EPCOS

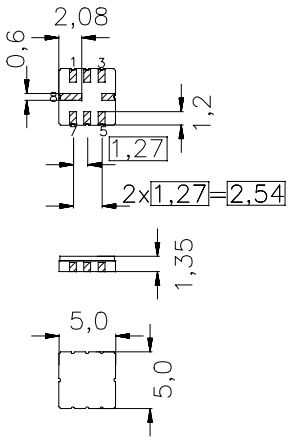
SAW Components

Data Sheet B4233

Ceramic package **QCC8C**

Features

- Low-loss filter for TETRA
- Usable passband: 20 MHz
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)
- RoHS compliant



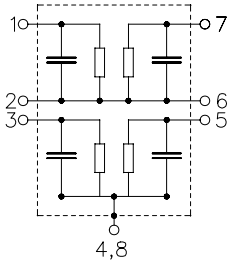
Terminals

- Ni, gold-plated

Dimensions in mm, approx. weight 0,10 g

Pin configuration

1	Input [Filter 1]
3	Input [Filter 2]
5	Output [Filter 2]
7	Output [Filter 1]
2, 6	To be grounded
4, 8	Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B4233	B39421-B4233-U310	C61157-A7-A56	F61074-V8070-Z000

Electrostatic **S**ensitive **D**evice (**ESD)**

Maximum ratings

Operable temperature range	T	– 30 / + 85	˚C	
Storage temperature range	T_{stg}	– 40 / + 85	˚C	
DC voltage	V_{DC}	3	V	
ESD voltage	V^*_{ESD}	100*	V	Machine Model, 10 pulses
Source power (CW)	P_S	12	dBm	

*-acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses

Characteristics Filter 1

Operating temperature range: T = +25°C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

				min.	typ.	max.	
Center frequency		f_c		—	390,0	—	MHz
Maximum insertion attenuation		α_{max}					
	380,0 ... 400,0	MHz		—	1,9	2,2	dB
Amplitude ripple (p-p)		$\Delta\alpha$					
	380,0 ... 400,0	MHz		—	0,7	1,1	dB
Input return loss							
	380,0 ... 400,0	MHz		10,0	11,0	—	dB
Output return loss							
	380,0 ... 400,0	MHz		10,0	12,0	—	dB
Attenuation		α_{abs}					
	0,1 ... 150,0	MHz		35,0	42,0	—	dB
	190,0 ... 200,0	MHz		30,0	41,0	—	dB
	228,0 ... 250,0	MHz		30,0	41,0	—	dB
	252,0 ... 275,0	MHz		30,0	39,0	—	dB
	275,0 ... 287,0	MHz		33,0	37,0	—	dB
	304,0 ... 320,0	MHz		30,0	34,0	—	dB
	320,0 ... 335,0	MHz		30,0	33,0	—	dB
	342,0 ... 360,0	MHz		20,0	25,0	—	dB
	418,0 ... 440,0	MHz		20,0	22,0	—	dB
	442,0 ... 455,0	MHz		25,0	31,0	—	dB
	456,0 ... 480,0	MHz		30,0	39,0	—	dB
	492,0 ... 531,0	MHz		30,0	42,0	—	dB
	532,0 ... 560,0	MHz		33,0	39,0	—	dB
	570,0 ... 600,0	MHz		25,0	35,0	—	dB
	632,0 ... 668,0	MHz		35,0	46,0	—	dB
	684,0 ...1000,0	MHz		27,0	34,0	—	dB

Characteristics Filter 1

Operating temperature range: T = -30 to +60˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

