# SAW Components

Data Sheet B3510

EPCOS

Ceramic package **QCC8D**

## Features

■ Low-loss 2-in-1 RF filter for mobile telephone AMPS and PCS CDMA systems, receive path
■ Device with two integrated Rx-filters
■ Usable passband of PCS Rx filter: 60 MHz
■ Usable passband of AMPS Rx-filter: 25 MHz
■ No matching network required for operation at 50 $\Omega$
■ Package for **S**urface **M**ounted **T**echnology (**SMT**)
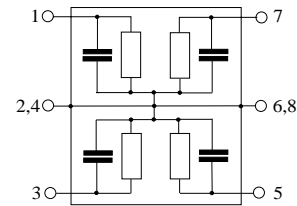■ Extended temperature range for automotiv application
■ Passivation layer: Elpas
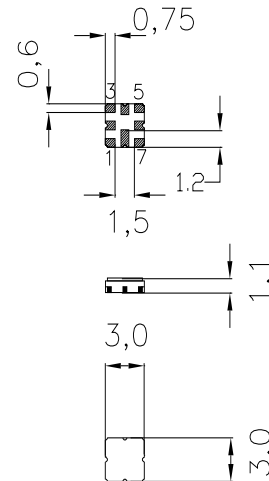
## Terminals

■ Ni, gold-plated

Dimensions in mm, approx. weight 0,037 g

## Pin configuration

| 1 | Input PCS filter |
|---|---|
| 7 | Output PCS filter |
| 3 | Input AMPS filter |
| 5 | Output AMPS filter |
| 2,4,6,8 | Case-ground, to be grounded |

| Type | Ordering code | Marking and Package according to | Packing according to |
|---|---|---|---|
| B3510 | B39192-B3510-U810 | C61157-A7-A72 | F61074-V8101-Z0000 |

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

## 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 max. 824...849 MHz | $P_{IN}$ | 13 | dBm | source and load impedance 50 $\Omega$ continuous wave |
| 1850...1910 MHz | | 13 | dBm | continuous wave |

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| **SAW Components** | | | | **B3510** |
|---|---|---|---|---|
| **Low-Loss Dual Band Filter for Telematics Application** | | | | **881,5 & 1960,0 MHz** |

**Data Sheet**

### Characteristics of PCS Rx filter

| Operating temperature range: | $T$ = -30 to +75 °C |
|---|---|
| Terminating source impedance: | $Z_S$ = 50 Ω |
| Terminating load impedance: | $Z_L$ = 50 Ω |

|  |  | min. | typ. | max. |  |
|---|---|---|---|---|---|
| **Center frequency** | $f_c$ | — | 1960,0 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ |  |  |  |  |
| 1930,0...1990,0MHz |  | — | 3,7 | 4,2 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ |  |  |  |  |
| 1930,0...1990,0MHz |  | — | 1,9 | 2,9 | dB |
| **Input return loss** |  |  |  |  |  |
| 1930,0...1990,0 MHz |  | 7,0 | 9,0 | — | dB |
| **Output return loss** |  |  |  |  |  |
| 1930,0...1990,0 MHz |  | 7,0 | 9,0 | — | dB |
| **Attenuation** | $\alpha$ |  |  |  |  |
| 10,0...1850,0 MHz |  | 20,0 | 22,0 | — | dB |
| 2110,0...2400,0 MHz |  | 20,0 | 30,0 | — | dB |
| **Tx band suppression** |  |  |  |  |  |
| 1850,0...1910,0 MHz |  | 10,0 | 12,0 | — | dB |

