



RF360  
Europe GmbH

## SAW Components

### BeiDou/GPS/Glonass Extractor Filter

BeiDou/GPS/Glonass Extractor

Series/type:	B8636
Ordering code:	B39162B8636P810
Date:	December 16, 2014
Version:	2.1

RF360 products mentioned within this document are products of RF360 Europe GmbH and other subsidiaries of RF360 Holdings Singapore Pte. Ltd. (collectively, the "RF360 Subsidiaries").

RF360 Europe GmbH, Anzinger Str. 13, München, Germany

© 2019 RF360 Europe GmbH and/or its affiliated companies. All rights reserved.

These materials, including the information contained herein, may be used only for informational purposes by the customer. The RF360 Subsidiaries assume no responsibility for errors or omissions in these materials or the information contained herein. The RF360 Subsidiaries reserve the right to make changes to the product(s) or information contained herein without notice. The materials and information are provided on an AS IS basis, and the RF360 Subsidiaries assume no liability and make no warranty or representation, either expressed or implied, with respect to the materials, or any output or results based on the use, application, or evaluation of such materials, including, without limitation, with respect to the non-infringement of trademarks, patents, copyrights or any other intellectual property rights or other rights of third parties.

No use of this documentation or any information contained herein grants any license, whether express, implied, by estoppel or otherwise, to any intellectual property rights, including, without limitation, to any patents owned by QUALCOMM Incorporated or any of its subsidiaries.

Not to be used, copied, reproduced, or modified in whole or in part, nor its contents revealed in any manner to others without the express written permission of RF360 Europe GmbH.

Qualcomm is a trademark of Qualcomm Incorporated, registered in the United States and other countries. Other product and brand names may be trademarks or registered trademarks of their respective owners.

This technical data may be subject to U.S. and international export, re-export, or transfer ("export") laws. Diversion contrary to U.S. and international law is strictly prohibited.



# SAW Components

## BeiDou/GPS/Glonass Extractor Filter

BeiDou/GPS/Glonass Extractor

<b>Series/type:</b>	<b>B8636</b>
<b>Ordering code:</b>	<b>B39162B8636P810</b>
Date:	December 16, 2014
Version:	2.1

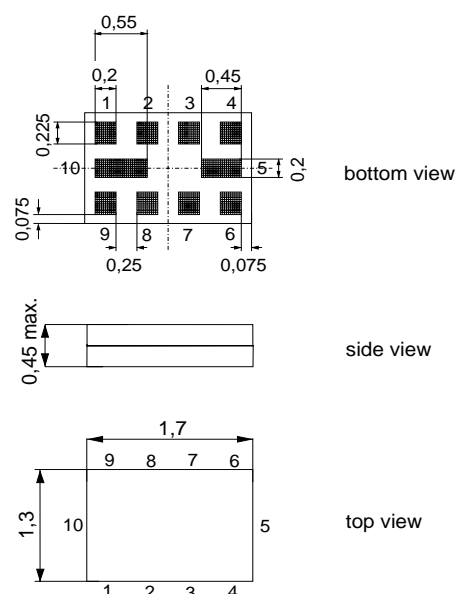
**Data Sheet**

**Application**

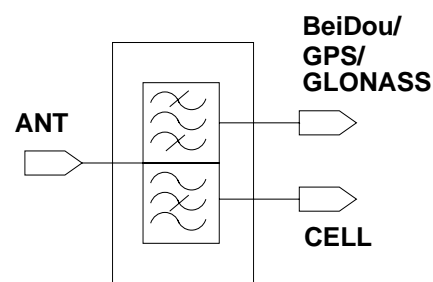
- Low-loss BeiDou/GPS/Glonass Extractor
- Using common antenna for BeiDou/GPS/Glonass and Cellular bands
- Placed between antenna and cellular front-end switches and filters
- Usable passbands GNSS: 1559.05 -1563.144 MHz, 1574.42-1576.42 MHz, 1597.55-1605.89 MHz
- Usable passbands Cellular: 699 - 960 MHz, 1710 - 2690 MHz
- No switches and control lines required
- Integrated low loss BeiDou/GPS/Glonass filter with single ended output 50 Ω


**Features**

- Package size 1.7 x 1.3 x 0.4 mm<sup>3</sup>
- RoHS compliant
- Approx. weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 3**


