



## **SAW Components**

### **SAW Rx filter**

WCDMA band I

**Series/type:** B9433

**Ordering code:** B39212-B9433-M410

**Date:** Mar. 26, 2007

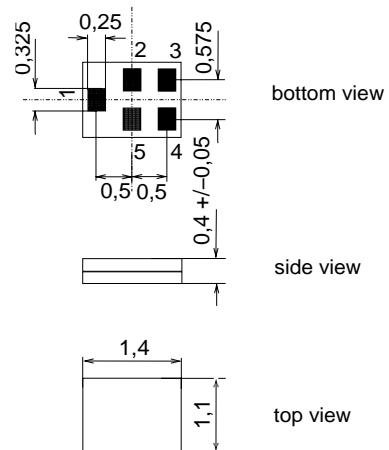
**Version:** 2.0

**Application**

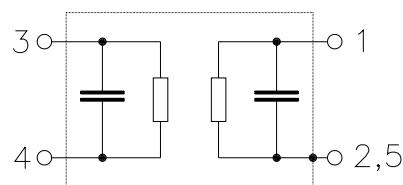
- Low-loss RF filter for mobile telephone  
WCDMA Band 1 systems, receive path (RX)
- Unbalanced to unbalanced operation
- Low insertion attenuation
- Low amplitude ripple
- High selectivity up to 6 GHz
- Usable passband 60 MHz


**Features**

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- Package code QCS51
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


**Pin configuration**

- 1 Unbalanced input
- 4 Unbalanced output
- 2,3,5 To be grounded



**SAW Components****B9433****SAW Rx filter****2140.0 MHz****Data Sheet****Characteristics**

Temperature range for specification:

 $T = -30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ 

Terminating source impedance:

 $Z_S = 50\Omega$ , 4.0 nH in parallel

Terminating load impedance:

 $Z_L = 50\Omega$ , 1.3 nH in serial

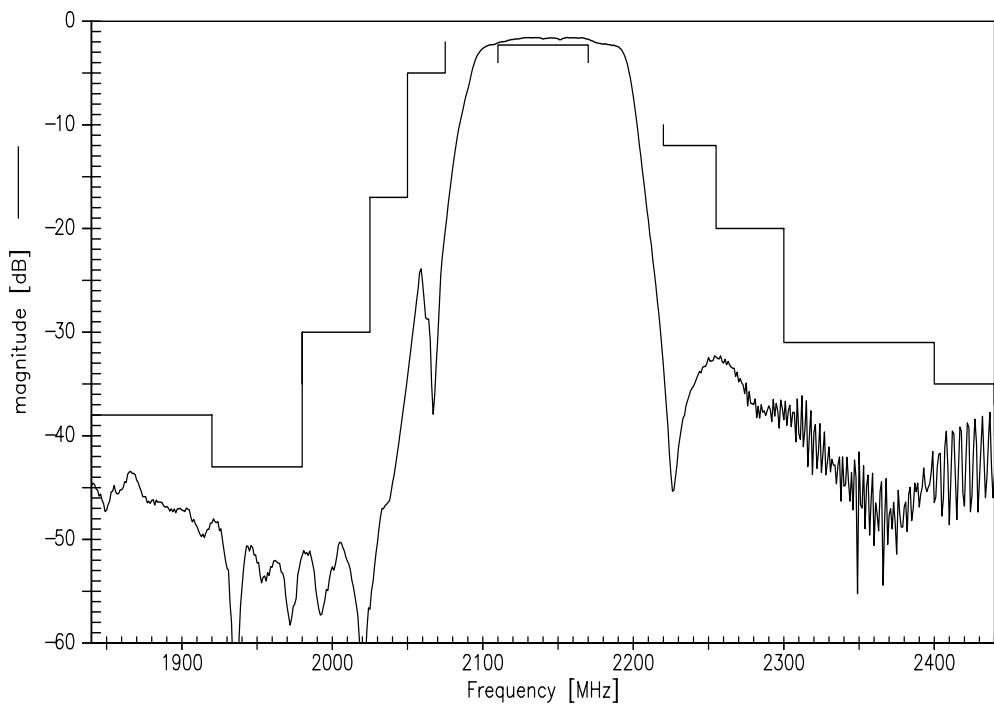
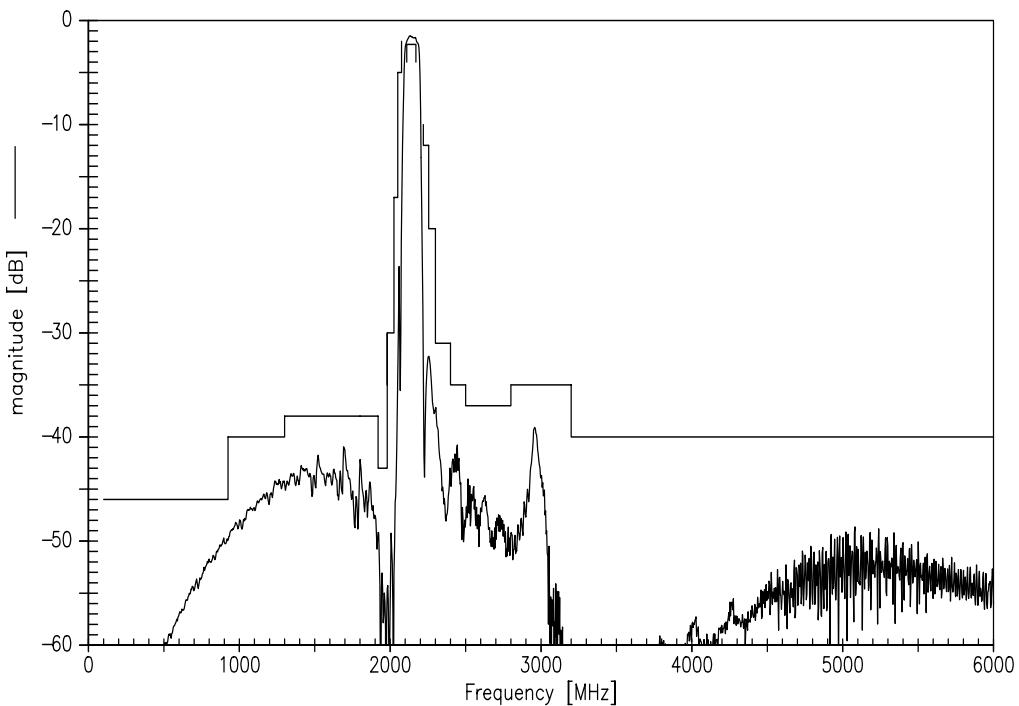
|                                      |     |                       | min. | typ.<br>@ 25 °C | max. |                      |
|--------------------------------------|-----|-----------------------|------|-----------------|------|----------------------|
| <b>Center frequency</b>              |     | $f_C$                 | —    | 2140.0          | —    | MHz                  |
| <b>Maximum insertion attenuation</b> |     | $\alpha_{\text{max}}$ |      |                 |      |                      |
| 2110.0                               | ... | 2170.0                | MHz  | —               | 2.0  | 2.3 <sup>1)</sup> dB |
| <b>Amplitude ripple (p-p)</b>        |     | $\Delta\alpha$        |      |                 |      |                      |
| 2110.0                               | ... | 2170.0                | MHz  | —               | 0.6  | 1.0 dB               |
| <b>Input VSWR</b>                    |     |                       |      |                 |      |                      |
| 2110.0                               | ... | 2170.0                | MHz  | —               | 1.5  | 1.9                  |
| <b>Output VSWR</b>                   |     |                       |      |                 |      |                      |
| 2110.0                               | ... | 2170.0                | MHz  | —               | 1.5  | 1.9                  |
| <b>EVM</b>                           |     |                       |      |                 |      |                      |
| 2110.0                               | ... | 2170.0                | MHz  | —               | 1.0  | — %                  |
| <b>Attenuation</b>                   |     | $\alpha$              |      |                 |      |                      |
| 100.0                                | ... | 925.0                 | MHz  | 46              | 49   | — dB                 |
| 925.0                                | ... | 1300.0                | MHz  | 40              | 44   | — dB                 |
| 1300.0                               | ... | 1800.0                | MHz  | 38              | 43   | — dB                 |
| 1800.0                               | ... | 1920.0                | MHz  | 38              | 43   | — dB                 |
| 1920.0                               | ... | 1980.0                | MHz  | 43              | 49   | — dB                 |
| 1980.0                               | ... | 2025.0                | MHz  | 30              | 45   | — dB                 |
| 2025.0                               | ... | 2050.0                | MHz  | 17              | 24   | — dB                 |
| 2050.0                               | ... | 2075.0                | MHz  | 5               | 9    | — dB                 |
| 2210.0                               | ... | 2255.0                | MHz  | 12              | 32   | — dB                 |
| 2255.0                               | ... | 2300.0                | MHz  | 20              | 33   | — dB                 |
| 2300.0                               | ... | 2400.0                | MHz  | 31              | 38   | — dB                 |
| 2400.0                               | ... | 2500.0                | MHz  | 35              | 41   | — dB                 |
| 2500.0                               | ... | 2800.0                | MHz  | 37              | 47   | — dB                 |
| 2800.0                               | ... | 3200.0                | MHz  | 35              | 39   | — dB                 |
| 3200.0                               | ... | 6000.0                | MHz  | 40              | 54   | — dB                 |

