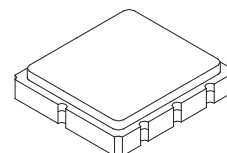


- **Ideal Front-End Filter for European Wireless Receivers**
- **Low-Loss, Coupled-Resonator Quartz Design**
- **Simple External Impedance Matching**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Moisture Sensitivity Level: 1**
- **AEC-Q200 Qualified**

The RF3446E is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 433.92 MHz receivers. Receiver designs using this filter include superhet with 10.7 MHz or 500 kHz IF, direct conversion and superregen. Typical applications of these receivers are wireless remote-control and security devices operating in Europe under ETSI I-ETS 300 220.

**RF3446E**

**433.92 MHz**  
**SAW Filter**



**SM3030-6 Case**  
**3.0 x 3.0**

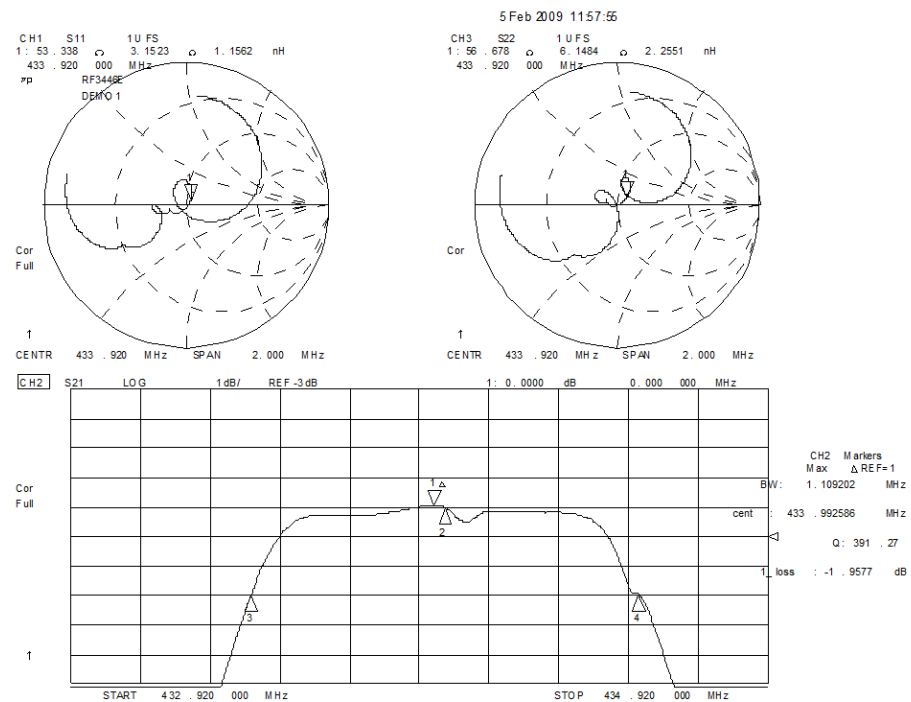
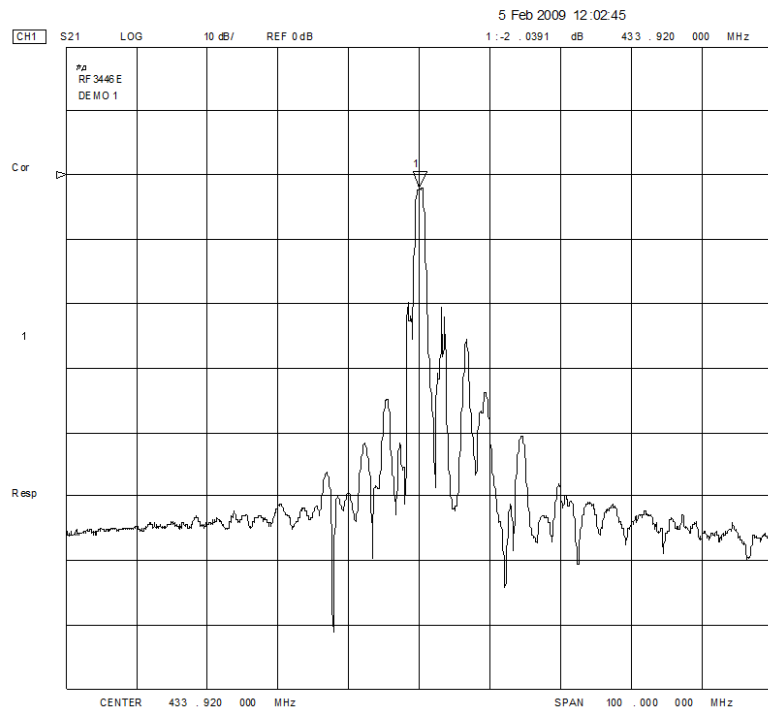
| Characteristic                                            | Sym        | Notes | Minimum | Typical                   | Maximum | Units               |
|-----------------------------------------------------------|------------|-------|---------|---------------------------|---------|---------------------|
| Center Frequency at 25°C      Absolute Frequency          | $f_c$      |       |         | 433.92                    |         | MHz                 |
| Passband Ripple      433.52 to 434.32 MHz                 |            |       |         | 0.5                       | 1.2     | dB                  |
| Insertion Loss (433.760 - 434.080)                        | $IL_{MIN}$ |       |         | 2.0                       | 3.0     | dB                  |
| 3 dB Bandwidth                                            | $BW_3$     |       | 960     | 1080                      | 1150    | kHz                 |
| Rejection Attenuation: (relative to $IL_{min}$ )          |            |       |         |                           |         | dB                  |
| 10 - 418 MHz                                              |            |       | 47      | 50                        |         |                     |
| 418 - 423.7 MHz                                           |            |       | 44      | 47                        |         |                     |
| 423.7 - 430 MHz                                           |            |       | 33      | 36                        |         |                     |
| 430 - 432.5 MHz                                           |            |       | 16      | 19                        |         |                     |