**Pin configuration**

- 1 ANT input
- 4 BeiDou/GPS/Glonass output
- 9 CELL output
- 8 Shunt coil 9.1nH to ground
- 2,3,5,6,7,10 To be grounded



**Data Sheet**

**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
ANT terminating impedance:	Z <sub>ANT</sub> = 50 Ω
BeiDou/GPS/Glonass terminating impedance:	Z <sub>BGG</sub> = 50 Ω
CELL terminating impedance:	Z <sub>CEL</sub> = 50 Ω

					<b>B8636</b>			
					<b>min.</b>	<b>typ. @ 25 °C</b>	<b>max.</b>	
<b>Maximum insertion attenuation</b>					$\alpha_{\max}$			MHz
ANT-BeiDou	1559.052	...	1563.144	MHz		1.1	2.6	dB
ANT-GPS	1574.42	...	1576.42	MHz		0.8	1.5	dB
ANT-Glonass	1597.55	...	1605.89	MHz		1.45	3.5	dB
ANT-CELL	699.0	...	716.0	MHz		0.9	—	dB
ANT-CELL	704.0	...	824.0	MHz		0.9	1.8	dB
ANT-CELL	824.0	...	960.0	MHz		0.8	1.5	dB
ANT-CELL	1710.0	...	1990.0	MHz		1.5	2.5	dB
ANT-CELL	2110.0	...	2170.0	MHz		1.4	2.5	dB
ANT-CELL	2300.0	...	2400.0	MHz		1.3	2.5	dB
ANT-CELL	2500.0	...	2690.0	MHz	1.3	2.5	dB	
<b>Attenuation ANT-BeiDou/GPS/Glonass</b>								
	100.0	...	824.0	MHz	38	33	dB	
	824.0	...	960.0	MHz	48	33	dB	
	1710.0	...	1990.0	MHz	43	34	dB	
	2110.0	...	2170.0	MHz	40	30	dB	
	2400.0	...	2500.0	MHz	39	30	dB	
	2500.0	...	2690.0	MHz	36	29	dB	
<b>VSWR (Antenna port)</b>								
BeiDou	1559.052	...	1563.144	MHz	1.2	2.0		
GPS	1574.42	...	1576.42	MHz	1.3	2.0		
Glonass	1597.55	...	1605.89	MHz	1.5	2.0		
CELL	699.0	...	716.0	MHz	1.4	—		
CELL	704.0	...	824.0	MHz	1.4	2.0		
CELL	824.0	...	960.0	MHz	1.5	2.0		
CELL	1710.0	...	1990.0	MHz	1.5	2.5		
CELL	2110.0	...	2170.0	MHz	1.3	2.0		
CELL	2300.0	...	2400.0	MHz	1.2	2.0		
CELL	2500.0	...	2690.0	MHz	1.5	2.5		
<b>VSWR (BeiDou/GPS/Glonass port)</b>								
BeiDou	1559.052	...	1563.144	MHz	1.2	2.0		
GPS	1574.42	...	1576.42	MHz	1.4	2.0		
Glonass	1597.55	...	1605.89	MHz	1.2	2.0		



				B8636		
				min.	typ. @ 25 °C	max.
<b>VSWR (CELL port)</b>						
	699.0	...	716.0 MHz		1.35	—
	704.0	...	824.0 MHz		1.35	2.0
	824.0	...	960.0 MHz		1.5	2.0
	1710.0	...	1990.0 MHz		1.5	2.5
	2110.0	...	2170.0 MHz		1.3	2.5
	2300.0	...	2400.0 MHz		1.2	2.0
	2500.0	...	2690.0 MHz		1.5	2.5
<b>Isolation between CELL and BeiDou/GPS/Glonass path</b>						
	699.0	...	824.0 MHz		50	dB
	824.0	...	960.0 MHz		52	dB
	1710.0	...	1990.0 MHz		46	dB
	2110.0	...	2170.0 MHz		45	dB
	2500.0	...	2690.0 MHz		39	dB


