



SAW Components

SAW GPS Extractor Filter

GPS Extractor

Series/type:	B7742
Ordering code:	B39162B7742E310
Date:	April 24, 2009
Version:	2.3



SAW Components

B7742

SAW GPS Extractor Filter

1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz

Data Sheet



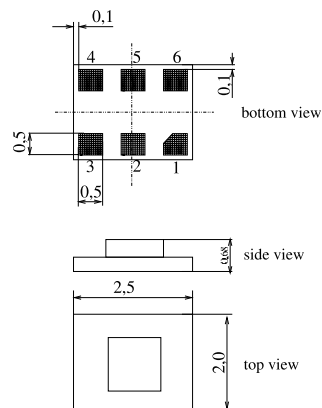
Application

- Low loss RF GPS Extractor filter for mobile phones using common antenna for GPS and Cellular/PCS/K-PCS/WCDMA/Bluetooth band
- Placed between antenna, GPS and Cellular/PCS/K-PCS/WCDMA/Bluetooth band
- No switches and control lines required
- Integrated low loss GPS filter with single ended output 50 Ω
- Very low insertion attenuation in GPS and NON-GPS band
- High selectivity of GPS filter
- Low amplitude ripple in all bands
- Usable passbands 2 MHz (GPS), 70 MHz (Cellular), 120 MHz (K-PCS), 140 MHz (PCS), 60 MHz (WCDMA Band I), 83.5 MHz (Bluetooth)



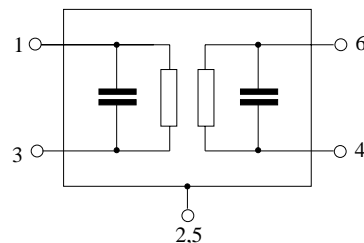
Features

- Package size 2.5 x 2.0 x 0.68 mm³
- Package code DCS6N
- RoHS compatible
- Approximate weight 0.015 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

- 1 Input antenna
- 3 Output GPS band
- 6 Output NON-GPS band (Cellular/K-PCS/PCS/WCDMA/Bluetooth band depending on external matching)
- 4 To be grounded
- 2,5 Ground



Please read *cautions and warnings and important notes* at the end of this document.



SAW Components

B7742

SAW GPS Extractor Filter

1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz

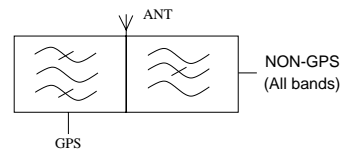
Data Sheet



Characteristics

Matching Circuit 1¹⁾: All Bands + GPS (1575.42 MHz)

Temperature range for specification: T = -30 °C to +85 °C
 Terminating input antenna impedance: Z_{ANT} = 50 Ω || 6.8 nH
 Terminating GPS impedance: Z_{GPS} = 50 Ω
 Terminating NON-GPS impedance: Z_{nGPS} = 50 Ω || 6.8 nH



				B7742			
				min.	typ. @ 25 °C	max.	
Maximum insertion attenuation							
			α_{max}				
Antenna-GPS	1574.42	... 1576.42	MHz	—	1.1	1.6	dB
Antenna-NON-GPS	824.0	... 960.0	MHz	—	0.8	1.3	dB
Antenna-NON-GPS	1710.0	... 1990.0	MHz	—	0.8	1.3	dB
Antenna-NON-GPS	2110.0	... 2170.0	MHz	—	1.1	1.5	dB
Antenna-NON-GPS	2400.0	... 2483.5	MHz	—	1.1	1.6	dB
Attenuation							
			α				
Antenna-GPS	824.0	... 960.0	MHz	33	39	—	dB
Antenna-GPS	1710.0	... 1990.0	MHz	33	37	—	dB
Antenna-GPS	2110.0	... 2170.0	MHz	33	37	—	dB
Antenna-GPS	2400.0	... 2483.5	MHz	35	39	—	dB
VSWR (Antenna port)							
GPS band	1574.42	... 1576.42	MHz	—	1.3	1.8	
NON-GPS band	824.0	... 960.0	MHz	—	2.0	2.5	
NON-GPS band	1710.0	... 1990.0	MHz	—	1.4	2.0	
NON-GPS band	2110.0	... 2170.0	MHz	—	1.6	2.1	
NON-GPS band	2400.0	... 2483.5	MHz	—	1.8	2.4	
VSWR (GPS port)							
GPS band	1574.42	... 1576.42	MHz	—	1.2	1.8	
VSWR (NON-GPS port)							
	824.0	... 960.0	MHz	—	2.0	2.5	
	1710.0	... 1990.0	MHz	—	1.4	2.0	
	2110.0	... 2170.0	MHz	—	1.6	2.1	
	2400.0	... 2483.5	MHz	—	1.8	2.4	
Isolation between NON-GPS and GPS path							
			α				
	824.0	... 960.0	MHz	33	37	—	dB
	1710.0	... 1990.0	MHz	33	37	—	dB
	2110.0	... 2170.0	MHz	33	37	—	dB
	2400.0	... 2483.5	MHz	35	40	—	dB

1) Further Matching Circuits are specified in B7742 Appendix

Please read *cautions and warnings and important notes* at the end of this document.



