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# SAW Components

Data Sheet B3697

Data Sheet

EP



## SAW Components

B3697

### Low-Loss Filter

190,00 MHz

#### Data Sheet

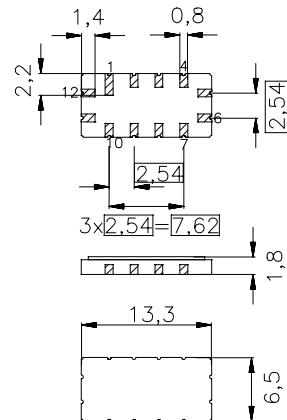
Ceramic package QCC12

#### Features

- IF filter for WCDMA
- Low insertion loss
- Ceramic SMD package

#### Terminals

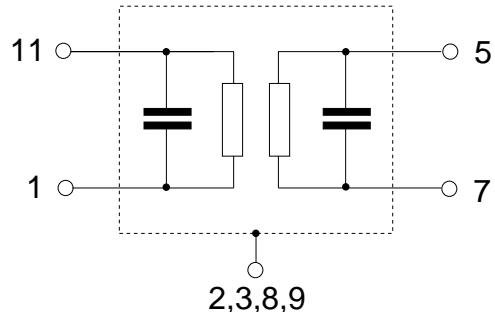
- Gold plated



Dimensions in mm, appr. weight 0,44 g

#### Pin configuration

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



| Type  | Ordering code     | Marking and Package according to | Packing according to |
|-------|-------------------|----------------------------------|----------------------|
| B3697 | B39191-B3697-Z510 | C61157-A7-A55                    | F61074-V8026-Z000    |

Electrostatic Sensitive Device (ESD)

#### Maximum ratings

|                            |           |           |     |  |
|----------------------------|-----------|-----------|-----|--|
| Operable temperature range | $T_A$     | -40 / +85 | °C  |  |
| Storage temperature range  | $T_{stg}$ | -40 / +85 | °C  |  |
| DC voltage                 | $V_{DC}$  | 0         | V   |  |
| Source power               | $P_s$     | 0         | dBm |  |

**SAW Components****B3697****Low-Loss Filter****190,00 MHz****Data Sheet****Characteristics**

Operating temperature:

 $T_A = -10 \dots +85^\circ\text{C}$ 

Terminating source impedance:

 $Z_S = 50 \Omega$  and matching network

Terminating load impedance:

 $Z_L = 50 \Omega$  and matching network

Group delay aperture:

50 kHz

|  |                            | <b>min.</b>     | <b>typ.</b> | <b>max.</b> |         |
|--|----------------------------|-----------------|-------------|-------------|---------|
| <b>Nominal frequency</b>   | $f_N$                      | —               | 190,00      | —           | MHz     |
| <b>Minimum insertion attenuation</b><br>(including matching network)             | $f_N \pm 2,05 \text{ MHz}$ | $\alpha_{\min}$ | —           | 10,7        | 12,0 dB |
| <b>Passband width</b>  |                            |                 |             |             |         |
| $\alpha_{\text{rel}} \leq 1 \text{ dB}$  | $B_{1\text{dB}}$           | 4,5             | 4,9         | —           | MHz     |
| $\alpha_{\text{rel}} \leq 3 \text{ dB}$  | $B_{3\text{dB}}$           | 5,6             | 5,8         | —           | MHz     |
| $\alpha_{\text{rel}} \leq 10 \text{ dB}$   | $B_{10\text{dB}}$          | —               | 7,0         | 7,2         | MHz     |
| $\alpha_{\text{rel}} \leq 30 \text{ dB}$   | $B_{30\text{dB}}$          | —               | 8,4         | 8,6         | MHz     |
| <b>Amplitude ripple (p-p)</b>  |                            | $\Delta\alpha$  |             |             |         |
|  | $f_N \pm 2,05 \text{ MHz}$ | —               | 0,45        | 1,0         | dB      |
| <b>Phase ripple (p-p)</b>  |                            | $\Delta\phi$    |             |             |         |
|  | $f_N \pm 2,05 \text{ MHz}$ | —               | 3,5         | 4           | °       |
| <b>Group delay ripple (p-p)</b>  |                            | $\Delta\tau$    |             |             |         |
|  | $f_N \pm 2,05 \text{ MHz}$ | —               | 70          | 100         | ns      |
| <b>Absolute group delay</b>  |                            | $\tau$          |             |             |         |
| mean value within $f_N \pm 2,05 \text{ MHz}$ at $25^\circ\text{C}$ <sup>1)</sup> |                            | 952             | 957         | 962         | ns      |

