SAW Components

Data Sheet B4233

⨂TDK

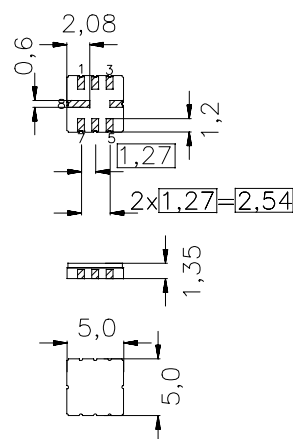| SAW Components	**B4233**
Low-Loss Dual Band Filter for Mobile Communication	**390,0 / 420,0 MHz**

Data Sheet　　　　SMD

Ceramic package **QCC8C**

Features

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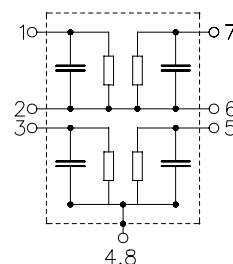■ RoHS compliant

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

SAW Components	B4233
Low-Loss Dual Band Filter for Mobile Communication	**390,0 / 420,0 MHz**

Data Sheet   SMD

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

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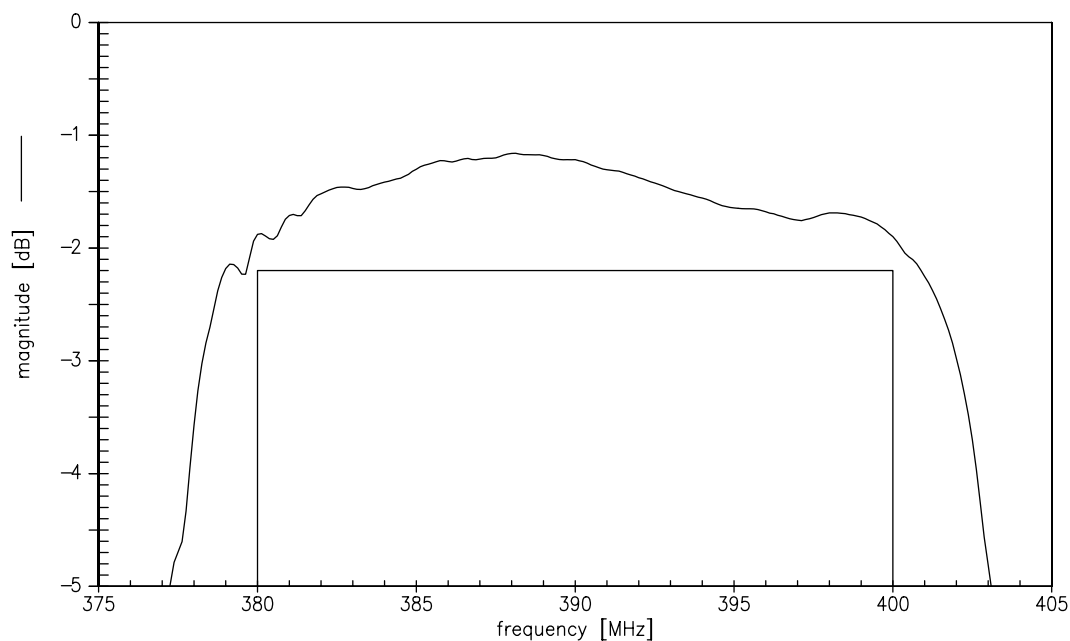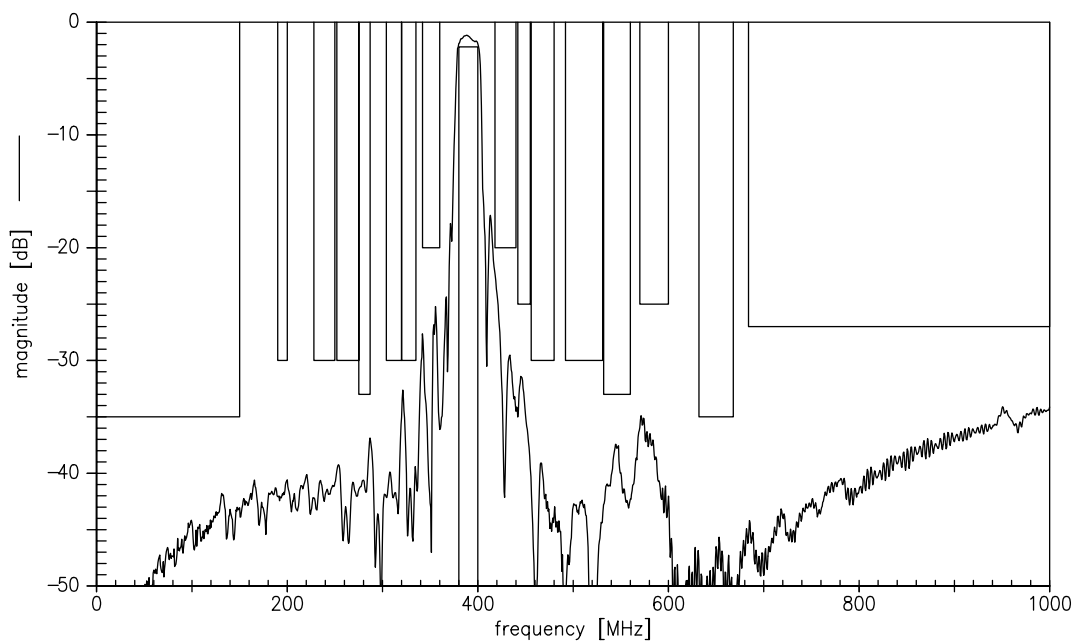| SAW Components	B4233
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Data Sheet　　　　　SMD

