
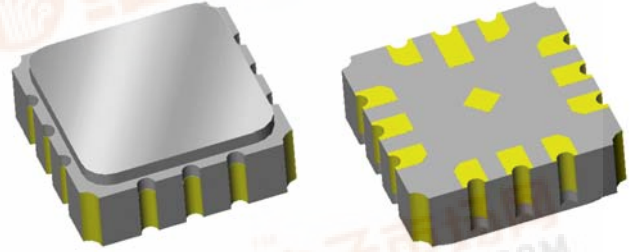


Data Sheet

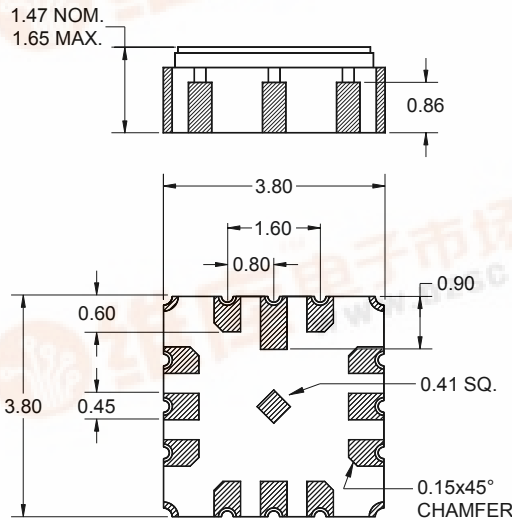
Features

- For AMPS, CDMA and TDMA applications
- Usable bandwidth 25 MHz (each band)
- High Tx-Rx isolation
- Low insertion loss
- High attenuation
- Single-ended operation
- No matching required for operation at 50Ω
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



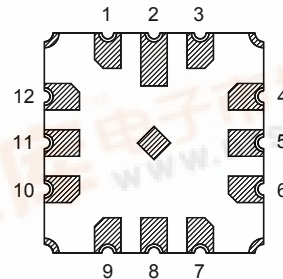
Package

Surface Mount 3.80 x 3.80 x 1.47 mm



Pin Configuration

Bottom View



| Pin No. | Description |
|-----------|-------------|
| 5 | Tx |
| 8 | Antenna |
| 11 | Rx |
| 1,2,3,4,6 | Case ground |
| 7,9,10,12 | Case ground |

Dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

Body: Al₂O₃ ceramic

Lid: Kovar, Ni plated

Terminations: Au plating 0.5 - 1.0μm,
over a 2 - 6μm Ni plating



Data Sheet
Electrical Specifications ⁽¹⁾
Operating Temperature: ⁽²⁾ +25 °C

| Parameter ⁽³⁾ | Minimum | Typical | Maximum | Unit |
|---|---------|---------|---------|------|
| Tx-Ant Specification | | | | |
| Center Frequency | - | 836.5 | - | MHz |
| Maximum Insertion Loss ⁽⁴⁾ 824 - 849 MHz | - | 1.8 | 2.3 | dB |
| Amplitude Ripple 824 - 849 MHz | - | 0.4 | 0.9 | dB |
| Absolute Attenuation 869 - 894 MHz | 45 | 49 | - | dB |
| 1050 - 1100 MHz | 18 | 22 | - | dB |
| 1250 - 1325 MHz | 12 | 16 | - | dB |
| Second Harmonic Attenuation 1648 - 1698 MHz | 7 | 9 | - | dB |
| Third Harmonic Attenuation 2472 - 2547 MHz | 8 | 10 | - | dB |
| Return Loss at Tx Terminal ⁽⁴⁾ 824 - 849 MHz | 10 | 13 | - | dB |
| Ant-Rx Specification | | | | |
| Center Frequency | - | 881.5 | - | MHz |
| Maximum Insertion Loss ⁽⁴⁾ 869 - 894 MHz | - | 2.5 | 3.0 | dB |
| Amplitude Ripple 869 - 894 MHz | - | 1.0 | 1.4 | dB |
| Absolute Attenuation 779 - 804 MHz | 35 | 40 | - | dB |
| 824 - 849 MHz | 51 | 55 | - | dB |
| 1039 - 1065 MHz | 35 | 40 | - | dB |
| 1100 - 1270 MHz | 38 | 45 | - | dB |
| 1648 - 1698 MHz | 30 | 41 | - | dB |
| 2472 - 2547 MHz | 15 | 20 | - | dB |
| Return Loss at Rx Terminal ⁽⁴⁾ 869 - 894 MHz | 10 | 13 | - | dB |
| Tx-Rx Specification | | | | |
| Tx to Rx Isolation 824 - 849 MHz | 55 | 59 | - | dB |
| 869 - 894 MHz | 45 | 48 | - | dB |

