



# SAW Components

Data Sheet B7844





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**B7844**

**Low-Loss Filter for Mobile Communication**

**1842,5 MHz**

**Data Sheet**



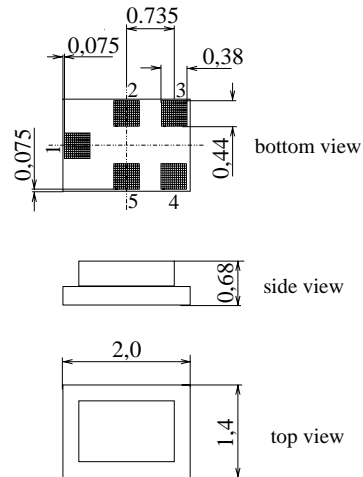
Chip sized SAW package QCS5E

**Features**

- Low-loss RF filter for mobile telephone PCN systems, receive path
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50 Ω to 150 Ω
- Suitable for GPRS class 1 to 12
- Package for **Surface Mount Technology (SMT)**
- Pb-free

**Terminals**

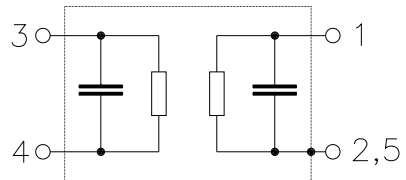
- Ni, gold-plated



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 |
|-------|-------------------|----------------------------------|----------------------|
| B7844 | B39182-B7844-K410 | C61157-A7-A131                   | F61074-V8151-Z000    |

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

|                            |           |             |     |                           |
|----------------------------|-----------|-------------|-----|---------------------------|
| Operable temperature range | $T$       | - 20 / + 75 | °C  |                           |
| Storage temperature range  | $T_{stg}$ | - 40 / + 85 | °C  |                           |
| DC voltage                 | $V_{DC}$  | 5           | V   |                           |
| ESD voltage                | $V_{ESD}$ | 50*         | V   | Machine Model, 10 pulses  |
| Input Power at             |           |             |     |                           |
| GSM850, GSM900             | $P_{IN}$  | 15          | dBm | peak power of GSM signal, |
| GSM1800, GSM1900           | $P_{IN}$  | 12          | dBm | duty cycle 4:8            |
| Tx bands                   |           |             |     |                           |

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



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**Characteristics**

Operating temperature range:  $T = 25^{\circ}\text{C} \pm 2^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 150\ \Omega \parallel 15\ \text{nH}$  (balanced)

|  |                       | min. | typ.        | max. |     |
|--|-----------------------|------|-------------|------|-----|
| <b>Center frequency</b>  | $f_C$                 | —    | 1842,5      | —    | MHz |
| <b>Maximum insertion attenuation</b>   | $\alpha_{\text{max}}$ | —    | 1,9         | 2,1  | dB  |
| 1805,0 ... 1880,0 MHz  |                       |      |             |      |     |
| <b>Amplitude ripple (p-p)</b>  | $\Delta\alpha$        | —    | 0,6         | 1,0  | dB  |
| 1805,0 ... 1880,0 MHz  |                       |      |             |      |     |
| <b>Input VSWR</b>  |                       | —    | 2,1         | 2,6  |     |
| 1805,0 ... 1880,0 MHz  |                       |      |             |      |     |
| <b>Output VSWR</b>   |                       | —    | 2,0         | 2,6  |     |
| 1805,0 ... 1880,0 MHz  |                       |      |             |      |     |
| <b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>                       |                       | -1,0 | -0,5 / +0,5 | 1,0  | dB  |
| 1805,0 ... 1880,0 MHz  |                       |      |             |      |     |
| <b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}</math>)</b> |                       | -10  | -1 / +3     | 10   | °   |
| 1805,0 ... 1880,0 MHz  |                       |      |             |      |     |
| <b>Attenuation</b>   | $\alpha$              |      |             |      |     |
| 0,0 ... 902,0 MHz  |                       | 30   | 50          | —    | dB  |
| 902,0 ... 940,0 MHz  |                       | 45   | 50          | —    | dB  |
| 940,0 ... 1705,0 MHz   |                       | 28   | 33          | —    | dB  |
| 1705,0 ... 1785,0 MHz  |                       | 12   | 16          | —    | dB  |
| 1920,0 ... 1980,0 MHz  |                       | 15   | 18          | —    | dB  |
| 1980,0 ... 2030,0 MHz  |                       | 24   | 28          | —    | dB  |
| 2030,0 ... 2400,0 MHz  |                       | 28   | 32          | —    | dB  |
| 2400,0 ... 2500,0 MHz  |                       | 32   | 37          | —    | dB  |
| 2500,0 ... 2775,0 MHz  |                       | 27   | 30          | —    | dB  |
| 2775,0 ... 2880,0 MHz  |                       | 40   | 47          | —    | dB  |
| 2880,0 ... 3610,0 MHz  |                       | 28   | 46          | —    | dB  |
| 3610,0 ... 3760,0 MHz  |                       | 40   | 46          | —    | dB  |
| 3760,0 ... 5415,0 MHz  |                       | 28   | 47          | —    | dB  |
| 5415,0 ... 5640,0 MHz  |                       | 35   | 44          | —    | dB  |
| 5640,0 ... 6000,0 MHz  |                       | 28   | 44          | —    | dB  |



