SAW Components

SAW CELL / GPS / PCS Triplexer

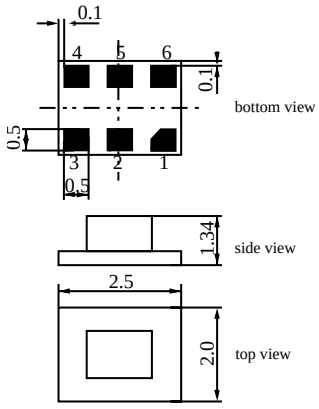
Series/type:	**B9100**
Ordering code:	**B39162B9100L410**
Date:	October 11, 2010
Version:	2.4

Application

- Low loss LTCC Triplexer for mobile phones covering Cellular, GPS and PCS band
- Usable passbands 77 MHz (CELL), 2 MHz (GPS), 145 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
- Diversity antenna pinning
- No switches and control lines required
- Shunt inductor from ANT pin to ground used for ESD protection and matching

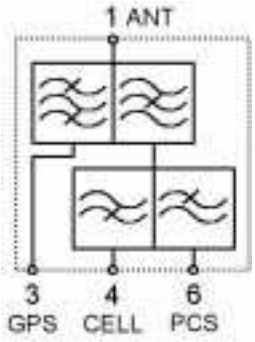
Features

- Package size 2.5 x 2.0 x 1.34 mm^3
- Package code DCS6W
- RoHS compatible
- Approximate weight 0.022 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

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



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 + 1.5 nH or || 20n H, PCS)

		B9100			
		min.	**typ. @ 25 ˚C**	**max.**	
ANT - CELL					
Center frequency	f_C	—	859.0	—	MHz
Maximum insertion attenuation	α_{max}				
824.0 ... 894.0 MHz		—	0.6	0.8	dB
817.0 ... 894.0 MHz		—	0.65	0.9	dB
VSWR					
824.0 ... 894.0 MHz		—	1.25	1.6	
817.0 ... 894.0 MHz		—	1.25	1.7	
ANT - PCS					
Center frequency	f_C	—	1920.0	—	MHz
Maximum insertion attenuation	α_{max}				
1850.0 ... 1995.0 MHz		—	0.65	0.9	dB
VSWR					
1850.0 ... 1995.0 MHz		—	1.25	1.6	
Attenuation	α				
3700.0 ... 3830.0 MHz		9	13.5	—	dB
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}				
1574.42 ... 1576.42 MHz		—	1.25	1.8	dB
1574.42 ... 1576.42 MHz		—	1.25[1)]	1.6[1)]	dB
VSWR					
1574.42 ... 1576.42 MHz		—	1.5	1.8	
Attenuation	α				
817.0 ... 849.0 MHz		32	45	—	dB
1495.0 ... 1515.0 MHz		25	37	—	dB
1610.0 ... 1625.0 MHz		10	25	—	dB
1635.0 ... 1655.0 MHz		25	40	—	dB
1710.0 ... 1755.0 MHz		35	42	—	dB
1850.0 ... 1995.0 MHz		32	40	—	dB
2400.0 ... 2500.0 MHz		23	29	—	dB
CELL - GPS					
Attenuation	α				
1574.42 ... 1576.42 MHz		20	35	—	dB
817.0 ... 849.0 MHz		42	46	—	dB
PCS - GPS					
Attenuation	α				

		B9100			
		min.	typ. @ 25 ˚C	max.	
1574.42 ... 1576.42	MHz	14	23	—	dB
1850.0 ... 1910.0	MHz	42	46	—	dB

