



## **SAW Components**

### **SAW Duplexer**

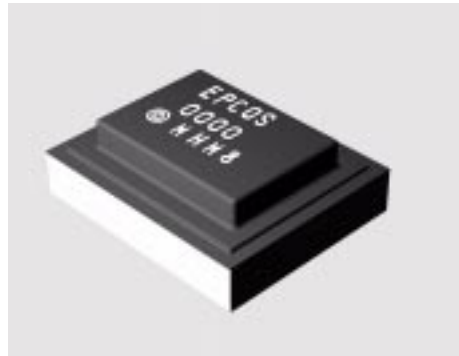
2100 MHz WCDMA Band I (UMTS)

<b>Series/type:</b>	<b>B7641</b>
<b>Ordering code:</b>	<b>B39212B7641P510</b>
<b>Date:</b>	<b>March 17, 2006</b>
<b>Version:</b>	<b>2.0</b>



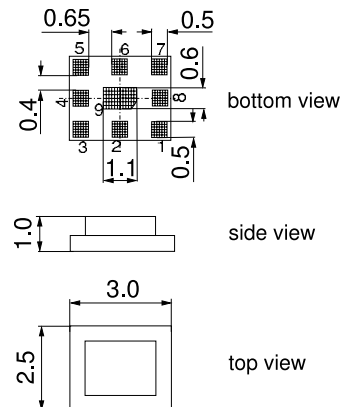
**Application**

- Low-loss SAW duplexer for mobile telephone WCDMA Band I (UMTS) systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 60 MHz



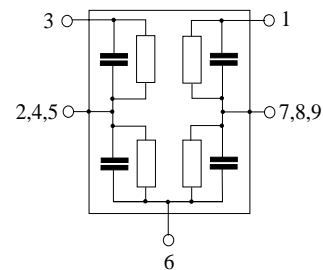
**Features**

- Package size 3.0 x 2.5 x 1.0 mm<sup>3</sup>
- RoHS compliant
- Approx. weight 0.035 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Fully matched by integrated matching network



**Pin configuration**

- 1 TX Input
- 3 RX Output
- 6 Antenna
- 2, 4, 5 To be grounded
- 7, 8, 9 To be grounded





Data sheet



**Characteristics**

Operating temperature range: T = -15 °C to +80 °C  
 Antenna terminating impedance: Z<sub>ANT</sub> = 50 Ω  
 RX terminating impedance: Z<sub>RX</sub> = 50 Ω  
 TX terminating impedance: Z<sub>TX</sub> = 50 Ω

Characteristics TX - ANT		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	1950.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	1.6	2.0	dB
1920.0 ... 1980.0 MHz					
<b>Amplitude ripple (p-p)</b>	Δα	—	0.45	1.0	dB
1920.0 ... 1980.0 MHz					
<b>Amplitude ripple (p-p) per 5 MHz-channel</b>	Δα <sub>ch</sub>	—	0.25	0.5	dB
1920.0 ... 1980.0 MHz					
<b>Input VSWR (TX port)</b>		—	2.0	2.3	
1920.0 ... 1980.0 MHz					
<b>Output VSWR (ANT port)</b>		—	1.7	2.0	
1920.0 ... 1980.0 MHz					
<b>Attenuation</b>	α				
0.3 ... 1790.0 MHz		30	32	—	dB
2110.0 ... 2170.0 MHz		40	45	—	dB
2400.0 ... 2500.0 MHz		25	31	—	dB
3840.0 ... 3960.0 MHz		20	23	—	dB



Data sheet



**Characteristics**

Operating temperature range: T = -15 °C to +80 °C  
 Antenna terminating impedance: Z<sub>ANT</sub> = 50 Ω  
 RX terminating impedance: Z<sub>RX</sub> = 50 Ω  
 TX terminating impedance: Z<sub>TX</sub> = 50 Ω

