SAW Components

SAW filter

Bluetooth

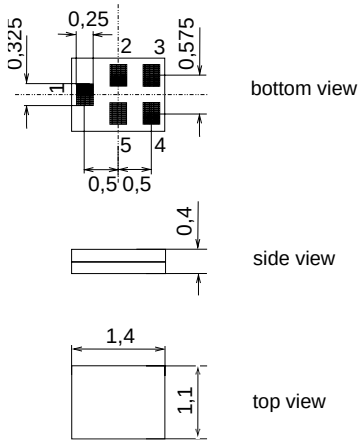
Series/type:	**B9410**
Ordering code:	**B39242B9410K610**
Date:	May 30, 2006
Version:	2.1

Application

- Low-loss RF filter for mobile telephone bluetooth systems
- Impedance transformation from 50 Ω to 150 Ω
- Unbalanced to balanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 83.5 MHz

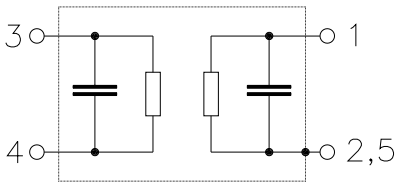
Features

- Package size 1.4 x1.1 x 0.4 mm³
- 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
- 3,4 Output balanced
- 2,5 To be grounded



Characteristics

Temperature range for specification: T = –20 ˚C to +75 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω || 11 nH (balanced)

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2441.75	—	MHz
Maximum insertion attenuation	α_{max}				
2400.0 ... 2483. 5 MHz		—	2.0	2.6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
2400.0 ... 2483. 5 MHz		—	0.6	1.5	dB
Input VSWR					
2400.0 ... 2483. 5 MHz		—	1.8	2.1	
Output VSWR					
2400.0 ... 2483. 5 MHz		—	1.7	2.1	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
2400.0 ... 2483.5 MHz		–1.5	–0.5/0.8	1.5	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21})+180^\circ$)					
2400.0 ... 2483.5 MHz		–10	–4/+4	10	°
Attenuation	α				
0.0 ... 960.0 MHz		55	58	—	dB
960.0 ... 1850.0 MHz		40	47	—	dB
1850.0 ... 1990.0 MHz		40 [1)]	45	—	dB
1990.0 ... 2170.0 MHz		40	45	—	dB
2170.0 ... 2250.0 MHz		20	40	—	dB
2650.0 ... 2800.0 MHz		20	31	—	dB
2800.0 ... 4000.0 MHz		25	36	—	dB
4000.0 ... 6000.0 MHz		30	46	—	dB

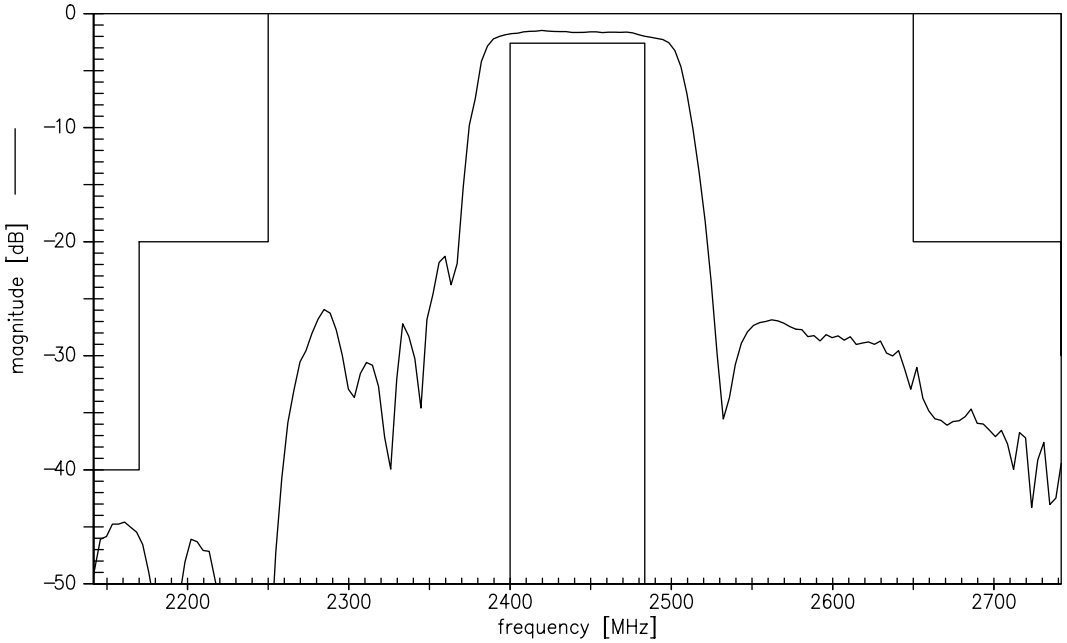
[1)] except 1 narrow spike at ~1886 MHz with typical 41 dB

