
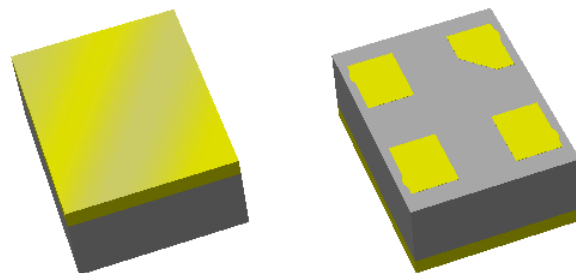


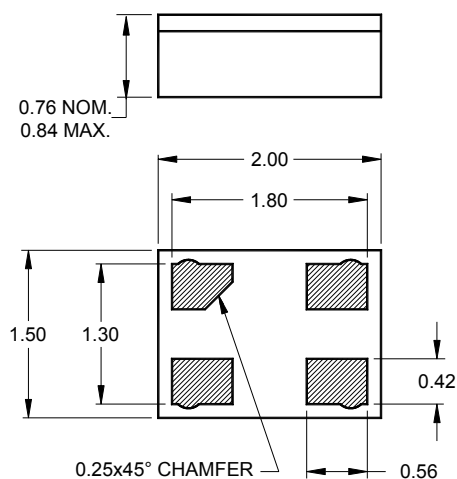
**Features**

- For GPS applications
- Usable bandwidth of 20 MHz
- Typical 3 dB bandwidth of 35 MHz
- Low loss
- High attenuation
- Single-ended operation
- No impedance matching required for operation at 50Ω
- Chip Scale Package (CSP)
- Hermetic
- **RoHS** compliant (2002/95/EC), **Pb-free** 



**Package**

Surface Mount 2.00 x 1.50 x 0.76 mm

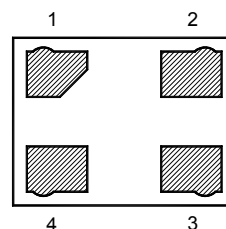


Dimensions shown are nominal in millimeters  
All tolerances are ±0.10mm

Body:  $Al_2O_3$  ceramic  
Lid: Kovar or Alloy 42, Au over Ni plated  
Terminations: Au plating 0.5 - 1.0μm,  
over a 2 - 6μm Ni plating

**Pin Configuration**

Bottom View



Pin No.	Description
1	Input
3	Output
2,4	Case ground

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

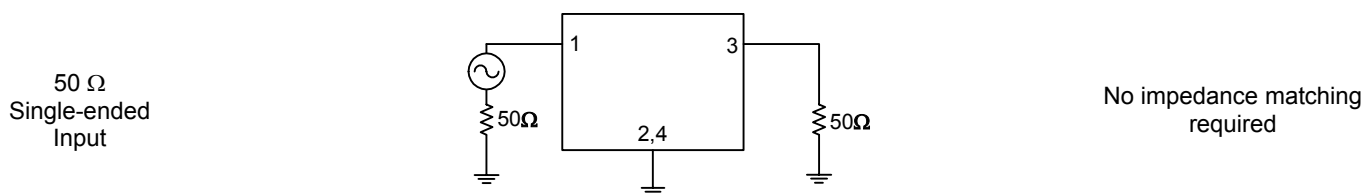
Operating Temperature Range: <sup>(2)</sup> -40 to +85 °C

Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
<b>Center Frequency</b>	-	1176	-	MHz
<b>Maximum Insertion Loss</b> 1166 - 1186 MHz	-	2.4	3.0	dB
<b>Amplitude Ripple</b> 1166 - 1186 MHz	-	0.21	1	dB p-p
<b>Absolute Attenuation</b> 10 - 1036 MHz	35	44	-	dB
1036 - 1126 MHz	20	33	-	dB
1226 - 1316 MHz	20	33	-	dB
1316 - 1500 MHz	35	40	-	dB
1500 - 3000 MHz	30	35	-	dB
<b>Group Delay Variation</b> 1166 - 1186 MHz	-	10	50	ns
<b>Input/Output Return Loss</b> 1166 - 1186 MHz	10	14	-	dB
<b>Input Power</b>	-	-	10	dBm
<b>Source Impedance: <sup>(4)</sup></b>	-	50	-	Ω
<b>Load Impedance: <sup>(4)</sup></b>	-	50	-	Ω

