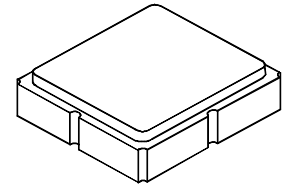


SF2193E

**1228 MHz
SAW Filter**



SM3030-8

- Low-loss SAW Filter for GPS Receiver
- Surface-mount 3.0 x 3.0 mm Package
- Complies with Directive 2002/95/EC (RoHS)
- Moisture Sensitivity Level: 1

Absolute Maximum Ratings

| Rating | Value | Units |
|--|-------------|-------|
| Input Power Level | 5 | dBm |
| DC Voltage on any Non-ground Terminal | 3 | V |
| Operating Temperature Range | -30 to +105 | °C |
| Storage Temperature Range in Tape and Reel | -40 to +85 | °C |
| Maximum Soldering Profile, 5 cycles/10 seconds maximum | 265 | °C |

Electrical Characteristics

| Characteristic | Sym | Notes | -30 to +85°C | | | -30 to +105°C | | | Units |
|--|---|-------|--------------|------|-----|---------------|------|-----|----------|
| | | | Min | Typ | Max | Min | Typ | Max | |
| Center Frequency | f_C | | | 1228 | | | 1228 | | MHz |
| Insertion Loss, 1218 to 1238 MHz | IL | | | 3.4 | 4.4 | | 3.4 | 4.7 | dB |
| Amplitude Ripple, 1218 to 1238 MHz | | | | 0.9 | 1.7 | | 0.9 | 2.0 | dB |
| Attenuation, 0 dB Reference: | | | | | | | | | dB |
| 0 to 1088 MHz | | | 40 | 52 | | 40 | 52 | | |
| 1088 to 1178 MHz | | | 32 | 50 | | 30 | 50 | | |
| 1178 to 1190 MHz | | | 15 | 50 | | 14 | 50 | | |
| 1268 to 1288 MHz | | | 13 | 29 | | 13 | 29 | | |
| 1288 to 1378 MHz | | | 30 | 41 | | 30 | 41 | | |
| 1378 to 1480 MHz | | | 36 | 54 | | 36 | 54 | | |
| 1480 to 2500 MHz | | | 28 | 47 | | 28 | 47 | | |
| 2500 to 4000 MHz | | | 13 | 20 | | 13 | 20 | | |
| Source Impedance, Unbalanced | Z_S | | | 50 | | | 50 | | Ω |
| Load Impedance, Balanced | Z_L | | | 50 | | | 50 | | |
| Case Style | SM3030-8 3.0 x 3.0 mm Nominal Footprint | | | | | | | | |
| Lid Symbolization, Y=year, WW=week, S=shift, dot=pin 1 indicator | 906, <u>YWWS</u> | | | | | | | | |

Electrical Connections

| Connection | Terminals |
|------------------|------------|
| Unbalanced Input | 2 |
| Balanced Output | 5, 7 |
| Ground | All Others |