**Maximum ratings**

Storage temperature range	$T_{stg}$	-40/+85	°C	
DC voltage	$V_{DC}$	5 <sup>1)</sup>	V	
ESD voltage	$V_{ESD}$	50 <sup>2)</sup>	V	Machine Model
		300 <sup>3)</sup>	V	Human Body Model
		600 <sup>4)</sup>	V	Charge Device Model
Input power at CELL port				55° C, 5000 hours:
704 ... 915 MHz	$P_{IN}$	27	dBm	CW signal
1710 ... 2690 MHz	$P_{IN}$	27	dBm	CW signal
824 ... 849 MHz	$P_{IN}$	35	dBm	GSM, duty cycle 1:8 effective power in On-state
880 ... 915 MHz	$P_{IN}$	35	dBm	GSM, duty cycle 1:8 effective power in On-state
1710 ... 1785 MHz	$P_{IN}$	33	dBm	GSM, duty cycle 1:8 effective power in On-state
1850 ... 1910 MHz	$P_{IN}$	33	dBm	GSM, duty cycle 1:8 effective power in On-state

1) 5V, 168h Damp Heat Steady State acc. to IEC60068-2-67 Cy

2) acc. to JESD22-A115B (MM - machine model), 1 negative & 1 positive pulses

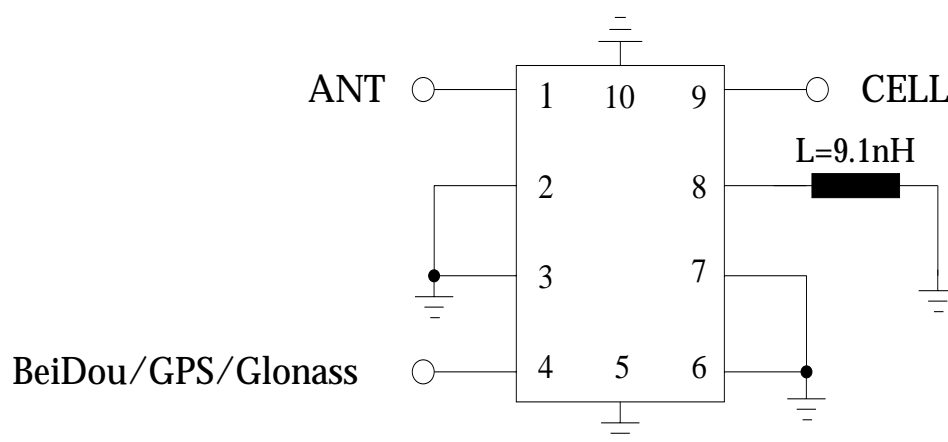
3) acc. to JESD22-A115F (HBM - Human Body Model), 1 negative & 1 positive pulses

4) acc. to JESD22-C101C (CDM - Field Inducted Charge Device Model), 3 negative & 3 positive pulses

Data Sheet


**Matching network**
 $L = 9.1 \text{ nH}$ 

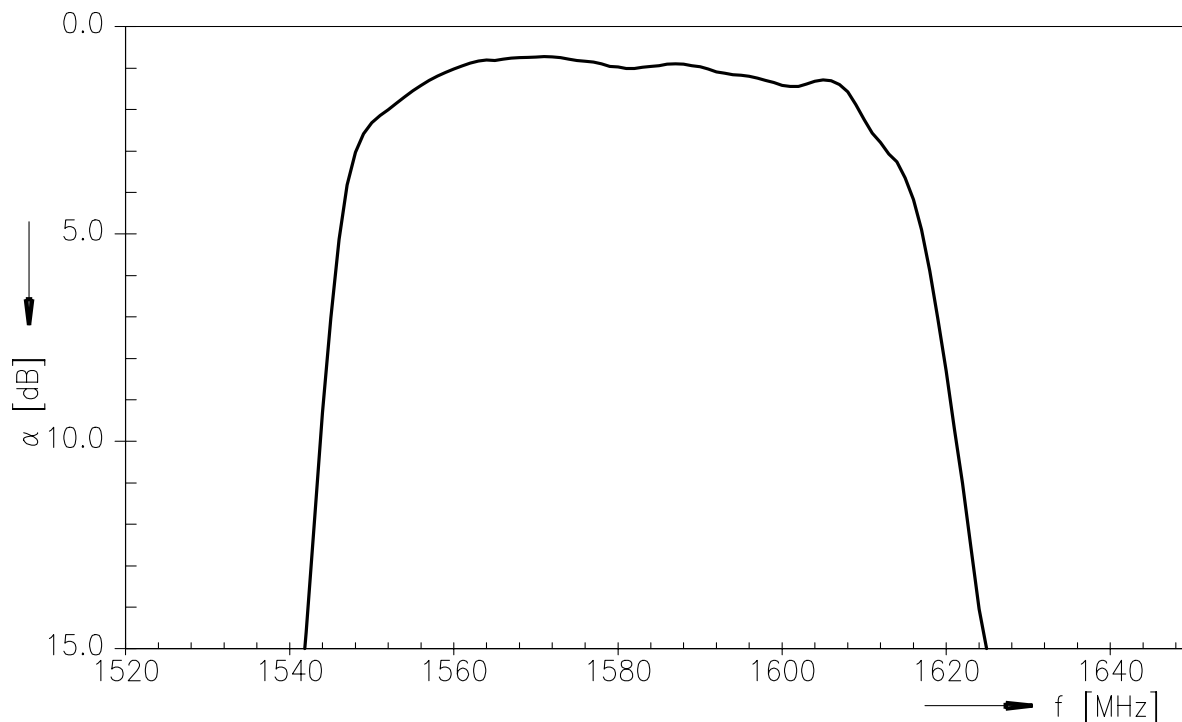
Recommended coil type: TDK MLG0603 P-series