SAW Components

B7742

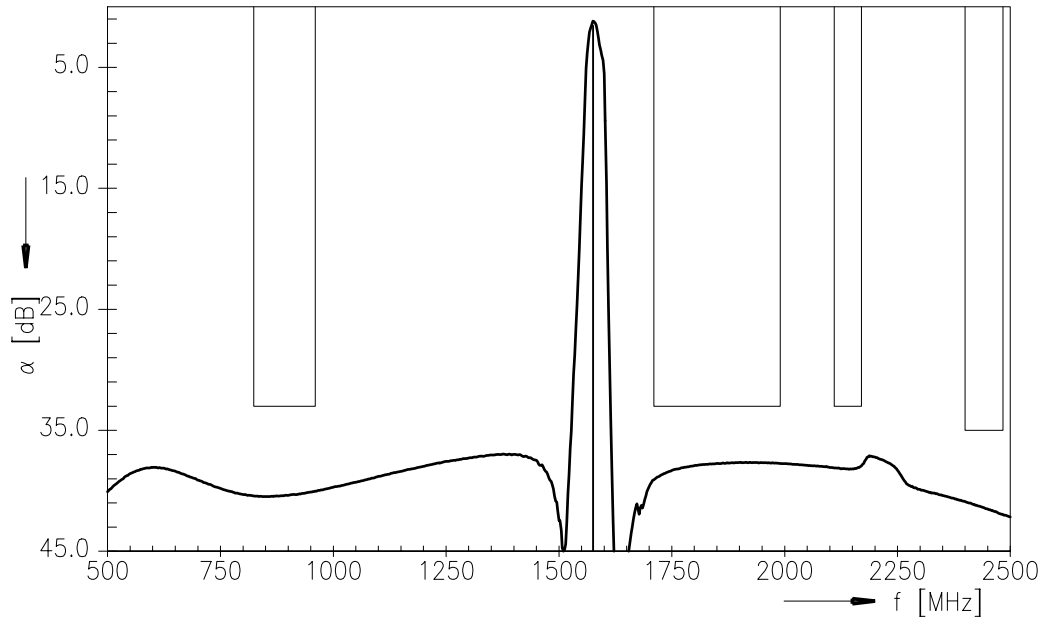
SAW GPS Extractor Filter

1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz

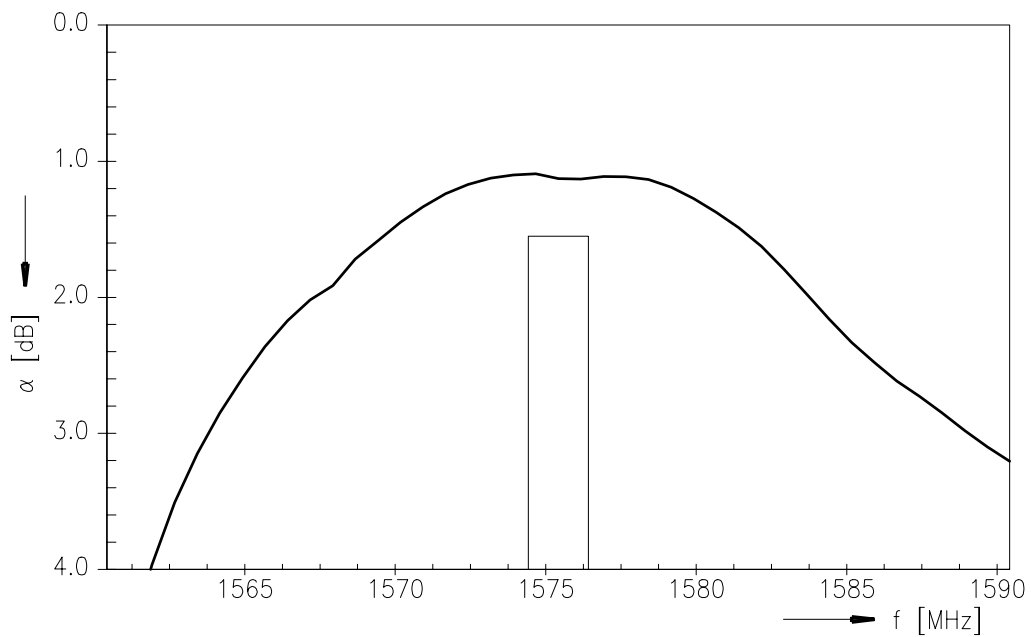
Data Sheet



Antenna - GPS (transfer function for matching circuit 1):



Antenna - GPS (transfer function passband for matching circuit 1):



Please read *cautions and warnings and important notes* at the end of this document.



