



# SAW Components

## SAW RF filter for base stations

Band 7 uplink

**Series/type:** B5115  
**Ordering code:** B39252B5115U410

**Date:** Aug 15, 2014  
**Version:** 2.5

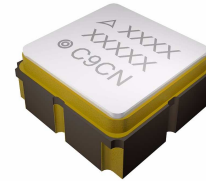
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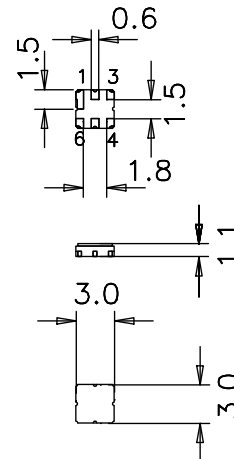
Data sheet

**Application**

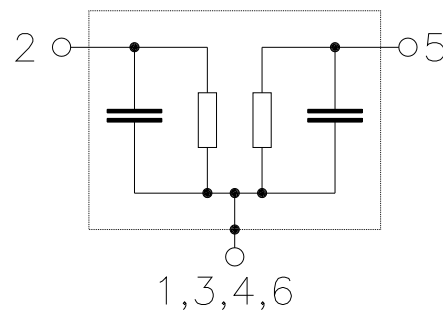
- Low-loss RF filter for band 7 uplink
- Unbalanced to unbalanced operation
- Low amplitude ripple
- Usable passband 70 MHz
- No matching required for operation at 50 Ω


**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:	$T = -10\text{ °C to }+85\text{ °C}$
Terminating source impedance:	$Z_S = 50\ \Omega$
Terminating load impedance:	$Z_L = 50\ \Omega$

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	2535.0	—	MHz
<b>Maximum insertion attenuation</b> 2500.0 ... 2570.0 MHz	$\alpha_{\max}$	—	2.4	3.0	dB
<b>Amplitude ripple (p-p)</b> 2500.0 ... 2570.0 MHz	$\Delta\alpha$	—	0.6	1.4	dB
<b>Input VSWR</b> 2500.0 ... 2570.0 MHz		—	1.7:1	1.9:1	
<b>Output VSWR</b> 2500.0 ... 2570.0 MHz		—	1.7:1	2.0:1	
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$				
1.0 ... 225.0 MHz		30	38	—	dB
225.0 ... 2070.0 MHz		20	27	—	dB
2070.0 ... 2170.0 MHz		33	39	—	dB
2170.0 ... 2260.0 MHz		27	33	—	dB
2260.0 ... 2372.0 MHz		18	23	—	dB
2372.0 ... 2450.0 MHz		12	15	—	dB
2450.0 ... 2465.0 MHz		6	16	—	dB
2465.0 ... 2478.5 MHz		3	4.5	—	dB
2620.0 ... 2810.0 MHz		29	33	—	dB
2810.0 ... 2900.0 MHz		27	33	—	dB
2900.0 ... 3300.0 MHz		20	25	—	dB
3300.0 ... 3500.0 MHz		18	23	—	dB
3500.0 ... 5000.0 MHz		4	10	—	dB

**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>	$f_C$	—	2535.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2.4	3.3	dB
2500.0 ... 2570.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.6	1.6	dB
2500.0 ... 2570.0 MHz					
<b>Input VSWR</b>		—	1.7:1	2.0:1	
2500.0 ... 2570.0 MHz					
<b>Output VSWR</b>		—	1.7:1	2.0:1	
2500.0 ... 2570.0 MHz					
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$				
1.0 ... 225.0 MHz		30	38	—	dB
225.0 ... 2070.0 MHz		20	27	—	
2070.0 ... 2170.0 MHz		33	39	—	
2170.0 ... 2260.0 MHz		27	33	—	
2260.0 ... 2372.0 MHz		18	23	—	
2372.0 ... 2450.0 MHz		12	15	—	
2450.0 ... 2465.0 MHz		6	16	—	
2465.0 ... 2478.5 MHz		3	4.5	—	
2620.0 ... 2810.0 MHz		29	33	—	
2810.0 ... 2900.0 MHz		27	33	—	
2900.0 ... 3300.0 MHz		20	25	—	
3300.0 ... 3500.0 MHz		18	23	—	
3500.0 ... 5000.0 MHz		4	10	—	

