
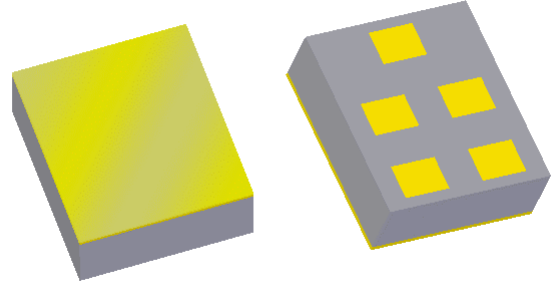


# Data Sheet

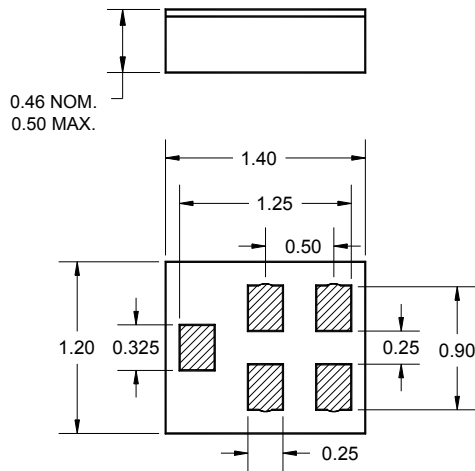
## Features

- 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

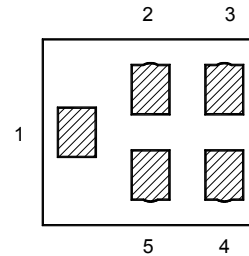


Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.10\text{mm}$

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

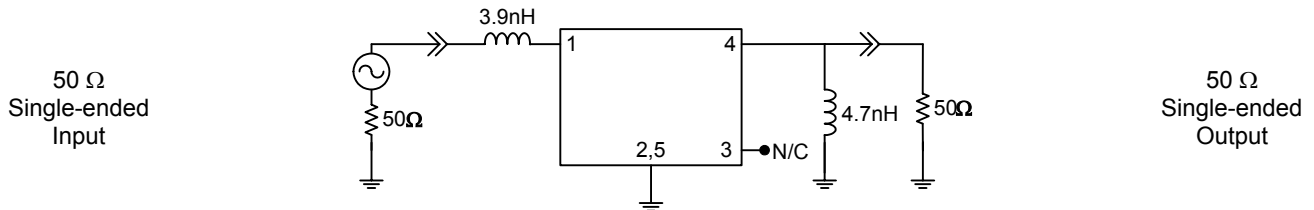
Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
<b>Center Frequency</b>	-	2441	-	MHz
<b>Maximum Insertion Loss</b> <sup>(4)</sup> 2400 - 2483.5 MHz	-	2.0	3.5	dB
<b>Amplitude Ripple</b> <sup>(5)</sup> 2400 - 2483.5 MHz	-	0.8	2.0	dB
<b>Absolute Attenuation</b>				
10 - 1000 MHz	35	40	-	dB
1000 - 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:

- All specifications are based on the test circuit shown below
- In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
- Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
- Range determined by requirements in the Bluetooth Specification version 1.1
- Maximum peak to adjacent valley measured over the indicated range
- This is the optimum impedance in order to achieve the performance shown

