Qualcomm

RF360
Europe GmbH

SAW Components

SAW GPS + COMPASS + GLONASS filter

Series/type:	B8819
Ordering code:	B39162B8819P810
Date:	April 19, 2016
Version:	2.5

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RF360 Europe GmbH, Anzinger Str. 13, München, Germany

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SAW GPS + COMPASS + GLONASS filter 1582.47 MHz

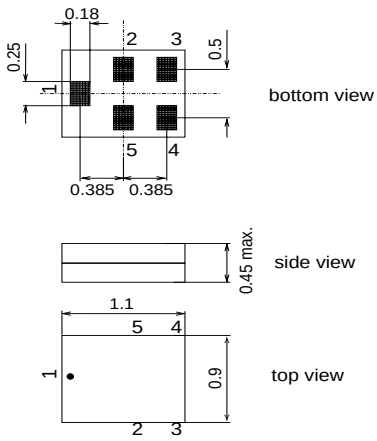
Data Sheet SMD

Application

- Low-loss RF GPS + COMPASS + GLONASS filter
- Simultaneous usage of GPS, COMPASS and GLONASS bands
- Usable passbands: 2.0 MHz for GPS, 4.092 MHz for COMPASS and 8.34 MHz for GLONASS
- Very low insertion attenuation
- High out of band selectivity
- Impedance transformation from 50 Ω to100 Ω
- Unbalanced to balanced operation
- No matching network required for operation at 50 Ω

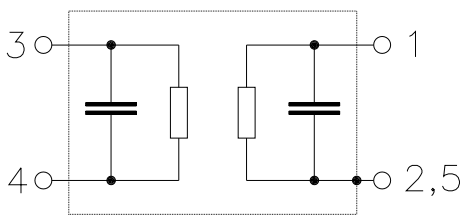
Features

- Package size 1.1 x 0.9 mm²
- package height 0.45 mm max.
- RoHS compatible
- Approximate weight 0.0012 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel 3 (**MSL3**)



Pin configuration

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



Data Sheet SMD

Characteristics of Filter

Temperature range for specification: T = –30 ˚C to +85˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 100 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1582.47	—	MHz
Maximum insertion attenuation	α_{max}				
1559.052... 1563.144 MHz		—	1.4	1.9	dB
1574.42 ... 1576.42 MHz		—	0.9	1.3	dB
1597.55 ... 1605.89 MHz		—	1.5	2.0	dB
VSWR Input					
1559.052... 1563.144 MHz		—	1.7	2.3	
1574.42 ... 1576.42 MHz		—	1.2	1.8	
1597.55 ... 1605.89 MHz		—	1.7	2.1	
VSWR Output					
1559.052... 1563.144 MHz		—	1.7	2.2	
1574.42 ... 1576.42 MHz		—	1.3	1.9	
1597.55 ... 1605.89 MHz		—	1.7	2.3	
Group delay ripple[1)] (p-p)	$\Delta\tau$				
1597.55 ... 1605.89 MHz		—	3	12	ns
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
1559.052... 1563.144 MHz		-1.2	-0.6	1.2	dB
1574.42 ... 1576.42 MHz		-1	-0.4	1	dB
1597.55 ... 1605.89 MHz		-1.5	0.9	1.5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
1559.052... 1563.144 MHz		-10	1.5	10	°
1574.42 ... 1576.42 MHz		-10	-1.5	10	°
1597.55 ... 1605.89 MHz		-10	1.5	10	°
Attenuation	α				
10.0 ... 960.0 MHz		50	60	—	dB
1427.0 ... 1463.0 MHz		40	48	—	dB
1648.0 ... 1698.0 MHz		25	32	—	dB
1710.0 ... 1785.0 MHz		35	40	—	dB
1785.0 ... 1990.0 MHz		40	44	—	dB
1990.0 ... 2280.0 MHz		35	41	—	dB
2280.0 ... 2400.0 MHz		40	51	—	dB
2400.0 ... 2500.0 MHz		45	55	—	dB

