SAW Components

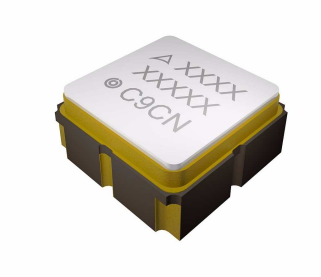
SAW RF filter for base stations

UMTS Band VII RF Tx

Series/type:	**B5122**
Ordering code:	**B39272B5122U410**
Date:	Apr 12, 2016
Version:	2.3

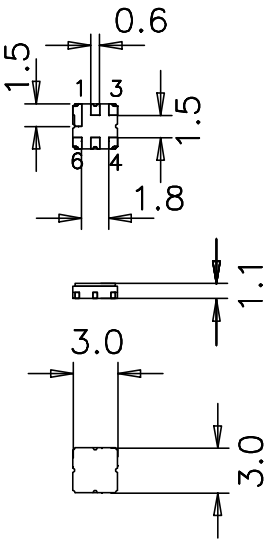
Application

- Low-loss base-station UMTS band VII RF Tx filter
- Low amplitude ripple
- No matching required for operation at 50 Ω
- Usable passband 70 MHz
- Unbalanced to unbalanced operation



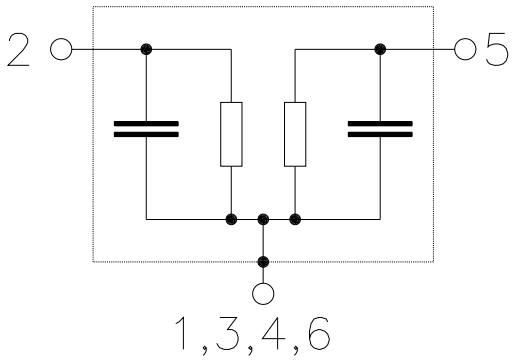
Features

- Package size 3.0 x 3.0 x 1.1 mm³
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel 1
- Filter surface passivated



Pin configuration

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



Data sheet SMD

Characteristics

Temperature range for specification: T = –40 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2655.0	—	MHz
Maximum insertion attenuation	α_{max}				
2620.0 ... 2690.0 MHz		—	2.1	3.5	dB
Passband width					
α_{ref} ≤ 1.8 dB	$B_{1.8dB}$	70	99	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
2620.0 ... 2690.0 MHz		—	0.7	1.8	dB
Input VSWR					
2620.0 ... 2690.0 MHz		—	1.8:1	2.5:1	
Output VSWR					
2620.0 ... 2690.0 MHz		—	1.8:1	2.5:1	
Absolute group delay (mean)	$\bar{\tau}$				
2620.0 ... 2690.0 MHz		—	7.6	—	ns
Group delay ripple (p-p)	$\Delta\tau$				
2620.0 ... 2690.0 MHz		—	4	20	ns
Absolute attenuation	α_{abs}				
10.0 ... 2350.0 MHz		20	39	—	dB
2350.0 ... 2500.0 MHz		25	35	—	dB
2500.0 ... 2570.0 MHz		16	31	—	dB
2570.0 ... 2593.0 MHz		2.5	8	—	dB
2725.0 ... 2750.0 MHz		6	24	—	dB
2750.0 ... 3000.0 MHz		23	28	—	dB
3000.0 ... 3830.0 MHz		20	28	—	dB

Data sheet SMD

Characteristics

Temperature range for specification: T = –40 ˚C to +95 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2655.0	—	MHz
Maximum insertion attenuation	α_{max}				
2620.0 ... 2690.0 MHz		—	2.1	4.0	dB
Passband width					
α_{ref} ≤ 1.8 dB	$B_{1.8dB}$	68	99	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
2620.0 ... 2690.0 MHz		—	0.7	2.5	dB
Input VSWR					
2620.0 ... 2690.0 MHz		—	1.8:1	3.0:1	
Output VSWR					
2620.0 ... 2690.0 MHz		—	1.8:1	3.0:1	
Absolute group delay (mean)	$\bar{\tau}$				
2620.0 ... 2690.0 MHz		—	7.6	—	ns
Group delay ripple (p-p)	$\Delta\tau$				
2620.0 ... 2690.0 MHz		—	4	30	ns
Absolute attenuation	α_{abs}				
10.0 ... 2350.0 MHz		20	39	—	dB
2350.0 ... 2500.0 MHz		25	35	—	dB
2500.0 ... 2570.0 MHz		16	31	—	dB
2570.0 ... 2593.0 MHz		2.5	8	—	dB
2725.0 ... 2750.0 MHz		6	24	—	dB
2750.0 ... 3000.0 MHz		23	28	—	dB
3000.0 ... 3830.0 MHz		20	28	—	dB

