8-Way RF Splitter - Version 1 - Surface Mount - Broadband

Splitter Features:

- BroadBand - 0.5 GHz to 7 GHz
- Low Loss - Less Than 2.6 dB at 6 GHz
- Excellent Amplitude/Phase Balance - 0.4 dB/7 Degrees at 6 GHz
- High Power - Greater Than 20 Watts As A Splitter
- RoHs Compliant

Part Number:

- BBTLine_8Way_V1_SMT

Version 1 has all nine ports on one side of the device

Description:

Shown below is a Patented (U.S. Patent 9,570,792) Broadband 8-Way Surface Mount (SMT) RF Splitter. This RF splitter is not a typical Wilkinson-style device, but a design which yields a more compact Power Divider with excellent low loss RF characteristics and High Power-Handling capability.
### RF Specifications:

**Specifications (at Room Temperature):**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range [GHz]</td>
<td>0.5 to 7</td>
</tr>
<tr>
<td>Insertion Loss [dB] (@ 6 GHz)</td>
<td>&lt; 2.6</td>
</tr>
<tr>
<td>Near Port Isolation [dB] (0.8 to 7 GHz)</td>
<td>&gt; 20</td>
</tr>
<tr>
<td>Near Port Isolation [dB] (0.5 to &lt; 0.8 GHz)</td>
<td>&gt; 10</td>
</tr>
<tr>
<td>Far Port Isolation [dB] (0.875 to 6.9 GHz)</td>
<td>&gt; 25</td>
</tr>
<tr>
<td>Far Port Isolation [dB] (0.5 to &lt; 0.875 GHz)</td>
<td>&gt; 16</td>
</tr>
<tr>
<td>Input (Common Port) Return Loss [dB]</td>
<td>&lt; -14</td>
</tr>
<tr>
<td>Output Return Loss [dB] (1 to 6 GHz)</td>
<td>&lt; -18</td>
</tr>
<tr>
<td>Maximum Power as Splitter [Watts]</td>
<td>&gt; 20*</td>
</tr>
<tr>
<td>Maximum Power as Combiner [mWatts], Anti-Phase Signals</td>
<td>= 50 **</td>
</tr>
<tr>
<td>Maximum Power as Combiner [Watts], In-Phase Signals</td>
<td>&gt; 20*</td>
</tr>
<tr>
<td>Phase Unbalance [degrees @ 6 GHz]</td>
<td>+/- 7</td>
</tr>
<tr>
<td>Amplitude Unbalance [dB @ 6 GHz]</td>
<td>+/- 0.4</td>
</tr>
</tbody>
</table>

* 20 watts is NOT a device limitation but a test setup limitation

** internal 0.0210 isolation resistor limitation when combining perfectly anti-phase signals

Operating Temperature Range: -55 to 125 degrees C

Mass: < 6 grams
Typical Device RF Performance:

8-Way Splitter

For isolation consideration:

*Near Port* combinations are P2/P3, P4/P5, P6/P7, P8/P9
All other combinations are *Far Port*

Ideal 9 dB split loss not included

Isolation, Near Ports

Isolation, Far Ports

Amplitude Balance [dB]

Phase Balance [degrees]
Mechanical Dimensions, Bottom Ground Plane View:

8-Way Surface Mount Splitter/Combiner Signal Via Locations:

- Half-Cut Signal Vias:
  1) Half-Cut Signal Via Pad Dimensions (X9) = 32 mil diameter
  2) 50 mil center-to-center separation between pairs of vias
  3) 10 mil annular clearance between ground plane and signal via pads
Mechanical Dimensions, End View (PCB board vias are not shown):

End View: Nine Ports On One End of Shield Can (PCB Vias are NOT shown)

An Evaluation Board with Male SMP Smooth-Bore Connectors is available as shown below: