SAW Components

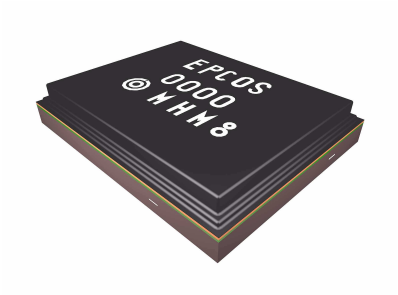
SAW Duplexer

W-CDMA Band 5 (Cellular)

Series/type:	**B8050**
Ordering code:	**B39881B8050F210**
Date:	April 28, 2008
Version:	2.0

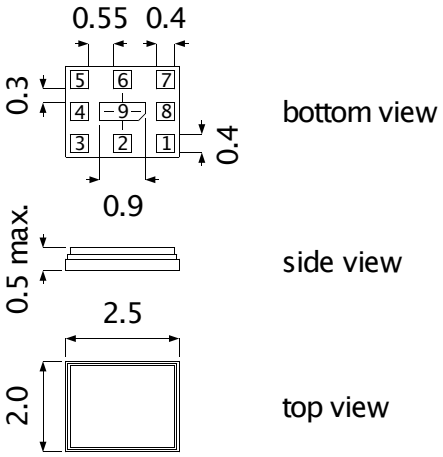
Application

- Low-loss SAW duplexer for mobile telephone WCDMA Band 5 (Cellular) systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 25 MHz
- Very small size and low height



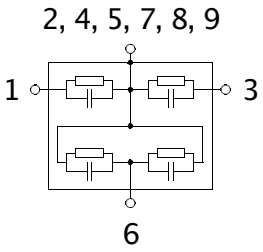
Features

- Package size 2.5 * 2.0 mm², package height 0.5 mm max.
- RoHS compatible
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

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



Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{Ant} = 50 Ω || 8.2 nH
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		836.5		MHz
Maximum insertion attenuation	α_{max}				
824.0 ... 849.0 MHz			1.7	2.3	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
824.0 ... 849.0 MHz			0.5	1.1	dB
Error Vector Magnitude[1)]	EVM				
826.4 ... 846.6 MHz			1.7	2.5	%
Input VSWR (TX port)					
824.0 ... 849.0 MHz			1.7	2.0	
Output VSWR (ANT port)					
824.0 ... 849.0 MHz			1.6	1.9	
Attenuation	α				
0.3 ... 779.0 MHz		25	29		dB
779.0 ... 804.0 MHz		25	32		dB
869.0 ... 894.0 MHz		44	48		dB
1570.0 ... 1580.0 MHz		31	34		dB
1648.0 ... 1698.0 MHz		30	34		dB
1930.0 ... 1990.0 MHz		30	36		dB
2110.0 ... 2170.0 MHz		30	37		dB
2400.0 ... 2500.0 MHz		30	39		dB
2472.0 ... 2547.0 MHz		30	40		dB
3296.0 ... 3396.0 MHz		30	49		dB
3396.0 ... 6000.0 MHz		20	28		dB

1) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{Ant} = 50 Ω || 8.2 nH
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		881.5		MHz
Maximum insertion attenuation	α_{max}				
869.0 ... 894.0 MHz			2.2	2.9	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869.0 ... 894.0 MHz			1.0	1.7	dB
Error Vector Magnitude[1)]	EVM				
871.4 ... 891.6 MHz			3.3	4.0	%
Input VSWR (ANT port)					
869.0 ... 894.0 MHz			1.7	2.0	
Output VSWR (RX port)					
869.0 ... 894.0 MHz			1.9	2.3	
IMR Product Level Limits at RX frequencies (869 ... 894 MHz)[2)]	IMR				
Blocker 779.0 ... 804.0 MHz			-92	-88	dBm

1) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141
2) Level at RX port relative to blocker power at ANT port (see page 7 for measurement setup)

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{Ant} = 50 Ω || 8.2 nH
RX terminating impedance: Z_{Rx} = 50 Ω
TX terminating impedance: Z_{Tx} = 50 Ω

Characterisitcs ANT-RX					min.	typ. @ 25 ˚C	max.	
Attenuation				α				
0.3	...	35.0	MHz		50	76		dB
35.0	...	55.0	MHz		50	76		dB
434.5	...	447.0	MHz		45	49		dB
779.0	...	804.0	MHz		40	46		dB
824.0	...	849.0	MHz		54	58		dB
849.0	...	869.0	MHz			1.7		dB
1693.0	...	1743.0	MHz		40	57		dB
1850.0	...	1910.0	MHz		40	61		dB
2400.0	...	2500.0	MHz		40	52		dB
2517.0	...	2592.0	MHz		40	51		dB
2592.0	...	6000.0	MHz		20	29		dB

