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SAW filters

Series/Type: B9104

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39162B9104P810		2016-04-22	2016-12-31	2017-03-31

For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at www.epcos.com/sales.

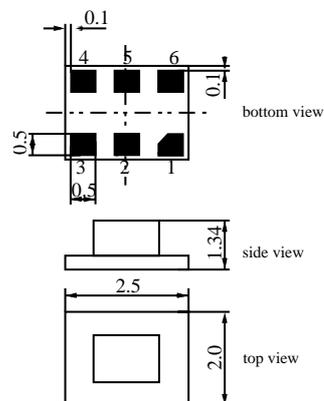
Data Sheet

Application

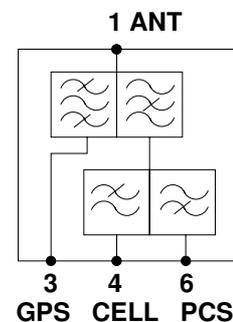
- Low loss LTCC Triplexer for mobile phones covering Cellular, GPS and PCS band
- Usable passbands 70 MHz (CELL), 2 MHz (GPS), 140 MHz (PCS)
- Very low insertion attenuation in CELL, GPS and PCS band
- Integrated low loss GPS filter with single ended output 50 Ω
- Very low amplitude ripple in all bands
- No switches and control lines required
- External 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
- RoHS compatible
- Approximate weight 0.022 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


Pin configuration

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



SAW Components
B9104
SAW CELL / GPS / PCS Triplexer
859.0 / 1575.42 / 1920.0 MHz
Data Sheet

Characteristics

Temperature range for specification:

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

Terminating source impedance:

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

Terminating load impedance:

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

		B9104			
		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					
VSWR		—	1.35	1.6	
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					
VSWR		—	1.3	1.6	
1850.0 ... 1990.0 MHz					
Attenuation	α	9	13	—	dB
3700.0 ... 3830.0 MHz					
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}	—	0.9	1.5	dB
1574.42 ... 1576.42 MHz					
VSWR		—	1.3	1.8	
1574.42 ... 1576.42 MHz					
Attenuation	α	32	37	—	dB
824.0 ... 849.0 MHz					
1495.0 ... 1515.0 MHz		25	32	—	dB
1635.0 ... 1655.0 MHz		25	37	—	
1710.0 ... 1755.0 MHz		35	40	—	dB
1850.0 ... 1980.0 MHz		32	40	—	
2400.0 ... 2500.0 MHz		21	26	—	dB
CELL - GPS					
Attenuation	α	20	34	—	dB
1574.42 ... 1576.42 MHz					
824.0 ... 849.0 MHz		32	37	—	dB
PCS - GPS					
Attenuation	α	12	21	—	dB
1574.42 ... 1576.42 MHz					
1850.0 ... 1910.0 MHz		37	50	—	dB

