SAW Components

SAW Tx filter

Cellular / WCDMA Band V

Series/type: **B9426**
Ordering code: **B39841B9426M410**

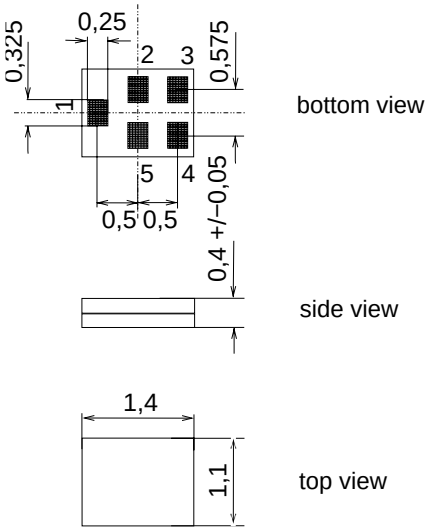
Date: September 18, 2006
Version: 2.0

Application

- Low-loss RF filter for mobile telephone
  Cellular and WCDMA systems, transmit path (TX)
- Impedance transformation from 200Ω to 50 Ω
- Balanced to unbalanced operation
- Very low insertion attenuation
- Usable passband 25 MHz

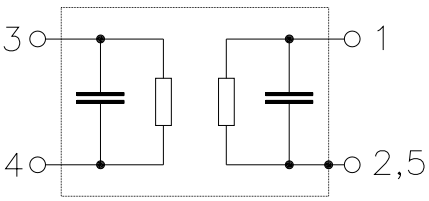
Features

- Package size 1.4 x1.1 x 0.4 mm³
- Package code QCS5I
- 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 Output, unbalanced
- 3,4 Input, balanced
- 2,5 To be grounded



Data sheet SMD

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Terminating source impedance: Z_S = 200 Ω || 91 nH (balanced)
Terminating load impedance: Z_L = 50 Ω

						B9426			
						min.	typ. @ 25 ˚C	max.	
Center frequency					f_C	—	836.5	—	MHz
Maximum insertion attenuation									
	824.0	...	849.0	MHz	α_{max}	—	1.6	2.3	dB
@$f_{Carrier}$	826.4	...	846.6	MHz	α_{WCDMA} [1)]	—	1.5	2.0	dB
Amplitude ripple (p-p)					$\Delta\alpha$				
	824.0	...	849.0	MHz		—	0.5	1.2	dB
Error Vector Magnitude [2)]					EVM				
@$f_{Carrier}$	826.4	...	846.6	MHz		—	2.0		%
Input VSWR									
	824.0	...	849.0	MHz		—	1.7	2.0	
Output VSWR									
	824.0	...	849.0	MHz		—	1.7	2.0	
Output amplitude balance					($\lvert S_{31}/S_{21}\rvert$)				
	824.0	...	849.0	MHz		–1	–0.2 / 0.6	+1	dB
Output phase balance					($\phi(S_{31}) - \phi(S_{21})$+180˚)				
	824.0	...	849.0	MHz		–8	–5 / 4	+8	˚
Attenuation					α				
	0.0	...	800.0	MHz		35	40	—	dB
	869.0	...	894.0	MHz		38	40	—	dB
@$f_{Carrier}$	871.4	...	891.6	MHz	α_{WCDMA} [1)]		41	—	dB
	1574.4	...	1576.4	MHz		40	54	—	dB
	1638.0	...	1708.0	MHz		40	52	—	dB
	2462.0	...	2557.0	MHz		35	46	—	dB
	3286.0	...	3406.0	MHz		40	52	—	dB
	3406.0	...	4500.0	MHz		40	50	—	dB
	4500.0	...	6000.0	MHz		35	40	—	dB

1) Attenuation of WCDMA signal (“Powertransferfunction”) determined by

$$\int_{-\infty}^{\infty} \left| S_{ds21}(f) H_{RRC}(f - f_{Carrier}) \right|^2 df$$