**Data sheet**

**Characteristics**

Temperature range for specification:	$T = -40\text{ °C to }+95\text{ °C}$
Terminating source impedance:	$Z_S = 50\ \Omega$
Terminating load impedance:	$Z_L = 50\ \Omega$

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	2535.0	—	MHz
<b>Maximum insertion attenuation</b> 2500.0 ... 2570.0 MHz	$\alpha_{\max}$	—	2.4	3.5	dB
<b>Amplitude ripple (p-p)</b> 2500.0 ... 2570.0 MHz	$\Delta\alpha$	—	0.6	1.8	dB
<b>Input VSWR</b> 2500.0 ... 2570.0 MHz		—	1.7:1	2.2:1	
<b>Output VSWR</b> 2500.0 ... 2570.0 MHz		—	1.7:1	2.2:1	
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$				
1.0 ... 225.0 MHz		30	38	—	dB
225.0 ... 2070.0 MHz		20	27	—	dB
2070.0 ... 2170.0 MHz		33	39	—	dB
2170.0 ... 2260.0 MHz		27	33	—	dB
2260.0 ... 2372.0 MHz		18	23	—	dB
2372.0 ... 2450.0 MHz		12	15	—	dB
2450.0 ... 2465.0 MHz		5	16	—	dB
2465.0 ... 2478.5 MHz		2.5	4.5	—	dB
2620.0 ... 2810.0 MHz		28	33	—	dB
2810.0 ... 2900.0 MHz		27	33	—	dB
2900.0 ... 3300.0 MHz		20	25	—	dB
3300.0 ... 3500.0 MHz		18	23	—	dB
3500.0 ... 5000.0 MHz		4	10	—	dB

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>	$f_C$	—	2535.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2.4	3.5	dB
2500.0 ... 2570.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.6	1.9	dB
2500.0 ... 2570.0 MHz					
<b>Input VSWR</b>		—	1.7:1	2.2:1	
2500.0 ... 2570.0 MHz					
<b>Output VSWR</b>		—	1.7:1	2.2:1	
2500.0 ... 2570.0 MHz					
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$				
1.0 ... 225.0 MHz		30	38	—	dB
225.0 ... 2070.0 MHz		20	27	—	
2070.0 ... 2170.0 MHz		33	39	—	
2170.0 ... 2260.0 MHz		27	33	—	
2260.0 ... 2372.0 MHz		18	23	—	
2372.0 ... 2450.0 MHz		12	15	—	
2450.0 ... 2465.0 MHz		4.5	16	—	
2465.0 ... 2478.5 MHz		2	4.5	—	
2620.0 ... 2810.0 MHz		27	33	—	
2810.0 ... 2900.0 MHz		27	33	—	
2900.0 ... 3300.0 MHz		20	25	—	
3300.0 ... 3500.0 MHz		18	23	—	
3500.0 ... 5000.0 MHz		4	10	—	

