



## **SAW Components**

### **SAW GPS + COMPASS + GLONASS Filter**

<b>Series/type:</b>	<b>B8313</b>
<b>Ordering code:</b>	<b>B39162B8313P810</b>
<b>Date:</b>	<b>February 12, 2013</b>
<b>Version:</b>	<b>2.0</b>

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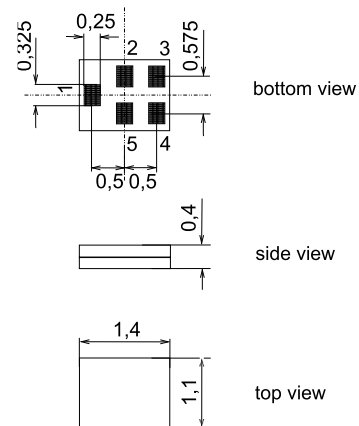
**Data Sheet**

**Application**

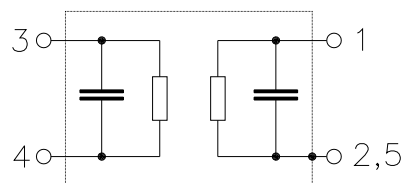
- Low-loss RF GPS + COMPASS + Galileo + GLONASS filter
- Simultaneous usage of GPS, COMPASS, Galileo and GLONASS
- Usable passbands: 2.0 MHz for GPS, 4.092 MHz for COMPASS, 4.092 MHz for Galileo and 7.88 MHz for GLONASS
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- High out 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 mm<sup>3</sup>
- Package height 0.45 mm max.
- 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 (MSL3)**


**Pin configuration**

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



**Data Sheet**

**Characteristics of Filter**

Temperature range for specification:	T = -30 °C to +85 °C
Terminating source impedance:	Z <sub>S</sub> = 50 Ω
Terminating load impedance:	Z <sub>L</sub> = 50 Ω

		B8313			
		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	1582.4	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>				
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
<b>VSWR (Input)</b>					
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	
<b>VSWR ( Output)</b>					
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	
<b>Group delay ripple<sup>1)</sup></b>					
1597.78 ... 1605.66 MHz		—	4	12	ns
<b>Attenuation</b>	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

<sup>1)</sup> Averaged over 2 MHz.

**Data Sheet**

**Maximum ratings of Filter**

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

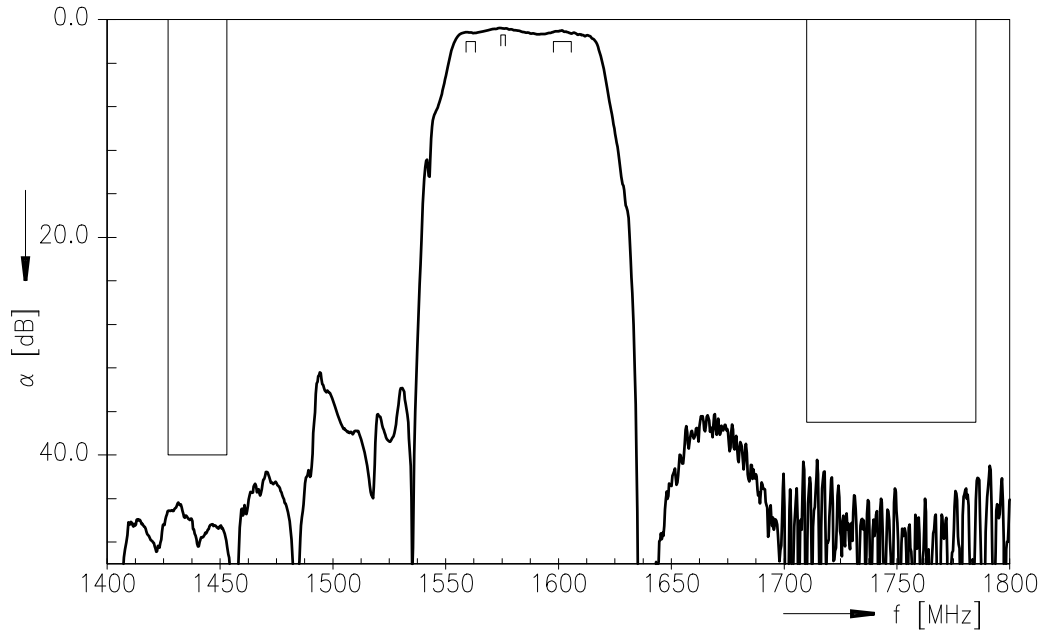
1) acc. to JESD22-A115A (machine model).

2) >5000 h at T<sub>a</sub> = 50°C .