		min.	typ. @ 25 ˚C	max.	
2500.0 ... 2700.0 MHz		35	54	—	dB
2700.0 ... 4400.0 MHz		35	48	—	dB
4400.0 ... 6000.0 MHz		25	40	—	dB
Common mode suppression	S_{cs21}				
10.0 ... 960.0 MHz		41	45	—	dB
1427.0 ... 1463.0 MHz		35	42	—	dB
1710.0 ... 1785.0 MHz		37	42	—	dB
1785.0 ... 1990.0 MHz		37	42	—	dB
1990.0 ... 2280.0 MHz		35	39	—	dB
2280.0 ... 2400.0 MHz		32	38	—	dB
2400.0 ... 2500.0 MHz		30	37	—	dB
2500.0 ... 2700.0 MHz		30	35	—	dB

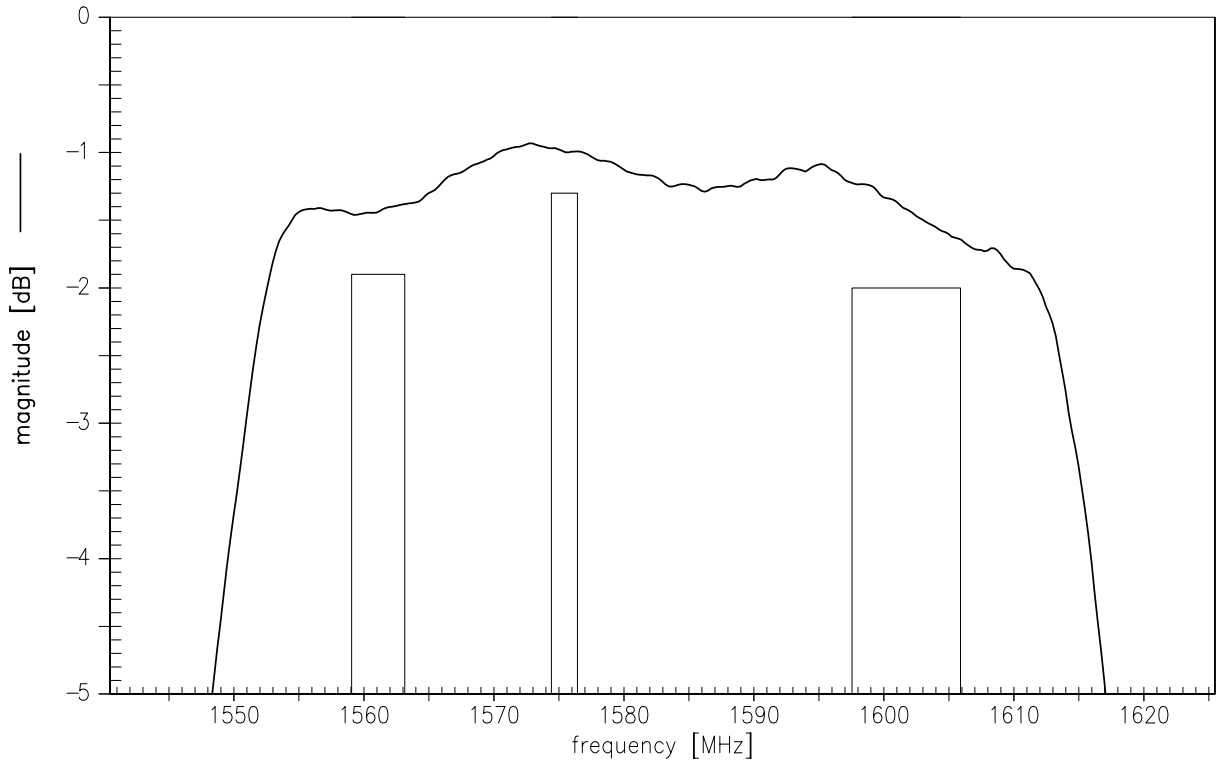
1) Measured with an aperture of 2 MHz

Maximum ratings of Filter

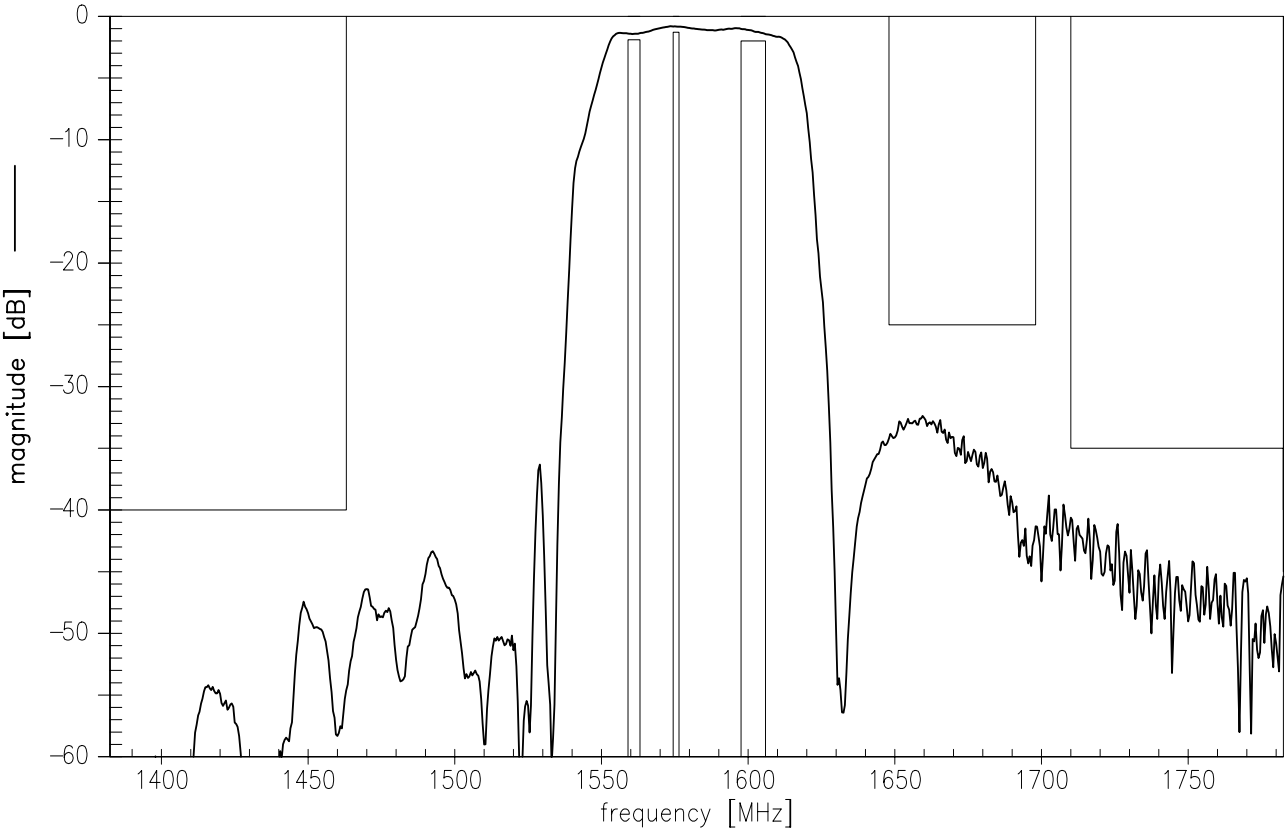
Storage temperature range	T_{stg}	–40/+85[1)]	˚C	
DC voltage	V_{DC}	5[2)]	V	
ESD voltage	V_{ESD}	50[3)]	V	Machine Model
		275[4)]	V	Human Body Model
		600[5)]	V	Charged Device Model
Input power (5000 h, 50˚C)				
@ 915 MHz	P_{IN}	23	dBm	1/8 duty cycle
@ 1710 MHz	P_{IN}	15	dBm	cw
@ 1453 MHz	P_{IN}	15	dBm	cw

