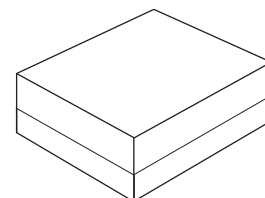


- 403.5 MHz SAW RF Filter
- 3 MHz Bandwidth
- 1.4 x 1.1 mm Surface-mount Case
- Complies with Directive 2002/95/EC (RoHS)
- Moisture Sensitivity Level - 1
- AEC-Q200 Qualified

SF2352K-1

**403.5 MHz
SAW Filter**



SM1411-5

Absolute Maximum Ratings

| Rating | Value | Units |
|--|-----------------|-------|
| Maximum Incident Power in Passband | +17 | dBm |
| Maximum DC Voltage On any Non-ground Terminal | 3 | VDC |
| Operating Temperature Range | +0 to +55 | °C |
| Storage Temperature Range in Tape and Reel | -20 to +70 | °C |
| Maximum Soldering Temperature Profile (5 cycles maximum) | 265 °C for 10 s | |

Electrical Characteristics

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
|--|------------------|---------------------------------|--------|-----|-----|-------------------|
| Center Frequency at 25°C | f _C | | 403.50 | | | MHz |
| Insertion Loss, 402 to 405 MHz | IL | | 1.0 | 2.3 | 3.0 | dB |
| Bandwidth -1.5dB | BW | | 3.0 | 5.3 | | dB |
| Amplitude Ripple, 402 to 405 MHz | Δα | | | 0.7 | 1.5 | dB _{P-P} |
| Input VSWR, 402 to 405 MHz | | | | 1.7 | 2.0 | - |
| Output VSWR, 402 to 405 MHz | | | | 1.7 | 2.0 | |
| Attenuation (relative to IL) | α _{rel} | | | | | dB |
| 0.3 to 339.5 MHz | | | 38 | 53 | | |
| 339.5 to 358.5 MHz | | | 38 | 55 | | |
| 358.5 to 383.5 MHz | | | 37 | 52 | | |
| 423.5 to 448.5 MHz | | | 30 | 46 | | |
| 448.5 to 467.5 MHz | | | 35 | 56 | | |
| 467.5 to 500 MHz | | | 35 | 54 | | |
| 500 to 700 MHz | | | 33 | 54 | | |
| 700 to 1000 MHz | | | 33 | 51 | | |
| 1000 to 1210 MHz | | | 35 | 48 | | |
| 1210 to 2500 MHz | | | 33 | 37 | | |
| Case | | 1.4 x 1.1 x 0.7 mm, 5 Terminals | | | | |
| Terminating Source Impedance: Single-Ended | | | | 50 | | Ω |
| Terminating Source Impedance: Single-Ended | | | | 200 | | Ω |
| Temperature Coefficient of Frequency | | | | -36 | | ppm/°C |