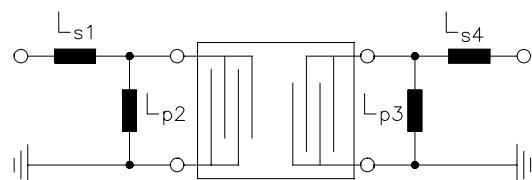
1) At other temperatures the variation from filter to filter is also restricted to +/- 5 ns.

From -10 ... +85 °C the variation of mean value of group delay is restricted to +/- 20 ns.

**SAW Components****B3697****Low-Loss Filter****190,00 MHz****Data Sheet****Relative attenuation (relative to  $\alpha_{\min}$ )**

|   | $\alpha_{\text{rel}}$ |    |   |    |
|---|-----------------------|----|---|----|
| $f_N + 5,0 \text{ MHz} \dots f_N + 6,5 \text{ MHz}$       | 38                    | 41 | — | dB |
| $f_N - 5,0 \text{ MHz} \dots f_N - 6,5 \text{ MHz}$       | 40                    | 43 | — | dB |
| $f_N \pm 6,5 \text{ MHz} \dots f_N \pm 14,0 \text{ MHz}$  | 45                    | 48 | — | dB |
| $f_N \pm 14,0 \text{ MHz} \dots f_N \pm 60,0 \text{ MHz}$ | 50                    | 55 | — | dB |
| $f_N \pm 10,0 \text{ MHz}$                                | 50                    | 55 | — | dB |
| $f_N + 20,0 \text{ MHz}$                                  | 55                    | 60 | — | dB |
| $f_N - 20,0 \text{ MHz}$                                  | 50                    | 55 | — | dB |
| 165,7 MHz   | 55                    | 58 | — | dB |
| 157,6 MHz   | 55                    | 60 | — | dB |

| Temperature coefficient of frequency | $TC_f$ | — | - 18 | — | ppm/K |
|--------------------------------------|--------|---|------|---|-------|
|                                      |        |   |      |   |       |