1) at 25˚C

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VSWR					
1850.0 ... 1995.0 MHz		—	1.25	1.6	
Attenuation	α				
3700.0 ... 3830.0 MHz		9	13.5	—	dB
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}				
1574.42 ... 1576.42 MHz		—	1.25	2.0	dB
VSWR					
1574.42 ... 1576.42 MHz		—	1.5	2.1	
Attenuation	α				
817.0 ... 849.0 MHz		32	45	—	dB
1495.0 ... 1515.0 MHz		25	37	—	dB
1610.0 ... 1625.0 MHz		10	24	—	dB
1635.0 ... 1655.0 MHz		25	39	—	dB
1710.0 ... 1755.0 MHz		35	41	—	dB
1850.0 ... 1995.0 MHz		32	39	—	dB
2400.0 ... 2500.0 MHz		23	29	—	dB
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Attenuation	α				
1574.42 ... 1576.42 MHz		20	35	—	dB
817.0 ... 849.0 MHz		42	46	—	dB
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Attenuation	α				
1574.42 ... 1576.42 MHz		14	23	—	dB
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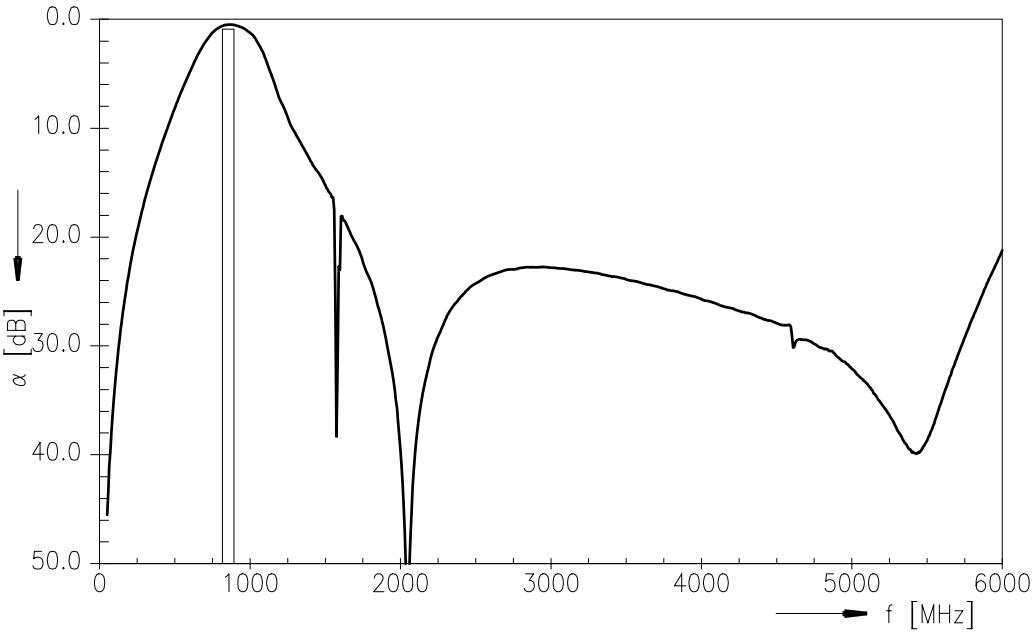
Maximum ratings

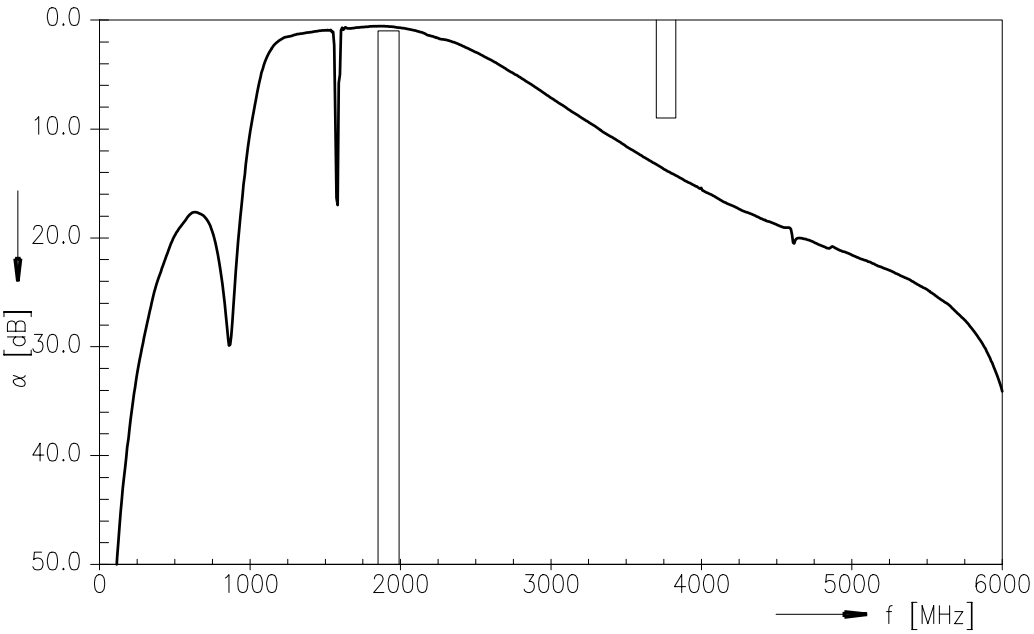
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	at GPS port
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at				
CELL port				effective power in the on-state
817 ... 849 MHz	P_{IN}	31	dBm	continuous wave signal
PCS port				
1850 ... 1910 MHz	P_{IN}	31	dBm	

