



# SAW Components

## SAW Diplexer

Automotive telematics

<b>Series/type:</b>	<b>B3518</b>
<b>Ordering code:</b>	<b>B39162B3518H910</b>
<b>Date:</b>	<b>April 07, 2011</b>
<b>Version:</b>	<b>2.1</b>

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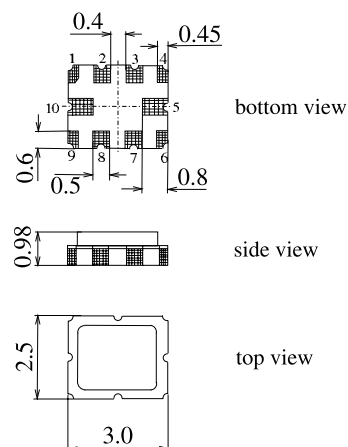
Data sheet


**Application**

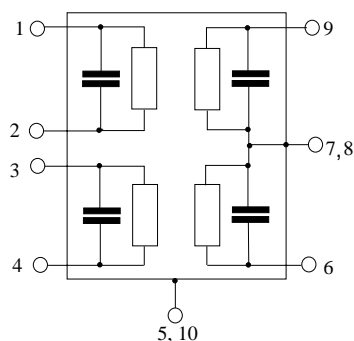
- Low-loss Diplexer for GPS and GLONASS applications


**Features**

- Package size 3.0 x 2.5 x 0.98 mm<sup>3</sup>
- Package code QCC10G
- RoHS compatible
- Approximate weight 0.027 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**


**Pin configuration<sup>1)</sup>**

- 3 Input [Filter 1]
- 2 Input [Filter 2]
- 6 Output [Filter 1]
- 9 Output [Filter 2]
- 5,7,8,10 Case ground
- 1,4 to be grounded



1) The recommended pin configuration usually offers best suppression of electrical crosstalk. The filter characteristics refer to this configuration.

**Data sheet**

**Characteristics Filter 1 (GPS)**

Temperature range for specification:	T = -40 °C to +85 °C
Terminating source impedance:	Z <sub>S</sub> = 50 Ω and matching network
Terminating load impedance:	Z <sub>L</sub> = 50 Ω

		<b>B3518</b>			
		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>	f <sub>C</sub>	—	1575.00	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	3.8	4.8	dB
1570.00 ... 1580.00 MHz					
<b>Amplitude ripple</b>		—	1.0	2.0	dB
1570.00 ... 1580.00 MHz					
<b>VSWR</b>					
Input	1570.00 ... 1580.00 MHz	—	2.1	2.4	
Output	1570.00 ... 1580.00 MHz	—	2.0	2.3	
<b>Attenuation</b>	α <sub>abs</sub>				
10.00 ... 1000.00 MHz		50	60	—	dB
1000.00 ... 1500.00 MHz		29	34	—	dB
1597.00 ... 1607.00 MHz		15	24	—	dB
1625.00 ... 1660.00 MHz		37	47	—	dB
1680.00 ... 2000.00 MHz		34	38	—	dB

Data sheet


**Characteristics Filter 2 (GLONASS)**

Temperature range for specification:

$$T = -40\text{ °C to }+85\text{ °C}$$

Terminating source impedance:

$$Z_S = 50\ \Omega \text{ and matching network}$$

Terminating load impedance:

