SAW Components

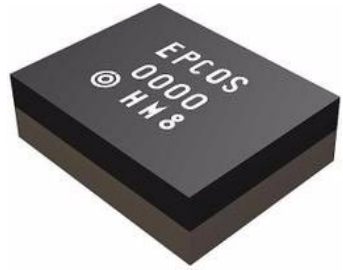
SAW Duplexer

WCDMA/LTE Band IX

Series/type:	**B8561**
Ordering code:	**B39182B8561P810**
Date:	September 1, 2011
Version:	2.0

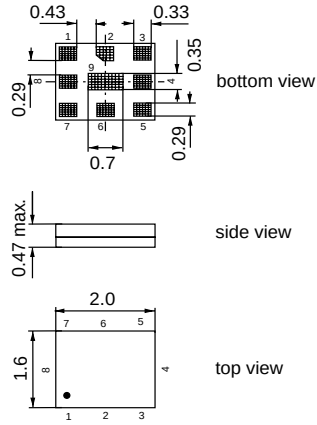
Application

- Low-loss SAW duplexer for mobile telephone WCDMA/LTE Band IX systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 35 MHz



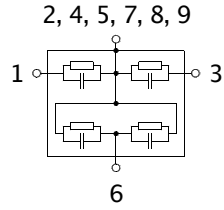
Features

- Package size 2.0 x 1.6 mm²
- Package height 0.47 mm max.
- RoHS compatible
- Approximate weight 0.006g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni terminals, Au-plated
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel (**MSL**) 3



Pin configuration

1	Rx input, unbalanced
3	Tx output, unbalanced
6	Antenna
2, 4, 5, 7, 8, 9	To be grounded



Data Sheet SMD

Characteristics

Temperature range for specification: T = -20˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω || 4.3 nH
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characteristics TX - ANT		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1767.4	—	MHz
Maximum insertion attenuation					
1749.9 ... 1784.9 MHz			1.5	1.9[1)]	dB
1749.9 ... 1784.9 MHz			1.6	1.9	dB
Amplitude ripple(p-p)					
1749.9 ... 1784.9 MHz			0.6	1.0	dB
Error Vector Magnitude					
@$f_{carrier}$1752.4 ... 1782.4 MHz	EVM[2)]		1.2	3.0	%
Input VSWR (TX port)					
1749.9 ... 1784.9 MHz			1.9	2.2	
Output VSWR (ANT port)					
1749.9 ... 1784.9 MHz			1.6	2.0	

1) Valid in the temperature range +20˚C to +30˚C.
2) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141. Pin=-10dBm

Characteristics

Temperature range for specification: T = -20˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω || 4.3 nH
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characteristics TX - ANT				min.	typ. @ 25 ˚C	max.	
Attenuation			α				
	95.0	MHz		30	81		dB
470.0	... 770.0	MHz		30	45		dB
860.0	... 895.0	MHz		30	42		dB
921.0	... 960.0	MHz		30	41		dB
1475.9	... 1495.9	MHz		30	40		dB
1574.0	... 1577.0	MHz		40	46		dB
1654.9	... 1680.0	MHz		25	32		dB
1680.0	... 1689.9	MHz		25	31		dB
1805.0	... 1845.0	MHz		1	3		dB
1844.9	... 1879.9	MHz		45	51		dB
1884.5	... 1919.6	MHz		40	42		dB
2110.0	... 2170.0	MHz		27	43		dB
2400.0	... 2500.0	MHz		35	40		dB
3499.8	... 3569.8	MHz		20	30		dB
5249.7	... 5354.7	MHz		20	22		dB

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω || 4.3 nH
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	—	1862.4	—	MHz
Maximum insertion attenuation					
1844.9 ... 1879.9 MHz			2.1	2.5[1)]	dB
1844.9 ... 1879.9 MHz			2.1	2.5	dB
Amplitude ripple(p-p)					
1844.9 ... 1879.9 MHz			0.7	1.0	dB
Input VSWR (ANT port)					
1844.9 ... 1879.9 MHz			1.7	2.0	
Output VSWR (RX port)					
1844.9 ... 1879.9 MHz			1.6	2.0	

1) Valid in the temperature range +20˚C to +30˚C.

