



SAW Components

SAW GPS + COMPASS + GLONASS Filter

Series/type:	B8313
Ordering code:	B39162B8313P810
Date:	November 29, 2012
Version:	1.0

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1582.4 MHz

Preliminary Data



Revision history: Changes compared to previous iteration issue

ISSUE	ORIGINATOR	DETAIL SPEC CHANGES	DATE
B8313_v1.0	S. Sakhnenko	initial release	28.11.2012

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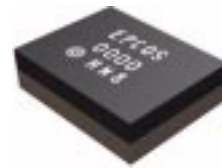
1582.4 MHz

Preliminary Data



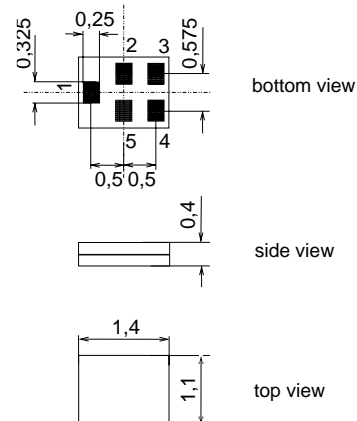
Application

- Low-loss RF GPS + COMPASS + Galileo + GLONASS filter
- Simultaneous usage of GPS, COMPASS, Galileo and GLONASS
- Usable passbands: 2.0 MHz for GPS, 4.092 MHz for COMPASS, 4.092 MHz for Galileo and 7.88 MHz for GLONASS
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- High out of band selectivity
- Low amplitude ripple
- Filter impedance 50 Ω
- No matching network required for operation at 50 Ω



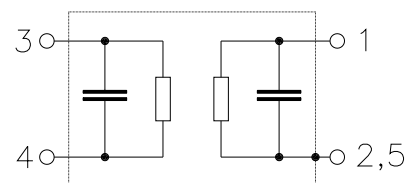
Features

- Package size 1.4 x 1.1 x 0.4 mm³
- RoHS compatible
- Approximate 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 Input / Output unbalanced
- 4 Output / Input unbalanced
- 2,3,5 To be grounded



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Characteristics of Filter

Temperature range for specification: T = -30 °C to +85 °C
 Terminating source impedance: Z_S = 50 Ω
 Terminating load impedance: Z_L = 50 Ω

		B8313 ¹⁾			DGL ²⁾	
		min.	typ. @ 25 °C	max.	min./ max.	
Center frequency	f _C	—	1582.4	—		MHz
Maximum insertion attenuation	α _{max}					
1574.42 ... 1576.42 MHz		—	0.8	1.3		dB
1559.05 ... 1563.15 MHz		—	1.1	2.0		dB
1573.37 ... 1577.47 MHz		—	0.85	2.0		dB
1597.78 ... 1605.66 MHz		—	1.3	2.0		dB
VSWR (Input)						
1574.42 ... 1576.42 MHz		—	1.1	2.0		
1559.05 ... 1563.15 MHz		—	1.5	2.0		
1573.37 ... 1577.47 MHz		—	1.2	2.0		
1597.78 ... 1605.66 MHz		—	1.5	2.0		
VSWR (Output)						
1574.42 ... 1576.42 MHz		—	1.1	2.0		
1559.05 ... 1563.15 MHz		—	1.5	2.0		
1573.37 ... 1577.47 MHz		—	1.2	2.0		
1597.78 ... 1605.66 MHz		—	1.5	2.0		
Group delay ripple³⁾						
1597.78 ... 1605.66 MHz		—	4	12		ns
Attenuation	α					
10.0 ... 824.0 MHz		47	51	—		dB
824.0 ... 925.0 MHz		47	51	—		dB
1427.0 ... 1453.0 MHz		40	43	—		dB
1710.0 ... 1785.0 MHz		37	41	—		dB
1850.0 ... 1910.0 MHz		38	43	—		dB
1920.0 ... 1980.0 MHz		39	44	—		dB
2400.0 ... 2500.0 MHz		38	43	—		dB
2500.0 ... 2570.0 MHz		37	42	—		dB
2600.0 ... 3000.0 MHz		30	38	—		dB
4900.0 ... 5850.0 MHz		15	24	—		dB

1) Values in columns min, typ and max indicate the development status of the current version.
 2) Values in column DesignGoal (DGL) indicate the target performance.
 3) Averaged over 2 MHz.