$$Z_L = 50\ \Omega$$

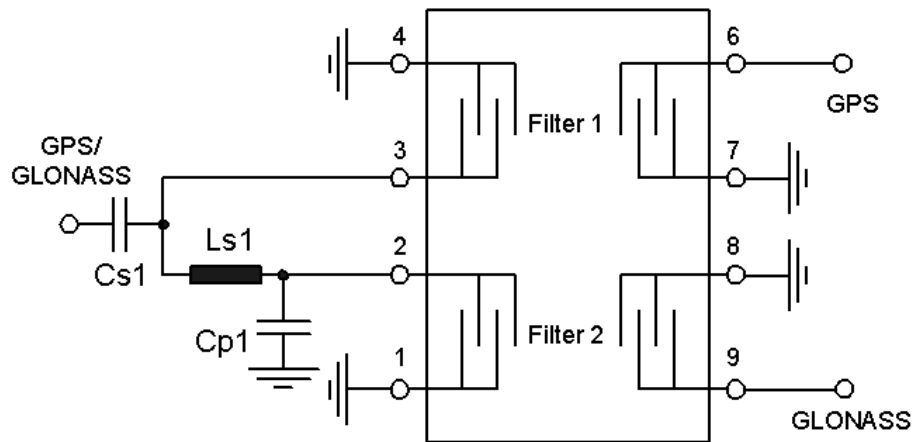
		B3518			
		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	1602.00	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$				
	1597.00 ... 1607.00 MHz	—	3.6	4.5	dB
<b>Amplitude ripple</b>					
	1597.00 ... 1607.00 MHz	—	1.0	1.8	dB
<b>VSWR</b>					
Input	1597.00 ... 1607.00 MHz	—	2.15	2.45	
Output	1597.00 ... 1607.00 MHz	—	1.8	2.3	
<b>Group delay ripple<sup>1)</sup> (p-p)</b>					
	1597.0 ... 1607.0 MHz	—	5	25	ns
<b>Attenuation</b>	$\alpha_{\text{abs}}$				
	10.00 ... 1000.00 MHz	50	55	—	dB
	1000.00 ... 1500.00 MHz	29	34	—	dB
	1570.00 ... 1580.00 MHz	12	22	—	dB
	1625.00 ... 1640.00 MHz	6	17	—	dB
	1640.00 ... 1660.00 MHz	27	37	—	dB
	1680.00 ... 2000.00 MHz	35	40	—	dB