Characterisitcs TX-RX					min.	typ. @ 25 ˚C	max.	
Isolation				α				
824.0	...	849.0	MHz		55	59		dB
869.0	...	894.0	MHz		45	48		dB

Maximum Ratings

Temperature range for specification[1)]	T	–20/+85	˚C	
Operable temperature range[2)]	T	–40/+85	˚C	
Storage temperature range	T_{Sto}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[3)]	V	machine model, 10 pulses
Input power at	P_{in}			source and load impedance 50 Ω
824.0 ... 869.0 MHz		30	dBm	
elsewhere		10	dBm	

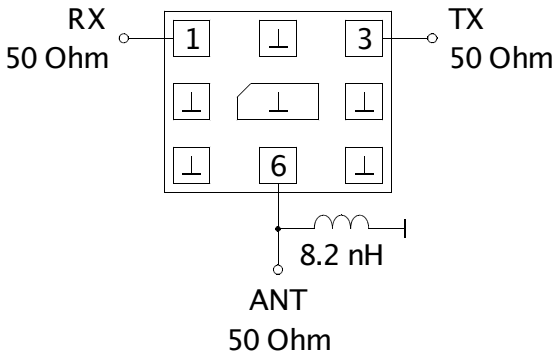
1) Defines the temperature range in which the specification values are warranted.

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.

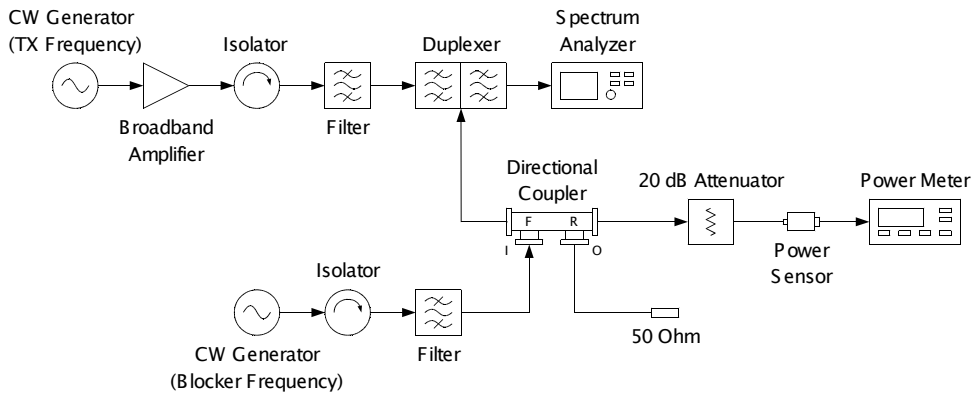
Matching circuit to terminating impedances

