



## SAW Components

### SAW Duplexer for WCDMA Band I (UMTS)

<b>Series/type:</b>	<b>B7643</b>
<b>Ordering code:</b>	<b>B39212B7643P510</b>
<b>Date:</b>	<b>July 06, 2006</b>
<b>Version:</b>	<b>2.0</b>

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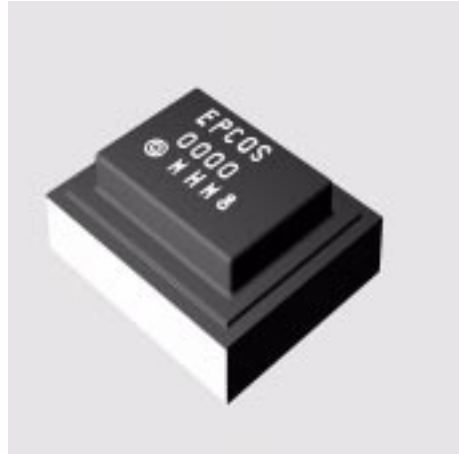


Data sheet



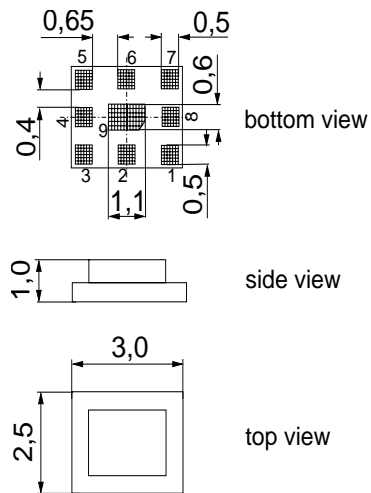
**Application**

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



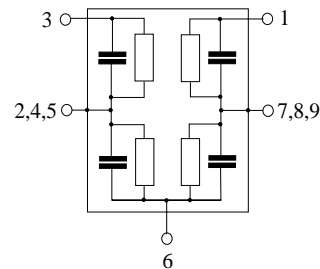
**Features**

- 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



**Pin configuration**

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





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**Characteristics**

Operating temperature range:  $T = -30\text{ °C to }+85\text{ °C}$   
 Antenna terminating impedance:  $Z_{ANT} = 50\ \Omega$   
 TX terminating impedance:  $Z_{TX} = 50\ \Omega$   
 RX terminating impedance:  $Z_{RX} = 50\ \Omega \parallel 3.9\text{ nH}$

Characteristics TX - ANT		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	1950.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	1.4	1.7	dB
1920.0 ... 1980.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.4	0.7	dB
1920.0 ... 1980.0 MHz					
<b>Amplitude ripple (p-p) over any 3.84 MHz within passband</b>	$\Delta\alpha_{ch}$	—	0.2	—	dB
1920.0 ... 1980.0 MHz					
<b>Input VSWR (TX port)</b>		—	1.8	2.1	
1920.0 ... 1980.0 MHz					
<b>Output VSWR (ANT port)</b>		—	1.6	1.9	
1920.0 ... 1980.0 MHz					
<b>Attenuation</b>	$\alpha$				
1.0 ... 1570.0 MHz		10	27	—	dB
1570.0 ... 1580.0 MHz		20	27	—	
1805.0 ... 1880.0 MHz		1	26	—	dB
2110.0 ... 2170.0 MHz		38	42	—	
2402.0 ... 2480.0 MHz		5	27	—	dB
3840.0 ... 3960.0 MHz		13	18	—	
5760.0 ... 5940.0 MHz		7	12	—	dB



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Characteristics

Operating temperature range:  $T = -30\text{ °C to }+85\text{ °C}$   
 Antenna terminating impedance:  $Z_{ANT} = 50\ \Omega$   
 TX terminating impedance:  $Z_{TX} = 50\ \Omega$   
 RX terminating impedance:  $Z_{RX} = 50\ \Omega \parallel 3.9\text{ nH}$

