



IF Filters for CDMA Cellular Phones

Series/Type: **B7305**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39191B7305A810	B39191B5006H310	2005-05-13	2005-06-30	2005-09-30

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SAW Components

Data Sheet B7305

Data Sheet

An abstract graphic featuring the word "EPCOS" in large, glowing, 3D letters. The letters are white with a bright, circular highlight in the center of each, giving them a three-dimensional appearance. They are set against a dark, textured background. In the background, there is a faint, glowing globe and some abstract, circuit-like patterns, suggesting a global or technological theme.



SAW Components

B7305

IF Filter for Mobile Communication

190 MHz

Data Sheet



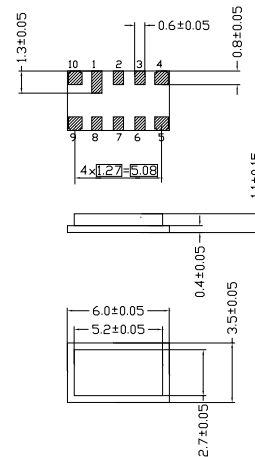
DCS10A Chip-Size SAW Filter Package

Features

- IF filter for mobile telephone
- Channel selection in W-CDMA systems
- Chip-Size SAW Filter Package
- Balanced and unbalanced operation possible
- Package for Surface Mounted Technology (SMT)

Terminals

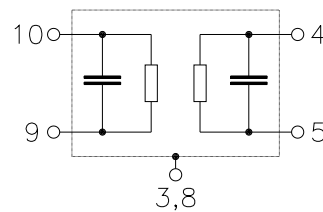
- Gold-plated Ni



Dimensions in mm, approx. weight 0,1 g

Pin configuration

- | | |
|------------|----------------------------------|
| 9 | Input |
| 10 | Balanced input or input ground |
| 4 | Output |
| 5 | Balanced output or output ground |
| 1, 2, 6, 7 | To be grounded |
| 3, 8 | Case – ground |



Type	Ordering code	Marking and Package according to	Packing according to
B7305	B39191-B7305-A810	C61157-A7-A66	F61074-V8103-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operating temperature range	T	-20 / +85	°C	
Storage temperature range	T_{stg}	-40 / +85	°C	
DC voltage	V_{DC}	0	V	
Source power	P_s	10	dBm	



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Characteristics¹⁾

Operating temperature range:	$T = 25\text{ °C}$
Terminating source impedance:	$Z_S = 0,9\text{ k}\Omega \parallel 60\text{ nH}$
Terminating load impedance:	$Z_L = 1,1\text{ k}\Omega \parallel 90\text{ nH}$

		min.	typ.	max.	
Nominal frequency	f_N	—	190,0	—	MHz
Minimum insertion attenuation (including losses in matching circuit)	$\alpha_{\min}$		8,8	9,2	dB
Passband width $\alpha_{\text{rel}} \leq 2,0\text{ dB}$	$B_{2,0\text{dB}}$	3,84	4,2	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N - 2,00\text{ MHz} \dots f_N + 2,00\text{ MHz}$		—	1,5	1,8	dB
$f_N - 1,92\text{ MHz} \dots f_N + 1,92\text{ MHz}$		—	0,9	1,5	dB
$f_N - 1,5\text{ MHz} \dots f_N + 1,5\text{ MHz}$		—	0,7	1,1	dB
Deviation of phase from linearity (rms)	$\Delta\phi$				
$f_N - 1,92\text{ MHz} \dots f_N + 1,92\text{ MHz}$		—	1,5	2,0	°
Group delay deviation	ns				
$f_N - 1,92\text{ MHz} \dots f_N + 1,92\text{ MHz}$		—	110	150	
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
DC $\dots f_N - 20,0\text{ MHz}$		45,0	50,0	—	dB
$f_N - 20,0\text{ MHz} \dots f_N - 10,0\text{ MHz}$		35,0	41,0	—	dB
$f_N - 10,0\text{ MHz} \dots f_N - 5,0\text{ MHz}$		30,0	34,0	—	dB
$f_N + 5,0\text{ MHz} \dots f_N + 10,0\text{ MHz}$		27,0	31,0	—	dB
$f_N + 10,0\text{ MHz} \dots f_N + 20,0\text{ MHz}$		32,0	36,0	—	dB
$f_N + 20,0\text{ MHz} \dots 350,0\text{ MHz}$		37,0	42,0	—	dB
Temperature coefficient of frequency²⁾	TC_f	—	-20	—	ppm/K

¹⁾ The specifications on this page hold for balanced / balanced operation (cf. test matching network 2 on p. 5). The specified minimum insertion attenuation does not include the losses in the transformers of the test circuit.