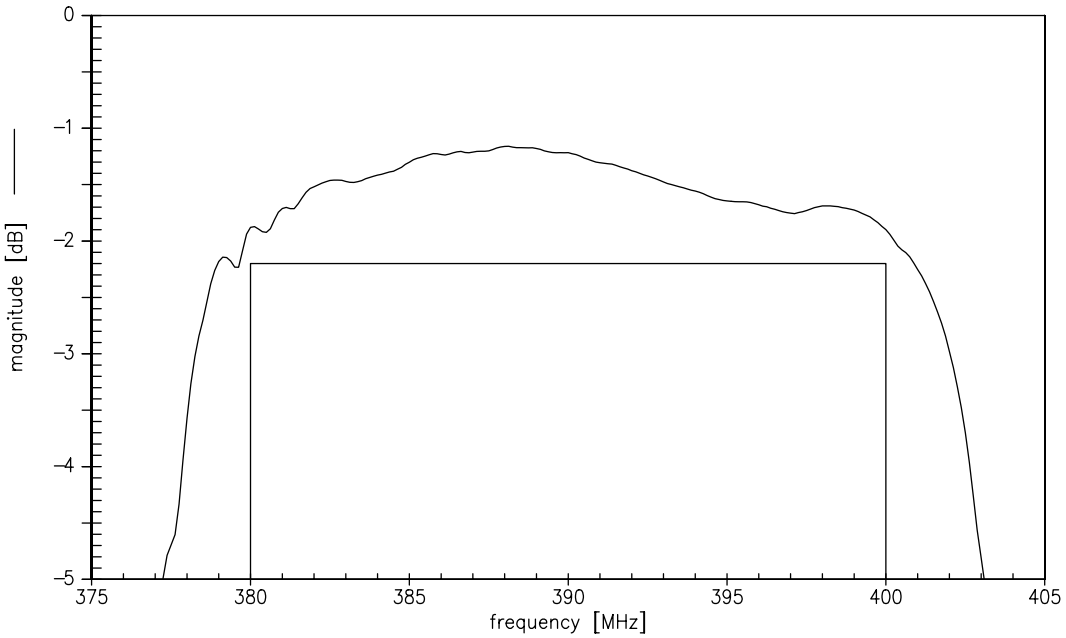
			min.	typ.	max.	
Center frequency	f_c		—	390,0	—	MHz
Maximum insertion attenuation	α_{max}					
380,0 ... 400,0	MHz		—	2,6	3,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$					
380,0 ... 400,0	MHz		—	1,4	2,3	dB
Input return loss						
380,0 ... 400,0	MHz		10,0	11,0	—	dB
Output return loss						
380,0 ... 400,0	MHz		10,0	12,0	—	dB
Attenuation	α_{abs}					
0,1 ... 150,0	MHz		35,0	42,0	—	dB
190,0 ... 200,0	MHz		30,0	41,0	—	dB
228,0 ... 250,0	MHz		30,0	41,0	—	dB
252,0 ... 275,0	MHz		30,0	39,0	—	dB
275,0 ... 287,0	MHz		33,0	37,0	—	dB
304,0 ... 320,0	MHz		30,0	33,0	—	dB
320,0 ... 335,0	MHz		30,0	33,0	—	dB
342,0 ... 360,0	MHz		20,0	25,0	—	dB
418,0 ... 440,0	MHz		20,0	21,0	—	dB
442,0 ... 455,0	MHz		25,0	31,0	—	dB
456,0 ... 480,0	MHz		30,0	39,0	—	dB
492,0 ... 531,0	MHz		30,0	42,0	—	dB
532,0 ... 560,0	MHz		33,0	39,0	—	dB
570,0 ... 600,0	MHz		25,0	35,0	—	dB
632,0 ... 668,0	MHz		35,0	46,0	—	dB
684,0 ...1000,0	MHz		27,0	34,0	—	dB

