



# *SAW Components*

*Data Sheet B7825*

Data Sheet

An abstract, grayscale graphic featuring a stylized, three-dimensional representation of the EPCOS logo. The letters "EPCOS" are rendered in a bold, sans-serif font, appearing to be part of a larger, curved structure that resembles a globe or a stylized wave. The background is dark and textured, with light reflecting off the surfaces of the logo.



## SAW Components

B7825

## Low-Loss Filter for Mobile Communication

1960,0 MHz

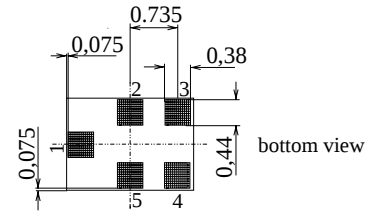
### Data Sheet



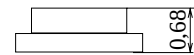
Chip sized SAW package **QCS5C**

### Features

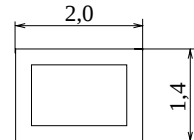
- Low-loss RF filter for mobile telephone PCS systems, receive path
- Low amplitude ripple
- Usable passband 60 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50  $\Omega$  to 150  $\Omega$
- Suitable for GPRS class 1 to 12
- Package for **Surface Mounted Technology (SMT)**



bottom view



side view



top view

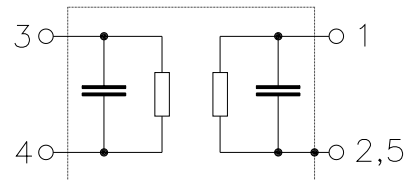
### Terminals

- Gold-plated Ni

Dimensions in mm, approx. weight 0,007 g

### Pin configuration

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



| Type  | Ordering code     | Marking and Package according to | Packing according to |
|-------|-------------------|----------------------------------|----------------------|
| B7825 | B39202-B7825-C710 | C61157-A7-A111                   | F61074-V8151-Z000    |

### Electrostatic Sensitive Device (ESD)

### Maximum ratings

|                             |                  |           |                    |                                          |
|-----------------------------|------------------|-----------|--------------------|------------------------------------------|
| Operating temperature range | $T$              | - 30/+ 85 | $^{\circ}\text{C}$ | human body model                         |
| Storage temperature range   | $T_{\text{stg}}$ | - 40/+ 85 | $^{\circ}\text{C}$ |                                          |
| DC voltage                  | $V_{\text{DC}}$  | 5         | V                  |                                          |
| ESD voltage                 | $V_{\text{ESD}}$ | 250       | V                  |                                          |
| Input power at              |                  |           |                    | peak power of GSM signal, duty cycle 4:8 |
| GSM850, GSM900              | $P_{\text{IN}}$  | 15        | dBm                |                                          |
| GSM1800, GSM1900            | $P_{\text{IN}}$  | 12        | dBm                |                                          |
| Tx bands                    |                  |           |                    |                                          |



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### Low-Loss Filter for Mobile Communication

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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:  $Z_L = 150\ \Omega$  (balanced)  $\parallel 18\ \text{nH}$

|                                                                             |                 | min. | typ.        | max. |        |
|-----------------------------------------------------------------------------|-----------------|------|-------------|------|--------|
| <b>Center frequency</b>                                                     | $f_C$           | —    | 1960,0      | —    | MHz    |
| <b>Maximum insertion attenuation</b>                                        | $\alpha_{\max}$ | —    | 1,9         | 2,7  | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |             |      |        |
| <b>Amplitude ripple (p-p)</b>                                               | $\Delta\alpha$  | —    | 0,5         | 1,5  | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |             |      |        |
| <b>Input VSWR</b>                                                           |                 | —    | 1,6         | 2,2  |        |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |             |      |        |
| <b>Output VSWR</b>                                                          |                 | —    | 1,6         | 2,2  |        |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |             |      |        |
| <b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$ ) |                 | -10  | -7 / +7     | 10   | degree |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |             |      |        |
| <b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )                       |                 | -1,5 | -0,9 / +0,9 | 1,5  | dB     |
| 1930,0 ... 1990,0 MHz                                                       |                 |      |             |      |        |
| <b>Attenuation</b>                                                          | $\alpha$        |      |             |      |        |
| 10,0 ... 1000,0 MHz                                                         |                 | 45   | 59          | —    | dB     |
| 1000,0 ... 1830,0 MHz                                                       |                 | 25   | 33          | —    | dB     |
| 1830,0 ... 1910,0 MHz                                                       |                 | 15   | 18          | —    | dB     |
| 2010,0 ... 2070,0 MHz                                                       |                 | 14   | 17          | —    | dB     |
| 2070,0 ... 2120,0 MHz                                                       |                 | 24   | 30          | —    | dB     |
| 2120,0 ... 3000,0 MHz                                                       |                 | 28   | 31          | —    | dB     |
| 3000,0 ... 6000,0 MHz                                                       |                 | 40   | 53          | —    | dB     |



