



SAW Components

BAW Duplexer

CDMA-PCS

Series/type:	B7685
Ordering code:	B39202B7685L310
Date:	June 05, 2009
Version:	2.0



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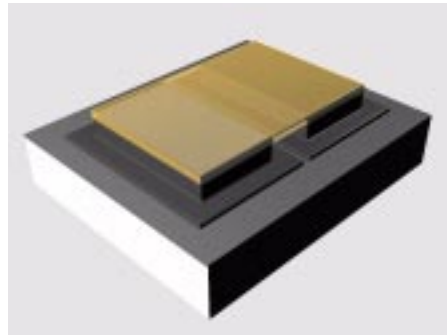
1880.0 / 1960.0 MHz

Data sheet



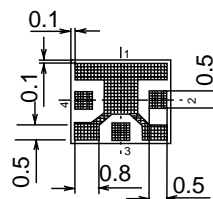
Application

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

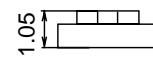


Features

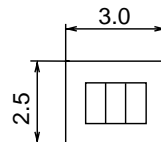
- Package size 3.0 x 2.5 mm², package height 1.15 mm max.
- RoHS compliant
- Approx. weight 0.03 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



bottom view



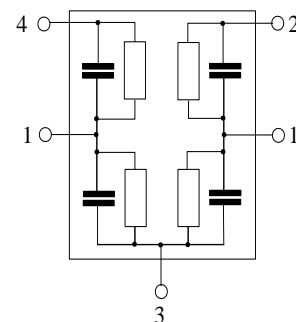
side view



top view

Pin configuration

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





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Characteristics

Temperature range for specification: $T = -30\text{ °C to }+85\text{ °C}$
 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)		1850.6 ... 1909.4 MHz			1.7	2.0	
Output VSWR (ANT port)		1850.6 ... 1909.4 MHz			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 °C to +35 °C.

³⁾ -30 °C to +15 °C and +35 °C to +85 °C.



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Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

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)	Δα						
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 °C to +35 °C.

3) -30 °C to +15 °C and +35 °C to +85 °C.

4) -30 °C to +75 °C.



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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

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



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TX terminating impedance:	Z _{TX} = 50 Ω

Distortion products	min.	typ. @ 25 °C	max.	
Harmonics level limits of Tx frequencies (1850 ... 1910 MHz) at antenna port¹⁾:				
H2 @ ANT		-35		dBm
H3 @ ANT		-65		dBm
IMD product level limits at Rx frequencies and at Rx port²⁾:				
Blocker 1 80.0 MHz		-112		dBm
Blocker 2 1770.0 ... 1830.0 MHz		-110		dBm
Blocker 3 3840.0 MHz		-86		dBm
Triple beat product level limits at Rx frequencies and at Rx port (rel. to CW jammer at ant. port)³⁾:				
f _{TX1} =1855 MHz, f _{TX2} =1856 MHz				
Blocker 1 1935.0 MHz		-90		dB
f _{TX1} =1880 MHz, f _{TX2} =1881 MHz				
Blocker 2 1960.0 MHz		-91		dB
f _{TX1} =1905 MHz, f _{TX2} =1906 MHz				
Blocker 3 1985.0 MHz		-87		dB

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

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

³⁾ Triple beat product level limits for power levels P_{TX1}=P_{TX2}=+21dBm (Tx port input power) and P_{Blocker}=-27dBm CW@ Rx frequency (antenna port input power).



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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, 5.000 h
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	3	V	
ESD voltage	V _{ESD}	100 ¹⁾	V	
Input power at	P _{IN}			
1850.6 ... 1909.4 MHz		29	dBm	}
elsewhere		10	dBm	

