



RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW RF filter for base stations

Band 12 uplink

Series/type:	B5107
Ordering code:	B39711B5107U410
Date:	Aug 12, 2015
Version:	2.4

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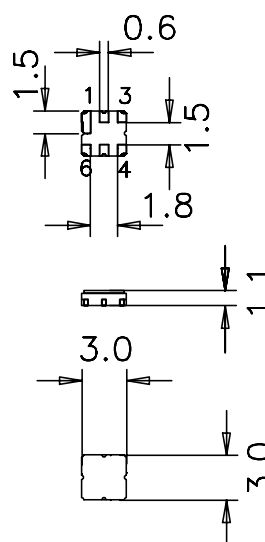
Data sheet


**Application**

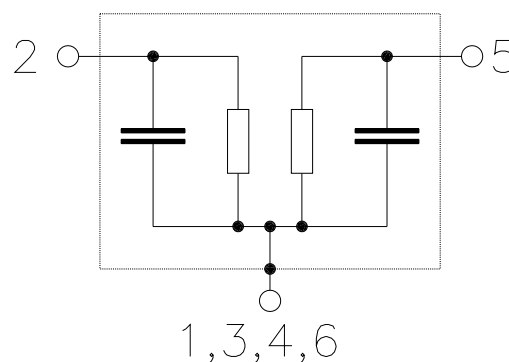
- RF filter for band 12 uplink
- Unbalanced to unbalanced operation
- Low amplitude ripple
- Usable passband 18 MHz
- No matching required for operation at 50 Ω

**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



Data sheet


**Characteristics**

Temperature range for specification:  $T = -40\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	707.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	1.6	2.5	dB
698.0 ... 716.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.7	1.5	dB
698.0 ... 716.0 MHz					
<b>Input return loss</b>		9	11	—	dB
698.0 ... 716.0 MHz					
<b>Output return loss</b>		9	11	—	dB
698.0 ... 716.0 MHz					
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	8	40	ns
698.0 ... 716.0 MHz <sup>1)</sup>					
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$	25	33	—	dB
100.0 ... 687.0 MHz					
728.0 ... 978.0 MHz		30	38	—	dB
978.0 ... 996.0 MHz		35	39	—	dB
996.0 ... 2700.0 MHz		25	34	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

<sup>1)</sup> over any 1.25 MHz continuous bandwidth

Data sheet


**Characteristics**

Temperature range for specification:  $T = -40\text{ °C to }+105\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	707.0	—	MHz
<b>Maximum insertion attenuation</b> 698.0 ... 716.0 MHz	$\alpha_{\max}$	—	1.6	3.2	dB
<b>Amplitude ripple (p-p)</b> 698.0 ... 716.0 MHz	$\Delta\alpha$	—	0.7	2.2	dB
<b>Input return loss</b> 698.0 ... 716.0 MHz		8	11	—	dB
<b>Output return loss</b> 698.0 ... 716.0 MHz		8	11	—	dB
<b>Group delay ripple (p-p)</b> 698.0 ... 716.0 MHz <sup>1)</sup>	$\Delta\tau$	—	8	60	ns
<b>Absolute attenuation</b> 100.0 ... 687.0 MHz	$\alpha_{\text{abs}}$	18	33	—	dB
728.0 ... 978.0 MHz		30	38	—	dB
978.0 ... 996.0 MHz		35	39	—	dB
996.0 ... 2700.0 MHz		25	34	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

<sup>1)</sup> over any 1.25 MHz continuous bandwidth


**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>	0	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	Machine Model
		250 <sup>2)</sup>	V	Human Body Model
Input power 698.0 ... 716.0 MHz	P <sub>IN</sub>	20	dBm	cw, 100000 h, 85 °C