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω || 4.3 nH
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characteristics ANT - RX				min.	typ. @ 25 ˚C	max.	
Attenuation			α				
		95.0	MHz	45	92		dB
614.9	...	626.7	MHz	35	60		dB
860.0	...	895.0	MHz	35	54		dB
922.4	...	940.0	MHz	35	54		dB
1475.9	...	1495.9	MHz	35	51		dB
1654.9	...	1689.9	MHz	35	63		dB
1749.9	...	1784.9	MHz	45	54		dB
1797.4	...	1832.4	MHz	1.5	2.5		dB
1965.0	...	2400.0	MHz	15	50		dB
2400.0	...	2500.0	MHz	30	56		dB
3594.8	...	3664.8	MHz	35	52		dB
3689.8	...	3759.8	MHz	35	51		dB
5344.7	...	5449.7	MHz	35	50		dB
5534.7	...	5639.7	MHz	35	50		dB
IMD Product Level Limits[1)]							
at f_{TX} = 1767.4 MHz f_{RX} = 1862.4 MHz							
IMD		931.2	MHz		-130	-105	dBm
IMD2-1		95.0	MHz		-130	-105	dBm
IMD2-2		3629.8	MHz		-120	-105	dBm
IMD3-1		1672.4	MHz		-114	-105	dBm
IMD3-2		1814.9	MHz		-115	-105	dBm
IMD3-3		5397.2	MHz		-123	-105	dBm

1) IMD product level limits for power levels P_{TX}=21.5dB (antenna port output power) and $P_{BLOCKER}$=-15dBm (antenna port input power).

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 4.3 nH
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

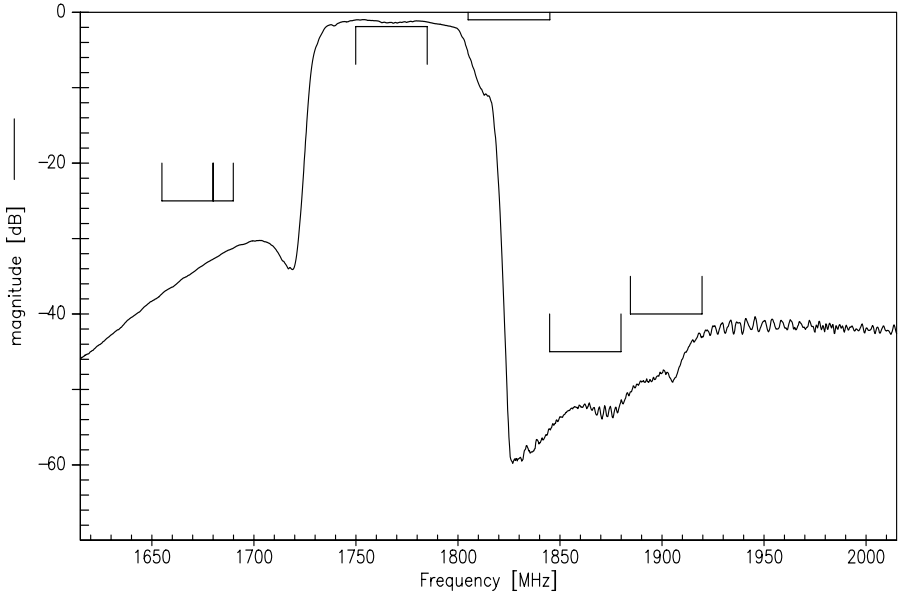
Characteristics TX - RX		min.	typ. @ 25 ˚C	max.	
Isolation	α				
1749.9 ... 1784.9 MHz		55	60		dB
1844.9 ... 1879.9 MHz		50	55		dB
3499.8 ... 3569.8 MHz		40	50		dB

