EPCOS

SAW Components

Data Sheet B3825

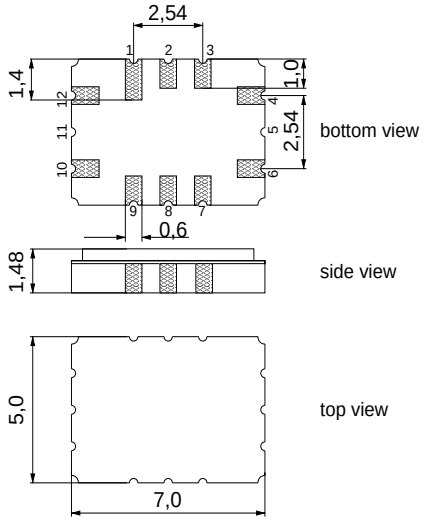
Ceramic package **QCC12C**

Features

- IF low-loss filter for base stations
- Channel selection in W-CDMA systems
- Balanced and unbalanced operation possible
- 3,84 MHz usable bandwidth
- Ceramic SMD package

Terminals

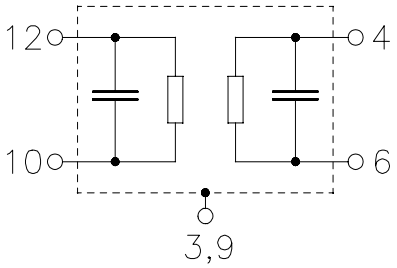
- Gold plated



Dim. in mm, aprox. weight 0,22 g

Pin configuration

12	Input
10	Input ground or balanced input
6	Output
4	Output ground or balanced output
1, 2, 7, 8	to be grounded
3, 9	Case - ground



Type	Ordering code	Marking and Package according to	Packing according to
B3825	B39381-B3825-H310	C61157-A7-A95	F61074-V8170-Z000

Electrostatic **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
Source power	P_s	10	dBm

Data Sheet

Characteristics (unbalanced operation)

Operating temperature: T = -25 to +85 ˚C
Terminating source impedance: Z_S = 577 Ω || 20 nH
Terminating load impedance: Z_L = 817 Ω || 21 nH

		min.	typ.	max.	
Nominal frequency	f_N	—	380,0	—	MHz
Minimum insertion attenuation (including matching network [1])	α_{min}	8,0	8,9	10,0	dB
Passband width $\alpha_{rel} \leq 3{,}0$ dB	$B_{3,0dB}$	4,9	5,1	5,3	MHz
Amplitude ripple (p-p) $f_N \pm 1{,}92$ MHz	$\Delta\alpha$	0,2	1,0	1,2	dB
Phase ripple (p-p) $f_N \pm 1{,}92$ MHz	$\Delta\varphi$	3,0	5,0	7,0	°
Absolute group delay @f_N	τ	360	460	560	ns
Group delay ripple (p-p) $f_N \pm 1{,}92$ MHz	$\Delta\tau$	40	80	180	ns
Mean value of absolute group delay $f_N \pm 1{,}92$ MHz	$\bar{\tau}$	440	460	480	ns
Adjacent channel selectivity	*ACS*	24	32	39	dB
Intermodulation	*IM3*				
f1 = 360 MHz, input power 0 dBm f2 = 370 MHz, input power 0 dBm @f_N		-120	-95	-85	dBm
f1 = 360 MHz, input power -5 dBm f2 = 370 MHz, input power -5 dBm @f_N		-135	-110	-100	dBm

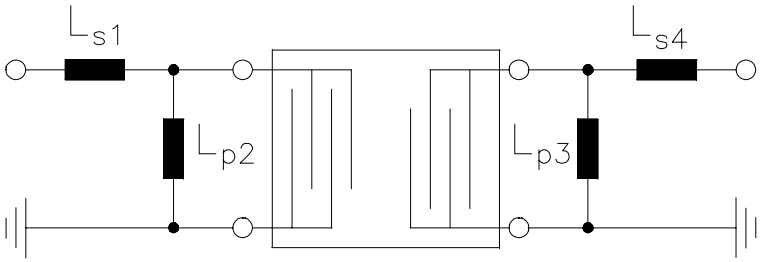
		min.	typ.	max.	
f1 = 390 MHz, input power 0 dBm f2 = 400 MHz, input power 0 dBm @f_N		-120	-95	-85	dBm
f1 = 390 MHz, input power -5 dBm f2 = 400 MHz, input power -5 dBm @f_N		-135	-110	-100	dBm
Minimum relative attenuation (relative to α_{min})	α_{rel}				
at f_N - 5,0 MHz		37	40	50	dB
at f_N + 5,0 MHz		40	45	50	dB
DC ... f_N - 20,0 MHz		42	46	55	dB
f_N - 20,0 MHz ... f_N - 17,5 MHz		35	38	45	dB
f_N - 17,5 MHz ... f_N - 13,5 MHz		42	45	55	dB
f_N - 13,5 MHz ... f_N - 7,5 MHz		38	40	45	dB
f_N - 7,5 MHz ... f_N - 4,1 MHz		35	38	45	dB
f_N - 4,1 MHz ... f_N - 3,2 MHz		20	22	40	dB
f_N + 3,2 MHz ... f_N + 4,1 MHz		20	23	40	dB
f_N + 4,1 MHz ... f_N + 5,0 MHz		34	37	45	dB
f_N + 5,0 MHz ... f_N + 8,0 MHz		37	39	45	dB
f_N + 8,0 MHz ... f_N + 10,5 MHz		32	35	45	dB
f_N + 10,5 MHz ... f_N + 17,5 MHz		39	42	50	dB
f_N + 17,5 MHz ... f_N + 20,0 MHz		35	38	45	dB
f_N + 20,0 MHz ... f_N +100,0 MHz		40	43	55	dB
Impedance at f_N (without matching)					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	795 || 6	—	Ω || pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	652 || 6	—	Ω || pF
Temperature coefficient of frequency 2)	TC_f	—	–0,036	—	ppm/K²
Turnover temperature	T_0	—	25	—	°C