Data sheet SMD

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Temperature range for specification: T = –40 ˚C to+105 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2655.0	—	MHz
Maximum insertion attenuation	α_{max}				
2620.0 ... 2690.0 MHz		—	2.1	5.0	dB
Passband width					
α_{ref} ≤ 1.8 dB	$B_{1.8dB}$	66	99	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
2620.0 ... 2690.0 MHz		—	0.7	3.5	dB
Input VSWR					
2620.0 ... 2690.0 MHz		—	1.8:1	3.5:1	
Output VSWR					
2620.0 ... 2690.0 MHz		—	1.8:1	3.5:1	
Absolute group delay (mean)	$\bar{\tau}$				
2620.0 ... 2690.0 MHz		—	7.6	—	ns
Group delay ripple (p-p)	$\Delta\tau$				
2620.0 ... 2690.0 MHz		—	4	40	ns
Absolute attenuation	α_{abs}				
10.0 ... 2350.0 MHz		20	39	—	dB
2350.0 ... 2500.0 MHz		25	35	—	dB
2500.0 ... 2570.0 MHz		12	31	—	dB
2570.0 ... 2593.0 MHz		2	8	—	dB
2725.0 ... 2750.0 MHz		6	24	—	dB
2750.0 ... 3000.0 MHz		23	28	—	dB
3000.0 ... 3830.0 MHz		20	28	—	dB

