



# SAW Components

## SAW GPS + GLONASS filter

<b>Series/type:</b>	<b>B8802</b>
<b>Ordering code:</b>	<b>B39162-B8802-P810</b>
Date:	July 10, 2013
Version:	2.1

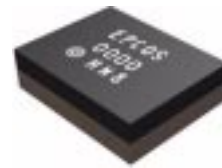
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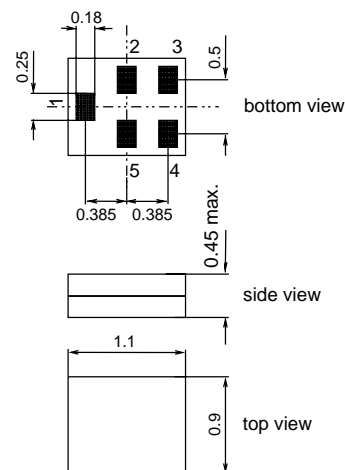
**Data Sheet**

**Application**

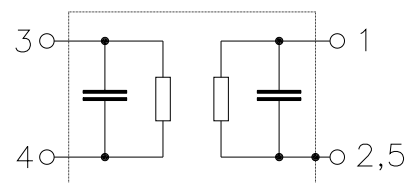
- Low-loss RF GPS+Glonass filter
- Simultaneous usage of GPS band and Glonass band
- Usable passbands: 2.0 MHz for GPS and 8.34 MHz for Glonass
- Very low insertion attenuation
- Impedance transformation from 50 Ω to 100 Ω
- Unbalanced to balanced operation
- No matching network required for operation at 50 Ω


**Features**

- Package size 1.1 x 0.9 mm<sup>2</sup>  
package height 0.45 mm max.
- RoHS compatible
- Approximate weight 0.0012 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 3 (MSL3)**


**Pin configuration**

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



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

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**1585.655 MHz**
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**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> = 100 Ω

		B8802			
		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	1585.655	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>				
1574.42 ... 1576.42 MHz		—	1.0	1.6	dB
1565.42 ... 1585.42 MHz		—	1.3	2.0	dB
1597.55 ... 1605.89 MHz		—	1.2	2.0	dB
<b>VSWR Input</b>					
1574.42 ... 1576.42 MHz		—	1.3	2.0	
1597.55 ... 1605.89 MHz		—	1.5	2.0	
<b>VSWR Output</b>					
1574.42 ... 1576.42 MHz		—	1.3	2.0	
1597.55 ... 1605.89 MHz		—	1.5	2.0	
<b>Group delay ripple<sup>1)</sup> (p-p)</b>	Δτ				
1597.55 ... 1605.89 MHz		—	5	15	ns
<b>Output amplitude balance ( S<sub>31</sub>/S<sub>21</sub> )</b>					
1574.42 ... 1576.42 MHz		-1.5	-0.4	1.5	dB
1597.55 ... 1605.89 MHz		-1.5	-0.8	1.5	dB
<b>Output phase balance (φ(S<sub>31</sub>)-φ(S<sub>21</sub>)+180°)</b>					
1574.42 ... 1576.42 MHz		-10	-2	10	°
1597.55 ... 1605.89 MHz		-10	-5	10	°
<b>Attenuation</b>	α				
0.1 ... 725.0 MHz		56	64	—	dB
725.0 ... 925.0 MHz		52	62	—	dB
925.0 ... 1427.0 MHz		35	50	—	dB
1427.0 ... 1463.0 MHz		35	51	—	dB
1463.0 ... 1525.0 MHz		20	40	—	dB
1675.0 ... 1710.0 MHz		20	34	—	dB
1710.0 ... 1785.0 MHz		35	39	—	dB
1850.0 ... 1980.0 MHz		37	46	—	dB
1980.0 ... 2400.0 MHz		32	42	—	dB
2400.0 ... 2500.0 MHz		45	58	—	dB
2500.0 ... 2570.0 MHz		40	62	—	dB

