DESCRIPTION

- 140 MHz SAW bandpass filter with 2.2 MHz bandwidth.
- 13.3 x 6.5 mm SMP.
- RoHS compliant.

TYPICAL PERFORMANCE

Horizontal: Frequency : 3 MHz/div
Vertical from Top: Relative Magnitude : 10 dB/div
Relative magnitude : 1 dB/div
Phase Linearity : 5 deg/div
Group Delay Deviation : 100 ns/div

S11 (125 to 155 MHz)             S22 (125 to 155 MHz)
SPECIFICATION

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency, Fc¹</td>
<td>139.70</td>
<td>140.00</td>
<td>140.30</td>
<td>MHz</td>
</tr>
<tr>
<td>Insertion Loss at Fc</td>
<td>10</td>
<td>12</td>
<td>13</td>
<td>dB</td>
</tr>
<tr>
<td>1 dB Bandwidth</td>
<td>2.20</td>
<td>2.28</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>3 dB Bandwidth</td>
<td>2.30</td>
<td>2.73</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>40 dB Bandwidth</td>
<td>-</td>
<td>4.30</td>
<td>4.50</td>
<td>MHz</td>
</tr>
<tr>
<td>Ultimate Rejection (70 to 210 MHz)²</td>
<td>40</td>
<td>45</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Passband Ripple (Fc+/-1 MHz)</td>
<td>-</td>
<td>0.6</td>
<td>1.0</td>
<td>dB p-p</td>
</tr>
<tr>
<td>Phase Ripple (Fc+/-1 MHz)</td>
<td>-</td>
<td>2.5</td>
<td>5</td>
<td>deg p-p</td>
</tr>
<tr>
<td>Group Delay Ripple (Fc+/-0.8 MHz)</td>
<td>-</td>
<td>50</td>
<td>300</td>
<td>ns/div</td>
</tr>
<tr>
<td>Temperature Coefficient of Frequency</td>
<td>-</td>
<td>-23</td>
<td>-</td>
<td>ppm/°C</td>
</tr>
<tr>
<td>Source/Load Impedance</td>
<td>-</td>
<td>50</td>
<td>-</td>
<td>ohms</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-</td>
<td>25</td>
<td>-</td>
<td>°C</td>
</tr>
</tbody>
</table>

Notes:  
1. Defined as the average of the lower and upper 3 dB frequencies at room ambient.  
2. All dB levels are defined relative to the insertion loss.

MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Temperature Range</td>
<td>-40</td>
<td>85</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>5</td>
<td>50</td>
<td>°C</td>
</tr>
<tr>
<td>Input Power Level</td>
<td>-</td>
<td>10</td>
<td>dBm</td>
</tr>
</tbody>
</table>

MATCHING CIRCUIT

![Matching Circuit Diagram]

Typical component values:

\[
\begin{align*}
L_s1 &= 52 \text{ nH} \\
C_p1 &= 39 \text{ pF} \\
L_s2 &= 59.3 \text{ nH} \\
C_p2 &= 41 \text{ pF}
\end{align*}
\]

Notes:  
1. Recommend use of 2% tolerance matching components.  
2. Component values are for reference only and may change depending on board layout.
140 MHz SAW Filter
2.2 MHz Bandwidth
Part Number: SF0140BA02457S

PACKAGE OUTLINE

SUGGESTED FOOTPRINT

Units: mm
Tolerances are ±0.15 mm except for the overall length and width, which are nominal values.

Pad Configuration:
Input: 11
Output: 5
Ground: 1,2,3,4,6,7,8,9,10,12

Package Material:
Body: Al₂O₃ ceramic
Lid: Kovar, Ni plated
Terminations: Au plating 1 µm min, over a 1.3-8.9 µm Ni plating

All specifications are believed to be accurate and reliable. However, Spectrum Microwave reserves the right to make changes without notice.

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