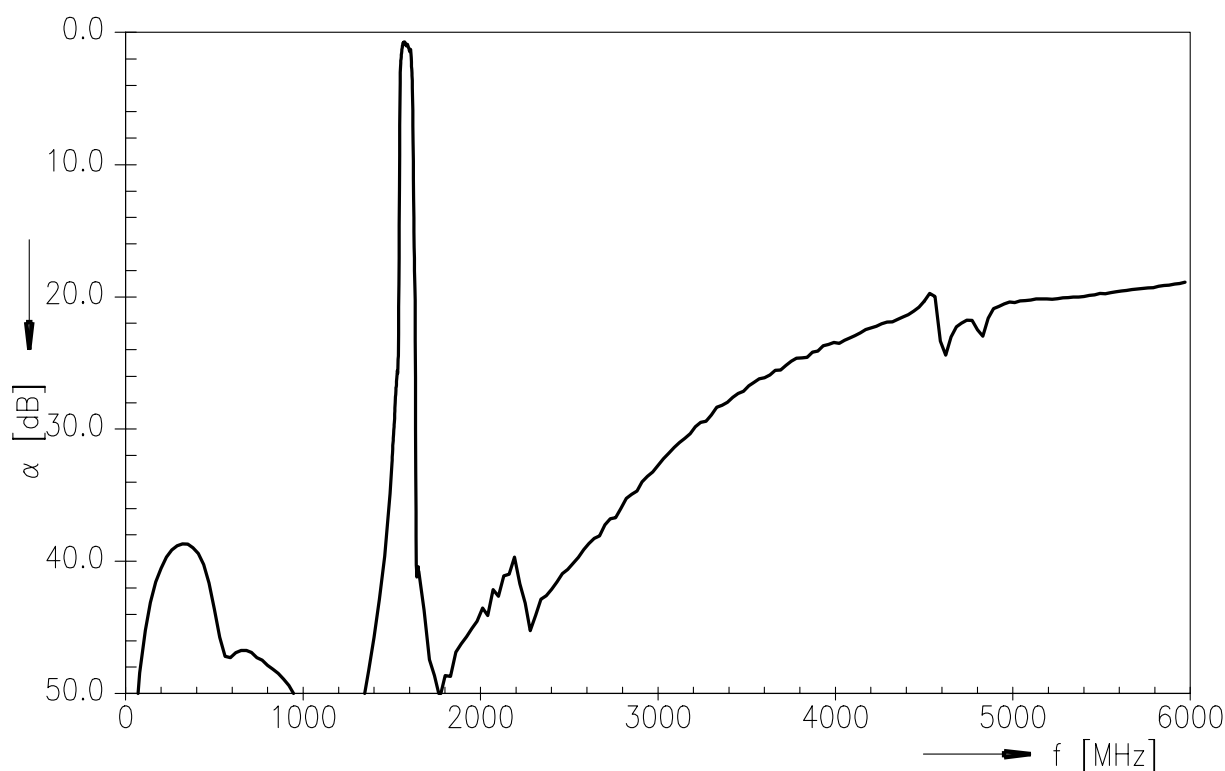




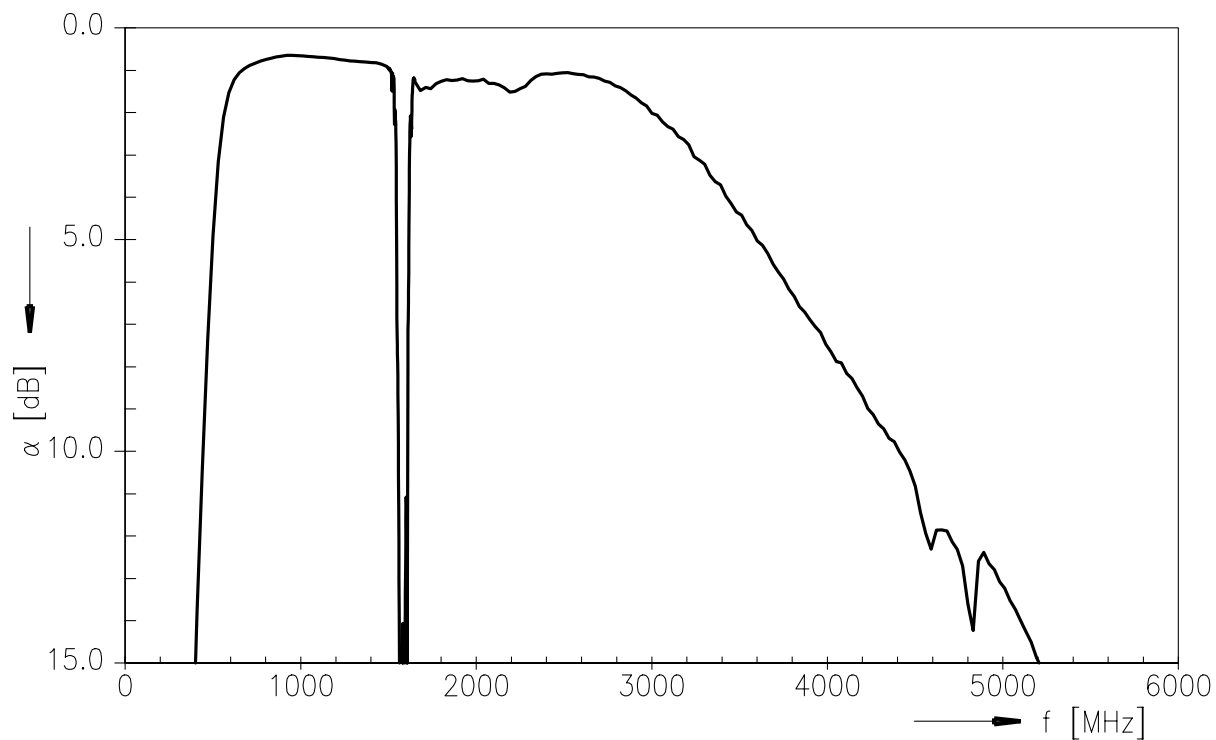