1) Averaged over 500 kHz

Data sheet



Matching network to 50 Ω



$Cs1 = 6.8\text{pF}$

$Ls1 = 5.6\text{nH}$

$Cp1 = 0.2\text{pF}$



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B3518

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1575.00 / 1602.00 MHz

Data sheet

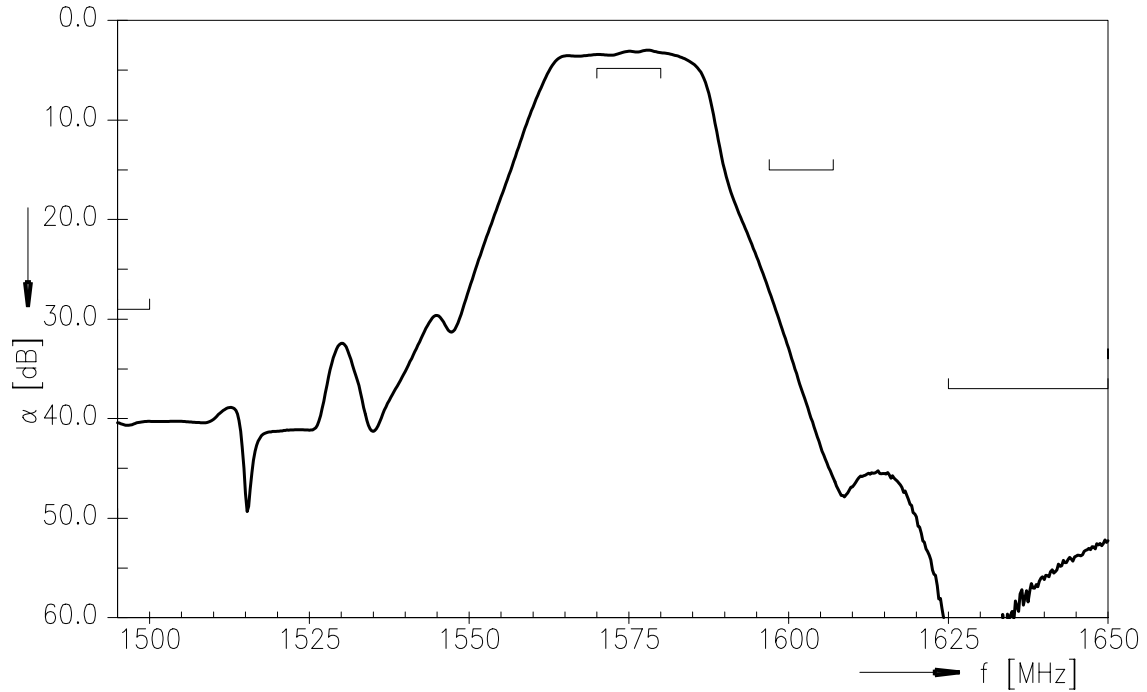


### Maximum ratings

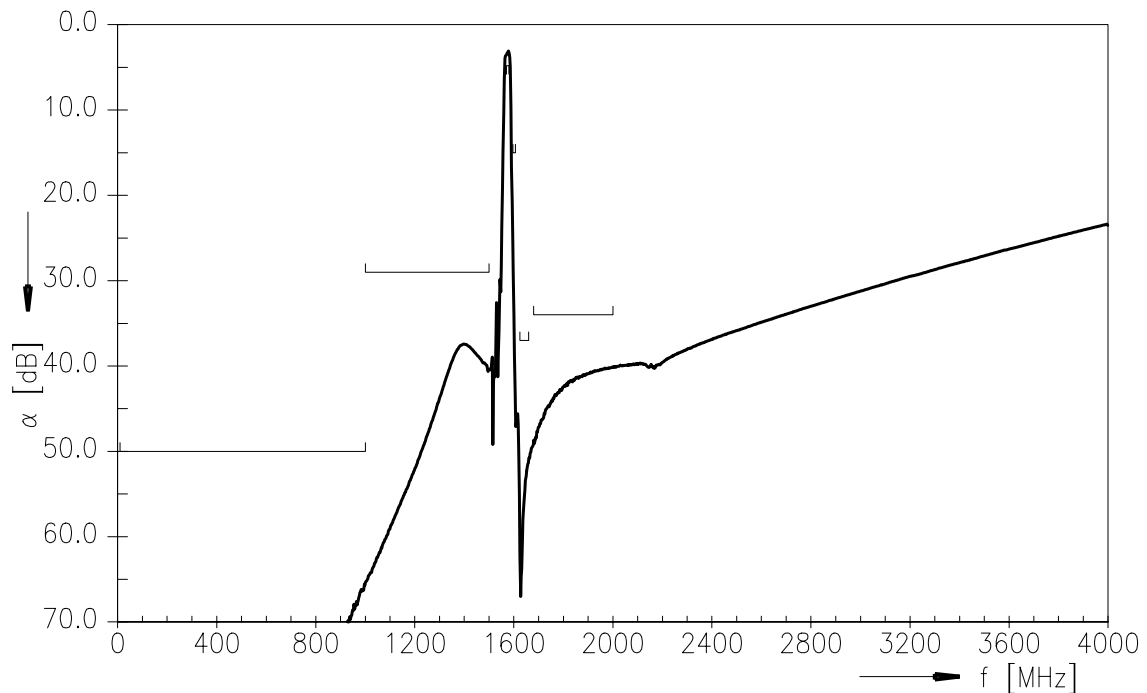
Operable temperature range	T	-45/+125	°C	
Storage temperature range	T <sub>stg</sub>	-45/+125	°C	
DC voltage	V <sub>DC</sub>	6	V	
Input power	P <sub>IN</sub>	10	dBm	