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



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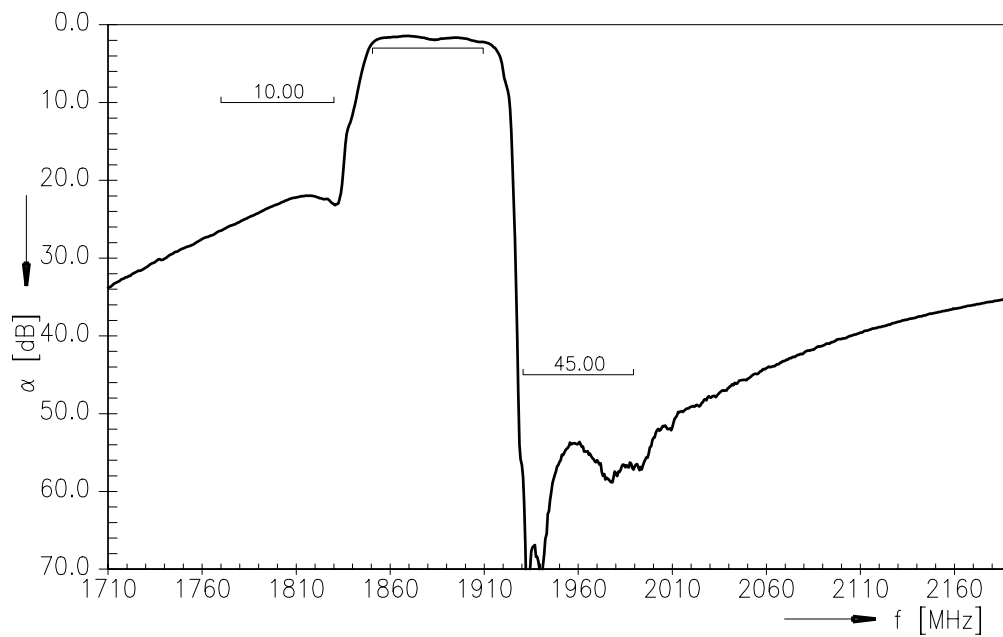
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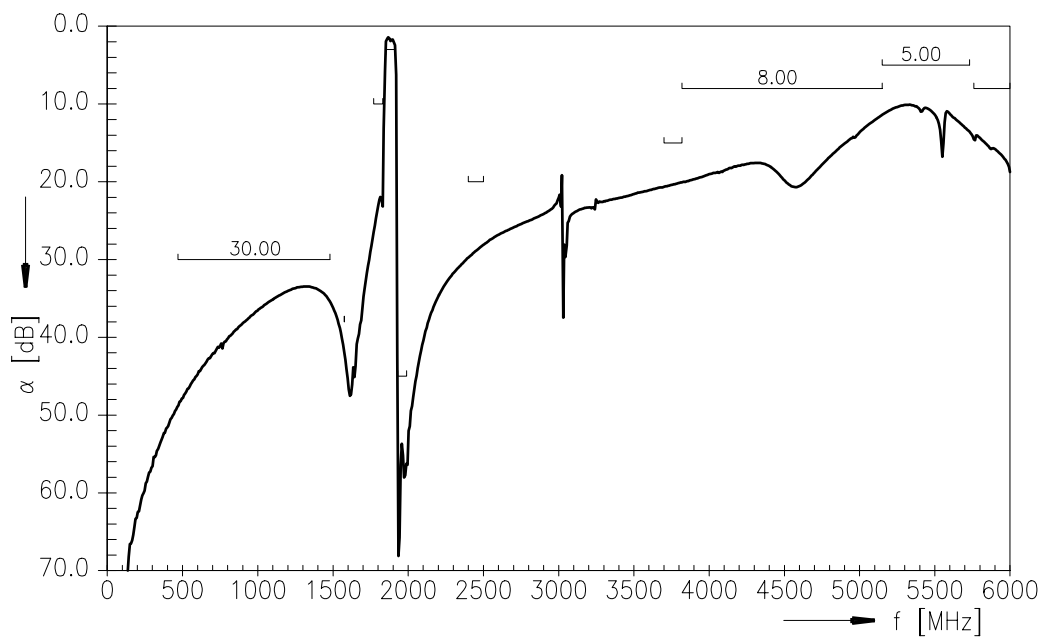
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Frequency response TX-ANT



Frequency response TX-ANT (wideband)



