- Low Loss UHF SAW Filter
- 9.1 x 7.1 mm Version of SF1059A-1
- Single-ended or Balanced Operation
- Complies with Directive 2002/95/EC (RoHS)



## Absolute Maximum Ratings

| Rating | Value | Units |
| :--- | :---: | :---: |
| Maximum Incident Power in Passband | +10 | dBm |
| Maximum DC Voltage Between any 2 Terminals | 30 | VDC |
| Storage Temperature Range | -40 to +85 | ${ }^{\circ} \mathrm{C}$ |
| Suitable for lead-free soldering - Maximum Soldering Profile | $260^{\circ} \mathrm{C}$ for 30 s |  |



SM9171-10

## Electrical Characteristics

| Characteristic | Sym | Notes | Min | Typ | Max | Units |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Nominal Center Frequency | $\mathrm{f}_{\mathrm{C}}$ | 1 | 350.00 |  |  | MHz |
| Passband: | IL |  |  | 8 | 10.0 | dB |
| Insertion Loss at fc |  |  |  |  |  |  |
| 3 dB Passband | $\mathrm{BW}_{3}$ | 1, 2 | $\pm 400$ | $\pm 600$ |  | kHz |
| Amplitude Variation over fc $\pm 250 \mathrm{kHz}$ |  |  |  | 0.5 | 1.0 | $\mathrm{dB}_{\mathrm{P}-\mathrm{P}}$ |
| Group Delay Variation over fc $\pm 400 \mathrm{kHz}$ | GDV |  |  | 200 | 250 | $n S_{\text {P-P }}$ |
| Rejection referenced to IL: <br> (fc - 8.0) to (fc -2.0 ) and ( $\mathrm{fc}+2.0$ ) to ( $\mathrm{fc}+8.0$ ) MHz ( $\mathrm{fc}-50$ ) to ( $\mathrm{fc}-8.0$ ) and ( $\mathrm{fc}+8.0$ ) to $(\mathrm{fc}+50) \mathrm{MHz}$ Ultimate Rejection |  | 1,2,3 | 35 | 40 |  | dB |
|  |  |  |  |  |  |  |
|  |  |  | 40 | 45 |  |  |
|  |  |  |  | 50 |  |  |
| Operating Temperature Range | $\mathrm{T}_{\text {A }}$ | 1 | -20 |  | +70 | ${ }^{\circ} \mathrm{C}$ |


| Impedance Matching to $50 \Omega$ unbalanced | External L-C |
| :--- | :---: |
| Case Style | SM9171-10 9.1 $\times 7.1 \mathrm{~mm}$ Nominal Footprint |
| Lid Symbolization (YY=year, WW=week, S=shift, \#\#=sequence code) | RFM SF1059A YYWWS\#\# |



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

## NOTES:

1. Unless noted otherwise, all specitication apply over the operating temperature range with filter soldered to the specified demonstration board with impedanced matching to $50 \Omega$ network analyzer.
2. Unless noted otherwise, all frequency specitications are referenced to the nominal center frequency, fc.
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. "LRIP" or " L " after the part number indicates "low rate initial production" and " $E N G$ " or " E " indicates "engineering prototypes."
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.
8. Murata, stylized Murata logo, and Murata N.A., Inc. are registered trademarks of Murata Manufacturing Co., Ltd.

## SF1059A Filter Plots




## SF1059A Impedance Plots




## SF1059A Typical Tuning Network



## SM9171-10 Case

10-Terminal Ceramic Surface-Mount Case
$9.1 \times 7.1$ mm Nominal Footprint


| Case Dimensions |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Dimension | $\mathbf{m m}$ |  |  | 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 <br> Plating | 0.3 to $1.0 \mu \mathrm{~m}$ Gold over 1.27 to $8.89 \mu \mathrm{~m}$ Nickel |
| Lid Plating | 2.0 to $3.0 \mu \mathrm{~m}$ Nickel |
| Body | $\mathrm{Al}_{2} \mathrm{O}_{3}$ Ceramic |
| Pb Free |  |

## Electrical Connections

| Connection |  | Terminals |
| :--- | :--- | :---: |
| Port 1 | Input or Return | 5 |
|  | Return or Input | 6 |
| Port 2 | Output or Return | 10 |
|  | Return or Output | 1 |
|  | Ground | All others |
| For Single-ended Operation | Ground 1,6 |  |



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