
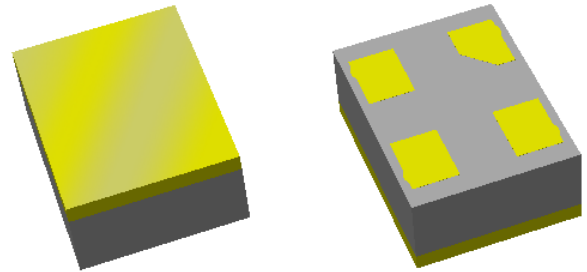


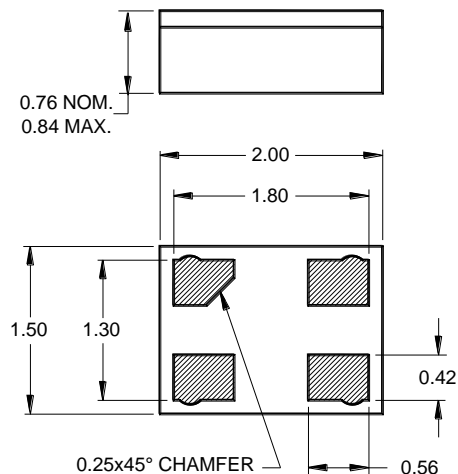
## Features

- For Base Station applications
- Usable bandwidth 13 MHz
- Low loss
- Single-ended operation
- 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  
CSP-8A

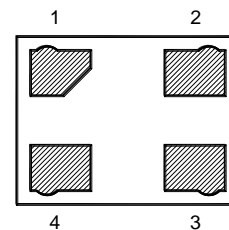


Dimensions shown are nominal in millimeters  
All tolerances are  $\pm 0.10$ mm

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
3	Output
2,4	Case ground

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

Operating Temperature Range: <sup>(2)</sup> -40 to +85 °C

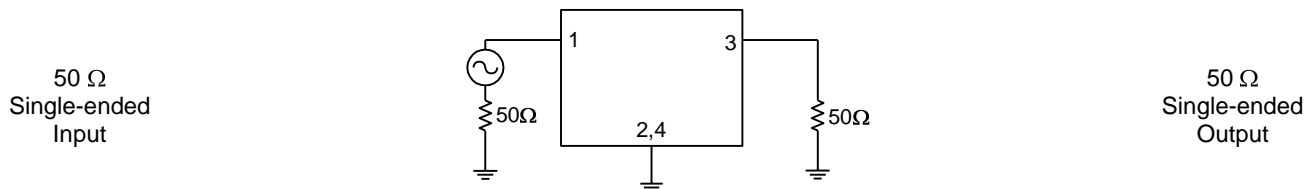
Parameter <sup>(3)</sup>	Minimum	Typical <sup>(4)</sup>	Maximum	Unit
<b>Center Frequency</b>	-	921.5	-	MHz
<b>Maximum Insertion Loss</b> 915 – 928 MHz	-	1.9	3.0	dB
<b>Absolute Attenuation <sup>(5)</sup></b>				
10 – 857.5 MHz	40	50.7	-	dB
857.5 – 895 MHz	35	41.1	-	dB
970 – 1005 MHz	35	46.7	-	dB
1005 – 1110 MHz	40	53.6	-	dB
1110 – 3000 MHz	30	35.2	-	dB
<b>Amplitude Variation</b> 915 – 928 MHz	-	0.3	1.0	dB p-p
<b>Group Delay Variation</b> 915 – 928 MHz	-	28.0	50	ns p-p
<b>Input/Output Return Loss</b> 915 – 928 MHz	10	13.1	-	dB
<b>Source Impedance (single-ended) <sup>(6)</sup></b>	-	50	-	$\Omega$
<b>Load Impedance (single-ended) <sup>(6)</sup></b>	-	50	-	$\Omega$

