



# SAW Components

## SAW RF low loss filter

Satellite CSS

<b>Series/type:</b>	<b>B1659</b>
<b>Ordering code:</b>	<b>B39182-B1659-B510</b>
Date:	January 11, 2011
Version:	2.1

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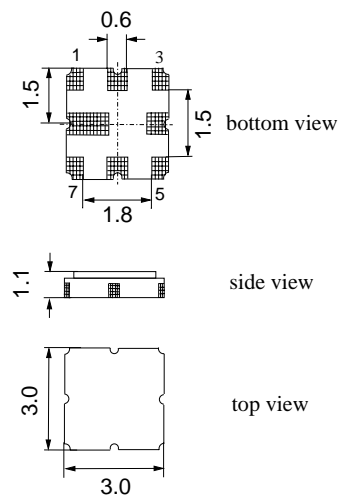
Data sheet

**Application**

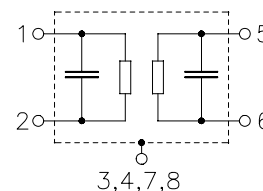
- Low loss RF filter for satellite CSS
- Usable passband 40.0 MHz
- Balanced to balanced operation


**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



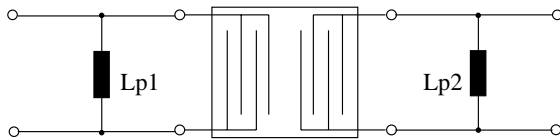
**SAW Components**
**B1659**
**SAW RF low loss filter**
**1790.48 MHz**
**Data sheet**

**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>	$f_N$	—	1790.48	—	MHz
<b>Maximum insertion attenuation</b> 1770.48 ... 1810.48 MHz	$\alpha_{\max}$	—	3.5	5.0	dB
<b>Pass bandwidth</b> $\alpha_{\text{rel}} \leq 1.5\text{ dB}$	$B_{1.5\text{ dB}}$	—	55.0	—	MHz
<b>Amplitude ripple (p-p)</b> 1770.48 ... 1810.48 MHz	$\Delta\alpha$	—	1.2	2.0	dB
<b>Input return loss</b>		8.0	12.0	—	dB
<b>Output return loss</b>		8.0	12.0	—	dB
<b>Group delay ripple (p-p)</b> 1770.48 ... 1810.48 MHz	$\Delta\tau$	—	10.0	40.0	ns
<b>Differential to common mode ratio</b> ( $ S_{dd21}/S_{cd21} $ ) 1770.48 ... 1810.48 MHz		22.0	30.0	—	dB
<b>Deviation from linear phase (rms)</b> in any 30 MHz band 1770.48 ... 1810.48 MHz		—	5.0	8.0	°
<b>Relative attenuation</b>	$\alpha$				
50.00 ... 1703.42 MHz		42.0	49.0	—	dB
1872.54 ... 2000.00 MHz		36.0	46.0	—	dB
2000.00 ... 6000.00 MHz		25.0	40.0	—	dB

