SAW Components

SAW Duplexer

2100 MHz WCDMA Band I (UMTS)

Series/type:	**B7641**
Ordering code:	**B39212B7641P510**
Date:	March 17, 2006
Version:	2.0

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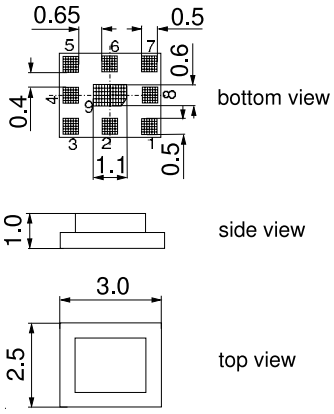
Application

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



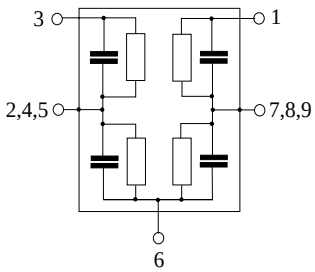
Features

- Package size 3.0 x 2.5 x 1.0 mm^3
- RoHS compliant
- Approx. weight 0.035 g
- Package for **S**urface **M**ount **T**echnology (**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 SMD

Characteristics

Operating temperature range: T = –15 ˚C to +80 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs TX - ANT		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1950.0	—	MHz
Maximum insertion attenuation	α_{max}				
1920.0 ... 1980.0 MHz		—	1.6	2.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1920.0 ... 1980.0 MHz		—	0.45	1.0	dB
Amplitude ripple (p-p) **per 5 MHz-channel**	$\Delta\alpha_{ch}$				
1920.0 ... 1980.0 MHz		—	0.25	0.5	dB
Input VSWR (TX port)					
1920.0 ... 1980.0 MHz		—	2.0	2.3	
Output VSWR (ANT port)					
1920.0 ... 1980.0 MHz		—	1.7	2.0	
Attenuation	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

Characteristics

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Antenna terminating impedance: Z_{ANT} = 50 Ω
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs ANT - RX		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2140.0	—	MHz
Maximum insertion attenuation	α_{max}				
2110.0 ... 2115.0 MHz		—	2.4	3.2	dB
2115.0 ... 2170.0 MHz		—	2.2	2.8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
2110.0 ... 2170.0 MHz		—	0.9	1.7	dB
2115.0 ... 2170.0 MHz		—	0.7	1.3	dB
Amplitude ripple (p-p) **per 5 MHz-channel**	$\Delta\alpha_{ch}$				
2110.0 ... 2115.0 MHz		—	0.5	0.7	dB
2115.0 ... 2170.0 MHz		—	0.3	0.55	dB
Input VSWR (ANT port)					
2110.0 ... 2170.0 MHz		—	1.7	2.0	
Output VSWR (RX port)					
2110.0 ... 2170.0 MHz		—	2.0	2.4	
Attenuation	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

Characteristics

Operating temperature range: T = –15 ˚C to +80 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs TX - RX		min.	typ. @ 25 ˚C	max.	
Isolation	α				
1920.0 ... 1980.0 MHz		46	50	—	dB
2110.0 ... 2170.0 MHz		42	46	—	dB

