



## **SAW Components**

### **SAW RF low loss filter**

Satellite CSS

<b>Series/type:</b>	<b>B1657</b>
<b>Ordering code:</b>	<b>B39162-B1657-B510</b>
<b>Date:</b>	<b>September 15, 2009</b>
<b>Version:</b>	<b>2.0</b>



SAW Components

B1657

SAW RF low loss filter

1586.36 MHz

Data Sheet

SMD

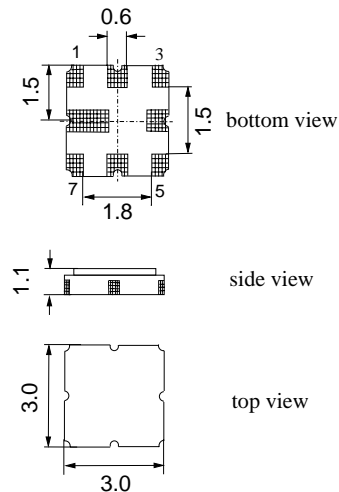
### Application

- Low loss RF filter for satellite CSS
- Usable passband 40.0 MHz
- Balanced to balanced operation



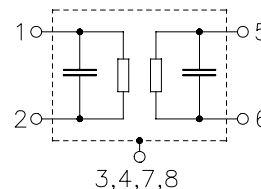
### Features

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- Maximum height of 1.225 mm
- Package code QCC8F
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



### Pin configuration

- 1 Input
- 2 Input
- 5 Output
- 6 Output
- 3,7 To be grounded
- 4,8 Case ground



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



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**Characteristics**

Temperature range for specification:  $T = -40\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 150\ \Omega$  (balanced) and matching network  
 Terminating load impedance:  $Z_L = 150\ \Omega$  (balanced) and matching network

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	1586.36	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	4.0	5.0	dB
	1566.36 ... 1606.36 MHz				
<b>Pass bandwidth</b>		—	58.0	—	MHz
	$\alpha_{rel} \leq 1.5\text{ dB}$				
	$B_{1.5\text{ dB}}$				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1.5	2.0	dB
	1566.36 ... 1606.36 MHz				
<b>Input return loss</b>		8.0	11.0	—	dB
<b>Output return loss</b>		8.0	11.0	—	dB
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	15.0	30.0	ns
	1566.36 ... 1606.36 MHz				
<b>Differential to common mode ratio</b>		22.0	30.0	—	dB
	$( S_{dd21}/S_{cd21} )$				
	1566.36 ... 1606.36 MHz				
<b>Deviation from linear phase (rms)</b>		—	7.0	8.0	°
	in any 30 MHz band				
	1566.36 ... 1606.36 MHz				
<b>Relative attenuation</b>	$\alpha$	47.0	50.0	—	dB
	50.00 ... 1484.30 MHz				
	1670.00 ... 1700.00 MHz	31.0	34.0	—	dB
	1700.00 ... 3400.00 MHz	37.0	42.0	—	dB
	3400.00 ... 6000.00 MHz	17.0	—	—	dB



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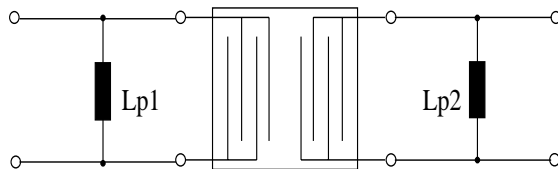
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Matching network (element values depend on PCB layout)



$L_{p1} = 47\text{nH}$   
 $L_{p2} = 47\text{nH}$

**Maximum ratings**

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	0	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 1 pulse
Input power at 1566.36... 1606.36 MHz	P <sub>IN</sub>	0	dBm	source impedance 150 Ω

1) acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.

**Transfer function**



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B1657

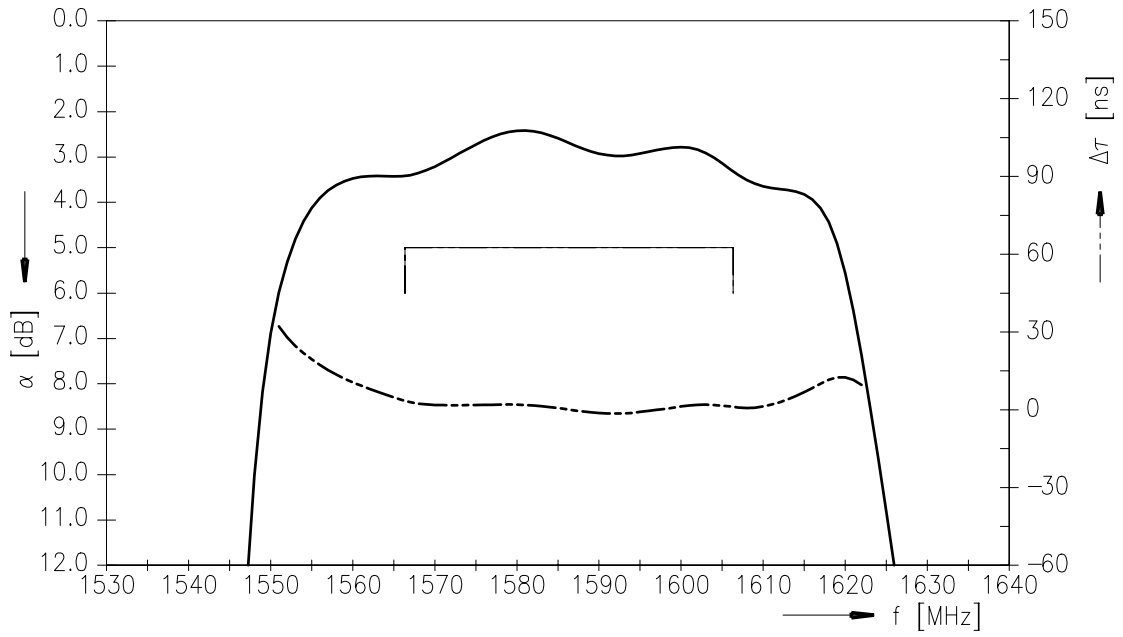
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1586.36 MHz

Data Sheet



Transfer function (passband)





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B1657

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## References

Type	B1657
Ordering code	B39162-B1657-B510
Marking and package	C61157-A7-A72
Packaging	F61074-V8168-Z000
Date codes	L_1126
S-parameters	B1657_NB.s4p 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."

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