



# *SAW Components*

*Data Sheet B7847*

Data Sheet

An abstract graphic featuring the word "EPCOS" in large, glowing, 3D letters. The letters are white with a blue glow and are positioned diagonally across the frame. In the background, there is a faint, stylized globe and some circuitry patterns, all in a dark, monochromatic color scheme.



## SAW Components

B7847

## Low-Loss Filter for Mobile Communication

1960,0 MHz

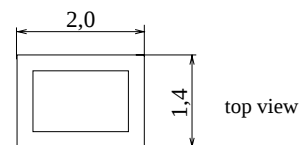
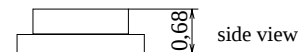
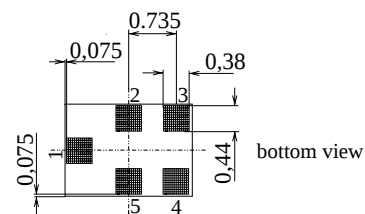
### Data Sheet



Chip sized SAW package **QCS5E**

### Features

- Low-loss RF filter for mobile telephone PCS systems, receive path
- Usable passband 60 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50Ω to 100Ω
- Low insertion loss and very high Tx blocking
- Package for **Surface Mounted Technology (SMT)**



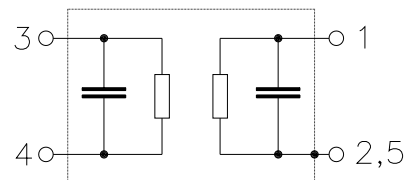
### Terminals

- Gold-plated Ni

Dimensions in mm, approx. weight 0,007 g

### Pin configuration

- 1 Input, unbalanced
- 3, 4 Output, balanced
- 2, 5 Case ground



| Type  | Ordering code     | Marking and Package according to | Packing according to |
|-------|-------------------|----------------------------------|----------------------|
| B7847 | B39202-B7847-K410 | C61157-A7-A131                   | F61074-V8151-Z000    |

Electrostatic Sensitive Device (ESD)

### Maximum ratings

|                            |           |           |     |                          |
|----------------------------|-----------|-----------|-----|--------------------------|
| Operable temperature range | $T$       | - 40/+ 85 | °C  | Machine Model, 10 pulses |
| Storage temperature range  | $T_{stg}$ | - 40/+ 85 | °C  |                          |
| DC voltage                 | $V_{DC}$  | 5         | V   |                          |
| ESD voltage                | $V_{ESD}$ | 50*       | V   |                          |
| Input power                | $P_S$     | 10        | dBm |                          |

\* - acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses



# SAW Components

B7847

## Low-Loss Filter for Mobile Communication

1960,0 MHz

### Data Sheet



### Characteristics

Operating temperature range:  $T = 25\text{ }^{\circ}\text{C}$   
Terminating source impedance:  $Z_S = 50\text{ }\Omega$   
Terminating load impedance:  $Z_L = 100\text{ }\Omega$  (balanced) || 22 nH

|                                                                             |                 | min. | typ.   | max. |        |
|-----------------------------------------------------------------------------|-----------------|------|--------|------|--------|
| <b>Center frequency</b>                                                     | $f_C$           | —    | 1960,0 | —    | MHz    |
| <b>Maximum insertion attenuation</b>                                        | $\alpha_{\max}$ | —    | 2,3    | 2,7  | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |        |      |        |
| <b>Amplitude ripple (p-p)</b>                                               | $\Delta\alpha$  | —    | 0,9    | 1,3  | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |        |      |        |
| <b>Input VSWR</b>                                                           |                 | —    | 2,0    | 2,4  |        |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |        |      |        |
| <b>Output VSWR</b>                                                          |                 | —    | 2,1    | 2,5  |        |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |        |      |        |
| <b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$ ) |                 | -10  | —      | 10   | degree |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |        |      |        |
| <b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )                       |                 | -1,4 | —      | 1,4  | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |        |      |        |
| <b>Attenuation</b>                                                          | $\alpha$        |      |        |      |        |
| 10,0 ... 1600,0 MHz                                                         |                 | 40   | 50     | —    | dB     |
| 1600,0 ... 1850,0 MHz                                                       |                 | 30   | 35     | —    | dB     |
| 1850,0 ... 1910,0 MHz                                                       |                 | 24   | 27     | —    | dB     |
| 2040,0 ... 2200,0 MHz                                                       |                 | 25   | 29     | —    | dB     |
| 2200,0 ... 2800,0 MHz                                                       |                 | 30   | 39     | —    | dB     |
| 2800,0 ... 6000,0 MHz                                                       |                 | 40   | 47     | —    | dB     |