Transfer function Filter 1



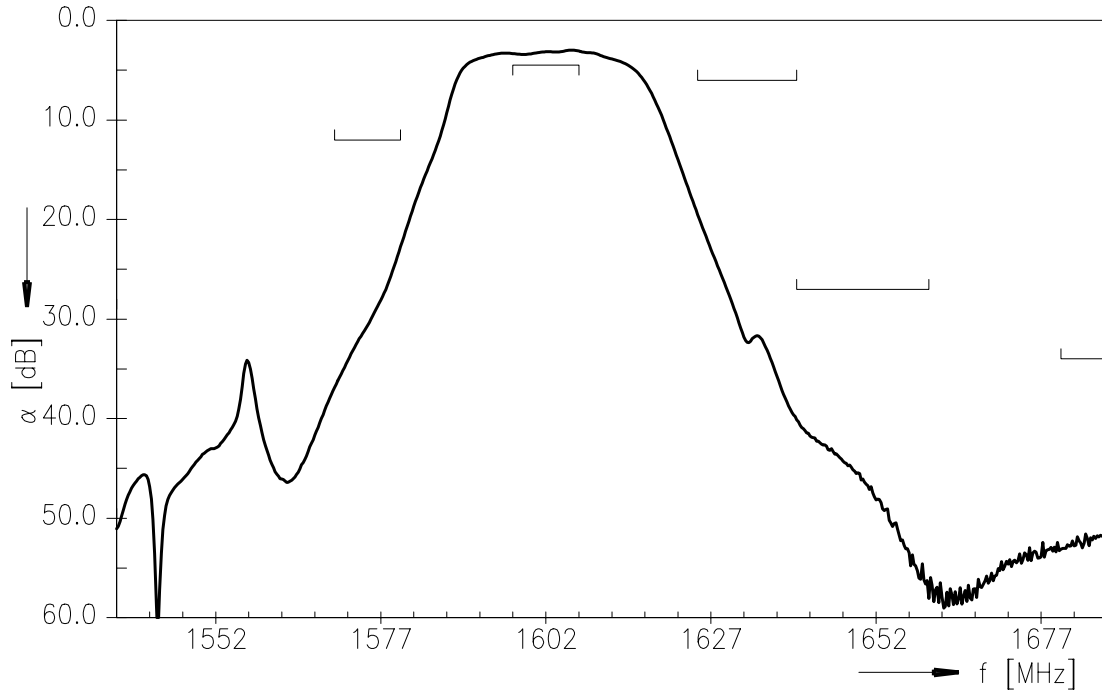
Transfer function Filter 1 (wideband)



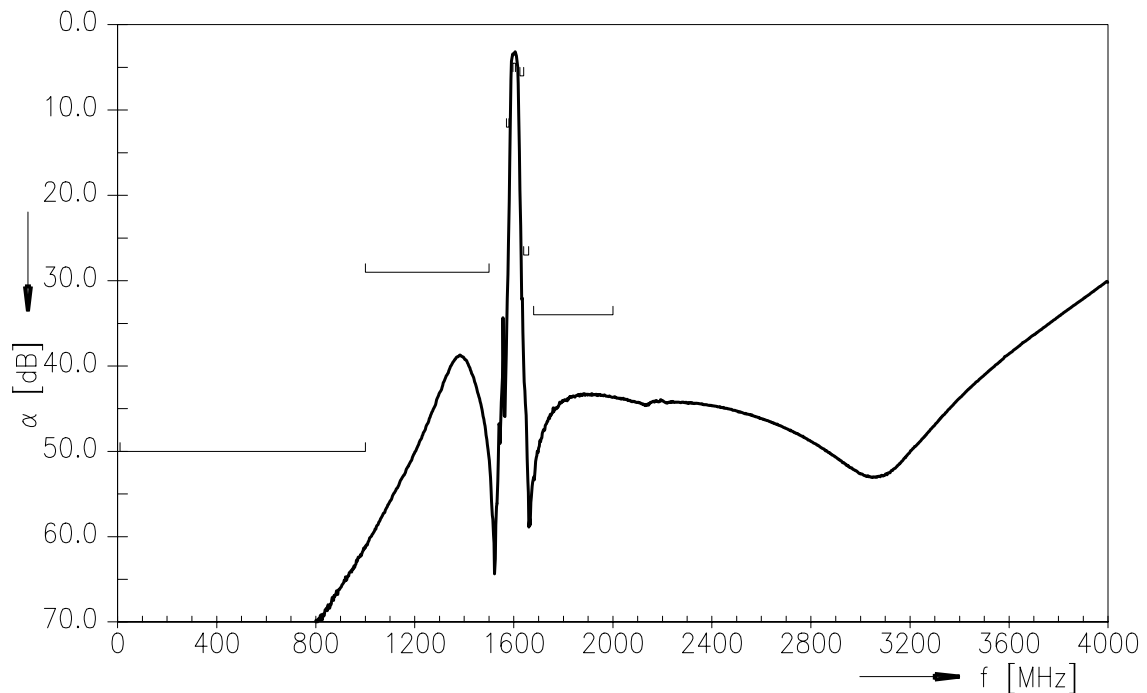
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Transfer function Filter 2