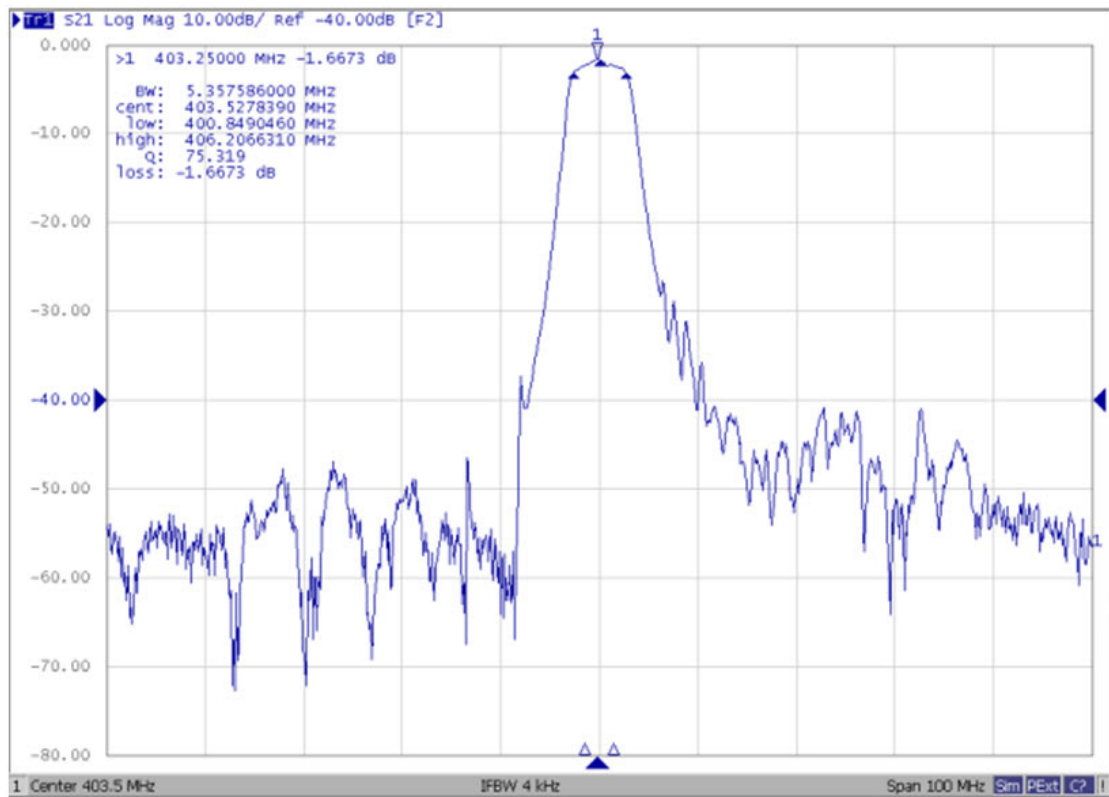
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

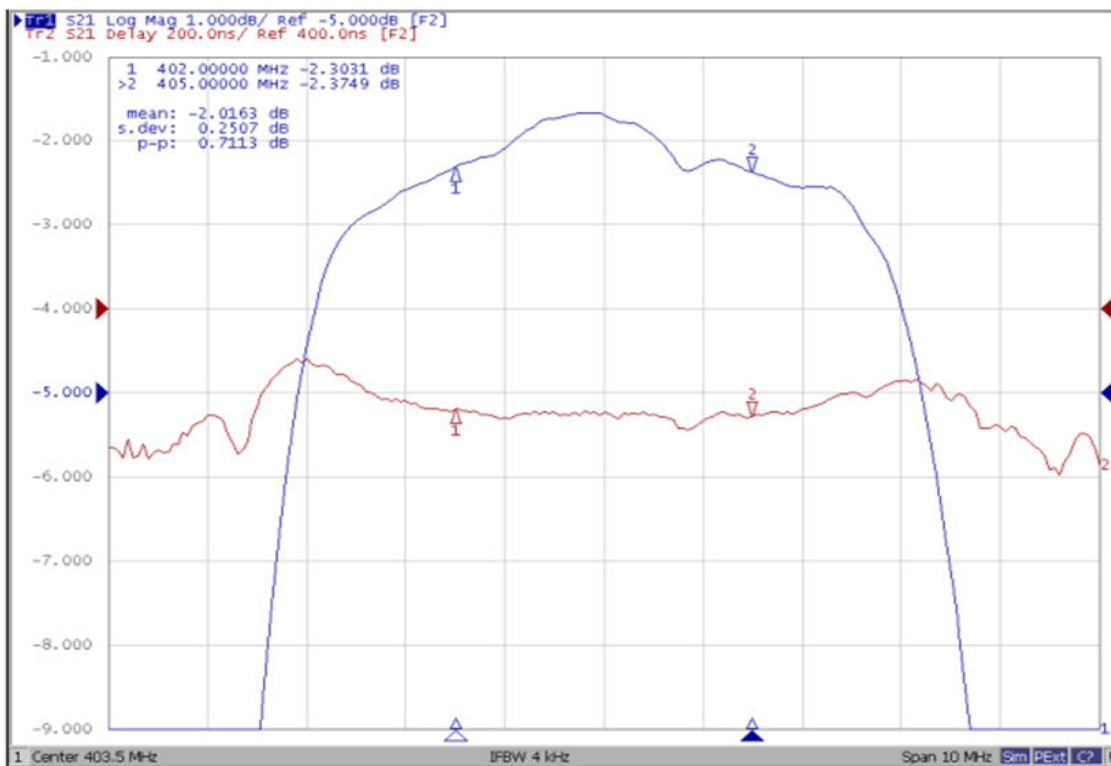
1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

