

Общество с ограниченной ответственностью  
«Научно-производственное предприятие «Техно-ПАРК»  
(ООО «НПП «Техно-ПАРК»)

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## Технические характеристики фильтра на ПАВ

RF1404D

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Производитель: RFM Integrated Device, Inc.

Поставщик: ООО «НПП «Техно-ПАРК» - авторизованный дистрибьютор компании  
RFM Integrated Device Inc.

Научно-производственное предприятие ООО «НПП «Техно-ПАРК» разрабатывает и поставляет полосно-пропускающие радиочастотные фильтры на поверхностных акустических волнах (ПАВ) и устройства на их основе. «НПП «Техно-ПАРК» имеет собственную научную и производственную базу, а также является надежным поставщиком ведущих предприятий радиоэлектронной промышленности.

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AEC-Q200

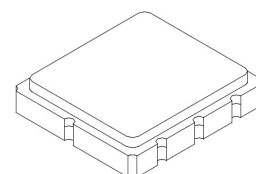
This component was always RoHS compliant from the first date of manufacture.

- **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**



**RF1404D**

**433.92 MHz  
SAW Filter**



**SM3838-8 Case  
3.8 x 3.8**

The RF1404D 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                 |
| Insertion Loss                                              | $IL_{MIN}$        |       |         | 1.6                     | 2.5     | dB                  |
| Passband Ripple (Relative to $IL_{MIN}$ ) $F_c \pm 200$ kHz |                   |       |         | 1.2                     | 1.8     | dB                  |
| 3 dB Bandwidth                                              | $BW_3$            |       | 500     | 600                     | 800     | kHz                 |
| Rejection Attenuation: (relative to $IL_{min}$ )            |                   |       |         |                         |         | dB                  |
| 10 - 414 MHz                                                |                   |       | 50      | 55                      |         |                     |
| 414 - 424 MHz                                               |                   |       | 45      | 50                      |         |                     |
| 424 - 431 MHz                                               |                   |       | 30      | 34                      |         |                     |
| 431 - 432 MHz                                               |                   |       | 18      | 22                      |         |                     |
| 432 - 433 MHz                                               |                   |       | 12      | 17                      |         |                     |
| 434.92 - 442 MHz                                            |                   |       | 11      | 14                      |         |                     |
| 442 - 550 MHz                                               |                   |       | 35      | 38                      |         |                     |
| 550 - 1000 MHz                                              |                   |       | 50      | 55                      |         |                     |
| Temperature Freq. Temp. Coefficient                         | FTC               |       |         | 0.032                   |         | ppm/°C <sup>2</sup> |
| Frequency Aging Absolute Value during the First Year        | $ fA $            |       |         | $\leq 10$               |         | ppm/yr              |
| Impedance @ $f_c$ Input $Z_{IN} = R_{IN}    C_{IN}$         | $Z_{IN}$          |       |         | 2853 $\Omega$ // 1.66pf |         |                     |
| Output $Z_{OUT} = R_{OUT}    C_{OUT}$                       | $Z_{OUT}$         |       |         | 2411 $\Omega$ // 1.73pf |         |                     |
| Lid Symbolization (Y=year WW=week S=shift)                  | 539, YWWS         |       |         |                         |         |                     |
| 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.

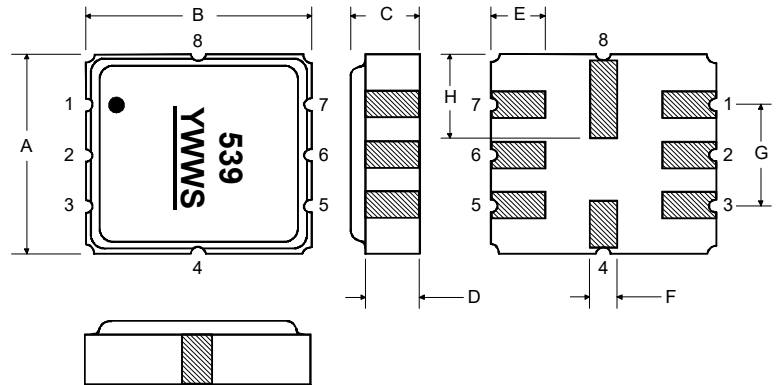
| Characteristic                                     | Value       | Units |
|----------------------------------------------------|-------------|-------|
| Input Power Level                                  | 10          | dBm   |
| DC Voltage                                         | 12          | VDC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