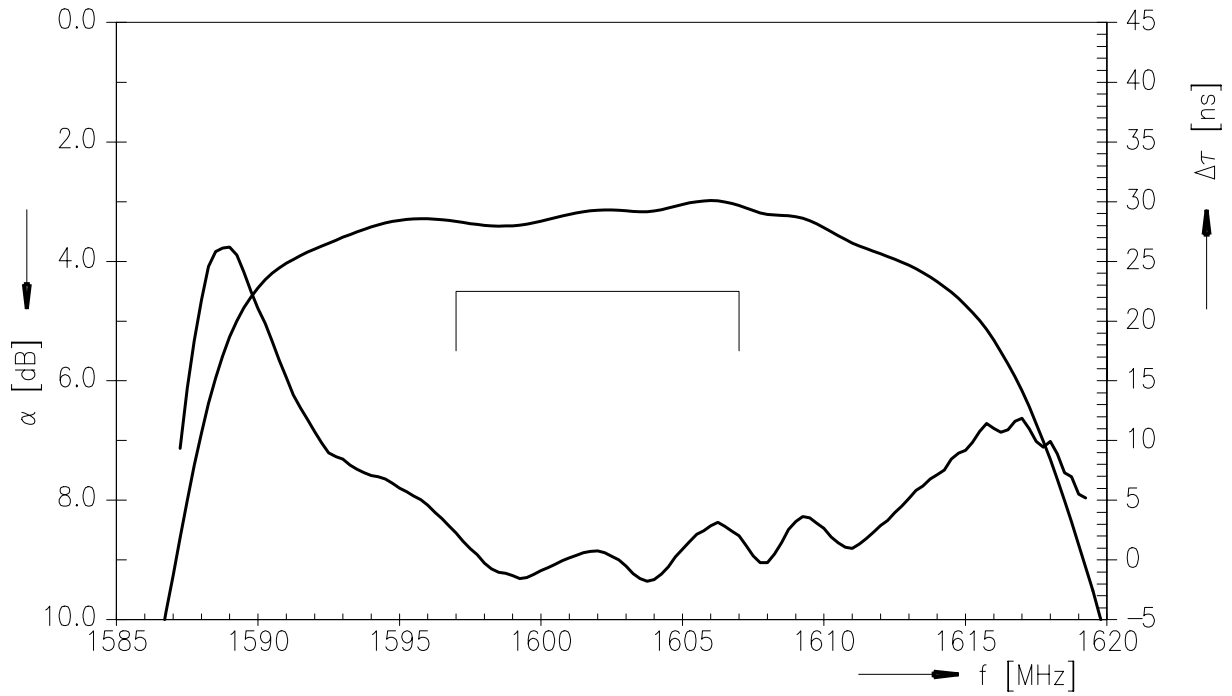


Transfer function Filter 2 (wideband)





Group delay time Filter 2




**References**

<b>Type</b>	B3518
<b>Ordering code</b>	B39162B3518H910
<b>Marking and package</b>	C61157-A7-A142
<b>Packaging</b>	F61074-V8174-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B3518_NB.s4p, B3518_WB.s4p see file header for port/pin assignment table
<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."
<b>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.
<b>Matching coils</b>	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>

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