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Maximum ratings of Filter

Operable temperature range	T	-30/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
ESD voltage	V _{ESD}	50 ¹⁾	V	machine model
Input power at				source/load impedance 50Ω/50Ω
915 MHz	P _{IN}	23 ²⁾	dBm	1/8 duty cycle
1453 MHz	P _{IN}	15	dBm	cw
1710 MHz	P _{IN}	15	dBm	cw

1) acc. to JESD22-A115A (machine model).
 2) >5000 h at Ta = 50°C .



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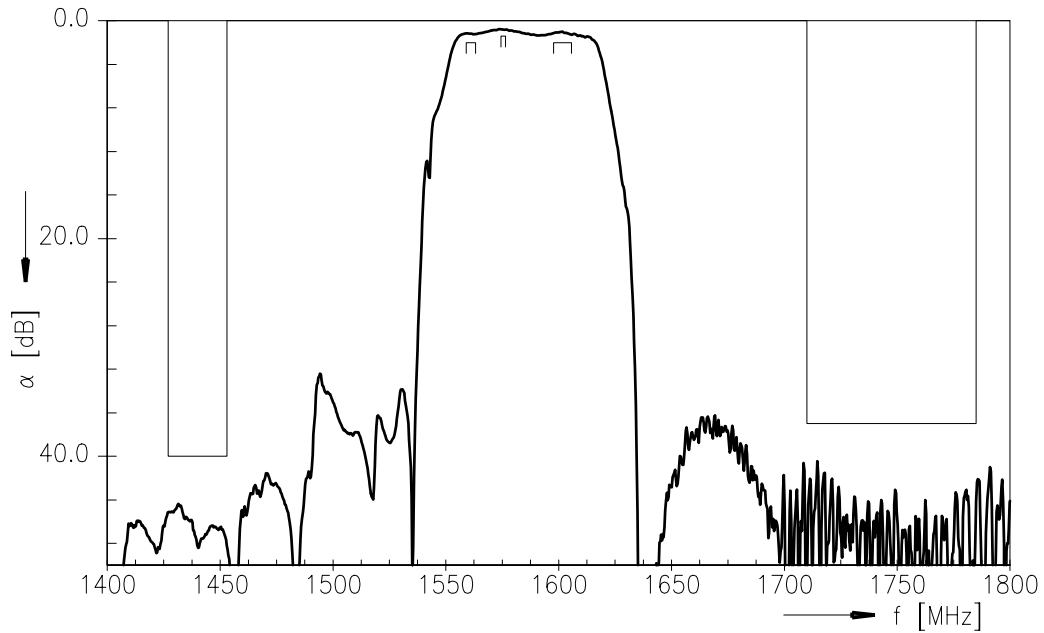
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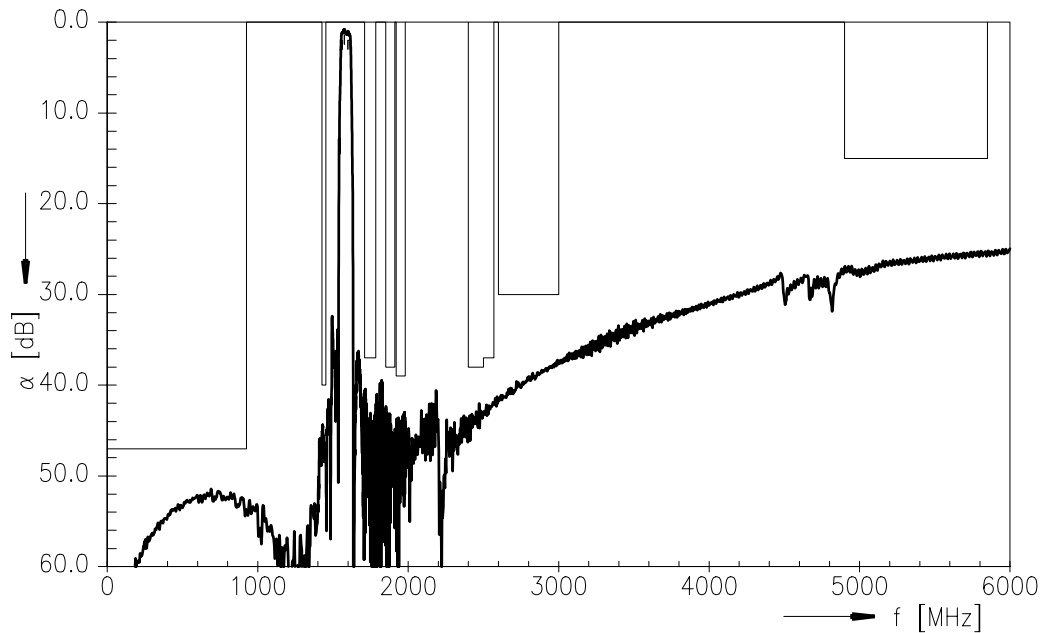
Preliminary Data