Maximum ratings

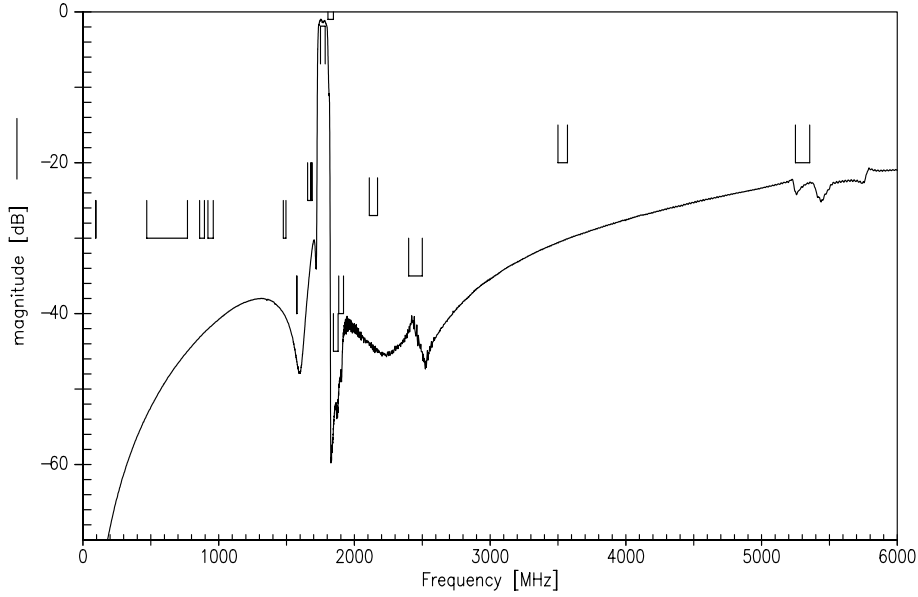
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at	P_{IN}			source and load impedance 50 Ω
1749.9 ... 1784.9 MHz		29	dBm	} continuous wave
elsewhere		10	dBm	T = 50˚C, 5.000 h

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

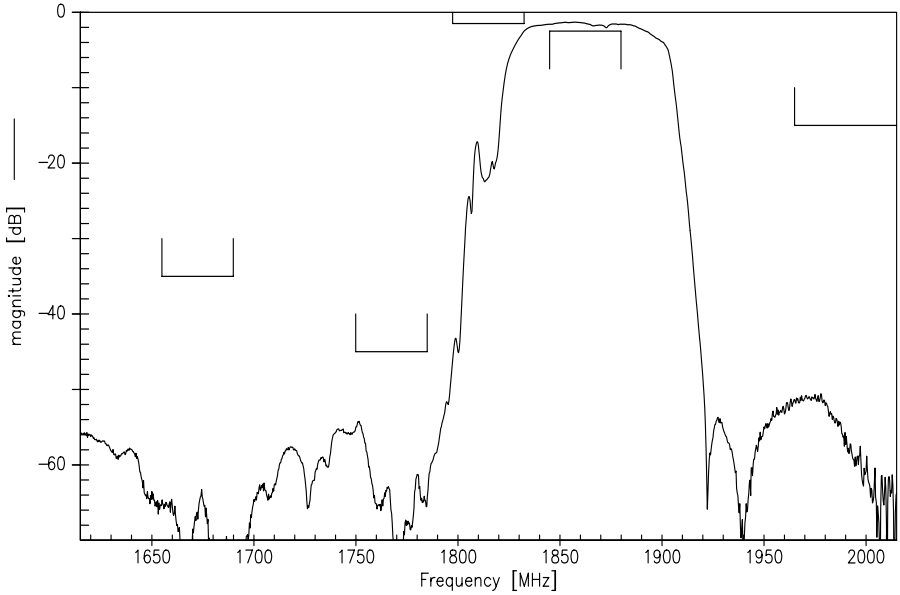
Frequency Response Tx-ANT (passband)