Characterisitcs ANT - RX				min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>			—	2140.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>						
2110.0 ... 2115.0	MHz			—	2.4	3.2	dB
2115.0 ... 2170.0	MHz			—	2.2	2.8	dB
<b>Amplitude ripple (p-p)</b>	Δα						
2110.0 ... 2170.0	MHz			—	0.9	1.7	dB
2115.0 ... 2170.0	MHz			—	0.7	1.3	dB
<b>Amplitude ripple (p-p) per 5 MHz-channel</b>	Δα <sub>ch</sub>						
2110.0 ... 2115.0	MHz			—	0.5	0.7	dB
2115.0 ... 2170.0	MHz			—	0.3	0.55	dB
<b>Input VSWR (ANT port)</b>							
2110.0 ... 2170.0	MHz			—	1.7	2.0	
<b>Output VSWR (RX port)</b>							
2110.0 ... 2170.0	MHz			—	2.0	2.4	
<b>Attenuation</b>	α						
0.3 ... 1730.0	MHz			30	39	—	dB
1730.0 ... 1790.0	MHz			37	39	—	dB
1920.0 ... 1980.0	MHz			45	49	—	dB
2400.0 ... 2500.0	MHz			35	48	—	dB
4030.0 ... 4150.0	MHz			25	36	—	dB
4220.0 ... 4340.0	MHz			25	34	—	dB



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1950.0 / 2140.0 MHz

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**SMD**

**Characteristics**

Operating temperature range:  $T = -15\text{ °C to }+80\text{ °C}$   
Antenna terminating impedance:  $Z_{ANT} = 50\ \Omega$   
RX terminating impedance:  $Z_{RX} = 50\ \Omega$   
TX terminating impedance:  $Z_{TX} = 50\ \Omega$

Characterisitcs TX - RX				min.	typ. @ 25 °C	max.	
Isolation	1920.0 ... 1980.0	$\alpha$	MHz	46	50	—	dB
	2110.0 ... 2170.0		MHz	42	46	—	dB



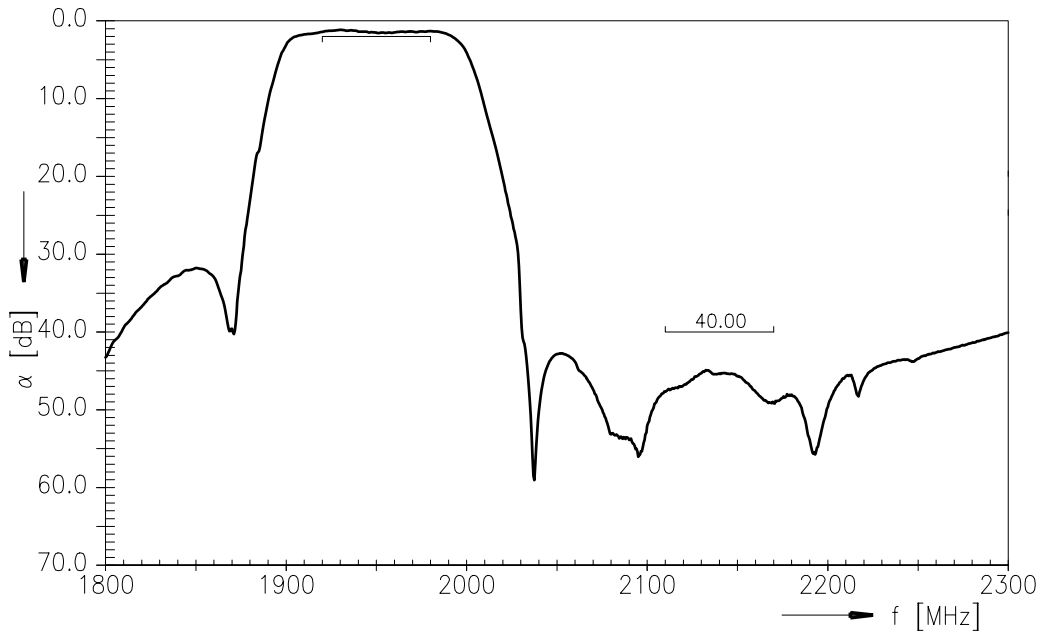
**Maximum ratings**

Operating temperature range <sup>1)</sup>	T	-15/+80	°C	
Operable temperature range <sup>2)</sup>	T	-25/+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>3)</sup>	V	machine model, 10 pulses
Input power at	P <sub>IN</sub>			source and load impedance 50 Ω
1920.0 ... 1980.0 MHz		30	dBm	} continuous wave T = 55° C, 50.000 h
elsewhere		10	dBm	

