



SAW Components

BAW Duplexer

CDMA-PCS

Series/type: B7685

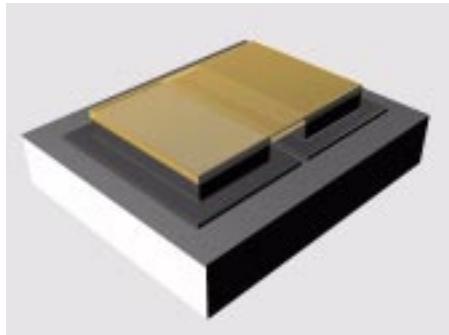
Ordering code: B39202B7685L310

Date: June 05, 2009

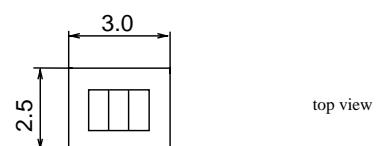
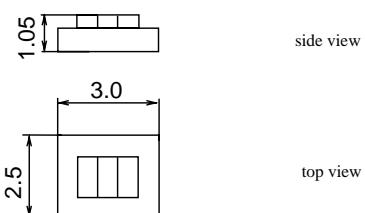
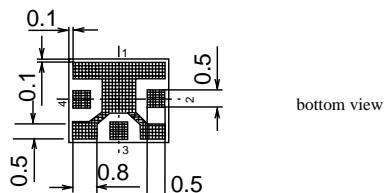
Version: 2.0

Application

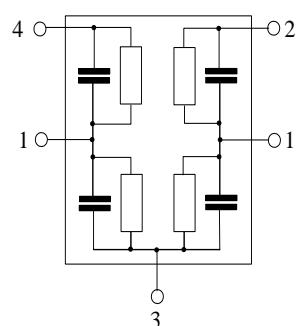
- Low-loss BAW duplexer for mobile telephone
- CDMA based PCS systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 60 MHz


Features

- Package size 3.0 x 2.5 mm²,
package height 1.15 mm max.
- RoHS compliant
- Approx. weight 0.03 g
- Package for **Surface Mount Technology** (**SMT**)
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


Pin configuration

- 2 TX Input
- 4 RX Output
- 3 Antenna
- 1 To be grounded



**SAW Components****B7685****BAW Duplexer****1880.0 / 1960.0 MHz****Data sheet****Characteristics**Temperature range for specification: $T = -30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ Antenna terminating impedance: $Z_{\text{ANT}} = 50\Omega$ RX terminating impedance: $Z_{\text{RX}} = 50\Omega$ TX terminating impedance: $Z_{\text{TX}} = 50\Omega$

Characteristics TX - ANT		min.	typ. @ 25 °C	max.	
Center frequency	f_{C}		1880.0		MHz
Insertion attenuation	α				
1850.6 ... 1909.4	MHz		1.7 ¹⁾		dB
Maximum insertion attenuation	α_{max}				
1850.6 ... 1909.4	MHz		2.5	3.0 ²⁾	dB
1850.6 ... 1909.4	MHz		2.5	3.2 ³⁾	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1850.6 ... 1909.4	MHz		1.3	2.0	dB
Input VSWR (TX port)			1.7	2.0	
1850.6 ... 1909.4	MHz				
Output VSWR (ANT port)			1.8	2.1	
Attenuation	α				
470.0 ... 1450.0	MHz	30	33		dB
1450.0 ... 1480.0	MHz	30	33		dB
1574.4 ... 1576.5	MHz	38	42		dB
1770.0 ... 1830.0	MHz	10	22		dB
1930.6 ... 1989.4	MHz	45	53		dB
2400.0 ... 2500.0	MHz	20	26		dB
3700.0 ... 3820.0	MHz	15	20		dB
3820.0 ... 5150.0	MHz	8	12		dB
5150.0 ... 5550.0	MHz	5	10		dB
5550.0 ... 5730.0	MHz	5	10		dB
5760.0 ... 6000.0	MHz	8	12		dB

¹⁾ Average value over indicated band.²⁾ $+15^{\circ}\text{C}$ to $+35^{\circ}\text{C}$.³⁾ -30°C to $+15^{\circ}\text{C}$ and $+35^{\circ}\text{C}$ to $+85^{\circ}\text{C}$.