²⁾ Temperature dependence of f_c : $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0))$



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Characteristics ¹⁾

Operating temperature range:	$T = -20 \dots +85 \text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 0,9 \text{ k}\Omega \parallel 60 \text{ nH}$
Terminating load impedance:	$Z_L = 1,1 \text{ k}\Omega \parallel 90 \text{ nH}$

		min.	typ.	max.	
Nominal frequency	f_N	—	190,0	—	MHz
Minimum insertion attenuation (including losses in matching circuit)	$\alpha_{\min}$		8,8	9,8	dB
Passband width $\alpha_{\text{rel}} \leq 2,0 \text{ dB}$	$B_{2,2\text{dB}}$	3,84	4,2	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N - 2,00 \text{ MHz} \dots f_N + 2,00 \text{ MHz}$			1,5	2,4	
$f_N - 1,92 \text{ MHz} \dots f_N + 1,92 \text{ MHz}$		—	0,9	2,1	dB
$f_N - 1,5 \text{ MHz} \dots f_N + 1,5 \text{ MHz}$		—	0,7	1,1	dB
Deviation of phase from linearity (rms)	$\Delta\phi$				
$f_N - 1,92 \text{ MHz} \dots f_N + 1,92 \text{ MHz}$		—	1,5	2,5	°
Group delay deviation	ns				
$f_N - 1,92 \text{ MHz} \dots f_N + 1,92 \text{ MHz}$		—	110	180	
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
DC $\dots f_N - 20,0 \text{ MHz}$		45,0	50,0	—	dB
$f_N - 20,0 \text{ MHz} \dots f_N - 10,0 \text{ MHz}$		32,0	41,0	—	dB
$f_N - 10,0 \text{ MHz} \dots f_N - 5,0 \text{ MHz}$		28,0	34,0	—	dB
$f_N + 5,0 \text{ MHz} \dots f_N + 10,0 \text{ MHz}$		27,0	31,0	—	dB
$f_N + 10,0 \text{ MHz} \dots f_N + 20,0 \text{ MHz}$		30,5	36,0	—	dB
$f_N + 20,0 \text{ MHz} \dots 350 \text{ MHz}$		37,0	42,0	—	dB
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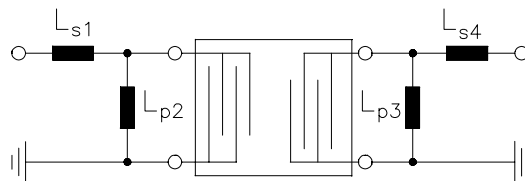
IF Filter for Mobile Communication

190 MHz

Data Sheet



Test matching network 1 for unbalanced operation in 50-Ω environment (element values depend on PCB layout):



$L_{s1} = 180 \text{ nH}$

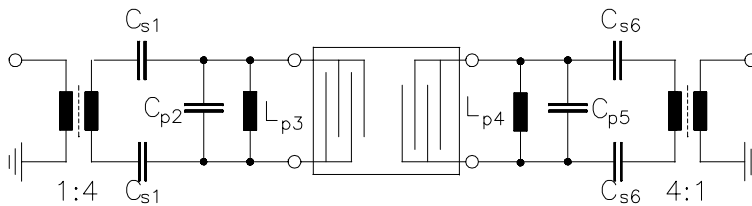
$L_{p2} = 100 \text{ nH}$

$L_{p3} = 150 \text{ nH}$

$L_{s4} = 200 \text{ nH}$

Coils: Coilcraft 1008HQ

Test matching network 2 for balanced operation in 50-Ω environment (element values depend on PCB layout):