| Characteristic                                             | Sym                                   | Notes | Minimum | Typical                 | Maximum | Units               |
|------------------------------------------------------------|---------------------------------------|-------|---------|-------------------------|---------|---------------------|
| Center Frequency at 25°C Absolute Frequency                | $f_c$                                 |       |         | 433.92                  |         | MHz                 |
| Insertion Loss                                             | $IL_{MIN}$                            |       |         | 2.3                     | 3.0     | dB                  |
| Passband Ripple (Relative to $IL_{MIN}$ ) $F_c \pm 200kHz$ |                                       |       |         | 1.2                     | 2.0     | dB                  |
| 3 dB Bandwidth                                             | $BW_3$                                |       | 500     | 600                     | 800     | kHz                 |
| Rejection Attenuation: (relative to $IL_{min}$ )           |                                       |       |         |                         |         |                     |
| 10 - 414 MHz                                               |                                       |       | 50      | 53                      |         |                     |
| 414 - 424 MHz                                              |                                       |       | 45      | 50                      |         |                     |
| 424 - 431 MHz                                              |                                       |       | 30      | 34                      |         |                     |
| 431 - 432 MHz                                              |                                       |       | 18      | 22                      |         |                     |
| 432 - 433 MHz                                              |                                       |       | 12      | 14                      |         |                     |
| 434.92 - 442 MHz                                           |                                       |       | 11      | 14                      |         |                     |
| 442 - 550 MHz                                              |                                       |       | 35      | 37                      |         |                     |
| 550 - 1000 MHz                                             |                                       |       | 50      | 55                      |         |                     |
| Temperature Freq. Temp. Coefficient                        | FTC                                   |       |         | 0.032                   |         | ppm/°C <sup>2</sup> |
| Frequency Aging Absolute Value during the First Year       | $ fA $                                |       |         | $\leq 10$               |         | ppm/yr              |
| Impedance @ $f_c$                                          | Input $Z_{IN} = R_{IN}    C_{IN}$     |       |         | 2853 $\Omega$ // 1.66pf |         |                     |
|                                                            | Output $Z_{OUT} = R_{OUT}    C_{OUT}$ |       |         | 2411 $\Omega$ // 1.73pf |         |                     |
| Lid Symbolization (Y=year WW=week S=shift)                 |                                       |       |         | 539, YWWS               |         |                     |
| Standard Reel Quantity                                     | Reel Size 7 Inch                      |       |         | 500 Pieces/Reel         |         |                     |
|                                                            | Reel Size 13 Inch                     |       |         | 3000 Pieces/Reel        |         |                     |

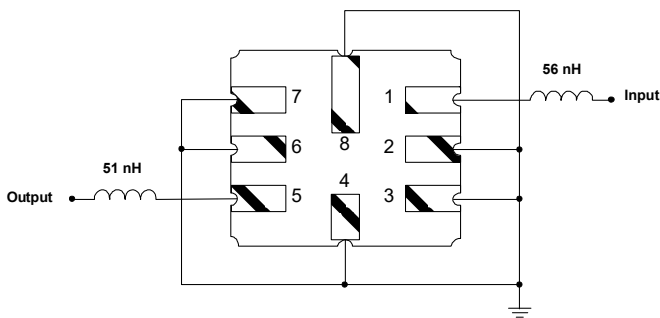
## PRIMARY

### Electrical Connections

| Pin | Connection    |
|-----|---------------|
| 1   | Input         |
| 2   | Input Ground  |
| 3   | Ground        |
| 4   | Case Ground   |
| 5   | Output        |
| 6   | Output Ground |
| 7   | Ground        |
| 8   | Case Ground   |



### Matching Circuit to 50Ω



### Case Dimensions

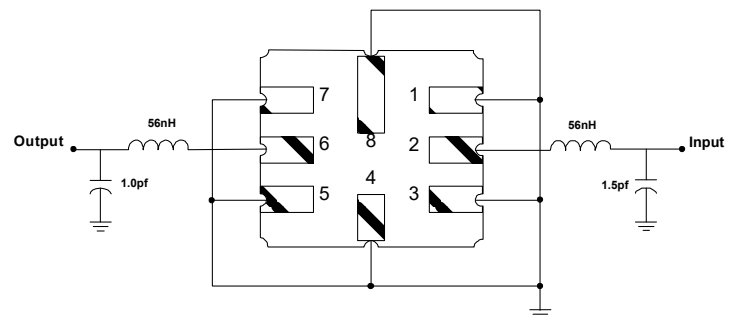
| Dimension | mm   |      |      | Inches |       |       |
|-----------|------|------|------|--------|-------|-------|
|           | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A         | 3.6  | 3.8  | 4.0  | 0.14   | 0.15  | 0.16  |
| B         | 3.6  | 3.8  | 4.0  | 0.14   | 0.15  | 0.16  |
| C         | 1.00 | 1.20 | 1.40 | 0.04   | 0.05  | 0.055 |
| D         | 0.95 | 1.10 | 1.25 | 0.033  | 0.043 | 0.05  |
| E         | 0.90 | 1.0  | 1.10 | 0.035  | 0.04  | 0.043 |
| F         | 0.50 | 0.6  | 0.70 | 0.020  | 0.024 | 0.028 |
| G         | 2.39 | 2.54 | 2.69 | 0.090  | 0.100 | 0.110 |
| H         | 1.40 | 1.75 | 2.05 | 0.055  | 0.069 | 0.080 |