Frequency Response Plots

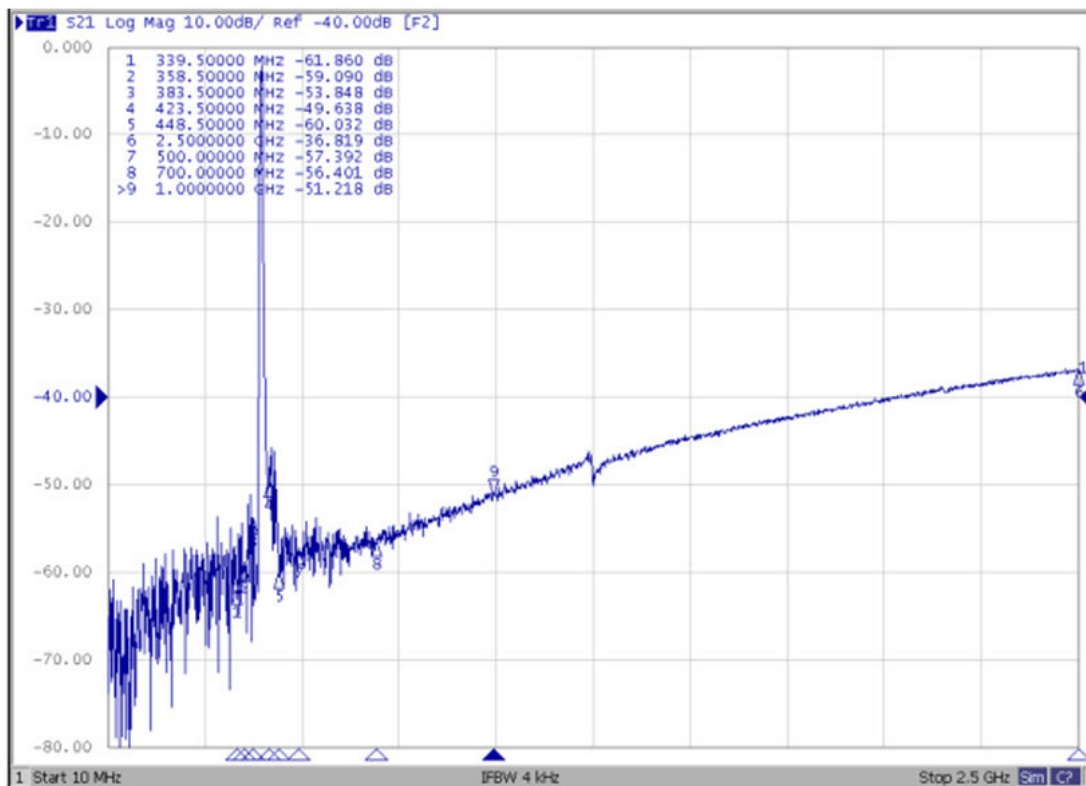
S21 Response - span 100 MHz



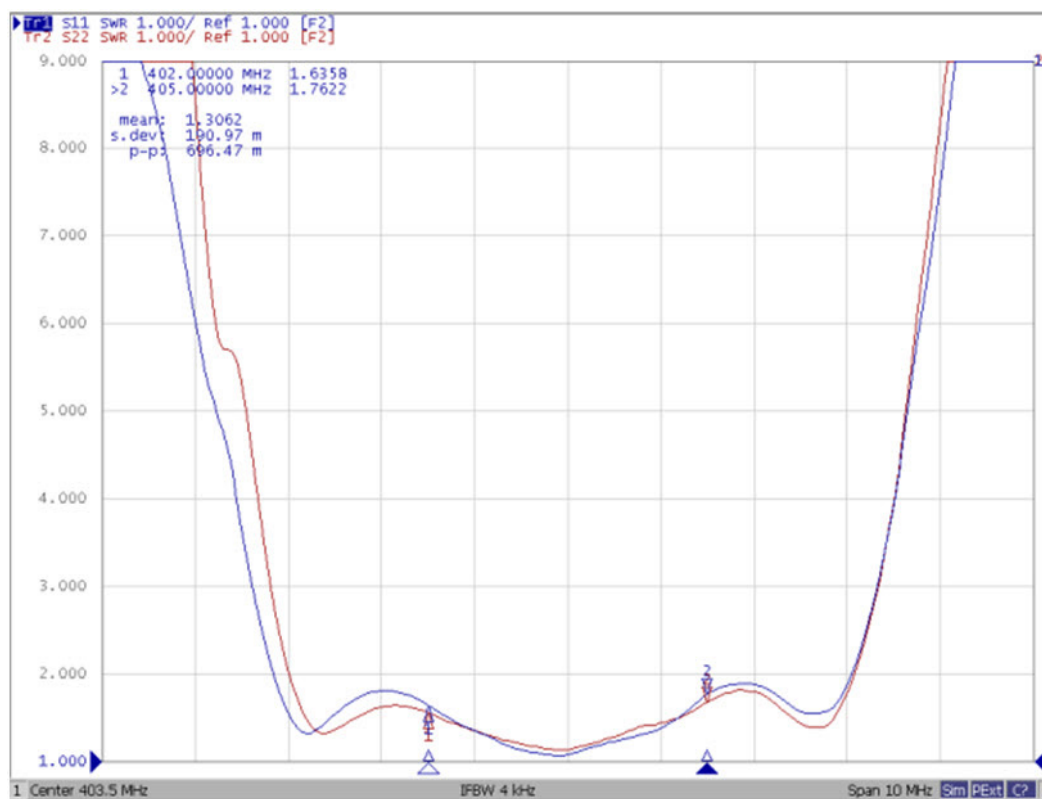
S21 Response - span 10 MHz



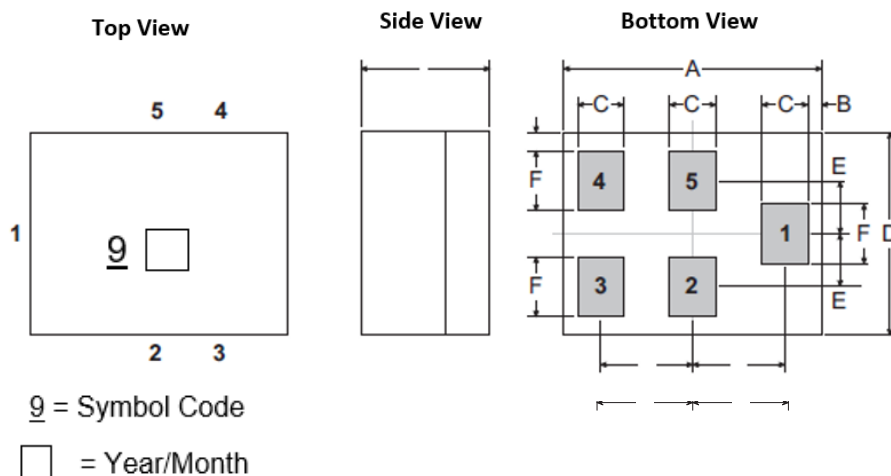
S21 Response - span 2.5 GHz



S11 and S22 VSWR - span 10 MHz

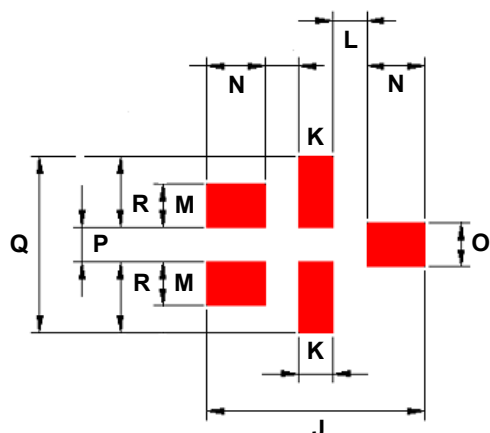


SM1411-5



Case and PCB Footprint Dimensions

PCB Footprint

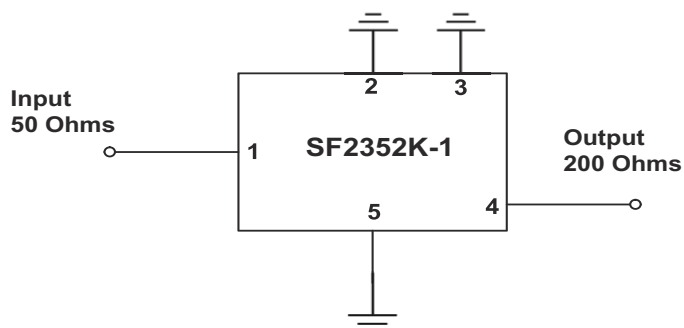


| Dimension | mm | | | Inches | | |
|-----------|--------|--------|--------|--------|--------|--------|
