



## SAW Components

### SAW filter

TD-SCDMA

<b>Series/type:</b>	<b>B7853</b>
<b>Ordering code:</b>	<b>B39202B7853C710</b>
<b>Date:</b>	<b>March 01, 2006</b>
<b>Version:</b>	<b>2.1</b>

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SAW filter

2017.5 MHz

Data sheet

SMD

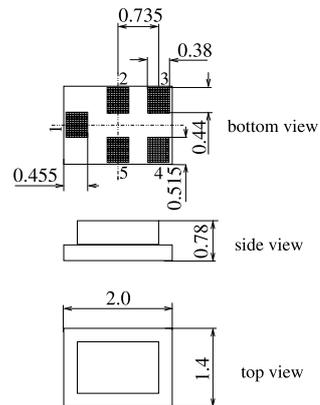
### Application

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



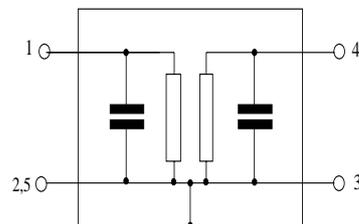
### Features

- Package size 2.0 x 1.4 x 0.78 mm<sup>3</sup>
- Package code QCS5C
- RoHS compatible
- Approx. weight 0.009 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals



### Pin configuration

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



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

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**Characteristics**

Operating temperature range:  $T = -35\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

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		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	—	2.1	2.8 <sup>1)</sup>	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
2010.0 ... 2025.0	MHz	—	0.2	0.9 <sup>2)</sup>	dB
<b>Input VSWR</b>					
2010.0 ... 2025.0	MHz	—	1.8	2.1	
<b>Output VSWR</b>					
2010.0 ... 2025.0	MHz	—	1.9	2.2	
<b>Group delay ripple (p-p)</b>					
2010.0 ... 2025.0	MHz	—	3	10	ns
<b>Attenuation</b>	$\alpha$				
0.0 ... 1840.0	MHz	43	48	—	dB
1840.0 ... 1950.0	MHz	35	44	—	dB
1950.0 ... 1980.0	MHz	14 <sup>3)</sup>	19	—	dB
1980.0 ... 1990.0	MHz	4.5 <sup>4)</sup>	12	—	dB
2045.0 ... 2050.0	MHz	7 <sup>5)</sup>	16	—	dB
2050.0 ... 2085.0	MHz	17	25	—	dB
2085.0 ... 2120.0	MHz	26	30	—	dB
2120.0 ... 2160.0	MHz	33	37	—	dB
2160.0 ... 4000.0	MHz	38	42	—	dB
4000.0 ... 6000.0	MHz	25	33	—	dB

- 1) 2.5 dB at 25 °C
- 2) 0.6 dB at 25 °C
- 3) 17 dB attenuation at 25 °C
- 4) 6 dB attenuation at 25 °C
- 5) 8 dB attenuation at -25 °C ... +85 °C

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**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>	5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power at 2010.0...2025.0 MHz	P <sub>IN</sub>	7	dBm	continuous wave, 2000 hours, 85 °C

