



# SAW Components

## GPS Filters (RF)

**Series/Type: B9080**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39162B9080L310	B39162B9444M410	2012-12-21	2013-12-31	2014-02-28

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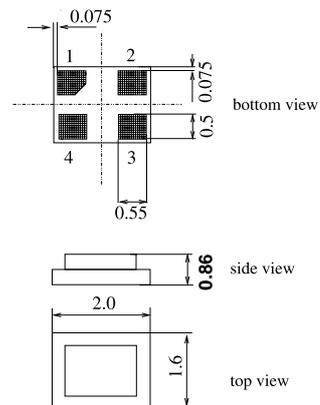
**Data Sheet**

**Application**

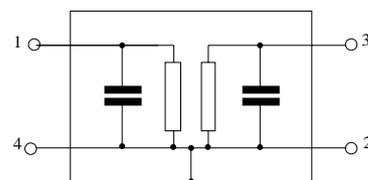
- ESD robust low-loss RF GPS filter
- High ESD protection at the filter input
- Usable passband: 4 MHz
- Very low insertion attenuation
- Very high out of band selectivity
- Unbalanced to unbalanced operation
- No matching network required for operation at 50 Ω


**Features**

- Package size 2.0 x 1.6 x 0.86. mm<sup>3</sup>
- Package code DCS4M
- RoHS compatible
- Approximate weight 0.007 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


**Pin configuration**

- 1 Input
- 3 Output
- 2,4 Case ground



**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

		B9080			
		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	1575.42	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	1.2	1.5	dB
1573.42 ... 1577.42 MHz					
<b>Amplitude ripple (p-p)</b>	Δα	—	0.1	0.4	dB
1573.42 ... 1577.42 MHz					
<b>VSWR (Input and Output)</b>		—	1.35	1.8	
1573.42 ... 1577.42 MHz					
<b>IIP2 (2<sup>nd</sup> order Input Intercept Point)</b>					
2 tone (cw) method:					
P1 @ +22.5dBm @ F1=824MHz..915MHz		110.5	117.8	—	dBm
P2 @ -0.5dBm @ F2=F1+1575.42MHz					
P1 @ +21dBm @ F1=824MHz..915MHz		98.0	115	—	dBm
P2 @ +14dBm @ F2=F1+1575.42MHz					
P1 @ +20dBm @ F1=1710MHz..1785MHz		95	111	—	dBm
P2 @ -13.3dBm @ F2=F1+1575.42MHz					
P1 @ +20dBm @ F1=1850MHz..1910MHz		95	110	—	dBm
P2 @ -13.3dBm @ F2=F1+1575.42MHz					
<b>IIP3 (3<sup>rd</sup> order Input Intercept Point)</b>					
2 tone (cw) method:					
P1 @ +20dBm @ F1=1710MHz..1785MHz		95	110	—	dBm
P2 @ +11dBm @ F2=2*F1+1575.42MHz					
P1 @ +21dBm @ F1=824MHz..915MHz		90	105	—	dBm
P2 @ -13.3dBm @ F2=2*F1+1575.42MHz					
P1 @ +20dBm @ F1=2500MHz..2570MHz		85	100	—	dBm
P2 @ -13.3dBm @ F2=2*F1-1575.42MHz					
<b>Group delay ripple (p-p)</b>	Δτ	—	8	20	ns
1573.42 ... 1577.42 MHz					

					B9080			
					min.	typ. @ 25 °C	max.	
<b>Attenuation</b>				$\alpha$				
	0.1	...	824.0	MHz	48	57	—	dB
	824.0	...	849.0	MHz	50	57	—	dB
	849.0	...	915.0	MHz	50	56	—	dB
	915.0	...	1400.0	MHz	48	55	—	dB
	1611.0	...	1648.0	MHz	6	13	—	dB
	1648.0	...	1710.0	MHz	45	61	—	dB
	1710.0	...	1785.0	MHz	53	61	—	dB
	1785.0	...	1850.0	MHz	46	61	—	dB
	1850.0	...	1910.0	MHz	46	62	—	dB
	1910.0	...	1980.0	MHz	46	61	—	dB
	1980.0	...	2400.0	MHz	43	51	—	dB
	2400.0	...	2484.0	MHz	43	50	—	dB
	2484.0	...	2570.0	MHz	42	48	—	dB
	2570.0	...	3900.0	MHz	33	41	—	dB
	3900.0	...	4400.0	MHz	30	41	—	dB
	4400.0	...	5150.0	MHz	15	27	—	dB
	5150.0	...	5400.0	MHz	14	20	—	dB
	5400.0	...	6000.0	MHz	10	15	—	dB
	((824 - 849) + (2400 - 2484))/2			MHz	45	53.5	—	dB
	((849 - 915) + (2400 - 2484))/2			MHz	45	53	—	dB

