



SAW Components

Data Sheet B7712





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B7712

Low-Loss Filter for Mobile Communication

2140,0 MHz

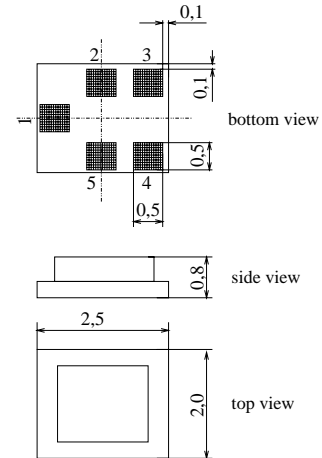
Data Sheet



Chip sized SAW package QCS5A

Features

- Low-loss RF filter for W-CDMA mobile telephone system, receive path
- Usable passband 60 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50Ω to 200Ω
- Suitable for GPRS class 1 to 12
- Package for **Surface Mounted Technology (SMT)**



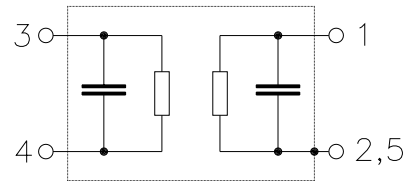
Terminals

- Ni, gold-plated

Dimensions in mm, approx. weight 0,015 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 |
|-------|-------------------|----------------------------------|----------------------|
| B7712 | B39212-B7712-B610 | C61157-A7-A71 | F61074-V8153-Z000 |

Electrostatic Sensitive Device (ESD)

Maximum ratings

| | | | | |
|-----------------------------|-------------|------------|-----|--------------------------|
| Operating temperature range | T | - 20 /+ 85 | °C | Machine Model, 10 pulses |
| Storage temperature range | T_{stg} | - 40 /+ 85 | °C | |
| DC voltage | V_{DC} | 3 | V | |
| ESD voltage | V^*_{ESD} | 50* | V | |
| Source power | P_S | 10 | dBm | |

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



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Characteristics

Operating temperature range: $T = +25\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 200\ \Omega \parallel 15\text{ nH (balanced)}$

| | | min. | typ. | max. | |
|--|------------------------------|------|--------|------|-----|
| Center frequency | f_C | — | 2140,0 | — | MHz |
| Maximum insertion attenuation | α_{\max} | — | 2,7 | 3,2 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Amplitude ripple (p-p) | $\Delta\alpha$ | — | 0,6 | 1,0 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Amplitude ripple per 5MHz channel (p-p) | $\Delta\alpha_{5\text{MHz}}$ | — | 0,2 | 0,5 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Input VSWR | | — | 2,5 | 2,8 | |
| 2110,0 ... 2170,0 MHz | | | | | |
| Output VSWR | | — | 1,9 | 2,2 | |
| 2110,0 ... 2170,0 MHz | | | | | |
| Output amplitude balance (S_{31}/S_{21}) | | -1,3 | 0 | 1,3 | dB |
| 1920,0 ... 1980,0 MHz | | | | | |
| Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) | | -12 | 0 | 12 | ° |
| 1920,0 ... 1980,0 MHz | | | | | |
| Attenuation | α | | | | |
| 50,0 ... 1805,0 MHz | | 35 | 43 | — | dB |
| 1805,0 ... 1920,0 MHz | | 30 | 35 | — | dB |
| 1920,0 ... 1980,0 MHz | | 30 | 33 | — | dB |
| 1980,0 ... 2050,0 MHz | | 17 | 20 | — | dB |
| 2205,0 ... 2255,0 MHz | | 15 | 23 | — | dB |
| 2255,0 ... 2490,0 MHz | | 20 | 23 | — | dB |
| 2490,0 ... 2550,0 MHz | | 35 | 38 | — | dB |
| 2550,0 ... 3500,0 MHz | | 35 | 39 | — | dB |
| 3500,0 ... 6000,0 MHz | | 40 | 50 | — | dB |