| | Min | Nom | Max | Min | Nom | Max |
| A | 1.3500 | 1.4000 | 1.4500 | 0.0531 | 0.0551 | 0.0571 |
| B | - | 0.0750 | - | - | 0.0030 | - |
| C | 0.1700 | 0.250 | 0.3300 | 0.0067 | 0.0098 | 0.0130 |
| D | 1.0500 | 1.1000 | 1.1500 | 0.0413 | 0.0433 | 0.0453 |
| E | - | 0.2875 | - | - | 0.0113 | - |
| F | 0.2450 | 0.3250 | 0.4050 | 0.0096 | 0.0128 | 0.0159 |
| G | - | 0.100 | - | - | 0.0039 | - |
| H | - | 0.5000 | - | - | 0.0196 | - |
| I | - | 0.5000 | 0.700 | 0.0236 | 0.0256 | 0.0276 |
| J | - | 1.6000 | - | - | 0.0629 | - |
| K | - | 0.2500 | - | - | 0.0138 | - |
| L | - | 0.2500 | - | - | 0.0098 | - |
| M | - | 0.3250 | - | - | 0.0127 | - |
| N | - | 0.4250 | - | - | 0.0167 | - |
| O | - | 0.3250 | - | - | 0.0394 | - |
| P | - | 0.2500 | - | - | 0.0098 | - |
| Q | - | 1.3000 | - | - | 0.0511 | - |
| R | - | 0.5250 | - | - | 0.0206 | - |

Materials

| | |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 μ m Gold over 1.27 to 8.89 μ m Nickel |
| Lid Plating | Plastic molding |
| Body | Al ₂ O ₃ Ceramic |