Maximum ratings

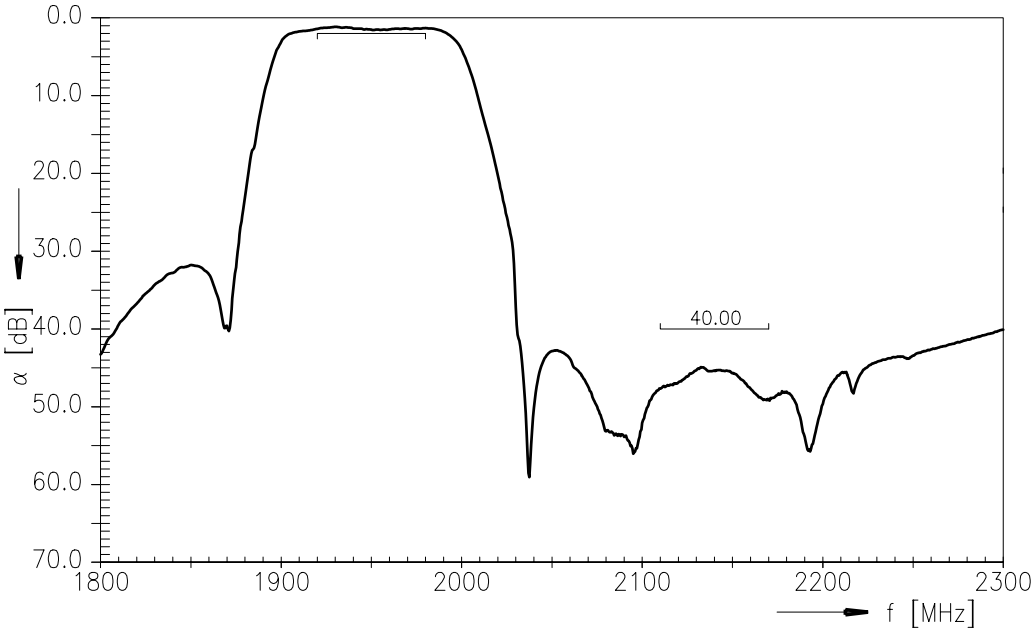
Operating temperature range[1]	T	–15/+80	˚C	
Operable temperature range[2]	T	–25/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[3]	V	machine model, 10 pulses
Input power at	P_{IN}			source and load impedance 50 Ω
1920.0 ... 1980.0 MHz		30	dBm	} continuous wave, T = 55˚C, 50.000 h
elsewhere		10	dBm	

[1] Defines the temperature range in which the specification values are guaranteed.

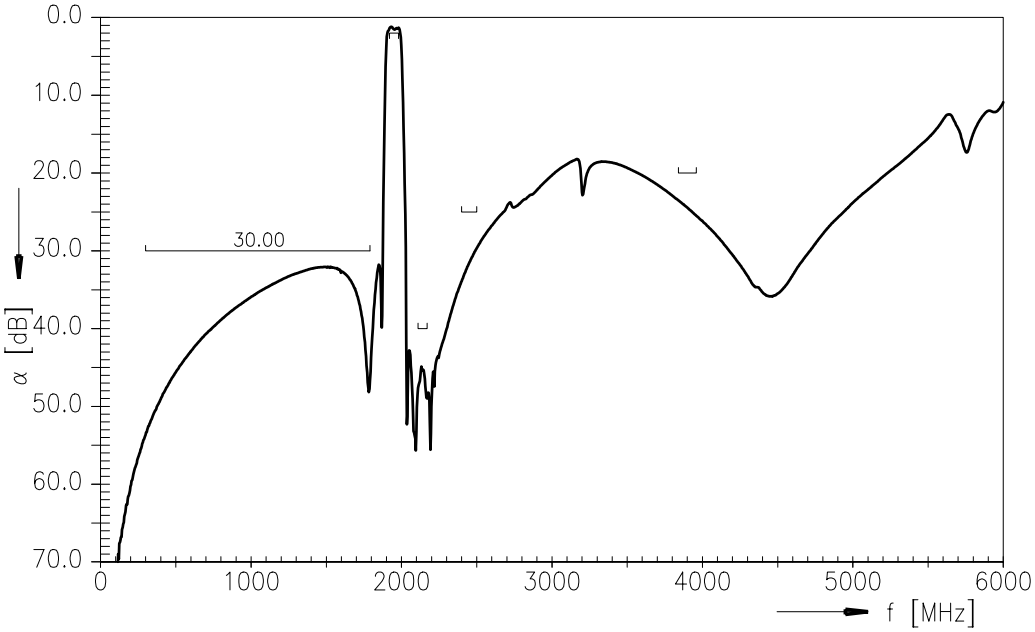
[2] Defines the temperature range in which the SAW device keeps its typical characteristics, however the specification values are not guaranteed.

