SAW Components

SAW CELL / GPS / PCS Triplexer

Series/type:	**B9101**
Ordering code:	**B39162B9101L310**
Date:	April 09, 2008
Version:	2.0

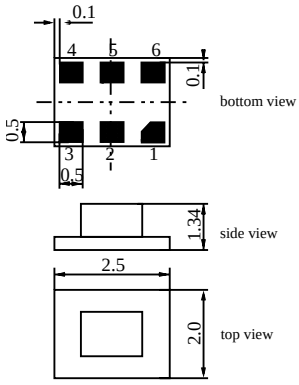
Preliminary Data SMD

Application

- Low loss LTCC Triplexer for mobile phones covering Cellular, GPS and PCS band
- Usable passbands 70 MHz (CELL), 2 MHz (GPS), 140 MHz (PCS)
- Very low insertion attenuation in CELL, GPS and PCS band
- Very low amplitude ripple in all bands
- Integrated low loss GPS filter with single ended output 50 Ω
- No switches and control lines required
- Shunt inductor from ANT pin to ground used for ESD protection and matching

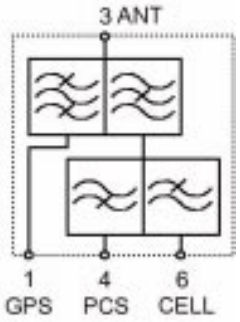
Features

- Package size 2.5 x 2.0 x 1.34 mm³
- Package code DCT6F
- RoHS compatible
- Approximate weight 0.018 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

- 1 GPS Output
- 3 ANT Input
- 4 PCS Output
- 6 CELL Output
- 2,5 Ground



Preliminary Data SMD

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω || 6.8 nH (ANT)
Terminating load impedance: Z_L = 50 Ω (CELL, GPS + 1.0 nH or || 20nH, PCS)

		B9101			
		min.	typ. @ 25 ˚C	max.	
ANT - CELL					
Center frequency	f_C	—	859.0	—	MHz
Maximum insertion attenuation	α_{max}				
824.0 ... 894.0 MHz		—	0.65	0.9	dB
VSWR 824.0 ... 894.0 MHz		—	1.3	1.6	
ANT - PCS					
Center frequency	f_C	—	1920.0	—	MHz
Maximum insertion attenuation	α_{max}				
1850.0 ... 1990.0 MHz		—	0.65	0.9	dB
VSWR 1850.0 ... 1990.0 MHz		—	1.25	1.6	
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}				
1574.42 ... 1576.42 MHz		—	1.35	1.8	dB
VSWR 1574.42 ... 1576.42 MHz		—	1.4	1.8	
Attenuation	α				
0.0 ... 1000.0 MHz		36	44	—	dB
1000.0 ... 1495.0 MHz		32	38	—	dB
1495.0 ... 1515.0 MHz		25	37	—	dB
1610.0 ... 1625.0 MHz		10	25	—	dB
1635.0 ... 1655.0 MHz		25	39	—	dB
1710.0 ... 1980.0 MHz		32	41	—	dB
1980.0 ... 2170.0 MHz		30	35	—	dB
2170.0 ... 2500.0 MHz		23	28	—	dB
2500.0 ... 4000.0 MHz		14	18	—	dB
4000.0 ... 6000.0 MHz		11	15	—	dB
CELL - GPS					
Attenuation	α				
1574.42 ... 1576.42 MHz		12	35	—	dB
824.0 ... 849.0 MHz		42	47	—	dB
PCS - GPS					
Attenuation	α				
1574.42 ... 1576.42 MHz		12	22	—	dB
1850.0 ... 1910.0 MHz		40	47	—	dB