1) Matching inductor Q=40

2) Temperature dependance of f_c: $f_c(T_A) = f_c(T_0)(1 + TC_f(T_A - T_0)^2)$

Matching network

(Element values depend upon PCB layout)



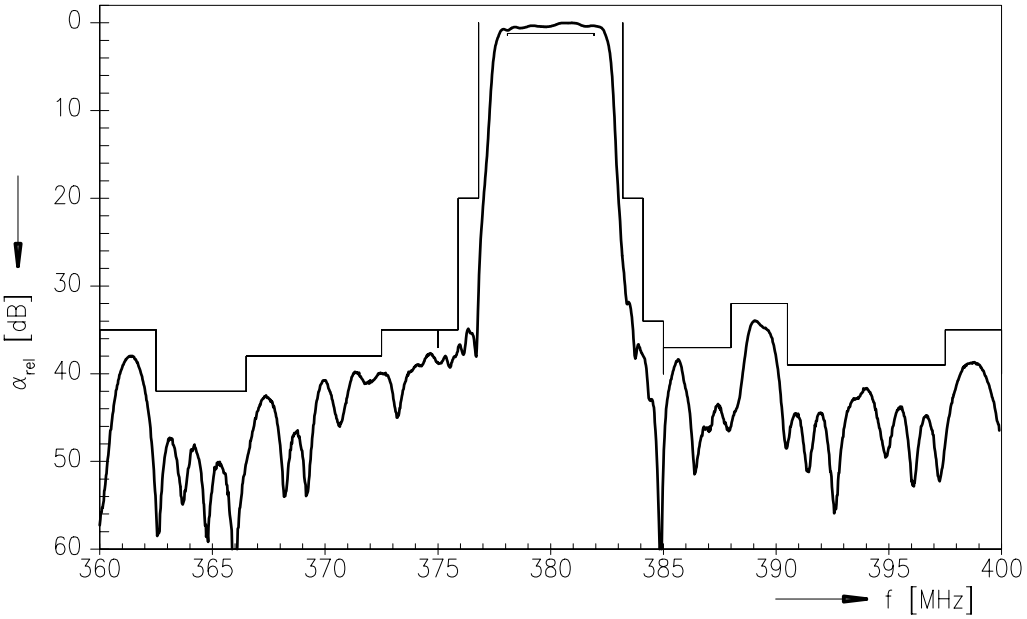
L_{s1} = 68 nH

L_{p2} = 27 nH

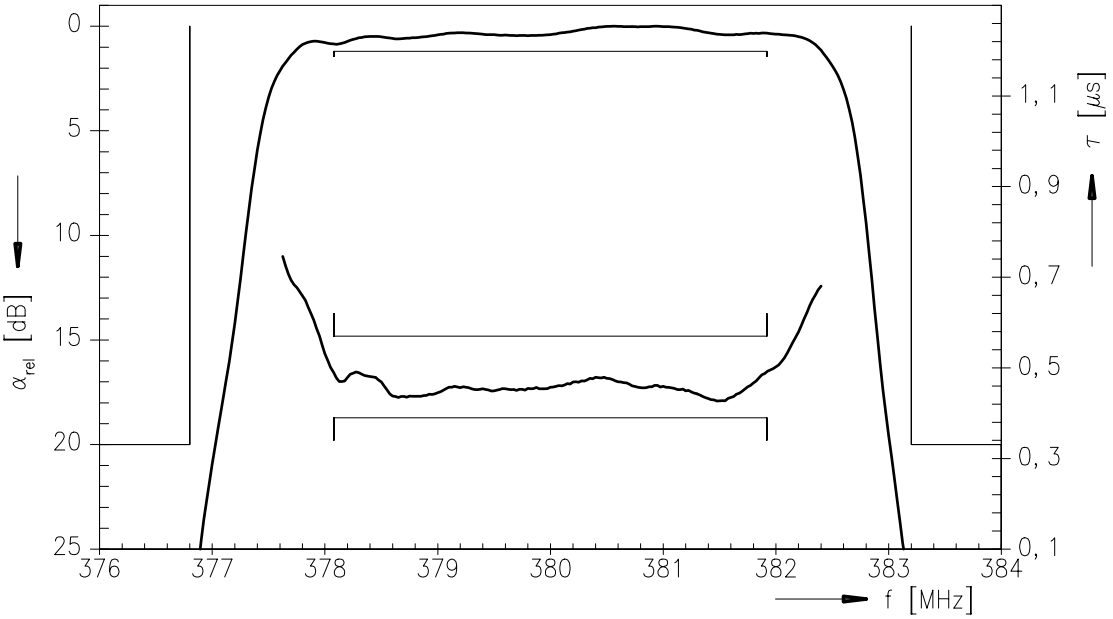
L_{p3} = 27 nH

L_{s4} = 82 nH

Normalized frequency response



Normalized frequency response (pass band)



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