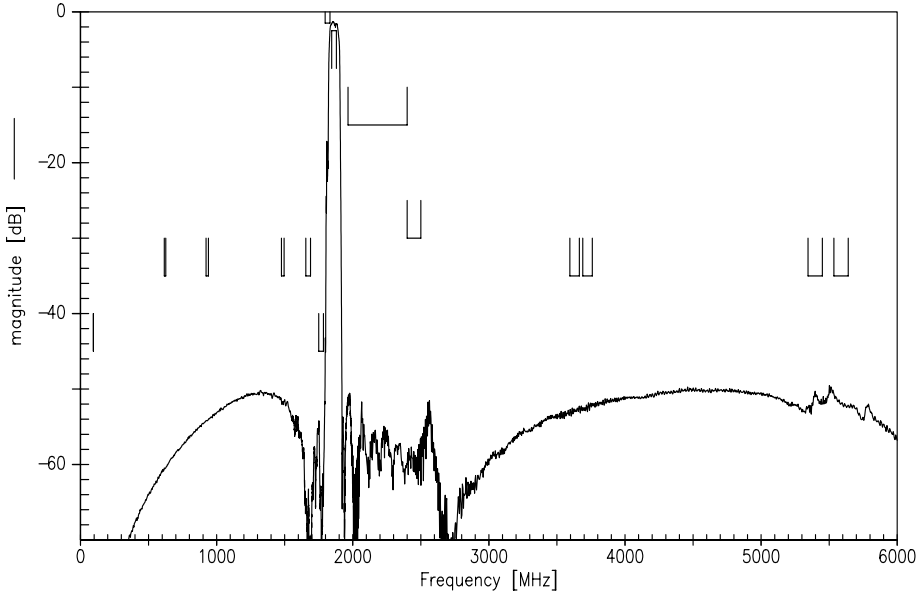
Frequency Response Tx-ANT (wideband)



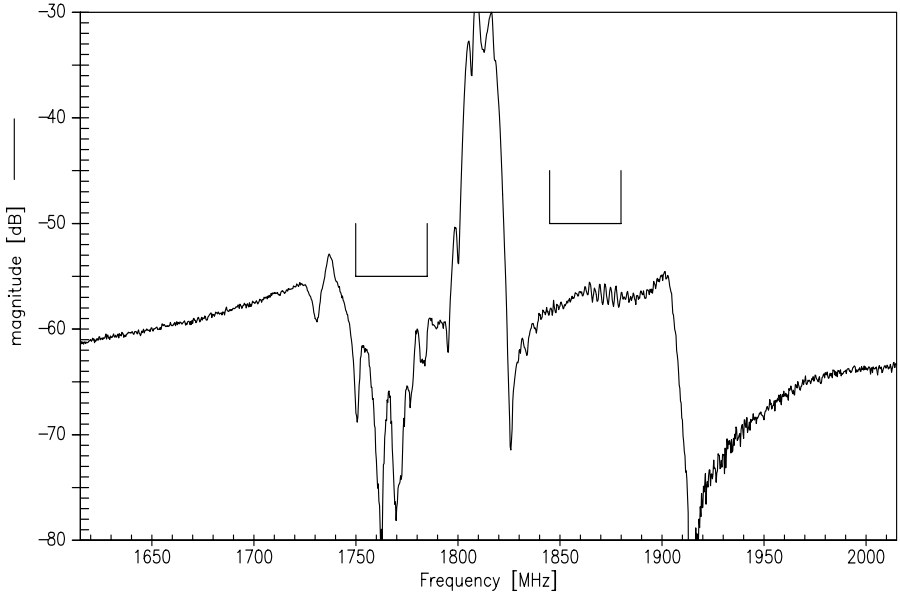
Frequency Response ANT-Rx (passband)



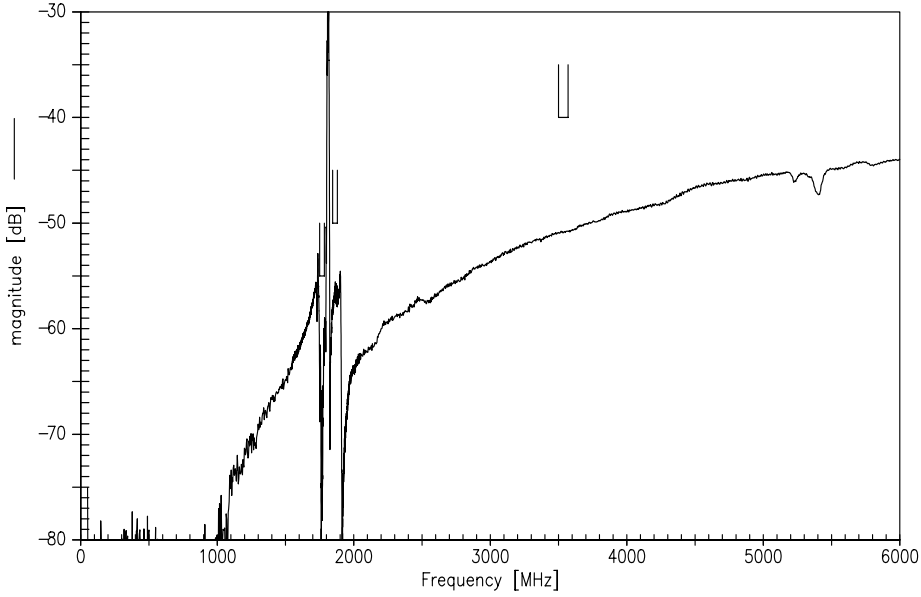
Frequency Response ANT-Rx (wideband)