Data sheet


**Matching network** (element values depend on PCB layout)


$$L_{p1} = 22\text{nH}$$

$$L_{p2} = 22\text{nH}$$

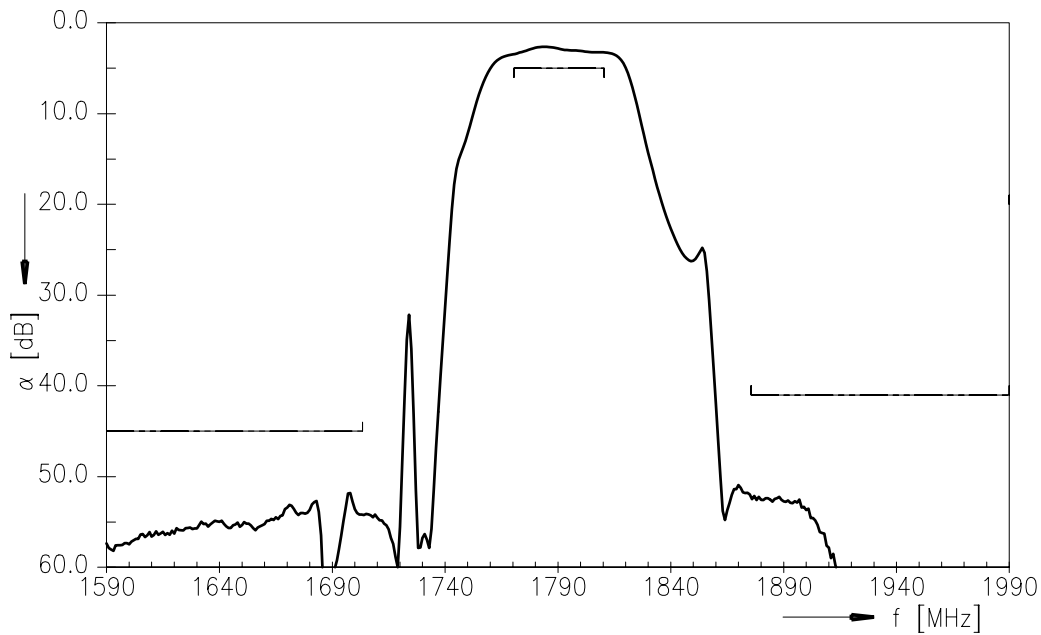
**Maximum ratings**

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 1770.48 ... 1810.48MHz	P <sub>IN</sub>	0	dBm	source impedance 150 Ω

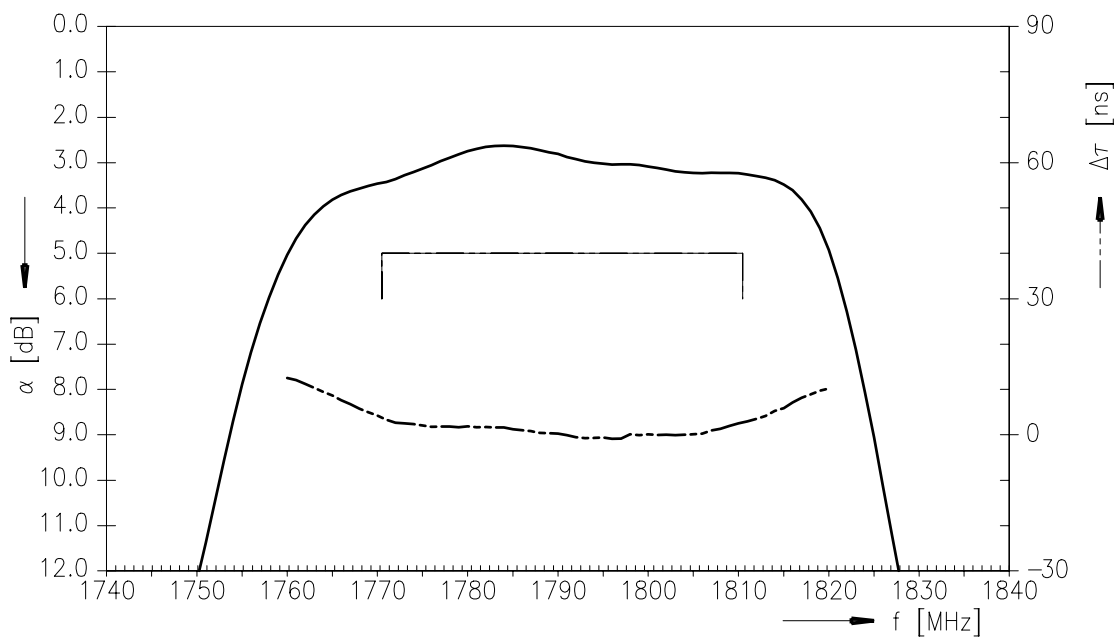
1) acc. to JESD22-A115A (machine model), 1 negative &amp; 1 positive pulse.



Transfer function



Transfer function (passband)




**References**

<b>Type</b>	B1659
<b>Ordering code</b>	B39182-B1659-B510
<b>Marking and package</b>	C61157-A7-A72
<b>Packaging</b>	F61074-V8168-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B1659_NB.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>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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