



SAW Components

SAW IF filter

W-CDMA

| | |
|-----------------------|------------------------|
| Series/type: | B5242 |
| Ordering code: | B39221B5242H810 |
| Date: | May 20, 2011 |
| Version: | 2.0 |



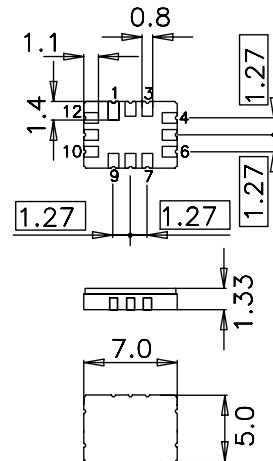
Application

- Low-loss IF filter for W-CDMA base station
- Usable passband 20 MHz
- Unbalanced or balanced operation possible



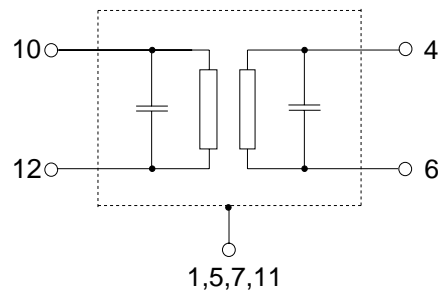
Features

- Package size 7.0 x 5.0 x 1.33 mm³
- Package code QCC12E
- RoHS compatible
- Approximate weight 0.25 g
- Ceramic Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Filter surface passivated
- **Moisture Sensitivity Level 1**



Pin configuration

- 10 Input
- 12 Input ground or balanced input
- 4 Output
- 6 Output ground or balanced output
- 2, 3, 8, 9 To be grounded
- 1, 5, 7, 11 Case ground




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B5242
SAW IF filter
215.0 MHz
Data sheet

Characteristics

Temperature range for specification: $T = -40\text{ °C to }+85\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ unbalanced and matching network
 Terminating load impedance: $Z_L = 50\ \Omega$ unbalanced and matching network

| | | min. | typ. @ 25 °C | max. | |
|--|--|-----------------------------|-----------------|------|---------------|
| Nominal frequency | f_N | — | 215.0 | — | MHz |
| Minimum insertion attenuation (including matching network) | α_{\min} | — | 7.7 | 9.0 | dB |
| Passband width | $\alpha_{\text{rel}} \leq 1.0\text{ dB}$ | $B_{1.0\text{dB}}$ | 20.0 | 24.4 | — MHz |
| Amplitude ripple (p-p) | $\Delta\alpha$ | | | | |
| | $f_N \pm 10.0\text{ MHz}$ | — | 0.2 | 0.9 | dB |
| Group delay ripple (p-p) | $\Delta\tau$ | | | | |
| | $f_N \pm 10.0\text{ MHz}$ | — | 22 | 50 | ns |
| Absolute group delay (mean) | $\bar{\tau}$ | | | | |
| | $f_N \pm 10.0\text{ MHz}$ | — | 0.67 | — | μs |
| Phase ripple (p-p) | $\Delta\varphi$ | | | | |
| | $f_N \pm 10.0\text{ MHz}$ | — | 2.5 | 8 | ° |
| Relative attenuation (relative to α_{\min}) | α_{rel} | | | | |
| | $f_N - 90.0\text{ MHz} \dots f_N - 45.0\text{ MHz}$ | 50 | 67 | — | dB |
| | $f_N - 45.0\text{ MHz} \dots f_N - 24.0\text{ MHz}$ | 45 | 52 | — | dB |
| | $f_N - 24.0\text{ MHz} \dots f_N - 12.5\text{ MHz}$ | 40 ¹⁾ | 52 | — | dB |
| | $f_N - 12.5\text{ MHz} \dots f_N - 11.25\text{ MHz}$ | not specified ²⁾ | | — | dB |
| | $f_N + 11.25\text{ MHz} \dots f_N + 12.5\text{ MHz}$ | not specified ²⁾ | | — | dB |
| | $f_N + 12.5\text{ MHz} \dots f_N + 24.0\text{ MHz}$ | 35 ³⁾ | 49 | — | dB |
| | $f_N + 24.0\text{ MHz} \dots f_N + 45.0\text{ MHz}$ | 40 | 56 | — | dB |
| | $f_N + 45.0\text{ MHz} \dots f_N + 90.0\text{ MHz}$ | 50 | 55 | — | dB |
| Return loss | | | | | |
| | input $f_N \pm 10.0\text{ MHz}$ | 12 | 17 | — | dB |
| | output $f_N \pm 10.0\text{ MHz}$ | 12 | 17 | — | dB |
| Temperature coefficient of frequency | TC_f | — | -87 | — | ppm/K |

¹⁾ specification range is $f_N - 24.0\text{ MHz} \dots f_N - 20.0\text{ MHz}$

²⁾ overlapping of passband and specified frequency range due to temperature shift

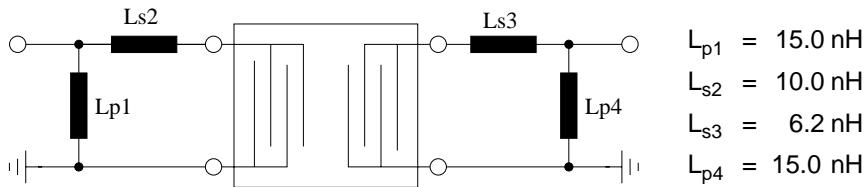
³⁾ specification range is $f_N + 20.0\text{ MHz} \dots f_N + 24.0\text{ MHz}$



