SAW Components

SAW Duplexer

2100 MHz WCDMA Band I (UMTS)

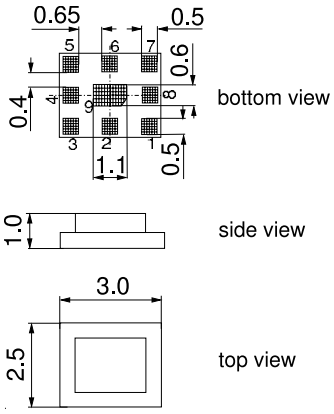
Series/type:	**B7641**
Ordering code:	**B39212B7641P510**
Date:	March 17, 2006
Version:	2.0

Application

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

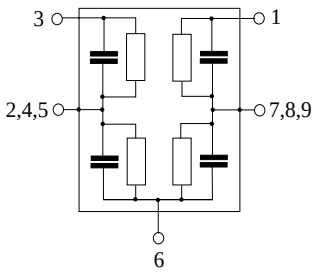
Features

- 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



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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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

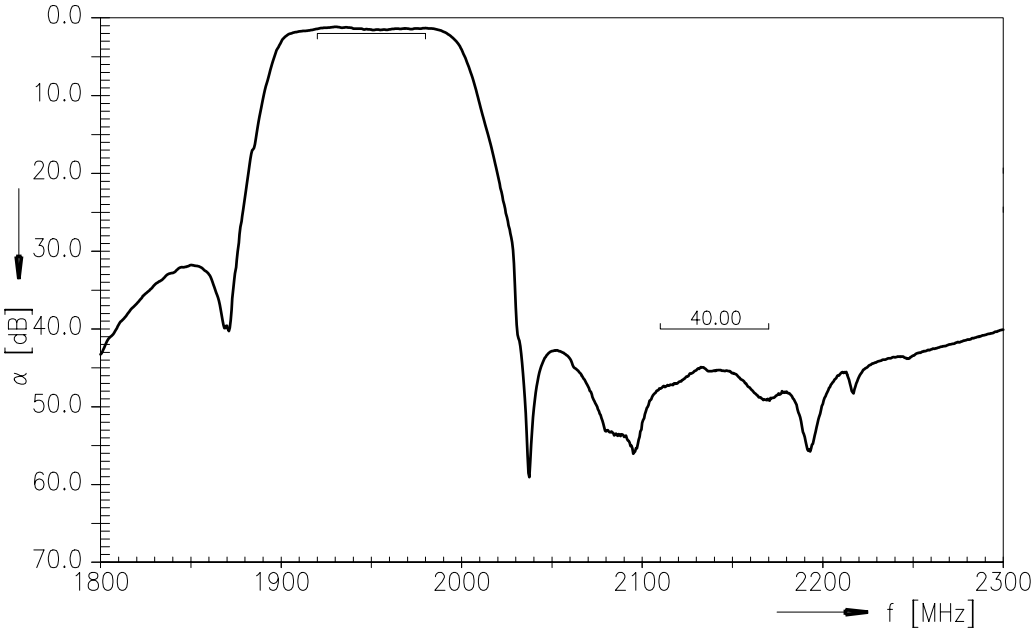
Operating temperature range[1]	T	–15/+80	˚C	
Operable temperature range[2]	T	–25/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[3]	V	machine model, 10 pulses
Input power at	P_{IN}			source and load impedance 50 Ω
1920.0 ... 1980.0 MHz		30	dBm	} continuous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

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

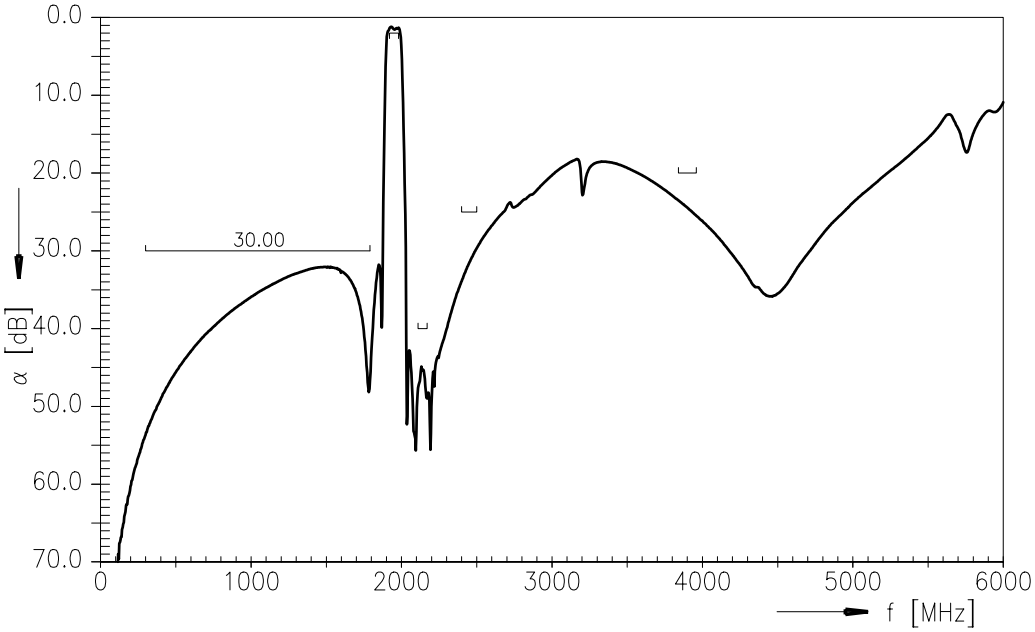
2) Defines the temperature range in which the SAW device keeps its typical characteristics, however the specification values are not guaranteed.