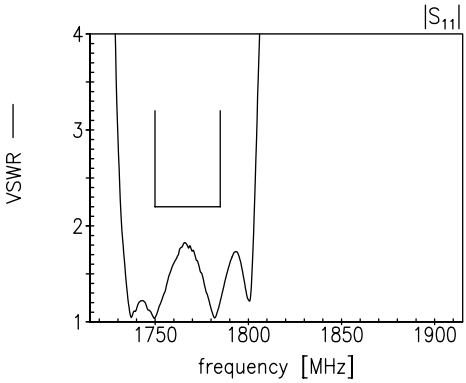
Frequency Response Tx-Rx (passband)

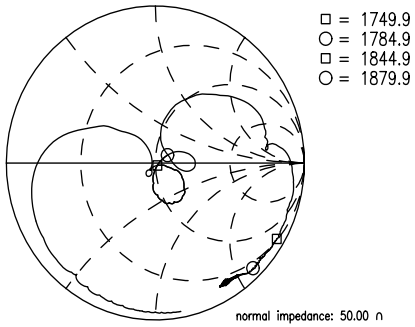


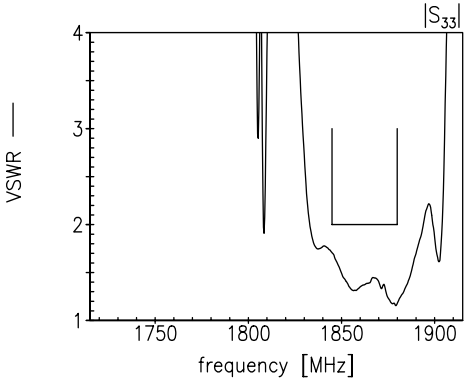
Frequency Response Tx-Rx (wideband)

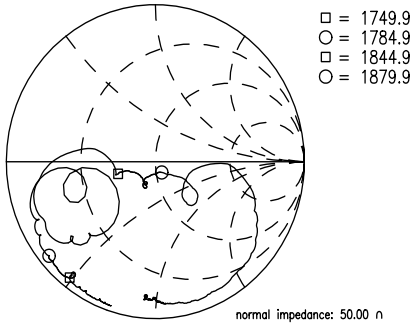


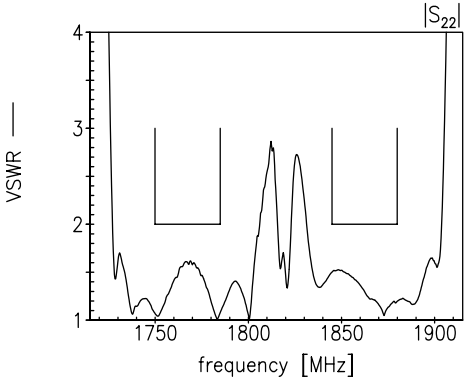
Return Loss S_{11} Tx - port S_{22} ANT - port S_{33} Rx - port

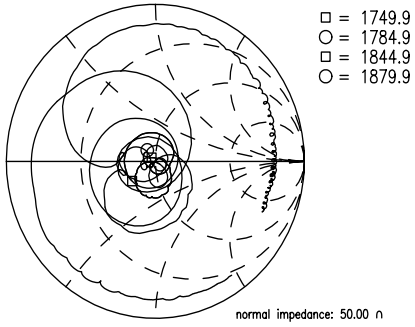












References

Type	B8561
Ordering code	B39182B8561P810
Marking and package	C61157-A3-A75
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B8561_UNMATCHED_NB.s4p , B8561_UNMATCHED_WB.s4p See file header for port/pin assignment table.
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."
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

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