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## Low-Loss Filter for Mobile Communication

1960,0 MHz

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### Characteristics

Operating temperature range:  $T = -20$  to  $+85$  °C  
Terminating source impedance:  $Z_S = 50 \Omega$   
Terminating load impedance:  $Z_L = 150 \Omega$  (balanced) || 18 nH

|                                                                           |                 | min. | typ.        | max. |        |
|---------------------------------------------------------------------------|-----------------|------|-------------|------|--------|
| <b>Center frequency</b>                                                   | $f_C$           | —    | 1960,0      | —    | MHz    |
| <b>Maximum insertion attenuation</b>                                      | $\alpha_{\max}$ | —    | 2,2         | 2,9  | dB     |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Amplitude ripple (p-p)</b>                                             | $\Delta\alpha$  | —    | 0,8         | 1,8  | dB     |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Input VSWR</b>                                                         |                 | —    | 1,6         | 2,2  |        |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Output VSWR</b>                                                        |                 | —    | 1,6         | 2,2  |        |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^\circ$ ) |                 | -10  | -7 / +7     | 10   | degree |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )                     |                 | -1,5 | -0,9 / +1,3 | 1,5  | dB     |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Attenuation</b>                                                        | $\alpha$        |      |             |      |        |
| 10,0 ... 1000,0 MHz                                                       |                 | 45   | 59          | —    | dB     |
| 1000,0 ... 1830,0 MHz                                                     |                 | 25   | 33          | —    | dB     |
| 1830,0 ... 1910,0 MHz                                                     |                 | 8    | 14          | —    | dB     |
| 2010,0 ... 2070,0 MHz                                                     |                 | 8    | 14          | —    | dB     |
| 2070,0 ... 2120,0 MHz                                                     |                 | 24   | 30          | —    | dB     |
| 2120,0 ... 3000,0 MHz                                                     |                 | 28   | 31          | —    | dB     |
| 3000,0 ... 6000,0 MHz                                                     |                 | 40   | 53          | —    | dB     |



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## Low-Loss Filter for Mobile Communication

1960,0 MHz

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### Characteristics

Operating temperature range:  $T = -30$  to  $+85$  °C  
Terminating source impedance:  $Z_S = 50 \Omega$   
Terminating load impedance:  $Z_L = 150 \Omega$  (balanced) || 18 nH

|                                                                           |                 | min. | typ.        | max. |        |
|---------------------------------------------------------------------------|-----------------|------|-------------|------|--------|
| <b>Center frequency</b>                                                   | $f_C$           | —    | 1960,0      | —    | MHz    |
| <b>Maximum insertion attenuation</b>                                      | $\alpha_{\max}$ | —    | 2,2         | 2,9  | dB     |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Amplitude ripple (p-p)</b>                                             | $\Delta\alpha$  | —    | 0,8         | 1,8  | dB     |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Input VSWR</b>                                                         |                 | —    | 1,6         | 2,2  |        |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Output VSWR</b>                                                        |                 | —    | 1,6         | 2,2  |        |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^\circ$ ) |                 | -10  | -7 / +7     | 10   | degree |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )                     |                 | -1,5 | -0,9 / +1,3 | 1,5  | dB     |
| 1930,0 ... 1990,0 MHz                                                     |                 |      |             |      |        |
| <b>Attenuation</b>                                                        | $\alpha$        |      |             |      |        |
| 10,0 ... 1000,0 MHz                                                       |                 | 45   | 59          | —    | dB     |
| 1000,0 ... 1830,0 MHz                                                     |                 | 25   | 33          | —    | dB     |
| 1830,0 ... 1910,0 MHz                                                     |                 | 8    | 14          | —    | dB     |
| 2010,0 ... 2070,0 MHz                                                     |                 | 7    | 13          | —    | dB     |
| 2070,0 ... 2120,0 MHz                                                     |                 | 24   | 30          | —    | dB     |
| 2120,0 ... 3000,0 MHz                                                     |                 | 28   | 31          | —    | dB     |
| 3000,0 ... 6000,0 MHz                                                     |                 | 40   | 53          | —    | dB     |



