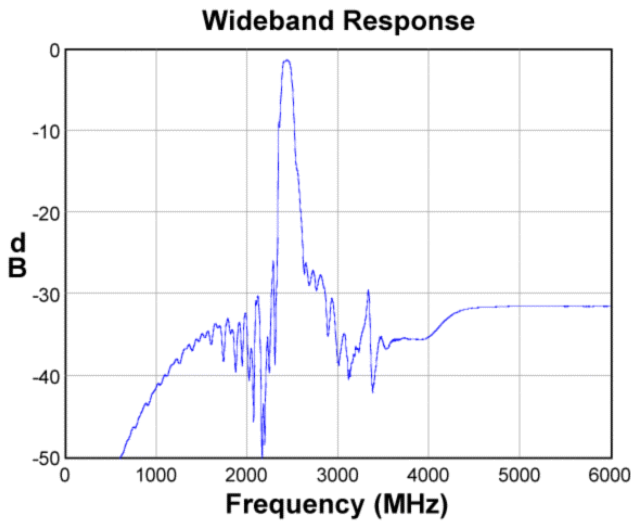
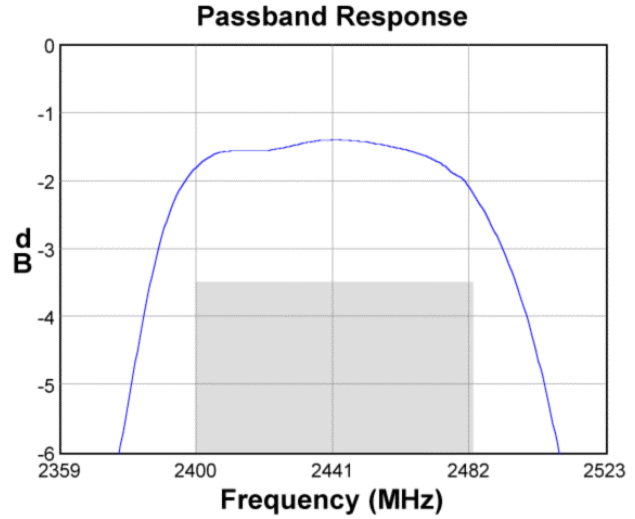
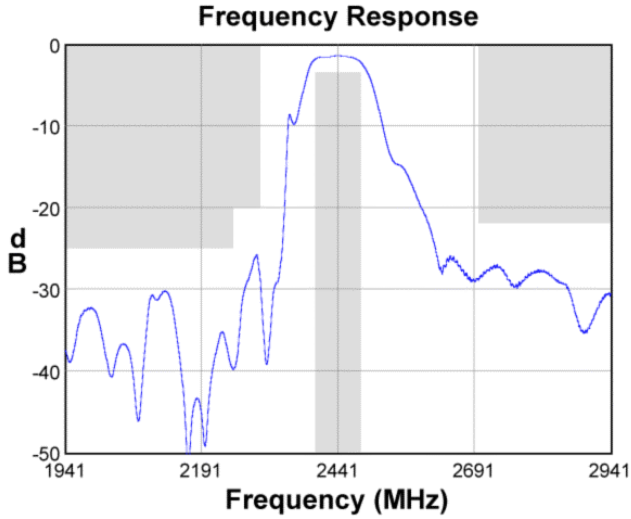
### Test Circuit:

Actual matching values may vary due to PCB layout and parasitics

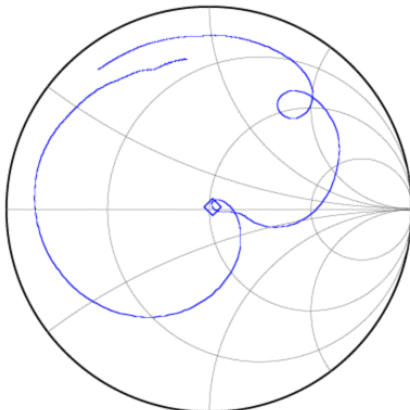


**Data Sheet**

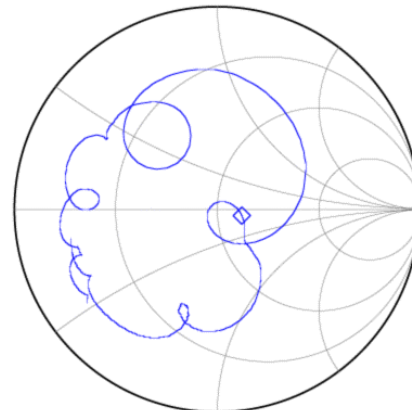
**Typical Performance (at +25°C)**



**Input Smith Chart**



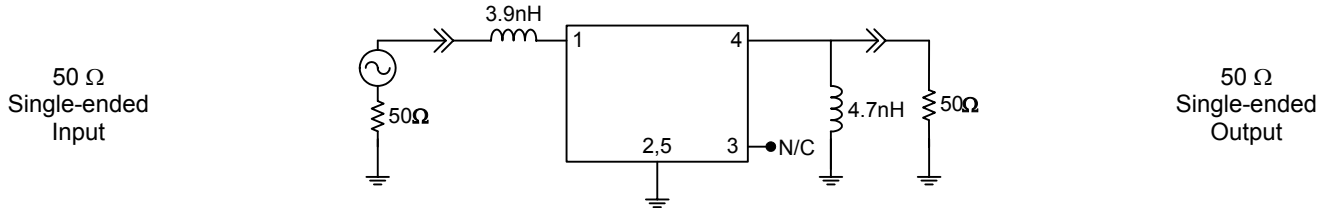
**Output Smith Chart**



**Data Sheet**

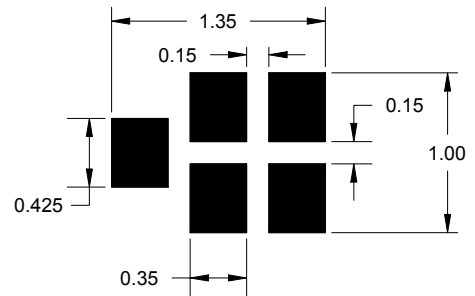
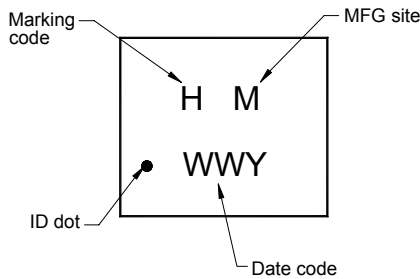
**Matching Schematics**

Actual matching values may vary due to PCB layout and parasitics



**Marking**

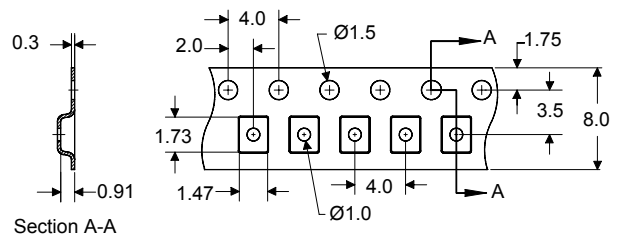
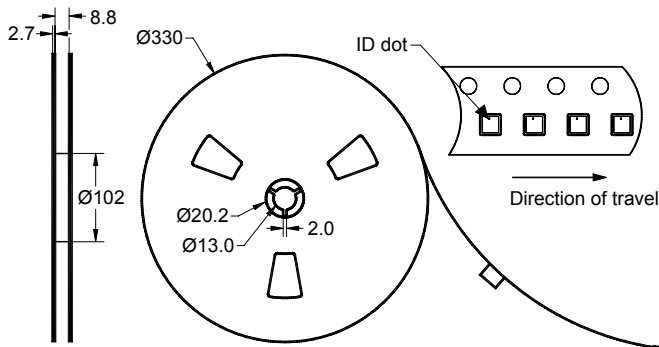
**PCB Footprint**



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](#)

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