1) extended upperlimit: 168@125˚C acc. to IEC 60068-2-2 Bb
2) 168h Damp Heat Steady State acc. to IEC60068-2-67 Cy
3) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses
4) acc. to JESD22-C101C (CDM - Field Induced Charged Device Model), 3 negative & 3 positive pulses
5) acc. to JESD22-C101C (CDM - Field Induced Charged Device Model), 3 negative & 3 positive pulses

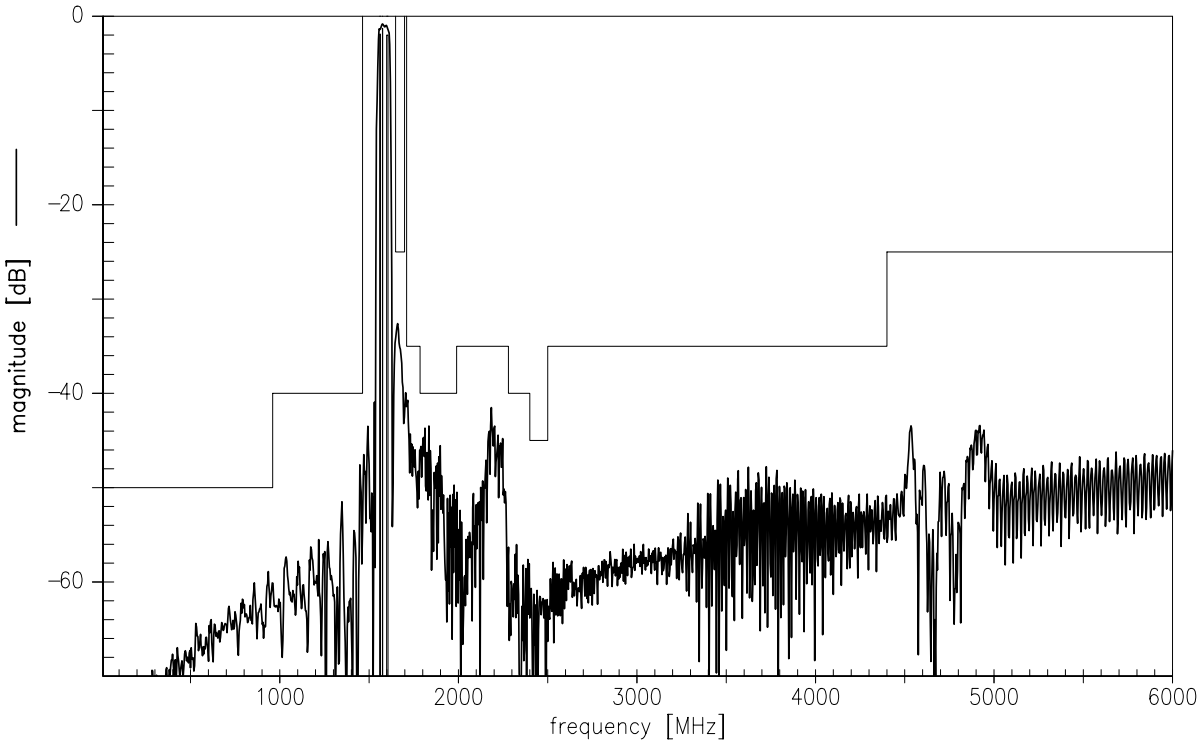
