DESCRIPTION

- 137.5 MHz SAW bandpass filter with 1 MHz bandwidth.
- 19 x 6.5 mm LCC package.
- RoHS compliant.

TYPICAL PERFORMANCE

Horizontal: Frequency : 2 MHz/div
Vertical from Top: Relative Magnitude : 10 dB/div
Relative magnitude : 1 dB/div
Phase Linearity : 5 deg/div
Group Delay Deviation : 50 ns/div

S11 (127.5 to 147.5 MHz)  S22 (127.5 to 147.5 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, ( F_C ) (fixed reference)</td>
<td>-</td>
<td>137.5</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>Insertion loss at ( F_C )</td>
<td>-</td>
<td>11.2</td>
<td>14</td>
<td>dB</td>
</tr>
<tr>
<td>1 dB Bandwidth</td>
<td>1.0</td>
<td>1.20</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>3 dB Bandwidth</td>
<td>-</td>
<td>1.46</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>40 dB Bandwidth</td>
<td>-</td>
<td>2.46</td>
<td>2.6</td>
<td>MHz</td>
</tr>
<tr>
<td>Passband Amplitude Ripple ( \pm )</td>
<td>-</td>
<td>0.65</td>
<td>1</td>
<td>dB p-p</td>
</tr>
<tr>
<td>Passband Phase Linearity ( \pm )</td>
<td>-</td>
<td>1.2</td>
<td>5</td>
<td>deg p-p</td>
</tr>
<tr>
<td>Passband Group Delay Ripple ( \pm )</td>
<td>-</td>
<td>40</td>
<td>-</td>
<td>ns p-p</td>
</tr>
<tr>
<td>Rejection (10 to 127.5 MHz)</td>
<td>40</td>
<td>43</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Rejection (147.5 to 200 MHz)</td>
<td>40</td>
<td>43</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Return Loss at Input and Output ( \pm )</td>
<td>-</td>
<td>18</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Absolute Delay</td>
<td>-</td>
<td>1.08</td>
<td>1.5</td>
<td>us</td>
</tr>
<tr>
<td>Source/Load Impedance</td>
<td>50</td>
<td></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. Fixed reference. All specified bandwidths are centered at this frequency.
2. Over the central 1 MHz bandwidth.
3. When matched using external components in MNC test fixture.
4. The above specification applies over the full operating temperature range.

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>95</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-40</td>
<td>85</td>
<td>°C</td>
</tr>
<tr>
<td>Input Power Level</td>
<td>-</td>
<td>13</td>
<td>dBm</td>
</tr>
</tbody>
</table>

MATCHING CIRCUIT

![Matching Circuit Diagram]

Typical component values:
Minimum Q=45

\[
\begin{align*}
L_s1 & = 128 \text{ nH} \\
C_p1 & = 56 \text{ pF} \\
L_s2 & = 126 \text{ nH} \\
C_p2 & = 567 \text{ pF}
\end{align*}
\]

Notes:
1. Recommend use of 2% tolerance matching components.
2. Component values are for reference only and may change depending on board layout.
137.5 MHz SAW Filter
1 MHz Bandwidth
Part Number: SF0137BA02305S

PACKAGE OUTLINE

SUGGESTED FOOTPRINT

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

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

Pad Configuration:
Input: 10
Output: 5
Ground: All other pads

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