## OPTIONAL

### Electrical Connections

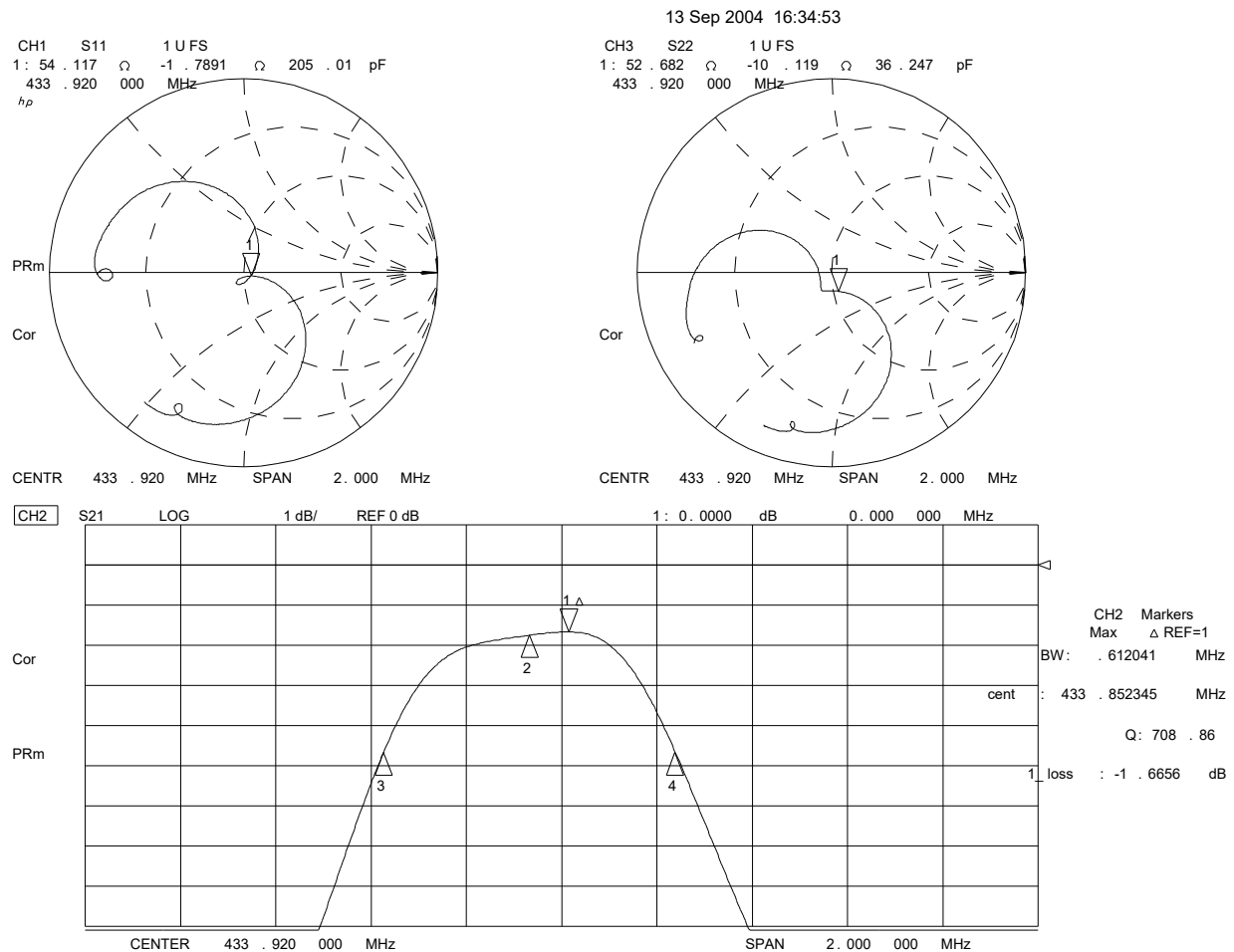
| Pin | Connection    |
|-----|---------------|
| 1   | Input Ground  |
| 2   | Input         |
| 3   | Ground        |
| 4   | Case Ground   |
| 5   | Output Ground |
| 6   | Output        |
| 7   | Ground        |
| 8   | Case Ground   |