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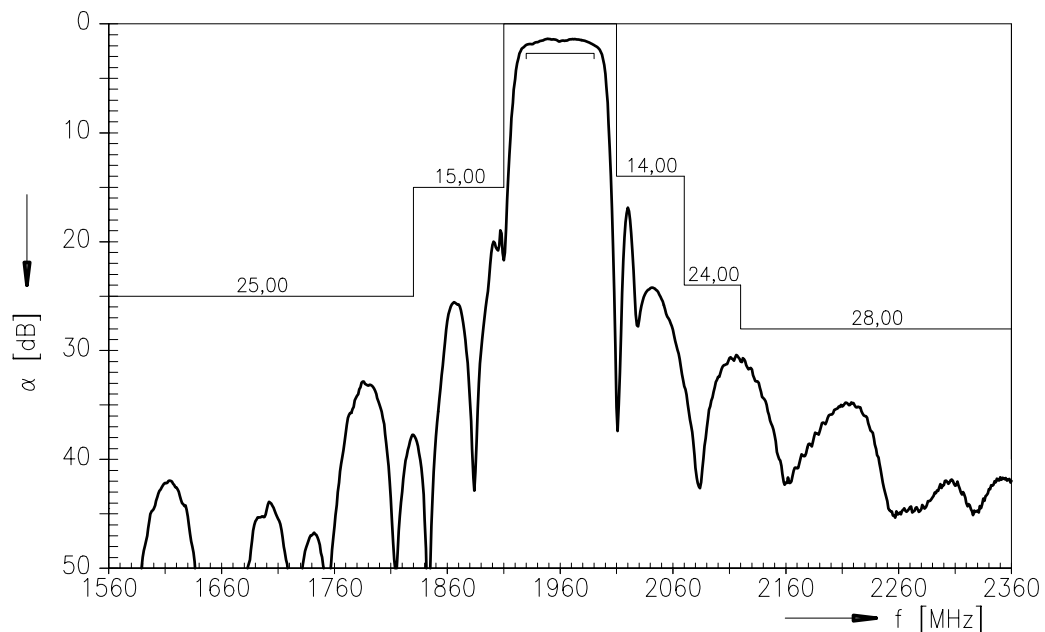
Low-Loss Filter for Mobile Communication

1960,0 MHz

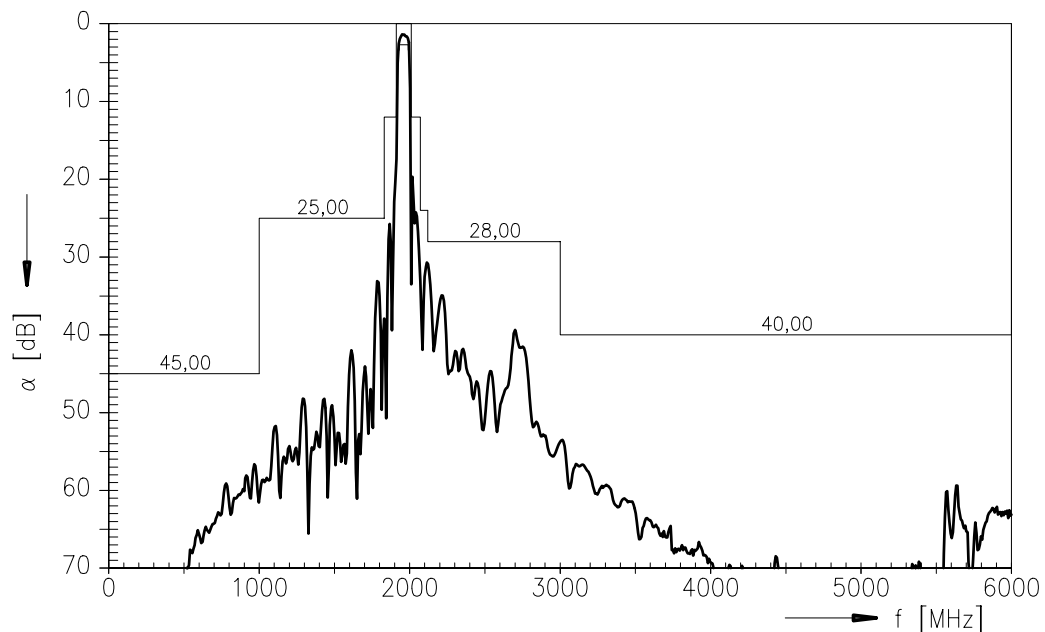
Data Sheet



Transfer function (specification for  $T = 25^\circ\text{C}$ )



Transfer function (wide band):





|                                                 |                   |
|-------------------------------------------------|-------------------|
| <b>SAW Components</b>                           | <b>B7825</b>      |
| <b>Low-Loss Filter for Mobile Communication</b> | <b>1960,0 MHz</b> |
| <b>Data Sheet</b>                               | <b>SMD</b>        |

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