Element values depend on PCB layout

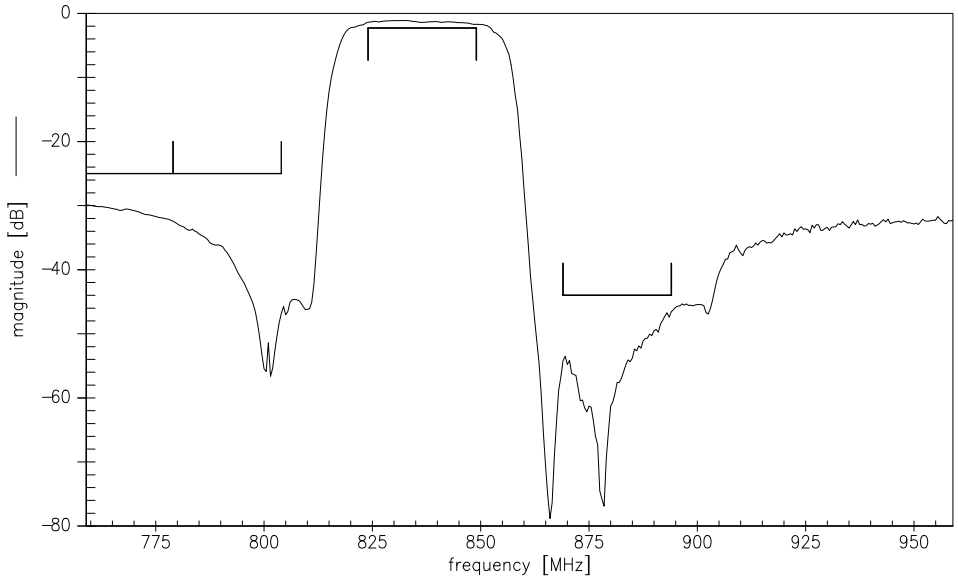


Reverse Intermodulation (IMR) Measurement Setup

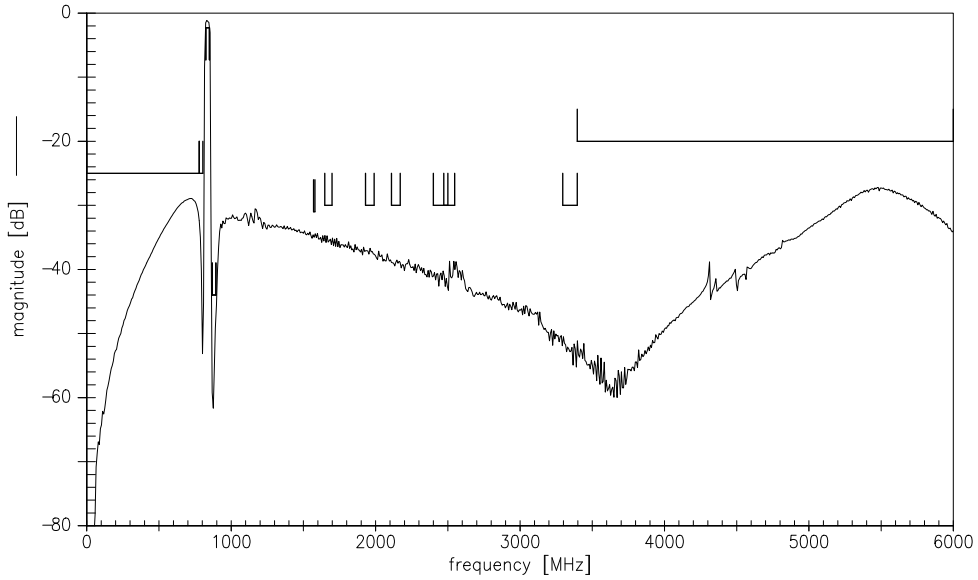
Constant transmit power of 22 dB at antenna port sustained



