EPCOS

# *SAW Components*

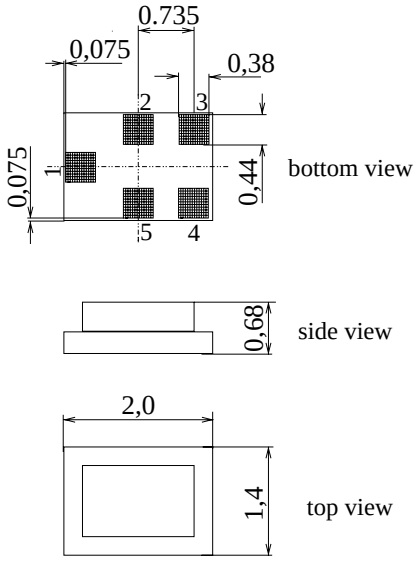
*Data Sheet B7837*

Data Sheet

**Chip Size SAW package QCS5E**

### Features

- Low-loss RF filter for mobile telephone EGSM system, receive path
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 35 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50 Ω to 150 Ω
- Suitable for GPRS class 1 to 12
- Package for **S**urface **M**ounted **T**echnology **(SMT)**
- Pb-free



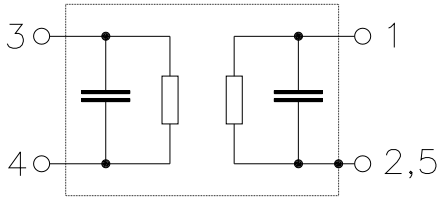

Dimensions in mm, approx. weight 0,007g

### Terminals

- Ni, gold-plated

### Pin configuration

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




| Type | Ordering code | Marking and Package according to | Packing according to |
|---|---|---|---|
| B7837 | B39941-B7837-K410 | C61157-A7-A131 | F61074-V8151-Z000 |

**E**lectrostatic **S**ensitive **D**evice (**ESD**)

### 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 | $V_{ESD}$ | 100* | V | machine model, 10 pulses |
| Input Power at GSM850, GSM900 GSM1800, GSM1900 Tx bands | $P_{IN}$ | 15 | dBm | peak power of GSM signal, duty cycle 4:8 |

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

## Characteristics

Operating temperature range: $T$ = 25 °C
Terminating source impedance: $Z_S$ = 50 Ω
Terminating load impedance: $Z_L$ = 150 Ω || 82 nH (balanced)

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Center frequency** | $f_C$ | — | 942,5 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ | | | | |
| 925,0 ... 960,0 MHz | | — | 1,4 | 1,7 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| 925,0 ... 960,0 MHz | | — | 0,7 | 1,0 | dB |
| **Input VSWR** | | | | | |
| 925,0 ... 960,0 MHz | | — | 1,8 | 2,0 | |
| **Output VSWR** | | | | | |
| 925,0 ... 960,0 MHz | | — | 1,8 | 2,0 | |
| **Attenuation** | | | | | |
| 0,0 ... 480,0 MHz | | 45 | 53 | — | dB |
| 480,0 ... 905,0 MHz | | 30 | 34 | — | dB |
| 905,0 ... 915,0 MHz | | 25 | 27 | — | dB |
| 980,0 ...1000,0 MHz | | 25 | 29 | — | dB |
| 1000,0 ...1850,0MHz | | 28 | 38 | — | dB |
| 1850,0 ...6000,0MHz | | 40 | 44 | — | dB |
| **Amplitude balance** ($\lvert S_{31}/S_{21}\rvert$) | | | | | |
| 925,0 ... 960,0 MHz | | -1,0 | -0,5 / +0,7 | 1,0 | dB |
| **phase balance** ($\phi(S_{31})-\phi(S_{21})+180^\circ$) | | | | | |
| 925,0 ... 960,0 MHz | | -5 | -3 / +2 | 5 | degree |
| **Diff. to common mode suppression** | $S_{sc12}$ | | | | |
| 925,0 ... 960,0 MHz | | 22 | 29 | — | dB |
| 824,0 ... 995,0 MHz | | 22 | 29 | — | dB |
| 1648,0 ... 1990,0 MHz | | 22 | 45 | — | dB |
| 3296,0 ... 3980,0 MHz | | 20 | 48 | — | dB |

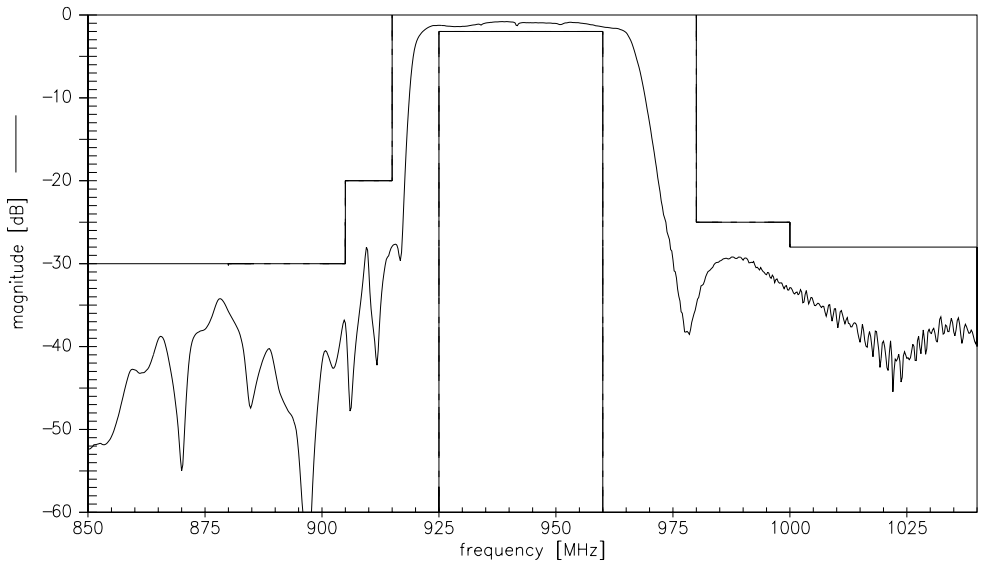
## Characteristics

Operating temperature range: $T$ = -10 to +80 °C
Terminating source impedance: $Z_S$ = 50 Ω
Terminating load impedance: $Z_L$ = 150 Ω || 82 nH (balanced)

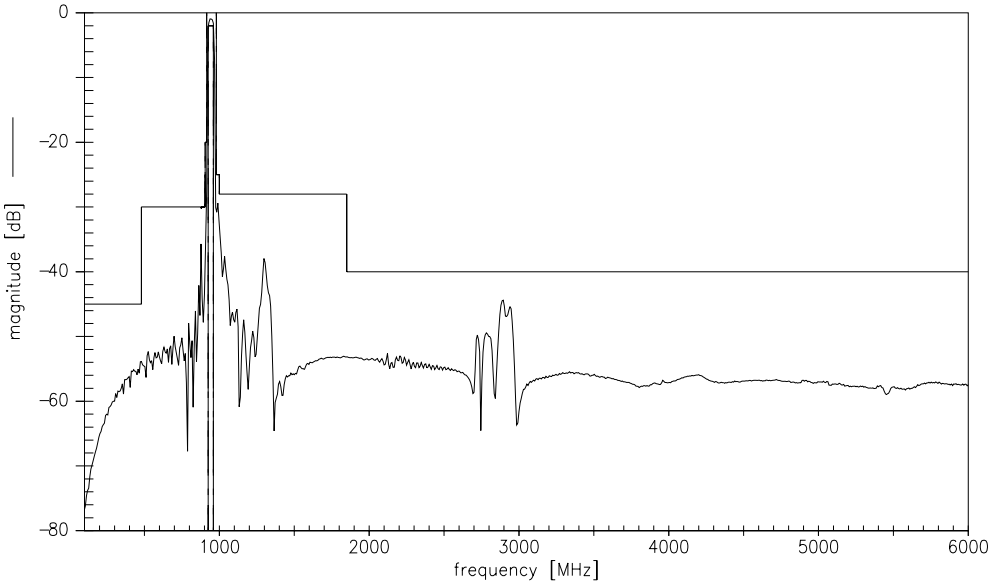
| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Center frequency** | $f_C$ | — | 942,5 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ | | | | |
| 925,0 ... 960,0 MHz | | — | 1,5 | 2,0[1)] | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| 925,0 ... 960,0 MHz | | — | 0,8 | 1,2 | dB |
| **Input VSWR** | | | | | |
| 925,0 ... 960,0 MHz | | — | 1,8 | 2,0 | |
| **Output VSWR** | | | | | |
| 925,0 ... 960,0 MHz | | — | 1,8 | 2,0 | |
| **Attenuation** | | | | | |
| 0,0 ... 480,0 MHz | | 45 | 53 | — | dB |
| 480,0 ... 905,0 MHz | | 30 | 34 | — | dB |
| 905,0 ... 915,0 MHz | | 20[2)] | 27 | — | dB |
| 980,0 ...1000,0 MHz | | 25 | 29 | — | dB |
| 1000,0 ...1850,0MHz | | 28 | 38 | — | dB |
| 1850,0 ...6000,0MHz | | 40 | 44 | — | dB |
| **Amplitude balance** ($\lvert S_{31}/S_{21}\rvert$) | | | | | |
| 925,0 ... 960,0 MHz | | -1,0 | -0,5 / +0,7 | 1,0 | dB |
| **phase balance** ($\phi(S_{31})-\phi(S_{21})+180°$) | | | | | |
| 925,0 ... 960,0 MHz | | -5 | -3 / +2 | 5 | degree |
| **Diff. to common mode suppression** | $S_{sc12}$ | | | | |
| 925,0 ... 960,0 MHz | | 22 | 29 | — | dB |
| 824,0 ... 995,0 MHz | | 22 | 29 | — | dB |
| 1648,0 ... 1990,0 MHz | | 22 | 45 | — | dB |
| 3296,0 ... 3980,0 MHz | | 20 | 48 | — | dB |

1) 2,2 dB for T= -30°C to +85°C
2) 17 dB for T= -30°C to +85°C

**Transfer function (passband)**




**Transfer function (wideband)**



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