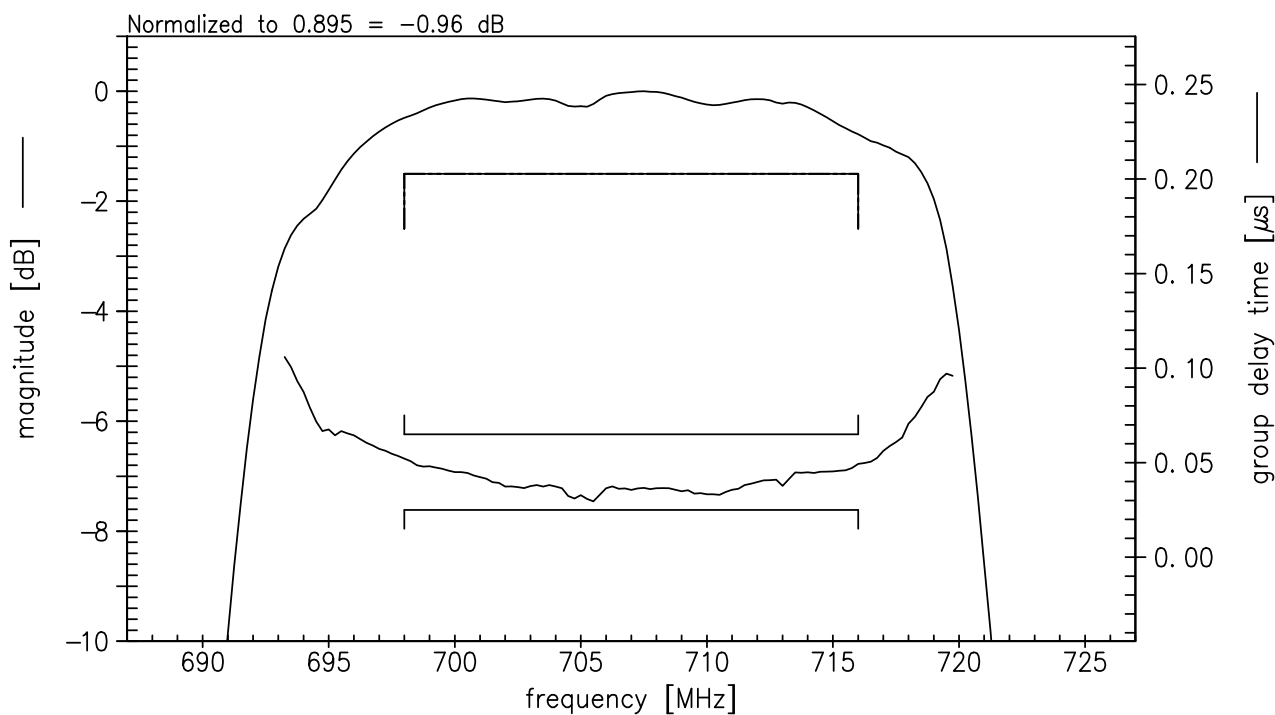
1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