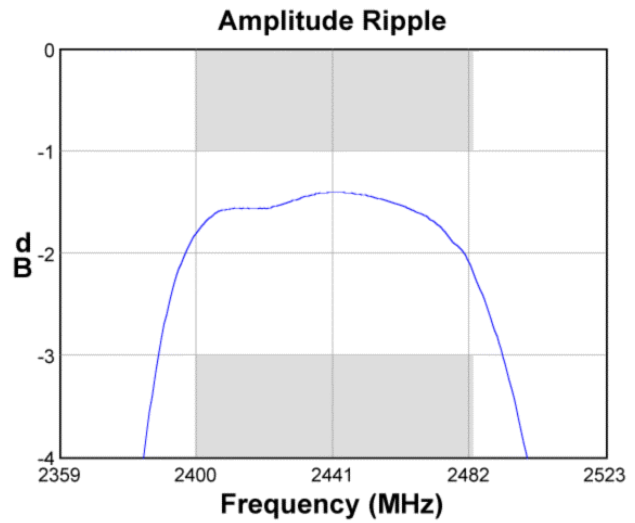
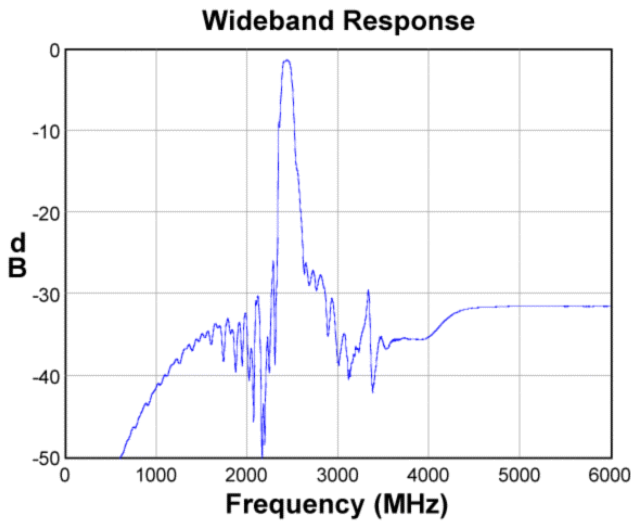
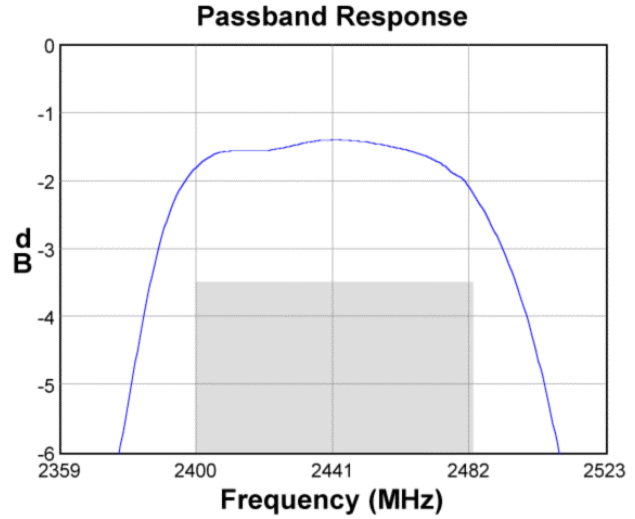
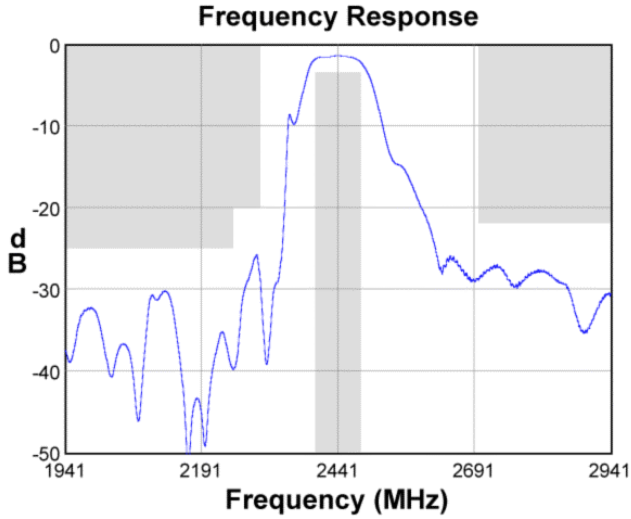
### Test Circuit:

Actual matching values may vary due to PCB layout and parasitics

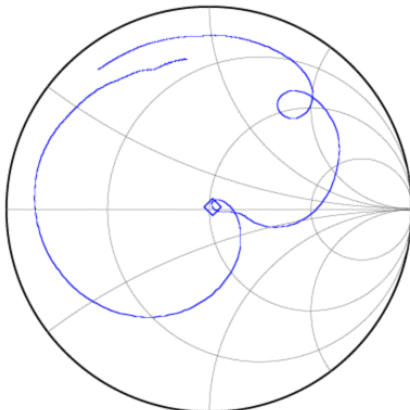


**Data Sheet**

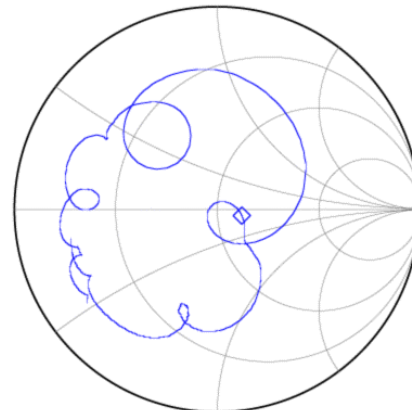
**Typical Performance (at +25°C)**



**Input Smith Chart**



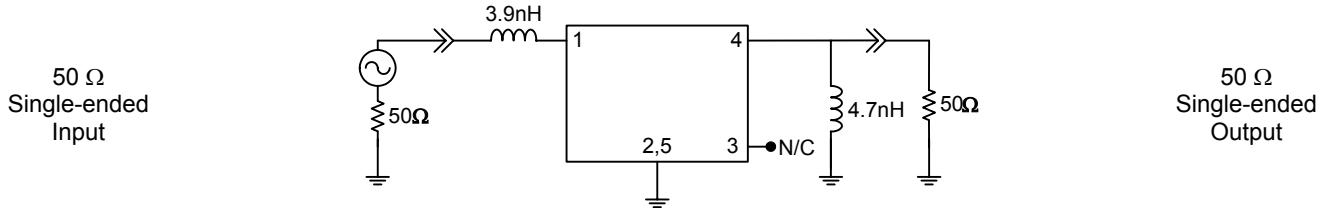
**Output Smith Chart**



**Data Sheet**

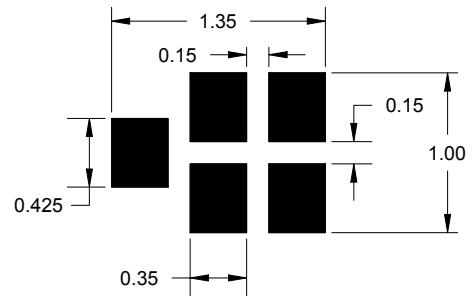
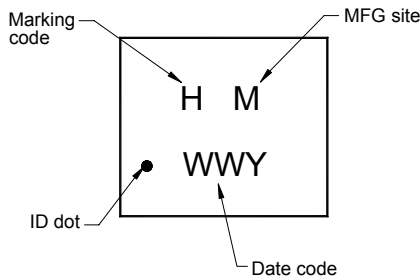
**Matching Schematics**

Actual matching values may vary due to PCB layout and parasitics



**Marking**

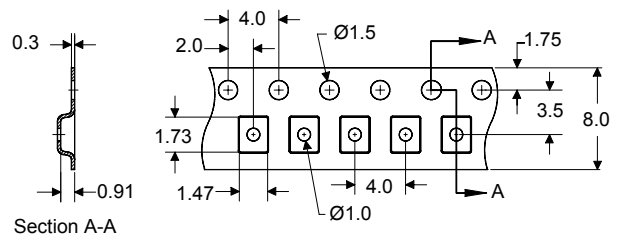
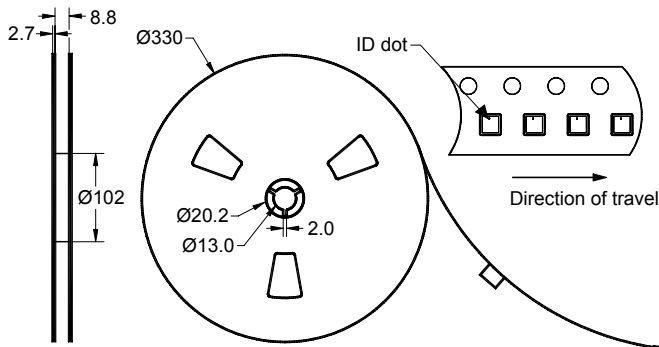
**PCB Footprint**



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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