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

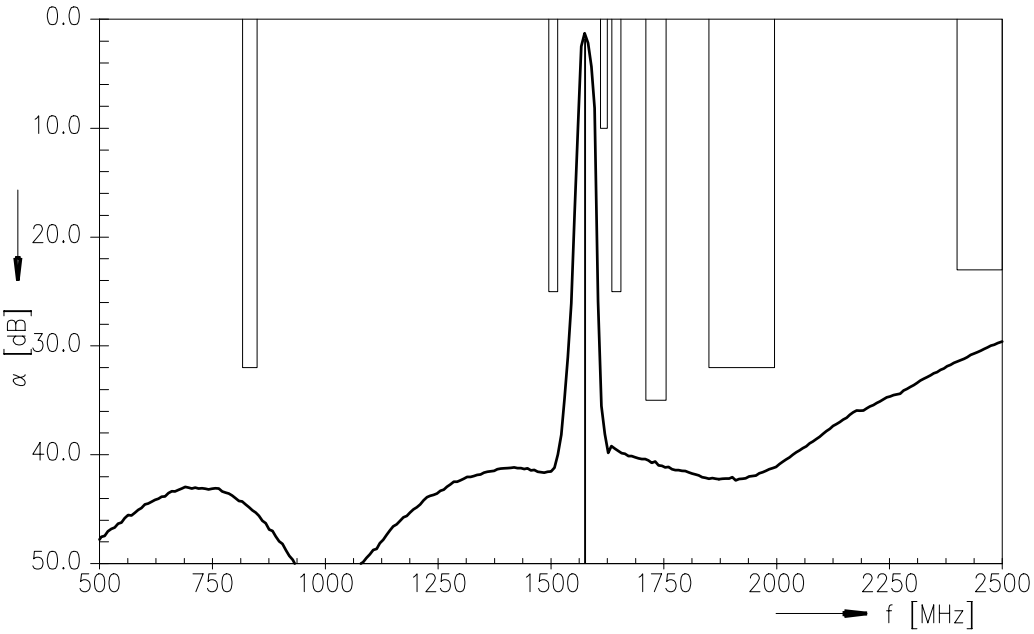
ANT - CELL (transfer function):



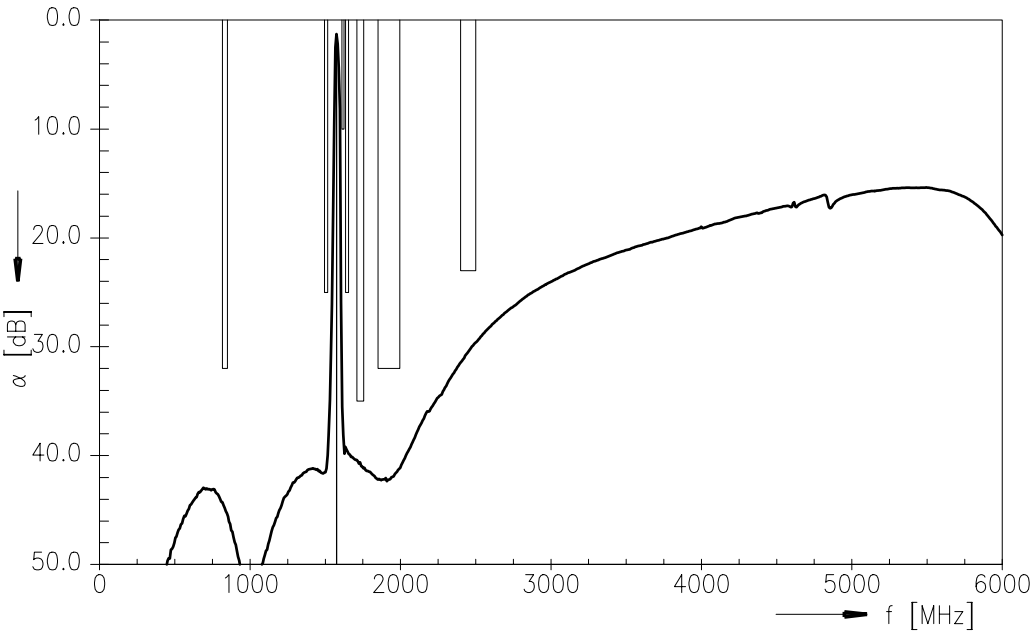
ANT - PCS (transfer function):



