SAW Components

SAW Tx filter

Automotive telematics

Series/type: B4341
Ordering code: B39791B4341P810
Date: October 27, 2014
Version: 2.0
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SAW Tx filter

Data sheet

Application
- Low-loss RF filter for LTE Band 13+14 systems (Tx)
- No matching network required for operation at 50 Ω
- Usable passband 21 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)

Pin configuration
- 1: Input
- 4: Output
- 2, 3, 5: To be ground

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

**SAW Tx filter**

**B4341**

**787.5 MHz**

## Characteristics

Temperature range for specification: \( T = -40 \, ^\circ C \) to \( +85 \, ^\circ C \)

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

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

## Characteristics Table

<table>
<thead>
<tr>
<th>Parameter</th>
<th>min.</th>
<th>typ. @ 25 (^\circ C)</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center frequency ( f_C )</td>
<td></td>
<td>787.5</td>
<td></td>
</tr>
<tr>
<td>Maximum insertion attenuation ( \alpha_{\text{max}} )</td>
<td></td>
<td>2.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Amplitude ripple (p-p) ( \Delta \alpha )</td>
<td></td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>VSWR</td>
<td></td>
<td>2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Absolute attenuation ( \alpha_{\text{abs}} )</td>
<td></td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>50.00 ... 750.00 MHz</td>
<td></td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>750.00 ... 768.00 MHz</td>
<td></td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>814.00 ... 824.00 MHz</td>
<td></td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>824.00 ... 2700.00 MHz</td>
<td></td>
<td>30</td>
<td>37</td>
</tr>
<tr>
<td>2700.00 ... 3400.00 MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please read **cautions and warnings and important notes** at the end of this document.
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**SAW Components**  
**B4341**  
**SAW Tx filter**  
**787.5 MHz**

**Data sheet**

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### Maximum ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Operable temperature range</td>
<td>$T$</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>$T_{\text{stg}}$</td>
<td>°C</td>
</tr>
<tr>
<td>DC voltage</td>
<td>$V_{\text{DC}}$</td>
<td>V</td>
</tr>
<tr>
<td>Source power</td>
<td>$P_{S}$</td>
<td>dBm</td>
</tr>
<tr>
<td><strong>777.00 ... 798.00 MHz</strong></td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Source power specification: CW, 5000 hrs @ 55 °C.
Transfer function (narrowband)

![Narrowband Transfer Function Graph]

Transfer function (wideband)

![Wideband Transfer Function Graph]
SAW Components

SAW Tx filter

Data sheet

Smith charts

S\textsubscript{11} function

S\textsubscript{22} function

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ESD protection of SAW filters

SAW filters are Electro Static Discharge sensitive devices. To reduce the probability of damages caused by ESD, special matching topologies have to be applied.

In general, “ESD matching” has to be ensured at that filter port, where electrostatic discharge is expected.

Electrostatic discharges predominantly appear at the antenna input of RF receivers. Therefore only the input matching of the SAW filter has to be designed to short circuit or to block the ESD pulse.

Below two figures show recommended “ESD matching” topologies.

Depending on the input impedance of the SAW filter and the source impedance, the needed component values have to be determined from case to case.

In cases where minor ESD occur, following simplified “ESD matching” topologies can be used alternatively.

Effectiveness of the applied ESD protection has to be checked according to relevant industry standards or customer specific requirements.

For further information, please refer to EPCOS Application report: “ESD protection for SAW filters”. This report can be found under www.epcos.com/rke. Click on “data sheets” and then “Applications” under category “Further information”.

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

<table>
<thead>
<tr>
<th>Type</th>
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<td>Soldering profile</td>
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<td>RoHS compatible</td>
<td>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 (&quot;Directive&quot;) with due regard to the application of exemptions as per Annex III of the Directive in certain cases.</td>
</tr>
<tr>
<td>Moldability</td>
<td>Before using in overmolding environment, please contact your EPCOS sales office.</td>
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</table>

For further information please contact your local EPCOS sales office or visit our webpage at [www.epcos.com](http://www.epcos.com).

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