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SAW Components

SAW CELL / GPS / PCS Triplexer

Series/type: B9101

Ordering code: B39162B9101L310

Date: April 09, 2008

Version: 2.0

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SAW Components

B9101

SAW CELL / GPS / PCS Triplexer

859.0 / 1575.42 / 1920.0 MHz

Preliminary Data



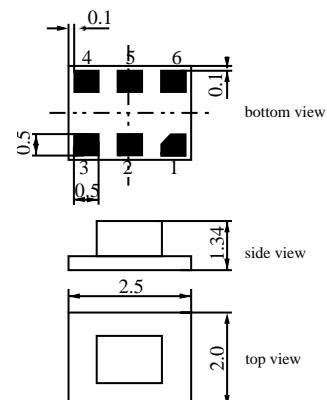
Application

- 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



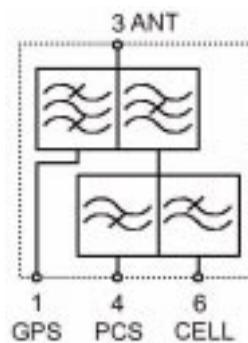
Features

- Package size 2.5 x 2.0 x 1.34 mm³
- Package code DCT6F
- RoHS compatible
- Approximate weight 0.018 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)



Pin configuration

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



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



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Characteristics

Temperature range for specification:

$T = -30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

Terminating source impedance:

$Z_S = 50\Omega \parallel 6.8\text{nH}$ (ANT)

Terminating load impedance:

$Z_L = 50\Omega$ (CELL, GPS + 1.0 nH or $\parallel 20\text{nH}$, PCS)

		B9101			
		min.	typ. @ 25 °C	max.	
ANT - CELL					
Center frequency	f_C	—	859.0	—	MHz
Maximum insertion attenuation	α_{\max}	—	0.65	0.9	dB
824.0 ... 894.0 MHz		—	1.3	1.6	
VSWR					
824.0 ... 894.0 MHz					
ANT - PCS					
Center frequency	f_C	—	1920.0	—	MHz
Maximum insertion attenuation	α_{\max}	—	0.65	0.9	dB
1850.0 ... 1990.0 MHz		—	1.25	1.6	
VSWR					
1850.0 ... 1990.0 MHz					
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{\max}	—	1.35	1.8	dB
1574.42 ... 1576.42 MHz		—	1.4	1.8	
VSWR					
1574.42 ... 1576.42 MHz					
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

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Terminating source impedance:

$Z_S = 50\Omega \parallel 6.8\text{nH}$ (ANT)

Terminating load impedance:

$Z_L = 50\Omega$ (CELL, GPS, PCS)

		B9101			
		min.	typ. @ 25 °C	max.	
ANT - CELL					
Center frequency	f_C	—	859.0	—	MHz
Maximum insertion attenuation	α_{\max}	—	0.65	0.9	dB
824.0 ... 894.0 MHz		—	1.3	1.6	
VSWR	824.0 ... 894.0 MHz				
ANT - PCS					
Center frequency	f_C	—	1920.0	—	MHz
Maximum insertion attenuation	α_{\max}	—	0.65	0.9	dB
1850.0 ... 1990.0 MHz		—	1.25	1.6	
VSWR	1850.0 ... 1990.0 MHz				
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{\max}	—	1.4	2.0	dB
1574.42 ... 1576.42 MHz		—	1.4	2.0	
VSWR	1574.42 ... 1576.42 MHz				
Attenuation	α	36	44	—	dB
0.0 ... 1000.0 MHz		32	38	—	
1000.0 ... 1495.0 MHz		25	37	—	
1495.0 ... 1515.0 MHz		10	25	—	
1610.0 ... 1625.0 MHz		25	39	—	
1635.0 ... 1655.0 MHz		32	41	—	
1710.0 ... 1980.0 MHz		30	35	—	
1980.0 ... 2170.0 MHz		23	28	—	
2170.0 ... 2500.0 MHz		14	18	—	
2500.0 ... 4000.0 MHz		11	15	—	
4000.0 ... 6000.0 MHz					
CELL - GPS					
Attenuation	α	12	35	—	dB
1574.42 ... 1576.42 MHz		42	47	—	
824.0 ... 849.0 MHz					
PCS - GPS					
Attenuation	α	12	22	—	dB
1574.42 ... 1576.42 MHz		40	47	—	
1850.0 ... 1910.0 MHz					

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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	
ESD voltage	V _{ESD}	50 ¹⁾	V	at GPS port machine model, 10 pulses
Input power at CELL port 824 ... 849 MHz	P _{IN}	31	dBm	effective power in the on-state continuous wave signal
PCS port 1850 ... 1910 MHz	P _{IN}	31	dBm	

