



# SAW Components

## SAW Filter

Low-Loss Filter for TD-SCDMA

<b>Series/Type:</b>	<b>B9453</b>
<b>Ordering code:</b>	<b>B39202B9453P810</b>
Date:	Dec 01, 2009
Version:	2.1

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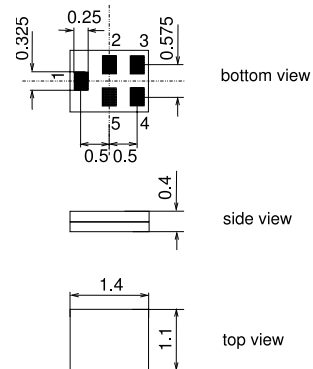
Data sheet


**Application**

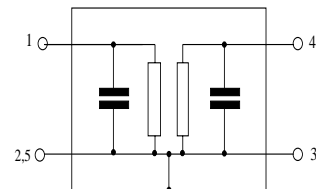
- Low-loss RF filter for mobile telephone TD-SCDMA systems
- Low amplitude ripple
- Unbalanced to unbalanced operation
- Usable passband 15 MHz
- No matching network required for operation at 50 Ω


**Features**

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- Package code QCS5U
- RoHS compatible
- Approx. weight 0.003g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


**Pin configuration**

- 1 Input, unbalanced
- 4 Output, unbalanced
- 2,3,5 Case-ground



**Data sheet**

**Characteristics**

Temperature range for specification:	$T = -30\text{ °C to }+85\text{ °C}$
Terminating source impedance:	$Z_S = 50\ \Omega$
Terminating load impedance:	$Z_L = 50\ \Omega$

				min.	typ. @ 25°C	max.	
<b>Center frequency</b>	$f_C$			—	2017.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$						
2010.0 ... 2025.0	MHz			—	1.9	2.6	dB CTQ
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$						
2010.0 ... 2025.0	MHz			—	0.3	1.0	dB
<b>Input VSWR</b>							
2010.0 ... 2025.0	MHz			—	1.5	2.0	
<b>Output VSWR</b>							
2010.0 ... 2025.0	MHz			—	1.5	2.0	
<b>Group delay ripple (p-p)</b>							
2010.0 ... 2025.0	MHz			—	6	20	ns
<b>Attenuation</b>	$\alpha$						
0 ... 1840.0	MHz			38	42	—	dB
1840.0 ... 1950.0	MHz			33	36	—	dB
1950.0 ... 1980.0	MHz			14	24	—	dB
1980.0 ... 1990.0	MHz			4 <sup>1)</sup>	12	—	dB
2045.0 ... 2050.0	MHz			3	18	—	dB
2050.0 ... 2085.0	MHz			15	18	—	dB
2085.0 ... 2120.0	MHz			23	26	—	dB
2120.0 ... 2160.0	MHz			28	32	—	dB
2160.0 ... 2500.0	MHz			28	33	—	dB
2500.0 ... 4000.0	MHz			34	37	—	dB
4000.0 ... 6000.0	MHz			25	30	—	dB

<sup>1)</sup> 5 dB at 25 °C


**Maximum ratings**

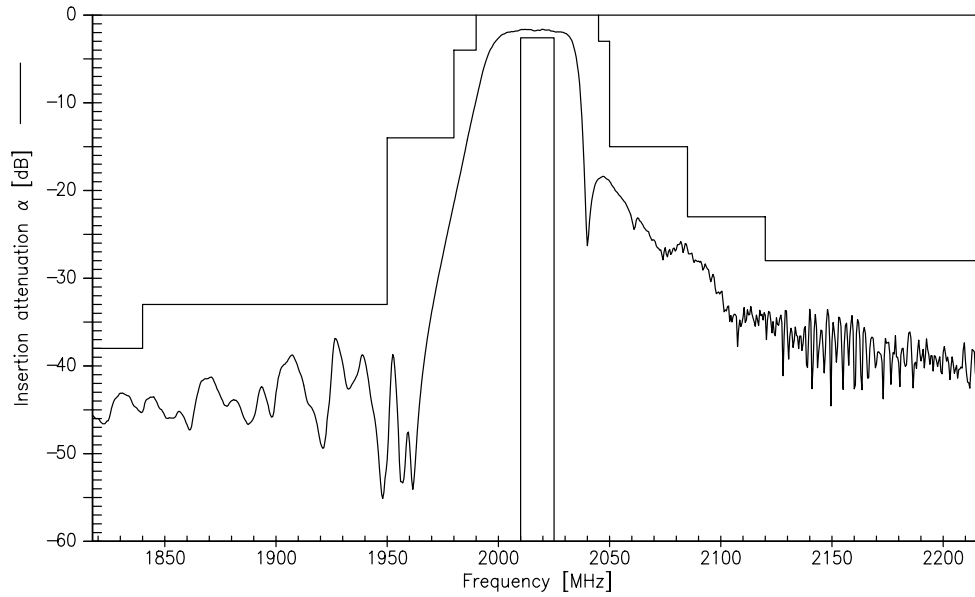
Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	3	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 1 pulses
Input Power at 2010.0...2025.0 MHz Tx bands	P <sub>IN</sub>	6	dBm	effective power in the on-state duty cycle 4:8

<sup>1)</sup> acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulses.