SAW Components

B7742

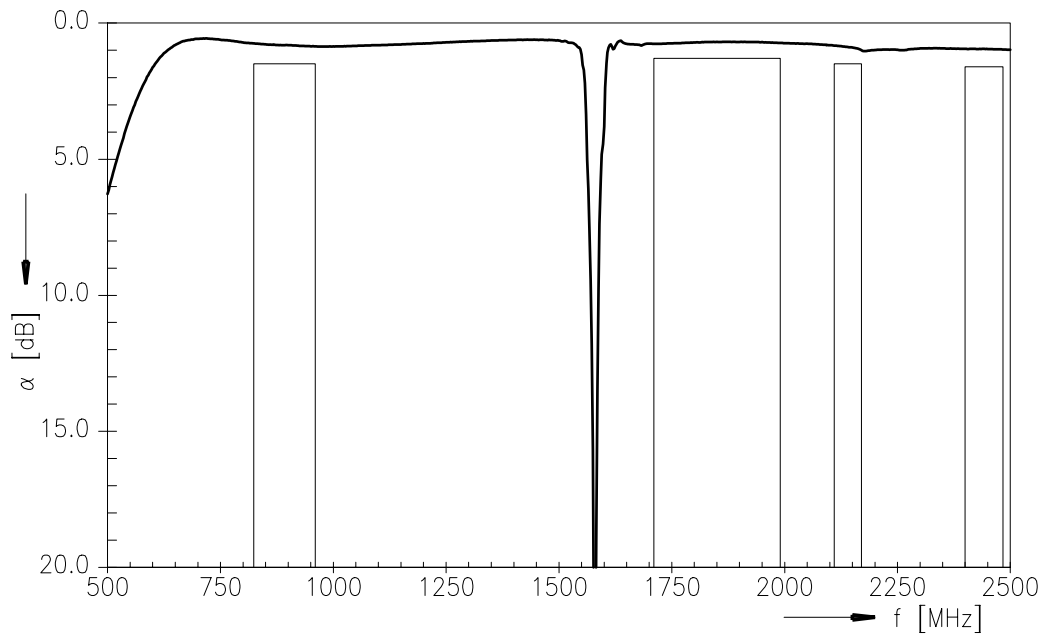
SAW GPS Extractor Filter

1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz

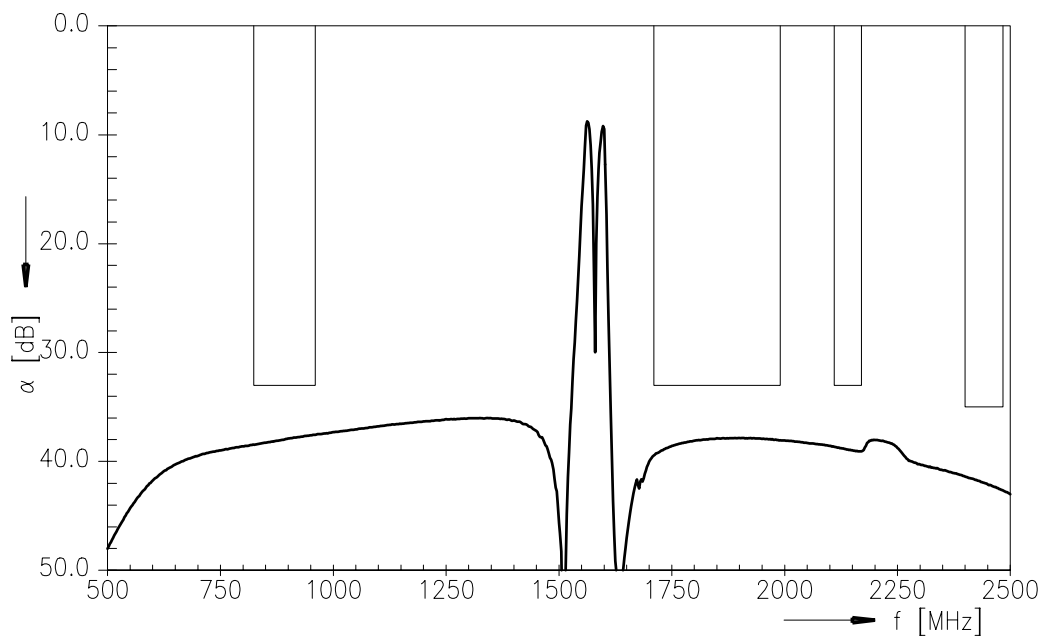
Data Sheet



Antenna - NON-GPS (transfer function for matching circuit 1, all bands):



Antenna - NON-GPS (isolation, transfer function for matching circuit 1, all bands):



Please read *cautions and warnings* and *important notes* at the end of this document.