2) acc. to JESD22-A114F (HBM - Human Body Model), 1 negative & 1 positive pulse

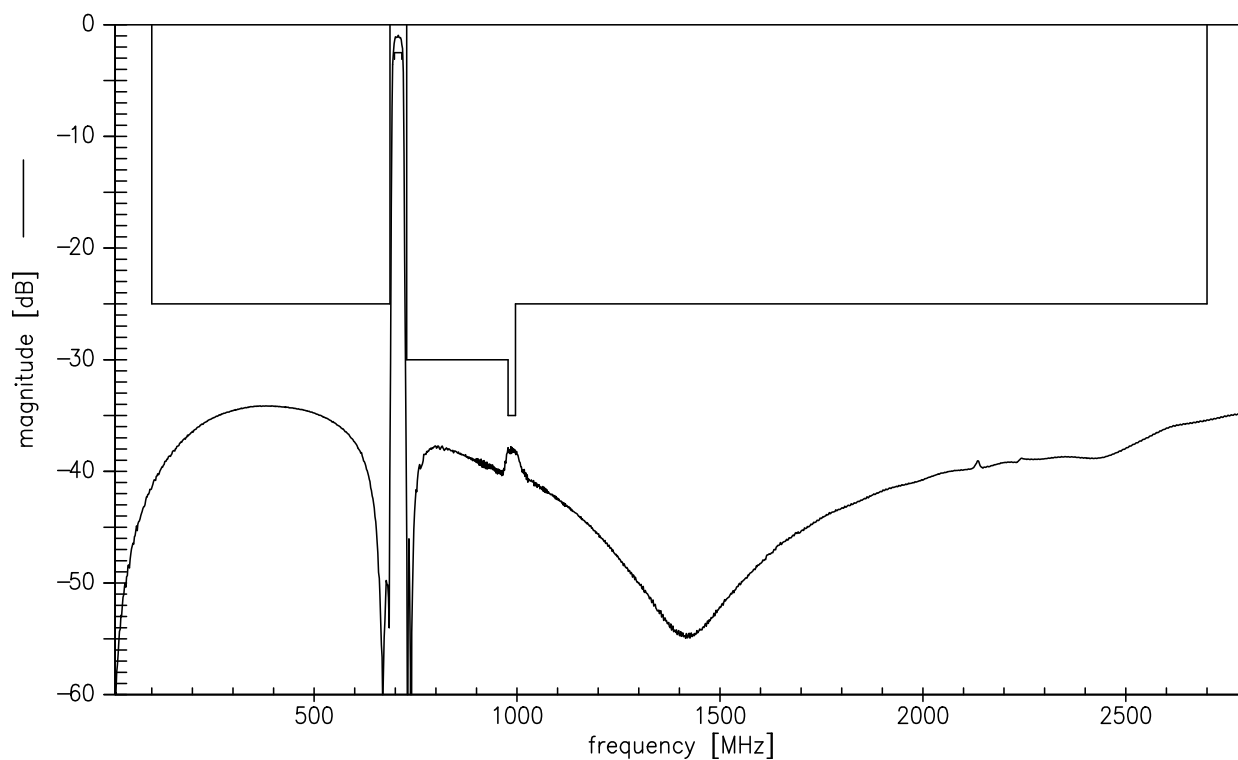
Data sheet

**SMD**

**Transfer function (S21, narrowband)**



**Transfer function (S21, wideband)**



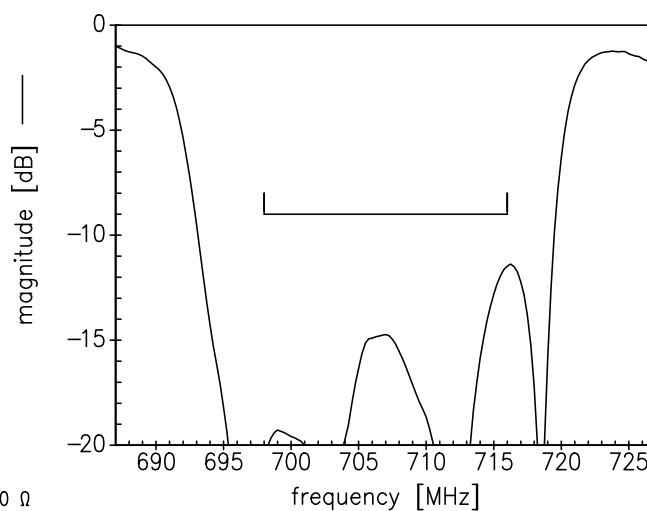
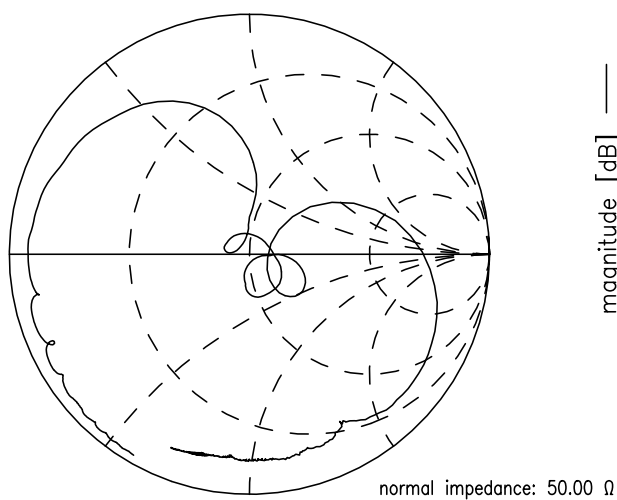


Data sheet

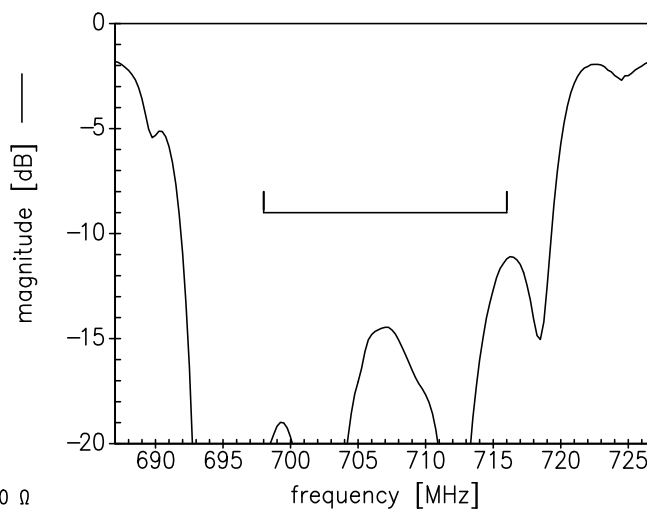
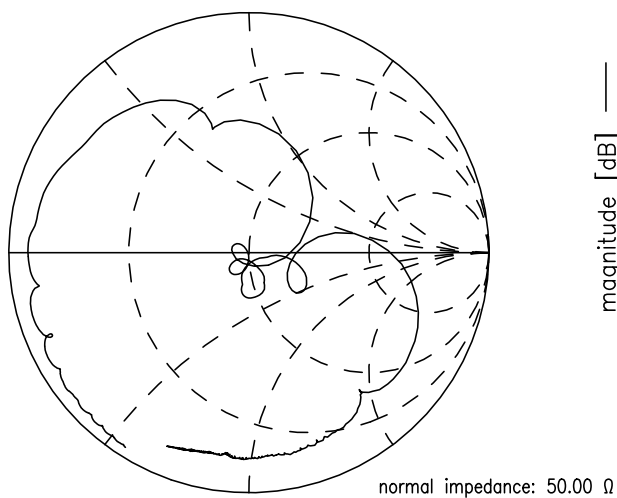
**SMD**

**Smith**

**S<sub>11</sub> function**



**S<sub>22</sub> function**



**References**

<b>Type</b>	B5107
<b>Ordering code</b>	B39711B5107U410
<b>Marking and package</b>	C61157-A7-A67
<b>Packaging</b>	F61074-V8168-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B5107_NB.s2p B5107_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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