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				<b>B8802</b>			
				<b>min.</b>	<b>typ. @ 25 °C</b>	<b>max.</b>	
2570.0	...	3155.0	MHz	40	58	—	dB
3155.0	...	4000.0	MHz	35	50	—	dB
4000.0	...	6000.0	MHz	33	45	—	dB
<b>Common mode suppression</b>			$S_{cs21}$				
0.1	...	925.0	MHz	43	46	—	dB
925.0	...	960.0	MHz	43	46	—	dB
1427.0	...	1463.0	MHz	33	42	—	dB
1710.0	...	1785.0	MHz	35	40	—	dB
1850.0	...	1910.0	MHz	39	43	—	dB
1920.0	...	1980.0	MHz	38	43	—	dB
2401.0	...	2483.0	MHz	32	38	—	dB
2500.0	...	2570.0	MHz	31	37	—	dB

1) Measured with an aperture of 2 MHz

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**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>	5 <sup>1)</sup>	V	
ESD voltage				
Machine Model	V <sub>ESD</sub>	100 <sup>2)</sup>	V	
Human Body Model	V <sub>ESD</sub>	275 <sup>3)</sup>	V	
Input power (5000 h, 50°C)				
@ 915 MHz	P <sub>IN</sub>	23	dBm	1/8 duty cycle
@ 1710 MHz	P <sub>IN</sub>	15	dBm	cw
@ 1453 MHz	P <sub>IN</sub>	15	dBm	cw

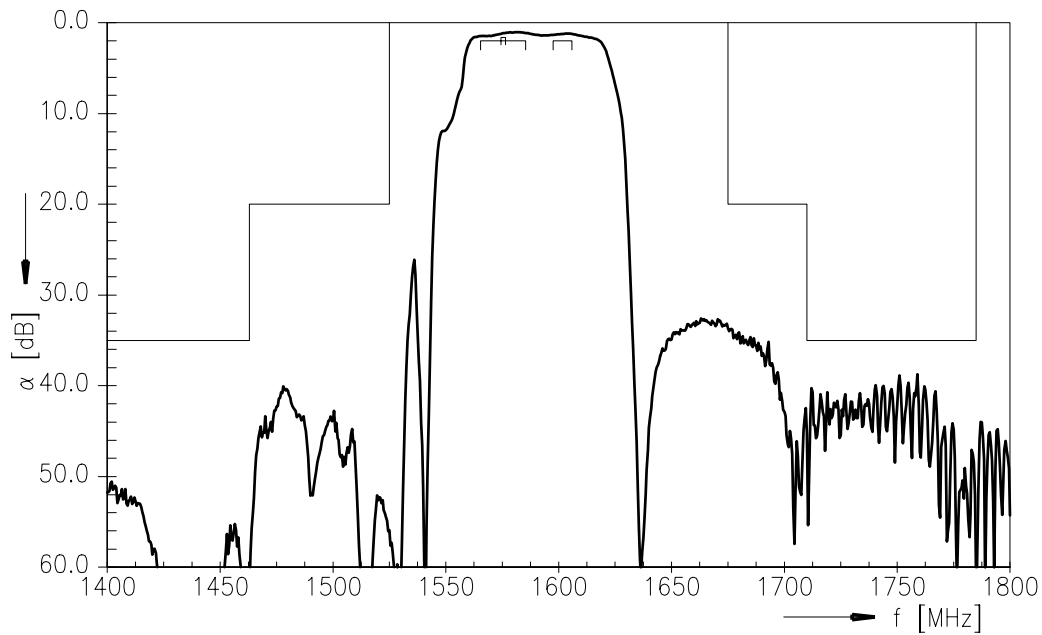
<sup>1)</sup> 168h Damp Heat Steady State acc. to IEC60068-2-67 Cy