Characteristics ANT - RX	min.	typ. @ 25 °C	max.	
<b>Center frequency</b> $f_C$	—	2140.0	—	MHz
<b>Maximum insertion attenuation</b> $\alpha_{max}$ 2110.0 ... 2170.0 MHz	—	2.1	2.5	dB
<b>Amplitude ripple (p-p)</b> $\Delta\alpha$ 2110.0 ... 2170.0 MHz	—	0.6	1.0	dB
<b>Amplitude ripple (p-p) over any 3.84 MHz within passband</b> $\Delta\alpha_{ch}$ 2110.0 ... 2170.0 MHz	—	0.2	—	dB
<b>Input VSWR (ANT port)</b> 2110.0 ... 2170.0 MHz	—	1.6	1.9	
<b>Output VSWR (RX port)</b> 2110.0 ... 2170.0 MHz	—	1.8	2.2	
<b>Attenuation</b> $\alpha$				
1.0 ... 200.0 MHz	28	90	—	dB
200.0 ... 1730.0 MHz	6	38	—	dB
1730.0 ... 1790.0 MHz	20	39	—	dB
1790.0 ... 1920.0 MHz	25	41	—	dB
1920.0 ... 1980.0 MHz	46	50	—	dB
1980.0 ... 2025.0 MHz	20	46	—	dB
2025.0 ... 2050.0 MHz	8	46	—	dB
2050.0 ... 2075.0 MHz	2	28	—	dB
2230.0 ... 2255.0 MHz	2.5	46	—	dB
2255.0 ... 2402.0 MHz	8	46	—	dB
2402.0 ... 2480.0 MHz	18	53	—	dB
2480.0 ... 4030.0 MHz	18	40	—	dB
4030.0 ... 4150.0 MHz	25	39	—	dB
4150.0 ... 4220.0 MHz	18	39	—	dB
4220.0 ... 4340.0 MHz	25	38	—	dB
4340.0 ... 6330.0 MHz	18	31	—	dB



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**Characteristics**

Operating temperature range:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z <sub>ANT</sub> = 50 Ω
TX terminating impedance:	Z <sub>TX</sub> = 50 Ω
RX terminating impedance:	Z <sub>RX</sub> = 50 Ω    3.9 nH

Characterisitcs TX - RX	min.	typ. @ 25 °C	max.	
<b>Isolation</b> <span style="float: right;">α</span>				
1920.0 ... 1980.0 MHz	49	52	—	dB
2110.0 ... 2170.0 MHz	41	43	—	dB



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**Maximum ratings**

Operable temperature range	T	-30/+85	°C	machine model, 10 pulses source and load impedance 50 Ω } continuous wave T = 55°C, 50.000 h
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	
Input power at	P <sub>IN</sub>			
1920.0 ... 1980.0 MHz		30	dBm	
elsewhere		10	dBm	

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



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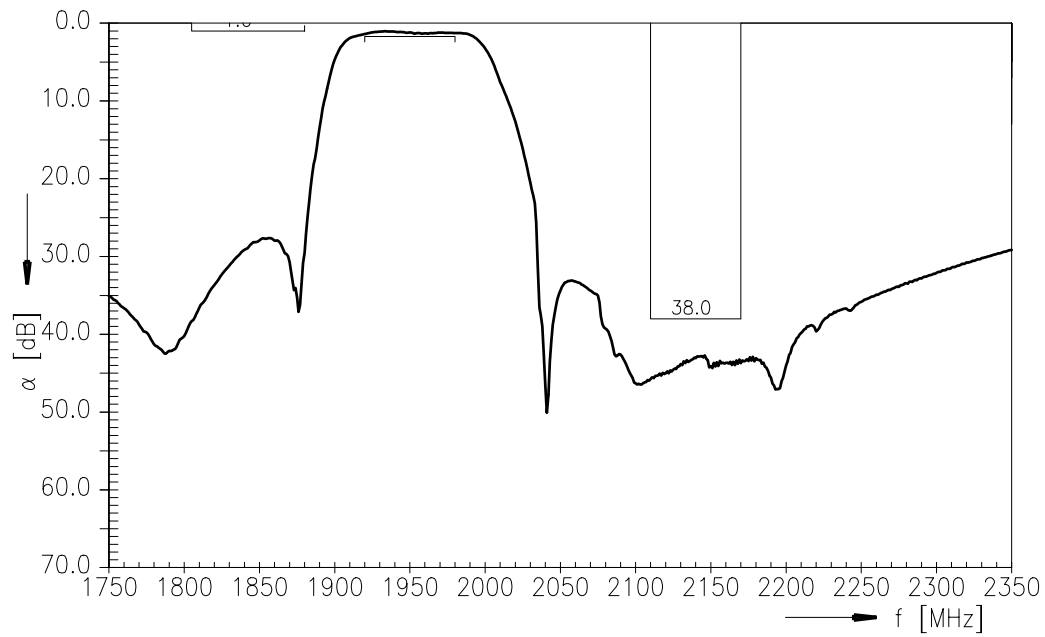
SAW Duplexer