<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



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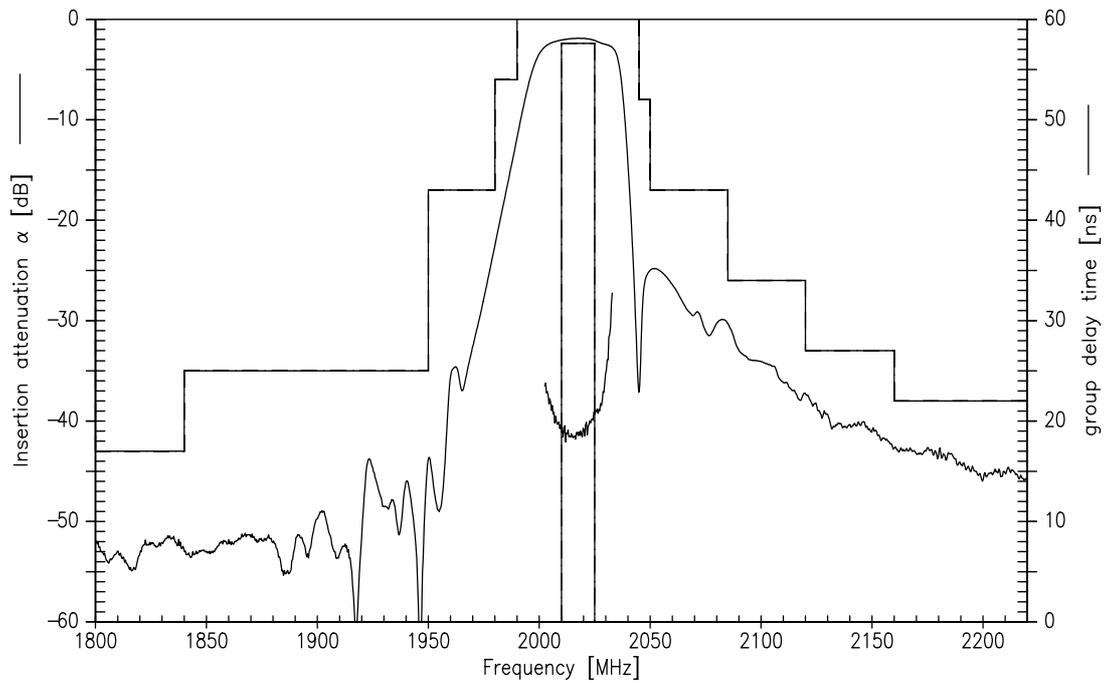
SAW filter

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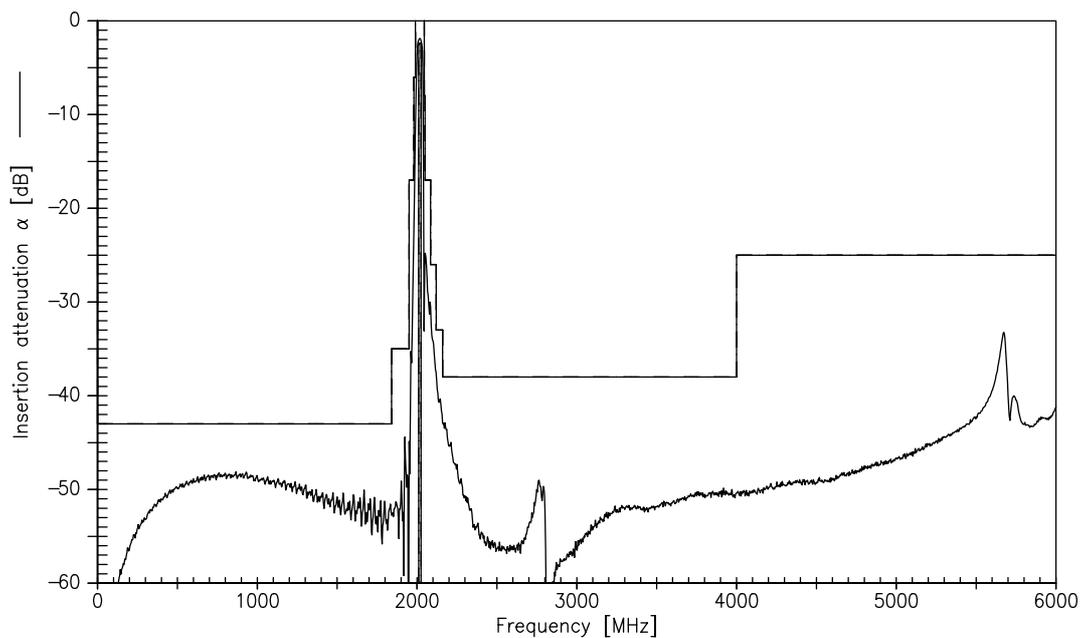
Data sheet