Transfer function passband



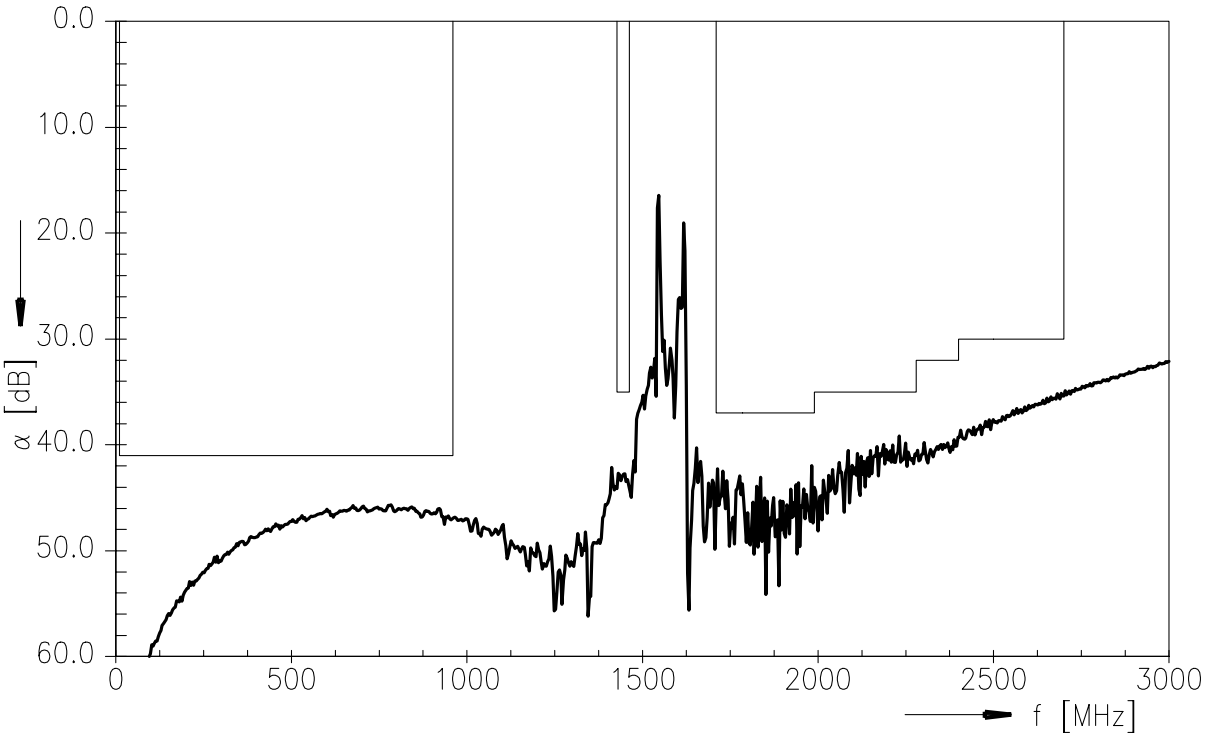
Transfer function narrowband



Transfer function wideband

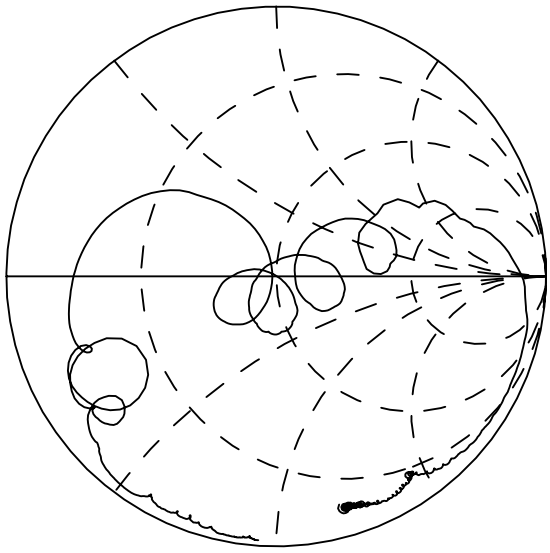


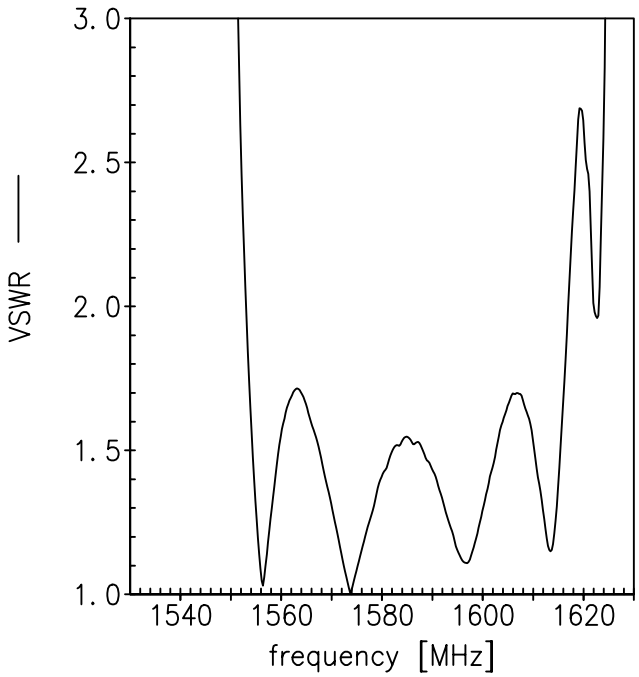
Transfer function (common mode, S_{cs21})



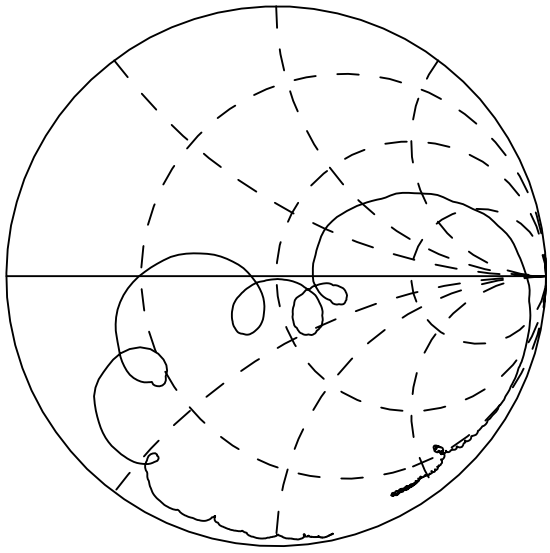
Smith chart / VSWR

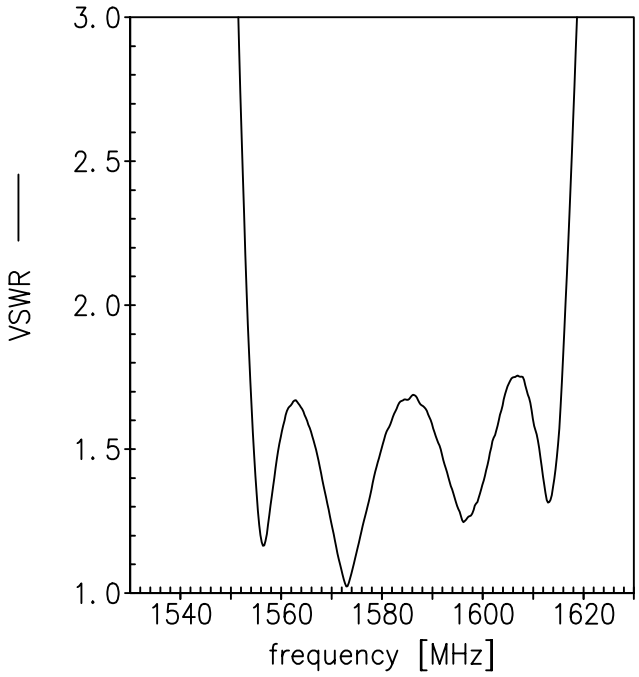
S_{11} function





S_{22} function





References

Type	B8819
Ordering code	B39162B8819P810
Marking and package	C61157-A8-A30
Packaging	F61074-V8255-Z000
Date codes	L_1126
S-parameters	B8819_NB.s3p, B8819_WB.s3p see file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	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.
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

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