



SAW Components

SAW GPS + GLONASS filter

Series/type:	B9474
Ordering code:	B39162B9474P810
Date:	October 19, 2010
Version:	2.1



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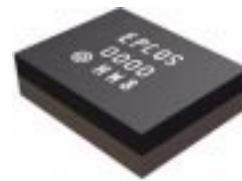
1585.655 MHz

Data sheet



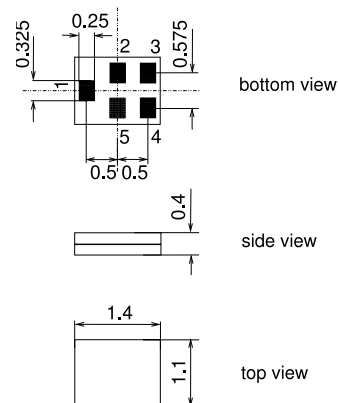
Application

- Low-loss RF GPS+GLONASS filter
- Simultaneous usage of GPS band and GLONASS band
- Usable passbands: 2.0 MHz for GPS (20.0 MHz for wide-band 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



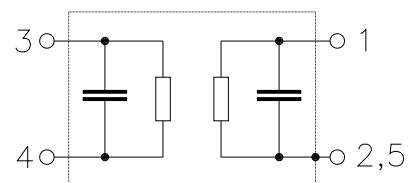
Features

- Package size 1.4 x 1.1 x 0.4 mm³
- Package code QCS5I
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

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





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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: $Z_L = 100\ \Omega$

		B9474			
		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	1585.65		MHz
Maximum insertion attenuation	S_{ds21}				
1574.42 ... 1576.42 MHz		—	0.9	1.4	dB
1565.42 ... 1585.42 MHz		—	1.3	1.8	dB
1597.55 ... 1605.89 MHz		—	1.2	2.0	dB
VSWR Input					
1574.42 ... 1576.42 MHz		—	1.2	2.0	
1597.55 ... 1605.89 MHz		—	1.4	2.0	
VSWR Output					
1574.42 ... 1576.42 MHz		—	1.2	2.0	
1597.55 ... 1605.89 MHz		—	1.5	2.1	
Group delay ripple¹⁾ (p-p)	$\Delta\tau$				
1597.55 ... 1605.89 MHz			4.5	15	ns
Output amplitude balance (S_{31} / S_{21})					
1574.42 ... 1576.42 MHz		-1.5	-0.6/-0.5	1.5	dB
1597.55 ... 1606.45 MHz		-1.5	-0.5/0.2	1.5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
1574.42 ... 1576.42 MHz		-10	1 / 2	10	°
1597.55 ... 1606.45 MHz		-10	-3 / 2	10	°
Attenuation	S_{ds21}				
0.1 ... 725.0 MHz		50	62		dB
725.0 ... 925.0 MHz		50	60		dB
925.0 ... 1427.0 MHz		35	51		dB
1427.0 ... 1463.0 MHz		35	60		dB
1463.0 ... 1525.0 MHz		20	42		dB
1675.0 ... 1710.0 MHz		20	34		dB
1710.0 ... 1785.0 MHz		35	42		dB
1850.0 ... 1980.0 MHz		40	48		dB
1980.0 ... 2400.0 MHz		32	44		dB
2400.0 ... 2500.0 MHz		45	60		dB
2500.0 ... 2570.0 MHz		35	60		dB

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



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				B9474			
				min.	typ. @ 25 °C	max.	
2570.0	...	3155.0	MHz	40	57		dB
3155.0	...	4000.0	MHz	35	50		dB
4000.0	...	6000.0	MHz	33	46		dB
Common mode suppression							dB
			S_{cs21}				dB
0.1	...	960.0	MHz	45	51		dB
1427.0	...	1463.0	MHz	33	42		dB
1710.0	...	1785.0	MHz	35	47		dB
1850.0	...	1910.0	MHz	39	44		dB
1920.0	...	1980.0	MHz	38	43		dB
2401.0	...	2483.0	MHz	32	37		dB
2500.0	...	2570.0	MHz	31	36		dB

¹⁾ Averaged over 1 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}	3	V	
ESD voltage	V _{ESD}	50 ¹⁾	V	machine model
Input power (5000 h, 50°C)				
@ 915 MHz	P _{IN}	23	dBm	1/8 duty cycle
@ 1710 MHz	P _{IN}	15	dBm	cw
@ 1453 MHz	P _{IN}	15	dBm	cw

