SAW Components

SAW Tx Filter

LTE Band 17

Series/type:	**B9493**
Ordering code:	**B39711B9493M410**
Date:	October 03, 2011
Version:	2.0

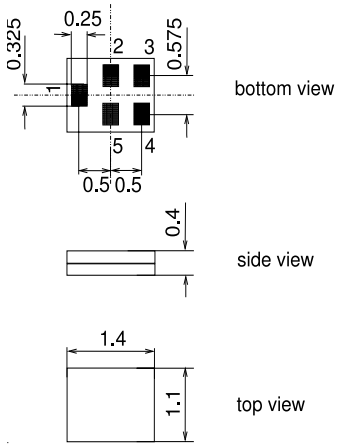
EPCOS AG is a TDK Group Company.

Application

- Low-loss RF filter for LTE systems (Tx)
- Impedance 50Ω input and output
- Unbalanced / unbalanced operation
- Usable passband 12MHz

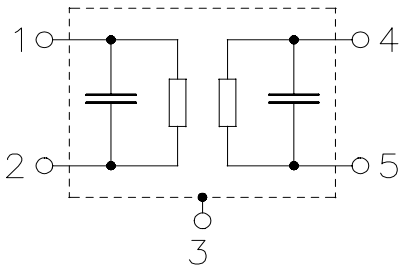
Features

- 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**)
- **M**oisture **S**ensitivity **L**evel 3



Pin configuration

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



Data sheet SMD

Characteristics

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

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C		710.0		MHz
Maximum insertion attenuation	α_{max}				
704.0 ... 716.0 MHz			1.8	2.5[1)]	dB
704.0 ... 716.0 MHz			1.8	3.0	dB
Amplitude ripple (p-p)					
704.0 ... 716.0 MHz			0.6	2.2	dB
Input VSWR					
704.0 ... 716.0 MHz			1.6	2.0	
Output VSWR					
704.0 ... 716.0 MHz			1.5	2.0	
Absolute attenuation	α				
10.0 ... 692.0 MHz		30	44		dB
722.0 ... 723.5 MHz		5	15		dB
723.5 ... 728.0 MHz		10	20		dB
728.0 ... 734.0 MHz		25	34		dB
734.0 ... 746.0 MHz		36	40		dB
746.0 ... 805.0 MHz		30	44		dB
869.0 ... 894.0 MHz		30	68		dB
1408.0 ... 1432.0 MHz		25	55		dB
1565.0 ... 1607.0 MHz		45	53		dB
1805.0 ... 1990.0 MHz		30	49		dB
2110.0 ... 2170.0 MHz		40	45		dB
2400.0 ... 2484.0 MHz		35	46		dB
2816.0 ... 2864.0 MHz		15	44		dB
3000.0 ... 6000.0 MHz		10	20		dB
Absolute mean attenuation[2)]	α_{mean}				
736.5 ... 743.5 MHz		38	42		dB

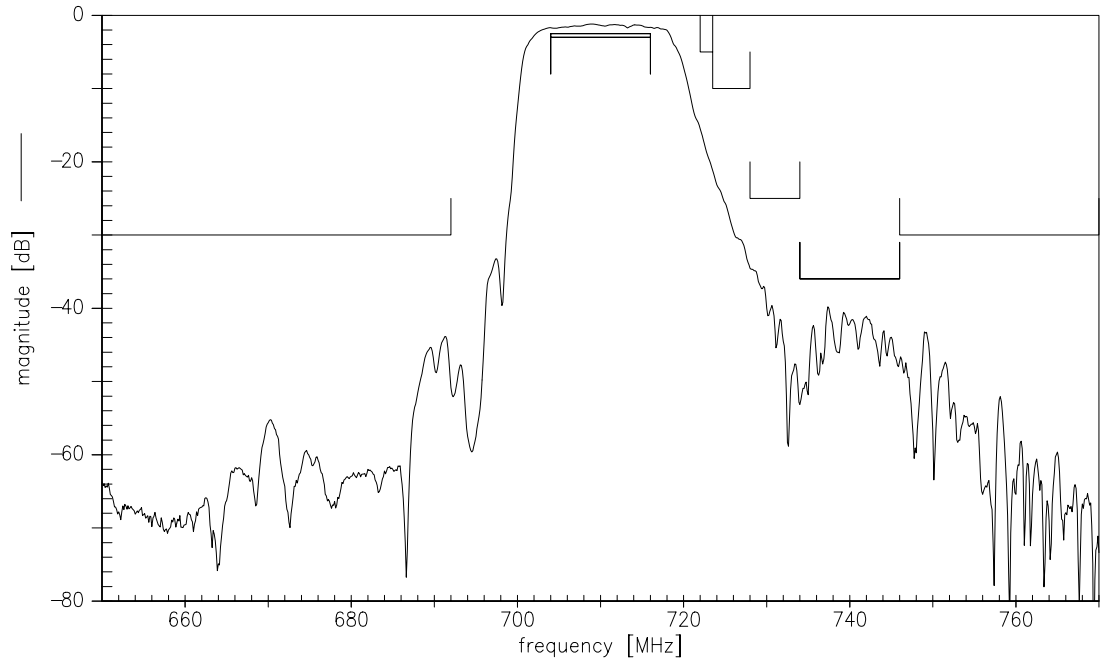
1) Maximum Insertion Loss in temperature range –10 ˚C to+70 ˚C.
2) Mean Attenuation is the integrated value of attenuation in every 5MHz channel over the specified band