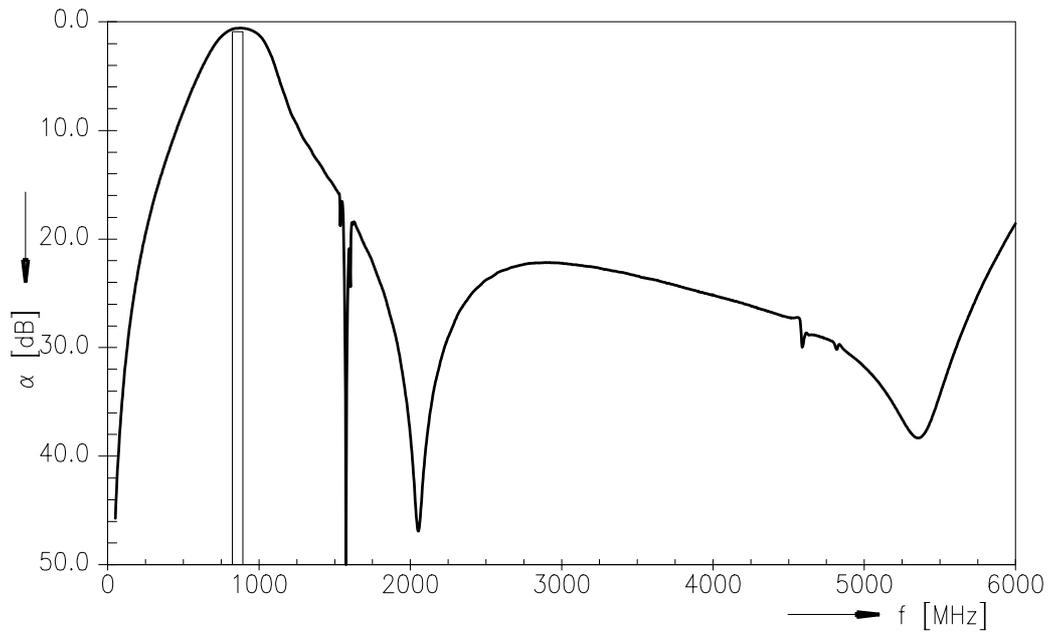

Maximum ratings

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	

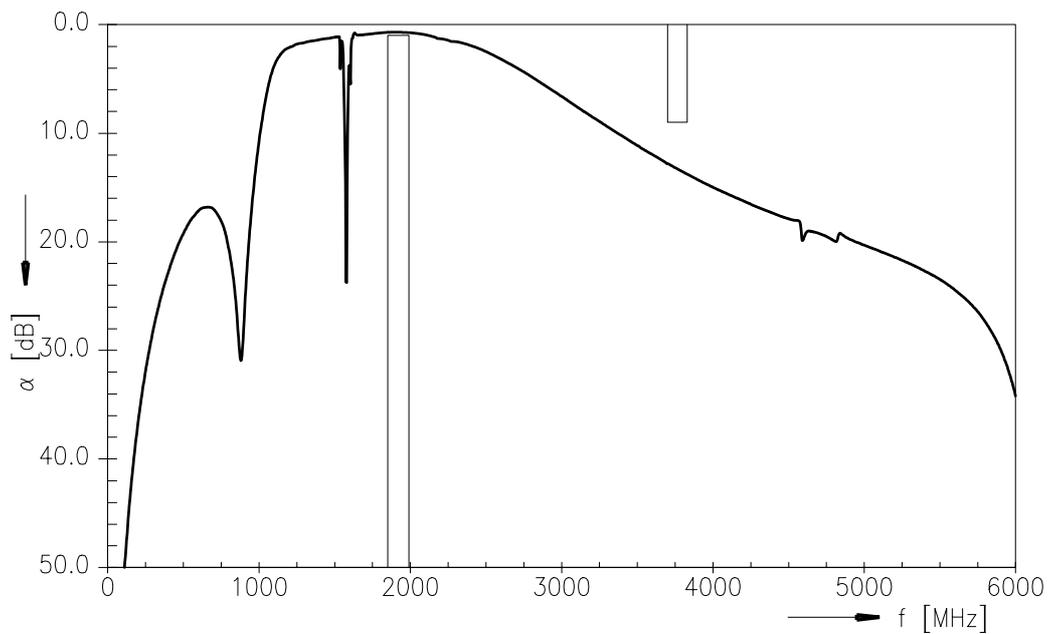
¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



ANT - CELL (transfer function):