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



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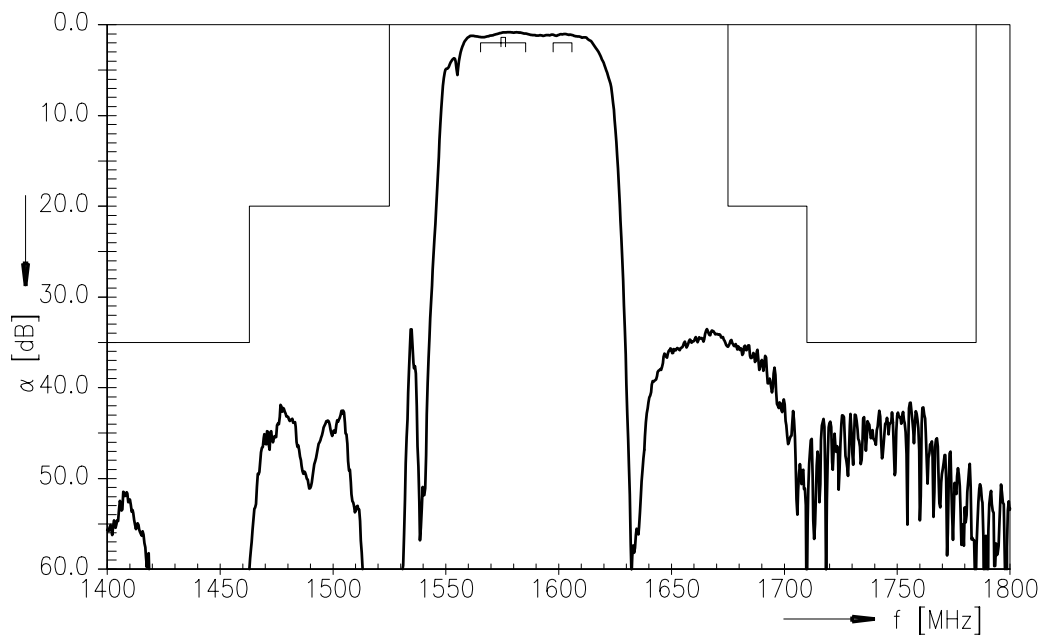
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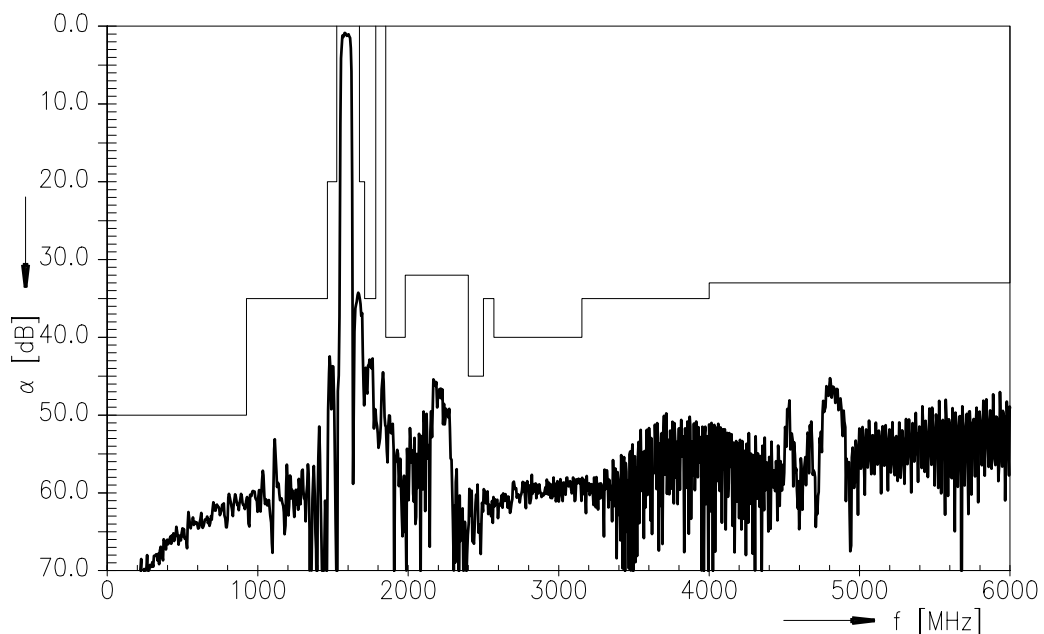
Data sheet