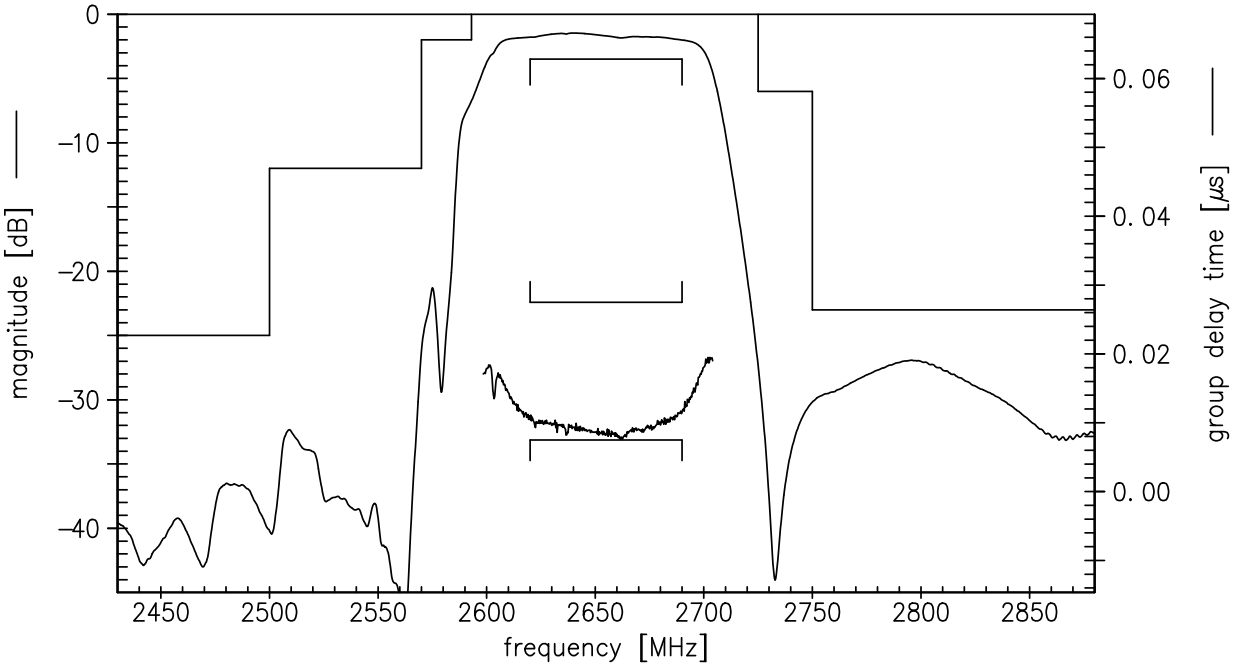
Maximum ratings

Operable temperature range	T	–45/+125	˚C	
Storage temperature range	T_{stg}	–45/+125	˚C	
DC voltage	V_{DC}	6	V	
ESD voltage	V_{ESD}	50[1)]	V	Machine Model
		100[2)]	V	Human Body Model
Input power	P_{IN}			
2620.0 ... 2690.0 MHz		10	dBm	cw, 1000 h, 85 ˚C

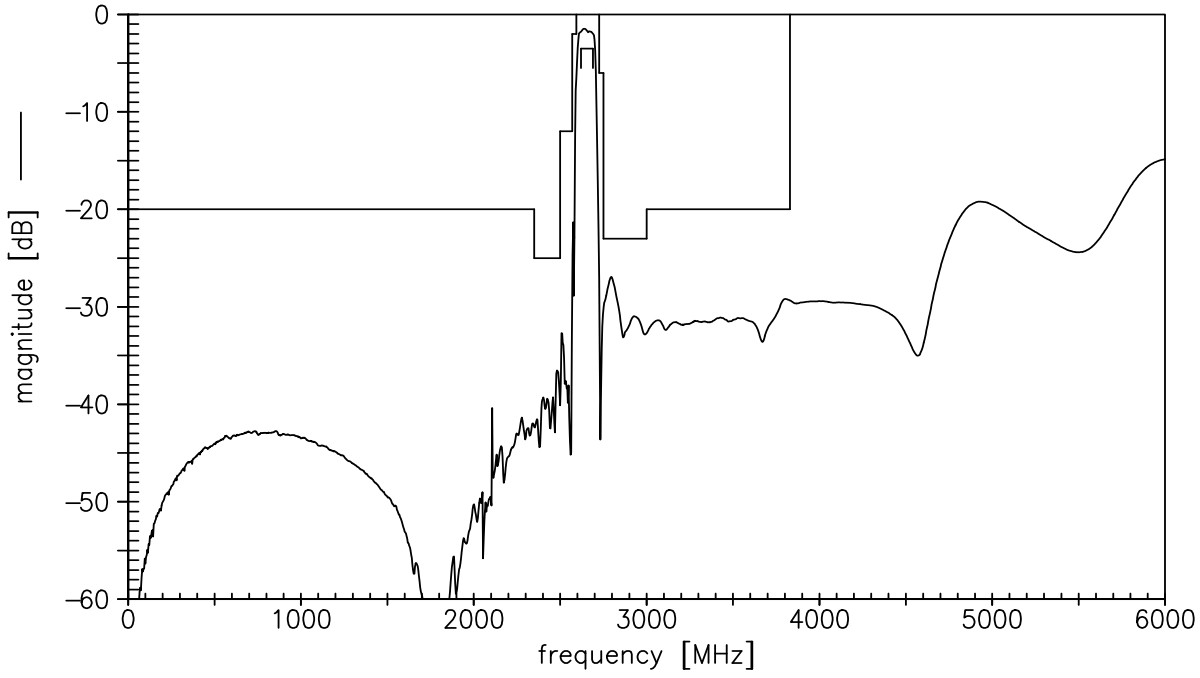
1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

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

Transfer function (S21, narrowband)