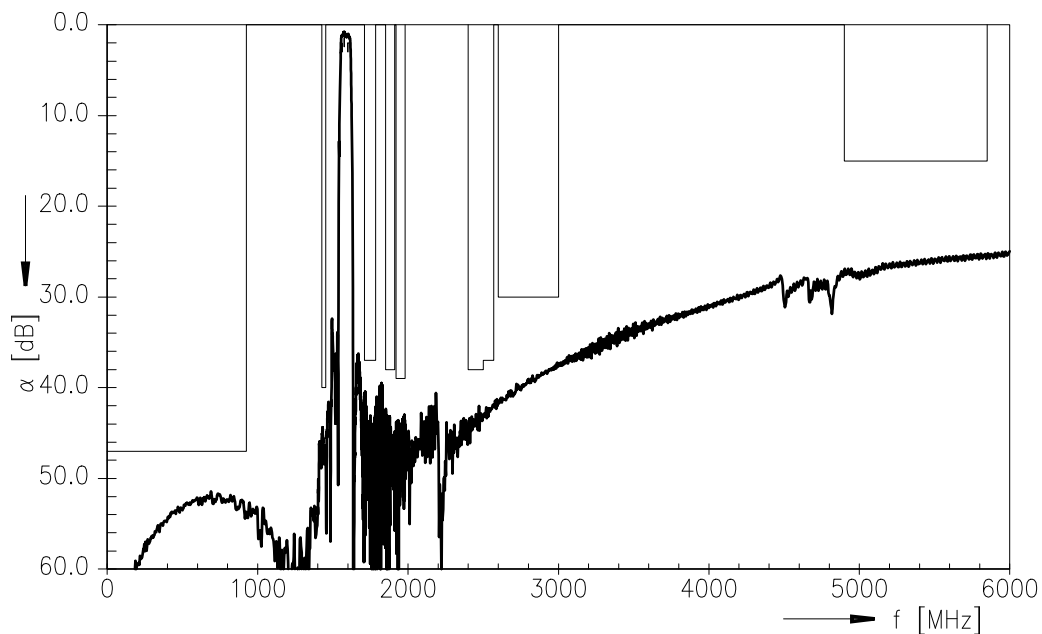
Data Sheet



**Transfer function (passband)**



**Transfer function**

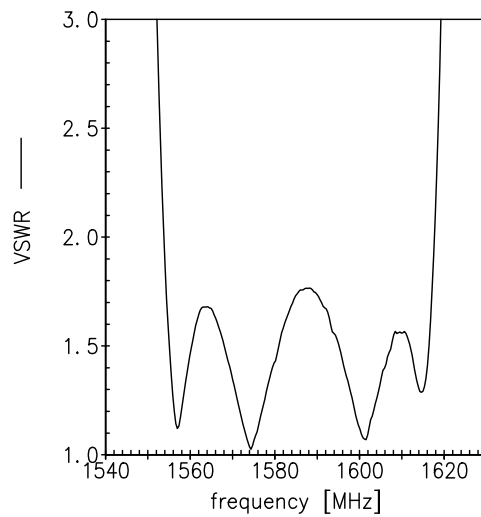
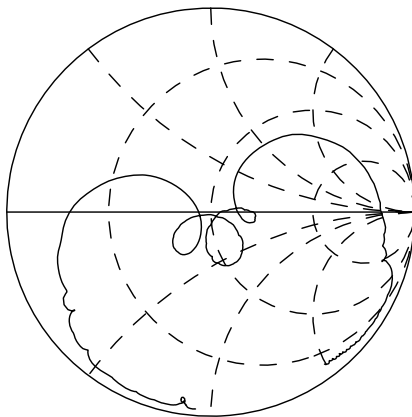


Data Sheet

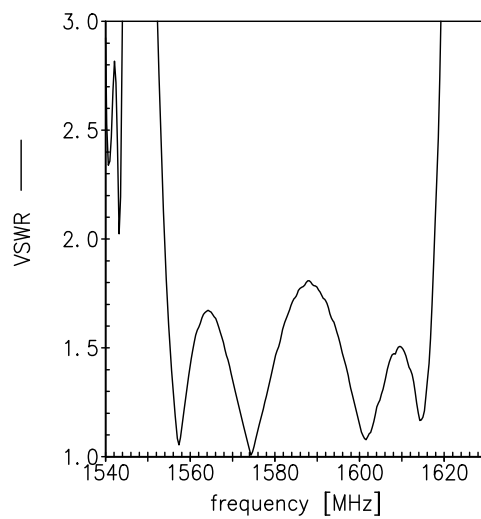
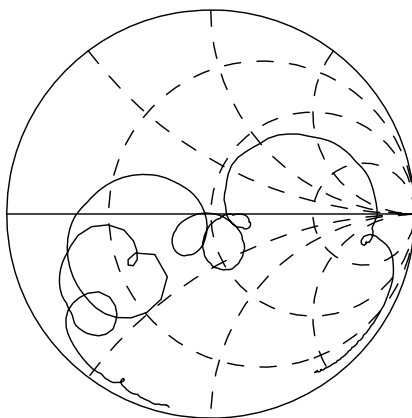


Smith chart / VSWR

$S_{11}$  function



$S_{22}$  function



<b>SAW Components</b>	<b>B8313</b>
<b>SAW GPS + COMPASS + GLONASS Filter</b>	<b>1582.4 MHz</b>

Data Sheet



<b>Type</b>	B8313
<b>Ordering code</b>	B39162B8313P810
<b>Marking and package</b>	C61157-A8-A14
<b>Packaging</b>	F61074-V8237-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8313_NB.s2p, B8313_WB.s2p See file header for pin/port assignments.
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	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.
<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>

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