



SAW Components

SAW GPS Filter

Series/type:	B9080
Ordering code:	B39162B9080L310
Date:	May 12, 2009
Version:	2.5



SAW Components

B9080

SAW GPS Filter

1575.42 MHz

Data Sheet



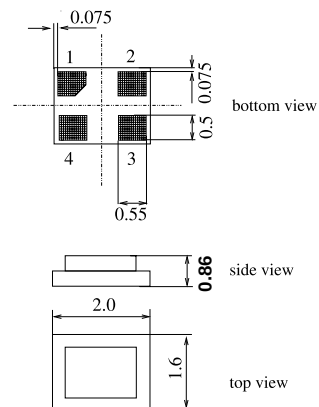
Application

- 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



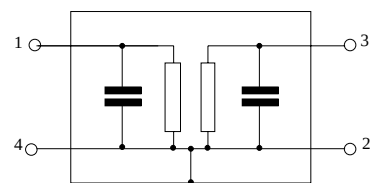
Features

- Package size 2.0 x 1.6 x 0.86. mm³
- 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





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Characteristics of Filter

Temperature range for specification:	$T = -30\text{ °C to } +85\text{ °C}$
Terminating source impedance:	$Z_S = 50\ \Omega$
Terminating load impedance:	$Z_L = 50\ \Omega$

		B9080			
		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	1.2	1.5	dB
1573.42 ... 1577.42 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0.1	0.4	dB
1573.42 ... 1577.42 MHz					
VSWR (Input and Output)		—	1.35	1.8	
1573.42 ... 1577.42 MHz					
IIP2 (2nd order Input Intercept Point)					
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					
IIP3 (3rd order Input Intercept Point)					
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					
Group delay ripple (p-p)	$\Delta\tau$	—	8	20	ns
1573.42 ... 1577.42 MHz					



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					B9080			
					min.	typ. @ 25 °C	max.	
Attenuation				α				
	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



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

¹⁾ acc. to IEC61000-4-2 (Contact discharge, R_s = 330 R, C_s = 150 pF), 10 negative & 10 positive pulses.

²⁾ acc. to IEC61000-4-2 (Air discharge, R_s = 330 R, C_s = 150 pF), 10 negative & 10 positive pulses.

³⁾ acc. to JESD22-A115A (Machine model, R_s = 0 R, C_s = 200 pF), 10 negative & 10 positive pulses.

⁴⁾ acc. to JESD22-C101 (Charge device model)

⁵⁾ acc. to JESD22-A114 (Human body model, R_s = 1500 R, C_s = 100 pF), 1 negative & 1 positive pulse.



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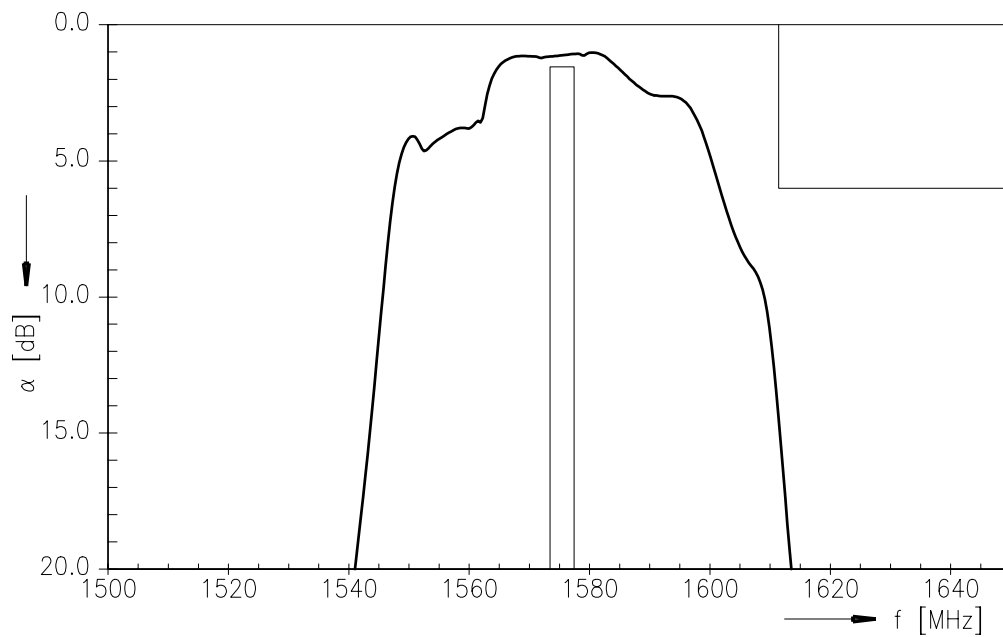
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1575.42 MHz