**Notes:**

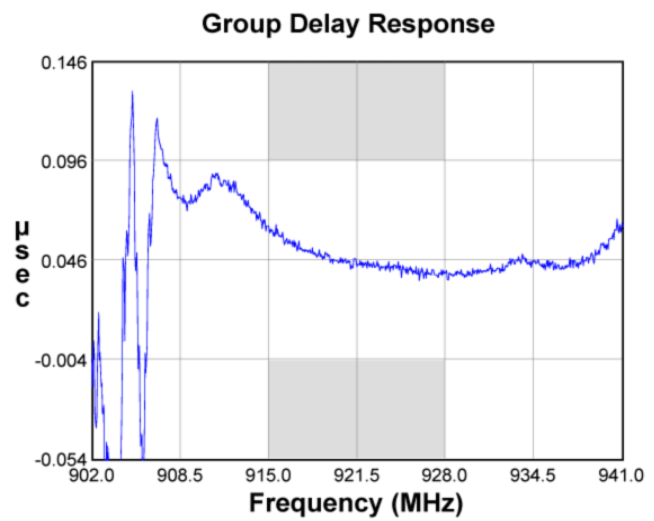
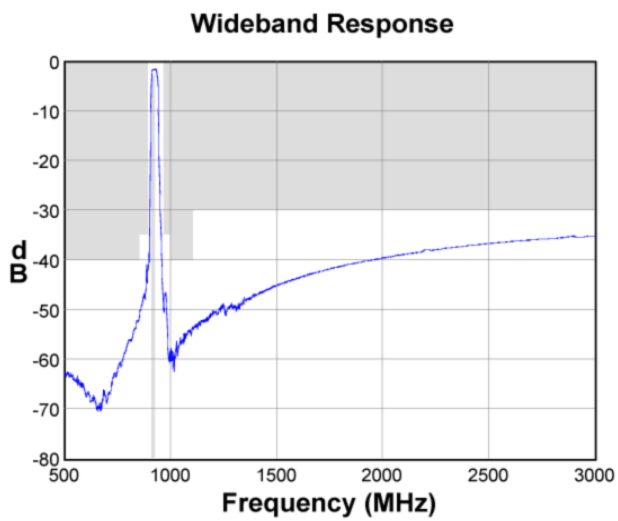
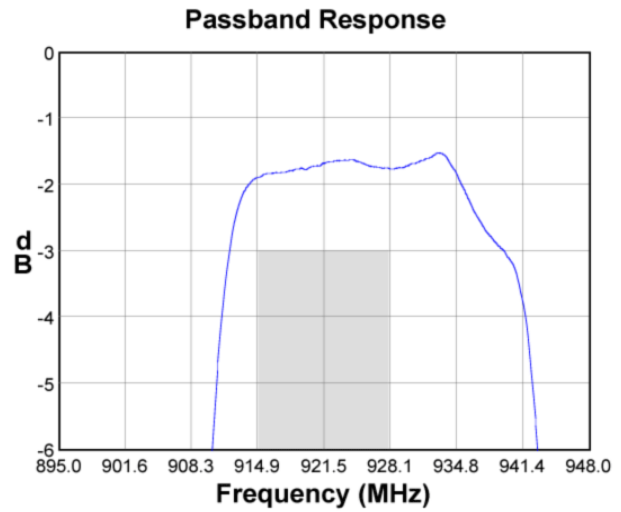
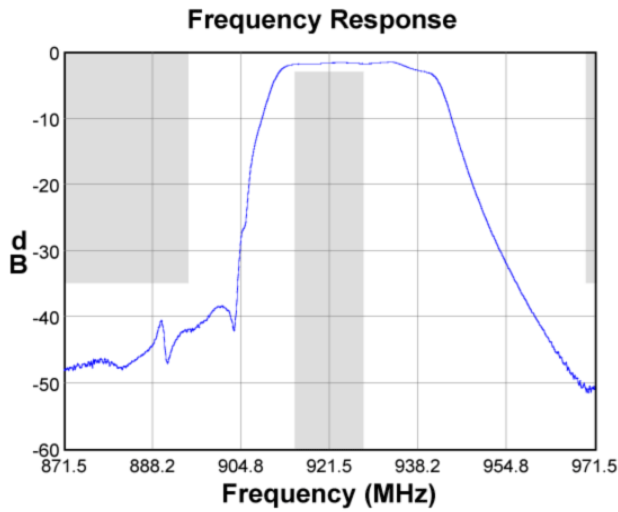
1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Typical values are based on average measurements on pcb at room temperature, unless otherwise noted
5. Relative to zero dB
6. This is the optimum impedance in order to achieve the performance shown

