# SAW Components

## SAW Tx Filter

WCDMA Band I

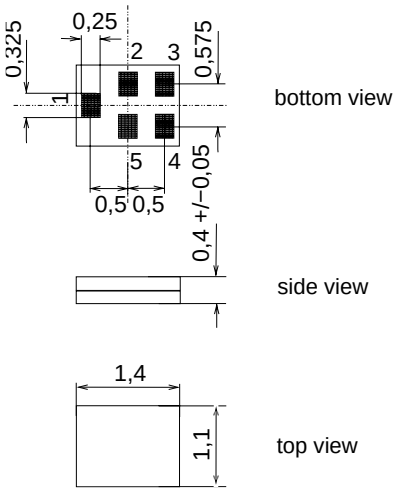
| | |
|---|---|
| **Series/Type:** | **B9414** |
| **Ordering code:** | **B39202B9414M410** |
| Date: | November 27, 2008 |
| Version: | 2.1 |

## Application

- Low-loss RF filter for mobile telephone WCDMA systems, transmit path (TX)
- Impedance transform from 50 Ω to 50 Ω
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Very low Error Vector Magnitude (EVM)
- High Rx-suppression
- Usable passband 60 MHz

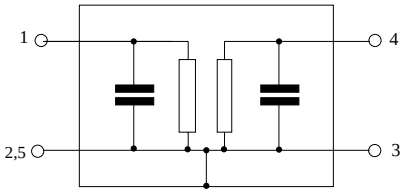
## Features

- Package size 1.4 x1.1 x 0.4 mm³
- Package code QCS5I
- RoHS compatible
- Approx. weight 0.003 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)




## Pin configuration

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



Data Sheet SMD

## Characteristics

Operating temperature range: T = –20 ˚C to +85 ˚C
Terminating source impedance: $Z_S$ = 50 Ω (unbalanced)
Terminating load impedance: $Z_L$ = 50 Ω (unbalanced)

| | | min. | typ. @ 25 ˚C | max. | |
|---|---|---|---|---|---|
| **Center frequency** | $f_C$ | — | 1950.0 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ | | | | |
| 1920.0 ... 1980.0 MHz | | — | 2.5 | 3.2[1)] | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| 1920.0 ... 1980.0 MHz | | — | 1.1 | 1.8[2)] | dB |
| **Input VSWR** | | | | | |
| 1920.0 ... 1980.0 MHz | | — | 1.8 | 2.2 | |
| **Output VSWR** | | | | | |
| 1920.0 ... 1980.0 MHz | | — | 1.8 | 2.2 | |
| **Attenuation** | $\alpha$ | | | | |
| 0.0 ... 960.0 MHz | | 27 | 34 | — | dB |
| 960.0 ... 1575.0 MHz | | 25 | 35 | — | dB |
| 1575.0 ... 1576.0 MHz | | 32 | 35 | — | dB |
| 1576.0 ... 1730.0 MHz | | 30 | 35 | — | dB |
| 1730.0 ... 1880.0 MHz | | 30 | 38 | — | dB |
| 2025.0 ... 2050.0 MHz | | 35 | 54 | — | dB |
| 2110.0 ... 2170.0 MHz | | 35 | 38 | — | dB |
| 2200.0 ... 3100.0 MHz | | 33 | 37 | — | dB |
| 3100.0 ... 3960.0 MHz | | 30 | 42 | — | dB |
| 3960.0 ... 6000.0 MHz | | 20 | 34 | — | dB |

1) ILmax max. 3.0dB at 25˚C

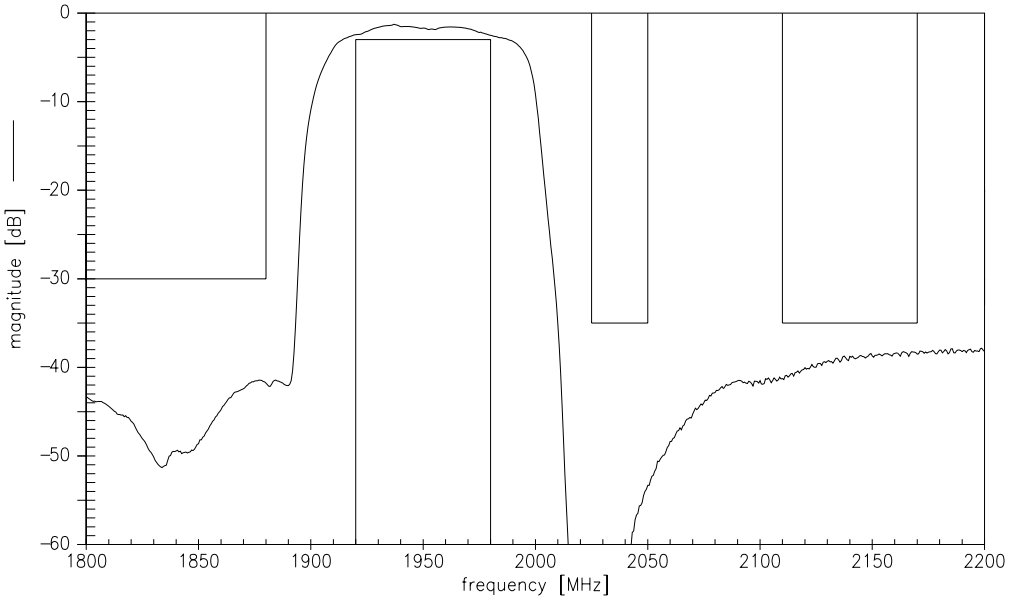
2) AR max. 1.6dB at 25˚C
EVM 1.3% at 25˚C, 2.2% over temperature

