**MAFL-010609**

**Satellite Triplex Filter**

950 - 1450 / 1650 - 2150 / 2500 - 3000 MHz

### Description
- MACOM Technology Solutions MAFL-010609 is a surface mount triplex filter unit designed for Satellite applications.

### Features
- 75 Ohm
- SMT unit
- RoHS* Compliant
- SAT1 BPF 950 - 1450 MHz
- SAT2 BPF 1650 - 2150 MHz
- SAT3 BPF 2500 - 3000 MHz

### Electrical Specifications: $T_A = 25^\circ C, Z_0 = 75 \Omega$

#### SAT1 Band
- **Insertion Loss**
  - 950 - 1450 MHz: dB, Min = -1.5, Typ = 3.0
- **Rejection**
  - 500 - 875 MHz: dB, Min = 30
  - 1550 MHz: dB, Min = 9
  - 1630 - 2150 MHz: dB, Min = 30
  - 2400 - 4500 MHz: dB, Min = 35

#### SAT2 Band
- **Insertion Loss**
  - 1650 - 2150 MHz: dB, Min = -2.0, Typ = 3.0
- **Rejection**
  - 500 - 1470 MHz: dB, Min = 36
  - 1550 MHz: dB, Min = 9
  - 2400 - 2420 MHz: dB, Min = 27
  - 2420 - 2440 MHz: dB, Min = 31
  - 2440 - 4500 MHz: dB, Min = 35

#### SAT3 Band
- **Insertion Loss**
  - 2500 - 3000 MHz: dB, Min = -2.75, Typ = 3.0
- **Rejection**
  - 500 - 875 MHz: dB, Min = 40
  - 950 - 2230 MHz: dB, Min = 37
  - 2230 - 2420 MHz: dB, Min = 33
  - 2240 - 2250 MHz: dB, Min = 29
  - 3500 - 4500 MHz: dB, Min = 20

#### Return Loss
- **Common Port**
  - 950 - 1450 MHz: dB, Min = 10
  - 1650 - 2150 MHz: dB, Min = 10
  - 2500 - 3000 MHz: dB, Min = 10
- **SAT1 Port**
  - 950 - 1450 MHz: dB, Min = 10
- **SAT2 Port**
  - 1650 - 2150 MHz: dB, Min = 10
- **SAT3 Port**
  - 2500 - 3000 MHz: dB, Min = 10

### Functional Schematic

#### Pin Configuration

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT1 Port</td>
<td>1</td>
</tr>
<tr>
<td>SAT2 Port</td>
<td>4</td>
</tr>
<tr>
<td>SAT3 Port</td>
<td>7</td>
</tr>
<tr>
<td>Common Port</td>
<td>14</td>
</tr>
<tr>
<td>Ground</td>
<td>2, 3, 5, 6, 8-13, 15-20</td>
</tr>
</tbody>
</table>
Satellite Triplex Filter
950 - 1450 / 1650 - 2150 / 2500 - 3000 MHz

Recommended Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Temperature</td>
<td>-25°C to +70°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to +70°C</td>
</tr>
</tbody>
</table>

Recommended PCB Configuration

- Track dimension = 1.15mm
- Gap dimension = 1.3mm
- It is not recommended to run tracks under the filter unless they are greater than 1.6mm below the base.
- RF shield should be kept a minimum of 10mm above the filter

NOTE: Substrate is 1.6mm thick FR4
Typical Performance Curves at +25°C

SAT1 BPF

SAT2 BPF

SAT3 BPF

SAT1 - SAT2 Isolation

SAT1 - SAT3 Isolation

SAT2 - SAT3 Isolation
Typical Performance Curves at +25°C

- **Common Port Return Loss**
  - Frequency (MHz)
  - S11 (dB) from -30 to 0

- **SAT1 Return Loss**
  - Frequency (MHz)
  - S22 (dB) from -30 to 0

- **SAT2 Return Loss**
  - Frequency (MHz)
  - S33 (dB) from -30 to 0

- **SAT3 Return Loss**
  - Frequency (MHz)
  - S44 (dB) from -30 to 0

**Satellite Triplex Filter**

950 - 1450 / 1650 - 2150 / 2500 - 3000 MHz

**MAFL-010609**

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

For further information and support please visit: [https://www.macom.com/support](https://www.macom.com/support)
Typical Performance Curves at +25°C

Group Delay SAT1

Group Delay SAT2

Group Delay SAT3
Satellite Triplex Filter
950 - 1450 / 1650 - 2150 / 2500 - 3000 MHz

Tape & Reel Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qty per reel</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>Reel Size</td>
<td>mm</td>
<td>330</td>
</tr>
<tr>
<td>Tape Width</td>
<td>mm</td>
<td>72.0</td>
</tr>
<tr>
<td>Pitch</td>
<td>mm</td>
<td>28.0</td>
</tr>
<tr>
<td>Ao</td>
<td>mm</td>
<td>23.3</td>
</tr>
<tr>
<td>Bo</td>
<td>mm</td>
<td>47.8</td>
</tr>
<tr>
<td>Ko</td>
<td>mm</td>
<td>6.8</td>
</tr>
<tr>
<td>Orientation</td>
<td>-</td>
<td>F30</td>
</tr>
</tbody>
</table>

Reference Application Note ANI-019 for orientation

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAFL-010609</td>
<td>Tape &amp; Reel</td>
</tr>
</tbody>
</table>

For further information and support please visit: https://www.macom.com/support
Satellite Triplex Filter
950 - 1450 / 1650 - 2150 / 2500 - 3000 MHz

M/A-COM Technology Solutions Inc. All rights reserved.
Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.

Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support