



# *SAW Components*

*Data Sheet R 2710*

Data Sheet

An abstract graphic featuring the word "EPCOS" in large, glowing, 3D letters. The letters are white with a blue glow and are positioned diagonally across the frame. In the background, there is a faint, stylized globe with circuitry patterns, suggesting a global network or technological theme. The overall color scheme is dark with blue and white highlights.



## SAW Components

R 2710

## Resonator

311,063 MHz

### Data Sheet

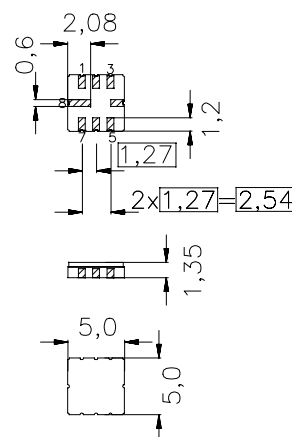
SMD Ceramic package **QCC8C**

### Features

- 2-port resonator
- nominal 180°-phase at resonance
- Provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators

### Terminals

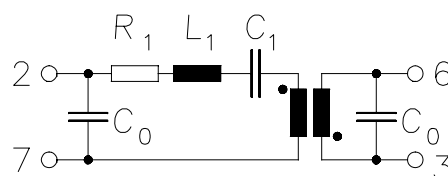
- Ni, gold plated



Dimensions in mm, approx. weight 0,1 g

### Pin configuration

|     |                         |
|-----|-------------------------|
| 2   | Input / Output          |
| 6   | Output / Input          |
| 7   | Ground (Input / Output) |
| 3   | Ground (Output / Input) |
| 4,8 | Ground (case)           |



| Type   | Ordering code     | Marking and Package according to | Packing according to |
|--------|-------------------|----------------------------------|----------------------|
| R 2710 | B39311-R2710-U310 | C61157-A7-A56                    | F61074-V8070-Z000    |

Electrostatic Sensitive Device (ESD)

### Maximum ratings

|                            |           |         |     |                       |
|----------------------------|-----------|---------|-----|-----------------------|
| Operable temperature range | $T_A$     | -45/+85 | °C  | between any terminals |
| Storage temperature range  | $T_{stg}$ | -45/+85 | °C  |                       |
| DC voltage                 | $V_{DC}$  | 12      | V   |                       |
| Source power               | $P_S$     | 0       | dBm |                       |



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#### Characteristics

Reference temperature:  $T_A = 25\text{ °C}$   
 Terminating Source impedance:  $Z_S = 50\text{ }\Omega$   
 Terminating Load impedance:  $Z_L = 50\text{ }\Omega$

|                                                                   |                 | min.    | typ.    | max.    |                    |
|-------------------------------------------------------------------|-----------------|---------|---------|---------|--------------------|
| <b>Center frequency</b><br>(center frequency between 3 dB points) | $f_c$           | 310,988 | 311,063 | 311,138 | MHz                |
| <b>Minimum insertion attenuation</b>                              | $\alpha_{\min}$ | —       | 8,7     | 10,7    | dB                 |
| Phase at $f_c$                                                    | $\varphi$       | —       | 158     | —       | ° el.              |
| Loaded quality factor                                             | $Q_L$           | 4200    | 7000    | —       |                    |
| Unloaded quality factor                                           | $Q_U$           | 6000    | 10800   | —       |                    |
| <b>Ageing of <math>f_c</math></b>                                 |                 | —       | —       | ±50     | ppm                |
| <b>Equivalent circuit elements</b>                                |                 |         |         |         |                    |
| Motional capacitance                                              | $C_1$           | —       | 0,284   | —       | fF                 |
| Motional inductance                                               | $L_1$           | —       | 922     | —       | μH                 |
| Motional resistance                                               | $R_1$           | —       | 160     | —       | Ω                  |
| Input / Output capacitance                                        | $C_0$           | —       | 1,8     | —       | pF                 |
| <b>Temperature coefficient of frequency</b> <sup>1)</sup>         | $TC_f$          | —       | −0,03   | —       | ppm/K <sup>2</sup> |
| Turnover temperature                                              | $T_0$           | 10      | —       | 40      | °C                 |

<sup>1)</sup> Temperature dependence of  $f_c$ :  $f_c(T_A) = f_c(T_0)(1 + TC_f(T_A - T_0)^2)$



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**Resonator**

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