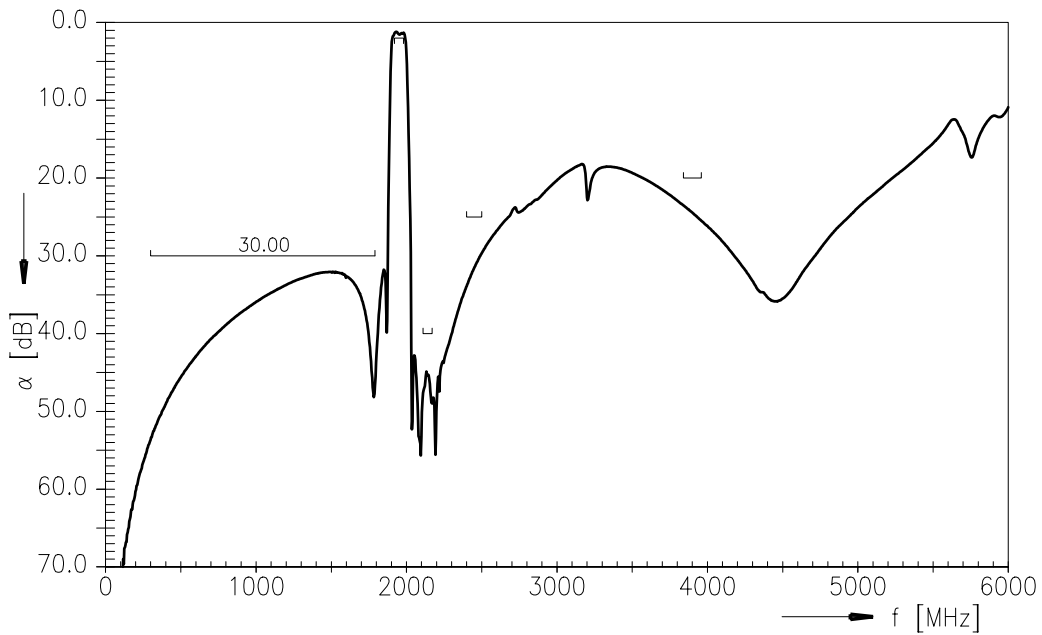
- 1) Defines the temperature range in which the specification values are guaranteed.
- 2) Defines the temperature range in which the SAW device keeps its typical characteristics, however the specification values are not guaranteed.
- 3) acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function TX - ANT