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

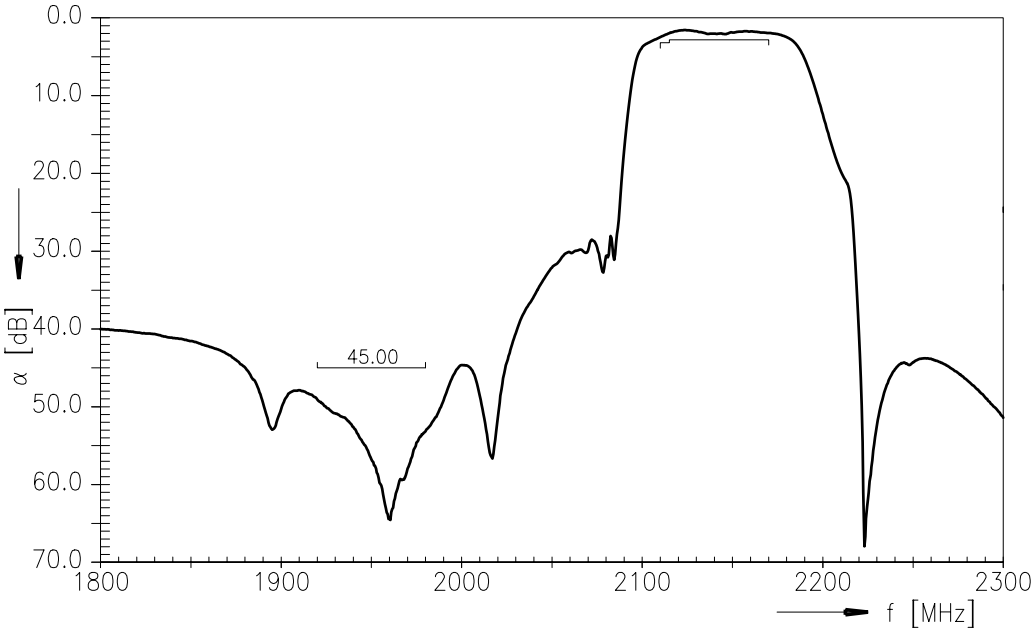
Transfer function TX - ANT



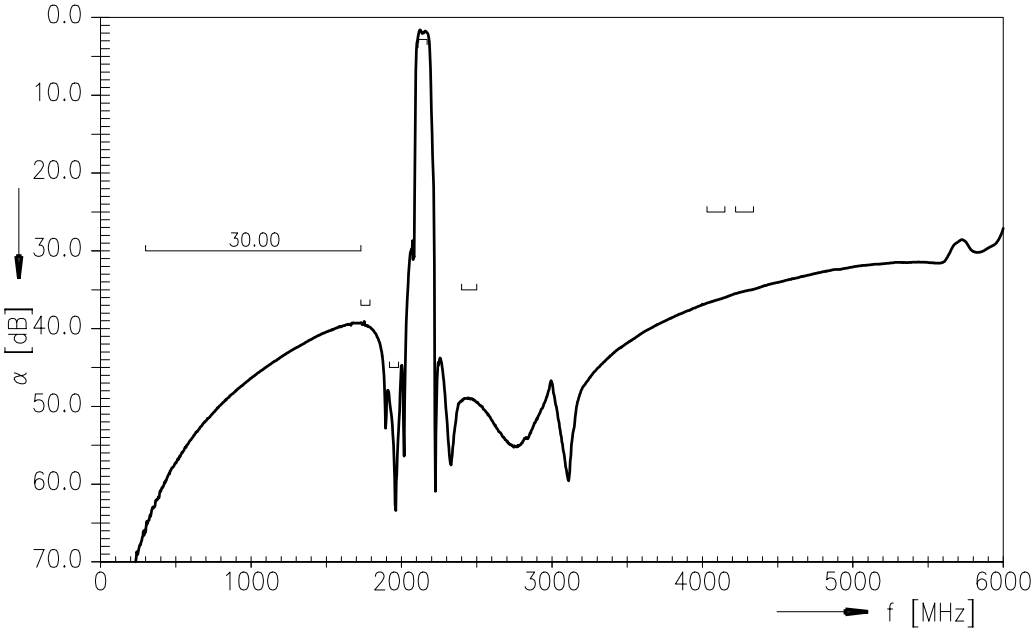
Transfer function TX - ANT (wideband)