### Matching Circuit to 50Ω

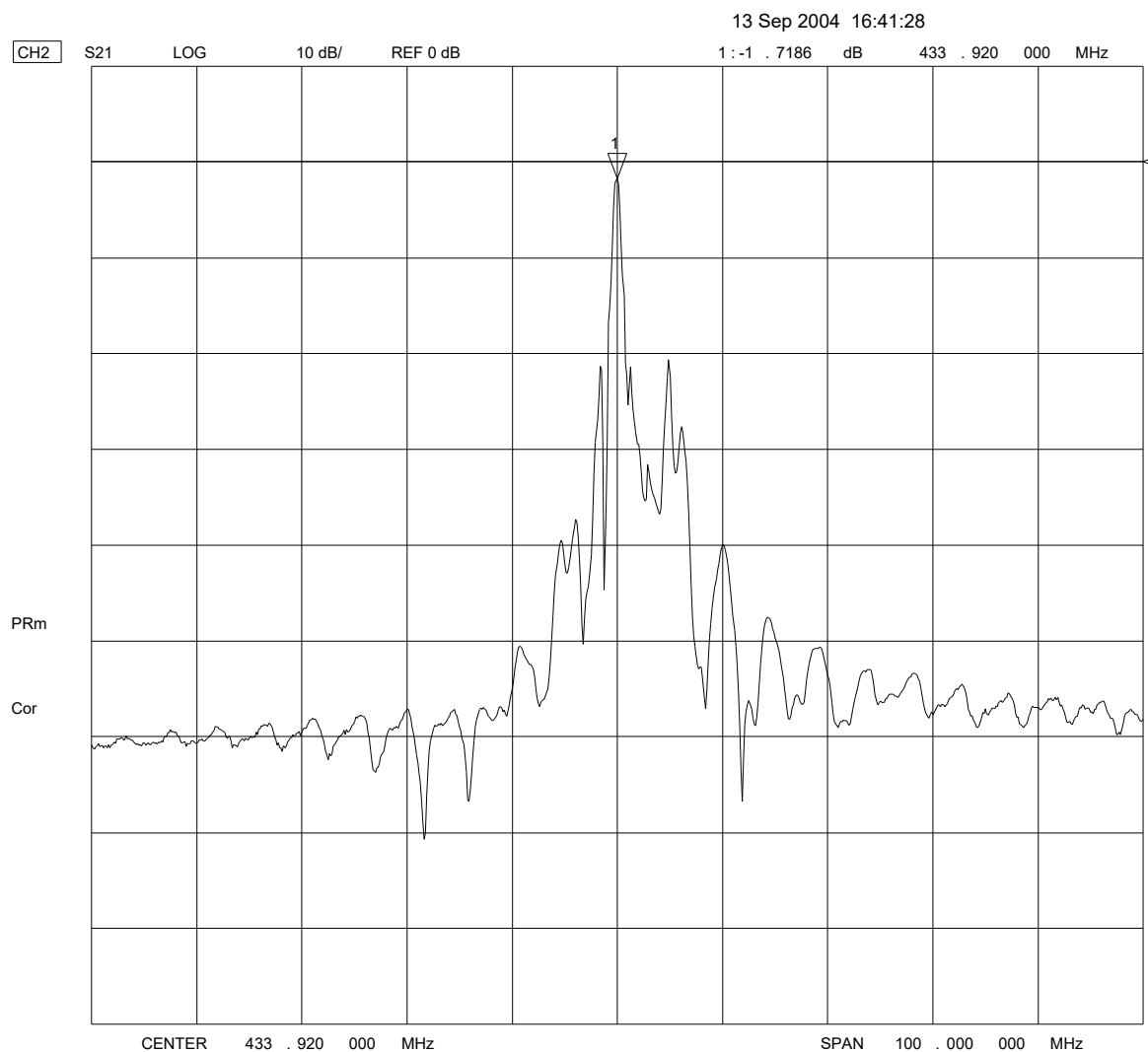


# RF1404D (PRIMARY)

## Inductor only match



RF1404D (PRIMARY)  
Inductor only match



## 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.

