



# SAW Components

## SAW RF filter for base stations

Band 28 downlink

<b>Series/type:</b>	<b>B5199</b>
<b>Ordering code:</b>	<b>B39781B5199U410</b>

Date:	October 31, 2013
Version:	2.0

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# SAW Components

B5199

## SAW RF filter

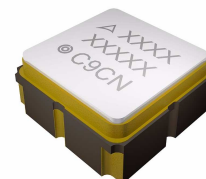
780.50 MHz

### Data sheet

**SMD**

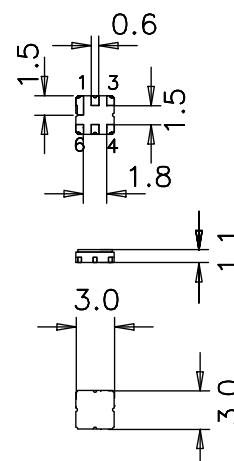
### Application

- RF filter for E-UTRA band 28 downlink
- Unbalanced to unbalanced operation
- Low amplitude ripple
- Usable passband 45 MHz
- Matching required for operation at 50  $\Omega$



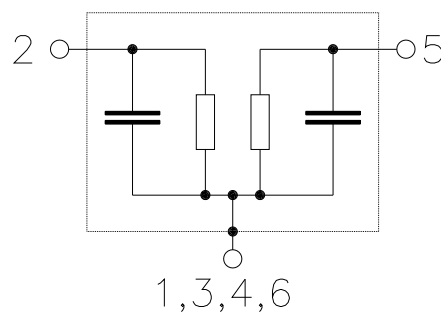
### Features

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 1**
- Filter surface passivated



### Pin configuration

- 2 Input
- 5 Output
- 1,3,4,6 To be grounded



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**Characteristics**

Temperature range for specification:  $T = -40\text{ }^{\circ}\text{C}$  to  $-20\text{ }^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\text{ }\Omega$  and matching network  
 Terminating load impedance:  $Z_L = 50\text{ }\Omega$  and matching network

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	780.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	3.0	4.5	dB
758.0 ... 803.0 MHz		—	3.0	4.5	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1.4	2.8	dB
758.0 ... 803.0 MHz		—	1.4	2.8	dB
<b>Input VSWR</b>		—	1.8:1	2.5:1	
758.0 ... 803.0 MHz		—	1.8:1	2.5:1	
<b>Output VSWR</b>		—	1.6:1	2.5:1	
758.0 ... 803.0 MHz		—	1.6:1	2.5:1	
<b>Attenuation</b>	$\alpha$				
703.0 ... 738.0 MHz		30	37	—	dB
738.0 ... 748.0 MHz		30	33	—	dB

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**Characteristics**

Temperature range for specification:

 $T = -20\text{ }^{\circ}\text{C to }+85\text{ }^{\circ}\text{C}$ 

Terminating source impedance:

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

Terminating load impedance:

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

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	780.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	3.0	4.0	dB
758.0 ... 803.0 MHz		—	3.0	4.0	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1.4	2.3	dB
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<b>Input VSWR</b>		—	1.8:1	2.5:1	
758.0 ... 803.0 MHz		—	1.8:1	2.5:1	
<b>Output VSWR</b>		—	1.6:1	2.5:1	
758.0 ... 803.0 MHz		—	1.6:1	2.5:1	
<b>Attenuation</b>	$\alpha$				
703.0 ... 738.0 MHz		30	37	—	dB
738.0 ... 748.0 MHz		30	33	—	dB

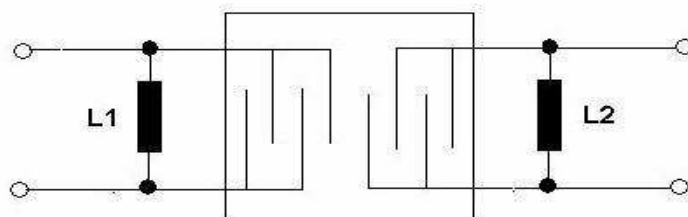
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**Maximum ratings**