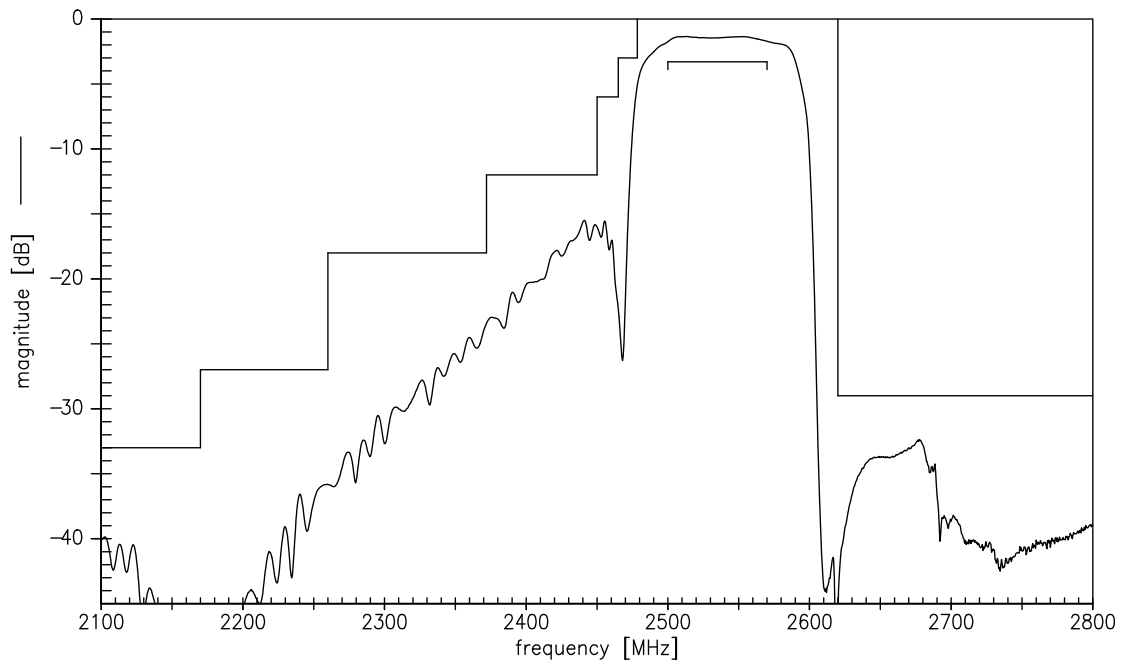
**Maximum ratings**

Operable temperature range	T	-40/+125	°C	
Storage temperature range	T <sub>stg</sub>	-40/+125	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	Machine Model
		150 <sup>2)</sup>	V	Human Body Model
Input power	P <sub>IN</sub>			
2500.0 ... 2570.0 MHz		15	dBm	cw, 100000 h, 85 °C
2500.0 ... 2570.0 MHz		20	dBm	cw, 1000 h, 85 °C
2500.0 ... 2570.0 MHz		24	dBm	cw, 2 h, 85 °C
2500.0 ... 2570.0 MHz		25	dBm	cw, 1 h, 85 °C

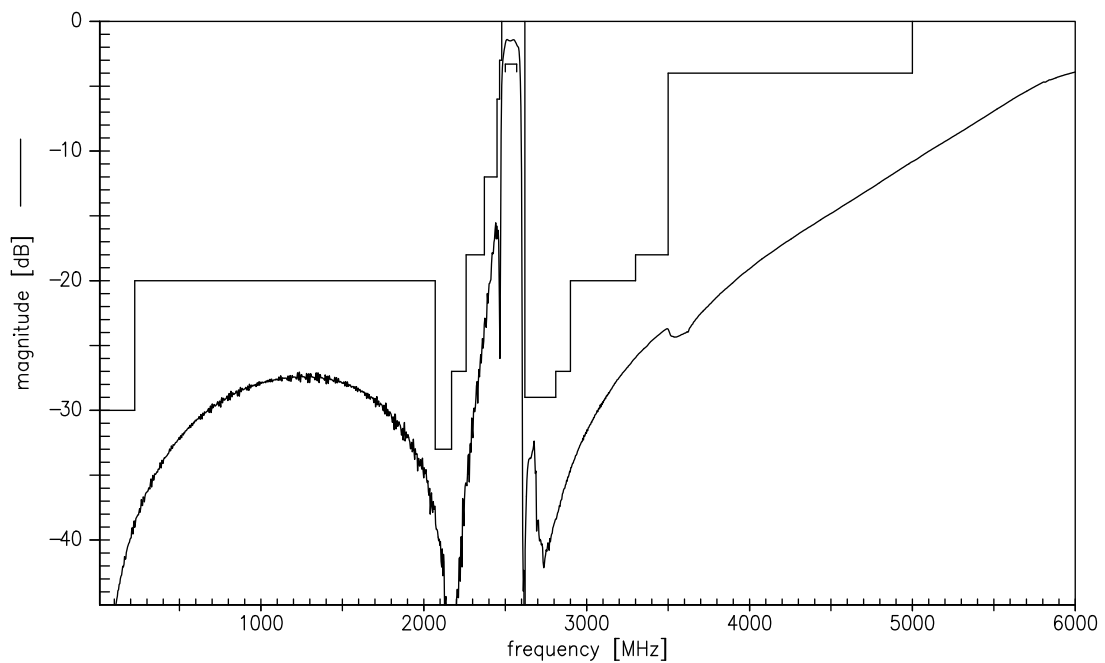
1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