$f_{Carrier}$ according to 3GPP TS 25.101 (e.g. for Passband $f_{Carrier}$ ranges from 826.4 MHz (lowest Tx channel) to 846.6 MHz (highest Tx channel). $H_{RRC}(f)$ is the transfer function of the root-raised cosine transmit pulse shaping filter according to 3GPP TS 25.101 with the following normalization:

$$\int_{-\infty}^{\infty} \left| H_{RRC}(f) \right|^2 df = 1$$

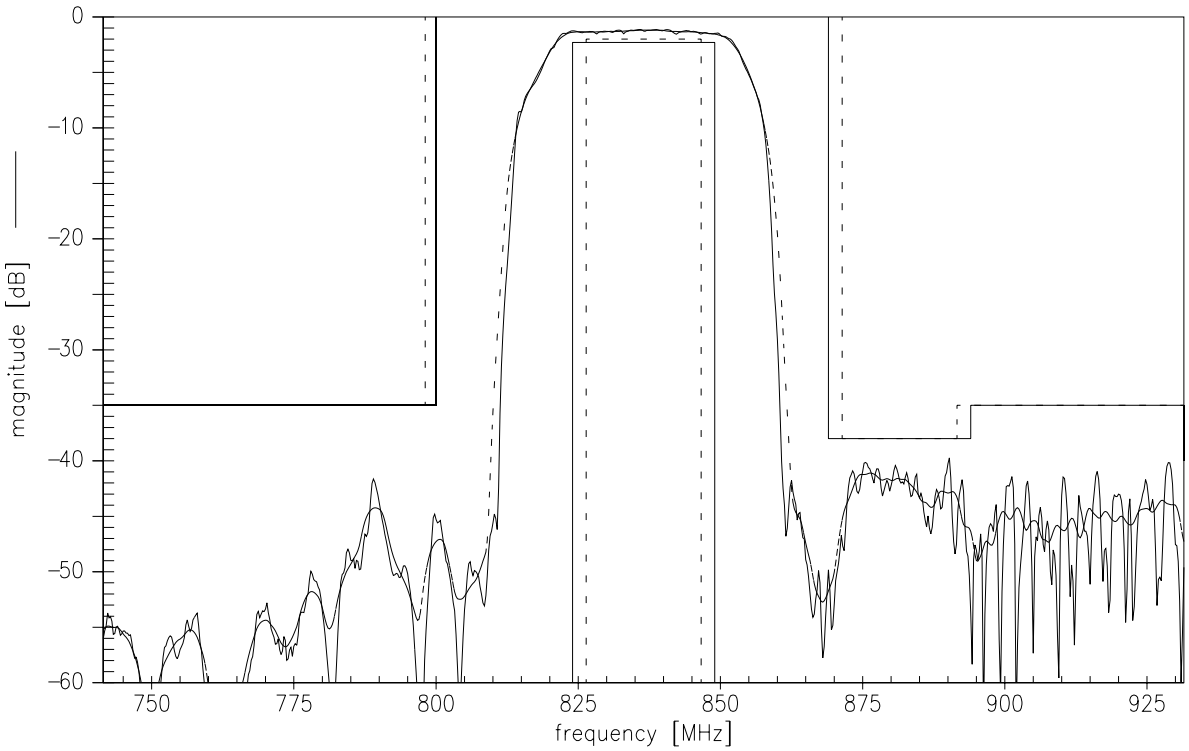
2) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141