Preliminary Data

SMD

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VSWR 1850.0 ... 1990.0 MHz		—	1.25	1.6	
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}				
1574.42 ... 1576.42 MHz		—	1.4	2.0	dB
VSWR 1574.42 ... 1576.42 MHz		—	1.4	2.0	
Attenuation	α				
0.0 ... 1000.0 MHz		36	44	—	dB
1000.0 ... 1495.0 MHz		32	38	—	dB
1495.0 ... 1515.0 MHz		25	37	—	dB
1610.0 ... 1625.0 MHz		10	25	—	dB
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1980.0 ... 2170.0 MHz		30	35	—	dB
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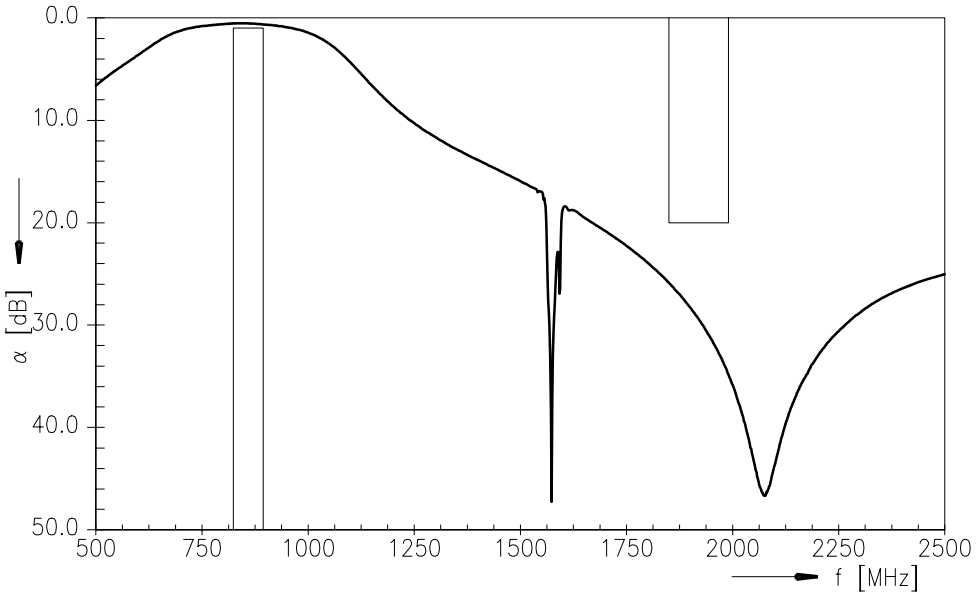
Attenuation	α				
1574.42 ... 1576.42 MHz		12	22	—	dB
1850.0 ... 1910.0 MHz		40	47	—	dB

Maximum ratings

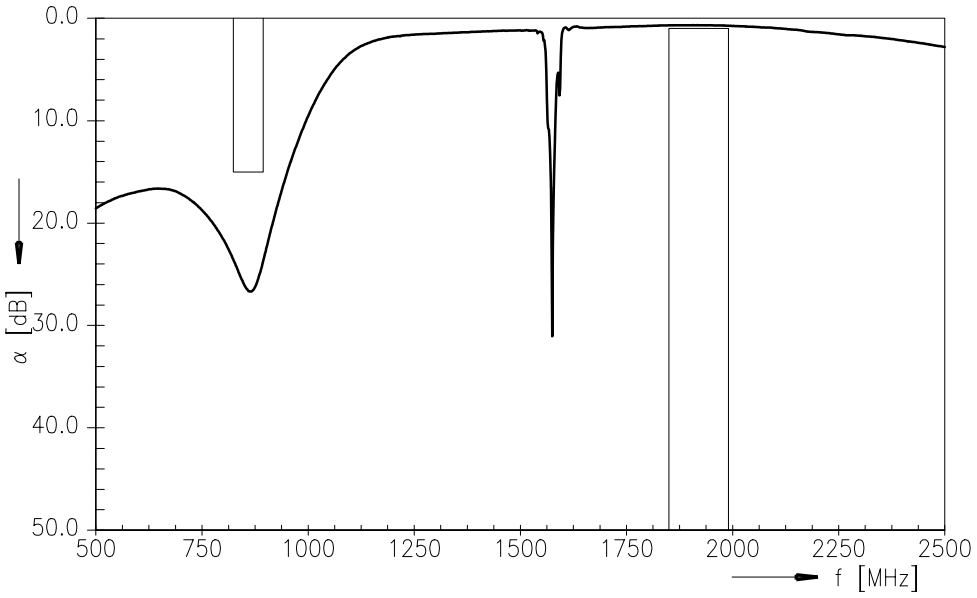
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	at GPS port
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at				
CELL port				effective power in the on-state
824 ... 849 MHz	P_{IN}	31	dBm	continuous wave signal
PCS port				
1850 ... 1910 MHz	P_{IN}	31	dBm	