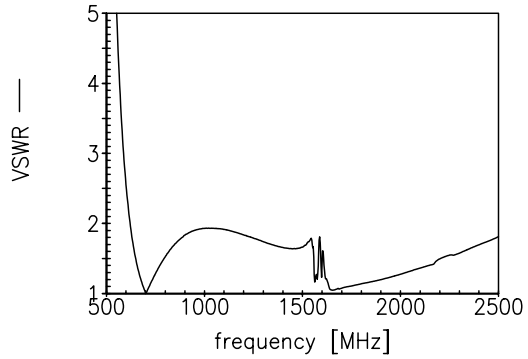
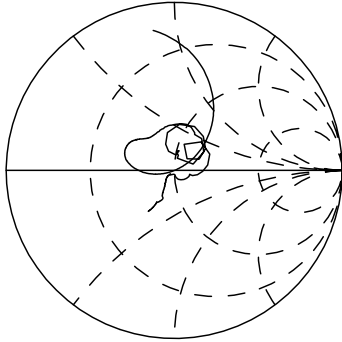


Data Sheet

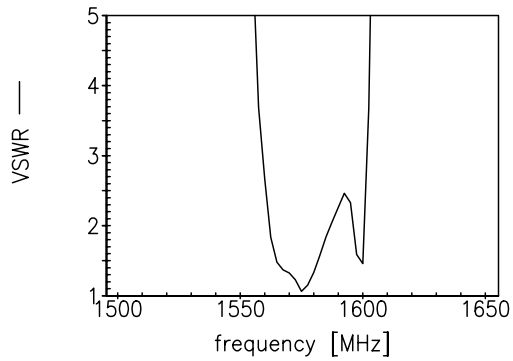
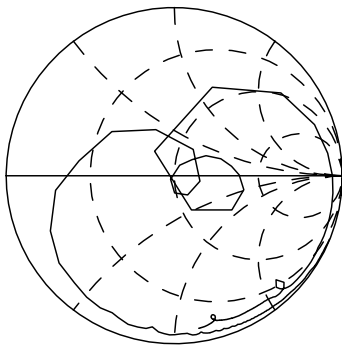


Smith charts / VSWR (for matching circuit 1, all bands)

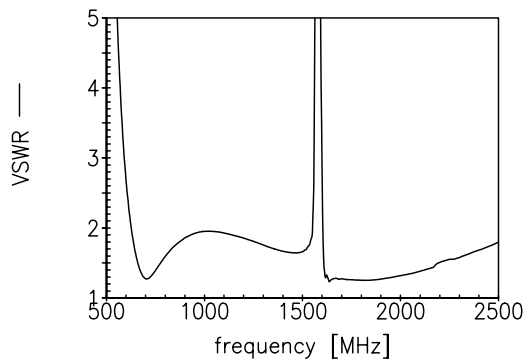
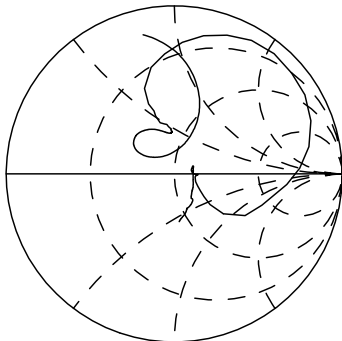
S₁₁ Antenna



S₂₂ GPS



S₃₃ NON-GPS



Please read *cautions and warnings* and *important notes* at the end of this document.



SAW Components

B7742

SAW GPS Extractor Filter

1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz

Data Sheet



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}	50 ¹⁾	V	machine model, 10 pulses
Input power at				
824 ... 960 MHz	P _{IN}	31	dBm	
1710 ... 1990 MHz	P _{IN}	31	dBm	effective power in the on-state
1850 ... 1990 MHz	P _{IN}	31	dBm	continuous wave signal
2400 ... 2483.5 MHz	P _{IN}	31	dBm	

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



SAW Components	B7742
SAW GPS Extractor Filter	1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz
Data Sheet	

References

Type	B7742
Ordering code	B39162B7742E310
Marking and package	C61157-A7-A116
Packaging	F61074-V8153-Z000
Date codes	L_1126
S-parameters (unmatched)	B7742_NB.s3p B7742_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.

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

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

© EPCOS AG 2009. 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.

Please read *cautions and warnings and important notes* at the end of this document.



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, DSSP, MiniBlue, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, 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.