## SAW Components

B7847

## Low-Loss Filter for Mobile Communication

1960,0 MHz

### Data Sheet



### Characteristics

Operating temperature range:  $T = -30 \dots 85 \text{ }^{\circ}\text{C}$   
Terminating source impedance:  $Z_S = 50 \text{ } \Omega$   
Terminating load impedance:  $Z_L = 100 \text{ } \Omega$  (balanced)  $\parallel 22 \text{ nH}$

|                                                                             |                 | min.             | typ.   | max.              |        |
|-----------------------------------------------------------------------------|-----------------|------------------|--------|-------------------|--------|
| <b>Center frequency</b>                                                     | $f_C$           | —                | 1960,0 | —                 | MHz    |
| <b>Maximum insertion attenuation</b>                                        | $\alpha_{\max}$ | —                | 2,3    | 2,9 <sup>1)</sup> | dB     |
| 1930,6 ... 1989,4 MHz                                                       |                 |                  |        |                   |        |
| <b>Amplitude ripple (p-p)</b>                                               | $\Delta\alpha$  | —                | 0,9    | 1,7               | dB     |
| 1930,6 ... 1989,4 MHz                                                       |                 |                  |        |                   |        |
| <b>Input VSWR</b>                                                           |                 | —                | 2,0    | 2,4               |        |
| 1930,6 ... 1989,4 MHz                                                       |                 |                  |        |                   |        |
| <b>Output VSWR</b>                                                          |                 | —                | 2,1    | 2,5               |        |
| 1930,6 ... 1989,4 MHz                                                       |                 |                  |        |                   |        |
| <b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$ ) |                 | -10              | —      | 10                | degree |
| 1930,6 ... 1989,4 MHz                                                       |                 |                  |        |                   |        |
| <b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )                       |                 | -1,4             | —      | 1,4               | dB     |
| 1930,6 ... 1989,4 MHz                                                       |                 |                  |        |                   |        |
| <b>Attenuation</b>                                                          | $\alpha$        |                  |        |                   |        |
| 10,0 ... 1600,0 MHz                                                         |                 | 40               | 50     | —                 | dB     |
| 1600,0 ... 1850,6 MHz                                                       |                 | 30               | 35     | —                 | dB     |
| 1850,6 ... 1909,4 MHz                                                       |                 | 24 <sup>2)</sup> | 27     | —                 | dB     |
| 2040,0 ... 2200,0 MHz                                                       |                 | 25               | 29     | —                 | dB     |
| 2200,0 ... 2800,0 MHz                                                       |                 | 30               | 39     | —                 | dB     |
| 2800,0 ... 6000,0 MHz                                                       |                 | 40               | 47     | —                 | dB     |

<sup>1)</sup>  $T = +15^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$ , 3,1 dB for  $T = -30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

<sup>2)</sup>  $T = 0^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$ , 20 dB for  $T = -30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$



# SAW Components

B7847

## Low-Loss Filter for Mobile Communication

1960,0 MHz

### Data Sheet



### Characteristics

Operating temperature range:  $T = -30 \dots 85 \text{ }^{\circ}\text{C}$   
Terminating source impedance:  $Z_S = 50 \text{ }\Omega$   
Terminating load impedance:  $Z_L = 100 \text{ }\Omega$  (balanced)  $\parallel 22 \text{ nH}$

|                                                                             |                 | min.             | typ.   | max.              |        |
|-----------------------------------------------------------------------------|-----------------|------------------|--------|-------------------|--------|
| <b>Center frequency</b>                                                     | $f_C$           | —                | 1960,0 | —                 | MHz    |
| <b>Maximum insertion attenuation</b>                                        | $\alpha_{\max}$ | —                | 2,3    | 2,9 <sup>1)</sup> | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |                  |        |                   |        |
| <b>Amplitude ripple (p-p)</b>                                               | $\Delta\alpha$  | —                | 0,9    | 1,9               | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |                  |        |                   |        |
| <b>Input VSWR</b>                                                           |                 | —                | 2,0    | 2,4               |        |
| 1930,0 ... 1990,0 MHz                                                       |                 |                  |        |                   |        |
| <b>Output VSWR</b>                                                          |                 | —                | 2,1    | 2,5               |        |
| 1930,0 ... 1990,0 MHz                                                       |                 |                  |        |                   |        |
| <b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$ ) |                 | -10              | —      | 10                | degree |
| 1930,0 ... 1990,0 MHz                                                       |                 |                  |        |                   |        |
| <b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )                       |                 | -1,4             | —      | 1,4               | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |                  |        |                   |        |
| <b>Attenuation</b>                                                          | $\alpha$        |                  |        |                   |        |
| 10,0 ... 1600,0 MHz                                                         |                 | 40               | 50     | —                 | dB     |
| 1600,0 ... 1850,0 MHz                                                       |                 | 30               | 35     | —                 | dB     |
| 1850,0 ... 1910,0 MHz                                                       |                 | 23 <sup>2)</sup> | 27     | —                 | dB     |
| 2040,0 ... 2200,0 MHz                                                       |                 | 25               | 29     | —                 | dB     |
| 2200,0 ... 2800,0 MHz                                                       |                 | 30               | 39     | —                 | dB     |
| 2800,0 ... 6000,0 MHz                                                       |                 | 40               | 47     | —                 | dB     |

<sup>1)</sup>  $T = +15^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$ , 3,3 dB for  $T = -30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

<sup>2)</sup>  $T = 0^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$ , 18 dB for  $T = -30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$