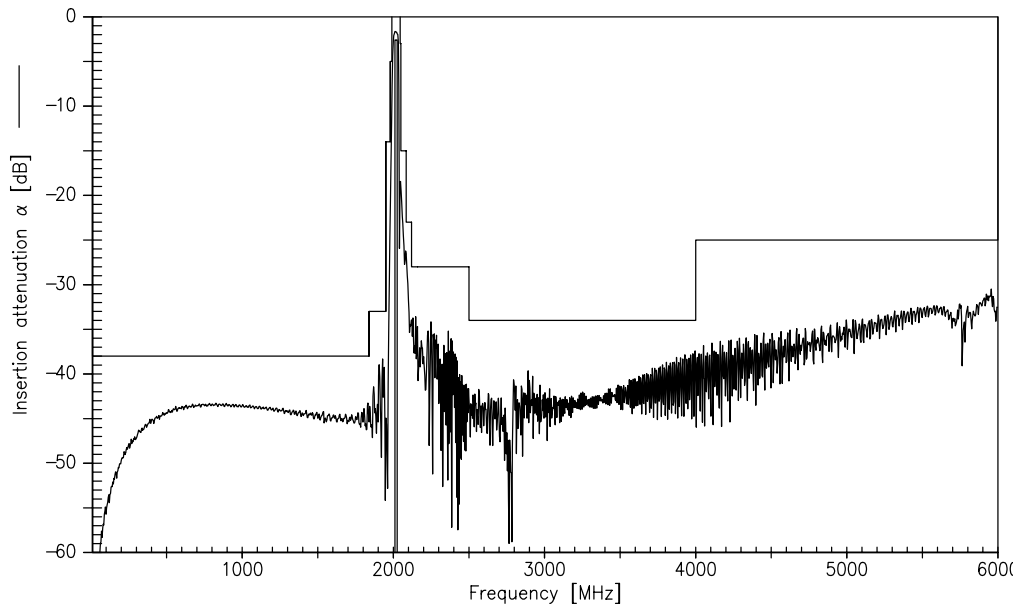
Data sheet



Transfer function (narrowband)



Transfer function (wideband)



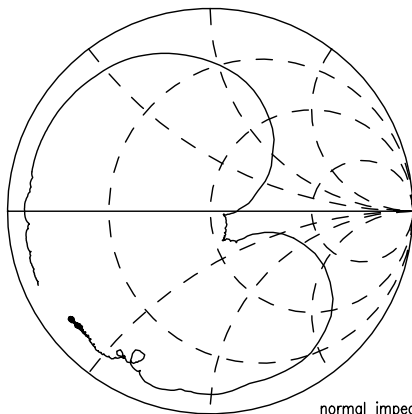
Please read *cautions and warnings and important notes* at the end of this document.

Data sheet

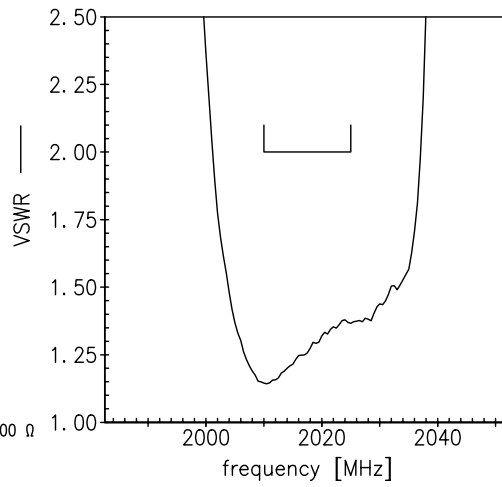


Smith charts

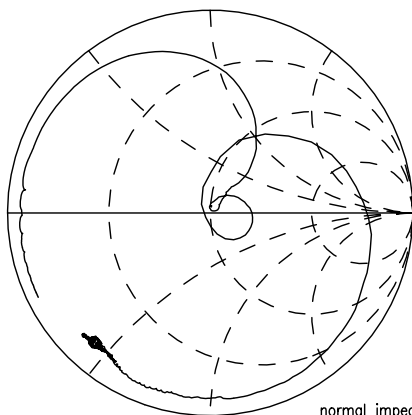
**S<sub>11</sub> function**



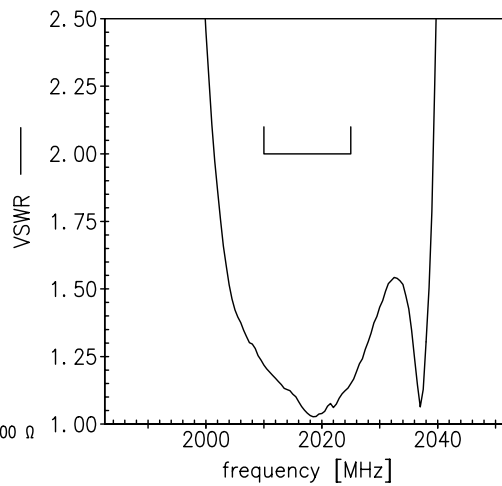
normal impedance: 50.00 Ω



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



normal impedance: 50.00 Ω



Please read *cautions and warnings and important notes* at the end of this document.

<b>SAW Components</b>	<b>B9453</b>
<b>SAW Filter</b>	<b>2017.5 MHz</b>
Data sheet	

#### References

<b>Type</b>	B9453
<b>Ordering code</b>	B39202B9453P810
<b>Marking and package</b>	C61157-A8-A14
<b>Packaging</b>	F61074-V8237-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B9453_NB.s2p B9453_WB.s2p 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>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.

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