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



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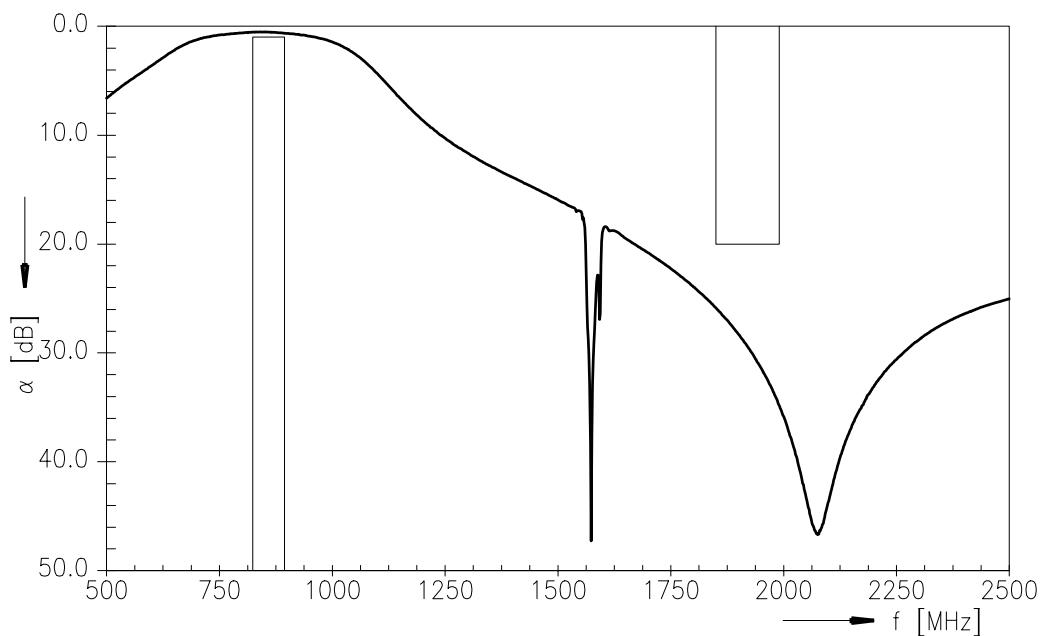
SAW CELL / GPS / PCS Triplexer