Notes:

1. All specifications are based on the test circuit shown on page 5
2. This specification is valid for room temperature only. The specification over the full temperature range(s) is available on the next page(s)
3. Electrical margin has been built into the design to account for the variations due to manufacturing tolerances
4. Excluding losses due to PCB

Data Sheet
Electrical Specifications ⁽¹⁾
Operating Temperature Range: ⁽²⁾ -30 to +85 °C

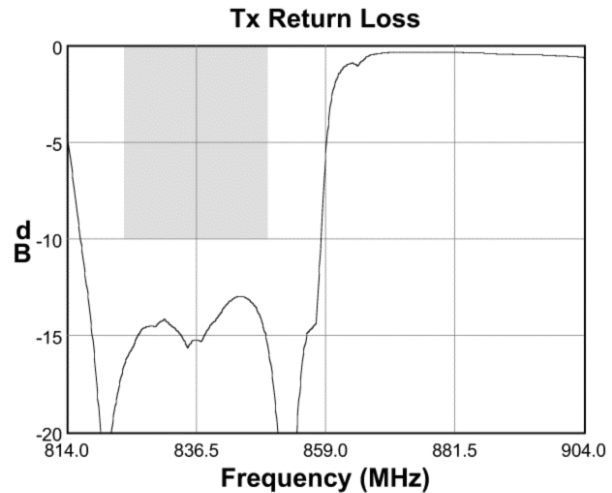
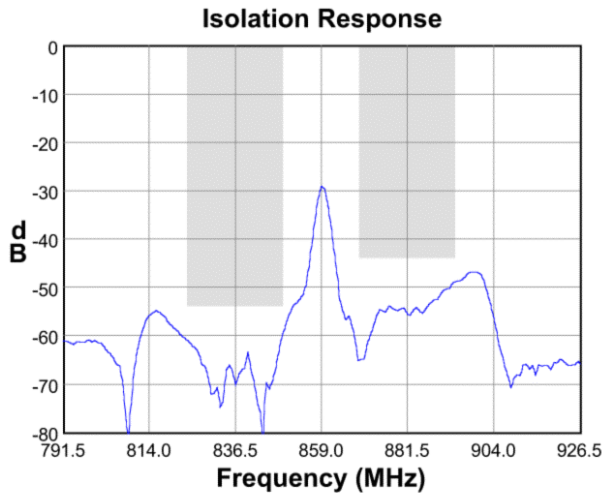
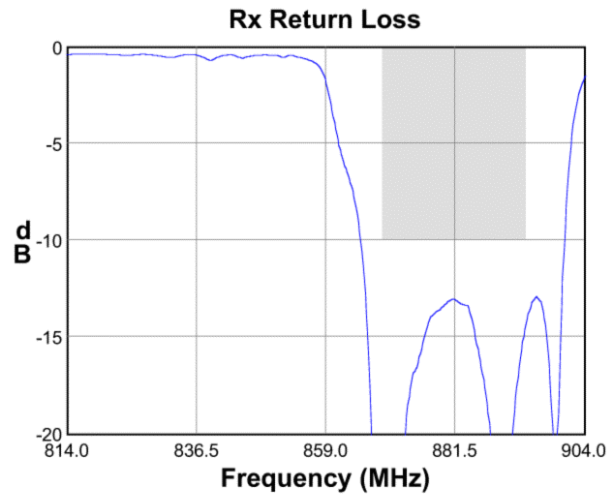
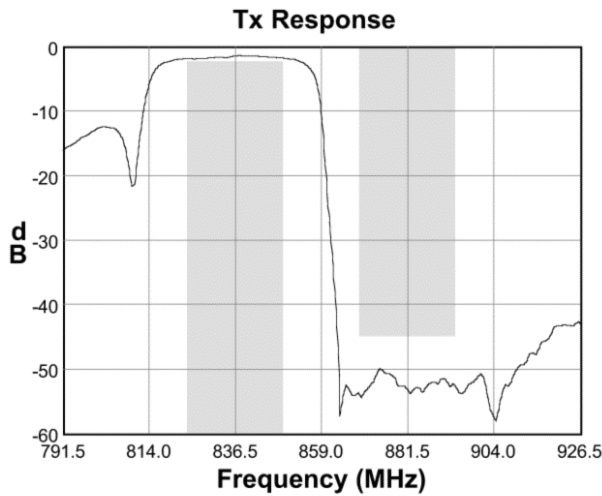
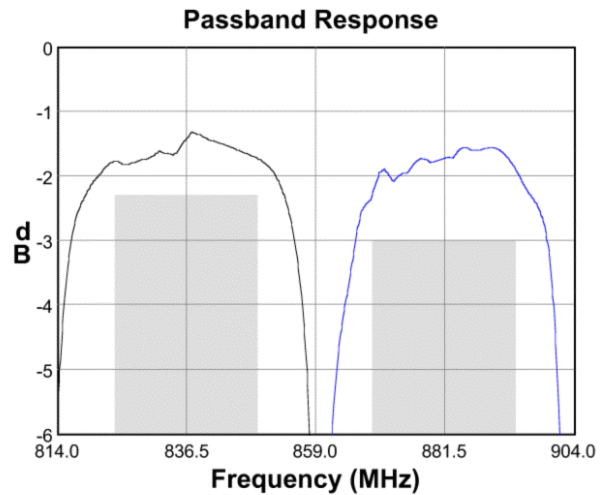
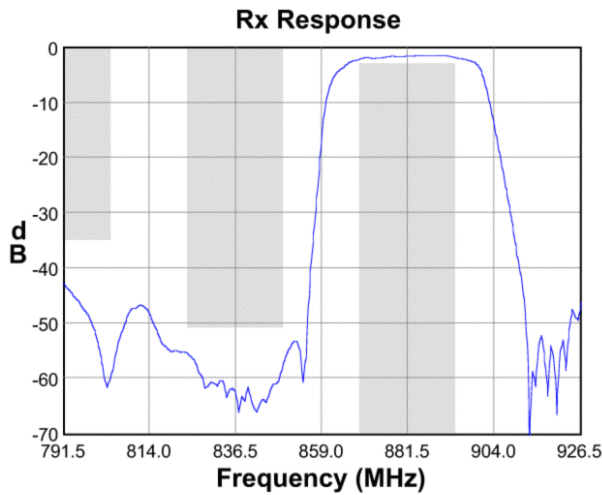
| Parameter ⁽³⁾ | Minimum | Typical | Maximum | Unit |
|---|---------|---------|---------|------|
| Tx-Ant Specification | | | | |
| Center Frequency | - | 836.5 | - | MHz |
| Maximum Insertion Loss ⁽⁴⁾ 824 - 849 MHz | - | 1.8 | 2.5 | dB |
| Amplitude Ripple 824 - 849 MHz | - | 0.4 | 1.1 | dB |