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Antenna terminating impedance:	$Z_{\text{ANT}} = 50\Omega$
RX terminating impedance:	$Z_{\text{RX}} = 50\Omega$
TX terminating impedance:	$Z_{\text{TX}} = 50\Omega$

Characteristics ANT - RX		min.	typ. @ 25 °C	max.	
Center frequency	f_{C}		1960.0		MHz
Insertion attenuation	α				
1930.6 ... 1989.4 MHz			2.1 ¹⁾		dB
Maximum insertion attenuation	α_{max}				
1930.6 ... 1989.4 MHz			3.0	3.5 ²⁾	dB
1930.6 ... 1989.4 MHz			3.0	3.8 ³⁾	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930.6 ... 1989.4 MHz			1.6	2.4	dB
Input VSWR (ANT port)					
1930.6 ... 1989.4 MHz			1.8	2.0 ²⁾	
1930.6 ... 1989.4 MHz			1.8	2.7 ³⁾	
Output VSWR (RX port)					
1930.6 ... 1989.4 MHz			1.9	2.0 ²⁾	
1930.6 ... 1989.4 MHz			1.9	2.4 ³⁾	
Attenuation	α				
50.0 ... 1770.0 MHz		30	36		dB
1770.0 ... 1850.0 MHz		38	48		dB
1850.6 ... 1908.9 MHz		51	54		dB
1908.9 ... 1909.4 MHz		51 ⁴⁾	54		dB
1908.9 ... 1909.4 MHz		48	54		dB
2040.0 ... 2070.0 MHz		35	48		dB
2400.0 ... 2500.0 MHz		40	55		dB
3860.0 ... 3980.0 MHz		30	50		dB

¹⁾ Average value over indicated band.

²⁾ $+15^{\circ}\text{C}$ to $+35^{\circ}\text{C}$.

³⁾ -30°C to $+15^{\circ}\text{C}$ and $+35^{\circ}\text{C}$ to $+85^{\circ}\text{C}$.

⁴⁾ -30°C to $+75^{\circ}\text{C}$.

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Characteristics TX - RX	min.	typ. @ 25 °C	max.	
Isolation		α		
1850.6 ... 1909.4 MHz	54	56		dB
1930.6 ... 1989.4 MHz	49	56		dB

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

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Temperature range for specification: $T = -30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
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RX terminating impedance: $Z_{\text{RX}} = 50\Omega$
TX terminating impedance: $Z_{\text{TX}} = 50\Omega$

Distortion products	min.	typ. @ 25 °C	max.	
Harmonics level limits of Tx frequencies (1850 ... 1910 MHz) at antenna port¹⁾: H2 @ ANT H3 @ ANT		-35 -65		dBm dBm
IMD product level limits at Rx frequencies and at Rx port²⁾: Blocker 1 80.0 MHz Blocker 2 1770.0 ... 1830.0 MHz Blocker 3 3840.0 MHz		-112 -110 -86		dBm dBm dBm
Triple beat product level limits at Rx frequencies and at Rx port (rel. to CW jammer at ant. port)³⁾: $f_{\text{Tx1}}=1855\text{ MHz}$, $f_{\text{Tx2}}=1856\text{ MHz}$ Blocker 1 1935.0 MHz $f_{\text{Tx1}}=1880\text{ MHz}$, $f_{\text{Tx2}}=1881\text{ MHz}$ Blocker 2 1960.0 MHz $f_{\text{Tx1}}=1905\text{ MHz}$, $f_{\text{Tx2}}=1906\text{ MHz}$ Blocker 3 1985.0 MHz		-90 -91 -87		dB dB dB

¹⁾ Harmonics level limits for power levels $P_{\text{TX}}=+23.5\text{dBm}$ (antenna port output power).

²⁾ IMD product level limits for power levels $P_{\text{TX}}=+21\text{dBm}$ (antenna port output power) and $P_{\text{Blocker}}=-15\text{dBm}$ (antenna port input power).

³⁾ Triple beat product level limits for power levels $P_{\text{Tx1}}=P_{\text{Tx2}}=+21\text{dBm}$ (Tx port input power) and $P_{\text{Blocker}}=-27\text{dBm}$ CW@ Rx frequency (antenna port input power).