## EPCOS

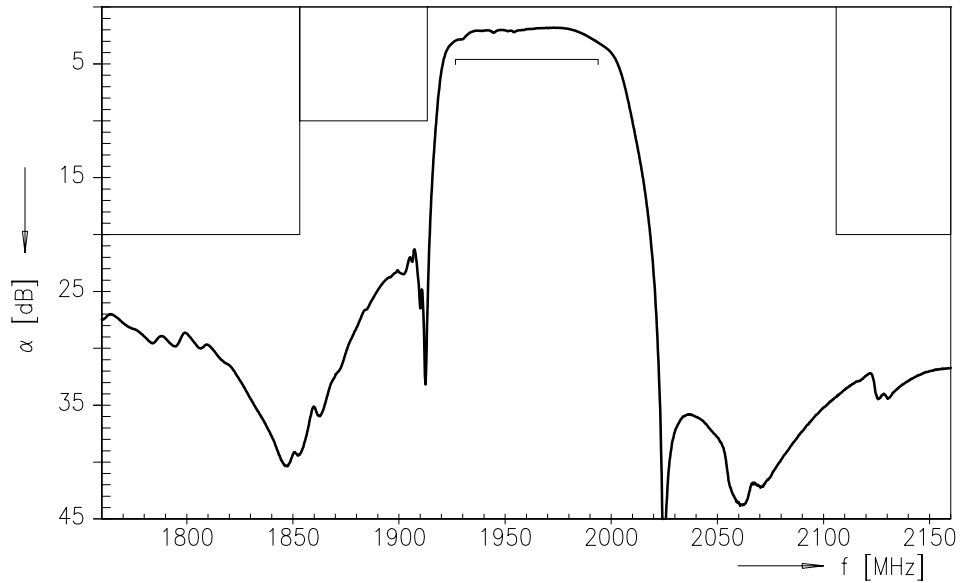### Characteristics of PCS Rx filter

Operating temperature range:      $T$ = -40 to +85 °C
Terminating source impedance:      $Z_S$ = 50 Ω
Terminating load impedance:      $Z_L$ = 50 Ω
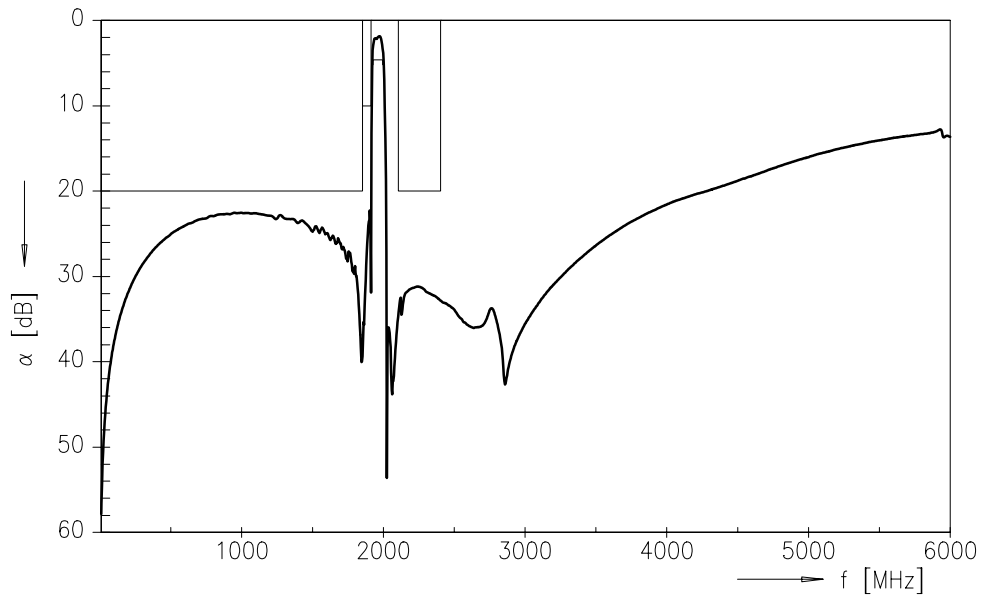
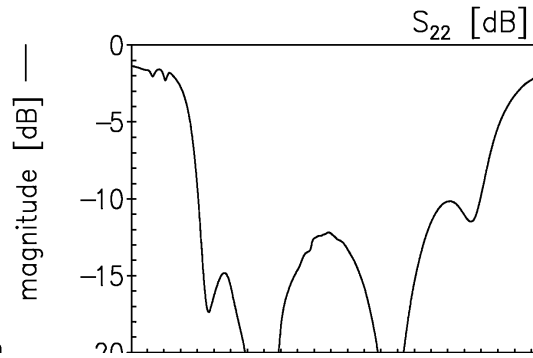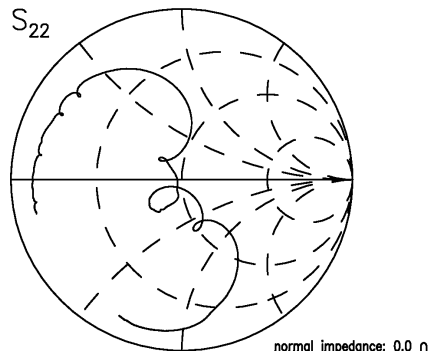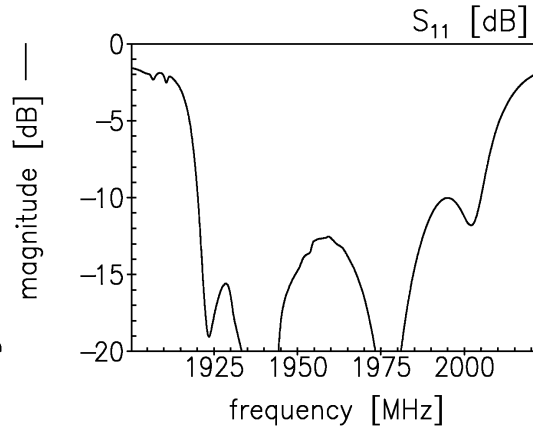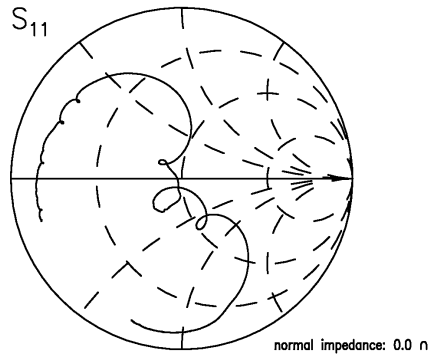| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Center frequency** | $f_c$ | — | 1960,0 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ | | | | |
| 1930,0...1990,0MHz | | — | 3,7 | 4,6 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| 1930,0...1990,0MHz | | — | 2,0 | 2,9 | dB |
| **Input return loss** | | | | | |
| 1930,0...1990,0 MHz | | 7,0 | 9,0 | — | dB |
| **Output return loss** | | | | | |
| 1930,0...1990,0 MHz | | 7,0 | 9,0 | — | dB |
| **Attenuation** | $\alpha$ | | | | |
| 10,0...1850,0 MHz | | 20,0 | 22,0 | — | dB |
| 2110,0...2400,0 MHz | | 20,0 | 30,0 | — | dB |
| **Tx band suppression** | | | | | |
| 1850,0...1910,0 MHz | | 7,0 | 10,0 | — | dB |