| Absolute Attenuation 869 - 894 MHz | 45 | 48 | - | dB |
| 1050 - 1100 MHz | 18 | 22 | - | dB |
| 1250 - 1325 MHz | 12 | 16 | - | dB |
| Second Harmonic Attenuation 1648 - 1698 MHz | 7 | 9 | - | dB |
| Third Harmonic Attenuation 2472 - 2547 MHz | 8 | 10 | - | dB |
| Return Loss at Tx Terminal ⁽⁴⁾ 824 - 849 MHz | 10 | 13 | - | dB |
| Ant-Rx Specification | | | | |
| Center Frequency | - | 881.5 | - | MHz |
| Maximum Insertion Loss ⁽⁴⁾ 869 - 894 MHz | - | 2.5 | 3.5 | dB |
| Amplitude Ripple 869 - 894 MHz | - | 1.0 | 2.2 | dB |
| Absolute Attenuation 779 - 804 MHz | 35 | 40 | - | dB |
| 824 - 849 MHz | 50 | 54 | - | dB |
| 1039 - 1065 MHz | 35 | 40 | - | dB |
| 1100 - 1270 MHz | 38 | 45 | - | dB |
| 1648 - 1698 MHz | 30 | 41 | - | dB |
| 2472 - 2547 MHz | 15 | 20 | - | dB |
| Return Loss at Rx Terminal ⁽⁴⁾ 869 - 894 MHz | 9 | 12 | - | dB |
| Tx-Rx Specification | | | | |
| Tx to Rx Isolation 824 - 849 MHz | 54 | 58 | - | dB |
| 869 - 894 MHz | 44 | 48 | - | dB |