Data sheet



Matching network to 50 Ω unbalanced input and output



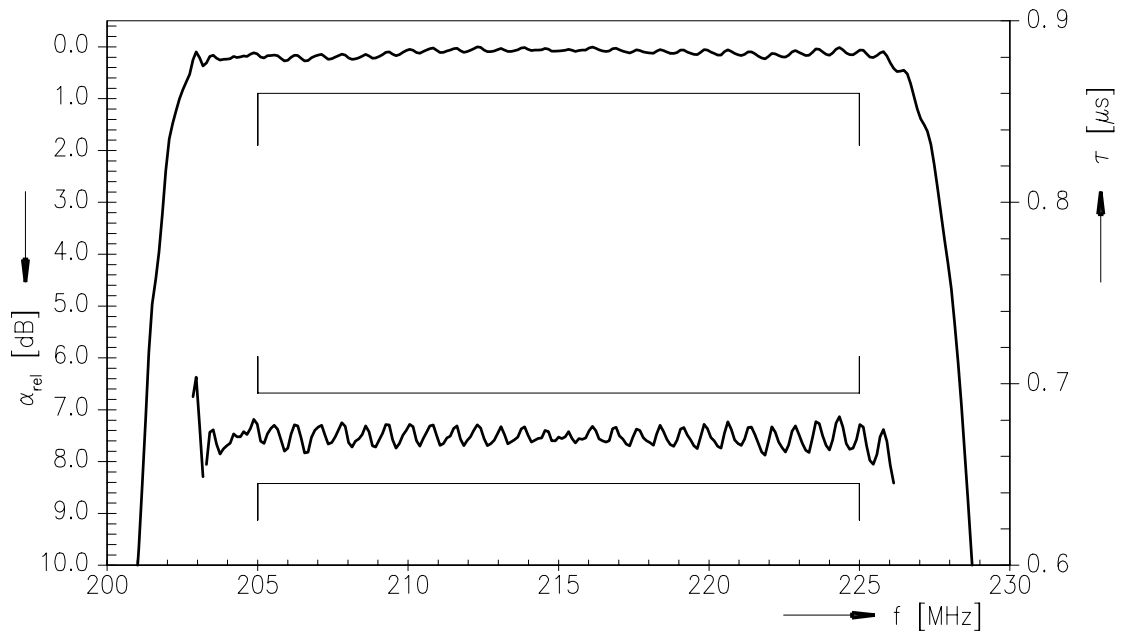
(Element values depend upon board layout and properties)

Maximum ratings

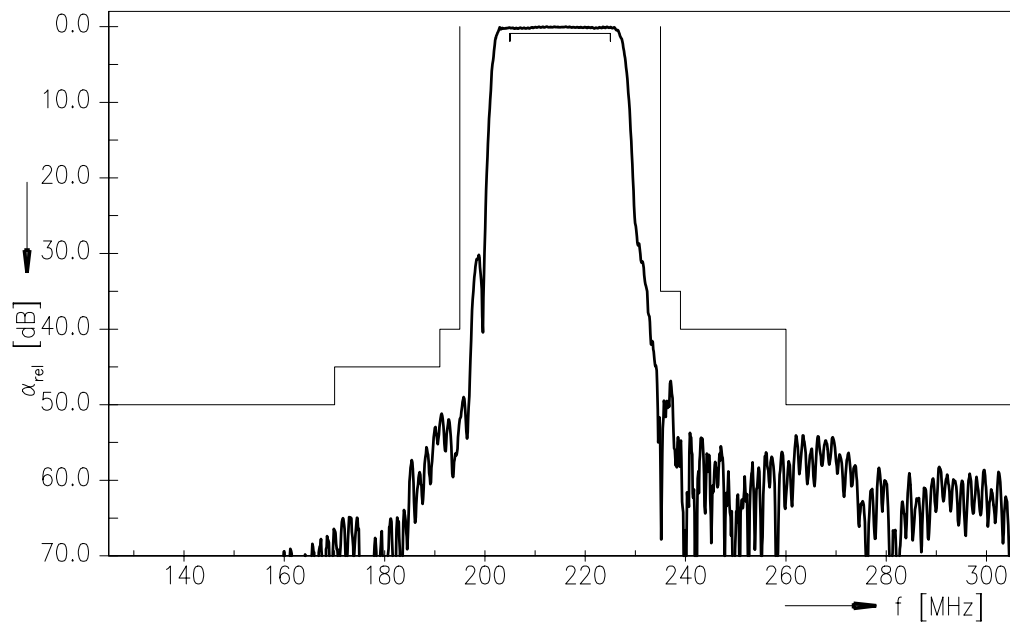
| | | | | |
|----------------------------|------------------|---------|-----|--|
| Operable temperature range | T | -40/+85 | °C | |
| Storage temperature range | T _{stg} | -40/+85 | °C | |
| DC voltage | V _{DC} | 0 | V | |
| Input power | P _{IN} | 10 | dBm | |



Transfer function (S21, narrowband, normalized)



Transfer function (S21, wideband, normalized)





| | |
|-----------------------|------------------|
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References

| | |
|----------------------------|--|
| Type | B5242 |
| Ordering code | B39221B5242H810 |
| Marking and package | C61157-A7-A103 |
| Packaging | F61074-V8170-Z000 |
| Date codes | L_1126 |
| S-parameters | B5242_NB.s2p, B5242_WB.s2p B5242_NB_UN.s4p, B5242_WB_UN.s4p see file header for port/pin assignment table |
| Soldering profile | S_6001 |
| RoHS compatible | defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment." |
| Matching coils | See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils. |

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