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



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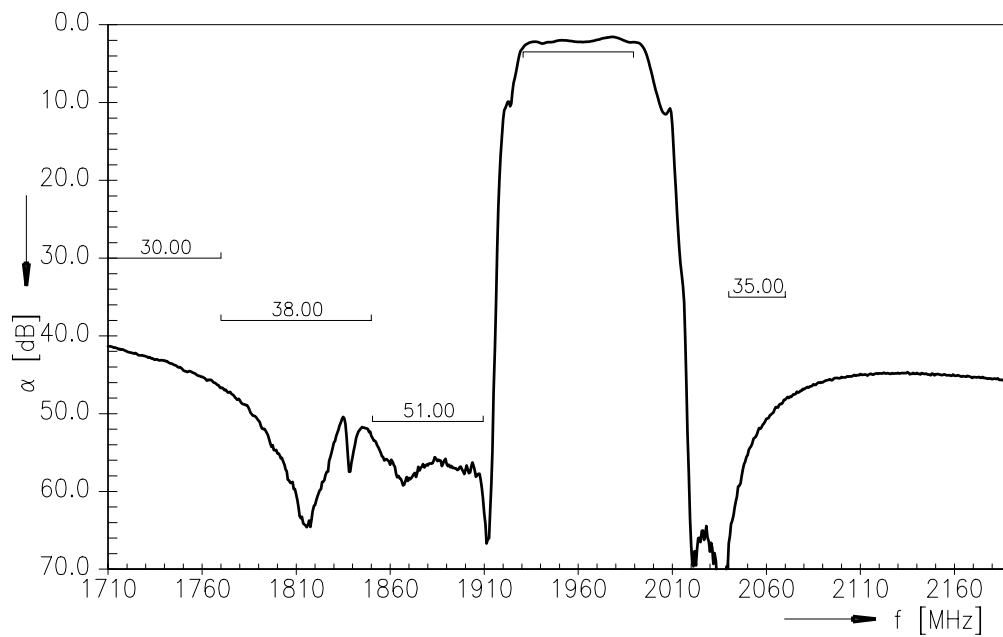
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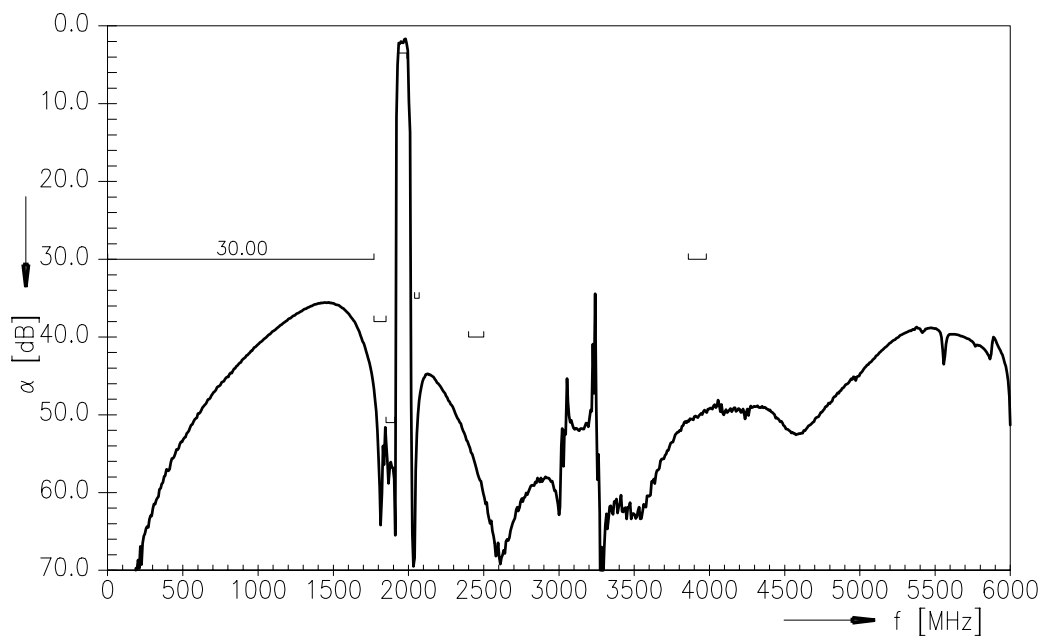
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Frequency response ANT-RX



Frequency response ANT-RX (wideband)