Notes:

1. All specifications are based on the test circuit shown on page 5
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. Excluding losses due to PCB

Data Sheet

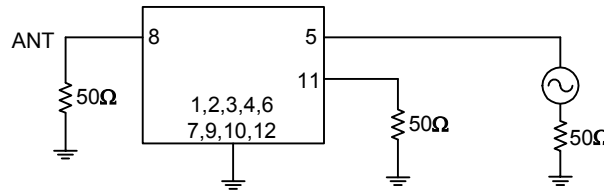
Typical Performance



Data Sheet

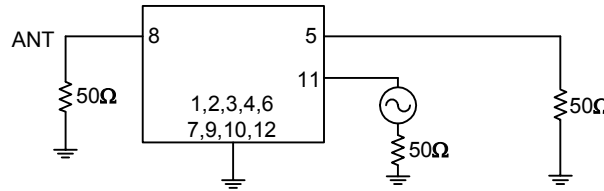
Test Circuits

50 Ω
Single-ended



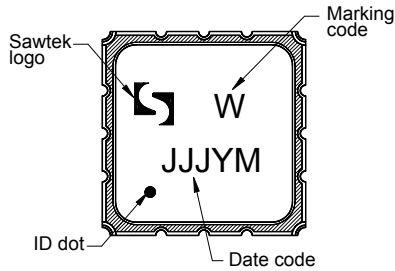
No impedance matching required

50 Ω
Single-ended



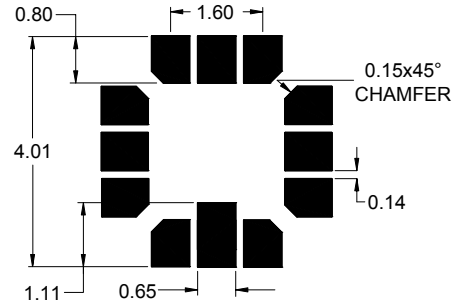
No impedance matching required

Marking



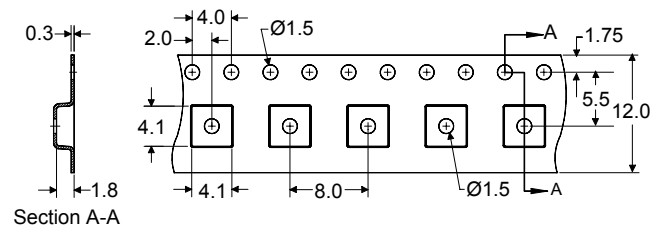
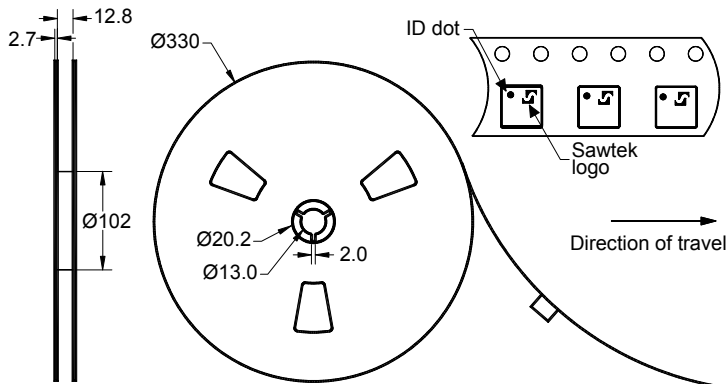
The date code consists of: JJJ = Julian day, Y = last digit of year, M = manufacturing site code

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: 4000 units/reel


Data Sheet

Maximum Ratings


| Parameter | Symbol | Minimum | Maximum | Unit |
|-----------------------------|------------------|---------|---------|------|
| Operating Temperature Range | T | -30 | +85 | °C |
| Storage Temperature Range | T _{stg} | -40 | +85 | °C |
| RF Power | P _{in} | - | +31 | dBm |

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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