DESCRIPTION

- 156 MHz SAW bandpass filter with 9.4 MHz bandwidth.
- 13.3 x 6.5 mm LCC package.
- RoHS compliant.

TYPICAL PERFORMANCE

Horizontal: Frequency : 5 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 (131 to 181 MHz)  S22 (131 to 181 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 (Fc)</td>
<td>-</td>
<td>156.00</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>Minimum Insertion Loss</td>
<td>-</td>
<td>20.6</td>
<td>22.0</td>
<td>dB</td>
</tr>
<tr>
<td>1 dB Bandwidth</td>
<td>9.40</td>
<td>9.80</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>Amplitude Variation (151.3 to 160.7 MHz)</td>
<td>-</td>
<td>0.6</td>
<td>1.0</td>
<td>dB p-p</td>
</tr>
<tr>
<td>Group Delay Ripple (151.3 to 160.7 MHz)</td>
<td>-</td>
<td>80</td>
<td>150</td>
<td>ns p-p</td>
</tr>
<tr>
<td>Relative Attenuation at 141.0 MHz</td>
<td>45</td>
<td>48</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Relative Attenuation at 149.7 MHz</td>
<td>40</td>
<td>45</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Relative Attenuation at 162.3 MHz</td>
<td>40</td>
<td>45</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Relative Attenuation at 171.0 MHz</td>
<td>45</td>
<td>48</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Ultimate Rejection</td>
<td>50</td>
<td>54</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Ambient Temperature (Tref)</td>
<td>-</td>
<td>25</td>
<td>-</td>
<td>°C</td>
</tr>
<tr>
<td>Source and Load Impedance</td>
<td>50</td>
<td></td>
<td></td>
<td>Ω</td>
</tr>
</tbody>
</table>

Notes: 1. Average of the lower and upper 3 dB band edge frequencies.  
2. All dB values are referenced to the insertion loss.  
3. Specifications are valid for a temperature of 23°C.  
4. Typical change of filter frequency response with temperature is \( \Delta f = (T-T_{ref}) \times T_c \times Fc \), in ppm.

MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Temperature Range</td>
<td>-40</td>
<td>25</td>
<td>85</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-10</td>
<td>25</td>
<td>65</td>
<td>°C</td>
</tr>
<tr>
<td>Temperature Coefficient of Frequency (Tc)</td>
<td>-</td>
<td>-23</td>
<td>-</td>
<td>ppm/°C</td>
</tr>
<tr>
<td>Input Power Level</td>
<td>-</td>
<td>10</td>
<td>13</td>
<td>dBm</td>
</tr>
</tbody>
</table>

MATCHING CIRCUIT

Typical component values:

\[ Ls1 = 33 \, \text{nH} \quad Ls2 = 18 \, \text{nH} \]
\[ Lp1 = 33 \, \text{nH} \quad Lp2 = 22 \, \text{nH} \]

Notes:
1. Recommend use of 2% tolerance matching components.  
2. Component values are for reference only and may change depending on board layout.
156 MHz SAW Filter
9.4 MHz Bandwidth
Part Number: SF0156BA02421S

PACKAGE OUTLINE

SUGGESTED FOOTPRINT

Package Material:
Body: \( \text{Al}_2\text{O}_3 \) ceramic
Lid: Kovar, \( \text{Ni} \) plated
Terminations: Au plating 1 \( \mu \)m min,
over a 1.3-8.9 \( \mu \)m \( \text{Ni} \) plating

Units: mm

Tolerances are \( \pm 0.15 \) mm except where indicated and for the overall length and width, which are nominal values.

Pad Configuration:
Input: 11
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.
© 2010 All rights reserved.

Spectrum Microwave
400 Nickerson Road, Marlborough, MA 01752, USA • Phone 1-508-251-6400 • Fax 1-508-251-6401
www.SpectrumMicrowave.com

DSSF0156BA02421S Rev A 11-Mar-2010
ECN 36650 Page 3 of 3