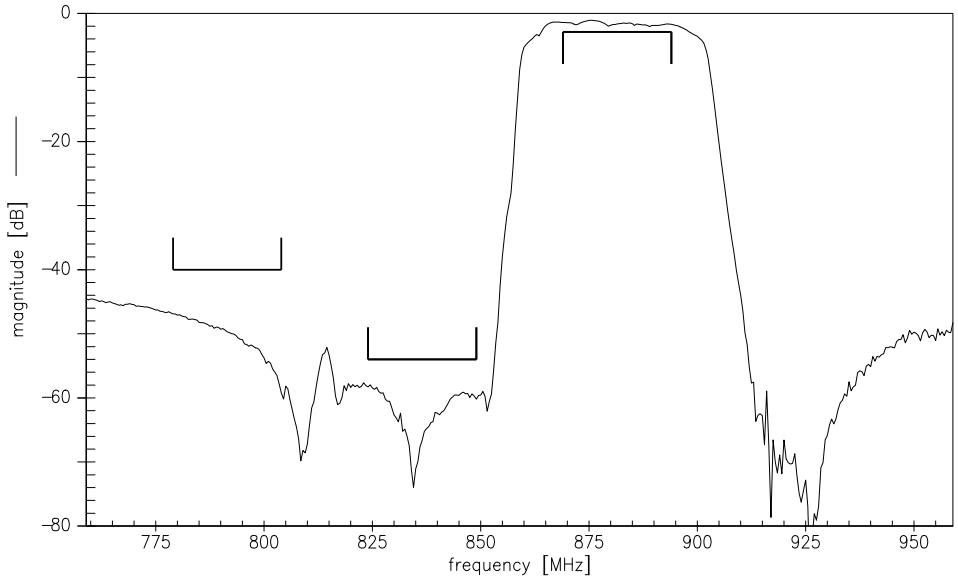
Frequency Response TX-ANT



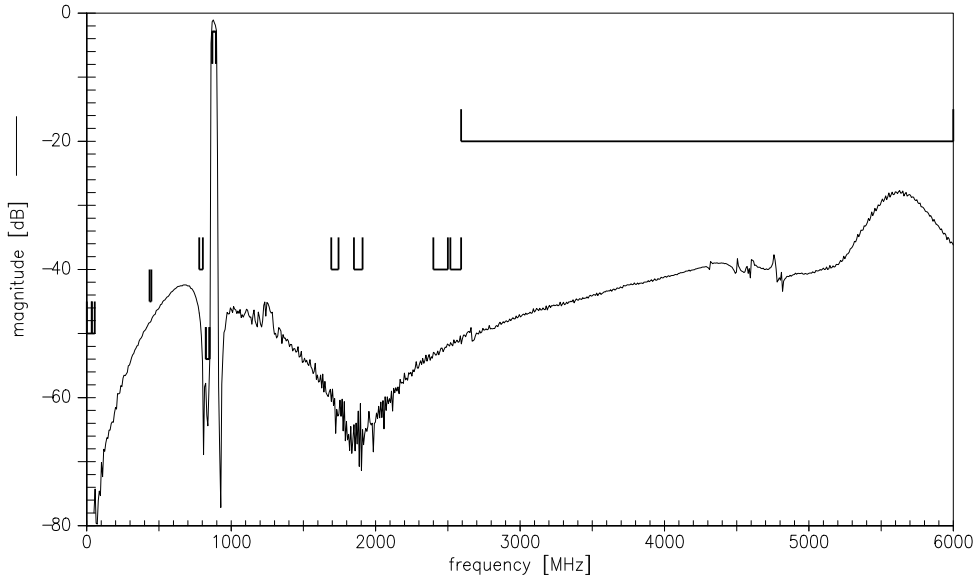
Frequency Response TX-ANT (wideband)