SAW Components

B7847

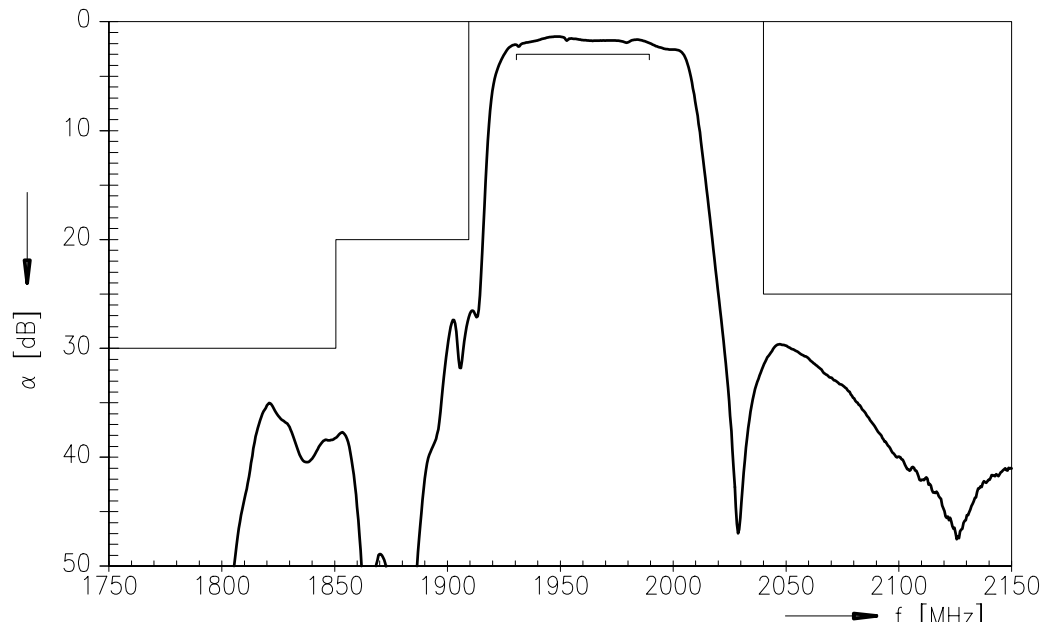
Low-Loss Filter for Mobile Communication

1960,0 MHz

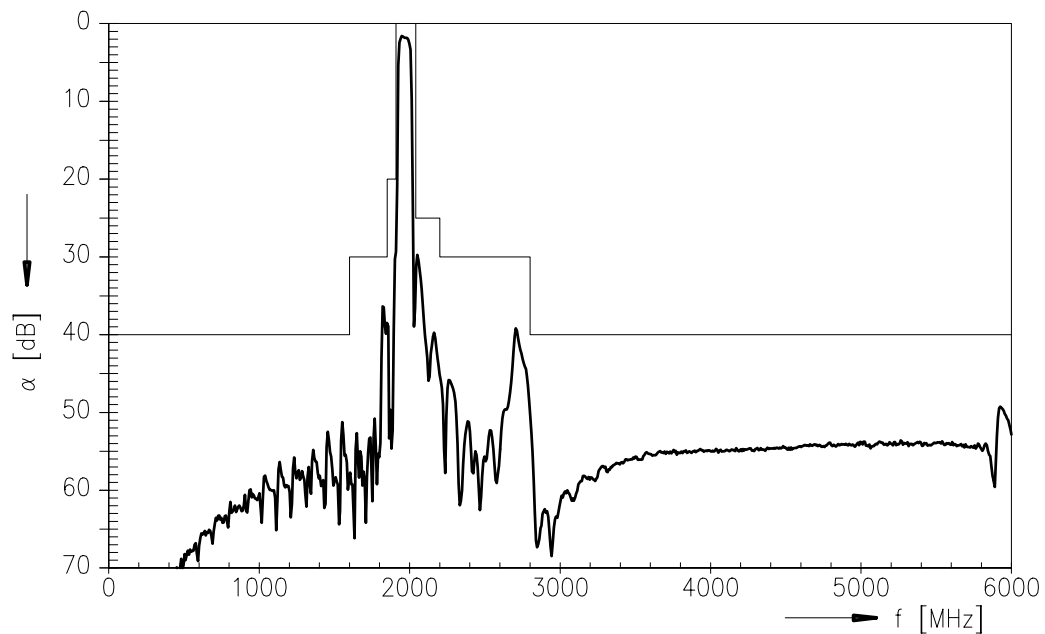
Data Sheet



Transfer function (measured at room temperature):



Transfer function (wideband, measured at room temperature):





|                                                 |                   |
|-------------------------------------------------|-------------------|
| <b>SAW Components</b>                           | <b>B7847</b>      |
| <b>Low-Loss Filter for Mobile Communication</b> | <b>1960,0 MHz</b> |
| <b>Data Sheet</b>                               | <b>SMD</b>        |

**Published by EPCOS AG**

**SAW MC WT, P.O. Box 80 17 09, 81617 Munich, GERMANY**

**TEL +49 89 636 09, FAX +49 89 636 2 26 89**

© EPCOS AG 2004. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

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.

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9