Dot Indicates Pin 1

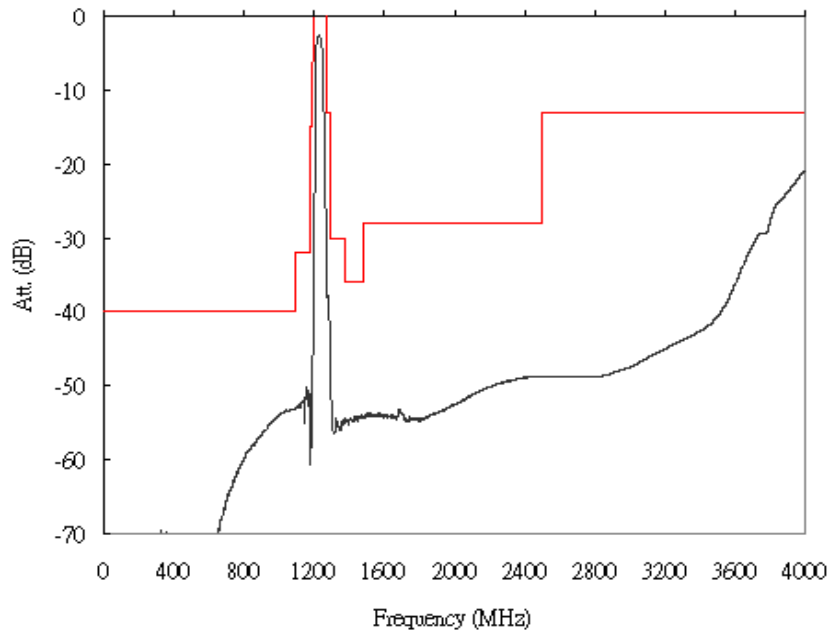


CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

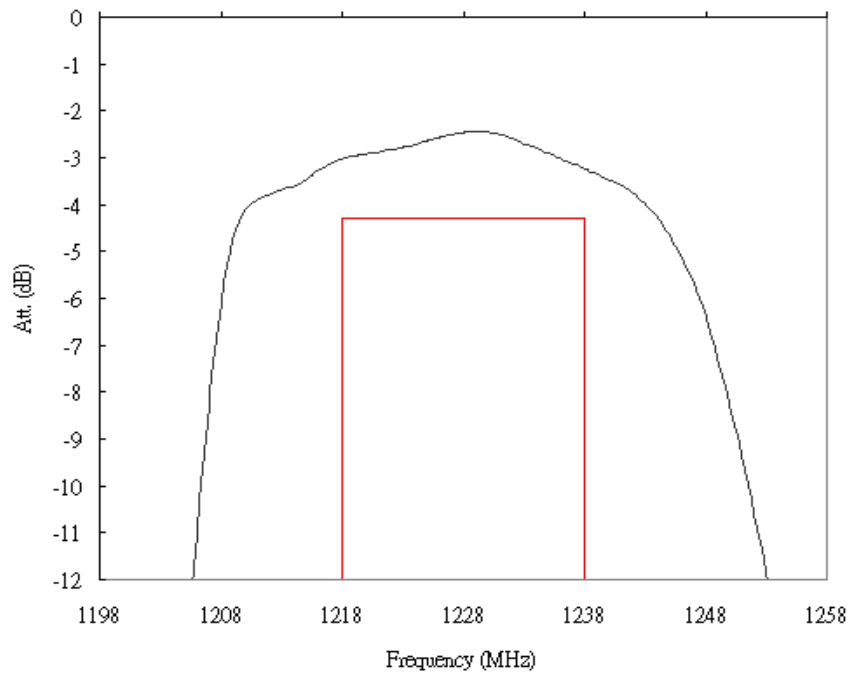
NOTES:

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.