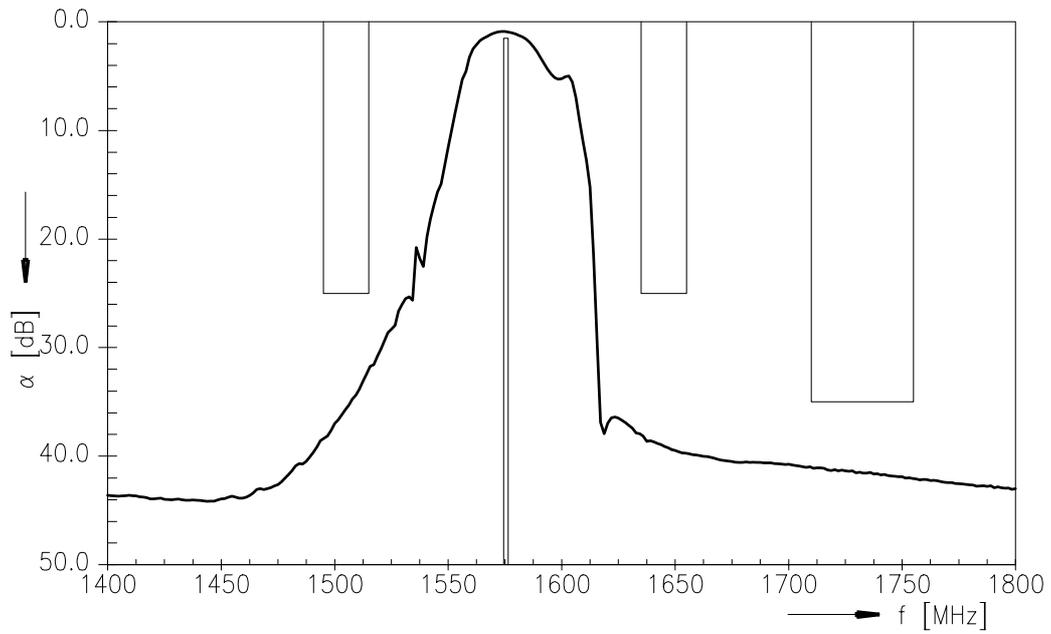


ANT - PCS (transfer function):

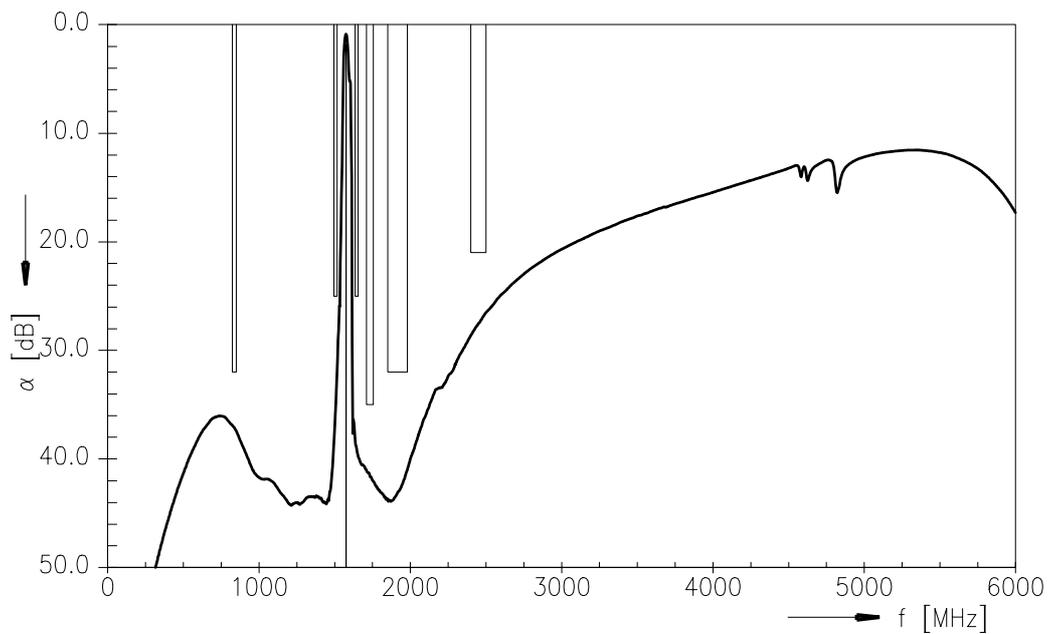




ANT - GPS (transfer function):