| 436 - 438.5 MHz                                           |            |       | 18      | 21                        |         |                     |
| 438.5 - 446 MHz                                           |            |       | 21      | 24                        |         |                     |
| 446 - 452 MHz                                             |            |       | 38      | 41                        |         |                     |
| 452 - 1000 MHz                                            |            |       | 45      | 48                        |         |                     |
| Turnover Temperature                                      | $T_o$      |       | 10      | 25                        | 40      | °C                  |
| Temperature      Freq. Temp. Coefficient                  | FTC        |       |         | 0.032                     |         | ppm/°C <sup>2</sup> |
| Frequency Aging      Absolute Value during the First Year | $ f_A $    |       |         | ≤10                       |         | ppm/yr              |
| Impedance @ $f_c$ Input $Z_{IN} = R_{IN}    C_{IN}$       | $Z_{IN}$   |       |         | 130 $\Omega$    2.5 pF    |         |                     |
| Output $Z_{OUT} = R_{OUT}    C_{OUT}$                     | $Z_{OUT}$  |       |         | 134.5 $\Omega$    2.48 pF |         |                     |
| Lid Symbolization (Y=year WW=week S=shift)                |            |       |         | 776, <u>YWWWS</u>         |         |                     |
| Standard Reel Quantity      Reel Size 7 Inch              |            |       |         | 500 Pieces/Reel           |         |                     |
| Reel Size 13 Inch                                         |            |       |         | 3000 Pieces/Reel          |         |                     |



**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.



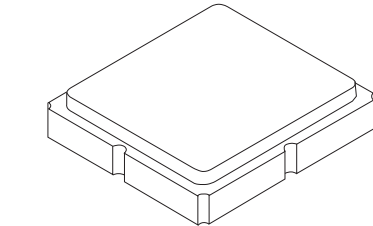
| Rating                                            | Value       | Units |
|---------------------------------------------------|-------------|-------|
| Input Power Level                                 | 10          | dBm   |
| DC Voltage                                        | 12          | VDC   |
| Storage Temperature                               | -55 to +125 | °C    |
| Operable Temperature Range                        | -40 to +105 | °C    |
| Soldering Temperature (10 seconds/5 cycles Max..) | 260         | °C    |