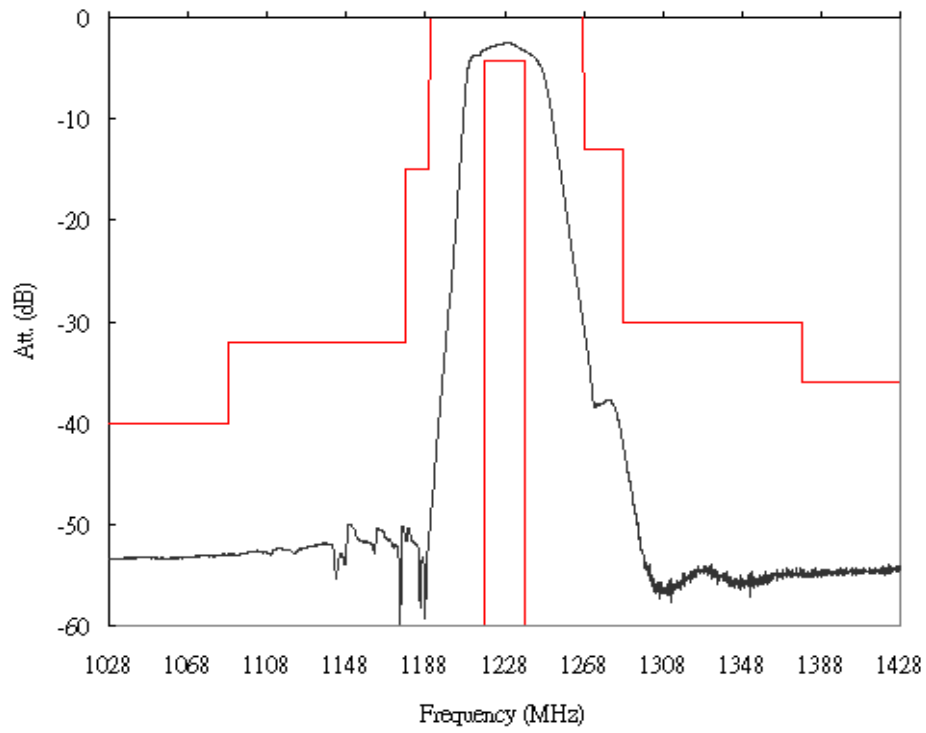
Filter Wideband Response



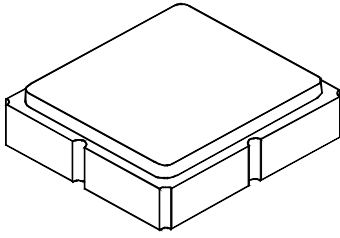
Filter Passband Response



Filter Near-in Response

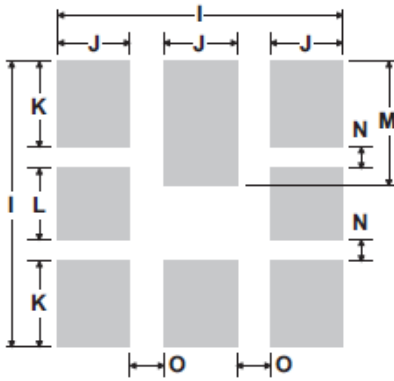


8-Terminal Ceramic Surface-Mount Case 3.0 X 3.0 mm Nominal Footprint



Case and PCB Footprint Dimensions

| Dimension | mm | | | Inches | | |
|-----------|------|------|------|--------|-------|-------|
| | Min | Nom | Max | Min | Nom | Max |
| A | 2.87 | 3.0 | 3.13 | 0.113 | 0.118 | 0.123 |
| B | 2.87 | 3.0 | 3.13 | 0.113 | 0.118 | 0.123 |
| C | 1.14 | 1.27 | 1.40 | 0.045 | 0.050 | 0.055 |
| D | 0.79 | 0.92 | 1.05 | 0.031 | 0.036 | 0.041 |
| E | 0.62 | 0.75 | 0.88 | 0.024 | 0.029 | 0.034 |
| F | 0.47 | 0.60 | 0.73 | 0.018 | 0.024 | 0.029 |
| G | 0.47 | 0.60 | 0.73 | 0.018 | 0.024 | 0.029 |
| H | 1.07 | 1.20 | 1.33 | 0.042 | 0.047 | 0.052 |
| I | | 3.19 | | | 0.126 | |
| J | | 0.81 | | | 0.032 | |
| K | | 0.96 | | | 0.038 | |
| L | | 0.81 | | | 0.032 | |
| M | | 1.39 | | | 0.055 | |
| N | | 0.23 | | | 0.009 | |
| O | | 0.38 | | | 0.015 | |

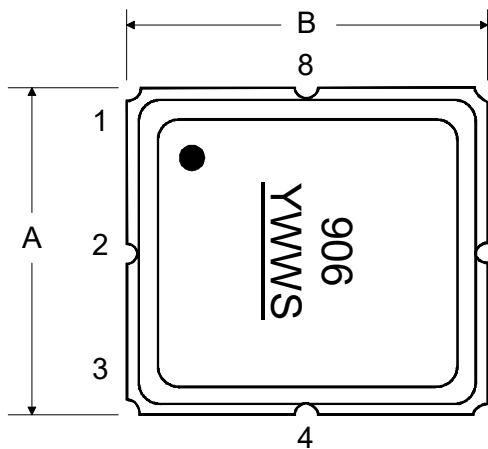


PCB Footprint Top View

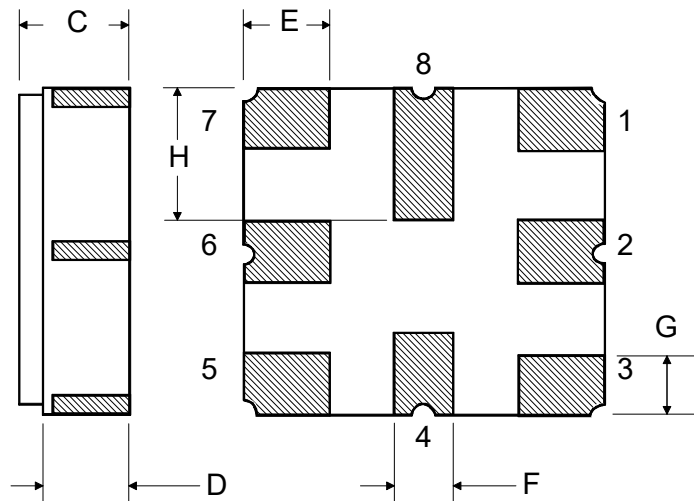
Case Materials

| Materials | |
|--------------------|--|
| Solder Pad Plating | 0.3 to 1.0 μm Gold over 1.27 to 8.89 μm Nickel |
| Lid Plating | 2.0 to 3.0 μm Nickel |
| Body | Al_2O_3 Ceramic |