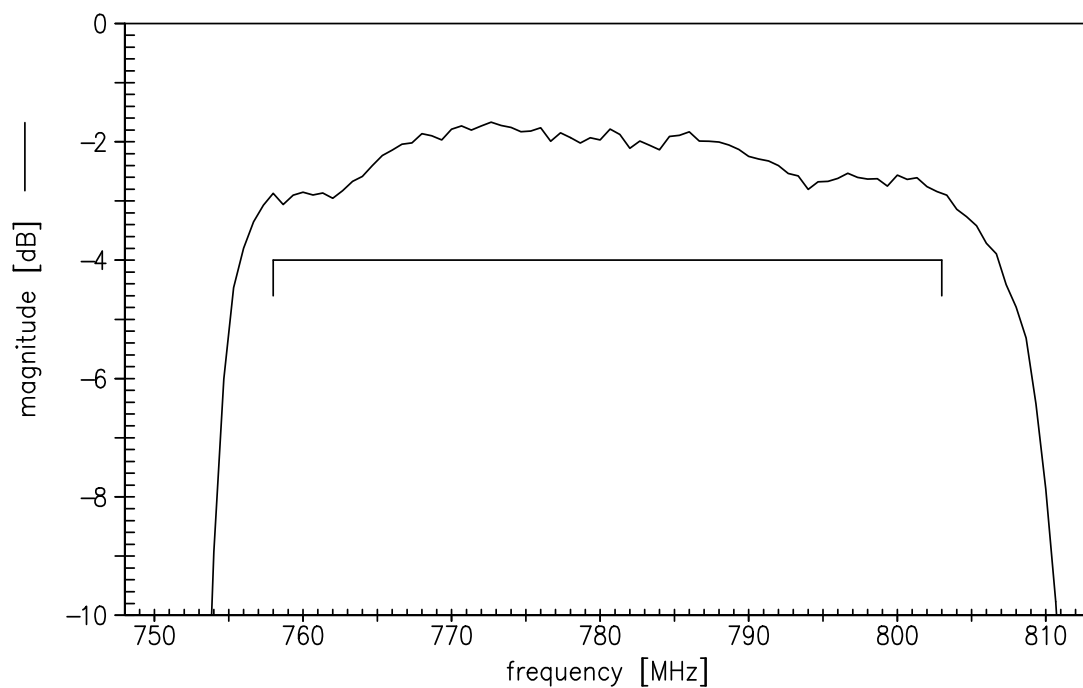
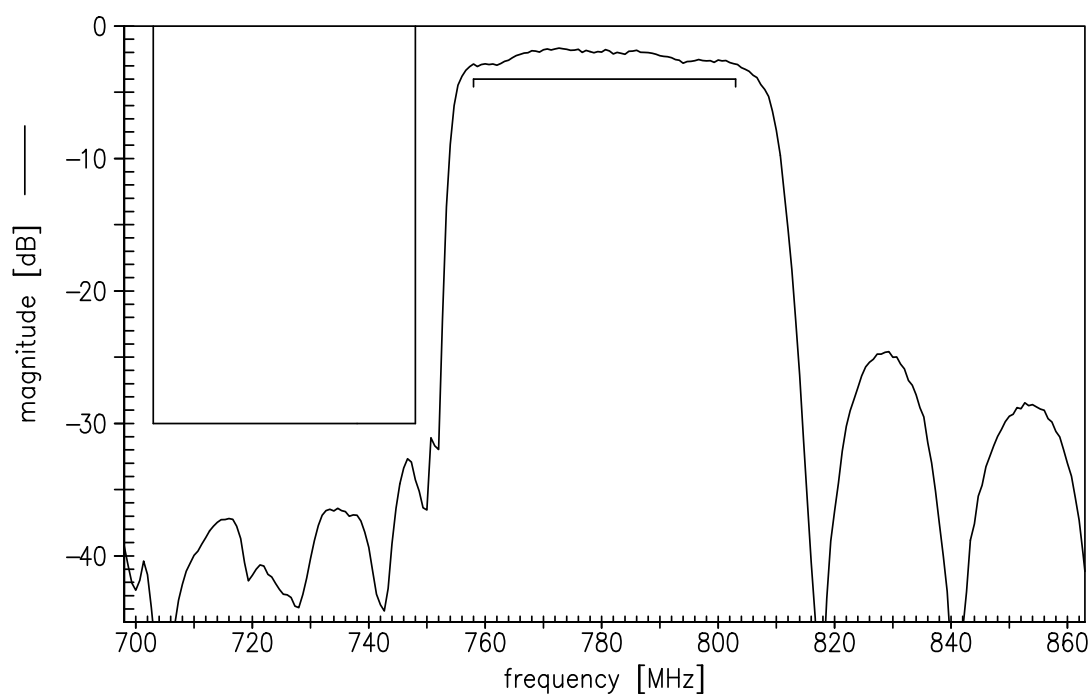
Operable temperature range	T	-40/+85	°C	Machine Model
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	
Input power				
758.0 ... 803.0 MHz	P <sub>IN</sub>	15	dBm	cw, 100000 h, 85°C
758.0 ... 803.0 MHz	P <sub>IN</sub>	20	dBm	cw, 1000 h, 85°C