Maximum ratings

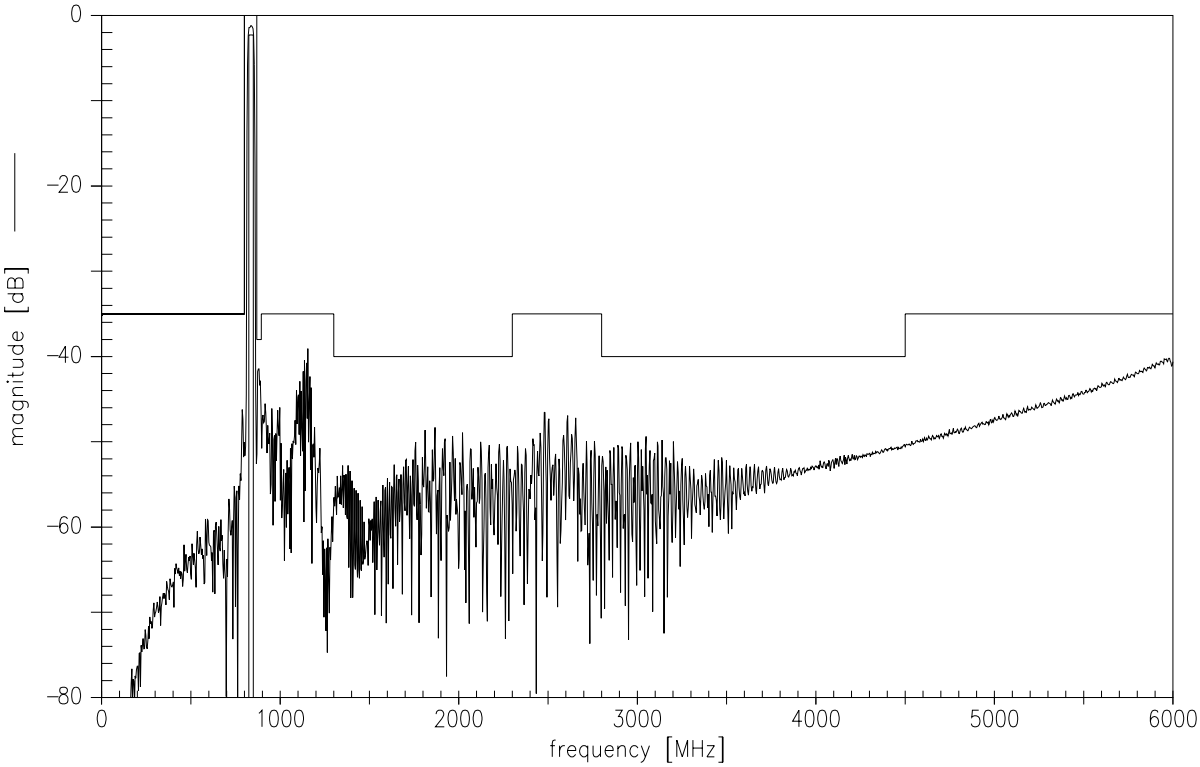
Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[1)]	V	Machine model, 10 pulses
Input Power	P_{IN}	13	dBm	

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

Transfer function (dashed: Powertransferfunction for WCDMA signals)