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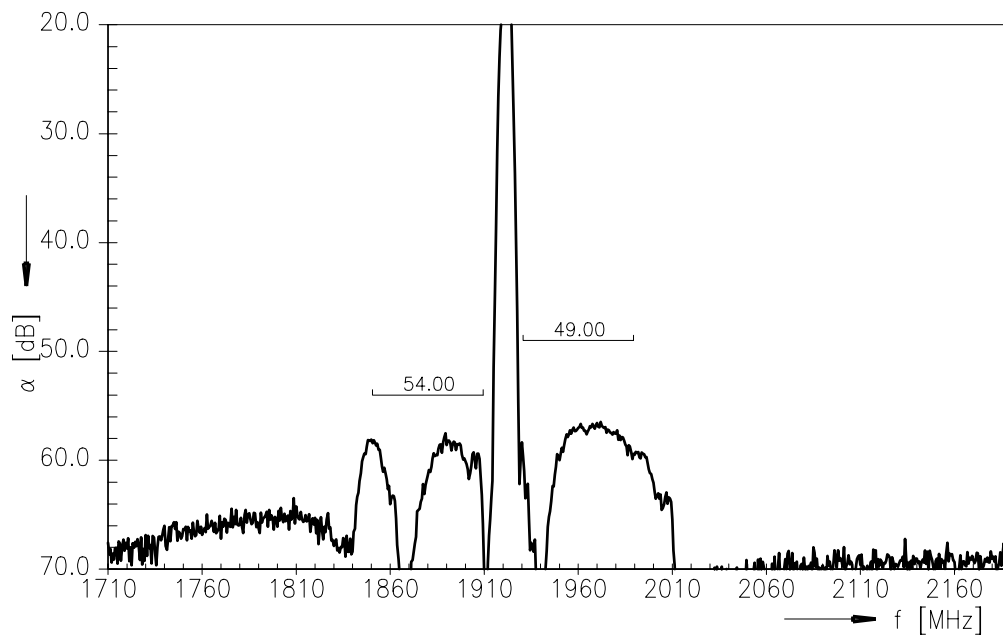
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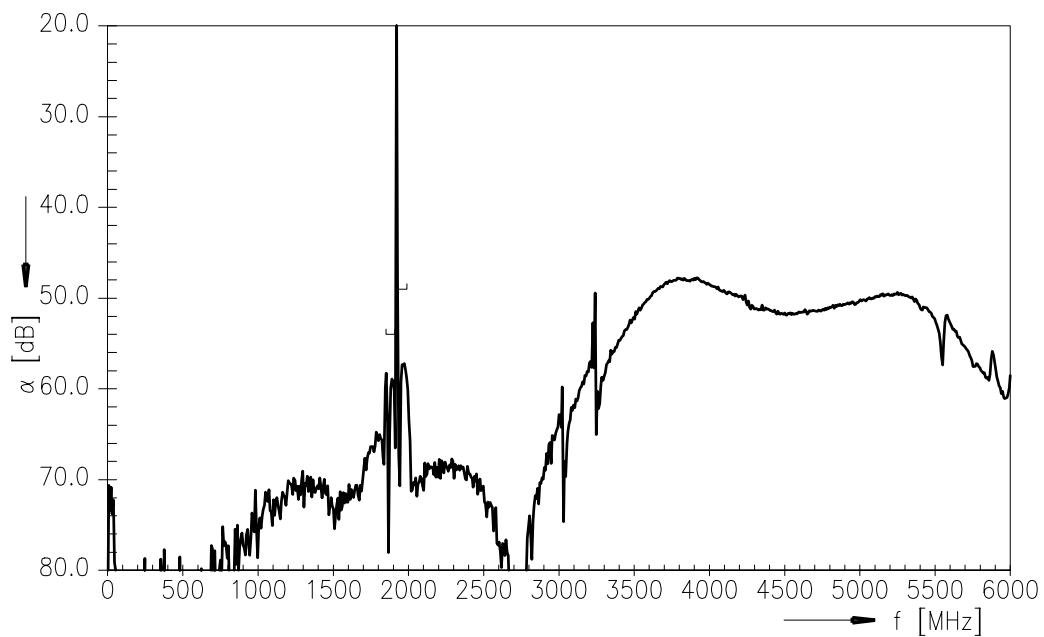
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Frequency response TX-RX



Frequency response TX-RX (wideband)



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**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 maxi- mum concentration values for certain hazardous substances in electrical and electronic equipment."

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