SAW Components

CELL/GPS/(K-PCS,PCS,WCDMA) Triplexer

Series/type:	**B9102**
Ordering code:	**B39162B9102J810**
Date:	March 10, 2008
Version:	2.1

CELL/GPS/(K-PCS,PCS,WCDMA) Triplexer 859 / 1575.42 / 1810 / 1920 / 2140 MHz

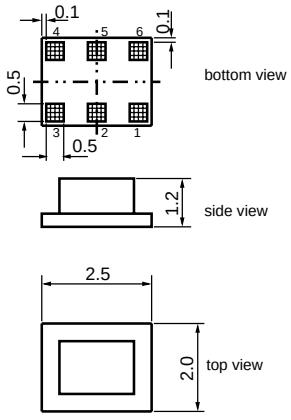
Data Sheet SMD

Application

- Low loss LTCC Triplexer for mobile phones covering Cellular, GPS and K-PCS/PCS band
- Usable passbands 70 MHz (CELL), 2 MHz (GPS), 120 MHz (K-PCS), 140 MHz (PCS), 60 MHz (WCDMA)
- Very low insertion attenuation in CELL, GPS and PCS/K-PCS/WCDMA 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

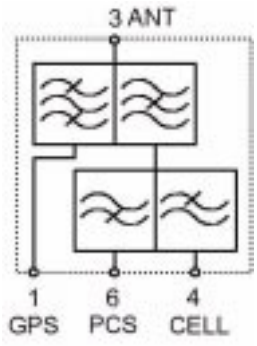
Features

- Package size 2.5 x 2.0 x 1.2 mm³
- Package code DCT6C
- RoHS compatible
- Approximate weight 0.021 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 CELL Output
- 6 PCS/K-PCS/WCDMA Output
- 2,5 Ground



CELL/GPS/(K-PCS,PCS,WCDMA) Triplexer 859 / 1575.42 / 1810 / 1920 / 2140 MHz

Data Sheet 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, PCS/K-PCS/WCDMA)

		B9102			
		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					
(ANT port) 824.0 ... 894.0 MHz		—	1.35	1.7	
(CELL port) 824.0 ... 894.0 MHz		—	1.25	1.7	
ANT - K-PCS					
Center frequency	f_C	—	1810.0	—	MHz
Maximum insertion attenuation	α_{max}				
1750.0 ... 1870.0 MHz		—	0.75	1.0	dB
VSWR					
(ANT port) 1750.0 ... 1870.0 MHz		—	1.25	1.6	
(K-PCS port)1750.0 ... 1870.0 MHz		—	1.25	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					
(ANT port) 1850.0 ... 1990.0 MHz		—	1.25	1.6	
(PCS port) 1850.0 ... 1990.0 MHz		—	1.2	1.6	
ANT - WCDMA (Band 1 Rx)					
Center frequency	f_C	—	2140.0	—	MHz
Maximum insertion attenuation	α_{max}				
2110.0 ... 2170.0 MHz		—	1.3	1.6	dB
VSWR					
(ANT port) 2110.0 ... 2170.0 MHz		—	2.0	2.3	
(WCDMA port)2110.0... 2170.0 MHz		—	1.7	2.0	