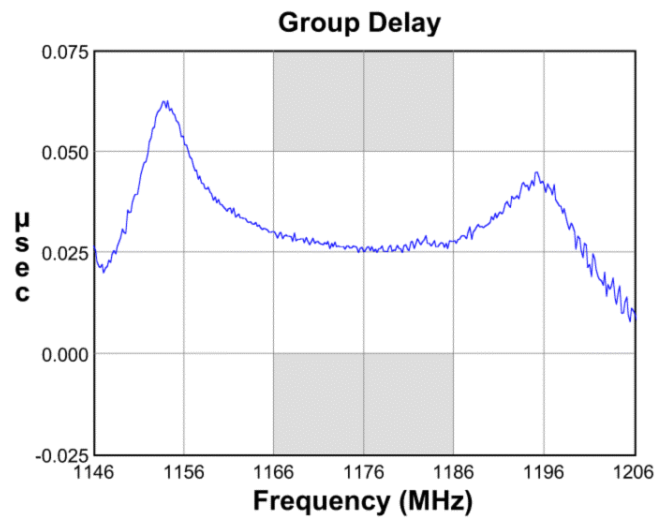
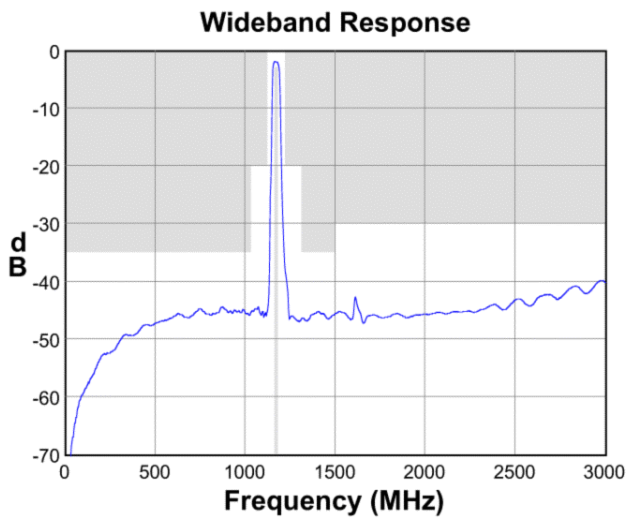
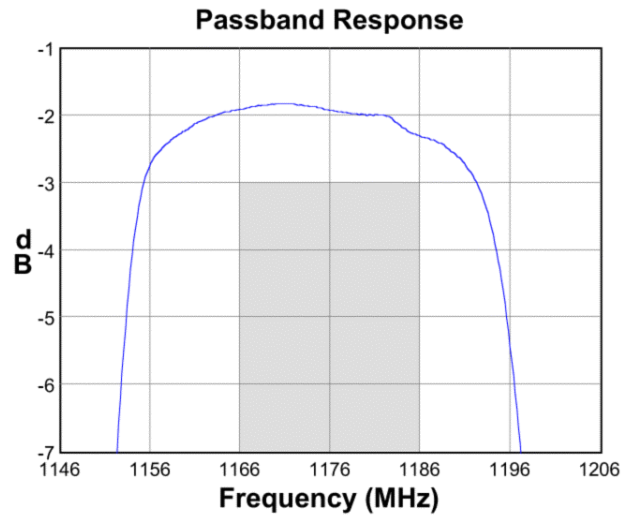
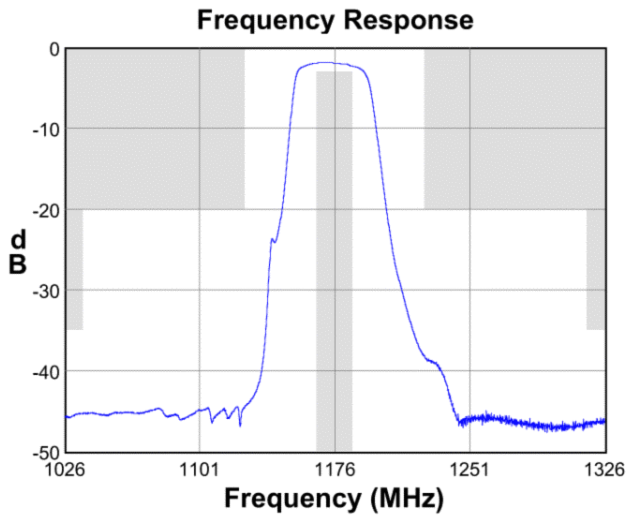
**Notes:**