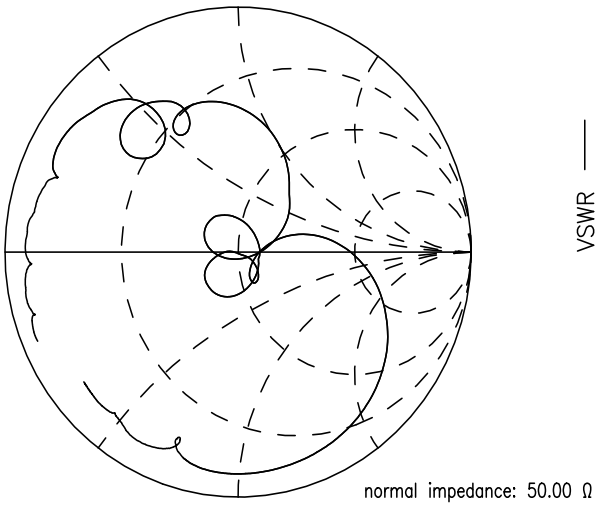


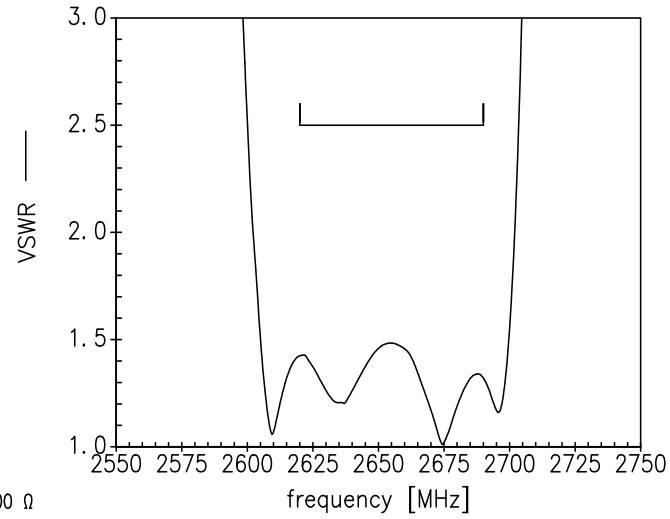
Transfer function (S21, wideband)



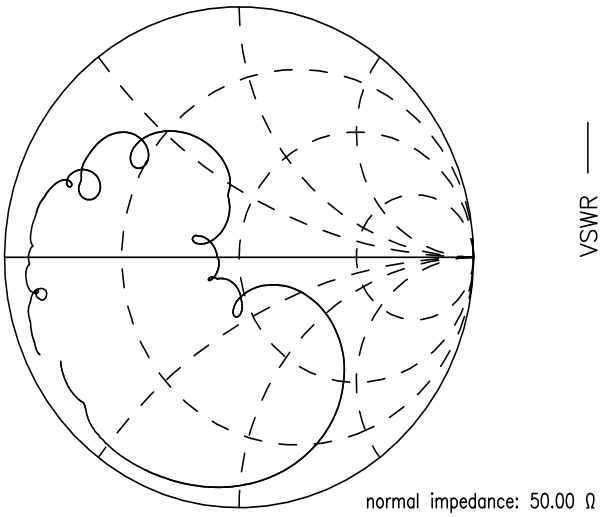
Smith charts

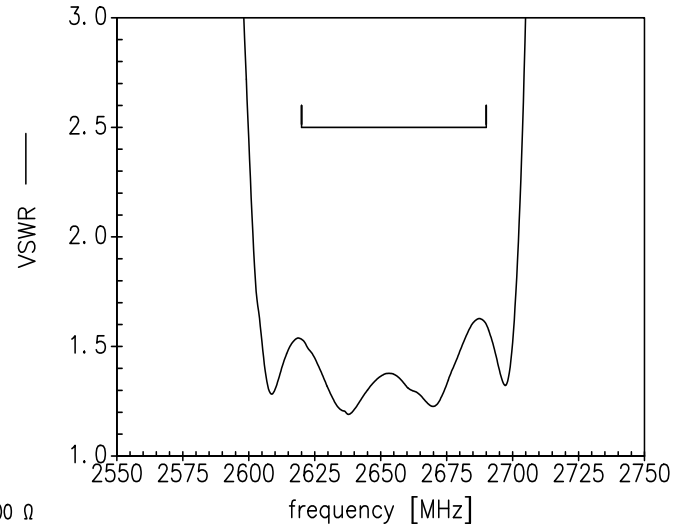
S_{11} function





S_{22} function





References

Type	B5122
Ordering code	B39272B5122U410
Marking and package	C61157-A7-A67
Packaging	F61074-V8168-Z000
Date codes	L_1126
S-parameters	B5122_NB.s2p B5122_WB.s2p see file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	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.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

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