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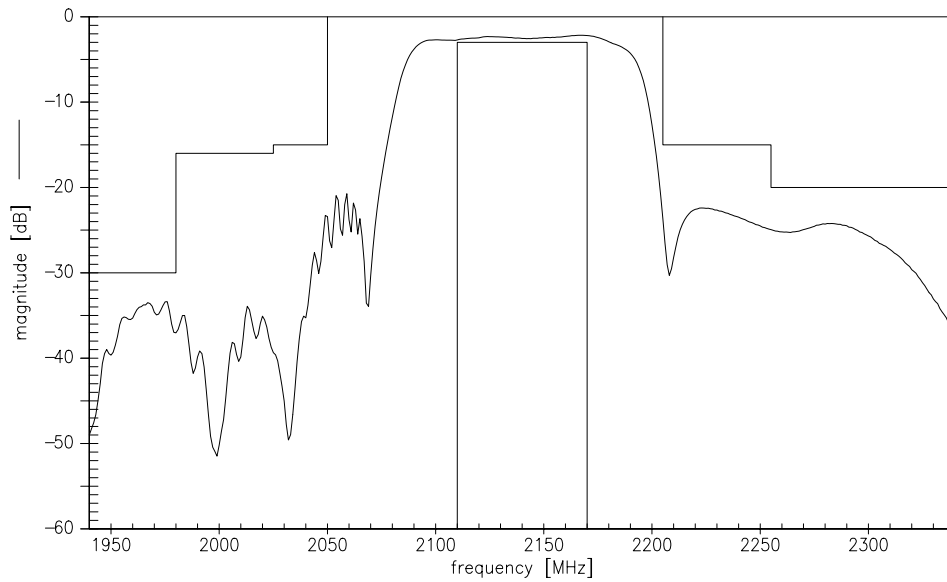
Characteristics

Operating temperature range: $T = -20$ to $+85$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 200 \Omega$ (balanced) || 15 nH

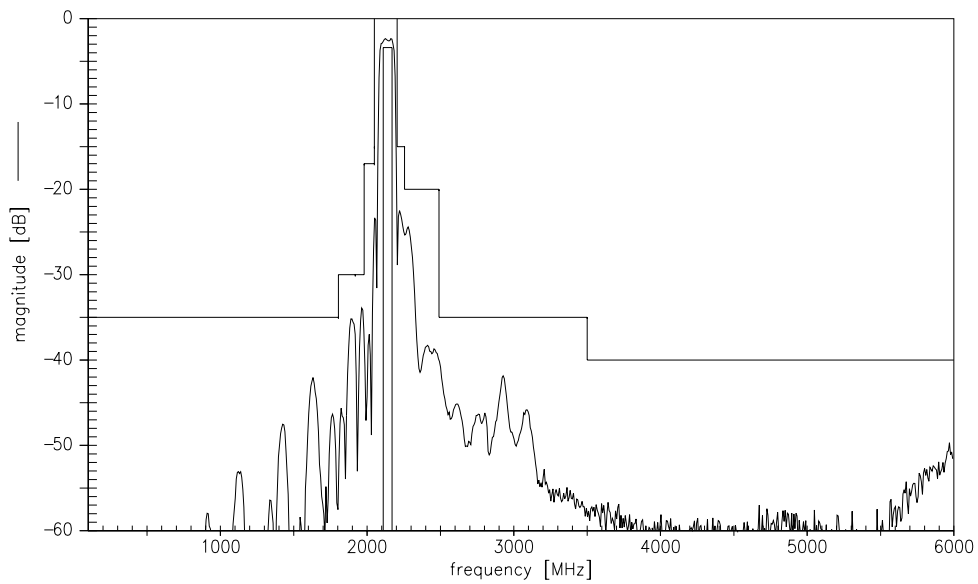
| | | min. | typ. | max. | |
|--|-----------------------|------|--------|------|-----|
| Center frequency | f_C | — | 2140,0 | — | MHz |
| Maximum insertion attenuation | α_{max} | — | 2,8 | 3,4 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Amplitude ripple (p-p) | $\Delta\alpha$ | — | 0,7 | 1,3 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Amplitude ripple per 5MHz channel (p-p) | $\Delta\alpha_{5MHz}$ | — | 0,2 | 0,6 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Input VSWR | | — | 2,5 | 2,8 | |
| 2110,0 ... 2170,0 MHz | | | | | |
| Output VSWR | | — | 1,9 | 2,2 | |
| 2110,0 ... 2170,0 MHz | | | | | |
| Output amplitude balance (S_{31}/S_{21}) | | -1,3 | 0 | 1,3 | dB |
| 1920,0 ... 1980,0 MHz | | | | | |
| Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) | | -12 | 0 | 12 | ° |
| 1920,0 ... 1980,0 MHz | | | | | |
| Attenuation | α | | | | |
| 50,0 ... 1805,0 MHz | | 35 | 43 | — | dB |
| 1805,0 ... 1880,0 MHz | | 30 | 35 | — | dB |
| 1920,0 ... 1980,0 MHz | | 30 | 33 | — | dB |
| 1980,0 ... 2050,0 MHz | | 17 | 20 | — | dB |
| 2205,0 ... 2255,0 MHz | | 15 | 19 | — | dB |
| 2255,0 ... 2490,0 MHz | | 20 | 23 | — | dB |
| 2490,0 ... 2550,0 MHz | | 35 | 38 | — | dB |
| 2550,0 ... 3500,0 MHz | | 35 | 39 | — | dB |
| 3500,0 ... 6000,0 MHz | | 40 | 50 | — | dB |



