SAW Components

SAW RF filter
Automotive telematics

Series/type: B4309
Ordering code: B39202B4309P810
Date: May 11, 2011
Version: 2.1
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SAW Components

SAW RF filter

B4309

1950.00 MHz

Application

- Low-loss RF filter for mobile telephone WCDMA systems, transmit path (Tx)
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Very low Error Vector Magnitude (EVM)
- High Rx-suppression
- Usable passband 60 MHz

Features

- Package size 1.4 x 1.1 x 0.4 mm³
- Package code QCS5P
- RoHS compatible
- Approximate weight 0.003 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- AEC-Q200 qualified component family (operable temperature range –40°C to +85°C)
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 3

Pin configuration

- 1 Input
- 4 Output
- 2,3,5 to be grounded

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

Temperature range for specification: \( T = -20 \, ^\circ C \) to \(+85 \, ^\circ C\)

Terminating source impedance: \( Z_S = 50 \, \Omega \)

Terminating load impedance: \( Z_L = 50 \, \Omega \)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>min.</th>
<th>typ. @ 25 °C</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center frequency ( f_C )</td>
<td>—</td>
<td>1950.00 MHz</td>
<td>—</td>
</tr>
<tr>
<td>Maximum insertion attenuation ( \alpha_{\text{max}} )</td>
<td>—</td>
<td>2.3 dB</td>
<td>3.0 dB</td>
</tr>
<tr>
<td>1920.00 ... 1980.00 MHz</td>
<td>—</td>
<td>1.1 dB</td>
<td>1.8 dB</td>
</tr>
<tr>
<td>Amplitude ripple (p-p) ( \Delta \alpha )</td>
<td>—</td>
<td>1.8 dB</td>
<td>2.2 dB</td>
</tr>
<tr>
<td>VSWR</td>
<td>—</td>
<td>1.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Error Vector Magnitude ( \text{EVM}^1 )</td>
<td>—</td>
<td>1.0 %</td>
<td>3.0 %</td>
</tr>
<tr>
<td>@fCarrier 1922.50 ... 1977.50 MHz</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Attenuation ( \alpha )</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>50.00 ... 960.00 MHz</td>
<td>27</td>
<td>34 dB</td>
<td>—</td>
</tr>
<tr>
<td>960.00 ... 1575.00 MHz</td>
<td>25</td>
<td>35 dB</td>
<td>—</td>
</tr>
<tr>
<td>1575.00 ... 1576.00 MHz</td>
<td>32</td>
<td>35 dB</td>
<td>—</td>
</tr>
<tr>
<td>1576.00 ... 1730.00 MHz</td>
<td>30</td>
<td>35 dB</td>
<td>—</td>
</tr>
<tr>
<td>1730.00 ... 1880.00 MHz</td>
<td>30</td>
<td>38 dB</td>
<td>—</td>
</tr>
<tr>
<td>2025.00 ... 2050.00 MHz</td>
<td>35</td>
<td>54 dB</td>
<td>—</td>
</tr>
<tr>
<td>2110.00 ... 2170.00 MHz</td>
<td>35</td>
<td>38 dB</td>
<td>—</td>
</tr>
<tr>
<td>2200.00 ... 3100.00 MHz</td>
<td>33</td>
<td>37 dB</td>
<td>—</td>
</tr>
<tr>
<td>3100.00 ... 3960.00 MHz</td>
<td>30</td>
<td>42 dB</td>
<td>—</td>
</tr>
<tr>
<td>3960.00 ... 6000.00 MHz</td>
<td>20</td>
<td>34 dB</td>
<td>—</td>
</tr>
</tbody>
</table>

^1) Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141

Please read **cautions and warnings and important notes** at the end of this document.
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### Maximum ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Range 1</th>
<th>Range 2</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Operable temperature range</td>
<td>$T$</td>
<td>$-40/+85$</td>
<td>$-40/+85$</td>
<td>$^\circ$ C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>$T_{stg}$</td>
<td>$-40/+85$</td>
<td>$-40/+85$</td>
<td>$^\circ$ C</td>
</tr>
<tr>
<td>DC voltage</td>
<td>$V_{DC}$</td>
<td>0</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Source power</td>
<td>$P_S$</td>
<td>10</td>
<td></td>
<td>dBm</td>
</tr>
</tbody>
</table>

- $V_{DC}$: DC voltage in volts.
- $P_S$: Source power in dBm.
- $^\circ$ C: Temperature in degrees Celsius.

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May 11, 2011
SAW Components

SAW RF filter

Data Sheet

References

<table>
<thead>
<tr>
<th>Type</th>
<th>B4309</th>
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<tbody>
<tr>
<td>Ordering code</td>
<td>B39202B4309P810</td>
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<tr>
<td>Marking and package</td>
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<td>Packaging</td>
<td>F61074-V8212-Z000</td>
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<td>Date codes</td>
<td>L_1126</td>
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</tbody>
</table>
| S-parameters | B4309_NB.s2p  
B4309_WB.s2p  
See file header for port/pin assignment table. |
| Soldering profile | S_6001 |
| RoHS compatible | defined as compatible with the following documents:  
| 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](http://www.tdk.co.jp/tefe02/coil.htm#aname1) and Data Library for circuit simulation [http://www.tdk.co.jp/etvcl/index.htm](http://www.tdk.co.jp/etvcl/index.htm) |

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Published by EPCOS AG
Systems, Acoustics, Waves Business Group
P.O. Box 80 17 09, 81617 Munich, GERMANY

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