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
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	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

Data Sheet

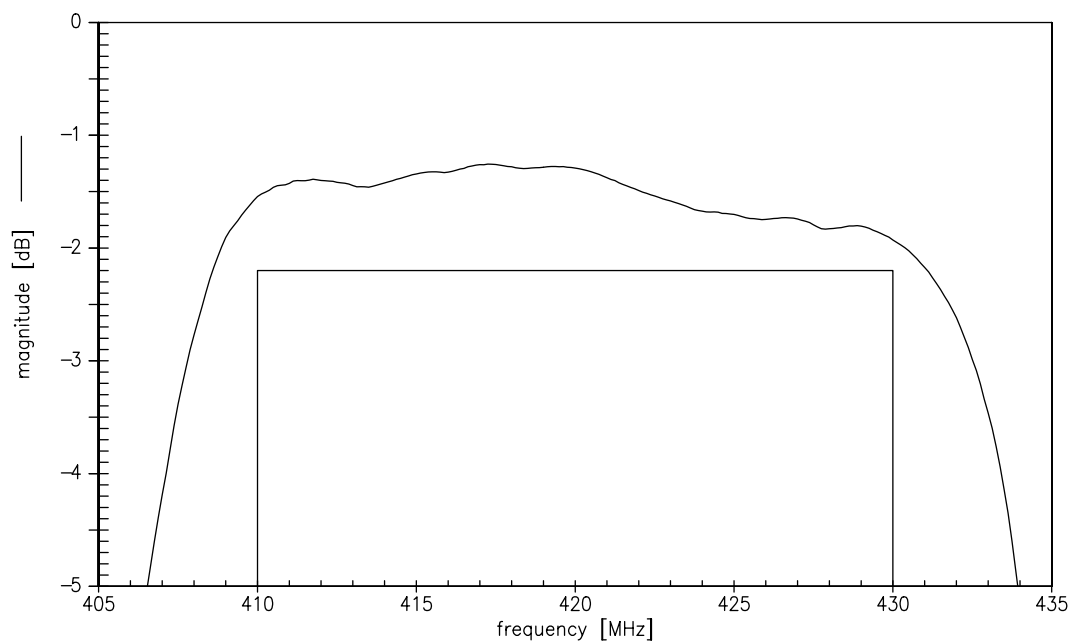**Characteristics Filter 2**

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
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

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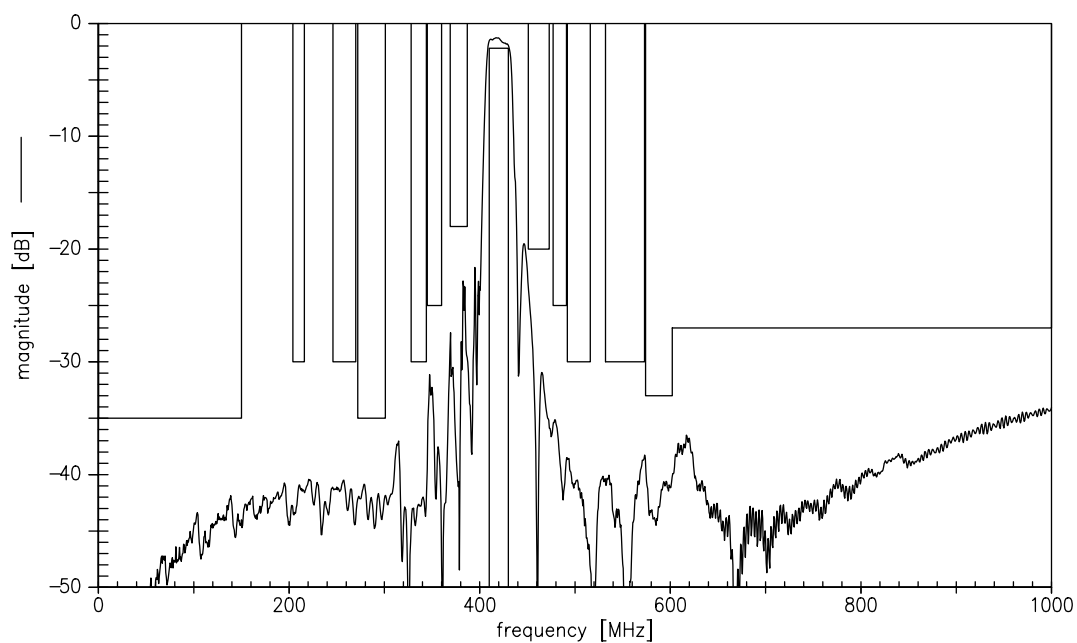## Characteristics Filter 2

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

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Data Sheet

Transfer function of filter 2 (passband)

Transfer function of filter 2 (narrow band)

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