Transfer function (narrow band):

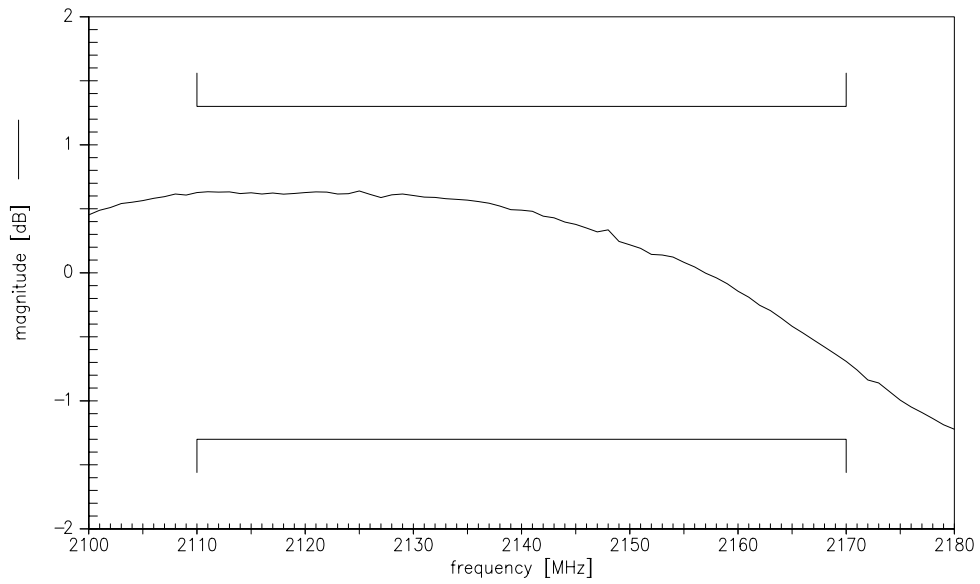


Transfer function (wide band):

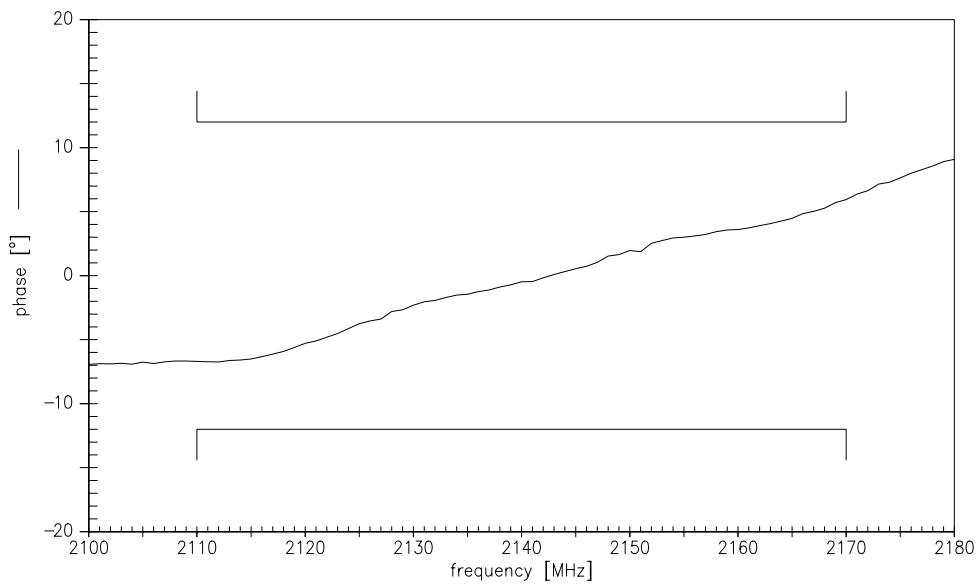




Output amplitude balance ($|S_{31}/S_{21}|$):



Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$):





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 Terminating load impedance: $Z_L = 200\ \Omega \parallel 15\ \text{nH (balanced)}$

| | | min. | typ. | max. | |
|--|------------------------------|------|--------|------|-----|
| Center frequency | f_C | — | 2140,0 | — | MHz |
| Maximum insertion attenuation | α_{\max} | — | 2,4 | 2,8 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Amplitude ripple (p-p) | $\Delta\alpha$ | — | 0,5 | 0,8 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Amplitude ripple per 5MHz channel (p-p) | $\Delta\alpha_{5\text{MHz}}$ | — | 0,2 | 0,4 | dB |
| 2110,0 ... 2170,0 MHz | | | | | |
| Input VSWR | | — | 1,6 | 2,0 | |
| 2110,0 ... 2170,0 MHz | | | | | |
| Output VSWR | | — | 1,5 | 2,0 | |
| 2110,0 ... 2170,0 MHz | | | | | |
| Output amplitude balance (S_{31}/S_{21}) | | -1,3 | 0 | 1,3 | dB |
| 1920,0 ... 1980,0 MHz | | | | | |
| Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^{\circ}$) | | -12 | 0 | 12 | ° |
| 1920,0 ... 1980,0 MHz | | | | | |
| Attenuation | α | | | | |
| 50,0 ... 1805,0 MHz | | 35 | 43 | — | dB |
| 1805,0 ... 1920,0 MHz | | 30 | 33 | — | dB |
| 1920,0 ... 1980,0 MHz | | 29 | 32 | — | dB |
| 1980,0 ... 2050,0 MHz | | 17 | 20 | — | dB |
| 2205,0 ... 2255,0 MHz | | 15 | 20 | — | dB |
| 2255,0 ... 2490,0 MHz | | 20 | 23 | — | dB |
| 2490,0 ... 2550,0 MHz | | 35 | 38 | — | dB |
| 2550,0 ... 3500,0 MHz | | 35 | 39 | — | dB |
| 3500,0 ... 6000,0 MHz | | 40 | 50 | — | dB |



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| | | min. | typ. | max. | |
|--|-----------------------|------|--------|------|-----|
| Center frequency | f_C | — | 2140,0 | — | MHz |
| Maximum insertion attenuation | α_{max} | — | 2,8 | 3,4 | dB |
| | 2110,0 ... 2170,0 MHz | | | | |
| Amplitude ripple (p-p) | $\Delta\alpha$ | — | 0,6 | 1,3 | dB |
| | 2110,0 ... 2170,0 MHz | | | | |
| Amplitude ripple per 5MHz channel (p-p) | $\Delta\alpha_{5MHz}$ | — | 0,2 | 0,5 | dB |
| | 2110,0 ... 2170,0 MHz | | | | |
| Input VSWR | | — | 1,8 | 2,1 | |
| | 2110,0 ... 2170,0 MHz | | | | |
| Output VSWR | | — | 1,7 | 2,1 | |
| | 2110,0 ... 2170,0 MHz | | | | |
| Output amplitude balance (S_{31}/S_{21}) | | -1,3 | 0 | 1,3 | dB |
| | 1920,0 ... 1980,0 MHz | | | | |
| Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) | | -12 | 0 | 12 | ° |
| | 1920,0 ... 1980,0 MHz | | | | |
| Attenuation | α | | | | |
| | 50,0 ... 1805,0 MHz | 35 | 43 | — | dB |
| | 1805,0 ... 1920,0 MHz | 30 | 35 | — | dB |
| | 1920,0 ... 1980,0 MHz | 30 | 33 | — | dB |
| | 1980,0 ... 2050,0 MHz | 17 | 20 | — | dB |
| | 2205,0 ... 2255,0 MHz | 15 | 20 | — | dB |
| | 2255,0 ... 2490,0 MHz | 20 | 23 | — | dB |
| | 2490,0 ... 2550,0 MHz | 35 | 38 | — | dB |
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