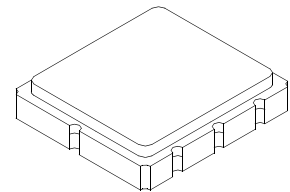


RF3404E

433.92 MHz SAW Filter



SM3030-6

- **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)**
- **Tape and Reel Standard per ANSI/EIA-481**
- **Moisture Sensitivity Level: 1**
- **AEC-Q200 Qualified**

The RF3404E 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.

This coupled-resonator filter (CRF) uses selective null placement to provide suppression, typically greater than 40 dB, of the LO and image spurious responses of superhet receivers with 10.7 MHz IF. RFMi's advanced SAW design and fabrication technology is utilized to achieve high performance and very low loss with simple external impedance matching.

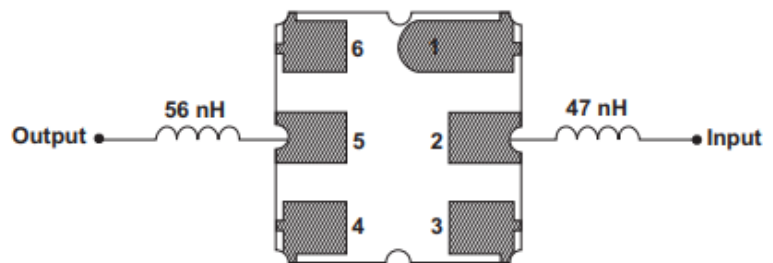
| Characteristic | Sym | Notes | Minimum | Typical | Maximum | Units |
|--|---------------------------------------|-----------|------------------|-----------|---------|---------------------|
| Center Frequency at 25°C Absolute Frequency | f_c | | | 433.92 | | MHz |
| Tolerance from MHz | Δf_c | | | ± 100 | | kHz |
| Insertion Loss (433.760 - 434.080) | IL_{MIN} | | | 2.3 | 3.5 | dB |
| 3 dB Bandwidth | BW_3 | | 600 | 650 | 750 | kHz |
| Rejection Attenuation: (relative to IL_{min}) | 10 - 414 MHz | | 30 | 40 | | dB |
| | 414 - 424 MHz | | 27 | 35 | | |
| | 424 - 430 MHz | | 16 | 20 | | |
| | 430 - 432 MHz | | 8 | 10 | | |
| | 436 - 437 MHz | | 19 | 25 | | |
| | 437 - 440 MHz | | 25 | 32 | | |
| | 441 - 445 MHz | | 15 | 20 | | |
| | 445 - 1000 MHz | | 30 | 46 | | |
| Turnover Temperature | T_o | | 10 | 25 | 40 | °C |
| Temperature Freq. Temp. Coefficient | FTC | | | 0.032 | | ppm/°C ² |
| Frequency Aging Absolute Value during the First Year | fA | | | ≤ 10 | | ppm/yr |
| Impedance @ f_c | Input $Z_{IN} = R_{IN} C_{IN}$ | Z_{IN} | 150Ω // 3.4pF | | | |
| | Output $Z_{OUT} = R_{OUT} C_{OUT}$ | Z_{OUT} | 175Ω // 4.1pF | | | |
| Lid Symbolization (Y=year WW=week S=shift) | 697, <u>YWWS</u> | | | | | |
| Standard Reel Quantity | Reel Size 7 Inch | | 500 Pieces/Reel | | | |
| | Reel Size 13 Inch | | 3000 Pieces/Reel | | | |

