



# SAW Components

Data Sheet B7304





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Low-Loss Filter for Mobile Communication

225,0 MHz

Data Sheet



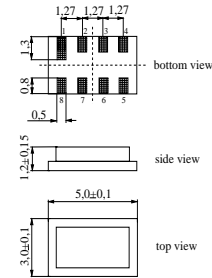
Chip Sized SAW Package DCS8A

**Features**

- Low-loss IF filter for mobile telephone
- Channel selection in GSM, PCN, PCS systems
- **Chip Sized SAW Package**
- expansion coil for minimum insertion attenuation and optimum bandwidth adjustment

**Terminals**

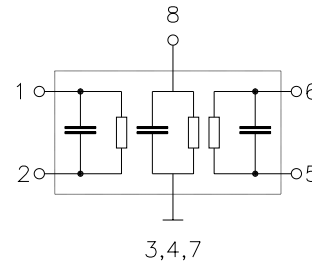
- Gold-plated Ni



Dimensions in mm, approx. weight 0,05 g

**Pin configuration**

- 1, 2 Input balanced
- 5, 6 Output balanced
- 3, 4, 7 Ground
- 8 Expansion coil



Type	Ordering code	Marking and Package according to	Packing according to
B7304	B39231-B7304-A910	C61157-A7-A65	F61074-V8102-Z000

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

Operable temperature range	$T_A$	- 25/+ 80	°C	
Storage temperature range	$T_{stg}$	- 40/+ 85	°C	
DC voltage	$V_{DC}$	3	V	
Source power	$P_s$	10	dBm	



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## Characteristics

Operating temperature range:	$T = -25\text{ °C} \dots +80\text{ °C}$
Terminating source impedance:	$Z_S = 1000\ \Omega \parallel -1,2\ \text{pF}$
Terminating load impedance:	$Z_L = 1000\ \Omega \parallel -1,2\ \text{pF}$

		min.	typ.	max.	
<b>Nominal frequency</b>	$f_N$	—	225,00	—	MHz
<b>Maximum insertion attenuation</b> (Including losses in matching circuit)	$\alpha_{\max}$	—	5,5	6,5	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
$f_N - 65.0\ \text{kHz} \dots f_N + 65.0\ \text{kHz}$		—	0,3	2,0	dB
$f_N - 70.0\ \text{kHz} \dots f_N + 70.0\ \text{kHz}$		—	0,4	3,0	dB
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
$f_N - 70.0\ \text{kHz} \dots f_N + 70.0\ \text{kHz}$		—	0,8	2,5	$\mu\text{s}$
<b>Relative attenuation (relative to <math>\alpha_{\max}</math>)</b>	$\alpha_{\text{rel}}$				
$f_N - 25,00\ \text{MHz} \dots f_N - 3,00\ \text{MHz}$		45	66	—	dB
$f_N - 3,00\ \text{MHz} \dots f_N - 1,60\ \text{MHz}$		43	64	—	dB
$f_N - 1,60\ \text{MHz} \dots f_N - 0,60\ \text{MHz}$		38	49	—	dB
$f_N - 0,60\ \text{MHz} \dots f_N - 0,40\ \text{MHz}$		27	33	—	dB
$f_N - 0,40\ \text{MHz} \dots f_N - 0,23\ \text{MHz}$		8	16	—	dB
$f_N + 0,23\ \text{MHz} \dots f_N + 0,40\ \text{MHz}$		8	14	—	dB
$f_N + 0,40\ \text{MHz} \dots f_N + 0,60\ \text{MHz}$		27	30	—	dB
$f_N + 0,60\ \text{MHz} \dots f_N + 1,60\ \text{MHz}$		38	43	—	dB
$f_N + 1,60\ \text{MHz} \dots f_N + 3,00\ \text{MHz}$		43	60	—	dB
$f_N + 3,00\ \text{MHz} \dots f_N + 25,00\ \text{MHz}$		45	53	—	dB
<b>Impedance within pass band</b>					
Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$		—	1000 $\parallel$ 1,2	—	$\Omega \parallel \text{pF}$
Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	1000 $\parallel$ 1,2	—	$\Omega \parallel \text{pF}$
<b>Temperature coefficient of frequency <sup>1)</sup></b>	$TC_f$	—	-0,039	—	ppm/K <sup>2</sup>
<b>Frequency inversion point</b>	$T_0$	—	25	—	°C