TOP VIEW

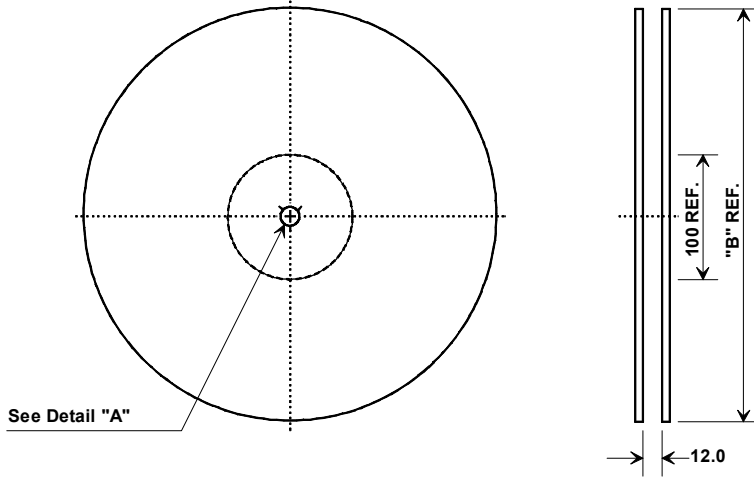


BOTTOM VIEW

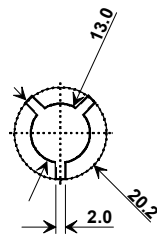


Tape and Reel Specifications

Tape and Reel Standard per ANSI/EIA-481

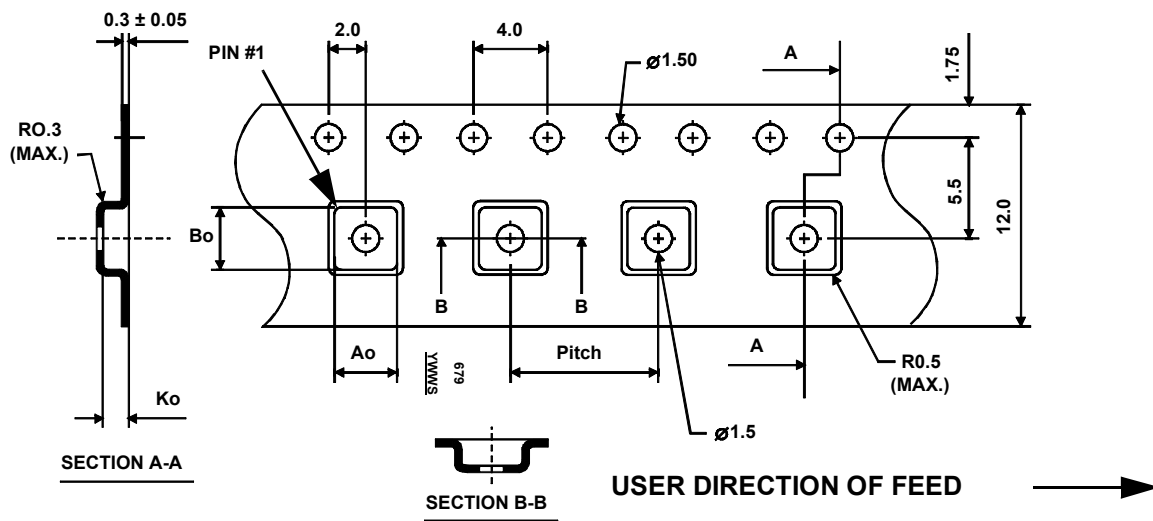


| "B" | | Quantity Per Reel |
|--------|-------------|-------------------|
| Inches | millimeters | |
| 7 | 178 | 500 |
| 13 | 330 | 3000 |



| Carrier Tape Dimensions | |
|-------------------------|---------|
| Ao | 3.35 mm |
| Bo | 3.35 mm |
| Ko | 1.4 mm |
| Pitch | 8.0 mm |
| W | 12.0 mm |

COMPONENT ORIENTATION and 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.