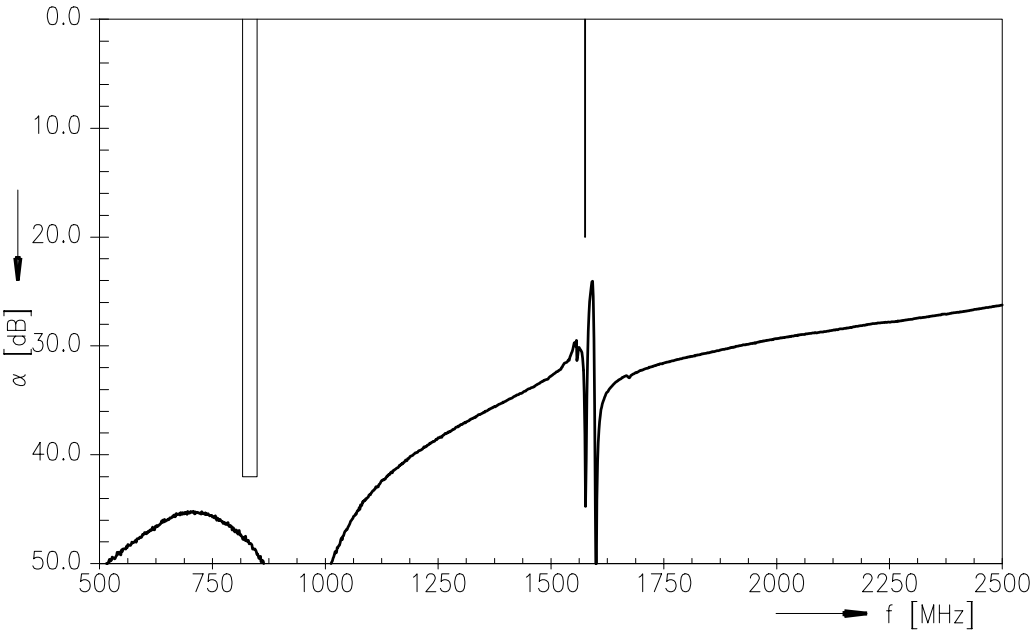
ANT - GPS (transfer function):



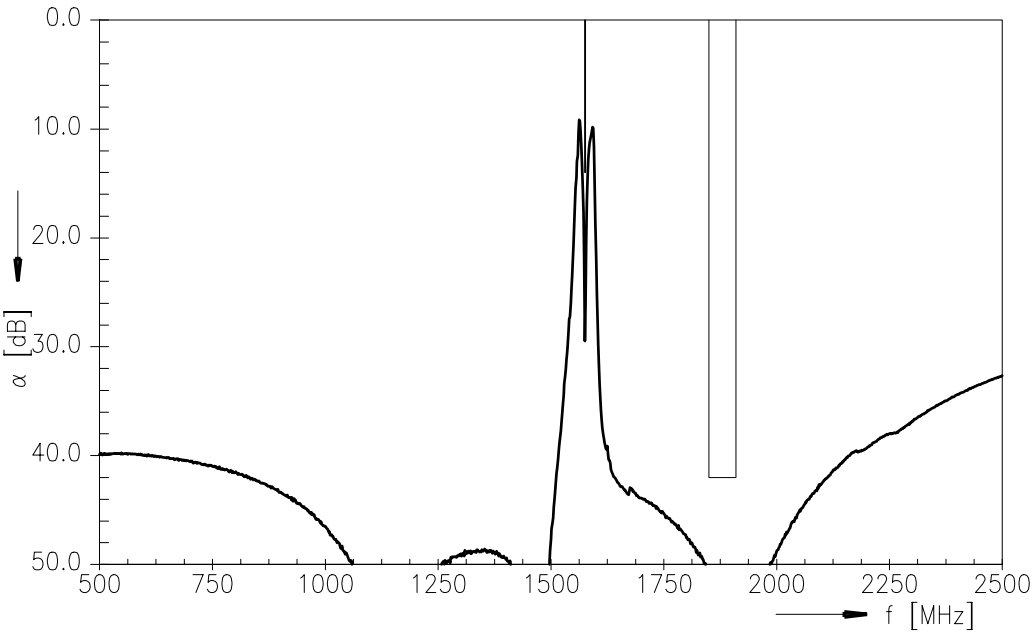
ANT - GPS (transfer function wideband):