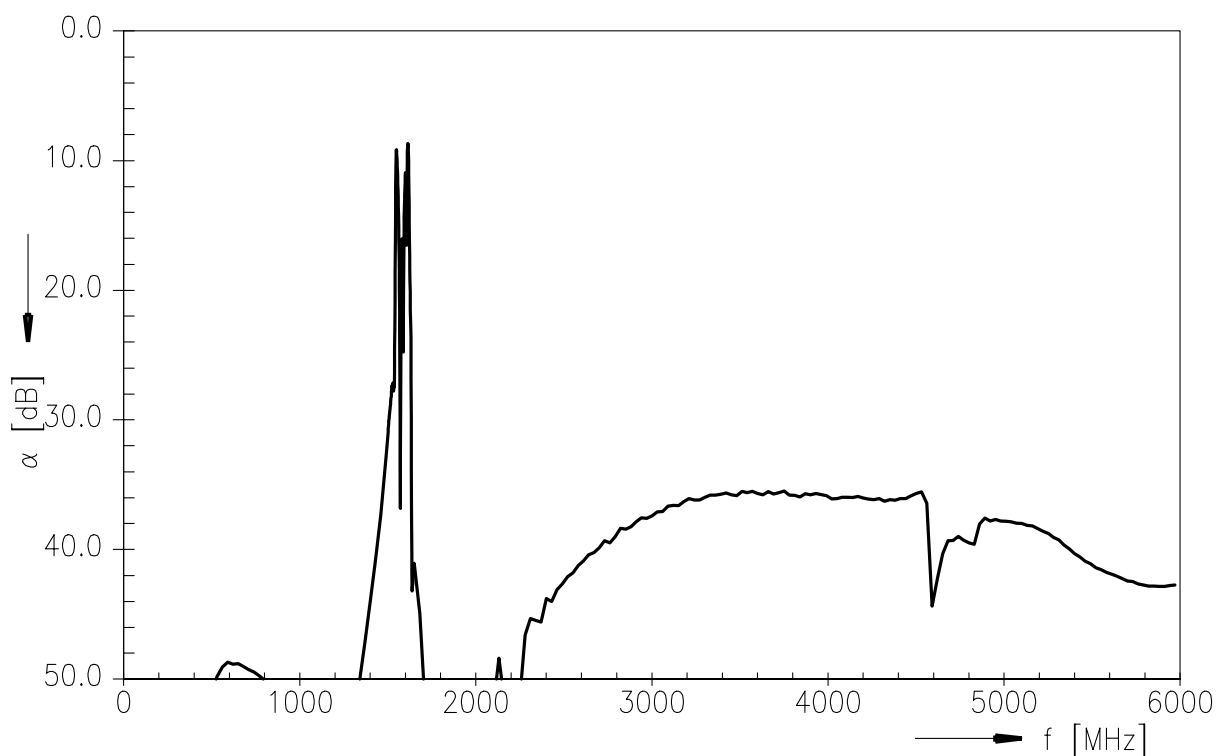
ANT-BeiDou/GPS/Glonass (transfer function passband)