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

Transfer function (S21, narrowband)



Transfer function (S21, wideband)



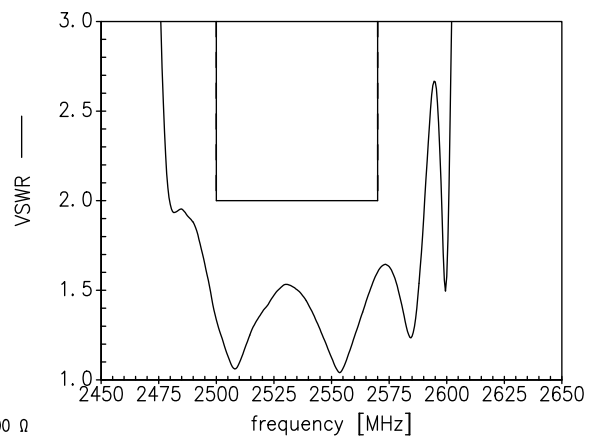
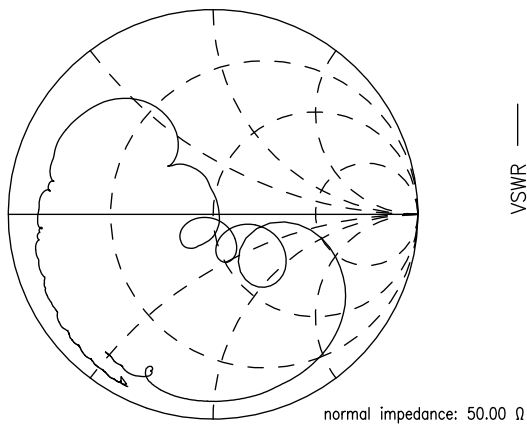


Data sheet

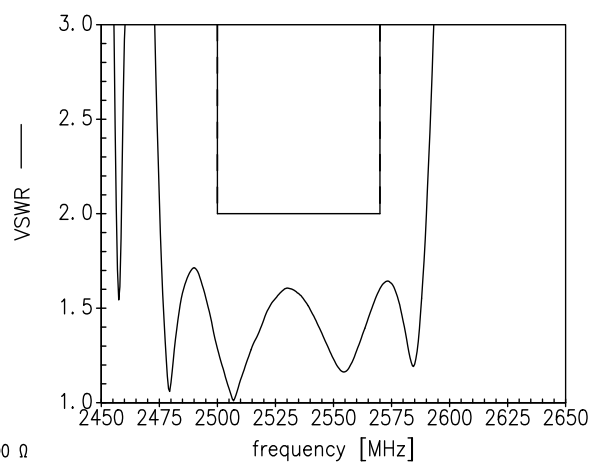
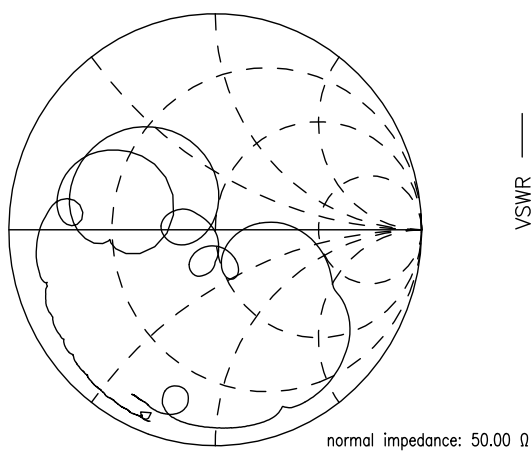


Smith charts

S<sub>11</sub> function



S<sub>22</sub> function



<b>SAW Components</b>	<b>B5115</b>
<b>SAW RF filter</b>	<b>2535.0 MHz</b>

Data sheet



## References

<b>Type</b>	B5115
<b>Ordering code</b>	B39252B5115U410
<b>Marking and package</b>	C61157-A7-A67
<b>Packaging</b>	F61074-V8168-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B5115_NB.s2p B5115_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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