**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>	5	V	
ESD voltage @ Input				
Contact Discharge	V <sub>ESD</sub>	± 8 <sup>1)</sup>	kV	at input pin 1
Air Discharge	V <sub>ESD</sub>	± 15 <sup>2)</sup>	kV	at input pin 1
Machine Model	V <sub>ESD</sub>	± 1000 <sup>3)</sup>	V	at input pin 1
Machine Model	V <sub>ESD</sub>	± 100 <sup>2)</sup>	V	at output pin 3
Charge Device Model	V <sub>ESD</sub>	± 500 <sup>4)</sup>	V	at input and output (pin 1 and 3)
Human Body Model	V <sub>ESD</sub>	± 200 <sup>5)</sup>	V	at input and output (pin 1 and 3)
Input power				
WCDMA systems	P <sub>IN</sub>	30	dBm	Average, cw
TDMA systems	P <sub>IN</sub>	36	dBm	Peak, max. duty cycle 1:2

<sup>1)</sup> acc. to IEC61000-4-2 (Contact discharge, R<sub>s</sub> = 330 R, C<sub>s</sub> = 150 pF), 10 negative & 10 positive pulses.

<sup>2)</sup> acc. to IEC61000-4-2 (Air discharge, R<sub>s</sub> = 330 R, C<sub>s</sub> = 150 pF), 10 negative & 10 positive pulses.

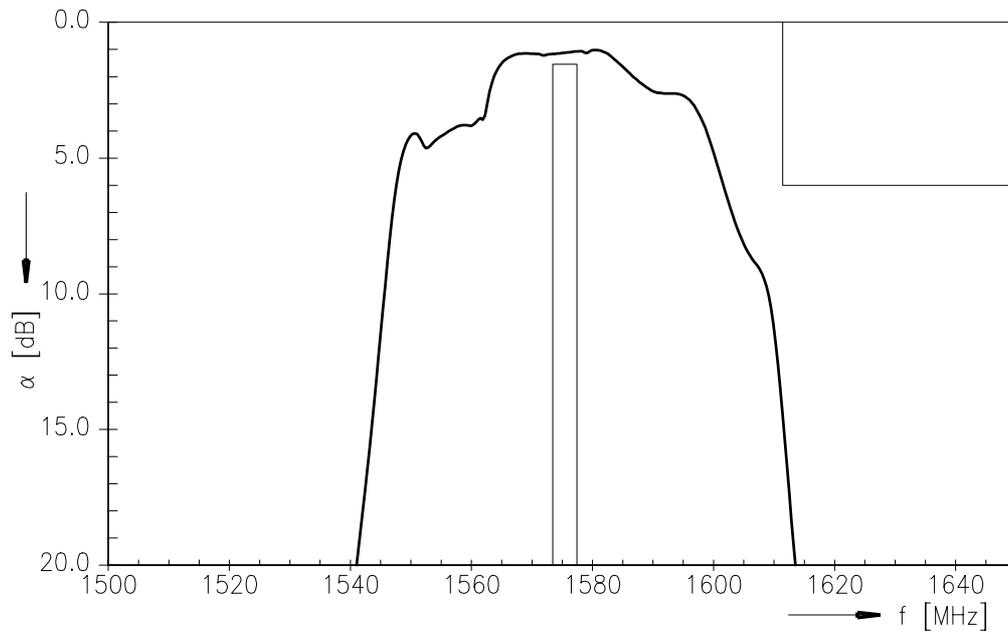
<sup>3)</sup> acc. to JESD22-A115A (Machine model, R<sub>s</sub> = 0 R, C<sub>s</sub> = 200 pF), 10 negative & 10 positive pulses.

<sup>4)</sup> acc. to JESD22-C101 (Charge device model)

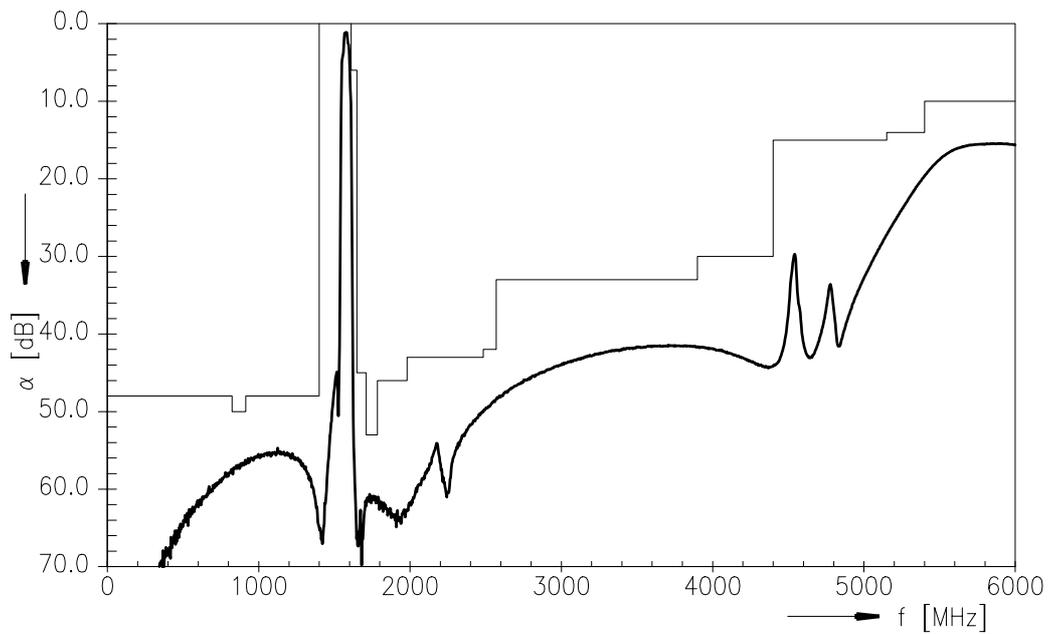
<sup>5)</sup> acc. to JESD22-A114 (Human body model, R<sub>s</sub> = 1500 R, C<sub>s</sub> = 100 pF), 1 negative & 1 positive pulse.