ANT-BeiDou/GPS/Glonass (transfer function wideband)



Data Sheet

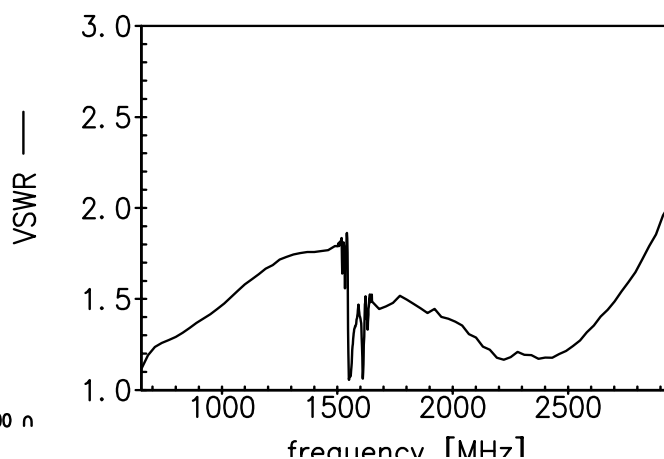
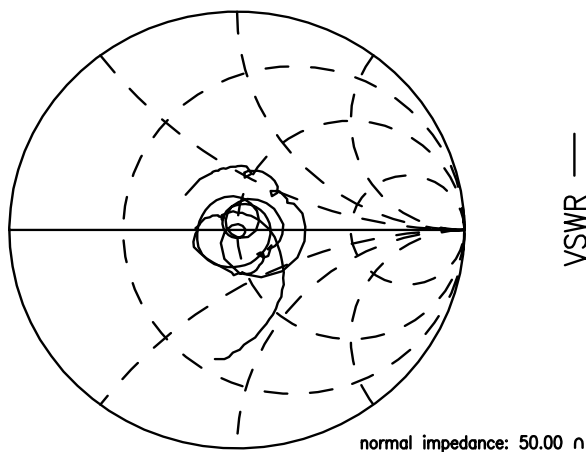