1950 / 2140 MHz

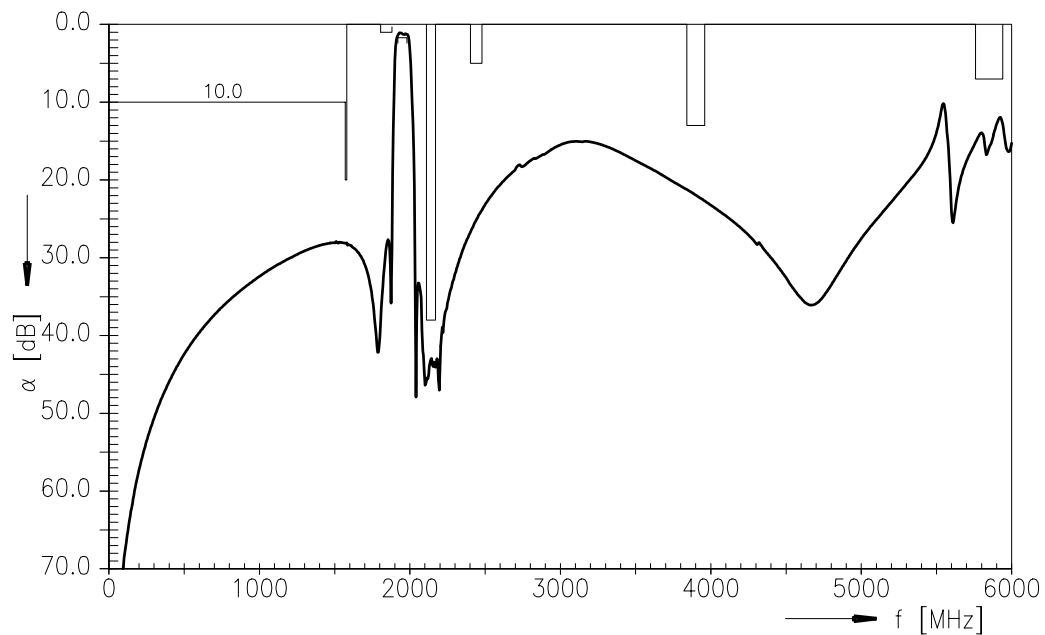
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### Frequency Response TX-ANT