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

Primary Electrical Connections

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

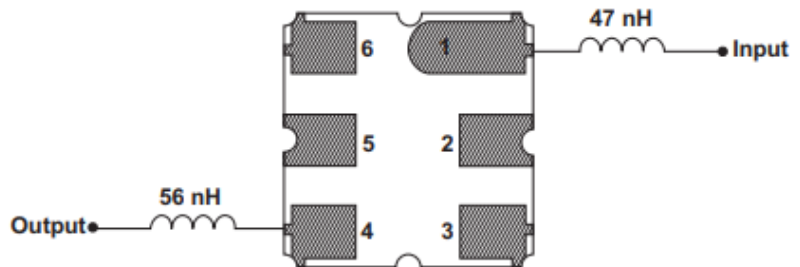
Primary Matching Circuit to 50 Ω



Alternate Electrical Connections

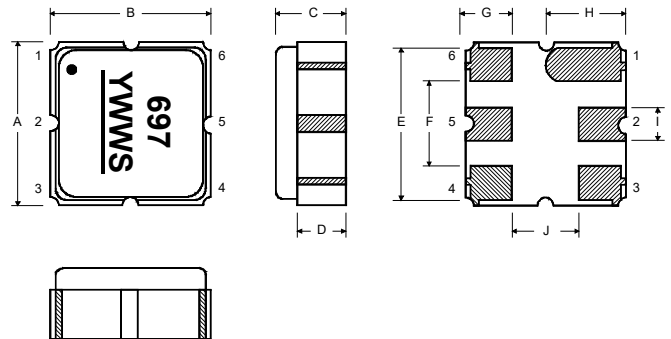
| Pin | Connection |
|-----|---------------|
| 1 | Input |
| 2 | Input Return |
| 3 | Ground |
| 4 | Output |
| 5 | Output Return |
| 6 | Ground |

Alternate Matching Circuit to 50 Ω



Case 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 | 1.12 | 1.25 | 1.38 | 0.044 | 0.049 | 0.054 |
| D | 0.77 | 0.90 | 1.03 | 0.030 | 0.035 | 0.040 |
| E | 2.67 | 2.80 | 2.93 | 0.105 | 0.110 | 0.115 |
| F | 1.47 | 1.6 | 1.73 | 0.058 | 0.063 | 0.068 |
| G | 0.72 | 0.85 | 0.98 | 0.028 | 0.033 | 0.038 |
| H | 1.37 | 1.5 | 1.63 | 0.054 | 0.059 | 0.064 |
| I | 0.47 | 0.60 | 0.73 | 0.019 | 0.024 | 0.029 |
| J | 1.17 | 1.30 | 1.43 | 0.046 | 0.051 | 0.056 |



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CH1 S11 1 U FS 1: 51 . 947 Ω 3 . 0938 Ω 1 . 1347 nH 433 . 920 000 MHz

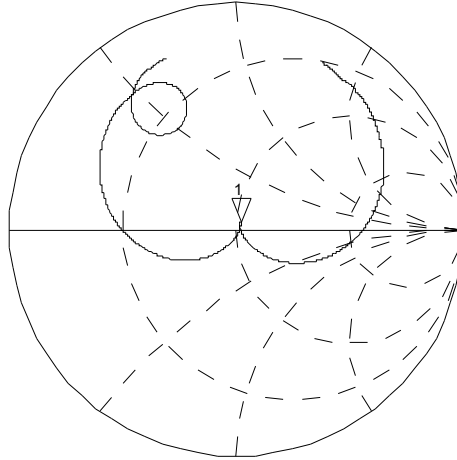
hp
RF3404E DEMO
USING 401-1564-001 PCB.

Cor

PRm

Full

↑



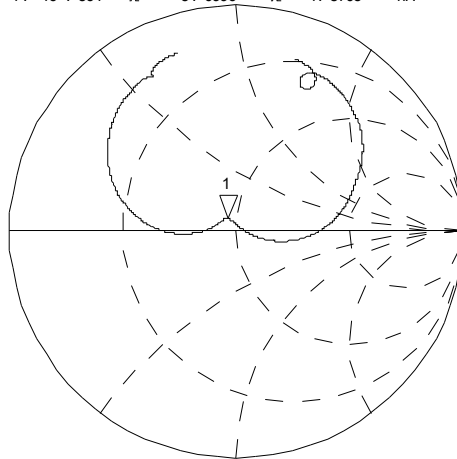
CH2 S22 1 U FS 1: 46 . 564 Ω 5 . 0996 Ω 1 . 8705 nH 433 . 920 000 MHz