[3] acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

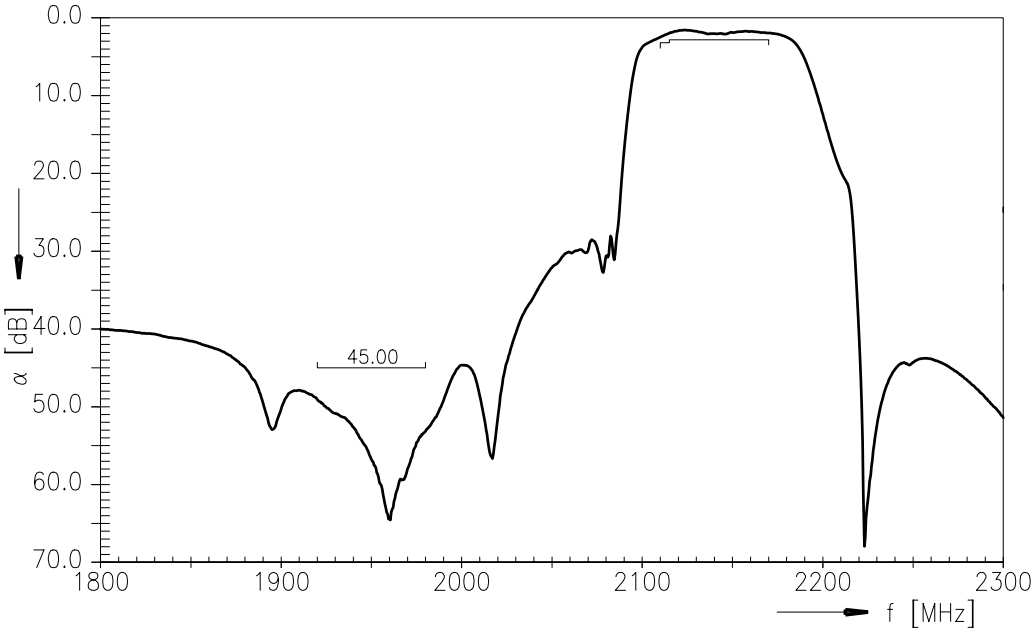
Transfer function TX - ANT



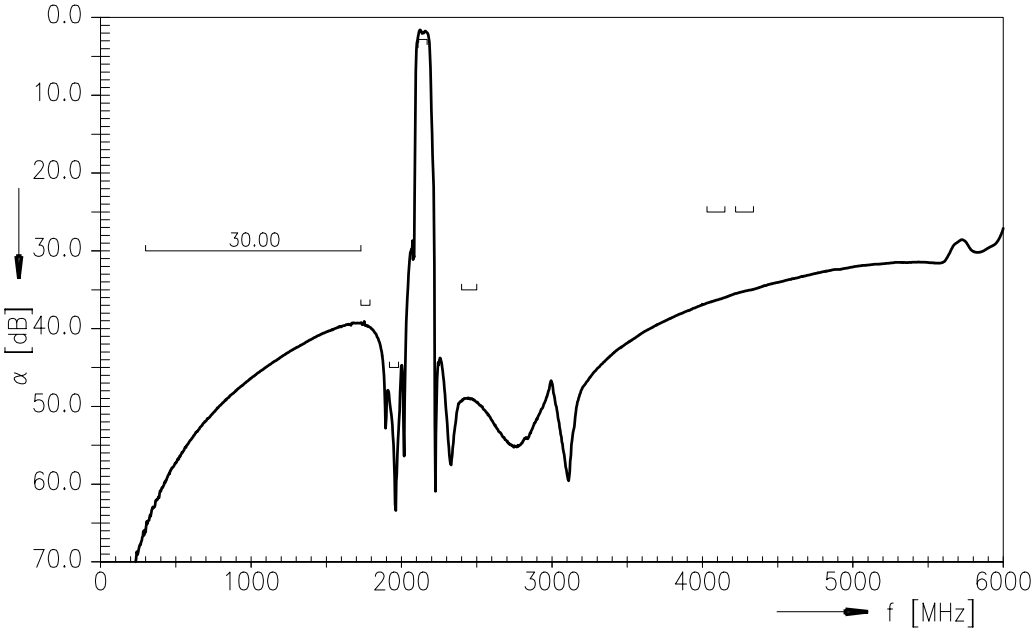
Transfer function TX - ANT (wideband)