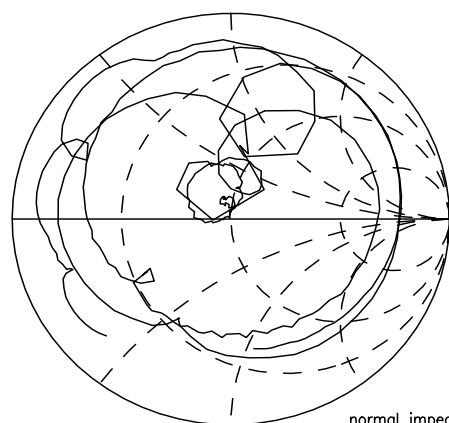
<sup>1)</sup> acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

**Matching network to 50 Ω single ended input and output**


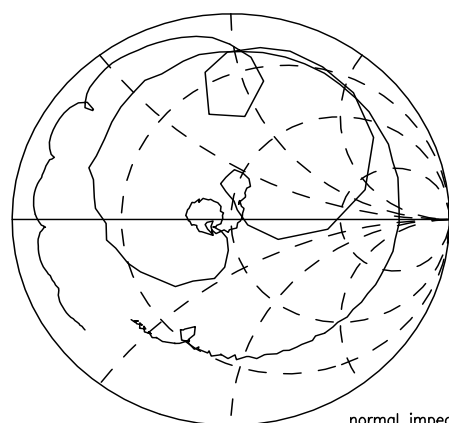
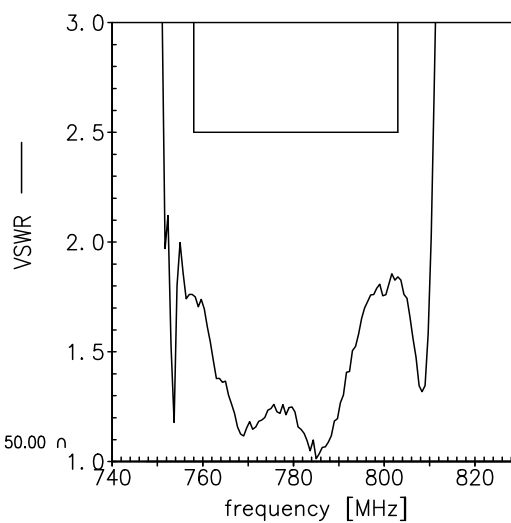
$$L_1 = 6.2 \text{ nH}$$

$$L_2 = 8.2 \text{ nH}$$

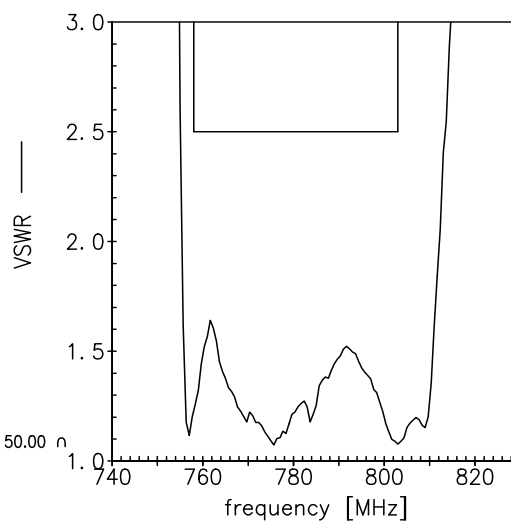
**Transfer function (S21,narrow band)**

**Transfer function (S21, wide band)**




normal impedance: 50.00  $\Omega$



normal impedance: 50.00  $\Omega$



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Data sheet



## References

<b>Type</b>	B5199
<b>Ordering code</b>	B39781B5199U410
<b>Marking and package</b>	C61157-A7-A67
<b>Packaging</b>	F61074-V8228-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B5199_NB.s2p B5199_WB.s2p see file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	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.
<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> for a large variety of matching coils.

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