Transfer function (passband)



Transfer function



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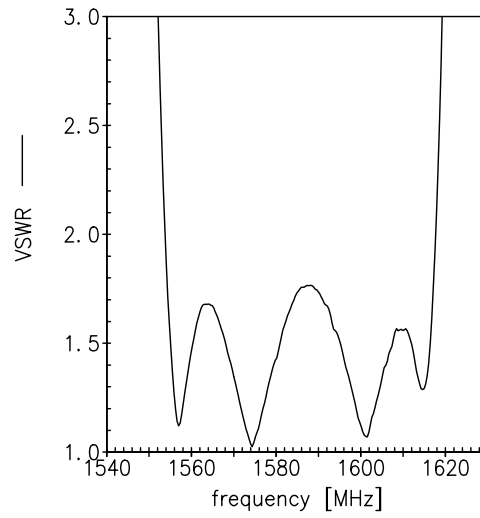
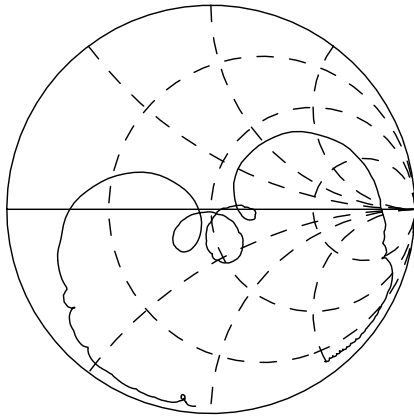
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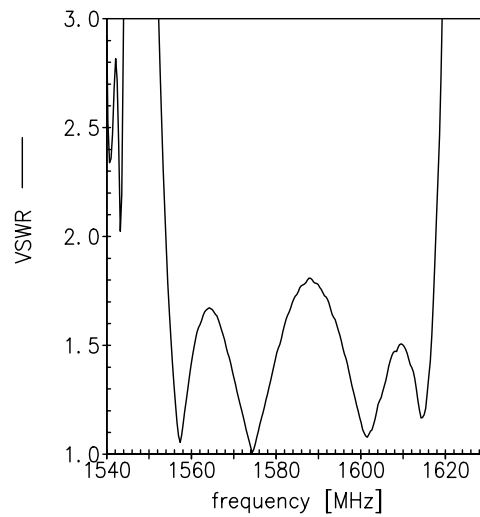
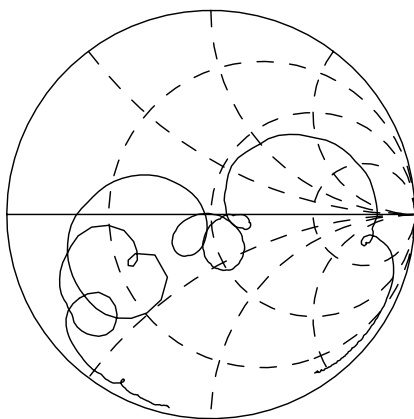


Smith chart / VSWR

S_{11} function



S_{22} function



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Type	B8313
Ordering code	B39162B8313P810
Marking and package	
Packaging	
Date codes	L_1126
S-parameters	B8313_NB.s2p, B8313_WB.s2p See file header for pin/port assignments.
Soldering profile	S_6001
RoHS compatible	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

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

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8 November 29, 2012



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