**Transfer function of the PCS filter** (narrow band measurement)



**Transfer function of the PCS filter** (wide band measurement)



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| --- | --- |
| **Low-Loss Dual Band Filter for Telematics Application** | **881,5 & 1960,0 MHz** |

**Data Sheet**  SMD

**Reflection coefficients of the PCS filter** (measurement)

## Characteristics of AMPS Rx filter

Operating temperature range:     $T$ = -30 to +75 ˚C
Terminating source impedance:     $Z_S$ = 50 Ω
Terminating load impedance:     $Z_L$ = 50 Ω

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Center frequency** | $f_c$ | — | 881,5 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ | | | | |
| 869,0...894,0MHz | | — | 2,6 | 3,1 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| 869,0...894,0MHz | | — | 1,0 | 1,5 | dB |
| **Input return loss** | | | | | |
| 869,0...894,0 MHz | | 10,0 | 11,0 | — | dB |
| **Output return loss** | | | | | |
| 869,0...894,0 MHz | | 10,0 | 12,0 | — | dB |
| **Attenuation** | $\alpha$ | | | | |
| 30,0...824,0MHz | | 35,0 | 42,0 | — | dB |
| 1050,0...1080,0MHz | | 38,0 | 42,0 | — | dB |
| 1080,0...2300,0MHz | | 30,0 | 32,0 | — | dB |
| 2300,0...2600,0MHz | | 25,0 | 30,0 | — | dB |
| **Tx band suppression** | | | | | |
| 824,0...849,0MHz | | 35,0 | 40,0 | — | dB |