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

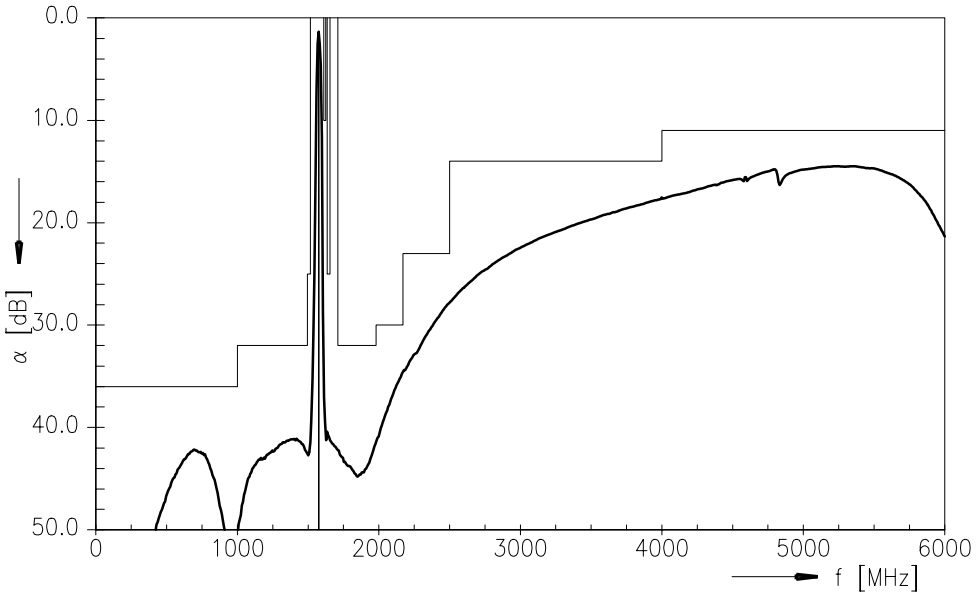
ANT - CELL (transfer function, including PCB loss**):**