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



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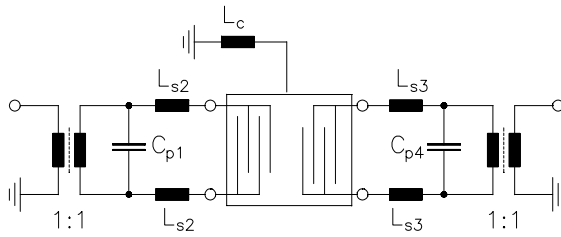
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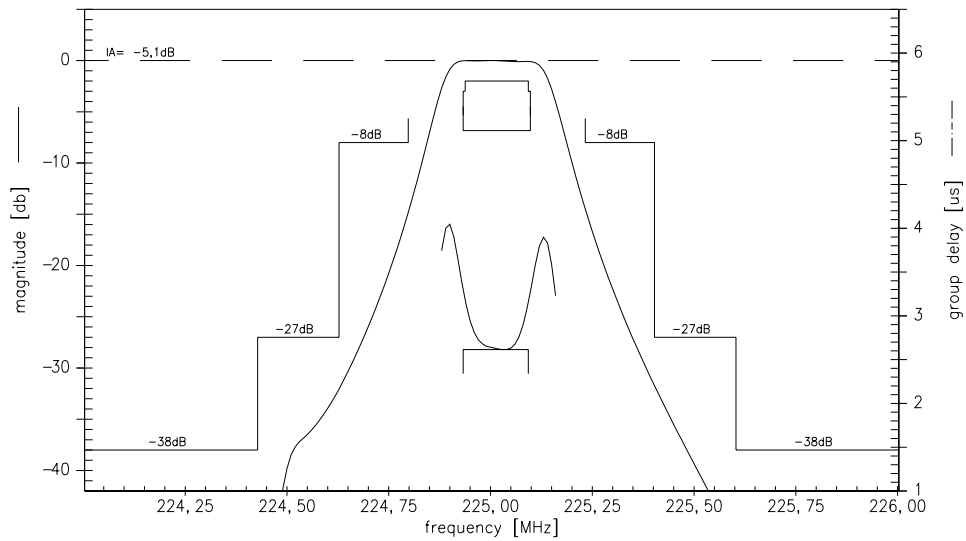
**Test matching network to 50Ω**, low pass example (actual element values depend on PCB layout. S-parameters of transformers TOKO B5FL available on request):



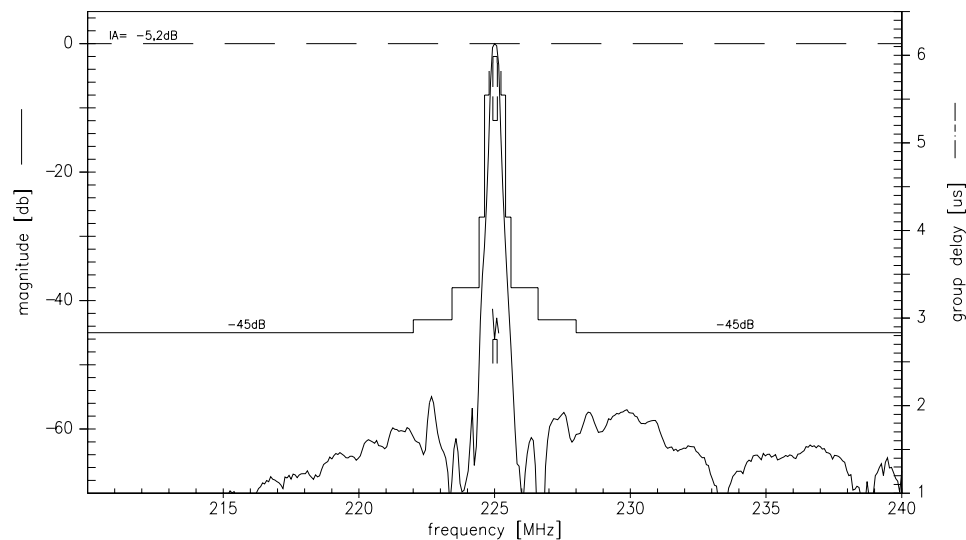
$$\begin{aligned}L_c &= 82 \text{ nH} \parallel 1,8 \text{ pF} \\C_{p1} &= C_{p4} = 2,2 \text{ pF} \\L_{s2} &= L_{s3} = 39 \text{ nH}\end{aligned}$$



Transfer function (pass band):



Transfer function (wide band):





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