859.0 / 1575.42 / 1920.0 MHz

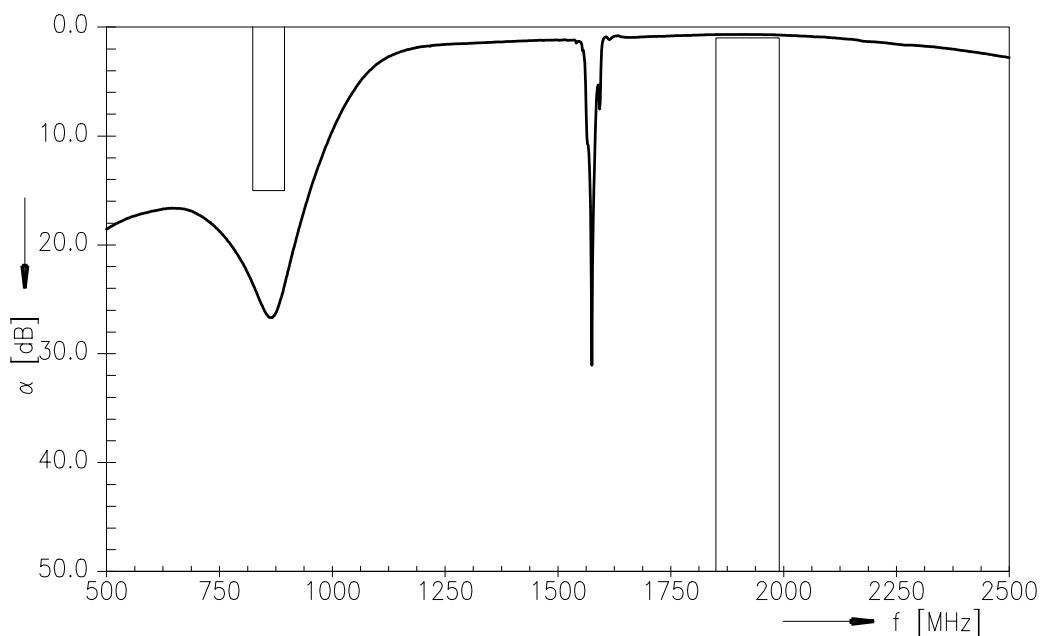
Preliminary Data



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



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





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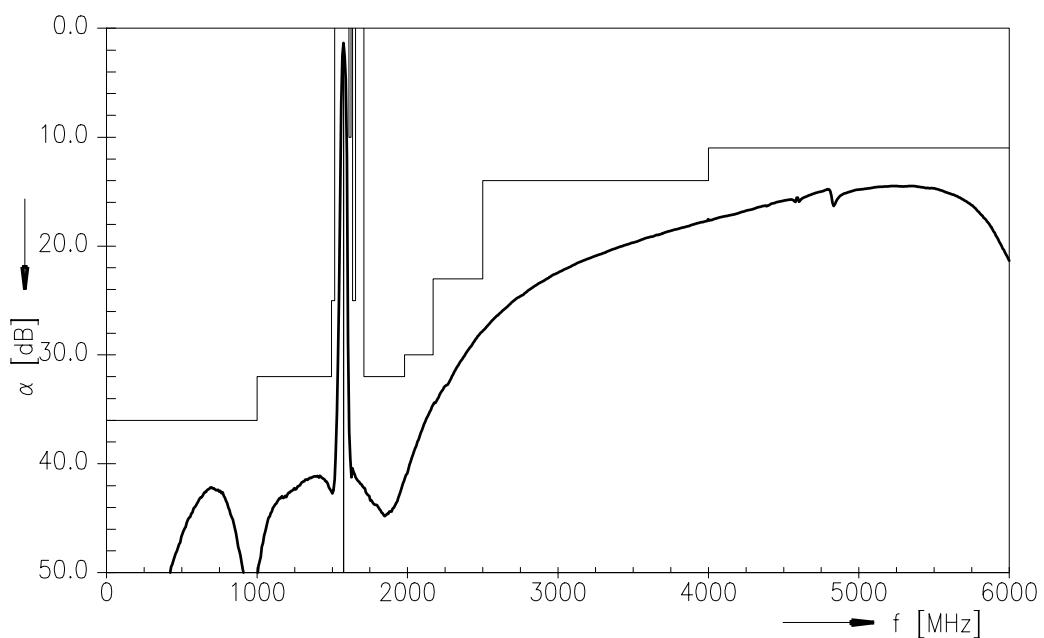
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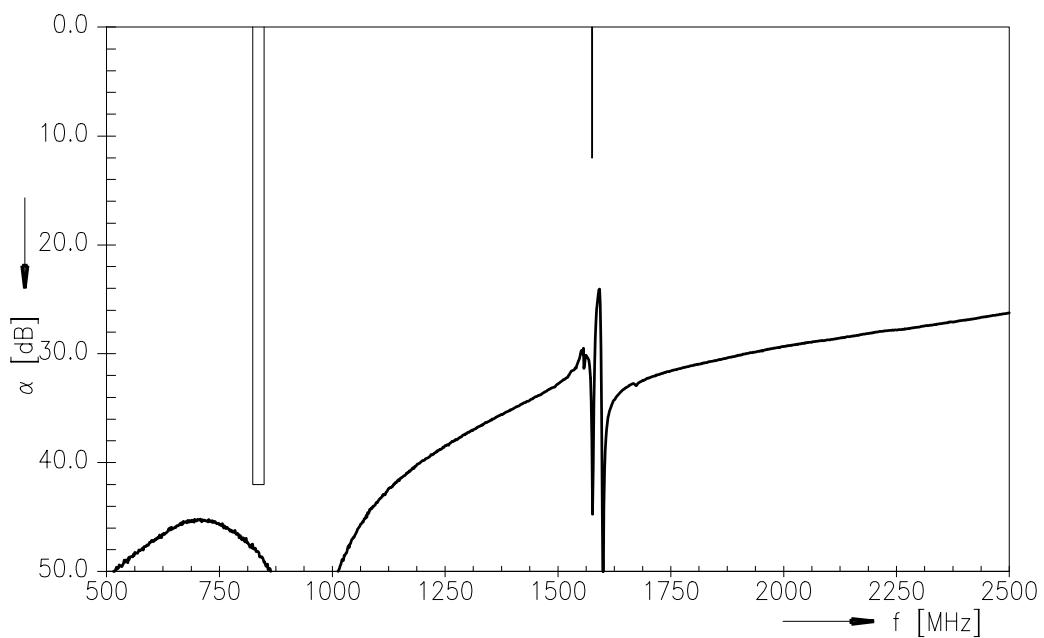
Preliminary Data



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



CELL - GPS (transfer function, including PCB loss):