ANT - PCS (transfer function, including PCB loss**):**



ANT - GPS (transfer function, including PCB loss**):**



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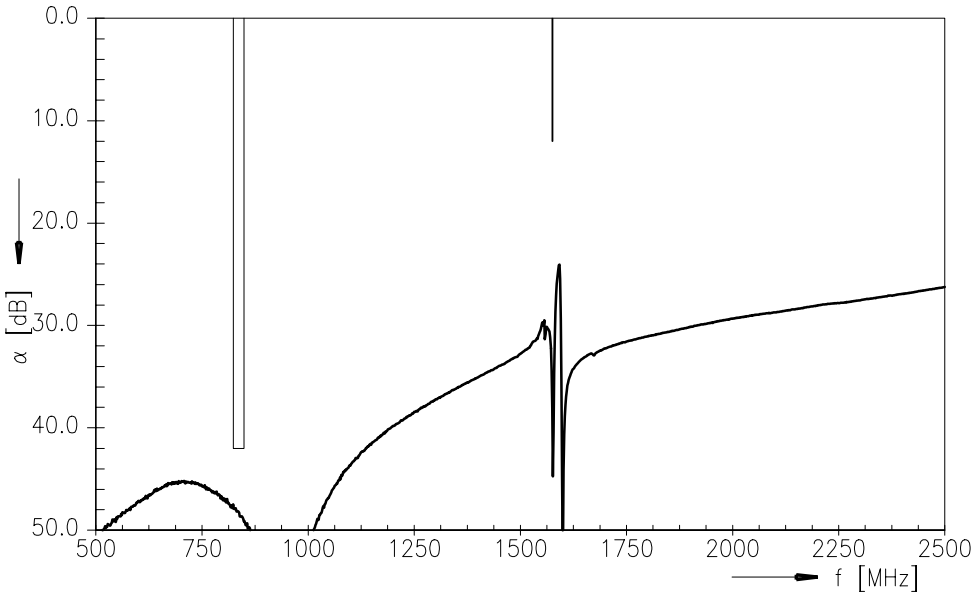
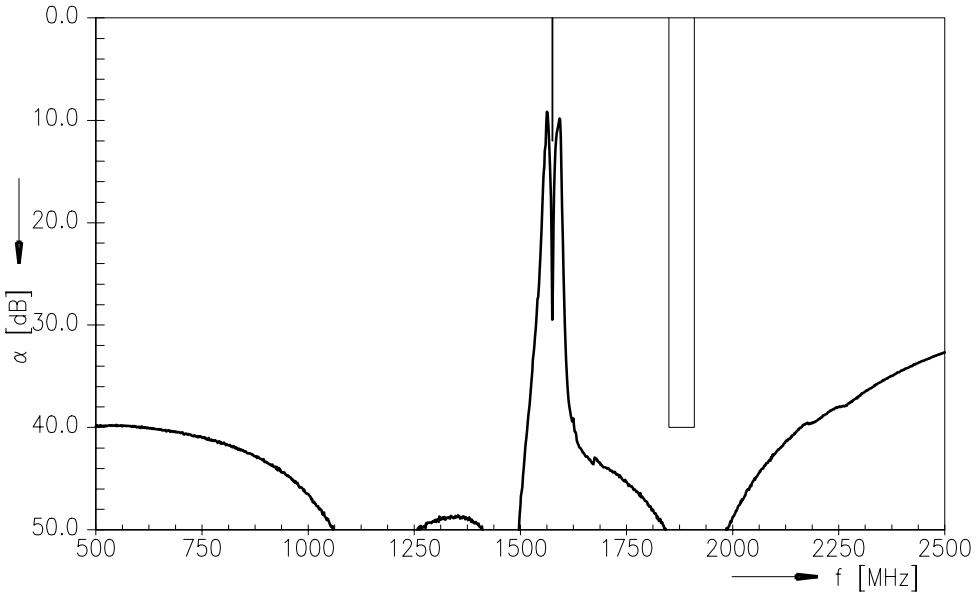
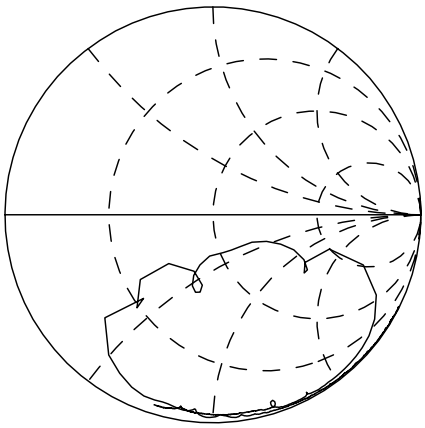


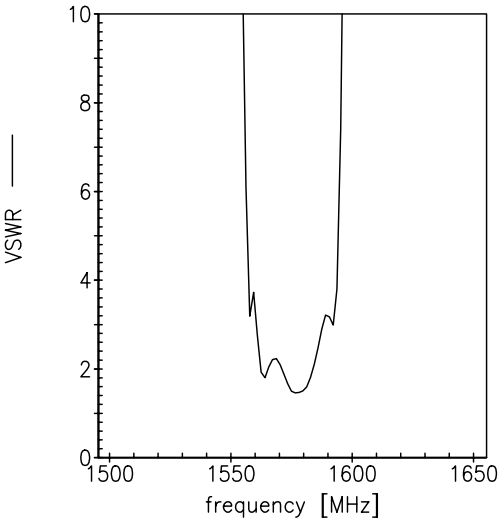
PCS - GPS (transfer function, including PCB loss**):**