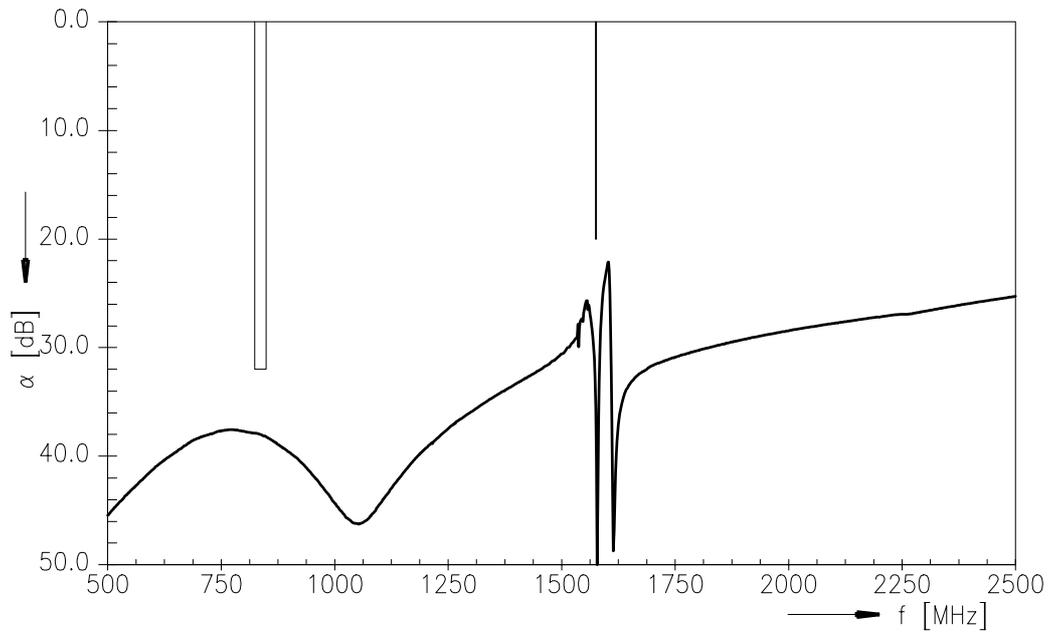


ANT - GPS (transfer function wideband):

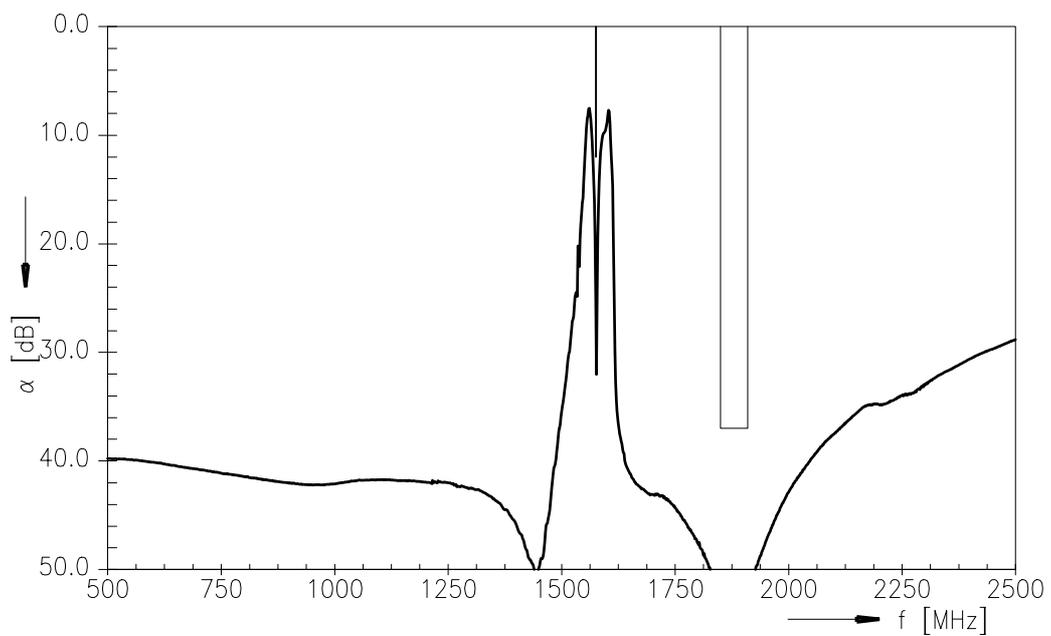




CELL - GPS (transfer function):