CELL - GPS (transfer function):

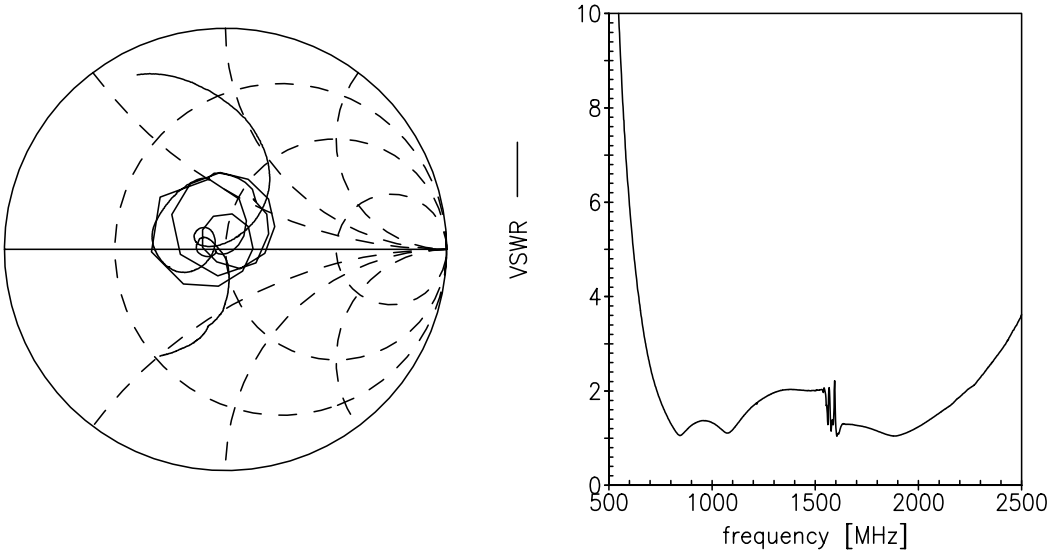


PCS - GPS (transfer function):

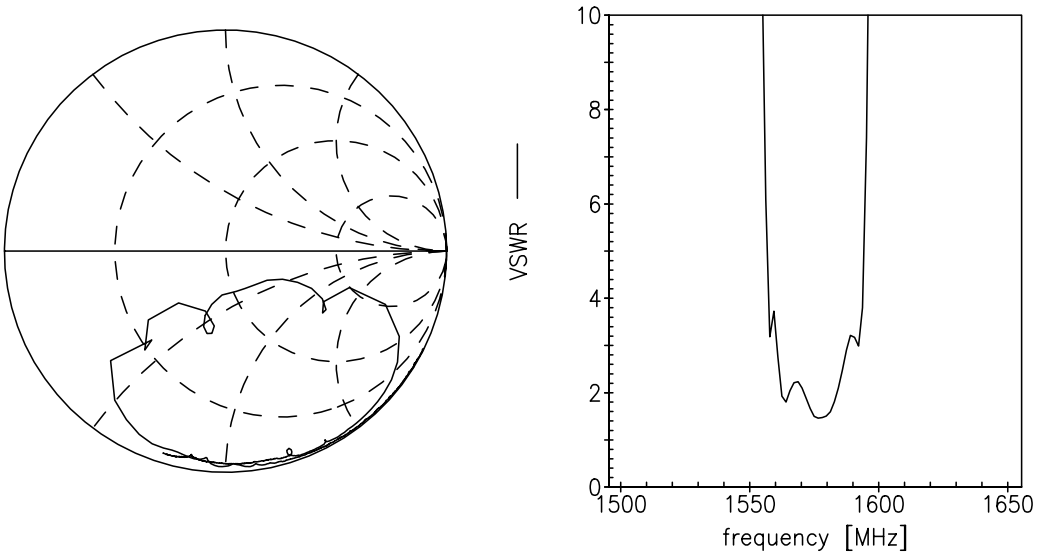


Smith charts / VSWR

S_{11} Antenna (matched with shunt inductor)