SAW Components

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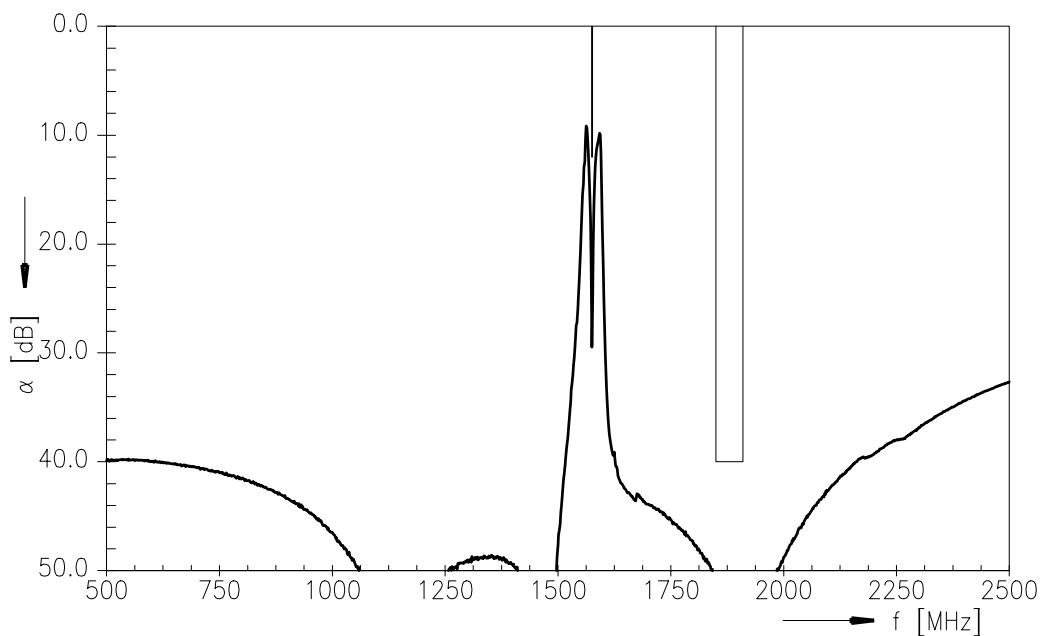
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PCS - GPS (transfer function, including PCB loss):





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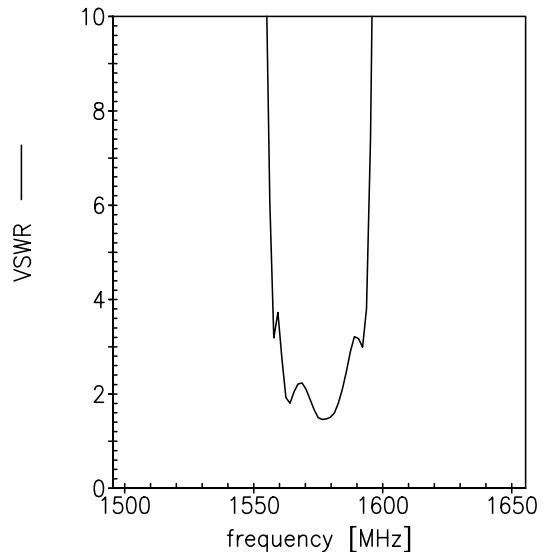
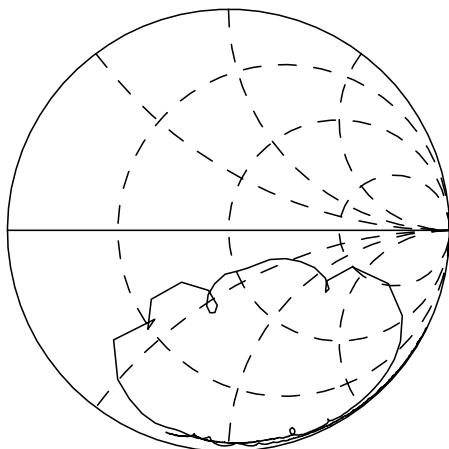
859.0 / 1575.42 / 1920.0 MHz