**Maximum ratings**

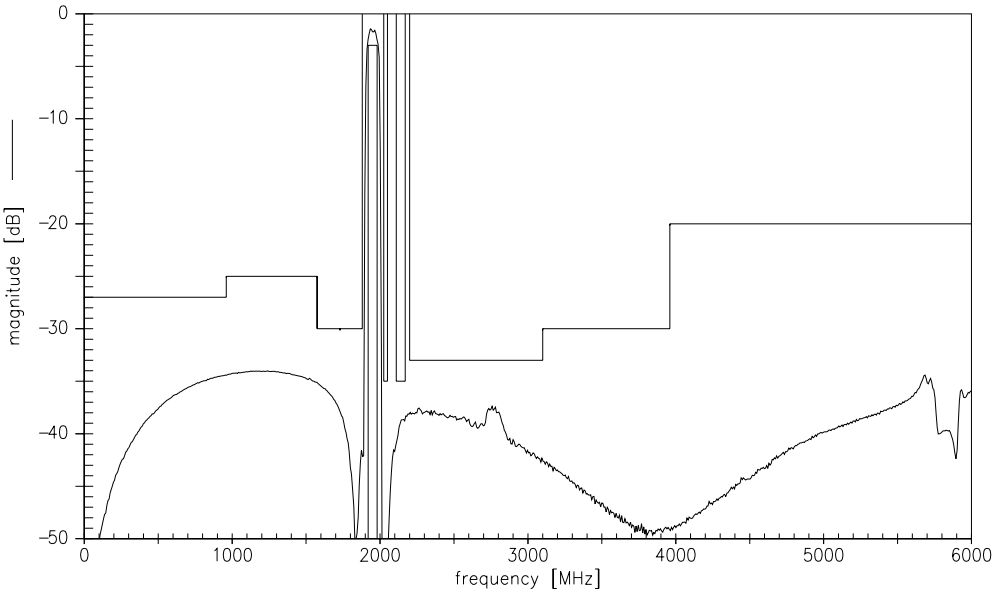
| | | | | |
|---|---|---|---|---|
| Operable temperature range | T | –30/+85 | °C | |
| Storage temperature range | $T_{stg}$ | –40/+85 | °C | |
| DC voltage | $V_{DC}$ | 5 | V | |
| ESD voltage | $V_{ESD}$ | 50[1)] | V | machine model, 10 pulses |
| Source Power | $P_S$ | 10 | dBm | cw signal |

1) acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

**Transfer function**

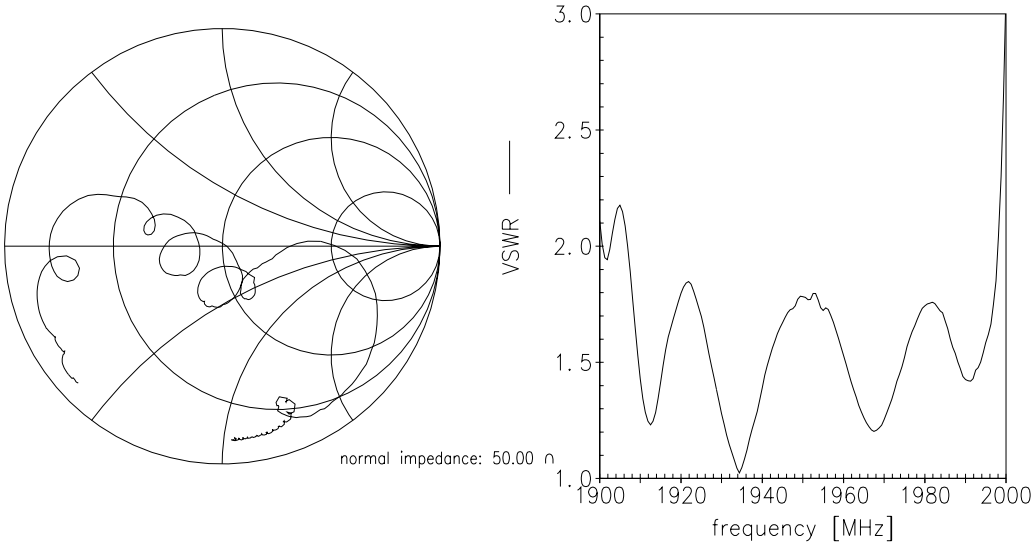



**Transfer function** (wideband)

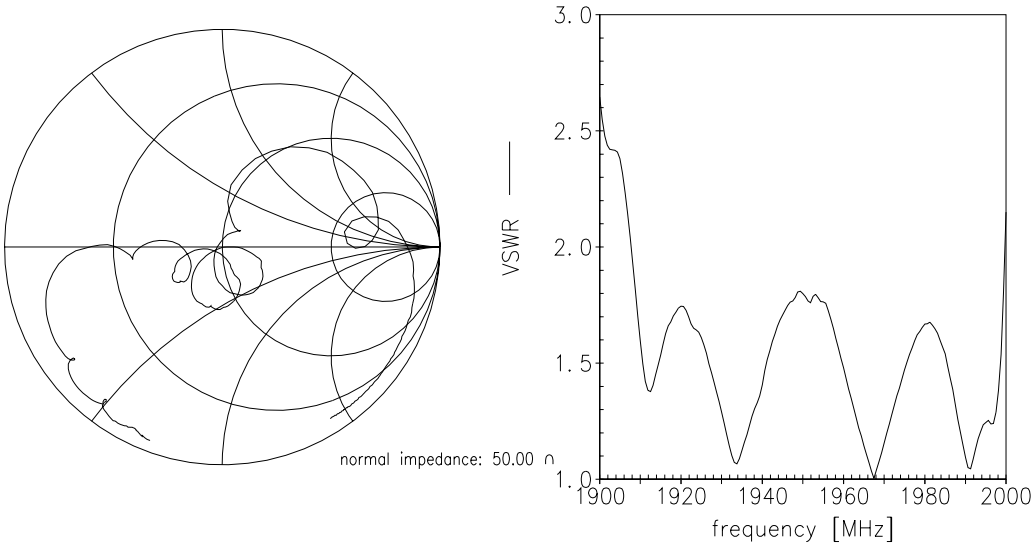


**Smith chart**

**$S_{11}$ function**




**$S_{22}$ function**



**References**

| | |
|---|---|
| **Type** | B9414 |
| **Ordering Code** | B39202B9414M410 |
| **Marking and Package** | C61157-A8-A3 |
| **Packaging** | F61074-V8237-Z000 |
| **Date Codes** | L_1126 |
| **Soldering profile** | S_6001 |
| **S-Parameters** | B9414_NB.s2p, B9414_WB.s2p<br>see file header for port/pin assignment table |
| **RoHS compatible** | defined as compatible with the following documents:<br>"DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment." |
| **Moldability** | Before using in overmolding environment, please contact your EPCOS sales office. |

**For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .**

**Published by EPCOS AG**
**Surface Acoustic Wave Components Division**
**P.O. Box 80 17 09, 81617 Munich, GERMANY**



For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.

## Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.
   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the "General Terms of Delivery for Products and Services in the Electrical Industry" published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, CSSP, CTVS, DSSP, MiniBlue, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseMod, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.epcos.com/trademarks.

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** Signal Conditioning ***category:***

***Click to view products by*** RF360 ***manufacturer:***

Other Similar products are found below :

MAPDCC0001 MAPDCC0004 PD0409J5050S2HF 880157 HHS-109-PIN DC1417J5005AHF AFS14A30-2185.00-T3 AFS14A35-1591.50-T3 DS-323-PIN B39321R801H210 1A0220-3 JP510S LFB212G45SG8C341 LFB322G45SN1A504 LFL182G45TC3B746 SF2159E 30057 FM-104-PIN CER0813B MAPDCC0005 3A325 40287 41180 ATB3225-75032NCT BD0810N50100AHF BD2425J50200AHF C5060J5003AHF JHS-115-PIN JP503AS DC0710J5005AHF DC2327J5005AHF DC3338J5005AHF 43020 LFB2H2G60BB1C106 LFL15869MTC1B787 X3C19F1-20S XC3500P-20S 10013-20 SF2194E CDBLB455KCAX39-B0 TGL2208-SM, EVAL RF1353C PD0922J5050D2HF 1E1305-3 1F1304-3S 1G1304-30 B0922J7575AHF 2020-6622-20 TP-103-PIN BD1222J50200AHF