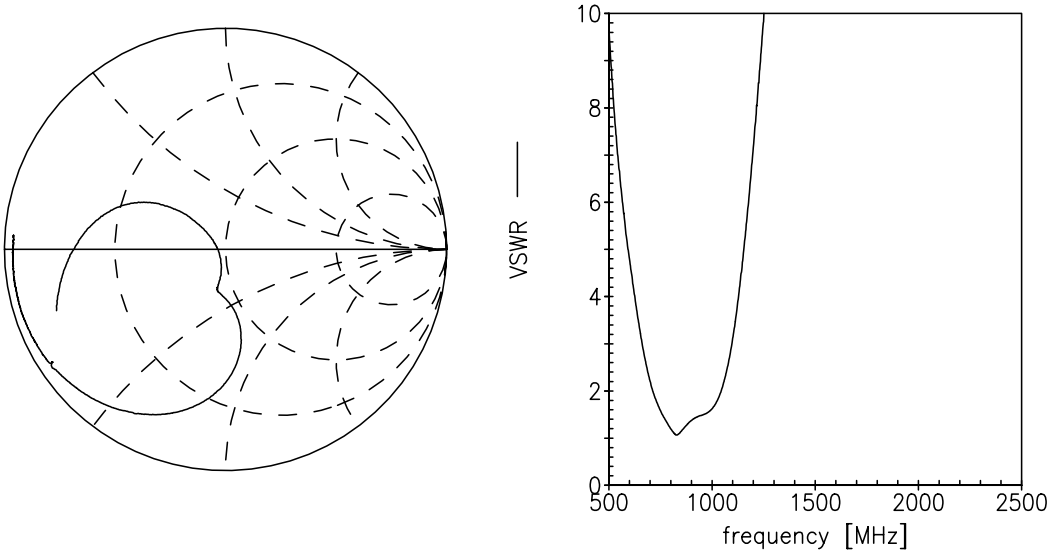


S_{22} GPS

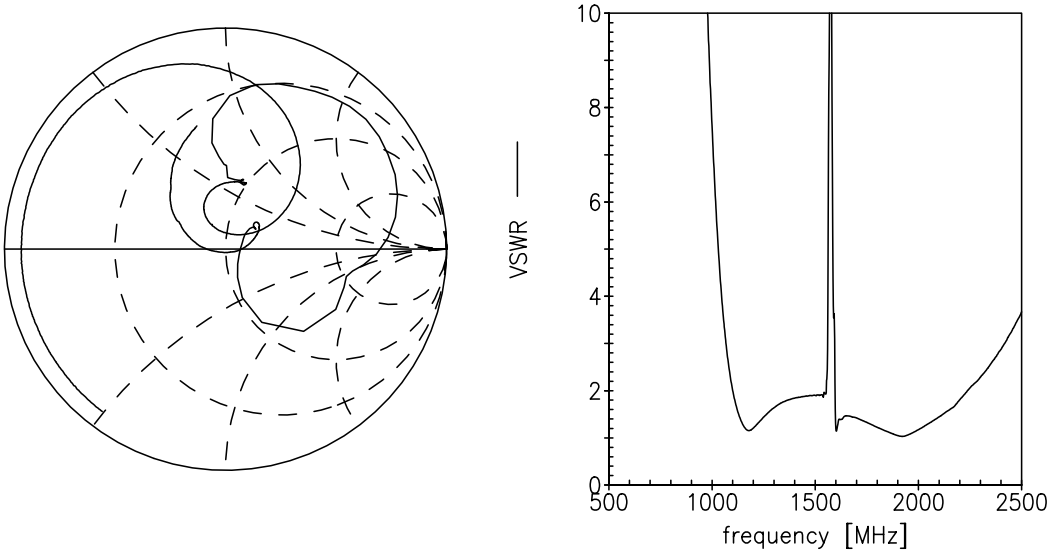


Smith charts / VSWR

S_{33} CELL



S_{44} PCS



References

Type	B9100
Ordering code	B39162B9100L410
Marking and package	C61157-A3-A30
Packaging	F61074-V8225-Z000
Date codes	L_1126
S-parameters (6.8 nH || ANT)	B9100_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.
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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