## Characteristics of AMPS Rx filter

Operating temperature range:     $T$ = -40 to +85 °C
Terminating source impedance:     $Z_S$ = 50 Ω
Terminating load impedance:     $Z_L$ = 50 Ω

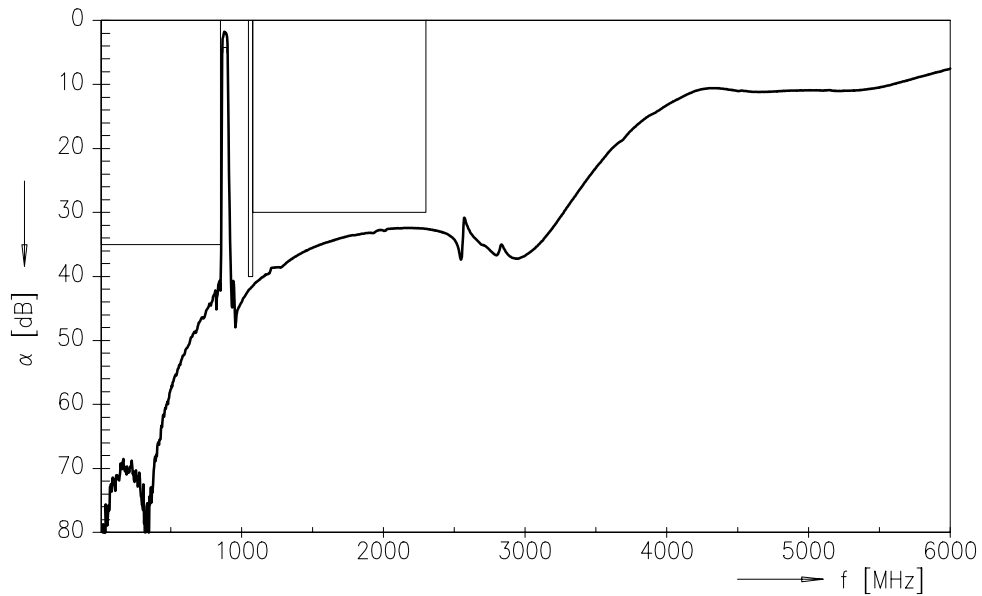| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Center frequency** | $f_c$ | — | 881,5 | — | MHz |
| **Maximum insertion attenuation** | $\alpha_{max}$ | | | | |
| 869,0...894,0MHz | | — | 2,6 | 3,3 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| 869,0...894,0MHz | | — | 1,0 | 1,5 | dB |
| **Input return loss** | | | | | |
| 869,0...894,0 MHz | | 9,5 | 11,0 | — | dB |
| **Output return loss** | | | | | |
| 869,0...894,0 MHz | | 9,5 | 12,0 | — | dB |
| **Attenuation** | $\alpha$ | | | | |
| 30,0...824,0MHz | | 35,0 | 42,0 | — | dB |
| 1050,0...1080,0MHz | | 38,0 | 42,0 | — | dB |
| 1080,0...2300,0MHz | | 30,0 | 32,0 | — | dB |
| 2300,0...2600,0MHz | | 25,0 | 30,0 | — | dB |
| **Tx band suppression** | | | | | |
| 824,0...849,0MHz | | 35,0 | 40,0 | — | dB |