<sup>2)</sup> acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

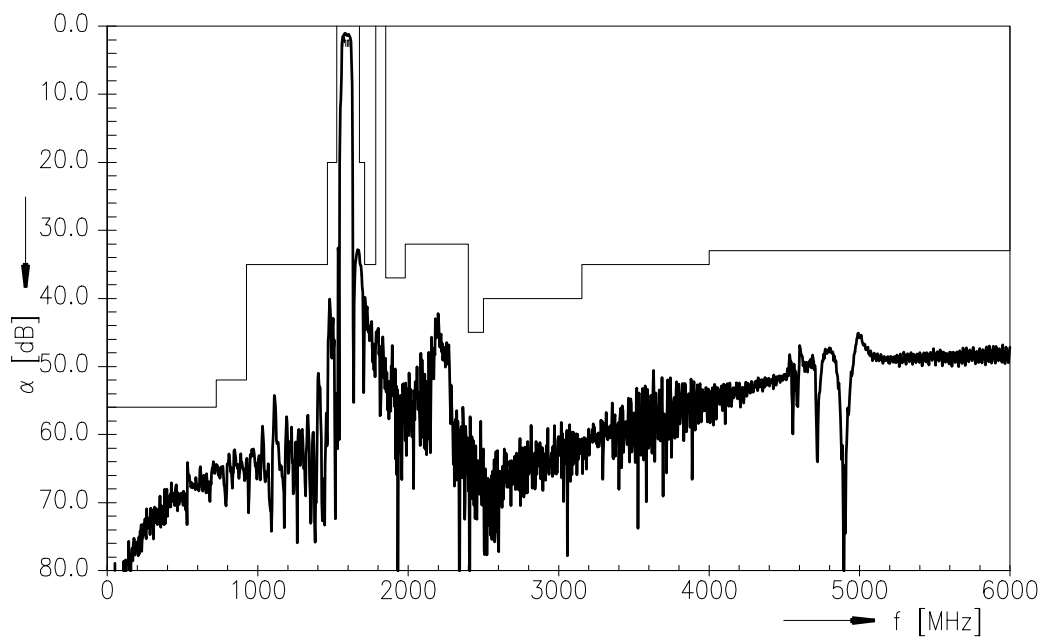
<sup>3)</sup> acc. to JESD22-A114F (HBM - Human Body Model), 1 negative & 1 positive pulses



Transfer function (passband, differential mode,  $S_{ds21}$ )



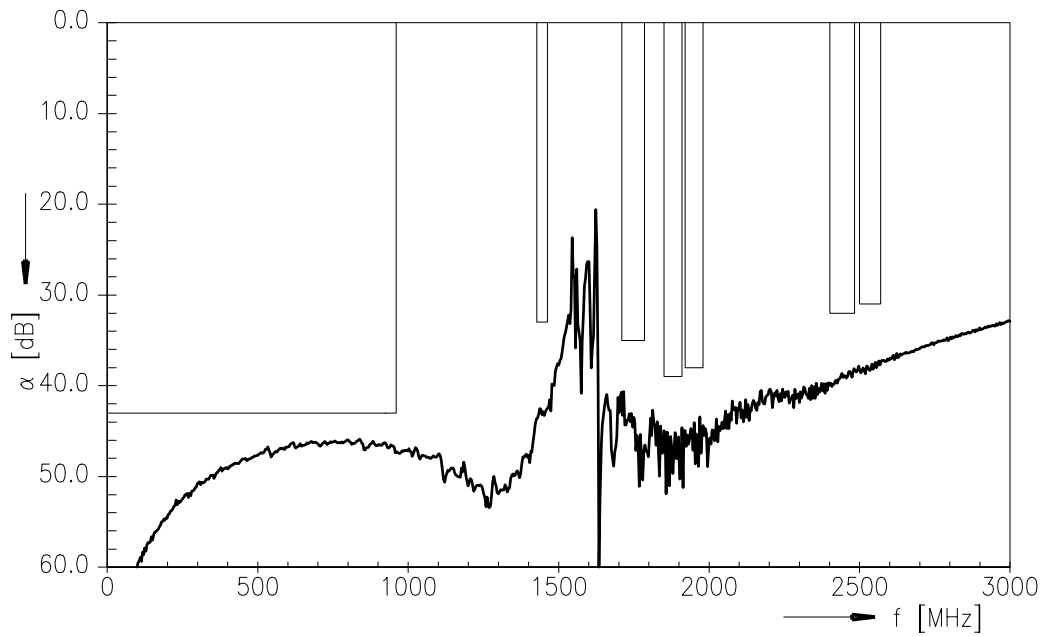
Transfer function (wideband, differential mode,  $S_{ds21}$ )