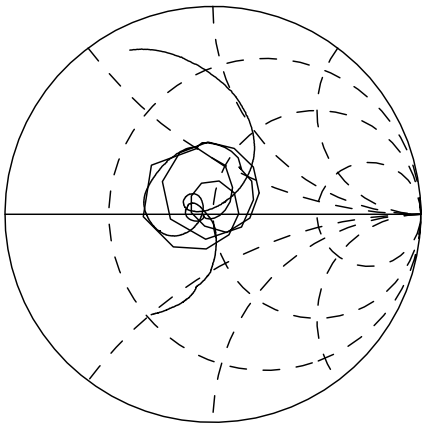
Smith charts / VSWR

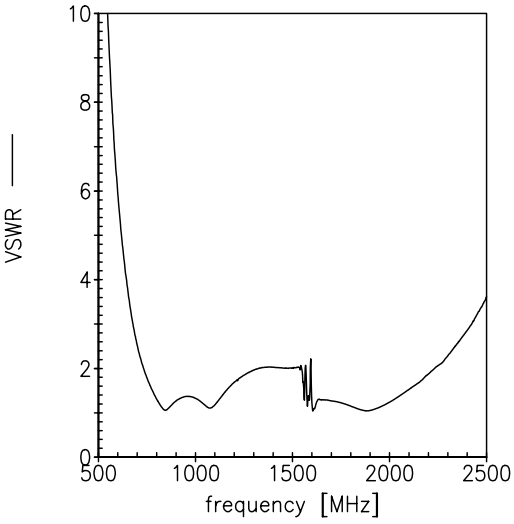
S_{11} GPS





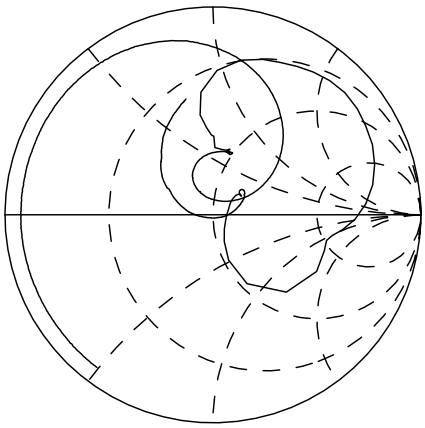
S_{22} ANT

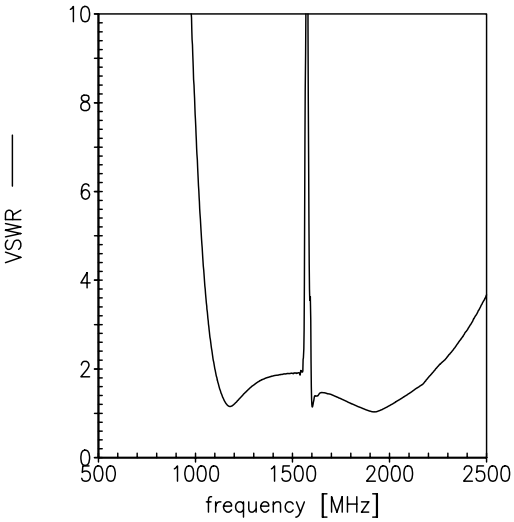




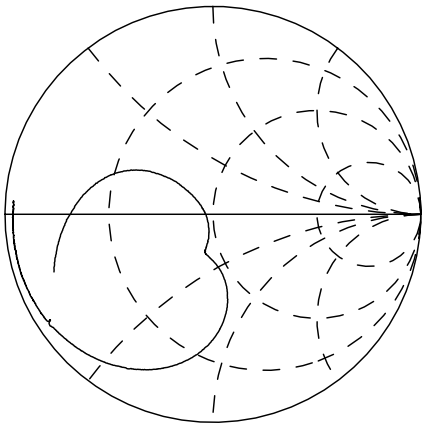
Smith charts / VSWR

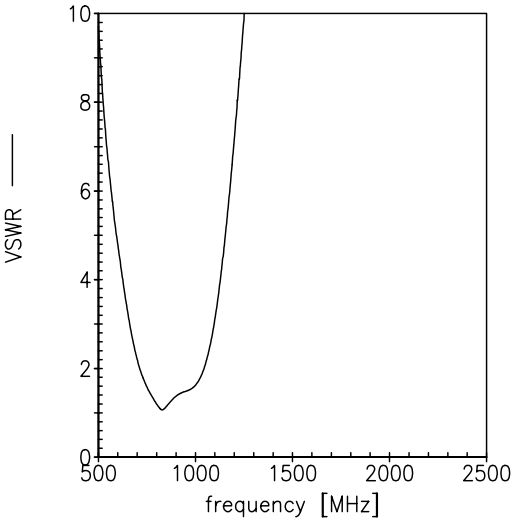
S_{33} PCS





S_{44} CELL





References

Type	B9101
Ordering code	B39162B9101L310
Marking and package	C61157-A3-A35
Packaging	F61074-V8225-Z000
Date codes	L_1126
S-parameters (6.8 nH || ANT)	B9101_NB.s4p
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.

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