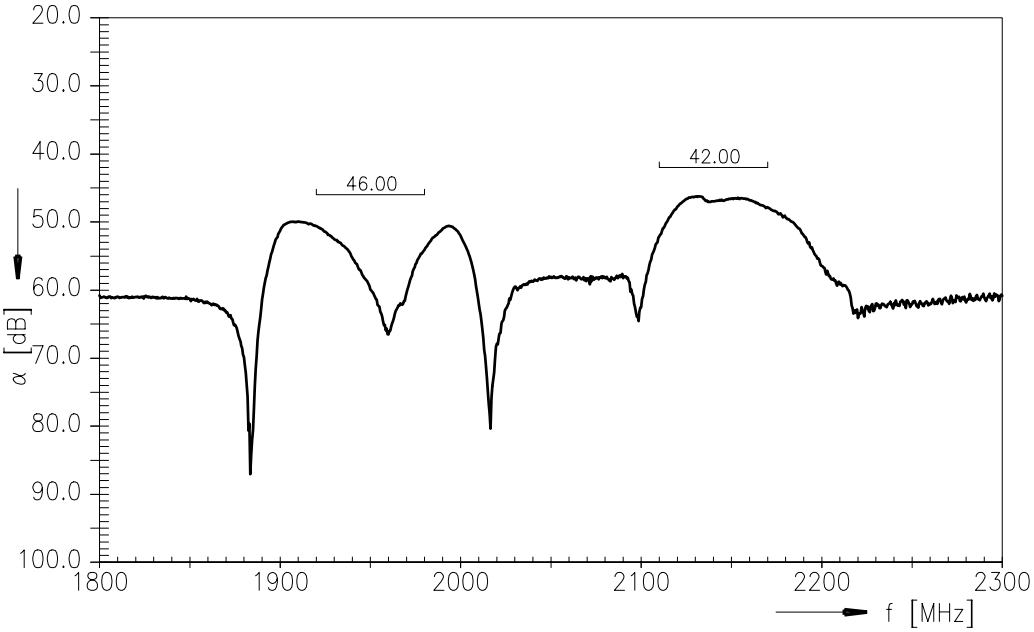
Transfer function ANT - RX



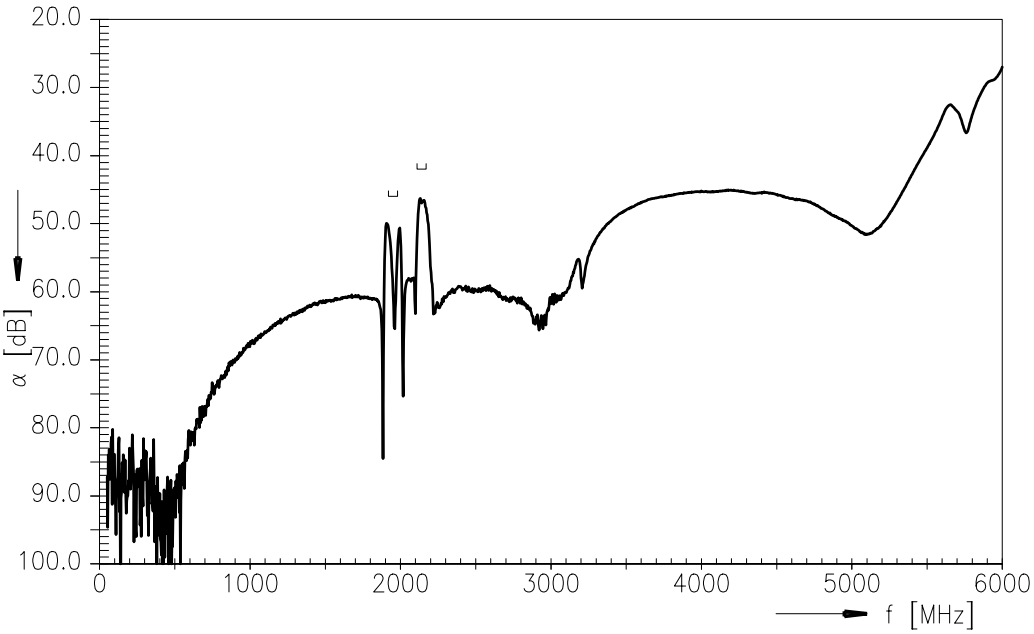
Transfer function ANT - RX (wideband)



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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