Maximum ratings

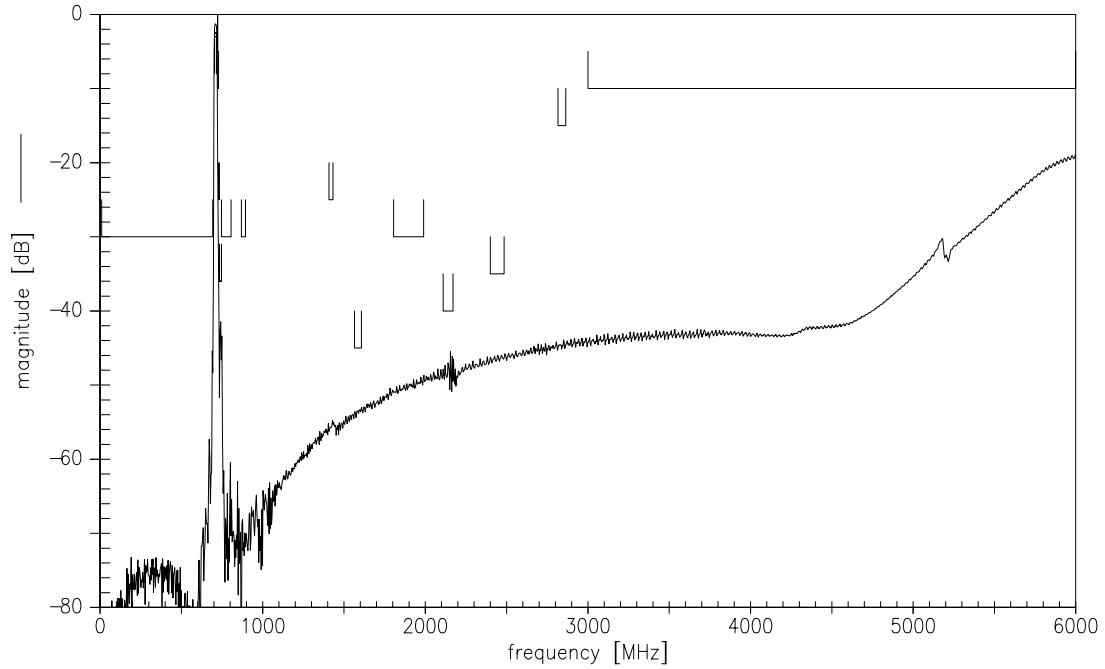
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 1 pulse
Input power	P_{IN}	10	dBm	

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

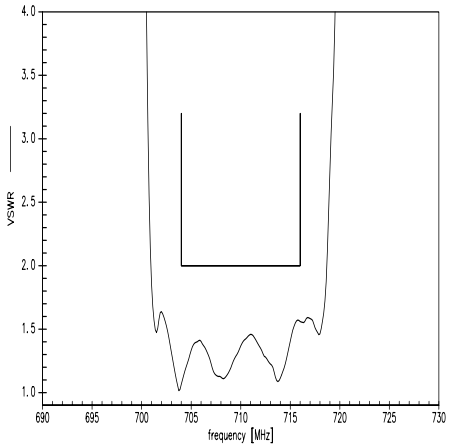
Transfer function (narrowband)

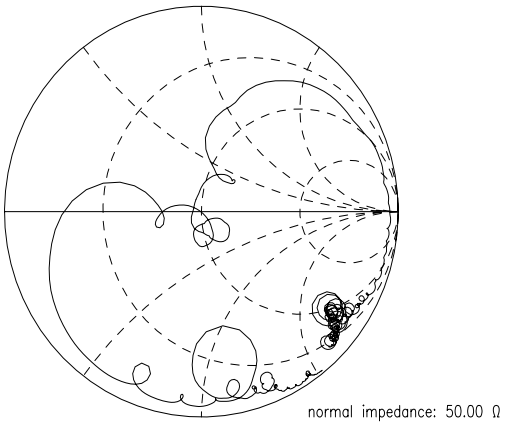


Transfer function (wideband)

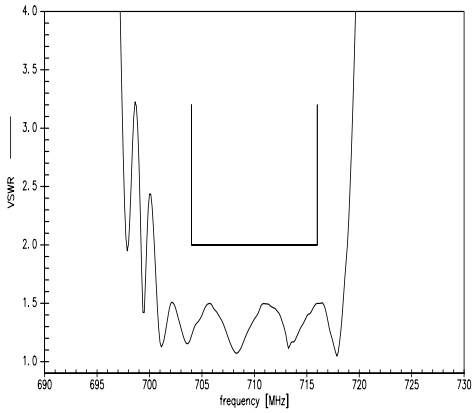


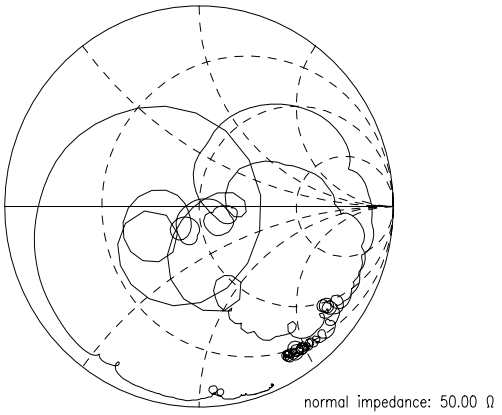
S11 VSWR





S22 VSWR





References

Type	B9493
Ordering code	B39711B9493M410
Marking and package	C61157-A8-A3
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B9493_NB.s2p B9493_WB.s2p See file header for port/pin assignment table
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.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

Published by EPCOS AG
Systems, Acoustics, Waves Business Group
P.O. Box 80 17 09, 81617 Munich, GERMANY

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.
   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the "General Terms of Delivery for Products and Services in the Electrical Industry" published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FormFit, MiniBlue, MiniCell, MKD, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.epcos.com/trademarks.