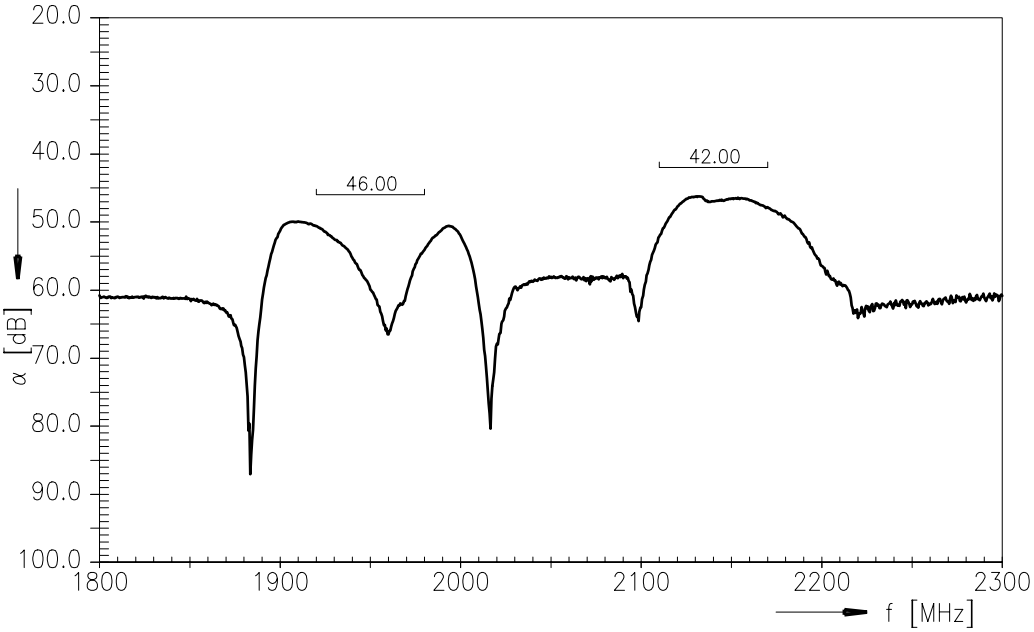
Transfer function ANT - RX



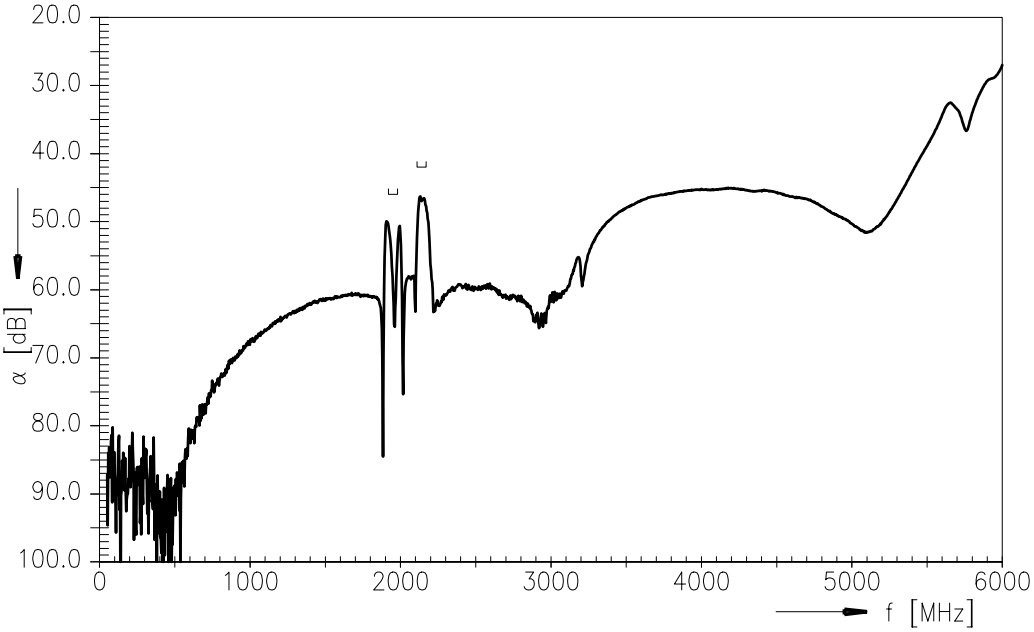
Transfer function ANT - RX (wideband)



Transfer function TX - RX



Transfer function TX - RX (wideband)



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."

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