SAW Components

SAW filter

Bluetooth

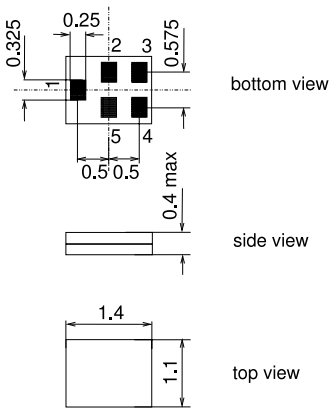
Series/type:	**B9413**
Ordering code:	**B39242B9413K610**
Date:	February 27, 2006
Version:	2.2

Application

- Low-loss RF filter for mobile telephone bluetooth systems
- Impedance transformation from 50 Ω to 50 Ω
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 83.5 MHz

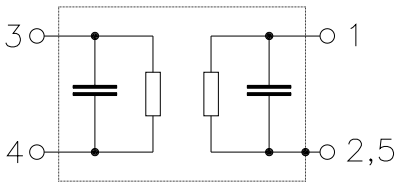
Features

- Package size 1.4 x1.1 x 0.4 mm^3
- Package code QCS5F
- RoHS compatible
- Approximate weight 0.003 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

- 1 Input unbalanced
- 4 Output unbalanced
- 2,3,5 To be grounded



Characteristics

Operating temperature range: T = –20 ˚C to +75 ˚C
Terminating source impedance: Z_S = 50 Ω + 1.5 nH (series)
Terminating load impedance: Z_L = 50 Ω + 2.5 nH (series)

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2441.75	—	MHz
Maximum insertion attenuation	α_{max}				
2400.0 ... 2483. 5 MHz		—	2.0	2.8	dB
			2.2*)	—	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
2400.0 ... 2483. 5 MHz		—	0.6	1.5	dB
Input VSWR					
2400.0 ... 2483. 5 MHz		—	1.4	2.1	
			1.9*)	—	
Output VSWR					
2400.0 ... 2483. 5 MHz		—	1.4	2.1	
			1.9*)	—	
Attenuation	α				
0.0 ... 960.0 MHz		40	42	—	dB
960.0 ... 1710.0 MHz		35	39	—	dB
1710.0 ... 2170.0 MHz		36	38	—	dB
2170.0 ... 2250.0 MHz		30	41	—	dB
2250.0 ... 2300.0 MHz		25	38	—	dB
2550.0 ... 2650.0 MHz		18	26	—	dB
2650.0 ... 2800.0 MHz		20	30	—	dB
2800.0 ... 4000.0 MHz		25	35	—	dB
4000.0 ... 6000.0 MHz		30	40	—	dB

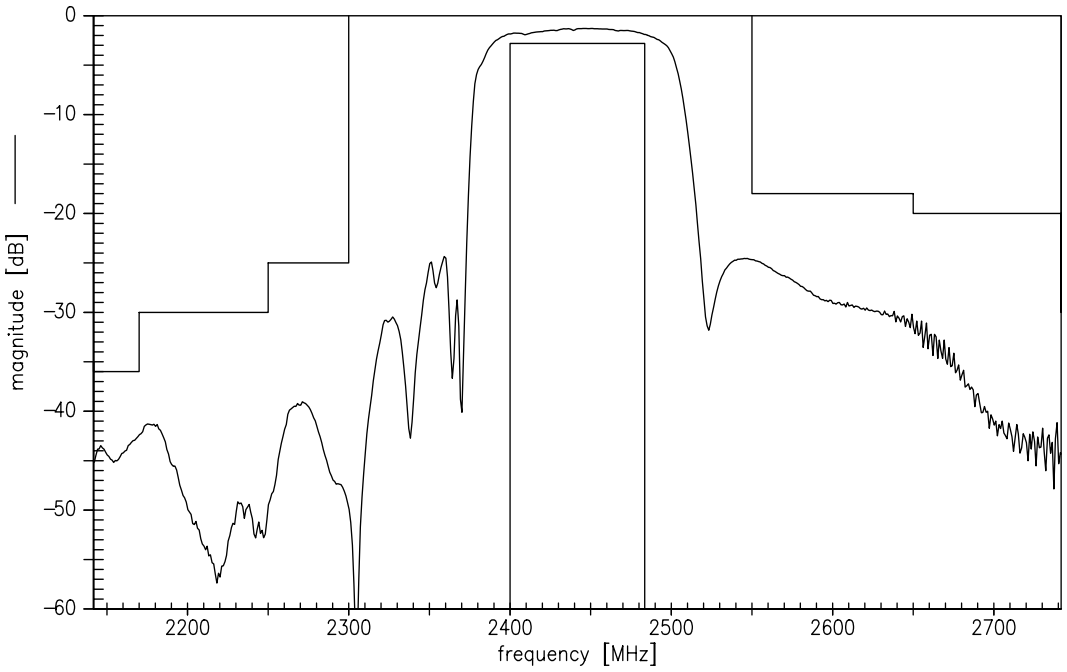
*) without input matching (Z_S=50Ω) no serial coil‘