Maximum ratings

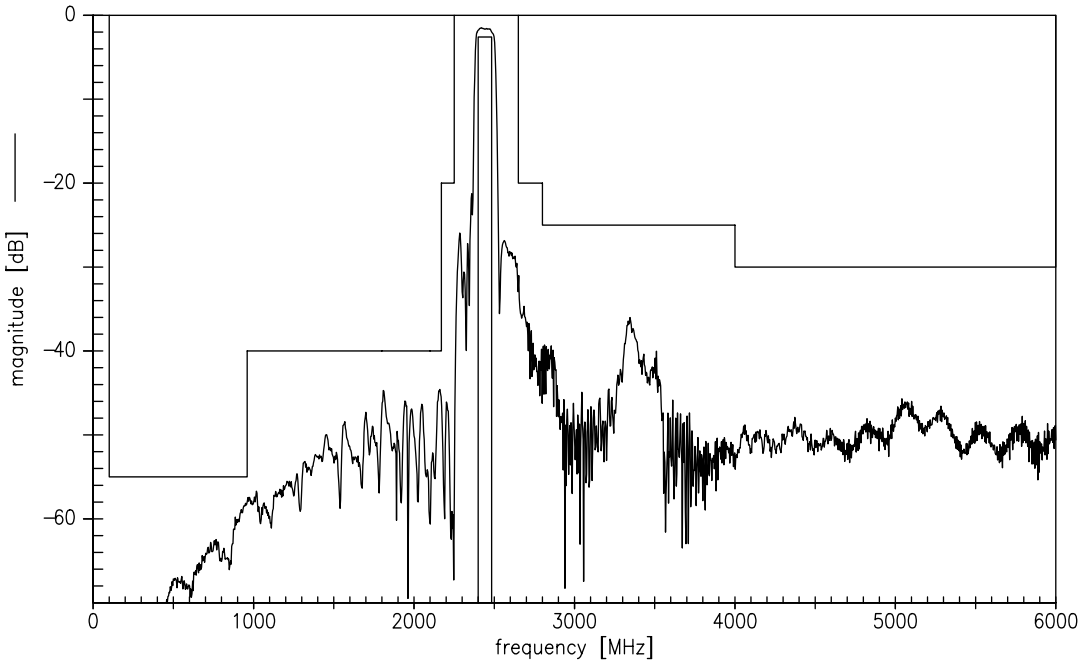
Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	3.5	V	
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at				source/load impedance 50Ω/50Ω
2400 ... 2483.5 MHz	P_{IN}	8	dBm	bluetooth signal
824 ... 849, 880 ... 915 MHz	P_{IN}	15	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)

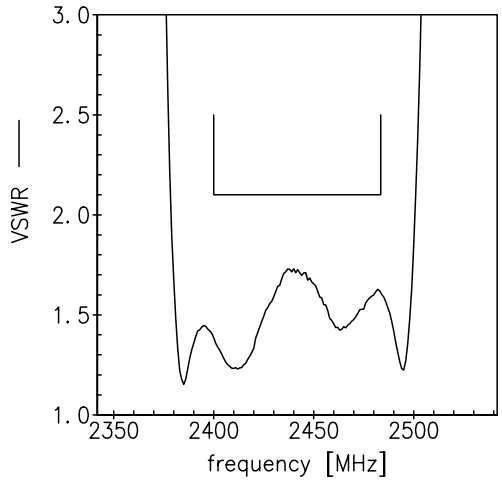


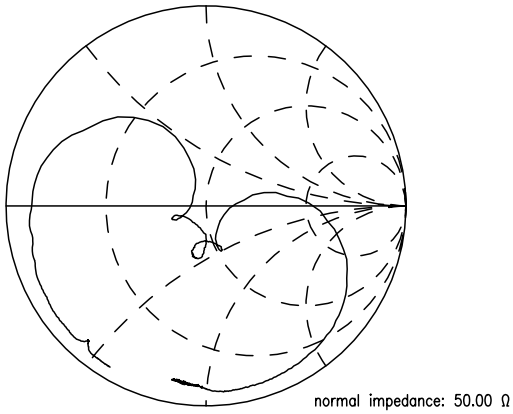
Transfer function (wide band)



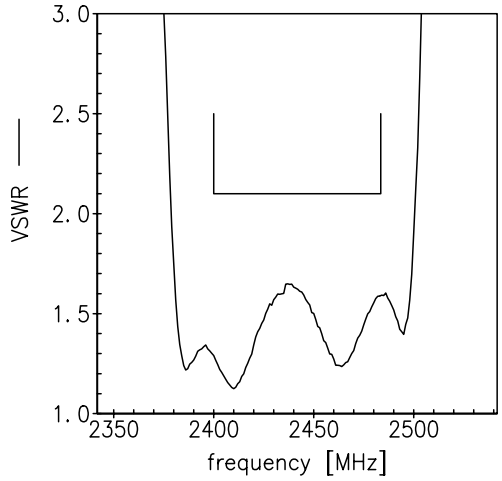
Smith charts

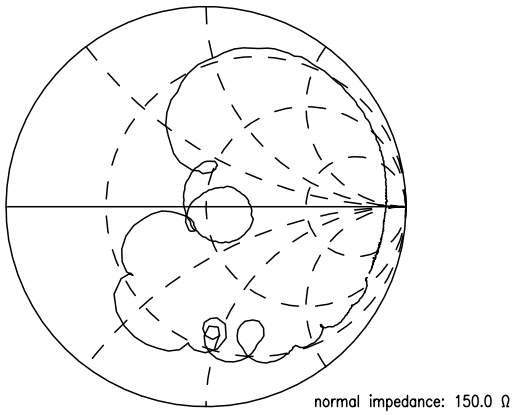
S_{11} function





S_{22} function





References

Type	B9410
Ordering code	B39242B9410K610
Marking and package	C61157-A8-A1
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	LP14E_NB.s3p LP14E_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."
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.

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Published by EPCOS AG
Surface Acoustic Wave Components Division
P.O. Box 80 17 09, 81617 Munich, GERMANY

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