**SAW Components****B7685****BAW Duplexer****1880.0 / 1960.0 MHz****Data sheet****Maximum ratings**

Operable temperature range	T	–30/+85	°C	
Storage temperature range	T _{stg}	–40/+85	°C	
DC voltage	V _{DC}	3	V	
ESD voltage	V _{ESD}	100 ¹⁾	V	machine model, 10 pulses
Input power at 1850.6 ... 1909.4 MHz elsewhere	P _{IN}	29 10	dBm dBm	source and load impedance 50 Ω continuous wave } T = 55 °C, 5.000 h

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

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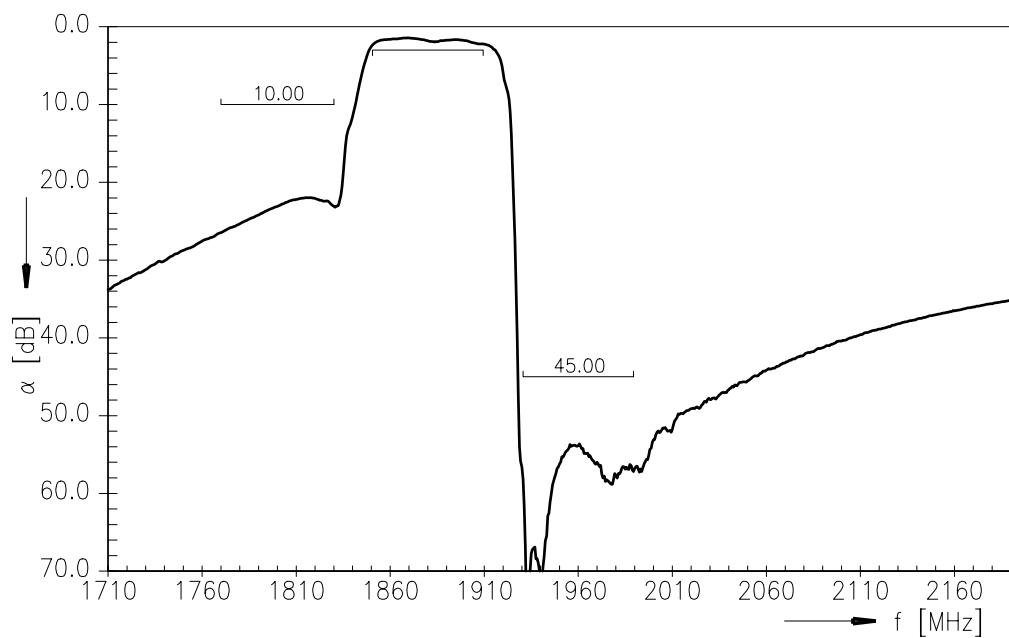
BAW Duplexer