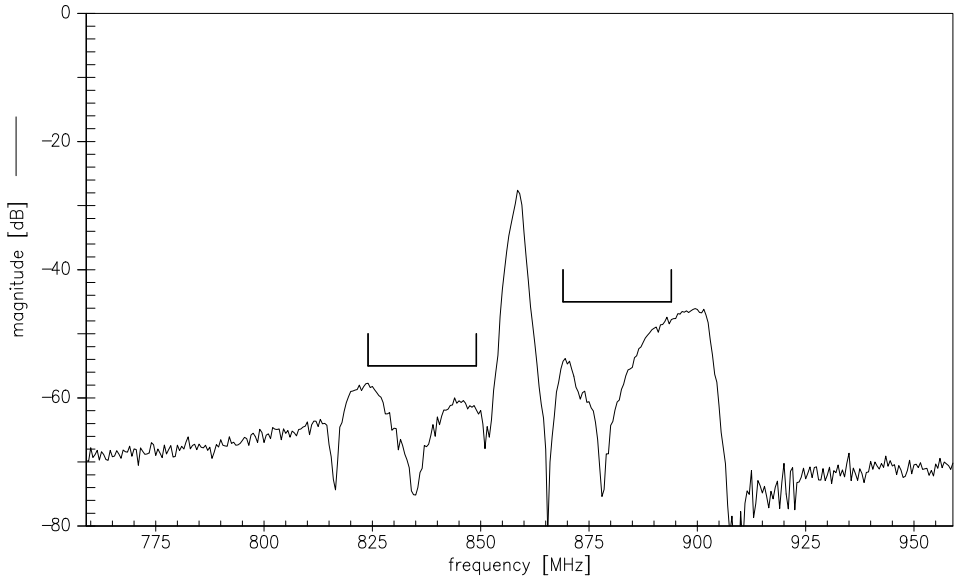
Frequency Response ANT-RX



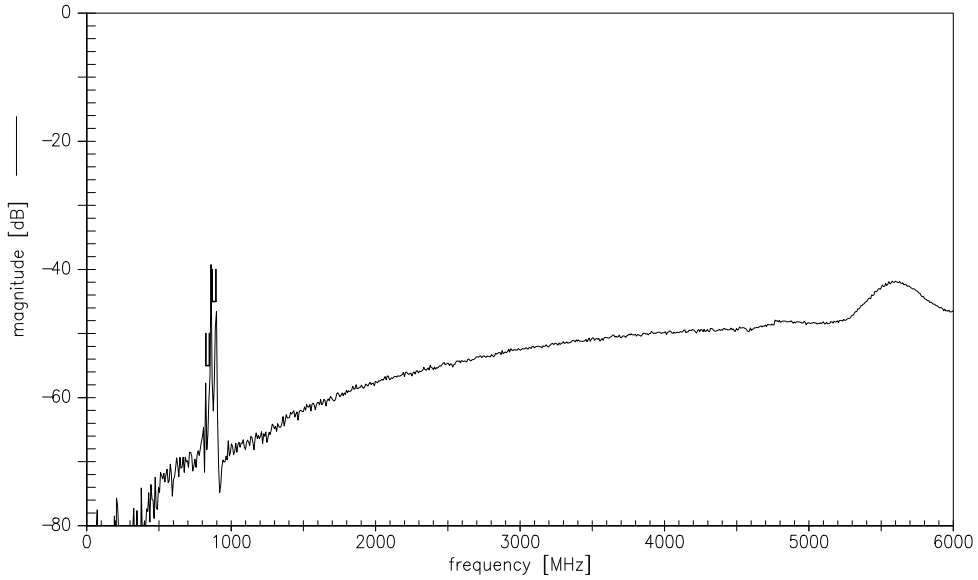
Frequency Response ANT-RX (wideband)



Frequency Response TX-RX

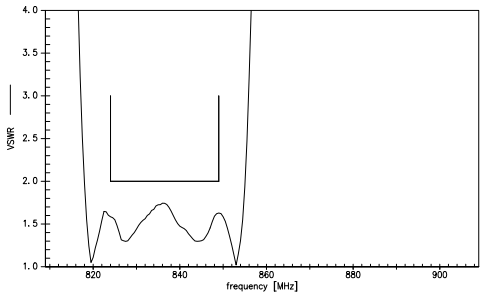


Frequency Response TX-RX (wideband)

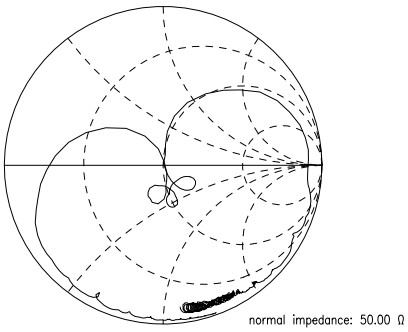


Matching

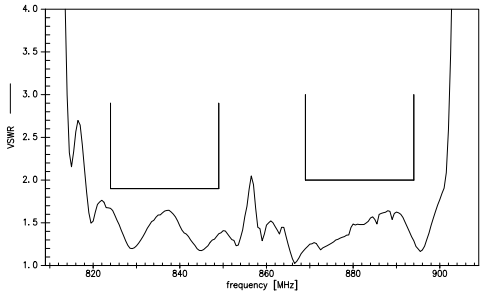
S_{11} VSWR (TX)



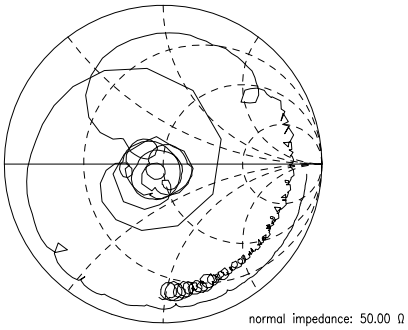
S_{11} (TX)



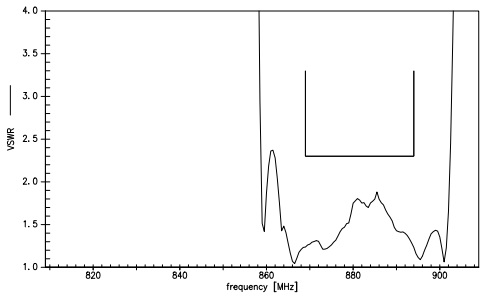
S_{22} VSWR (ANT)



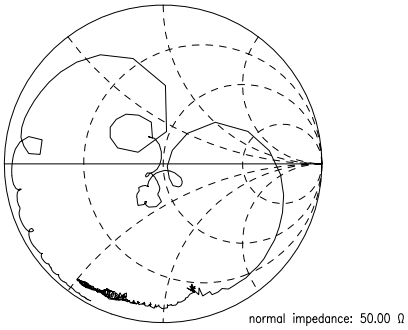
S_{22} (ANT)



S_{33} VSWR (RX)



S_{33} (RX)



References

Type	B8050
Ordering code	B39881B8050F210
Marking and package	C61157-A3-A27
Packaging	F61074-V8232-Z000
Date codes	L_1126
S-parameters	B8050_NB.s3p B8050_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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