### Frequency Response TX-ANT (wideband)





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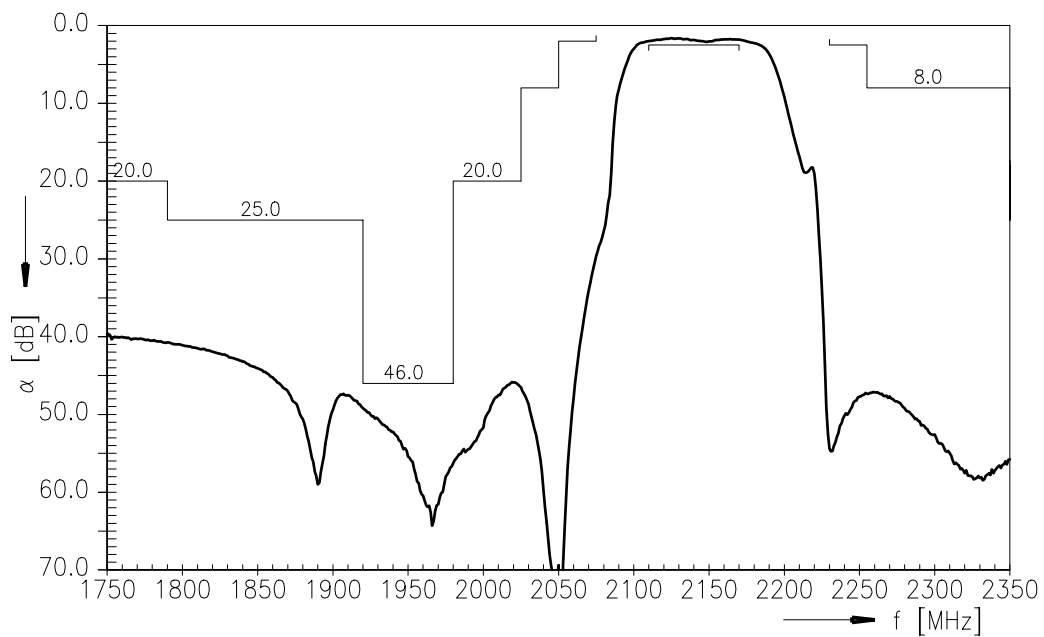
SAW Duplexer

1950 / 2140 MHz

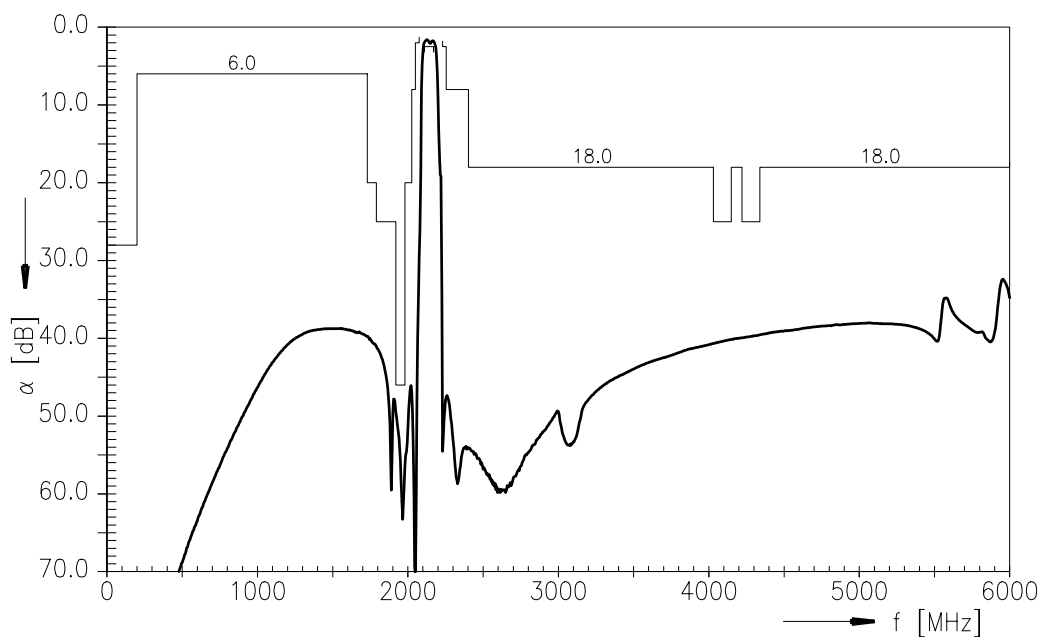
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### Frequency Response RX-ANT