Characteristics Filter 1

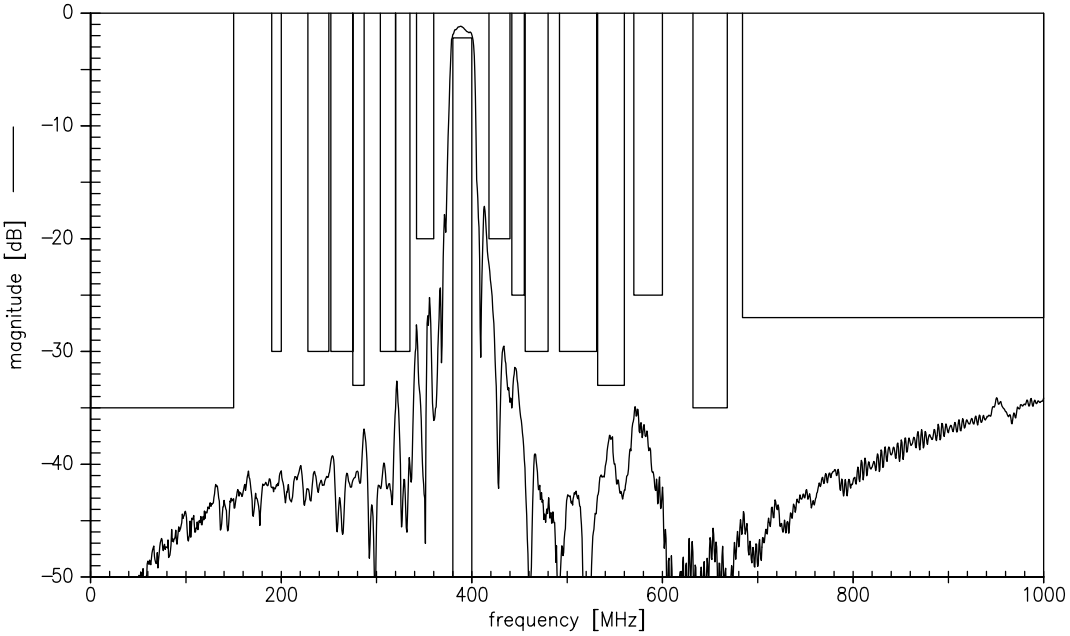
Operating temperature range: T = -30 to +85˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

				min.	typ.	max.	
Center frequency			f_c	—	390,0	—	MHz
Maximum insertion attenuation			α_{max}				
	380,0 ... 400,0	MHz		—	2,7	3,3	dB
Amplitude ripple (p-p)			$\Delta\alpha$				
	380,0 ... 400,0	MHz		—	1,5	2,3	dB
Input return loss							
	380,0 ... 400,0	MHz		10,0	11,0	—	dB
Output return loss							
	380,0 ... 400,0	MHz		10,0	12,0	—	dB
Attenuation			α_{abs}				
	0,1 ... 150,0	MHz		35,0	42,0	—	dB
	190,0 ... 200,0	MHz		30,0	41,0	—	dB
	228,0 ... 250,0	MHz		30,0	41,0	—	dB
	252,0 ... 275,0	MHz		30,0	39,0	—	dB
	275,0 ... 287,0	MHz		33,0	37,0	—	dB
	304,0 ... 320,0	MHz		30,0	33,0	—	dB
	320,0 ... 335,0	MHz		30,0	33,0	—	dB
	342,0 ... 360,0	MHz		20,0	25,0	—	dB
	418,0 ... 440,0	MHz		20,0	21,0	—	dB
	442,0 ... 455,0	MHz		25,0	31,0	—	dB
	456,0 ... 480,0	MHz		30,0	39,0	—	dB
	492,0 ... 531,0	MHz		30,0	42,0	—	dB
	532,0 ... 560,0	MHz		33,0	39,0	—	dB
	570,0 ... 600,0	MHz		25,0	35,0	—	dB
	632,0 ... 668,0	MHz		35,0	46,0	—	dB
	684,0 ...1000,0	MHz		27,0	34,0	—	dB

Transfer function of filter 1 (passband)



Transfer function of filter 1 (narrow band)



Characteristics Filter 2

Operating temperature range: T = +25˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

