SAW Filter 119.640MHz  
Model: TB0196A  
Part No: MA05334  
Rev No: 2

A. MAXIMUM RATING:

Electrostatic Sensitive Device (ESD)

1. Input Power Level: 10dBm
2. DC voltage: 13 V
3. Operating Temperature: -20°C to +75°C
4. Storage Temperature: -40°C to +85°C

B. ELECTRICAL CHARACTERISTICS:

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center frequency Fc</td>
<td>MHz</td>
<td>-</td>
<td>119.64</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Minimum Insertion Loss IL</td>
<td>dB</td>
<td>-</td>
<td>4</td>
<td>5.5</td>
<td>-</td>
</tr>
<tr>
<td>3 dB bandwidth (from Fc)</td>
<td>KHz</td>
<td>±15</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Group delay ripple in Fc ± 15kHz GD</td>
<td>μs</td>
<td>-</td>
<td>5</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Temperature coefficient of frequency TCf</td>
<td></td>
<td></td>
<td>-0.033ppm / C^2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source impedance</td>
<td></td>
<td>50Ω</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load impedance</td>
<td></td>
<td>50Ω</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Z_{IN}=416.2Ω // -4.65pF

Z_{OUT}=416.2Ω // -4.65pF
C. OUTLINE DRAWING:

9: Input
4: Output
10: Balance input or input ground
5: Balance output or output ground
1, 2, 3, 6, 7, 8: To be grounded
Unit: mm

D. PCB FOOTPRINT:
E. MEASUREMENT CIRCUIT:

1. 50Ohm Test circuit 1 (single-ended / single-ended)

HP Network analyzer

```
50Ω ─────── SAW Filter ─────── 50Ω
nen
180nH

4pF 4pF

1, 2, 3, 6, 7, 8
```

2. 50Ohm Test circuit 2 (balance / balance)

HP Network analyzer

```
50Ω ─────── SAW Filter ─────── 50Ω
en
180nH 150nH

18pF 18pF 18pF

1, 2, 3, 6, 7, 8
```
F. FREQUENCY CHARACTERISTICS:

![Graph showing frequency characteristics of a SAW Filter 119.640MHz model TB0196A. The graph includes markers indicating center and 1% bandwidth frequencies.]
G. PACKING:

1. Reel Dimension

2. Tape Dimension

Direction of Feed
H. RECOMMENDED REFLOW PROFILE:

1. Preheating shall be fixed at 150 ~ 180°C for 60 ~ 90 seconds.

2. Ascending time to preheating temperature 150°C shall be 30 seconds min.

3. Heating shall be fixed at 220° for 50 ~ 80 seconds and at 245 ~ 260°C peak (min. 10sec).

4. Time: 2 times.