### Case and PCB Footprint Dimensions

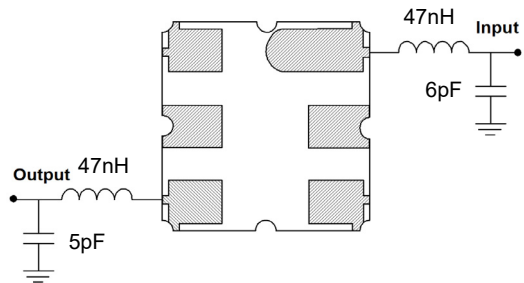
| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| <b>A</b>  | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| <b>B</b>  | 2.87 | 3.00 | 3.13 | 0.113  | 0.118 | 0.123 |
| <b>C</b>  | 1.12 | 1.25 | 1.38 | 0.044  | 0.049 | 0.054 |
| <b>D</b>  | 0.77 | 0.90 | 1.03 | 0.030  | 0.035 | 0.040 |
| <b>E</b>  | 2.67 | 2.80 | 2.93 | 0.105  | 0.110 | 0.115 |
| <b>F</b>  | 1.47 | 1.60 | 1.73 | 0.058  | 0.063 | 0.068 |
| <b>G</b>  | 0.72 | 0.85 | 0.98 | 0.028  | 0.033 | 0.038 |
| <b>H</b>  | 1.37 | 1.50 | 1.63 | 0.054  | 0.059 | 0.064 |
| <b>I</b>  | 0.47 | 0.60 | 0.73 | 0.019  | 0.024 | 0.029 |
| <b>J</b>  | 1.17 | 1.30 | 1.43 | 0.046  | 0.051 | 0.056 |
| <b>K</b>  |      | 3.20 |      |        | 0.126 |       |
| <b>L</b>  |      | 1.70 |      |        | 0.067 |       |
| <b>M</b>  |      | 1.05 |      |        | 0.041 |       |
| <b>N</b>  |      | 0.81 |      |        | 0.032 |       |
| <b>O</b>  |      | 0.38 |      |        | 0.015 |       |

### 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 <sub>2</sub> O <sub>3</sub> Ceramic         |

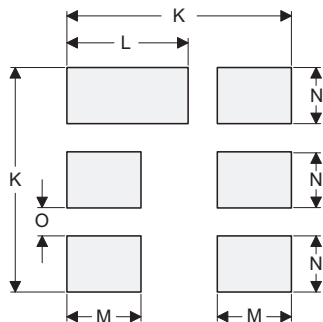


### Electrical Connections

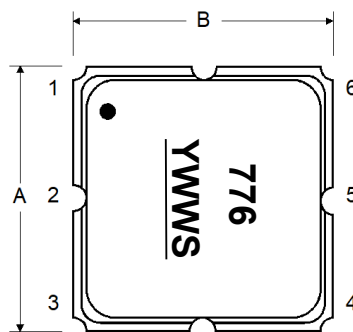


| Pin | Connection    |
|-----|---------------|
| 1   | Input         |
| 2   | Input Return  |
| 3   | Ground        |
| 4   | Output        |
| 5   | Output Return |
| 6   | Ground        |