				min.	typ.	max.	
Center frequency			f_c	—	420,0	—	MHz
Maximum insertion attenuation			α_{max}				
	410,0 ... 430,0	MHz		—	1,9	2,2	dB
Amplitude ripple (p-p)			$\Delta\alpha$				
	410,0 ... 430,0	MHz		—	0,6	1,0	dB
Input return loss							
	410,0 ... 430,0	MHz		10,0	11,5	—	dB
Output return loss							
	410,0 ... 430,0	MHz		10,0	13,5	—	dB
Attenuation			α_{abs}				
	0,1 ... 150,0	MHz		35,0	42,0	—	dB
	204,0 ... 216,0	MHz		30,0	41,0	—	dB
	246,0 ... 270,0	MHz		30,0	41,0	—	dB
	272,0 ... 301,0	MHz		35,0	41,0	—	dB
	328,0 ... 344,0	MHz		30,0	42,0	—	dB
	345,0 ... 360,0	MHz		25,0	31,0	—	dB
	369,0 ... 387,0	MHz		18,0	23,0	—	dB
	451,0 ... 473,0	MHz		20,0	23,0	—	dB
	477,0 ... 491,0	MHz		25,0	35,0	—	dB
	492,0 ... 516,0	MHz		30,0	39,0	—	dB
	532,0 ... 573,0	MHz		30,0	38,0	—	dB
	574,0 ... 602,0	MHz		33,0	39,0	—	dB
	602,0 ...1000,0	MHz		27,0	34,0	—	dB

Characteristics Filter 2

Operating temperature range: T = -30 to +60˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

			min.	typ.	max.	
Center frequency	f_c		—	420,0	—	MHz
Maximum insertion attenuation	α_{max}					
410,0 ... 430,0	MHz		—	2,4	3,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$					
410,0 ... 430,0	MHz		—	1,1	2,2	dB
Input return loss						
410,0 ... 430,0	MHz		10,0	11,5	—	dB
Output return loss						
410,0 ... 430,0	MHz		10,0	13,5	—	dB
Attenuation	α_{abs}					
0,1 ... 150,0	MHz		35,0	42,0	—	dB
204,0 ... 216,0	MHz		30,0	41,0	—	dB
246,0 ... 270,0	MHz		30,0	41,0	—	dB
272,0 ... 301,0	MHz		35,0	41,0	—	dB
328,0 ... 344,0	MHz		30,0	35,0	—	dB
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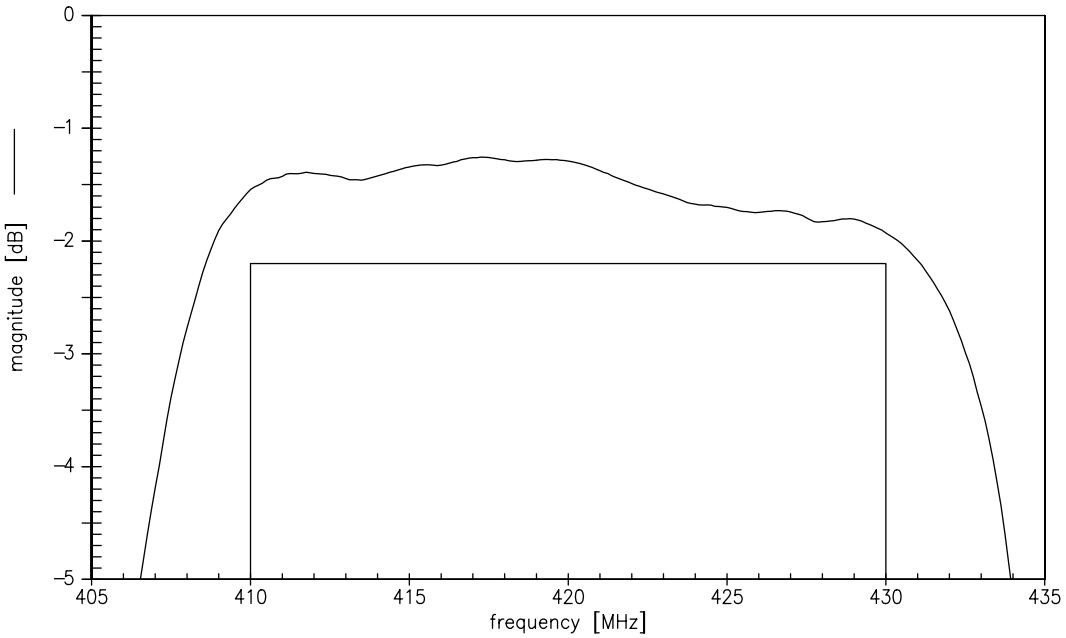
451,0 ... 473,0	MHz		20,0	21,0	—	dB
477,0 ... 491,0	MHz		25,0	35,0	—	dB
492,0 ... 516,0	MHz		30,0	39,0	—	dB
532,0 ... 573,0	MHz		30,0	38,0	—	dB
574,0 ... 602,0	MHz		33,0	39,0	—	dB
602,0 ...1000,0	MHz		27,0	34,0	—	dB