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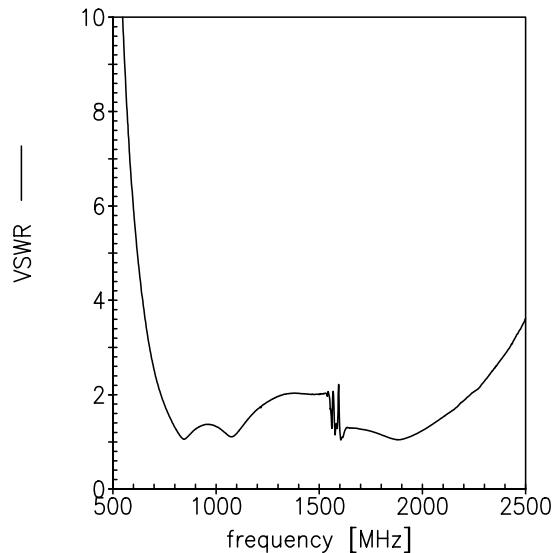
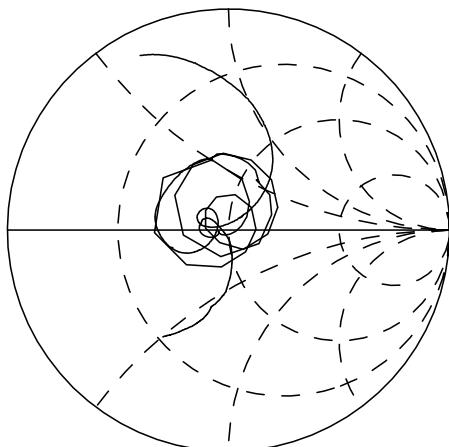


Smith charts / VSWR

S₁₁ GPS



S₂₂ ANT



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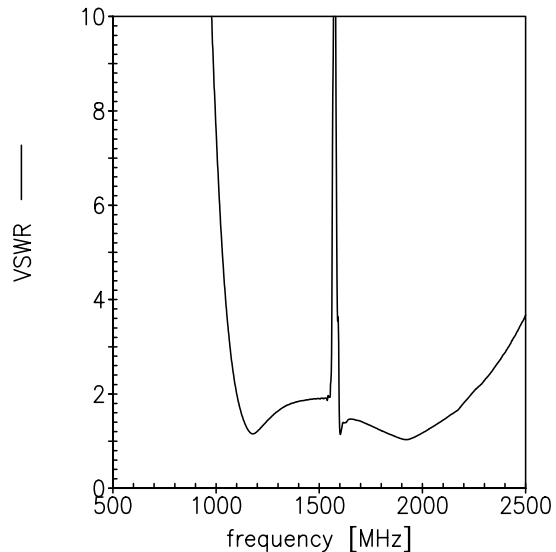
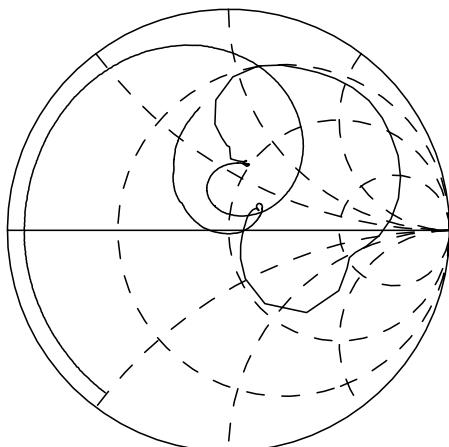
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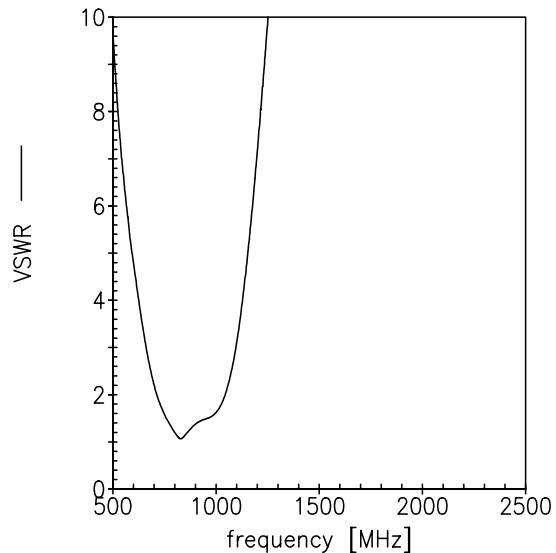
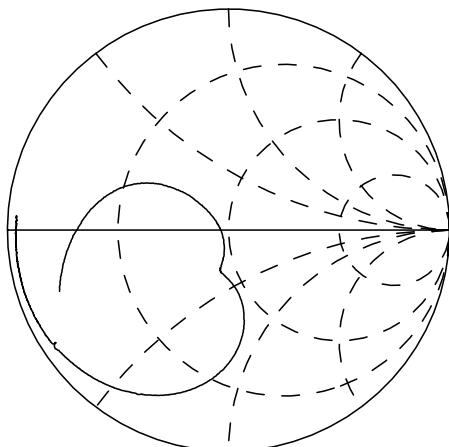


Smith charts / VSWR

S₃₃ PCS



S₄₄ CELL



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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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