**Matching network to  $50 \Omega$  (element values depend on pcb layout)**

$$L_{s1} = 47 \text{ nH}$$

$$L_{s2} = 0 \text{ nH}$$

$$L_{p2} = 39 \text{ nH}$$

$$L_{p3} = 27 \text{ nH}$$



SAW Components

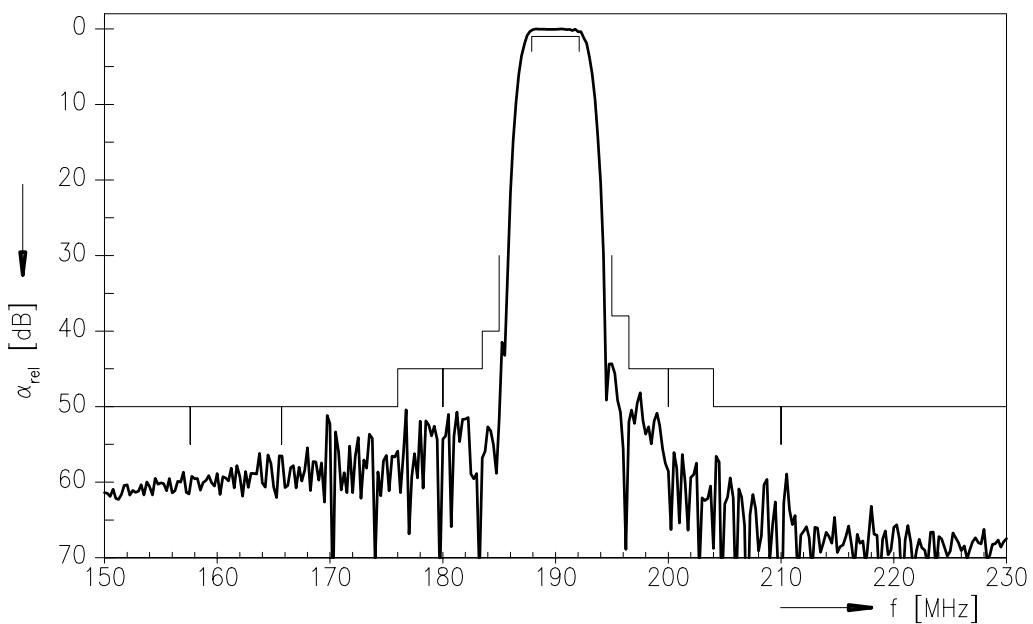
B3697

Low-Loss Filter

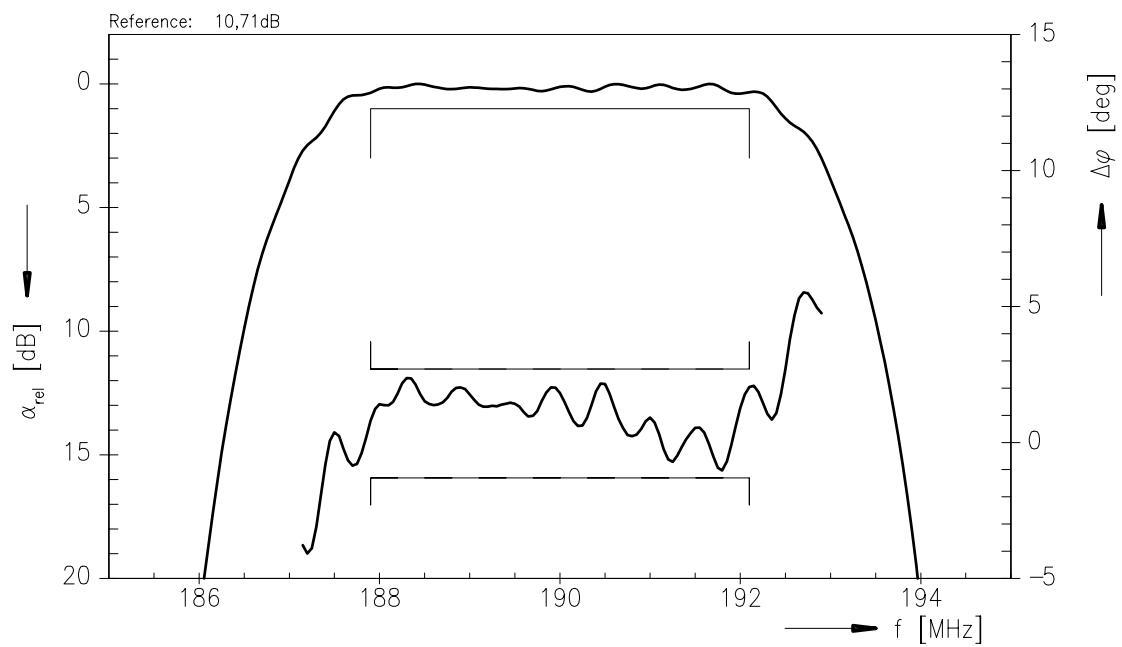
190,00 MHz

Data Sheet

### Transfer function



### Transfer function (pass band)





|                        |                   |
|------------------------|-------------------|
| <b>SAW Components</b>  | <b>B3697</b>      |
| <b>Low-Loss Filter</b> | <b>190,00 MHz</b> |

## Data Sheet

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