Characteristics Filter 2

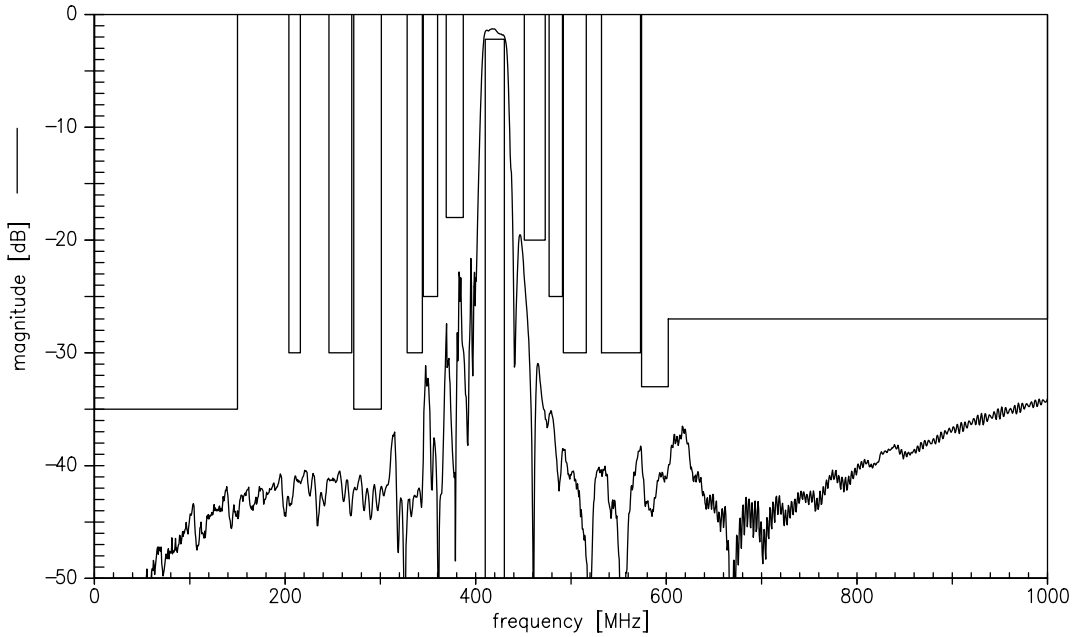
Operating temperature range: T = -30 to +85˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ.	max.	
Center frequency	f_c	—	420,0	—	MHz
Maximum insertion attenuation	α_{max}				
410,0 ... 430,0 MHz		—	2,5	3,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
410,0 ... 430,0 MHz		—	1,2	2,2	dB
Input return loss					
410,0 ... 430,0 MHz		10,0	11,5	—	dB
Output return loss					
410,0 ... 430,0 MHz		10,0	13,5	—	dB
Attenuation	α_{abs}				
0,1 ... 150,0 MHz		35,0	42,0	—	dB
204,0 ... 216,0 MHz		30,0	41,0	—	dB
246,0 ... 270,0 MHz		30,0	41,0	—	dB
272,0 ... 301,0 MHz		35,0	41,0	—	dB
328,0 ... 344,0 MHz		30,0	35,0	—	dB
345,0 ... 360,0 MHz		25,0	31,0	—	dB
369,0 ... 387,0 MHz		18,0	23,0	—	dB
451,0 ... 473,0 MHz		20,0	21,0	—	dB
477,0 ... 491,0 MHz		25,0	35,0	—	dB
492,0 ... 516,0 MHz		30,0	39,0	—	dB
532,0 ... 573,0 MHz		30,0	38,0	—	dB
574,0 ... 602,0 MHz		33,0	39,0	—	dB
602,0 ...1000,0 MHz		27,0	34,0	—	dB

Transfer function of filter 2 (passband)



Transfer function of filter 2 (narrow band)



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