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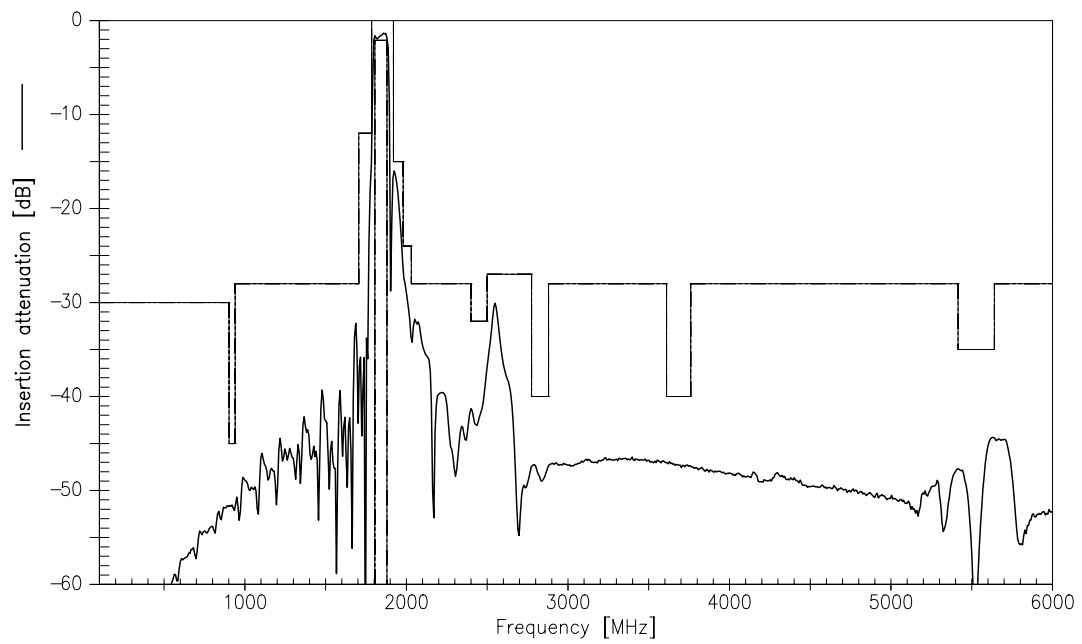
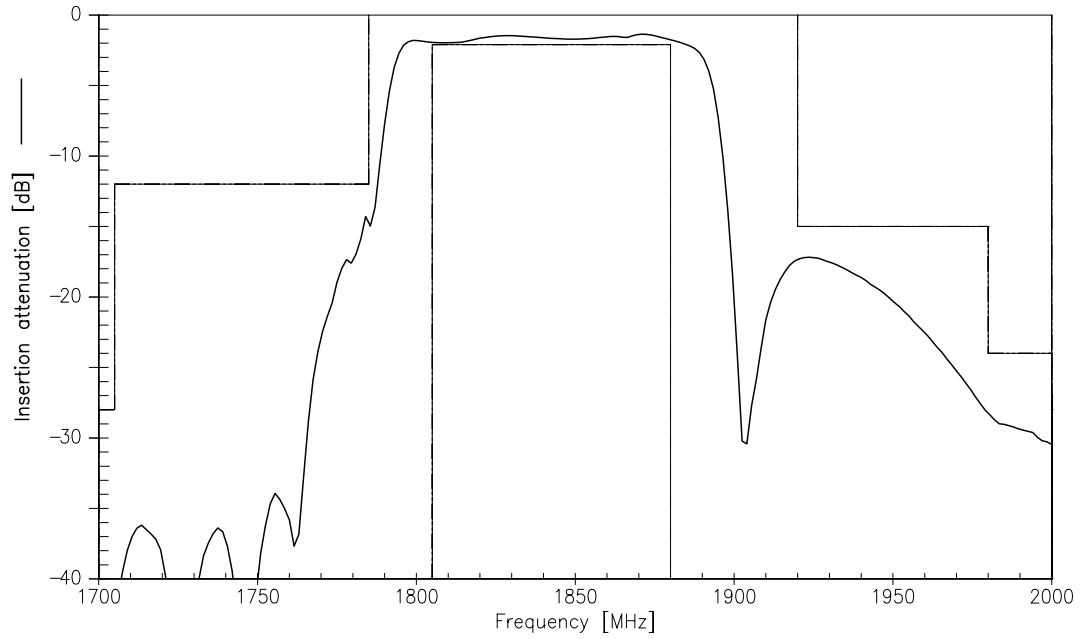
**Characteristics**