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



Transfer function (common mode,  $S_{cs21}$ )



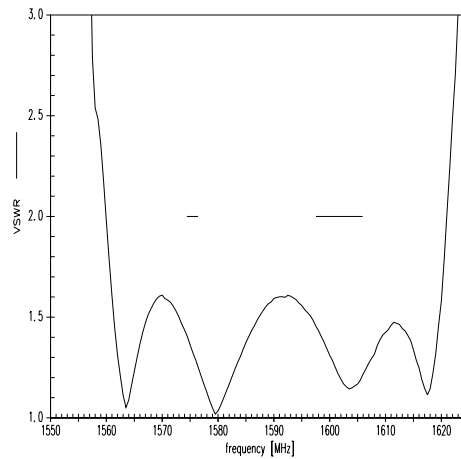
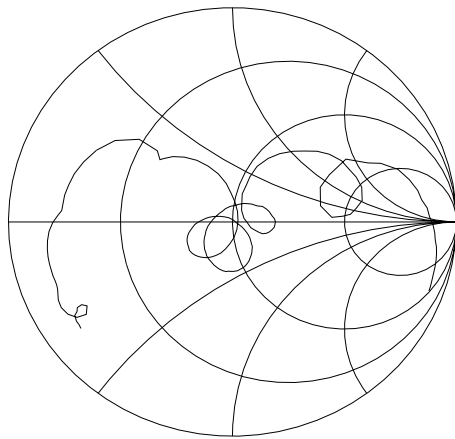
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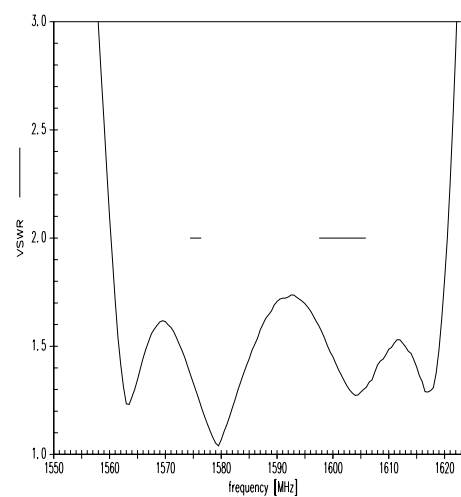
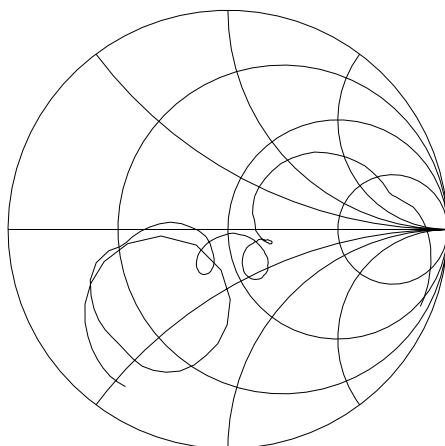


Smith chart / VSWR

**S<sub>11</sub> function**



**S<sub>22</sub> function**



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<b>Type</b>	B8802
<b>Ordering code</b>	B39162-B8802-P810
<b>Marking and package</b>	C61157-A8-A30
<b>Packaging</b>	F61074-V8255-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8802_NB.s3p see file header for port/pin assignment table
<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 8 <sup>th</sup> , 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.
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