DESCRIPTION

- 140 MHz SAW bandpass filter with 5 MHz bandwidth in 13.3 x 6.5 mm SMP.
- RoHS compliant.

TYPICAL PERFORMANCE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>S11 (125-165 MHz)</th>
<th>S22 (125-165 MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>3 MHz/div</td>
<td>3 MHz/div</td>
</tr>
<tr>
<td>Magnitude</td>
<td>10 dB/div</td>
<td>10 dB/div</td>
</tr>
<tr>
<td>Magnitude Deviation</td>
<td>10 deg/div</td>
<td>10 deg/div</td>
</tr>
<tr>
<td>Group Delay Deviation</td>
<td>100 ns/div</td>
<td>100 ns/div</td>
</tr>
</tbody>
</table>
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) ^1</td>
<td>-</td>
<td>140.00-</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>Insertion Loss ^2</td>
<td>-</td>
<td>12.0</td>
<td>13.5</td>
<td>dB</td>
</tr>
<tr>
<td>Lower 1dB Band Edge</td>
<td>-</td>
<td>137.26</td>
<td>137.55</td>
<td>MHz</td>
</tr>
<tr>
<td>Upper 1dB Band Edge</td>
<td>142.45</td>
<td>142.86</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>Lower 3dB Band Edge</td>
<td>-</td>
<td>136.96</td>
<td>137.35</td>
<td>MHz</td>
</tr>
<tr>
<td>Upper 3dB Band Edge</td>
<td>142.65</td>
<td>143.14</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>Lower 30dB Band Edge</td>
<td>-</td>
<td>136.00</td>
<td>136.17</td>
<td>MHz</td>
</tr>
<tr>
<td>Upper 30dB Band Edge</td>
<td>-</td>
<td>143.88</td>
<td>144.00</td>
<td>MHz</td>
</tr>
<tr>
<td>Passband Ripple ^3</td>
<td>-</td>
<td>0.42</td>
<td>0.7</td>
<td>dB p-p</td>
</tr>
<tr>
<td>Phase Ripple ^3</td>
<td>-</td>
<td>1.3</td>
<td>3</td>
<td>deg p-p</td>
</tr>
<tr>
<td>Group Delay Variation ^3</td>
<td>-</td>
<td>30</td>
<td>50</td>
<td>ns p-p</td>
</tr>
<tr>
<td>Rejection ^4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(70 to 125 MHz)</td>
<td>50</td>
<td>55</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>(125 to 135.5 MHz)</td>
<td>43</td>
<td>47</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>(144.5 to 155 MHz)</td>
<td>43</td>
<td>47</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>(155 to 210 MHz)</td>
<td>40</td>
<td>44</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Temperature Coefficient of Frequency</td>
<td>-</td>
<td>-23</td>
<td>-</td>
<td>ppm/°C</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-</td>
<td>25</td>
<td>-</td>
<td>°C</td>
</tr>
<tr>
<td>System Source and Load Impedance</td>
<td>-</td>
<td>50</td>
<td>-</td>
<td>Ω</td>
</tr>
</tbody>
</table>

Notes:  
1. Defined as the average of the lower and upper 3 dB frequencies.  
2. All dB levels are defined relative to the insertion loss.  
3. Defined over 137.88 to 142.12 MHz.

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>Input Power Level</td>
<td>+13</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>DC Voltage Between Each Terminal</td>
<td>15</td>
<td></td>
<td>V</td>
</tr>
</tbody>
</table>

MATCHING CIRCUIT

![Matching Circuit Diagram]

\[ Ls1 = 15 \text{nH} \quad Lp1 = 22 \text{nH} \quad Ls2 = 27 \text{nH} \quad Lp2 = 22 \text{nH} \]

Notes:  
1. Recommend +/-2% tolerance inductors, Q=40 minimum.  
2. Component values shown are for reference only and may change depending on board layout.
PACKAGE OUTLINE AND RECOMMENDED PCB LAYOUT

PACKAGE INFORMATION

RECOMMENDED PCB FOOTPRINT

Pin Configuration:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Input</td>
</tr>
<tr>
<td>12</td>
<td>Input Return</td>
</tr>
<tr>
<td>5</td>
<td>Output</td>
</tr>
<tr>
<td>6</td>
<td>Output Return</td>
</tr>
<tr>
<td>All Others</td>
<td>Ground</td>
</tr>
</tbody>
</table>

NOTE:
Dimensions shown are all nominal in millimeters. All tolerances are ±0.15mm except overall length and width.

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

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