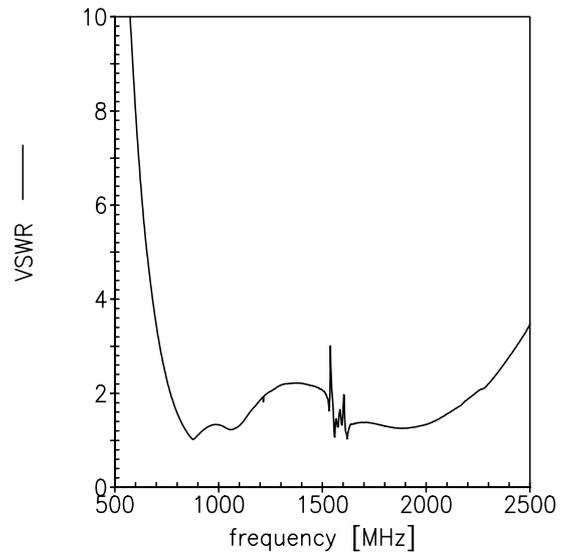
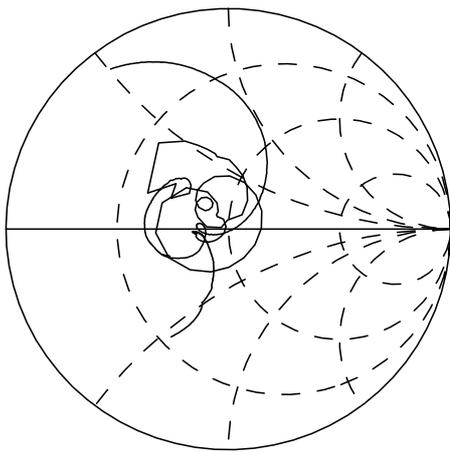
PCS - GPS (transfer function):



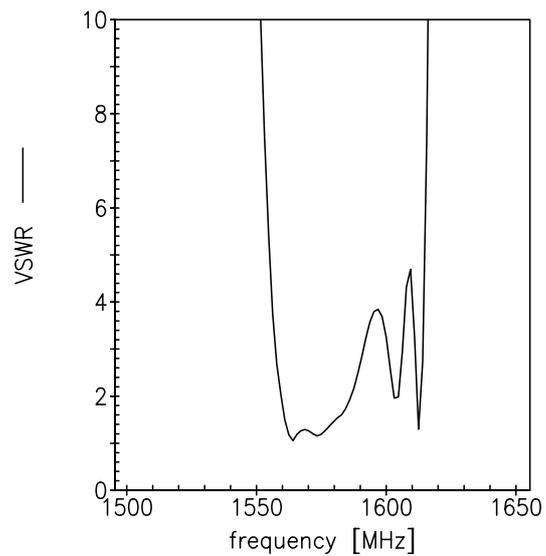
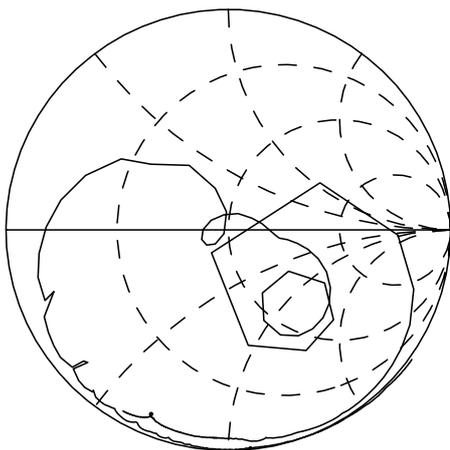


Smith charts / VSWR

S₁₁ Antenna (matched with shunt inductor)



