



SAW Components

SAW Filter

TD-LTE Band 40

Series/Type:	B9496
Ordering code:	B39232B9496P810
Date:	August 08, 2012
Version:	2.0

© EPCOS AG 2015. Reproduction, publication and dissemination of this publication, enclosures hereto and the information contained therein without EPCOS' prior express consent is prohibited.

EPCOS AG is a TDK Group Company.

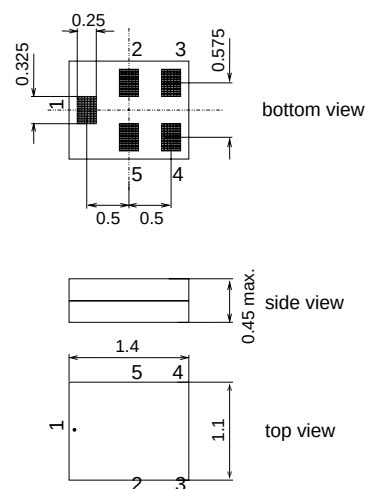
Application

- Low-loss RF filter for mobile telephone TDSCDMA and TD-LTE Band 40 system
- Low amplitude ripple
- Usable passband: 50 MHz
- Impedance at input and output 50 Ω
- Unbalanced to unbalanced operation



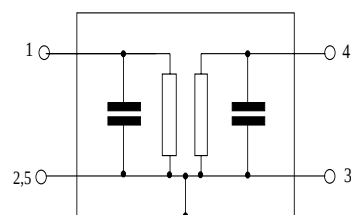
Features

- Package size 1.4 x 1.1 mm²
- max. Package height 0.45 mm
- RoHS compatible
- Approx. weight 0.003 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitive Level 3**



Pin configuration

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



SAW Components
B9496
SAW Filter
2345.0 MHz
Data sheet

Characteristics

Operating temperature range: $T = -30\text{ }^{\circ}\text{C to }+85\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 50\ \Omega$

		min.	typ. @ 25°C	max.	
Center frequency	f_C	—	2345.0	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$				
2320.0 ... 2370.0MHz		—	1.7	2.4	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
2320.0 ... 2370.0MHz		—	0.8	1.5	dB
Input VSWR					
2320.0 ... 2370.0MHz		—	1.8	2.1	
Output VSWR					
2320.0 ... 2370.0MHz		—	1.8	2.1	
Attenuation	α				
50.0 ... 2215.0MHz		26	31	—	dB
2215.0 ... 2240.0MHz		35	40	—	dB
2240.0 ... 2280.0MHz		15	26	—	dB
2412.0 ... 2472.0MHz	$\alpha_{\text{WLAN}}^{1)}$	23	33	—	dB
2410.0 ... 2485.0MHz		30	42	—	dB
2485.0 ... 6000.0MHz		27	32	—	dB


Annotation for characteristics section

¹⁾ Attenuation of WLAN signal ("Powertransferfunction", α_{WLAN}) is determined by

$$\int_{-\infty}^{\infty} |S_{ds21}(f) H_{\text{RECT}}(f - f_{\text{Carrier}})|^2 df$$

f_{Carrier} according to IEEE802.11 n (e.g. for WLAN, f_{Carrier} ranges from 2412 MHz (lowest channel) to 2472 MHz (highest channel)). $H_{\text{RECT}}(f)$ is the transfer function of a rectangular shaped filter (BW=18MHz) with the following normalization:

$$\int_{-\infty}^{\infty} |H_{\text{RECT}}(f)|^2 df = 1$$

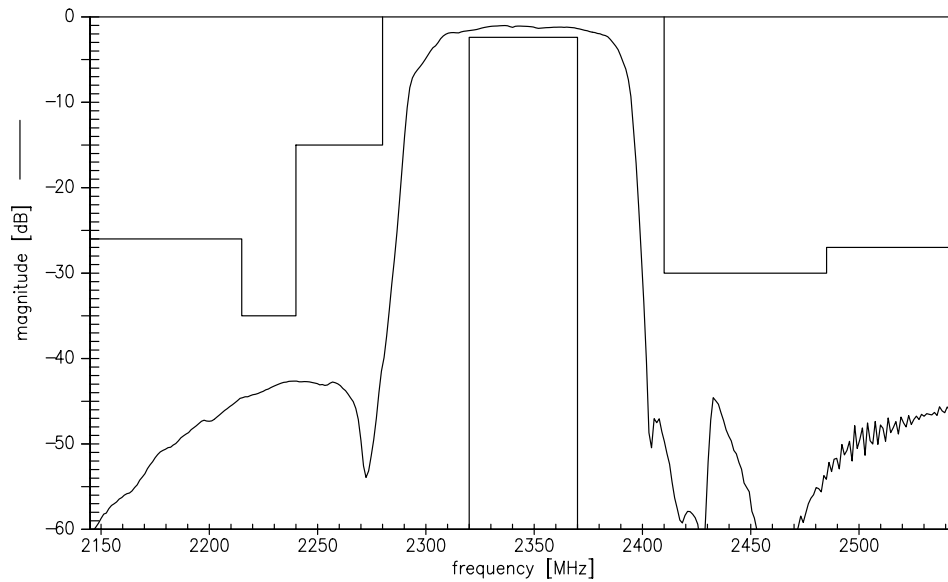
Maximum ratings

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}	50 ¹⁾	V	machine model, 10 pulses
Input Power at 2320.0...2370.0 MHz	P _{IN}	22	dBm	continuous wave

