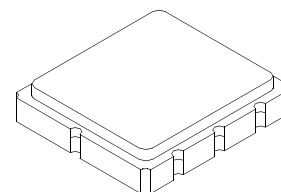


RF3181D

**916.5 MHz
SAW Filter**



**SM3838-8 Case
3.8 x 3.8**

- **Ideal Front-End Filter for 916.5 MHz 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**

The RF3181D is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter designed to provide front-end selectivity in 916.5 MHz receivers. Receiver designs using this filter include superhet with 10.7 MHz IF, direct conversion and superregen. Typical applications of these receivers are wireless remote-control and security, data telemetry, and meter reading devices operating in the USA under FCC Part 15 and in Canada under DoC RSS-210.

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 (not included).

| Characteristic | | Sym | Notes | Minimum | Typical | Maximum | Units |
|--|--------------------------------------|-----------------|-------|--------------|------------------|---------|-------------------------|
| Center Frequency at 25°C | Absolute Frequency | f_c | | | 916.5 | | MHz |
| | Tolerance from 916.50 MHz | Δf_c | | | | | kHz |
| Insertion Loss | | IL | | | 2.5 | 4.0 | dB |
| 3 dB Bandwidth | | BW ₃ | | 500 | 600 | 900 | kHz |
| Rejection (Attenuation: relative to Min IL:) | 10 to 895 MHz | | | 40 | 50 | | dB |
| | 895 to 906 MHz | | | 30 | 35 | | |
| | 906 to 910 MHz | | | 25 | 30 | | |
| | 922 to 925 MHz | | | 35 | 40 | | |
| | 925 to 933 MHz | | | 14 | 18 | | |
| | 933 to 940 MHz | | | 30 | 35 | | |
| | 940 to 1100 MHz | | | 40 | 45 | | |
| 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} | | 37Ω // 1.6pF | | | |
| | Output $Z_{OUT} = R_{OUT}/C_{OUT}$ | Z_{OUT} | | 25Ω // 1.8pF | | | |
| Lid Symbolization (in addition to Lot and/or Date Codes) | | 671, YWWS | | | | | |
| Standard Reel Quantity | 7 Inch Reel | | | | 500 Pieces/Reel | | |
| Standard Reel Quantity | 13 Inch Reel | | | | 3000 Pieces/Reel | | |



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

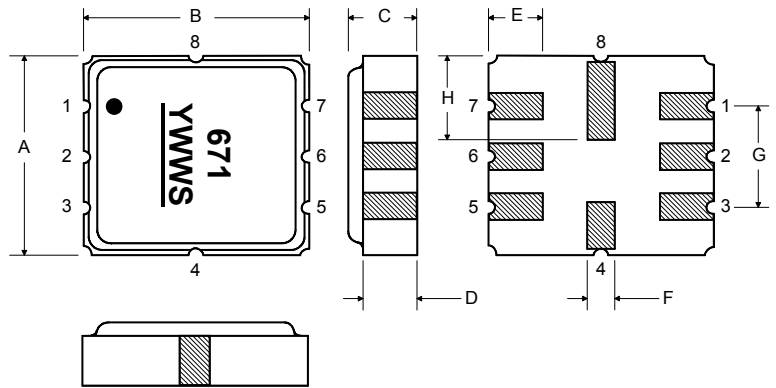
NOTES:

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.

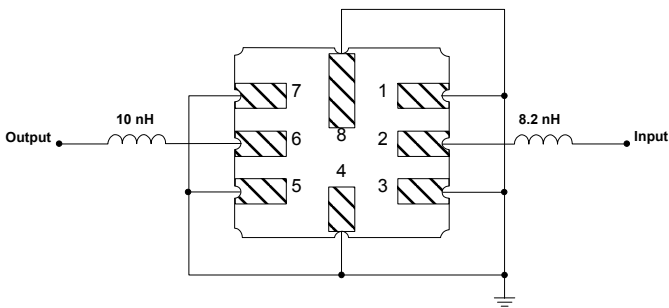
| Rating | Value | Units |
|----------------------------|------------------------------|--------|
| Input Power Level | 10 | dBm |
| DC Voltage | 12 | VDC |
| Storage Temperature | -40 to +125 | °C |
| Operable Temperature Range | -40 to +125 | °C |
| Soldering Temperature | (10 seconds / 5 cycles max.)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

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



Case Dimensions

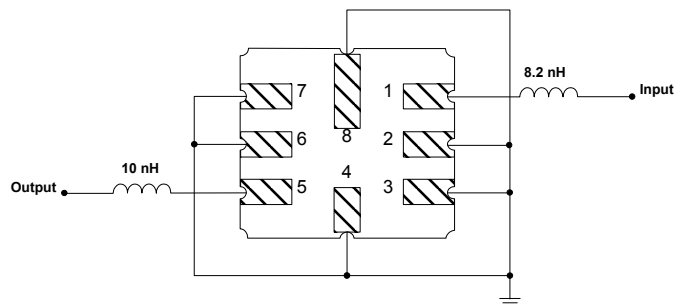
| Dimension | mm | | | Inches | | |
|-----------|------|------|------|--------|-------|-------|
| | Min | Nom | Max | Min | Nom | Max |
| A | 3.6 | 3.8 | 4.0 | 0.14 | 0.15 | 0.16 |
| B | 3.6 | 3.8 | 4.0 | 0.14 | 0.15 | 0.16 |
| C | 1.00 | 1.20 | 1.40 | 0.04 | 0.05 | 0.055 |
| D | 0.95 | 1.10 | 1.25 | 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 |
| 2 | Input Ground |
| 3 | Ground |
| 4 | Case Ground |
| 5 | Output |
| 6 | Output Ground |
| 7 | Ground |
| 8 | Case Ground |

Matching Circuit to 50Ω



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.