Cor

Full

PRm

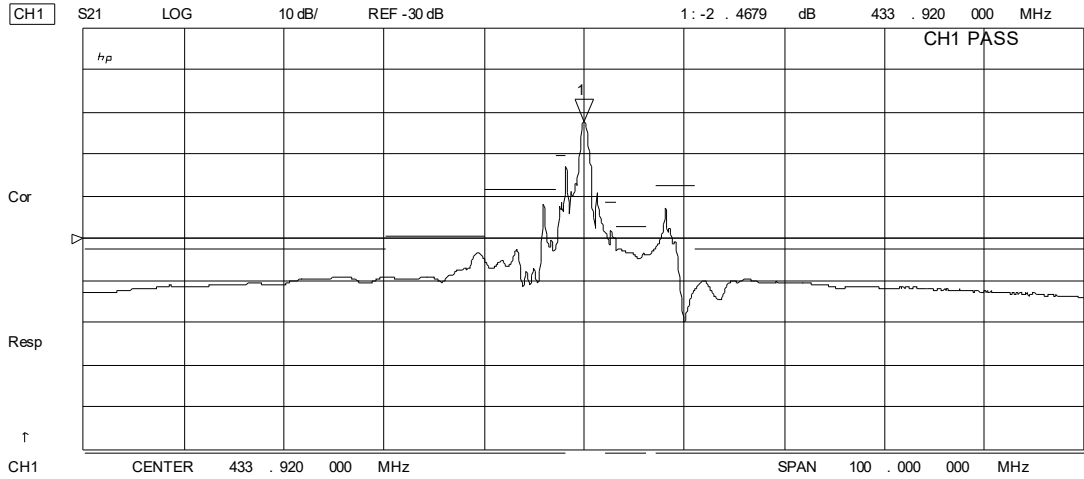
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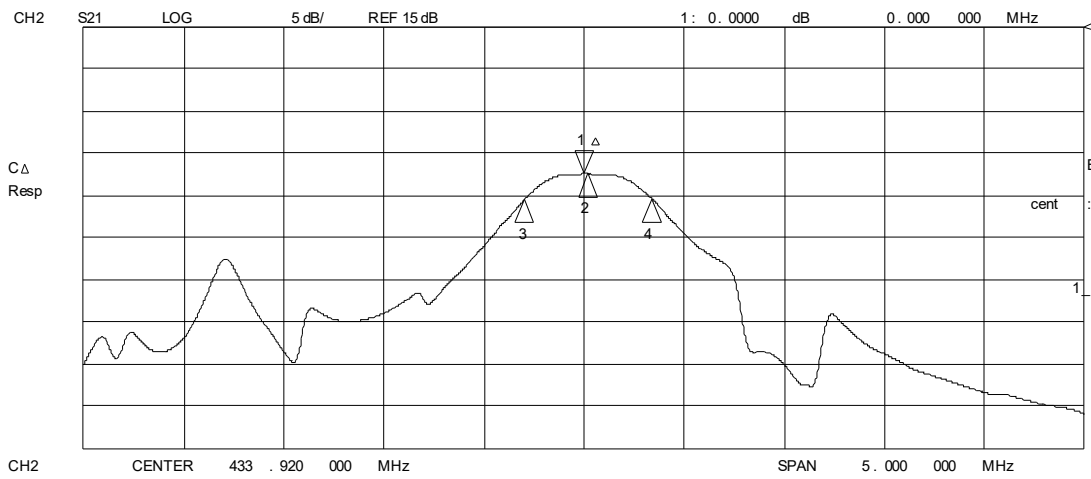
CENTER 433 . 920 000 MHz

SPAN 2 . 000 000 MHz

11 Jan 2008 10:22:38



Max



CH2 Markers
Max Δ REF=1
BW: .635090 MHz
cent : 433.940705 MHz
Q: 683.27
1_loss : -2.4810 dB