SAW Components

SAW GPS + GLONASS Filter

Series/type: B9877
Ordering code: B39162B9877P810
Date: June 17, 2013
Version: 2.0
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SAW Components

SAW GPS + GLONASS Filter

Data Sheet

Application

- Low-loss RF GPS + GLONASS filter
- Simultaneous usage of GPS band and GLONASS band
- Usable passbands: 2.0 MHz for GPS and 8.34 MHz for GLONASS
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- High out of band selectivity
- Low amplitude ripple
- Filter impedance 50 Ω
- No matching network required for operation at 50 Ω
- Input & Output can be exchanged, B9877 is bidirectional type.

Features

- Package size 1.1 x 0.9 x 0.4 mm\(^3\)
- RoHS compatible
- Approximate weight 0.0012 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 3 (MSL3)

Pin configuration

- 1  Input / Output unbalanced
- 4  Output / Input unbalanced
- 2,3,5  To be grounded

Please read cautions and warnings and important notes at the end of this document.
### Characteristics of Filter

- **Temperature range for specification:** \( T = -30 \, ^\circ \text{C} \text{ to } +85 \, ^\circ \text{C} \)
- **Terminating source impedance:** \( Z_S = 50 \, \Omega \)
- **Terminating load impedance:** \( Z_L = 50 \, \Omega \)

<table>
<thead>
<tr>
<th>Characteristics of Filter</th>
<th>B9877</th>
<th>min.</th>
<th>typ. @ 25 °C</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Center frequency</strong> ( f_C )</td>
<td>( 1585.66 , \text{MHz} )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum insertion attenuation</strong> ( \alpha_{\text{max}} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1574.42 ... 1576.42 MHz</td>
<td>—</td>
<td>0.9</td>
<td>1.3</td>
<td>dB</td>
</tr>
<tr>
<td>1597.55 ... 1605.89 MHz</td>
<td>—</td>
<td>1.5</td>
<td>2.0</td>
<td>dB</td>
</tr>
<tr>
<td><strong>VSWR (Input)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1574.42 ... 1576.42 MHz</td>
<td>—</td>
<td>1.2</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1597.55 ... 1605.89 MHz</td>
<td>—</td>
<td>1.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>VSWR (Output)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1574.42 ... 1576.42 MHz</td>
<td>—</td>
<td>1.2</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>1597.55 ... 1605.89 MHz</td>
<td>—</td>
<td>1.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>Group delay ripple</strong> 1)</td>
<td></td>
<td>4</td>
<td>10</td>
<td>ns</td>
</tr>
<tr>
<td>1597.55 ... 1605.89 MHz</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attenuation</strong> ( \alpha )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0 ... 960.0 MHz</td>
<td>40</td>
<td>43</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>1427.0 ... 1453.0 MHz</td>
<td>44</td>
<td>55</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>1501.0 ... 1525.0 MHz</td>
<td>40</td>
<td>44</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>1710.0 ... 1785.0 MHz</td>
<td>43</td>
<td>46</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>1850.0 ... 1910.0 MHz</td>
<td>44</td>
<td>49</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>1920.0 ... 1980.0 MHz</td>
<td>46</td>
<td>50</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>2110.0 ... 2170.0 MHz</td>
<td>46</td>
<td>49</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>2401.0 ... 2483.0 MHz</td>
<td>42</td>
<td>50</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>2500.0 ... 2570.0 MHz</td>
<td>40</td>
<td>48</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>4900.0 ... 5850.0 MHz</td>
<td>20</td>
<td>30</td>
<td>—</td>
<td>dB</td>
</tr>
</tbody>
</table>

1) Measured with aperture 2 MHz.
SAW Components

SAW GPS + GLONASS Filter

B9877

1585.155 MHz

Data Sheet

Maximum ratings of Filter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operable temperature range</td>
<td>(-30^{\circ}/+85^{\circ}) C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>(-40^{\circ}/+85^{\circ}) C</td>
</tr>
<tr>
<td>DC voltage</td>
<td>0 V</td>
</tr>
<tr>
<td>ESD voltage</td>
<td>50 V</td>
</tr>
<tr>
<td>Input power at 915 MHz</td>
<td>23 dBm</td>
</tr>
<tr>
<td>Input power at 1453 MHz</td>
<td>15 dBm</td>
</tr>
<tr>
<td>Input power at 1710 MHz</td>
<td>15 dBm</td>
</tr>
</tbody>
</table>

1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses
2) >5000 h at Ta = 50°C
Transfer function (passband)

Transfer function (wideband)

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SAW Components

**Type**

| B9877 |

**Ordering code**

| B39162B9877P810 |

**Marking and package**

| C61157-A8-A30 |

**Packaging**

| F61074-V8255-Z000 |

**Date codes**

| L_1126 |

**S-parameters**

| B9877_NB.s2p, B9877_WB.s2p  
see file header for port/pin assignment table |

**Soldering profile**

| S_6001 |

**RoHS compatible**

RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.

**Moldability**

Before using in overmolding environment, please contact your EPCOS sales office.

**Matching coils**

See Inductor pdf-catalog

http://www.tdk.co.jp/tefe02/coil.htm#aname1  
and Data Library for circuit simulation  
http://www.tdk.co.jp/etvcl/index.htm

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