1880.0 / 1960.0 MHz

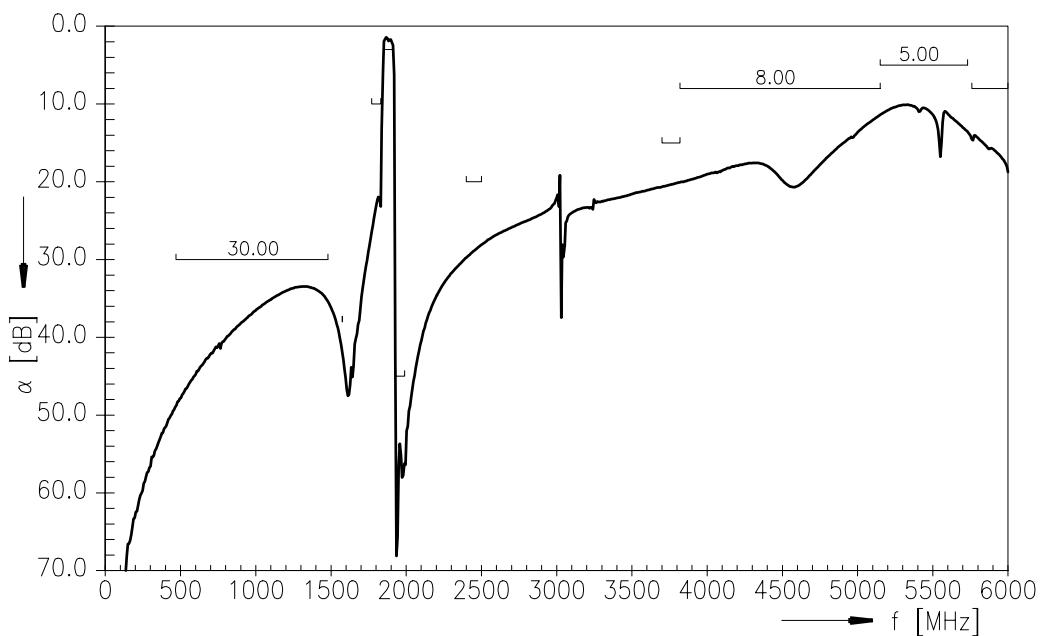
Data sheet



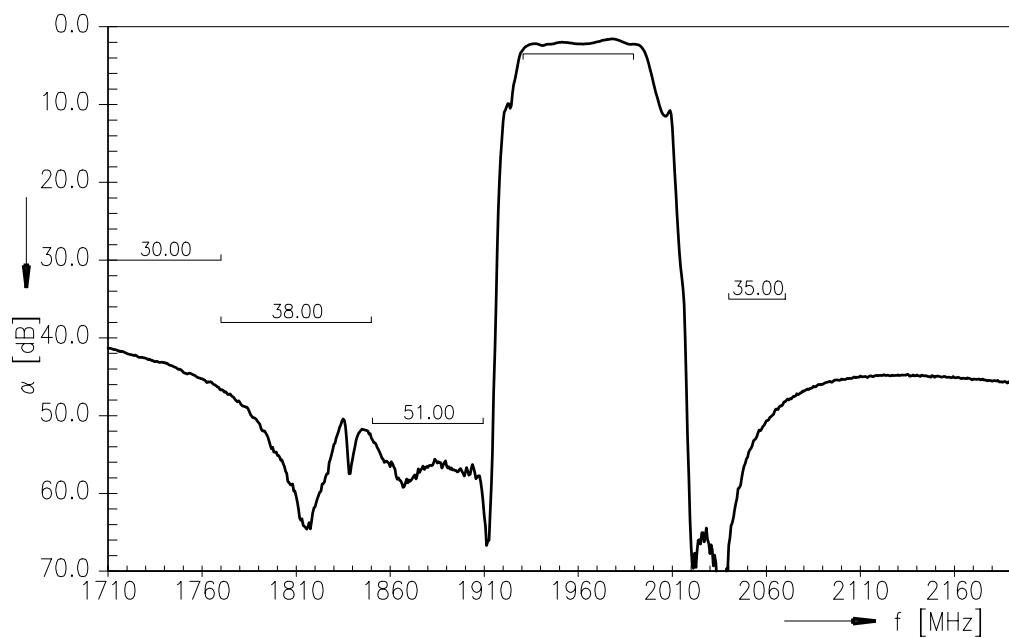
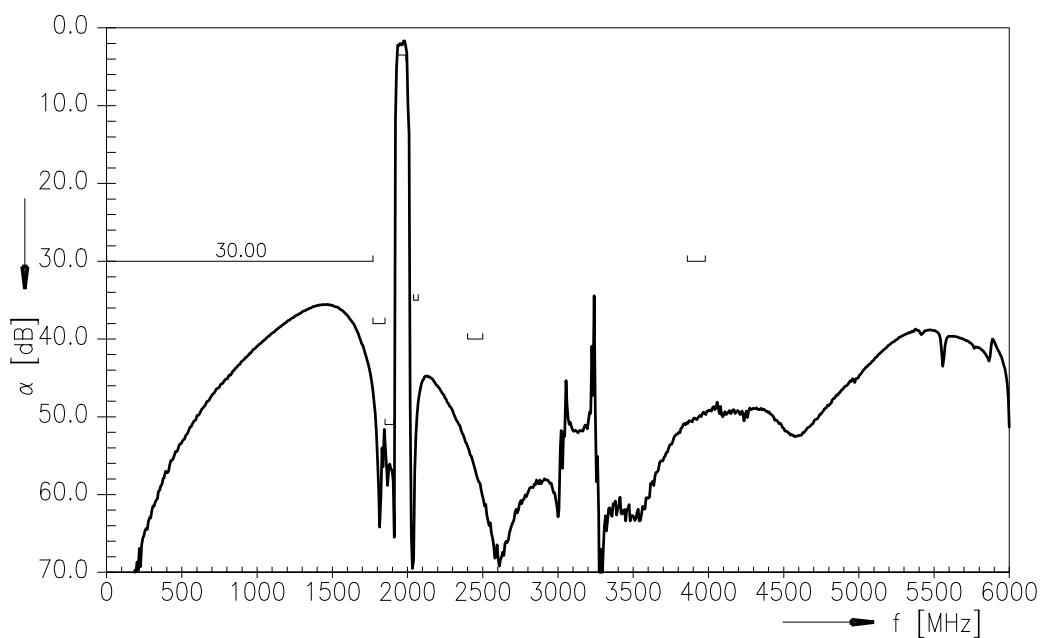
Frequency response TX-ANT



Frequency response TX-ANT (wideband)



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

Frequency response ANT-RX

Frequency response ANT-RX (wideband)


