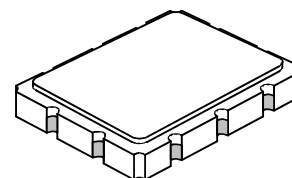


- *Designed for GSM BTS Receiver IF Applications*
- *Compatible with National Semiconductor Chip Set*
- *Very Flexible Impedance Matching*
- *Unbalanced or Balanced Input or Output*
- *9.1 x 7.1 mm Version of the SF1115A-1*
- *Complies with Directive 2002/95/EC (RoHS)*



**SF1115A**

**199 MHz  
SAW Filter**



**SM9171-10**

#### Absolute Maximum Ratings

| Rating  | Value          | Units |
|---|----------------|-------|
| Maximum Incident Power in Passband                        | +15            | dBm   |
| Max. DC voltage between any 2 terminals                   | 30             | VDC   |
| Storage Temperature Range                                 | -40 to +85     | °C    |
| Suitable for lead-free soldering - Max. Soldering Profile | 260°C for 30 s |       |

#### Electrical Characteristics

| Characteristic  | Sym    | Notes   | Min       | Typ   | Max | Units               |
|---|--------|---------|-----------|-------|-----|---------------------|
| Nominal Center Frequency                                      | $f_C$  | 1       | 199.000   |       |     | MHz                 |
| Passband  | IL     | 1, 2    |           |       | 7.0 | dB                  |
| Insertion Loss at $f_C$                                       | $BW_1$ |         | $\pm 100$ |       |     | kHz                 |
| 1 dB Passband   |        |         |           |       | 0.5 | dB <sub>P-P</sub>   |
| Amplitude Ripple over $f_C \pm 100$ kHz                       | GDV    |         |           |       | 500 | ns <sub>P-P</sub>   |
| Group Delay Variation over $f_C \pm 100$ kHz                  |        | 1, 2, 3 | 10        |       |     | dB                  |
| Rejection   |        |         | 10        |       |     |                     |
| Room Temperature $f_C + 800$ to $f_C + 400$ kHz               |        |         | 20        |       |     |                     |
| Room Temperature $f_C - 800$ to $f_C - 400$ kHz               |        |         | 30        |       |     |                     |
| $f_C - 800$ to $f_C - 600$ and $f_C + 600$ to $f_C + 800$ kHz |        |         | 30        |       |     |                     |
| $f_C - 30$ MHz to $f_C - 800$ kHz                             |        |         | 35        |       |     |                     |
| $f_C + 800$ kHz to $f_C + 17$ MHz                             |        |         | 35        |       |     |                     |
| Operating Temperature Range                                   | $T_A$  | 1       | -35       |       | +85 | °C                  |
| Frequency Temperature Coefficient                             | FTC    | 1       |           | 0.032 |     | ppm/°C <sup>2</sup> |

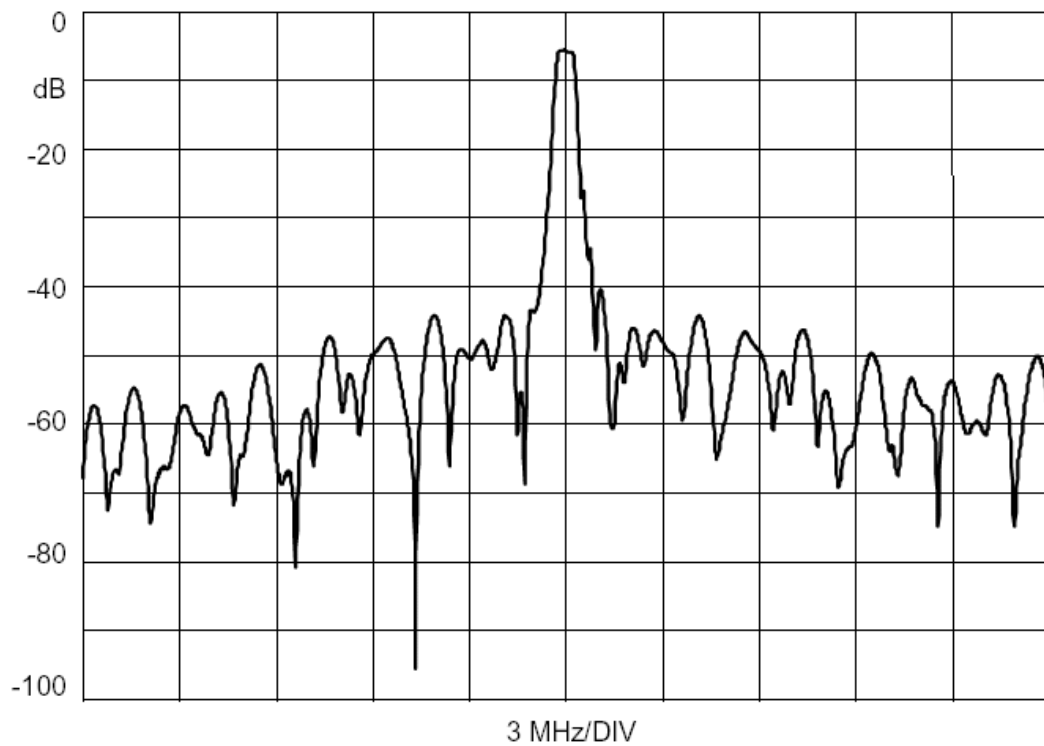
|   |   |
|---|---|
| Impedance Matching to 50Ω Unbalanced          | External L-C                              |
| Impedance Matching to 200Ω Balanced           | External L-C                              |
| Impedance Matching to 50Ω Input / 400Ω Output | External L-C                              |
| Case Style                                    | SMP9171-10 9.1 x 7.1 mm Nominal Footprint |
| Lid Symbolization (YY = year, WW = week)      | RFM SF1115A YYWW                          |