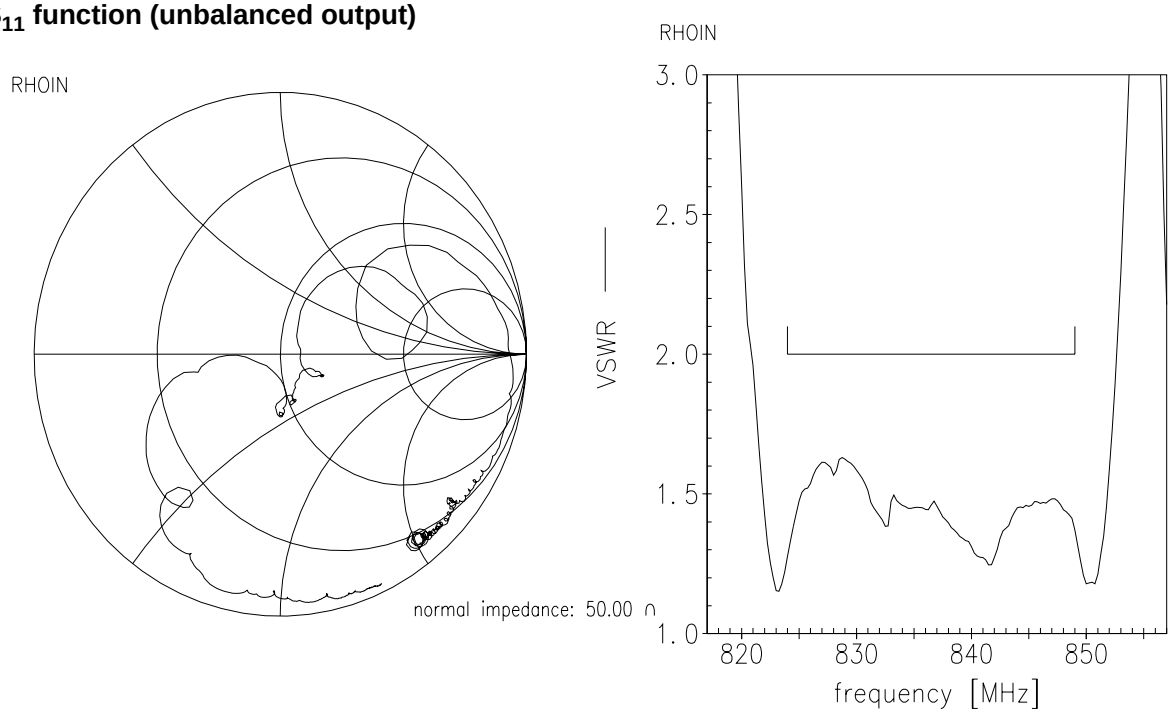


Transfer function (wideband)

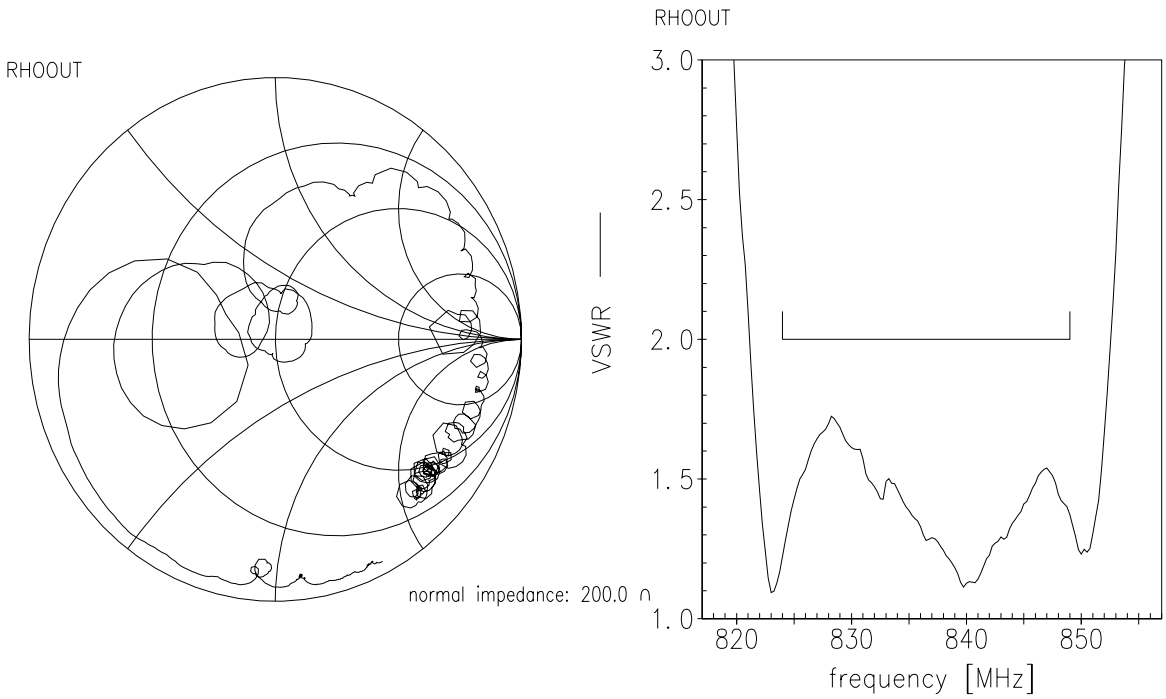


Smith charts

S_{11} function (unbalanced output)



S_{22} function (balanced input)



References

Type	B9426
Ordering code	B39841B9426M410
Marking and package	C61157-A8-A3
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	B9426_NB.s3p B9426_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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