### Transfer function



### Transfer function (wideband)



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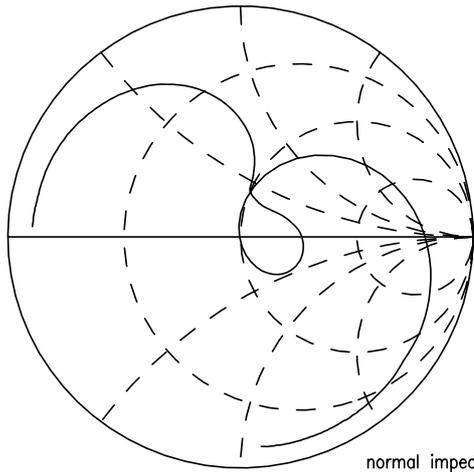
Data sheet



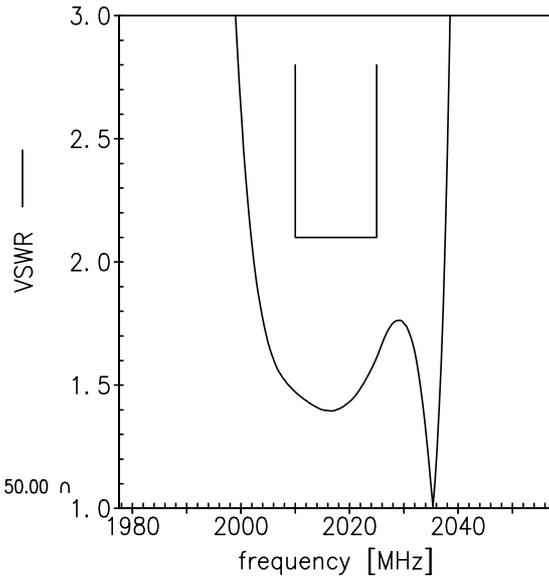
Smith charts

S<sub>11</sub> function

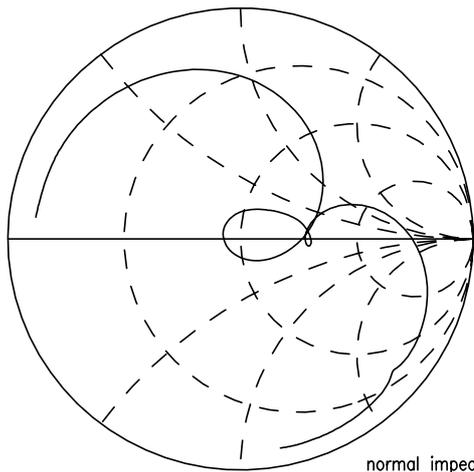
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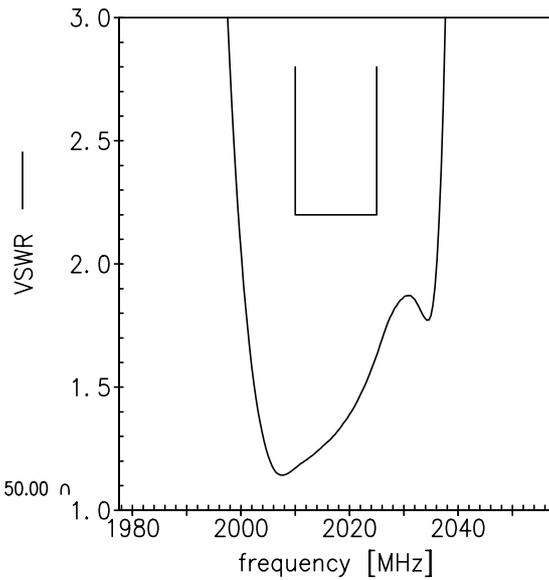
normal impedance: 50.00  $\Omega$



S<sub>22</sub> function



normal impedance: 50.00  $\Omega$



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## References

<b>Type</b>	B7853
<b>Ordering code</b>	B39202B7853C710
<b>Marking and package</b>	C61157-A7-A111
<b>Packaging</b>	F61074-V8151-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B7853_NB.s2p B7853_WB.s2p
<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."

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