Operating temperature range:  $T = -20$  to  $+75$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 150 \Omega \parallel 15$  nH (balanced)

|  |                | <b>min.</b> | <b>typ.</b> | <b>max.</b> |     |
|--|----------------|-------------|-------------|-------------|-----|
| <b>Center frequency</b>  | $f_C$          | —           | 1842,5      | —           | MHz |
| <b>Maximum insertion attenuation</b>   | $\alpha_{max}$ | —           | 1,9         | 2,3         | dB  |
| 1805,0 ... 1880,0 MHz  |                |             |             |             |     |
| <b>Amplitude ripple (p-p)</b>  | $\Delta\alpha$ | —           | 0,6         | 1,3         | dB  |
| 1805,0 ... 1880,0 MHz  |                |             |             |             |     |
| <b>Input VSWR</b>  |                | —           | 2,1         | 2,6         |     |
| 1805,0 ... 1880,0 MHz  |                |             |             |             |     |
| <b>Output VSWR</b>   |                | —           | 2,0         | 2,6         |     |
| 1805,0 ... 1880,0 MHz  |                |             |             |             |     |
| <b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>                 |                | -1,0        | -0,7 / +0,5 | 1,0         | dB  |
| 1805,0 ... 1880,0 MHz  |                |             |             |             |     |
| <b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^\circ</math>)</b> |                | -10         | -1 / +4     | 10          | °   |
| 1805,0 ... 1880,0 MHz  |                |             |             |             |     |
| <b>Attenuation</b>   | $\alpha$       |             |             |             |     |
| 0,0 ... 902,0 MHz  |                | 30          | 50          | —           | dB  |
| 902,0 ... 940,0 MHz  |                | 45          | 50          | —           | dB  |
| 940,0 ... 1705,0 MHz   |                | 28          | 33          | —           | dB  |
| 1705,0 ... 1785,0 MHz  |                | 10          | 14          | —           | dB  |
| 1920,0 ... 1980,0 MHz  |                | 15          | 18          | —           | dB  |
| 1980,0 ... 2030,0 MHz  |                | 23          | 28          | —           | dB  |
| 2030,0 ... 2400,0 MHz  |                | 28          | 32          | —           | dB  |
| 2400,0 ... 2500,0 MHz  |                | 32          | 37          | —           | dB  |
| 2500,0 ... 2775,0 MHz  |                | 27          | 30          | —           | dB  |
| 2775,0 ... 2880,0 MHz  |                | 40          | 47          | —           | dB  |
| 2880,0 ... 3610,0 MHz  |                | 28          | 46          | —           | dB  |
| 3610,0 ... 3760,0 MHz  |                | 40          | 46          | —           | dB  |
| 3760,0 ... 5415,0 MHz  |                | 28          | 47          | —           | dB  |
| 5415,0 ... 5640,0 MHz  |                | 35          | 44          | —           | dB  |
| 5640,0 ... 6000,0 MHz  |                | 28          | 44          | —           | dB  |



Transfer function





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