Maximum ratings

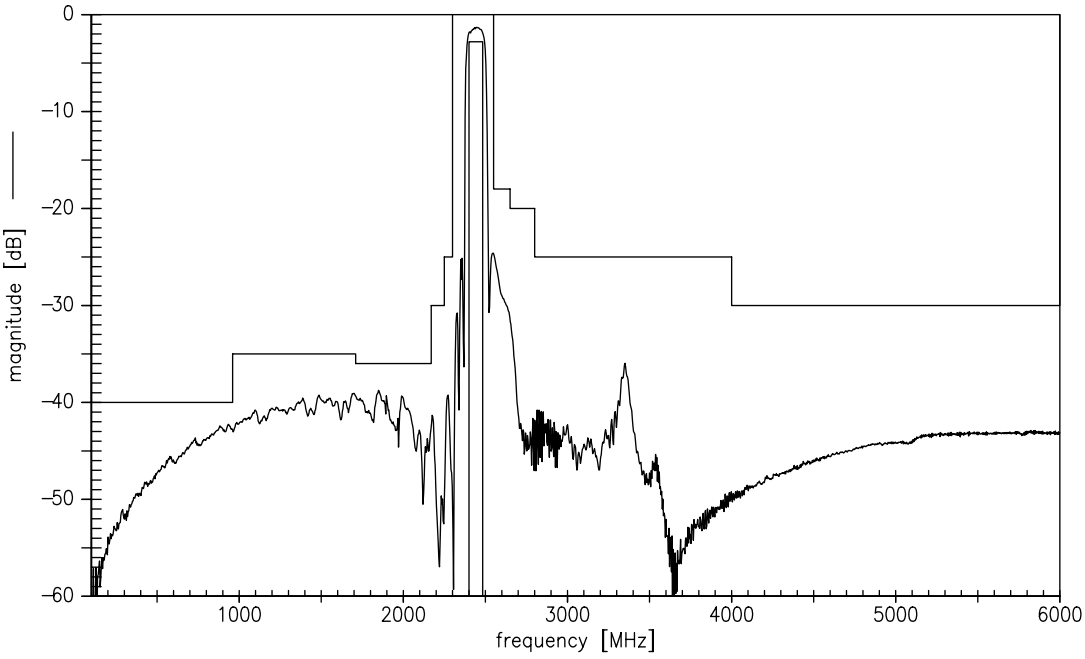
Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	3.5	V	
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at				source/load impedance 50Ω/50Ω
2400 ... 2483.5 MHz	P_{IN}	9	dBm	bluetooth signal
824 ... 849, 880 ... 915 MHz	P_{IN}	15	dBm	cw
1710... 785,1850...1910 MHz	P_{IN}	15	dBm	cw

1) acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

Transfer function (narrow band)

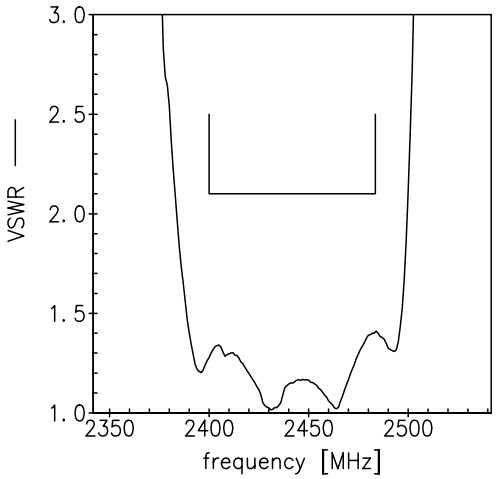


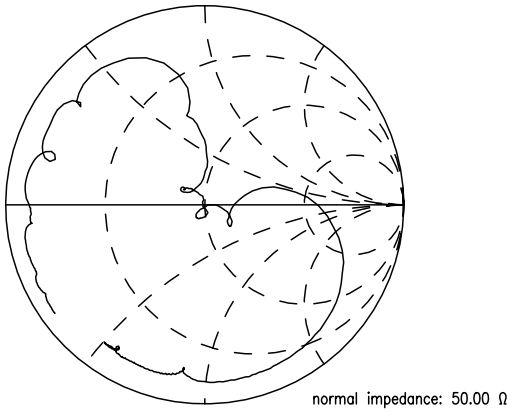
Transfer function (wide band)



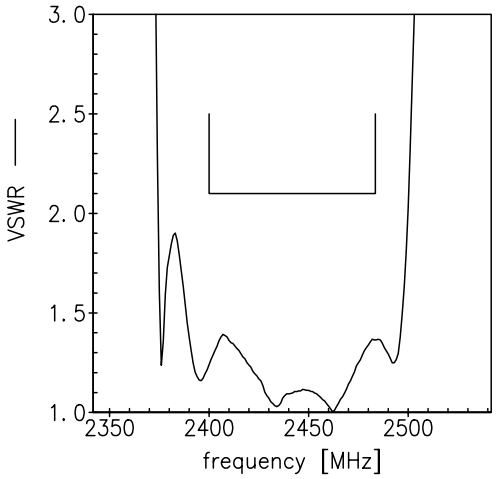
Smith charts

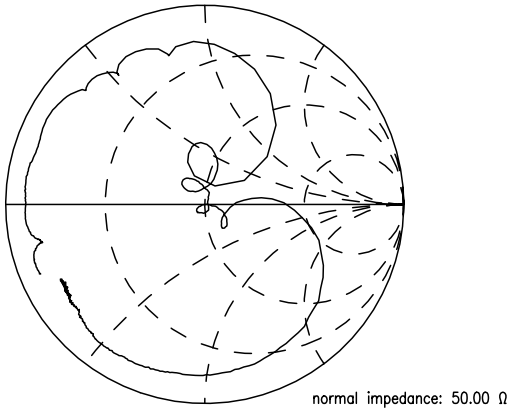
S_{11} function





S_{22} function





References

Type	B9413
Ordering code	B39242B9413K610
Marking and package	C61157-A8-A1
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	LN97C_NB.s3p LN97C_WB.s3p
Soldering profile	S_6001
RoHS compatible	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."

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