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



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



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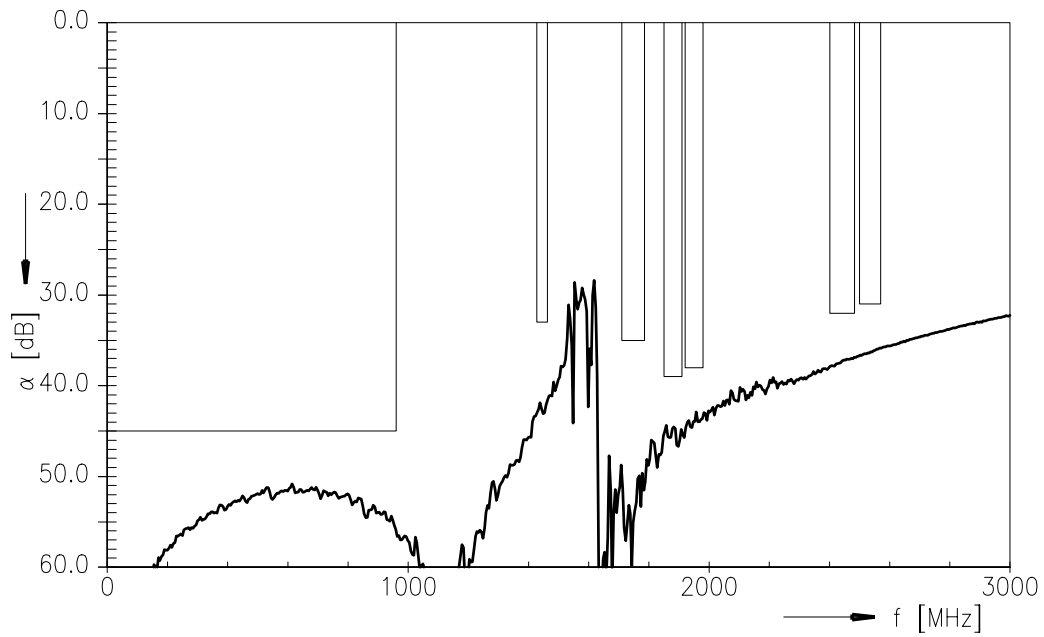
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Transfer function (common mode, S_{CS21})





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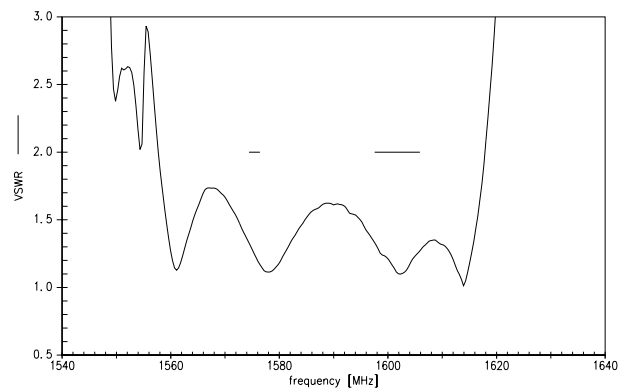
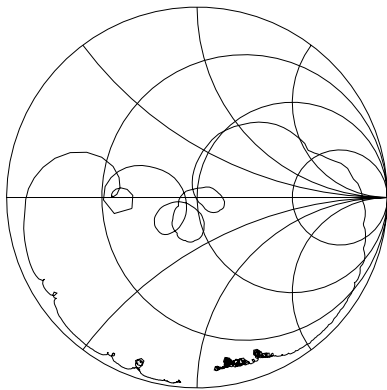
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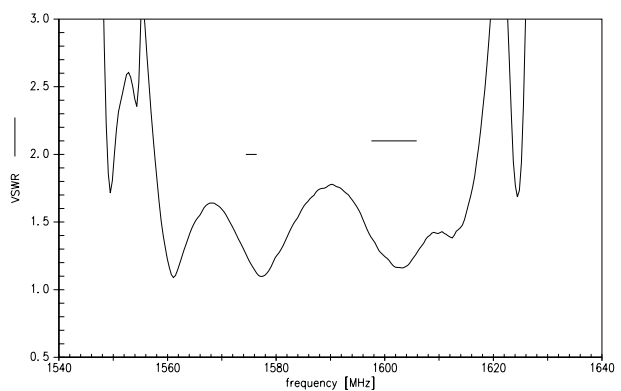
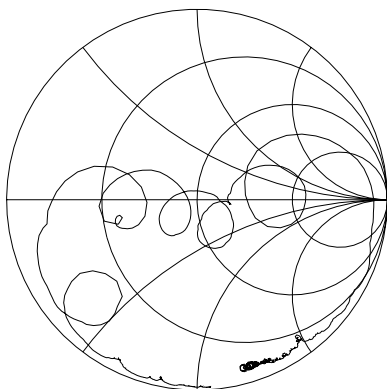


Smith chart / VSWR

S_{11} function



S_{22} function



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Type	B9474
Ordering code	B39162B9474P810
Marking and package	C61157-A8-A3
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B9474_NB.s3p see file header for port/pin assignment table
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.
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

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

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



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