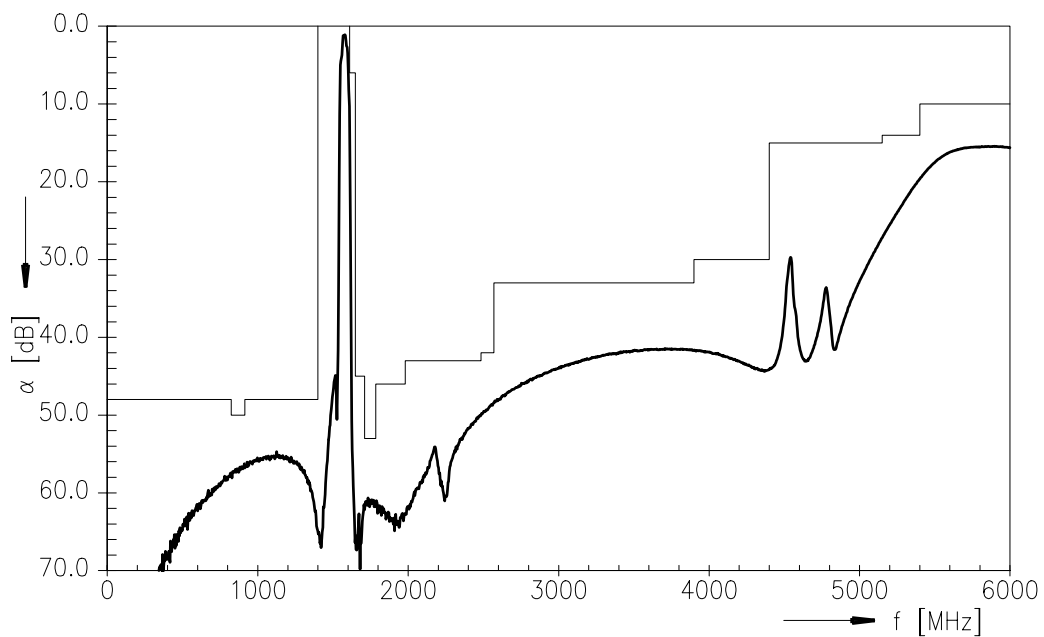
Data Sheet



Transfer function (passband)



Transfer function



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



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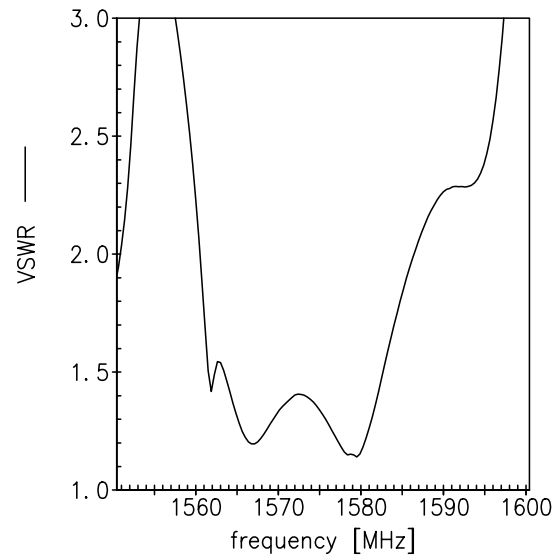
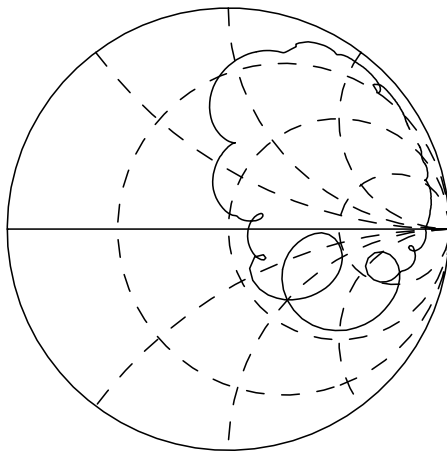
1575.42 MHz

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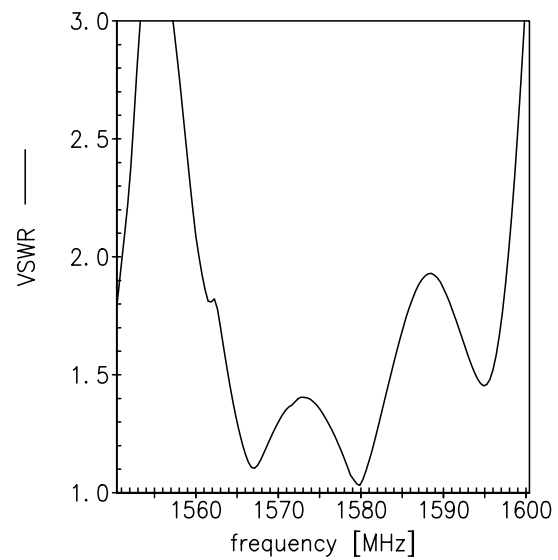
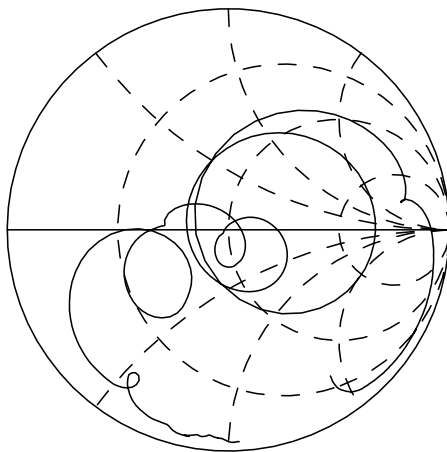


Smith chart / VSWR

S_{11} function



S_{22} function



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**References**

Type	B9080
Ordering code	B39162B9080L310
Marking and package	C61157-A7-A151
Packaging	F61074-V8224-Z000
Date codes	L_1126
S-parameters	B9080_NB.s2p, B9080_WB.s2p
Soldering profile	S_6001
RoHS compatible	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."
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.

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



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