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. This is the optimum impedance in order to achieve the performance shown

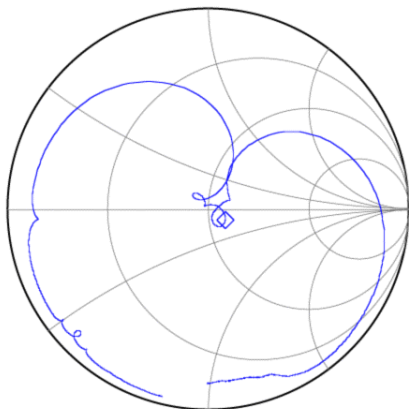
**Test Circuit:**



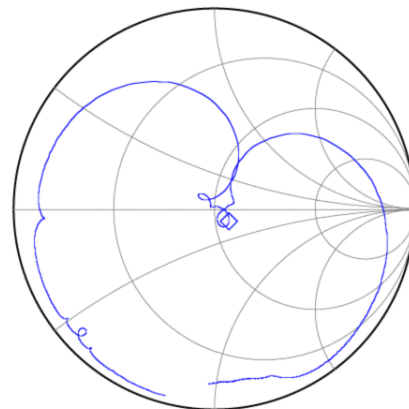
**Typical Performance (at +25°C)**



**Input Smith Chart**

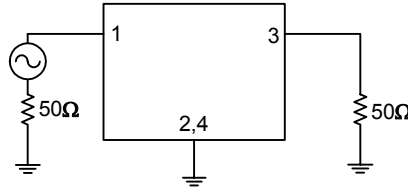


**Output Smith Chart**



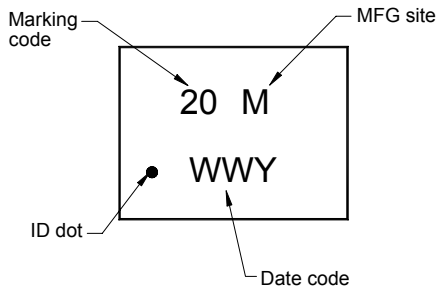
**Matching Schematics**

50  $\Omega$   
Single-ended



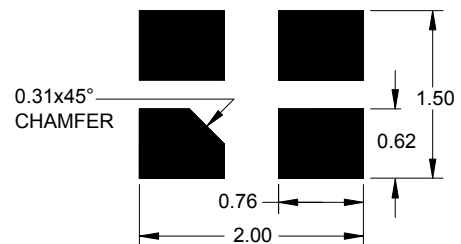
No impedance matching required

**Marking**



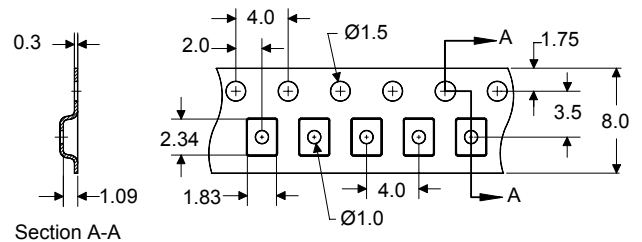
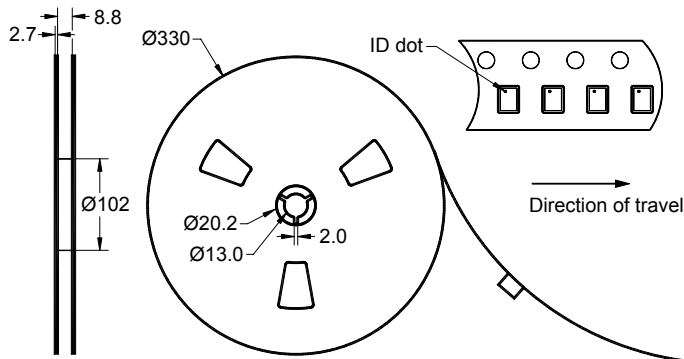
The date code consists of: WW = 2 digit week,  
Y = last digit of year, M = manufacturing site code

**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

**Warnings**

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

**Material Content**

- Does not contain lead (Pb) or other RoHS restricted materials

**Links to Additional Technical Information**

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[RoHS Information](#)

[Other Technical Information](#)

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