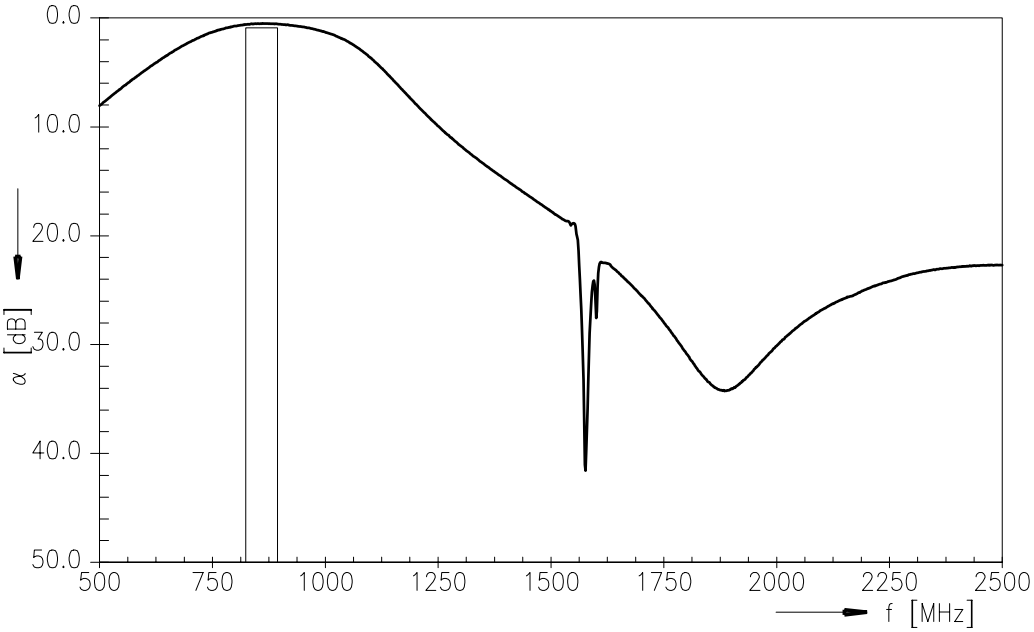
		B9102			
		min.	typ. @ 25 °C	max.	
ANT - GPS					
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}				
1574.42 ... 1576.42 MHz		—	1.1	1.8	dB
VSWR					
(ANT port) 1574.42 ... 1576.42 MHz		—	1.2	1.8	
(GPS port) 1574.42 ... 1576.42 MHz		—	1.25	1.8	
Attenuation	α				
10.0 ... 824.0 MHz		32	45	—	dB
824.0 ... 849.0 MHz		32	44	—	dB
849.0 ... 1495.0 MHz		30	36	—	dB
1495.0 ... 1515.0 MHz		25	37	—	dB
1515.0 ... 1535.0 MHz		10	25	—	dB
1610.0 ... 1635.0 MHz		10	25	—	dB
1635.0 ... 1710.0 MHz		25	35	—	dB
1710.0 ... 1750.0 MHz		25	37	—	dB
1750.0 ... 1850.0 MHz		32	39	—	dB
1850.0 ... 1910.0 MHz		32	42	—	dB
1910.0 ... 1980.0 MHz		32	42	—	dB
1980.0 ... 2170.0 MHz		25	34	—	dB
2170.0 ... 2700.0 MHz		15	22	—	dB
2700.0 ... 3500.0 MHz		8	15	—	dB
3500.0 ... 6000.0 MHz		4	7	—	dB
CELL - GPS					
Attenuation	α				
1574.42 ... 1576.42 MHz		12	33	—	dB
824.0 ... 849.0 MHz		42	46	—	dB
K-PCS - GPS					
Attenuation	α				
1574.42 ... 1576.42 MHz		12	21	—	dB
1750.0 ... 1870.0 MHz		35	38	—	dB
PCS - GPS					
Attenuation	α				
1574.42 ... 1576.42 MHz		12	21	—	dB
1850.0 ... 1910.0 MHz		38	43	—	dB

Maximum ratings

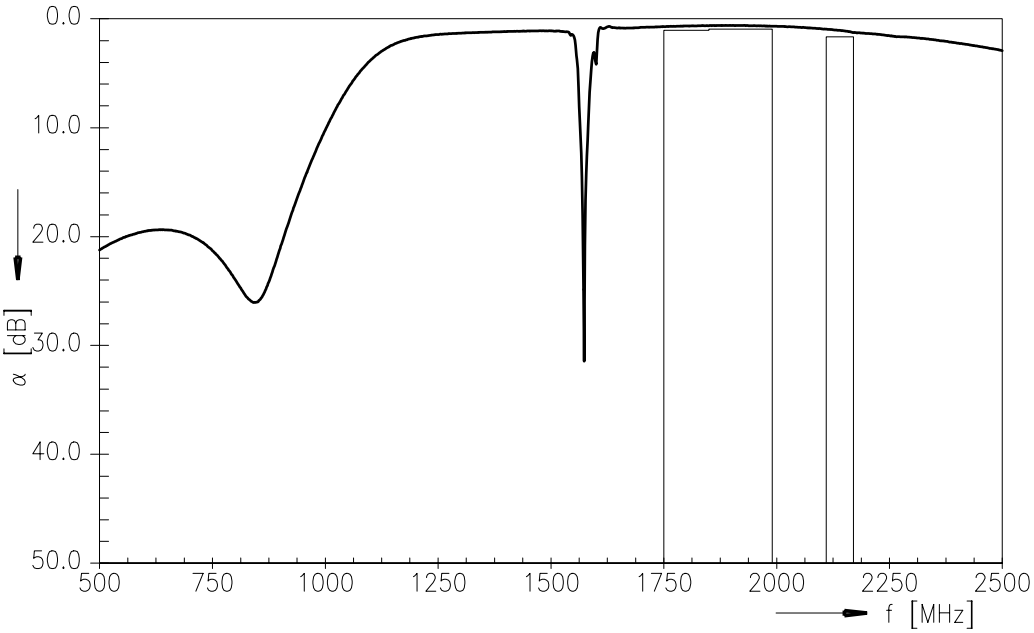
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	at GPS port
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at				source and load impedance 50 Ω
CELL port				effective power in the on-state
824 ... 849 MHz	P_{IN}	31	dBm	continuous wave signal
PCS/K-PCS port				
1750 ... 1910 MHz	P_{IN}	31	dBm	