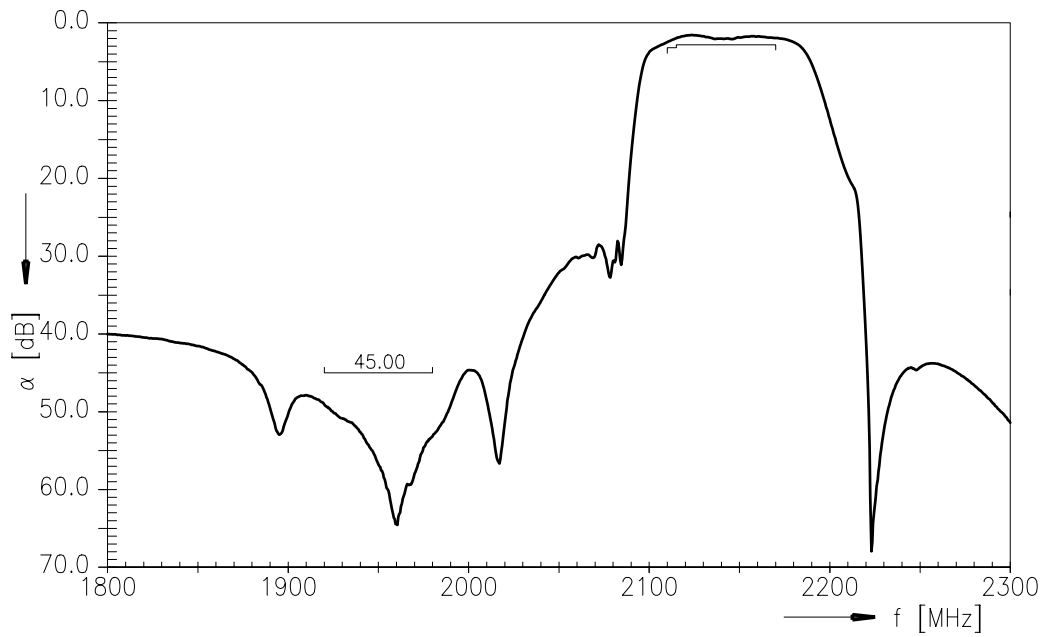


Transfer function TX - ANT (wideband)