Transfer function (passband)



Transfer function

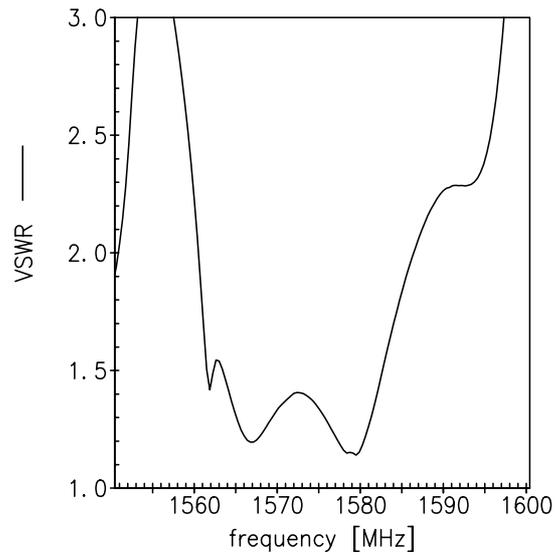
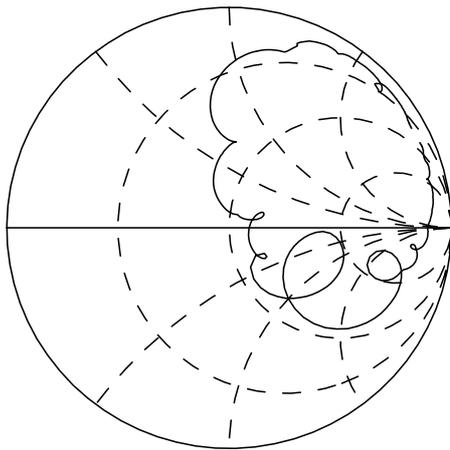


Data Sheet

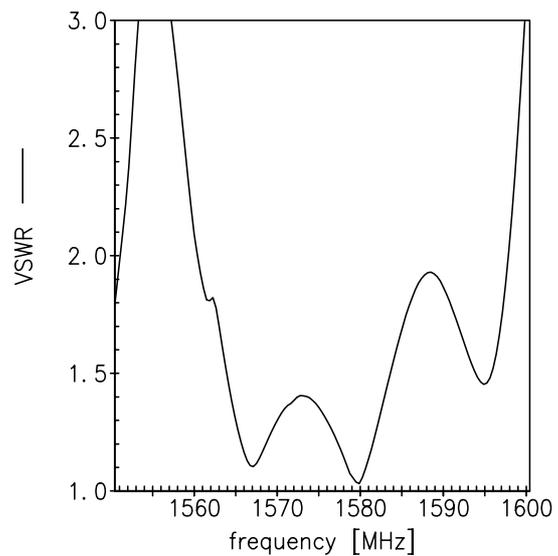
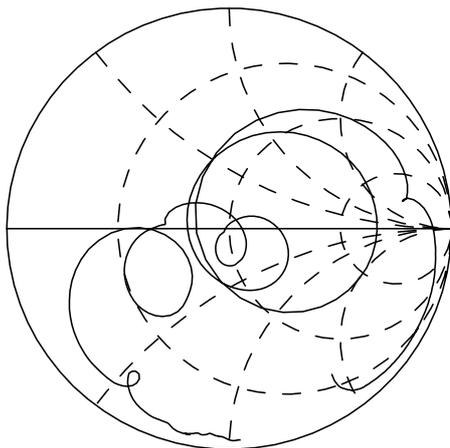


Smith chart / VSWR

$S_{11}$  function



$S_{22}$  function



**SAW Components**
**B9080**
**SAW GPS Filter**
**1575.42 MHz**

Data Sheet


**References**

<b>Type</b>	B9080
<b>Ordering code</b>	B39162B9080L310
<b>Marking and package</b>	C61157-A7-A151
<b>Packaging</b>	F61074-V8224-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B9080_NB.s2p, B9080_WB.s2p
<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."
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