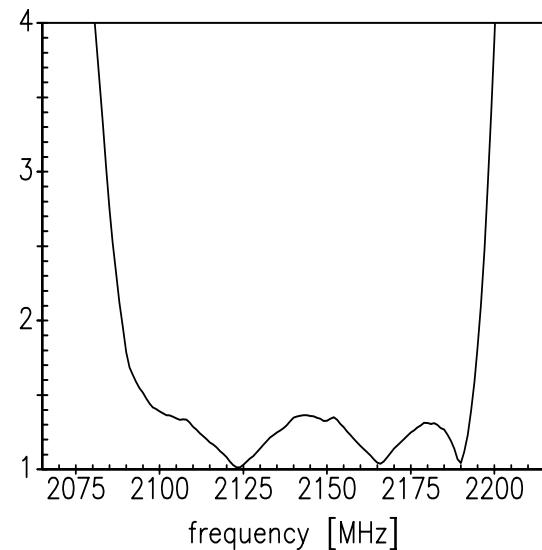
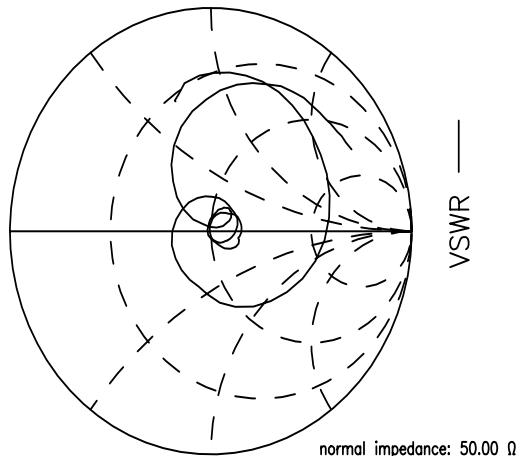
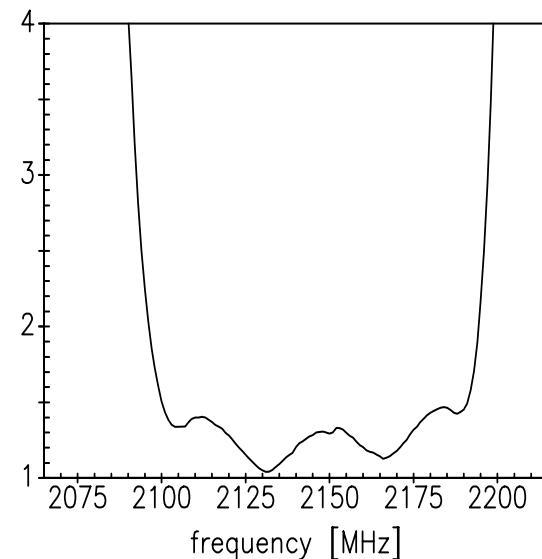
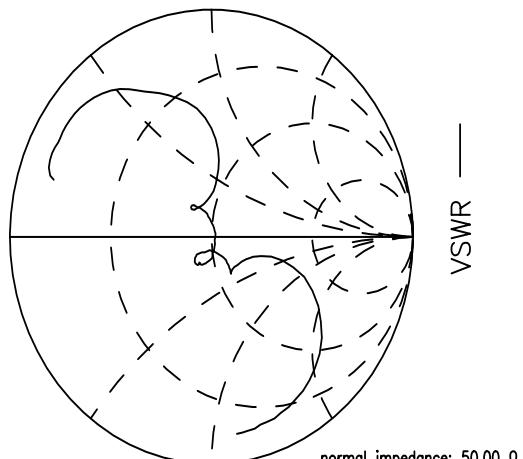
<sup>1)</sup> including a pcb loss of 0.2dB

**SAW Components****B9433****SAW Rx filter****2140.0 MHz****Data Sheet****Maximum ratings**

|                            |                  |                  |     |                                 |
|----------------------------|------------------|------------------|-----|---------------------------------|
| Operable temperature range | T                | −30/+85          | °C  |                                 |
| Storage temperature range  | T <sub>stg</sub> | −40/+85          | °C  |                                 |
| DC voltage                 | V <sub>DC</sub>  | 5                | V   |                                 |
| ESD voltage                | V <sub>ESD</sub> | 50 <sup>1)</sup> | V   | machine model, 10 pulses        |
| Input power at             |                  |                  |     |                                 |
| WCDMA Band I               | P <sub>IN</sub>  | 0                | dBm | effective power in the on-state |
| Tx band                    | P <sub>IN</sub>  | 24               | dBm | CW, +65°C 2000hr                |

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

**Transfer function**

**Transfer function (wideband)**



 **$S_{22}$  function**




|                |            |
|----------------|------------|
| SAW Components | B9433      |
| SAW Rx filter  | 2140.0 MHz |
| Data Sheet     |            |

## References

|                     |  |
|---------------------|--|
| Type                | B9433  |
| Ordering code       | B39212-B9433-M410  |
| Marking and package | C61157-A8-A3   |
| Packaging           | F61074-V8212-Z000  |
| Date codes          | L_1126   |
| S-parameters        | B9433_NB.s2p<br>B9433_WB.s2p   |
| Soldering profile   | S_6001   |
| 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.   |

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