Test Circuit



Pin Description

| | |
|---------|--------|
| 1 | Input |
| 4 | Output |
| 2, 3, 5 | Ground |

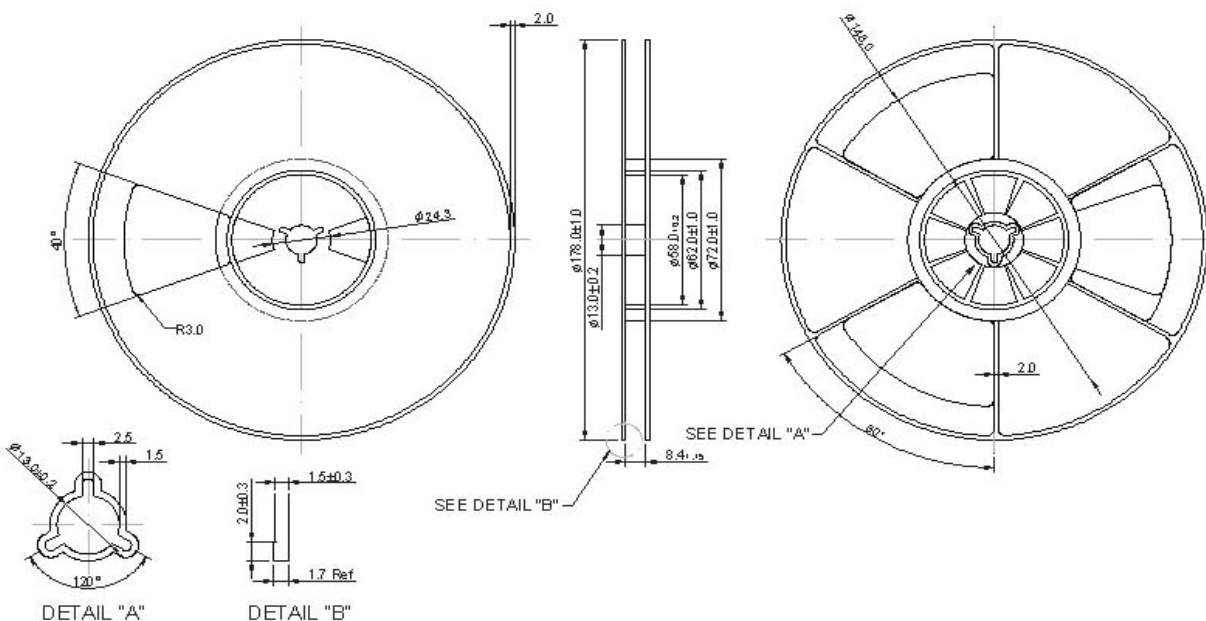
Reel Dimensions

Tape and Reel Standard per ANSI/EIA-481

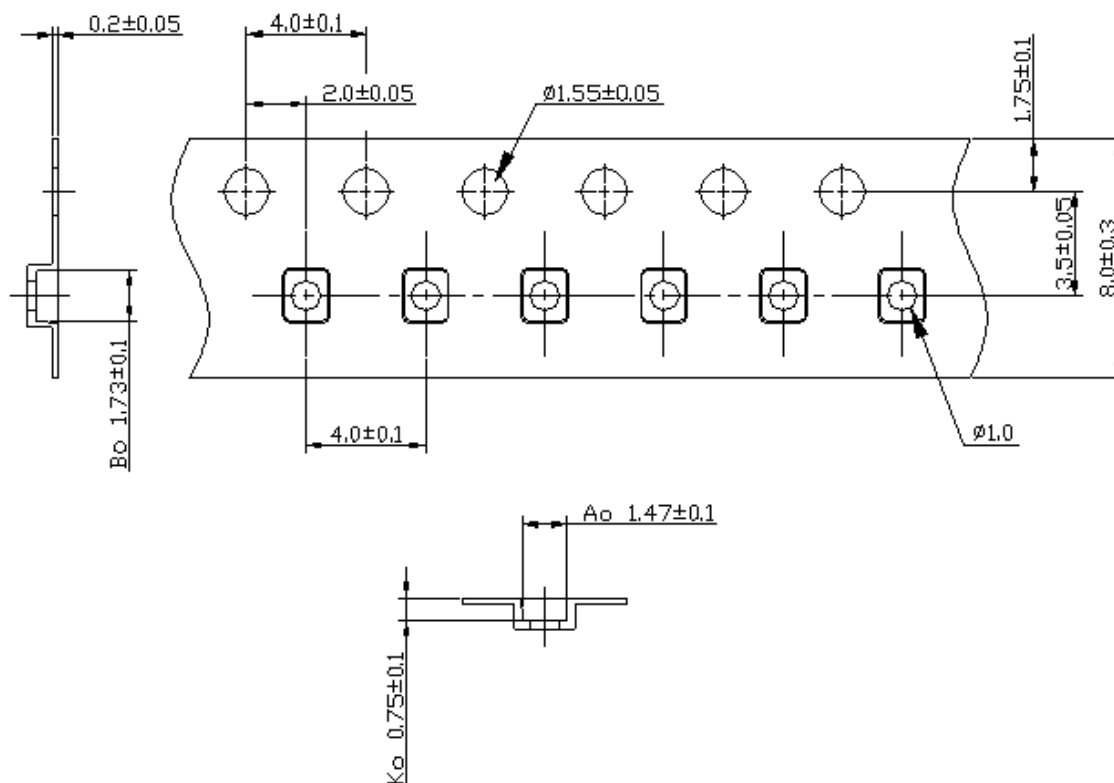
Reel Count:

7" = 3000

13" = 10,000



Tape Dimensions



Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C +0/-5°C peak (10 seconds).
4. Time: 5 times maximum.