**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

#### NOTES:

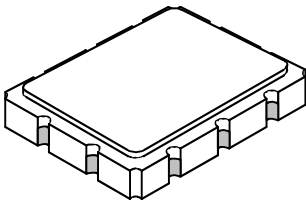
1. Unless noted otherwise, all specifications apply over the operating temperature range with filter soldered to the specified demonstration board with impedance matching to 50 Ω and measured with 50 Ω network analyzer.
2. Unless noted otherwise, all frequency specifications are referenced to the nominal center frequency,  $f_C$ .
3. Rejection is measured as attenuation below the minimum IL point in the passband. Rejection in final user application is dependent on PCB layout and external impedance matching design. See Application Note No. 42 for details.
4. The turnover temperature,  $T_O$ , is the temperature of maximum (or turnover) frequency,  $f_O$ . The nominal frequency at any case temperature,  $T_C$ , may be calculated from:  $f = f_O [1 - FTC(T_O - T_C)^2]$ .
5. The design, manufacturing process, and specifications of this filter are subject to change.
6. Either Port 1 or Port 2 may be used for either input or output in the design. However, impedances and impedance matching may vary between Port 1 and Port 2, so that the filter must always be installed in one direction per the circuit design.
7. US and international patents may apply.



SM9171-10 Case

10-Terminal Ceramic Surface-Mount Case

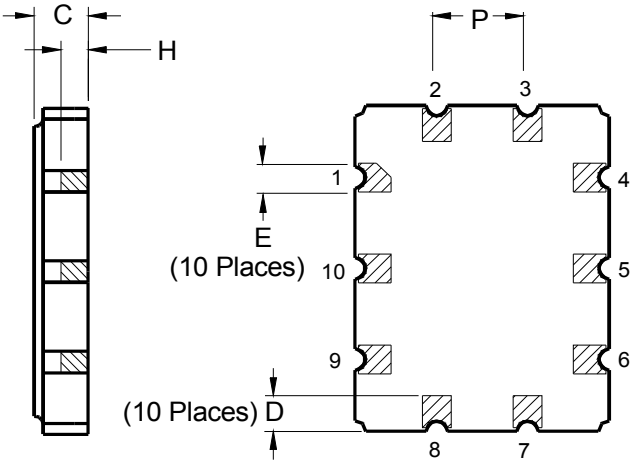
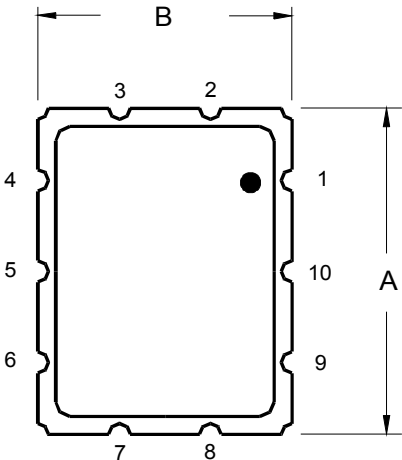
9.1 x 7.1 mm Nominal Footprint



| Case Dimensions |      |      |      |        |       |       |
|-----------------|------|------|------|--------|-------|-------|
| Dimension       | mm   |      |      | Inches |       |       |
|                 | Min  | Nom  | Max  | Min    | Nom   | Max   |
| A               | 8.86 | 9.09 | 9.40 | 0.349  | 0.358 | 0.370 |
| B               | 6.88 | 7.11 | 7.40 | 0.271  | 0.280 | 0.291 |
| C               |      | 1.91 | 2.00 |        | 0.075 | 0.079 |
| D               |      | 0.99 |      |        | 0.039 |       |
| E               |      | 0.79 |      |        | 0.031 |       |
| H               |      | 1.0  |      |        | 0.039 |       |
| P               |      | 2.54 |      |        | 0.100 |       |

| Materials              |  |
|------------------------|--|
| Solder Pad Termination | Au plating 30 - 60 pinches (76.2-152 μm) over 80-200 pinches (203-508 μm) Ni.    |
| Lid                    | Fe-Ni-Co Alloy Electroless Nickel Plate (8-11% Phosphorus) 100-200 pinches Thick |
| Body                   | Al <sub>2</sub> O <sub>3</sub> Ceramic   |
| Pb Free                |  |

| Electrical Connections |                  |                  |
|------------------------|------------------|------------------|
| Connection             |                  | Terminals        |
| Port 1                 | Input or Return  | 6                |
|                        | Return or Input  | 5                |
| Port 2                 | Output or Return | 1                |
|                        | Return or Output | 10               |
| Ground                 |                  | All others       |
| Single Ended Operation |                  | Return is ground |
| Differential Operation |                  | Return is hot    |



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Murata:](#)

[SF1115A](#)