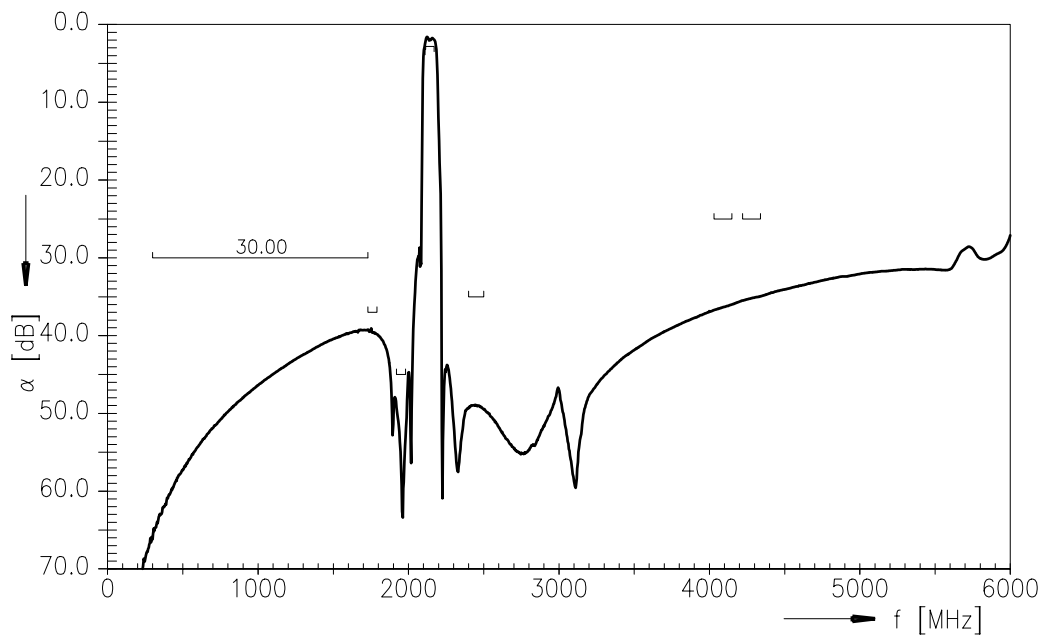




Transfer function ANT - RX



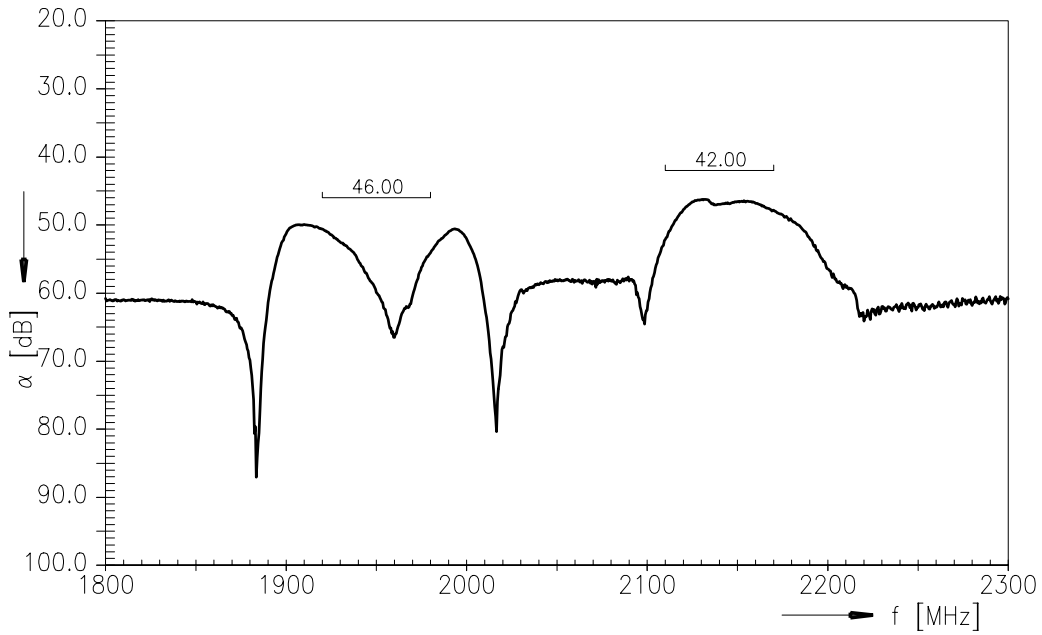
Transfer function ANT - RX (wideband)



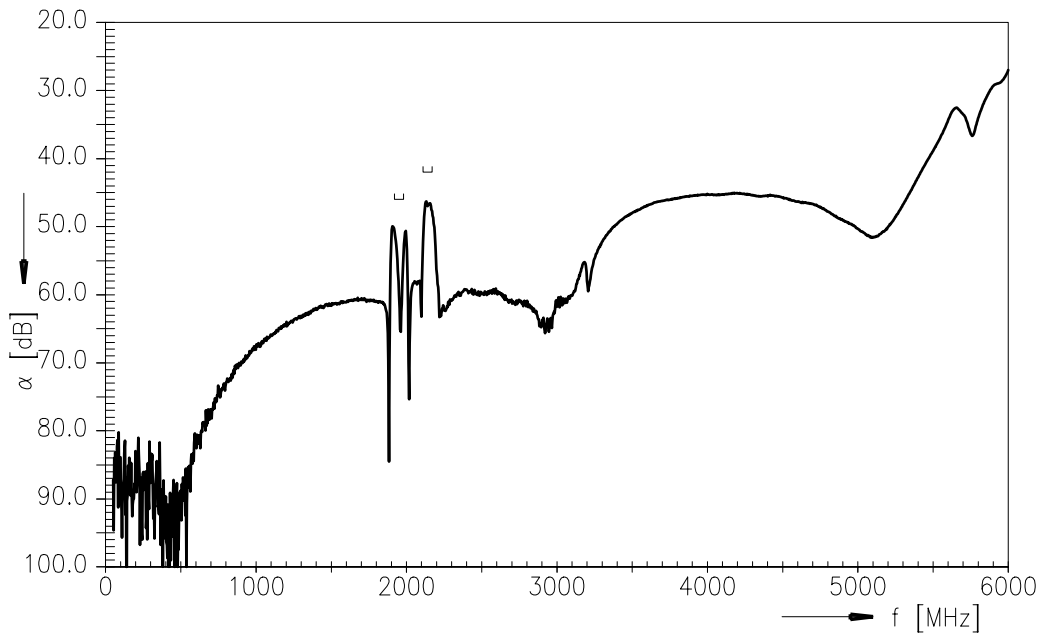




Transfer function TX - RX



Transfer function TX - RX (wideband)





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1950.0 / 2140.0 MHz

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## References

Type	B7641
Ordering code	B39212B7641P510
Marking and package	C1157-A3-A22
Packaging	F61074-V8211-Z000
Date codes	L_1126
S-parameters	B7641_NB.s3p B7641_WB.s3p
Soldering profile	S_6001
RoHS compatible	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."

For further information please contact your local EPCOS sales office or visit our webpage at [www.epcos.com](http://www.epcos.com).

Published by EPCOS AG  
Surface Acoustic Wave Components Division  
P.O. Box 80 17 09, 81617 Munich, GERMANY

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

10 March 17, 2006



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