S₂₂ GPS

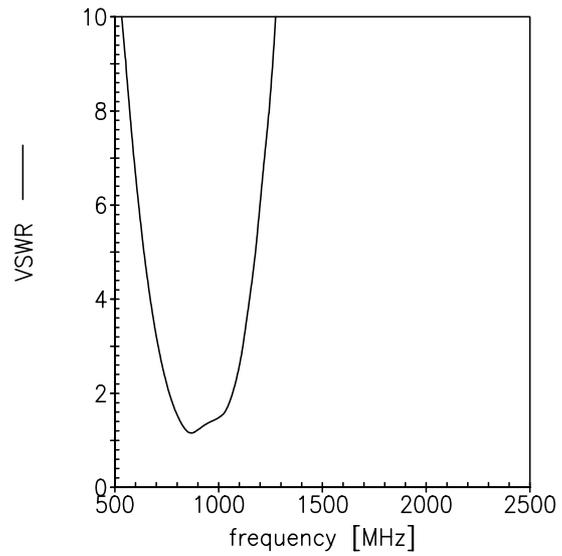
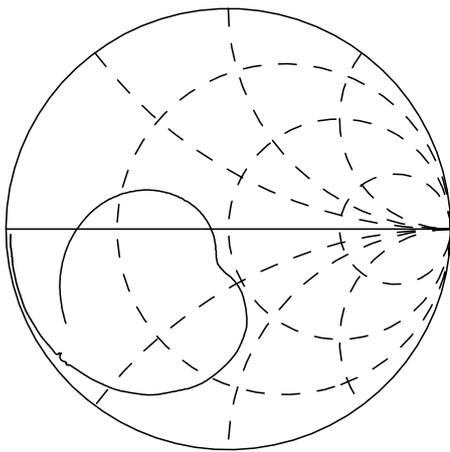


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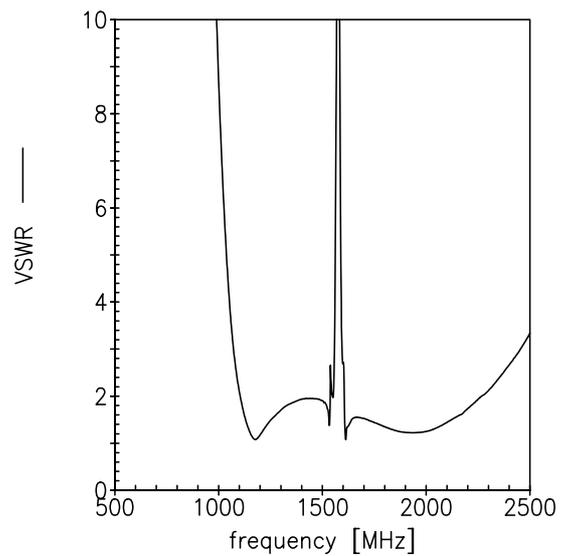
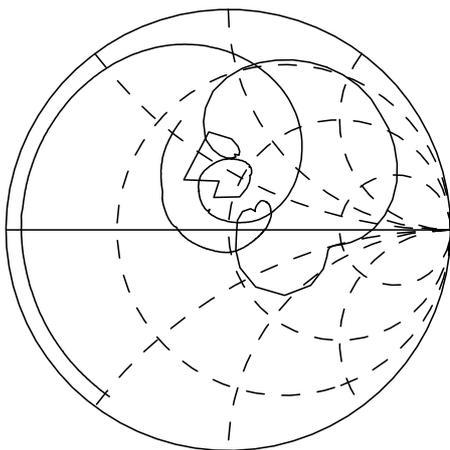


Smith charts / VSWR

S₃₃ CELL



S₄₄ PCS




References

Type	B9104
Ordering code	B39162B9104P810
Marking and package	C61157-A3-A30
Packaging	F61074-V8225-Z000
Date codes	L_1126
S-parameters (6.8 nH ANT)	B9104_NB.s4p, B9104_WB.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 http://www.tdk.co.jp/tefe02/coil.htm#aname1 http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

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