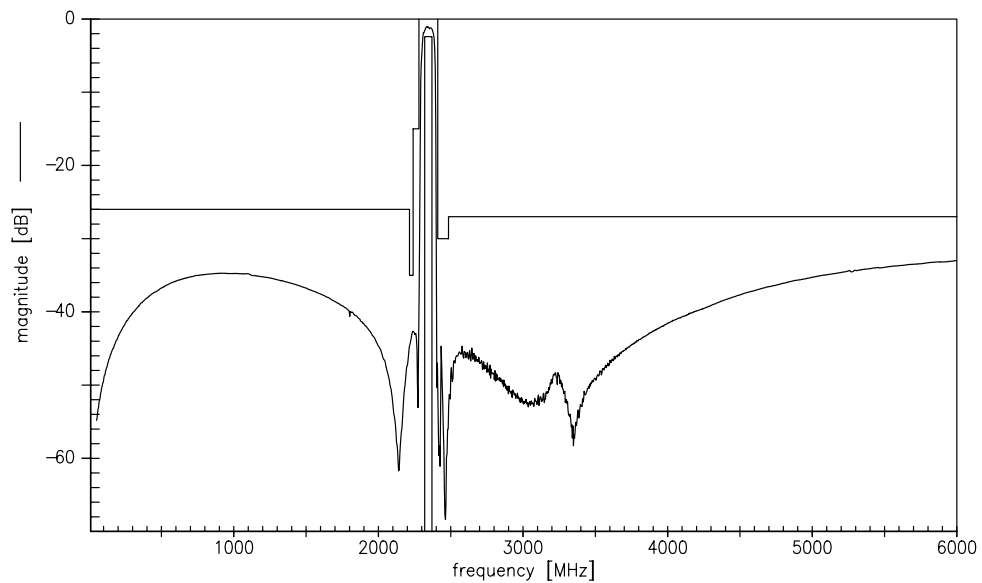
¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



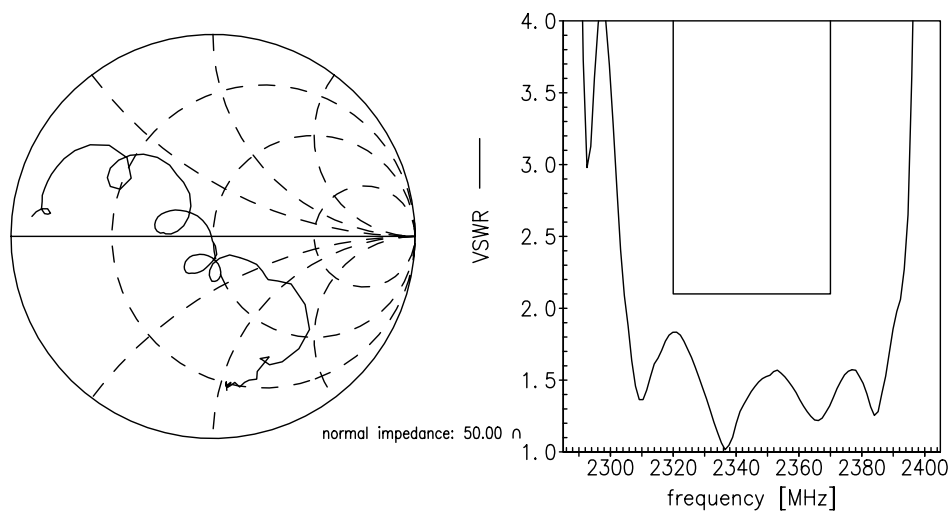
Transfer function



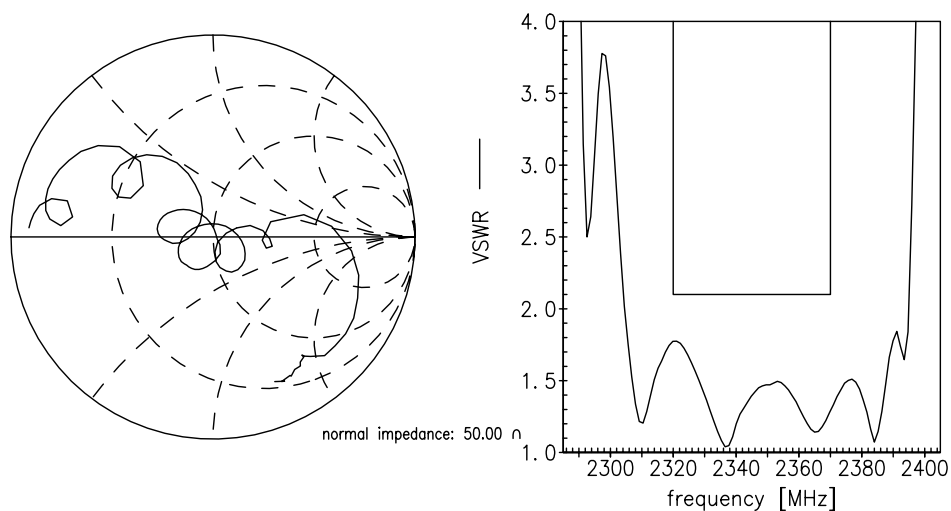
Transfer function (wideband)



S_{11} function



S_{22} function



SAW Components	B9496
SAW Filter	2345.0 MHz
Data sheet	

References

Type	B9496
Ordering code	B39232B9496P810
Marking and package	C61157-A8-A3
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B9496_NB.s2p, B9496_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.
Matching coils	See http://www.tdk.co.jp/tefe02/coil.htm#aname1 http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

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

© EPCOS AG 2012. This brochure replaces the previous edition.

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, CeraLink, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FilterCap, 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.