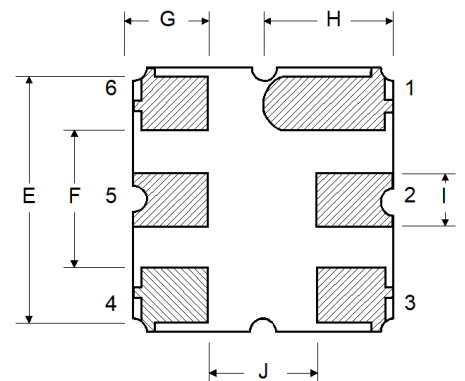
### PCB Footprint Top View



### TOP VIEW



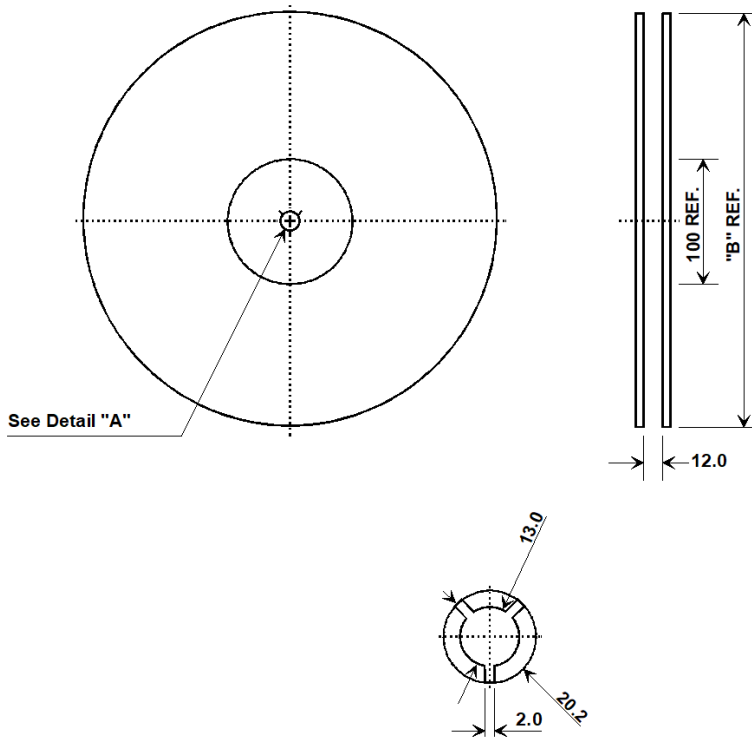
### BOTTOM VIEW



## Tape and Reel Specifications

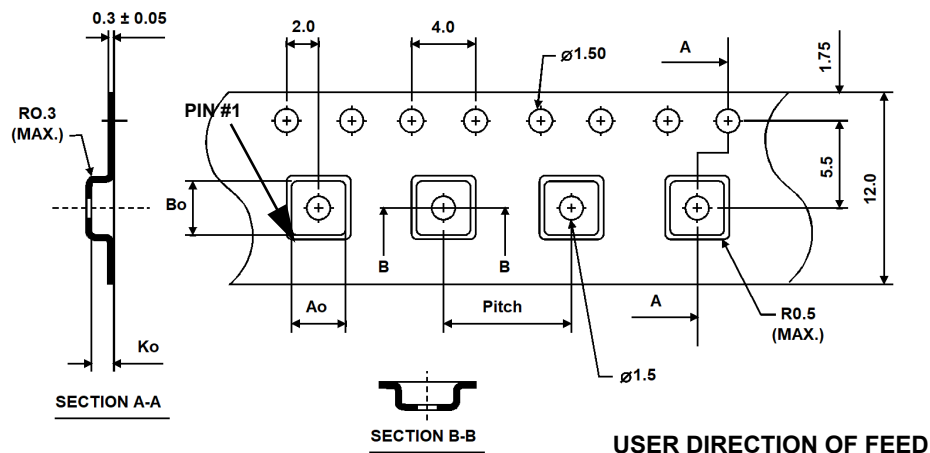
Tape and Reel Standard per ANSI/EIA-481

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



## COMPONENT ORIENTATION and DIMENSIONS

| Carrier Tape Dimensions |         |
|-------------------------|---------|
| Ao                      | 3.35 mm |
| Bo                      | 3.35 mm |
| Ko                      | 1.40 mm |
| Pitch                   | 8.0 mm  |
| W                       | 12.0 mm |



## 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.