$C_{s1} = C_{s6} = 4.7 \text{ pF}$

$C_{p2} = C_{p5} = \text{tbd}$

$L_{p3} = 47 \text{ nH}$

$L_{p4} = 68 \text{ nH}$

Coils: Coilcraft 1008HQ

Transformers: 1:4 Toko 616DB1004



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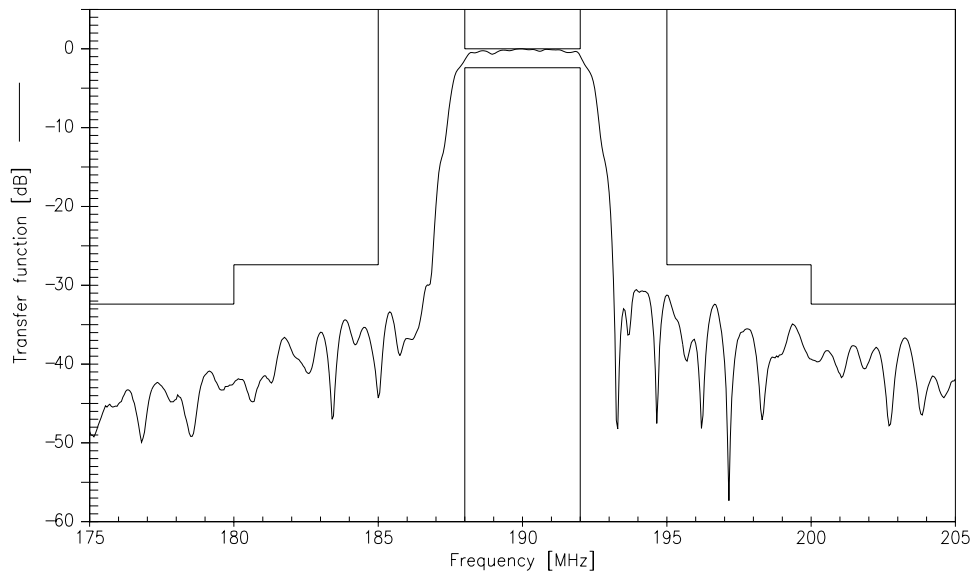
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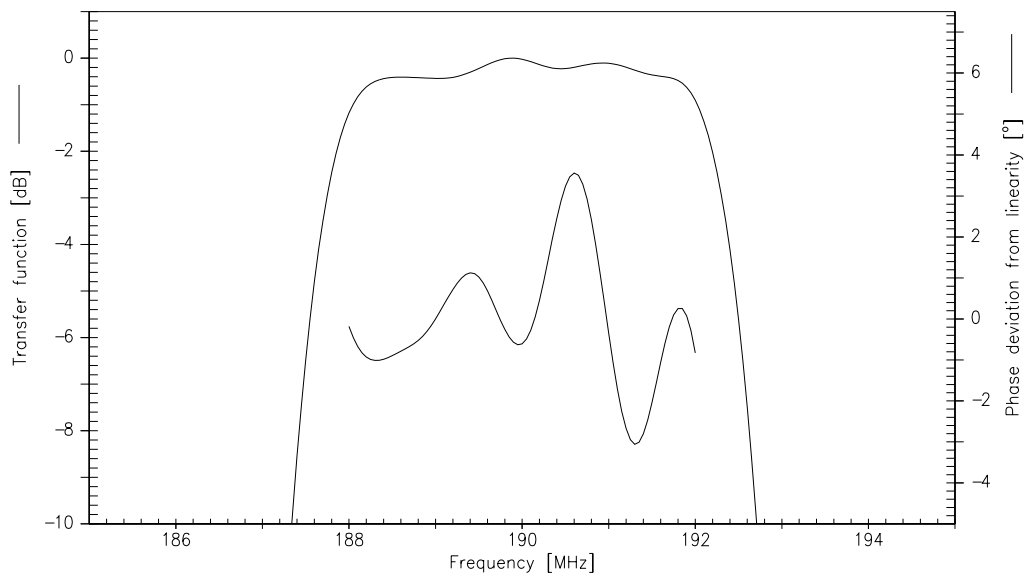
Data Sheet



Transfer function:



Transfer function and phase characteristics (pass band):





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