**Test Circuit:**

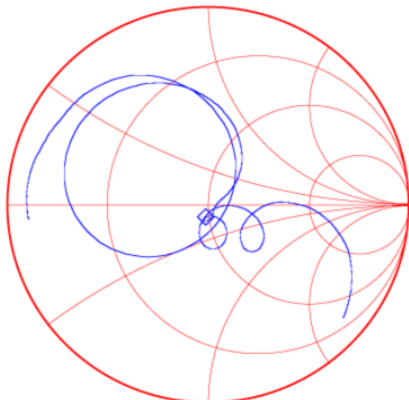
Actual matching values may vary due to PCB layout and parasitics



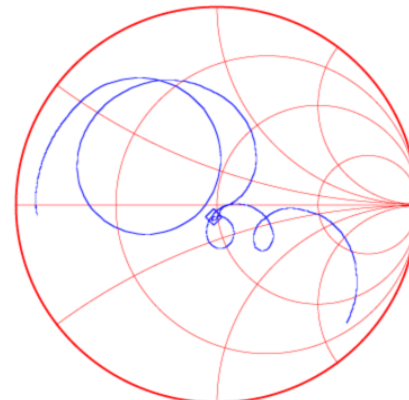
**Typical Performance (at room temperature)**



**Input Smith Chart**



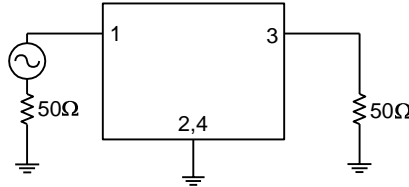
**Output Smith Chart**



**Matching Schematics**

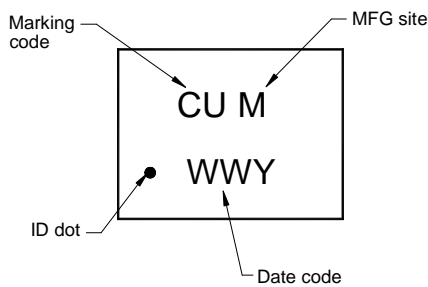
Actual matching values may vary due to PCB layout and parasitics

50 Ω  
Single-ended  
Input



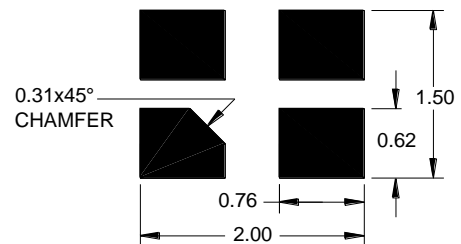
50 Ω  
Single-ended  
Output

**Marking**



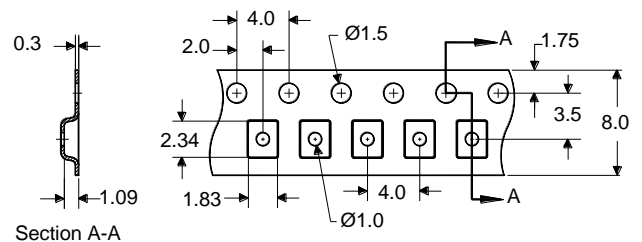
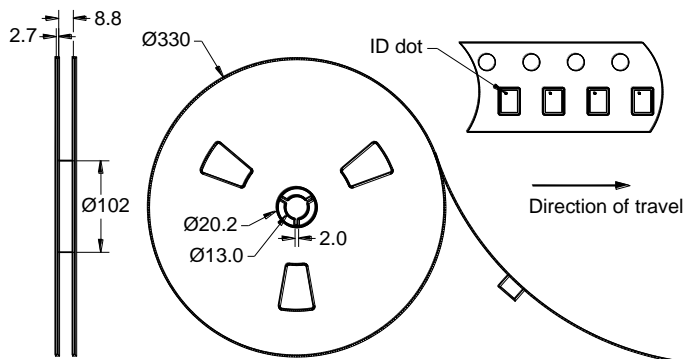
The date code consists of: WW = 2 digit week,  
Y = last digit of year, M = manufacturing site code

**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: 10000 units/reel

### Maximum Ratings


Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+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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