**ANT-CELL (transfer function)**

**GPS-CELL (isolation, transfer function)**


Data Sheet

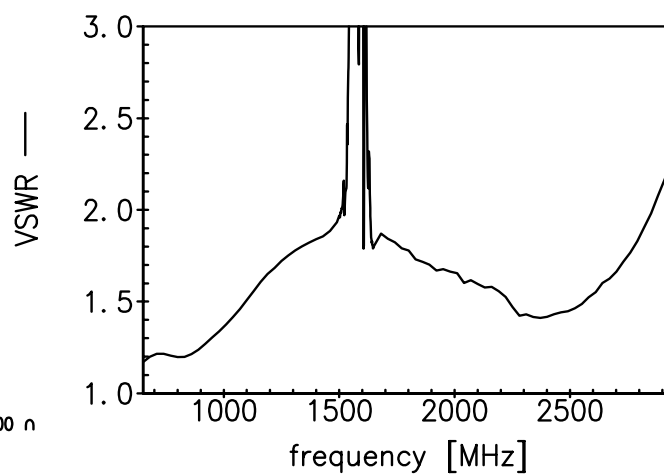
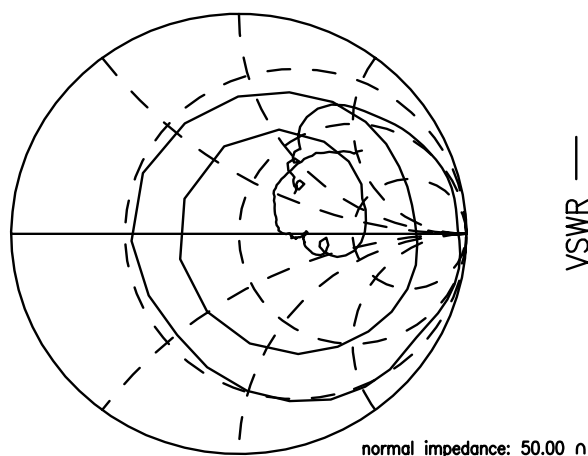


Smith charts / VSWR

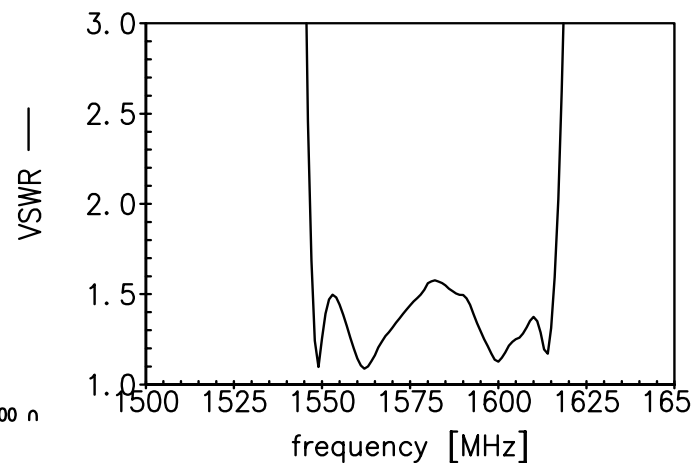
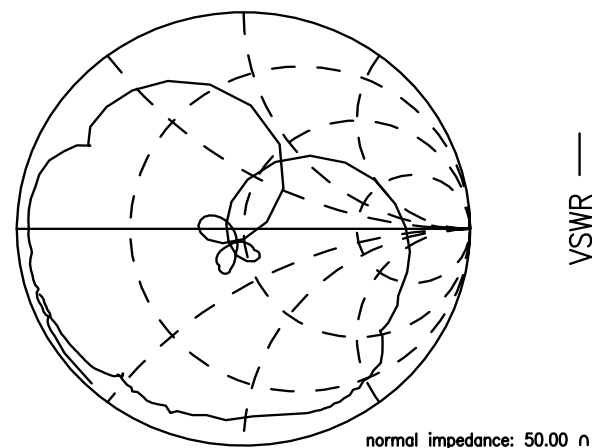
**S<sub>11</sub> ANT**



**S<sub>22</sub> CELL**



**S<sub>33</sub> BeiDou/GPS/Glonass**




**References**

<b>Type</b>	B8636
<b>Ordering code</b>	B39162B8636P810
<b>Marking and package</b>	C61157-A8-A148
<b>Packaging</b>	F61074-V8222-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8636_NB.s3p, B8636_WB.s3p see file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	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."
<b>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.
<b>Matching coils</b>	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>

For further information please contact your local EPCOS sales office or visit our webpage at [www.epcos.com](http://www.epcos.com) .

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

© EPCOS AG 2014. 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.