### Frequency Response RX-ANT (wideband)







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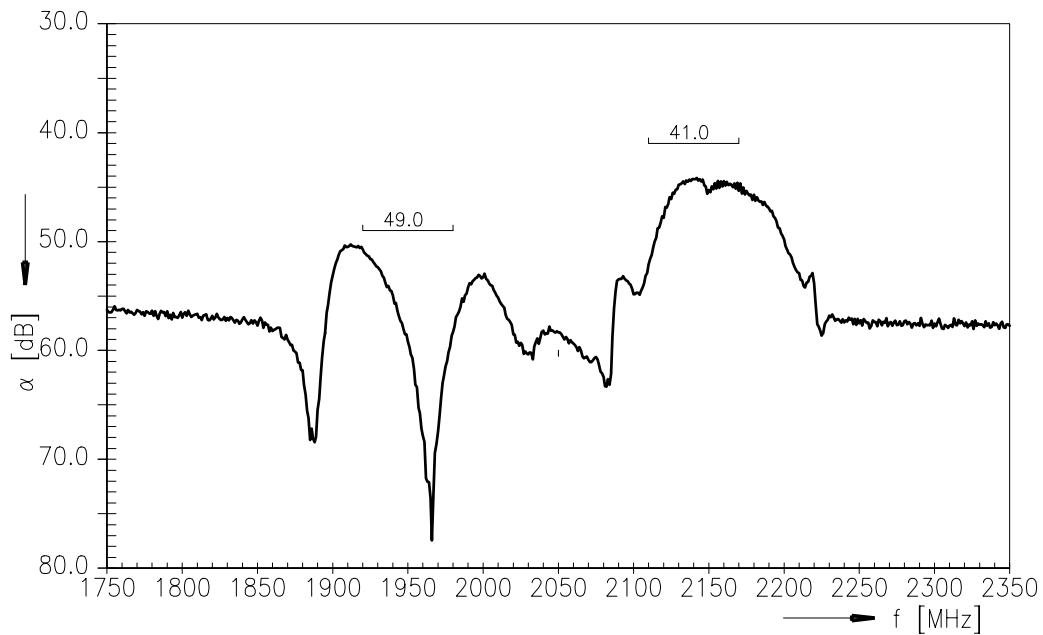
SAW Duplexer

1950 / 2140 MHz

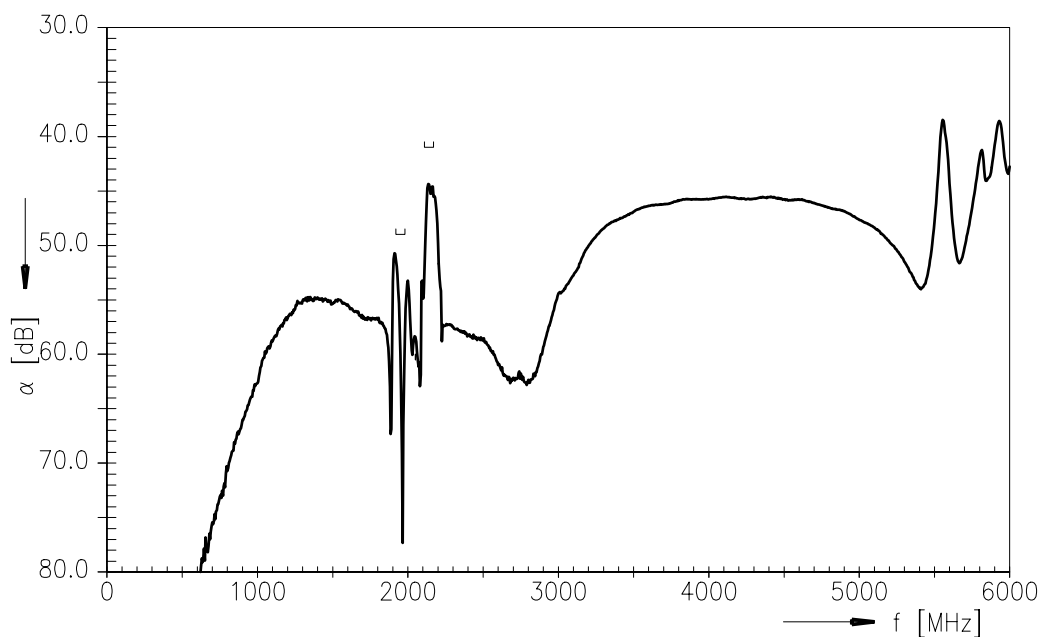
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### Frequency Response TX-RX



### Frequency Response TX-RX (wideband)





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SAW Duplexer

1950 / 2140 MHz

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## References

Type	B7643
Ordering code	B39212B7643P510
Marking and package	C61157-A3-A22
Packaging	F61074-V8211-Z000
Date codes	L_1126
S-parameters	B7643_NB.s3p B7643_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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