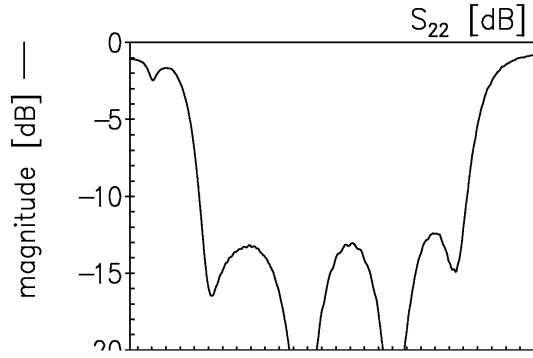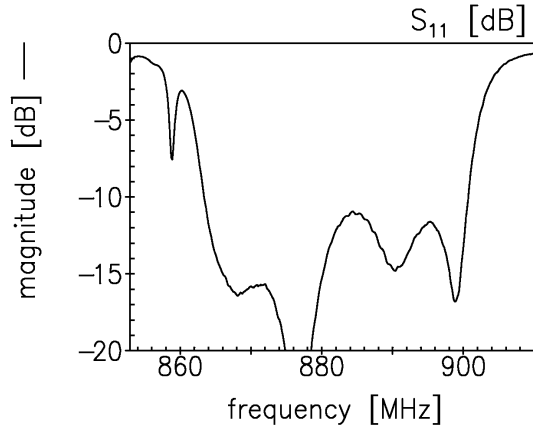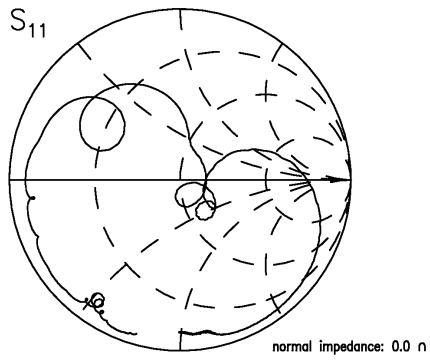**Transfer function of the AMPS filter** (narrow band measurement)
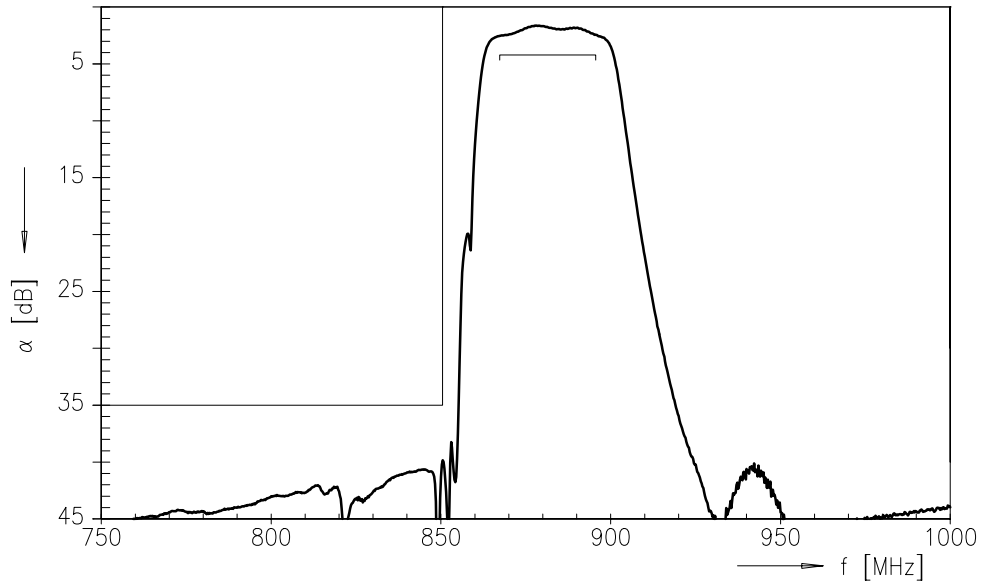
**Transfer function of the AMPS filter** (wide band measurement)

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**Low-Loss Dual Band Filter for Telematics Application**　　**881,5 & 1960,0 MHz**

**Data Sheet**　　　　　　　　　SMD

**Reflection coefficients of the AMPS filter** (measurement)
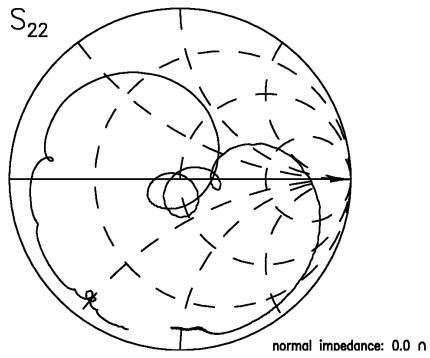
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