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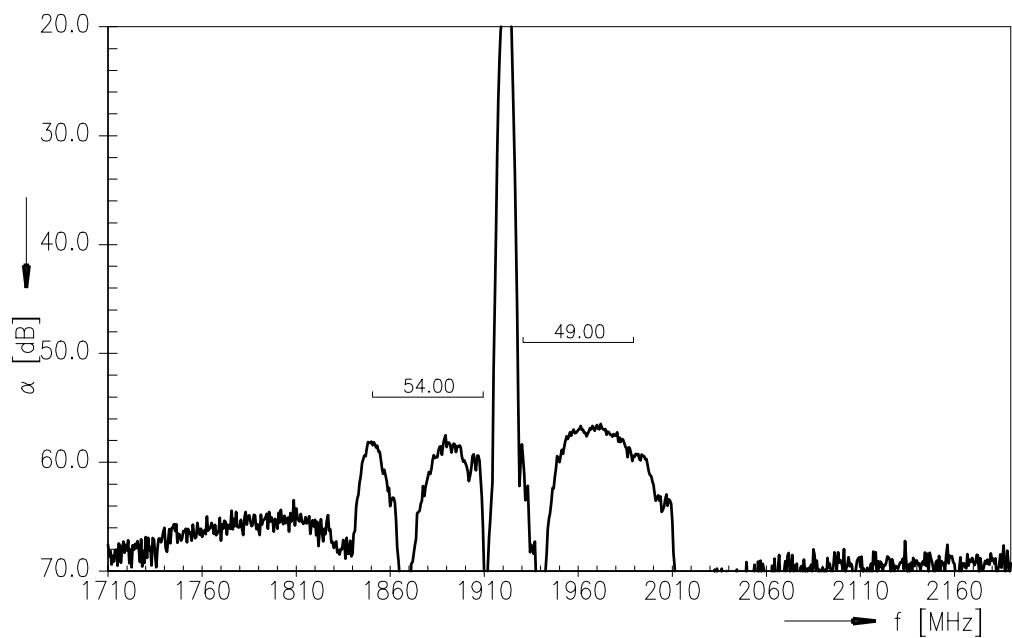
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1880.0 / 1960.0 MHz

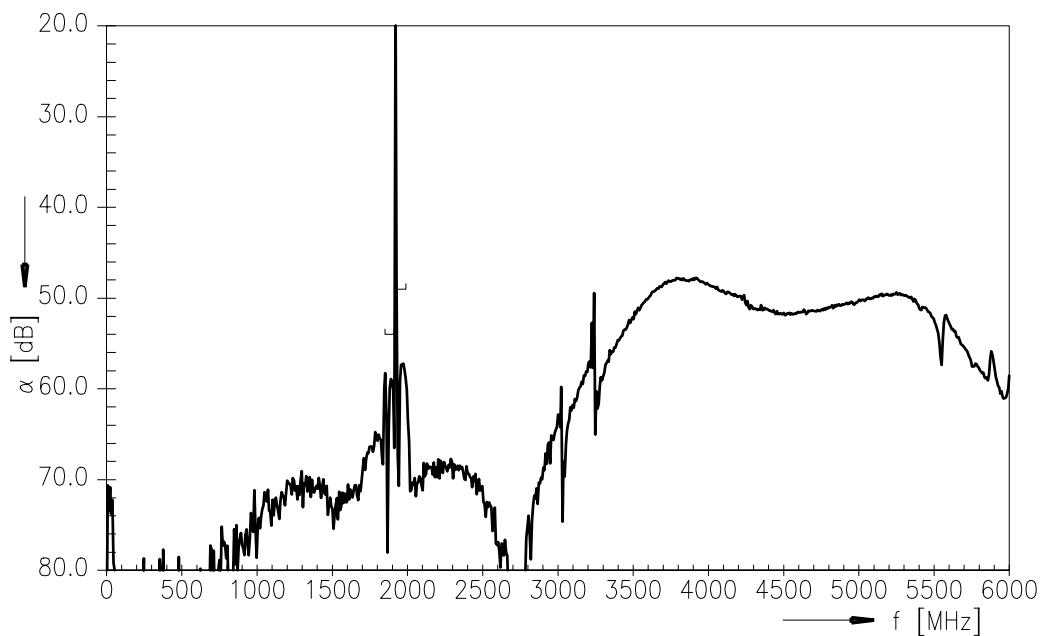
Data sheet



Frequency response TX-RX



Frequency response TX-RX (wideband)



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Data sheet

**References**

Type	B7685
Ordering code	B39202B7685L310
Marking and package	C61157-A3-A43
Packaging	F61074-V8211-Z000
Date codes	L_1126
S-parameters	B7685_NB.s3p / B7685_WB.s3p See file header for pin/port assignment
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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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.



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