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

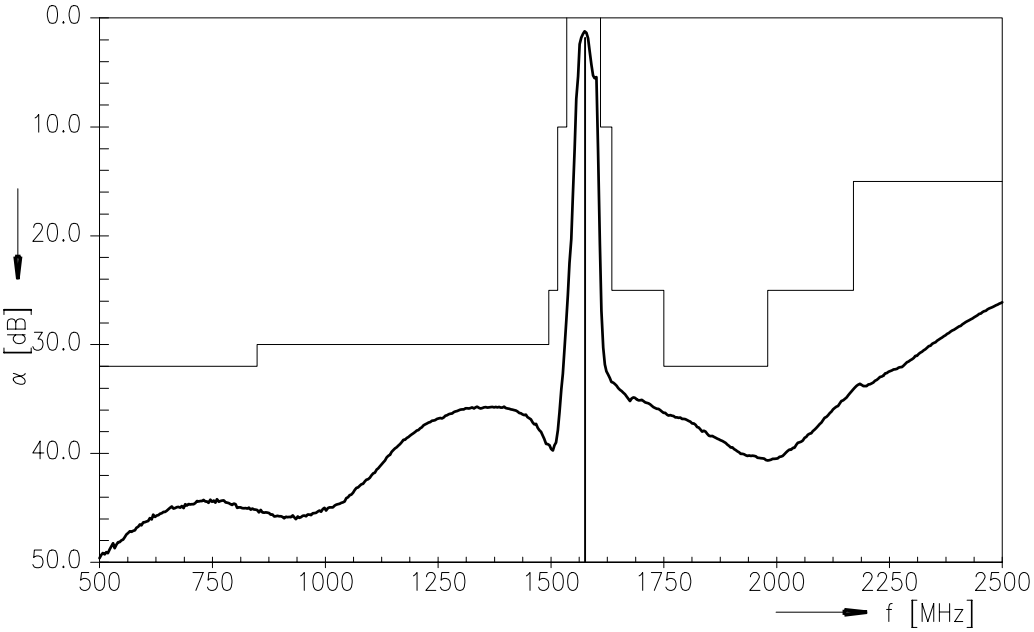
ANT - CELL (transfer function, PCB loss deembedded**):**



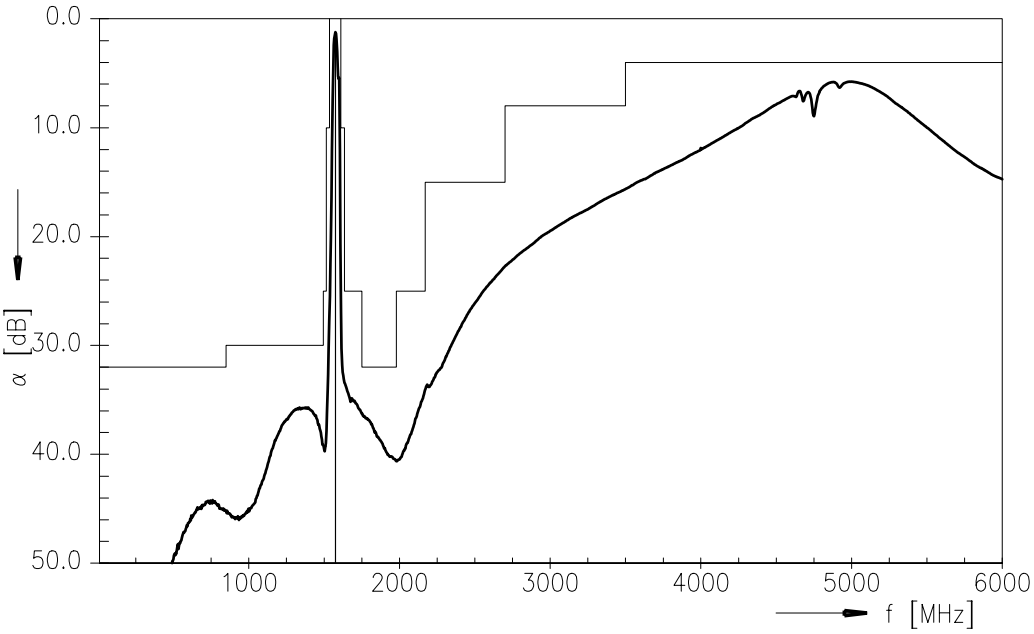
ANT - PCS/K-PCS/WCDMA (Band 1 Rx) (transfer function, PCB loss deembedded**):**



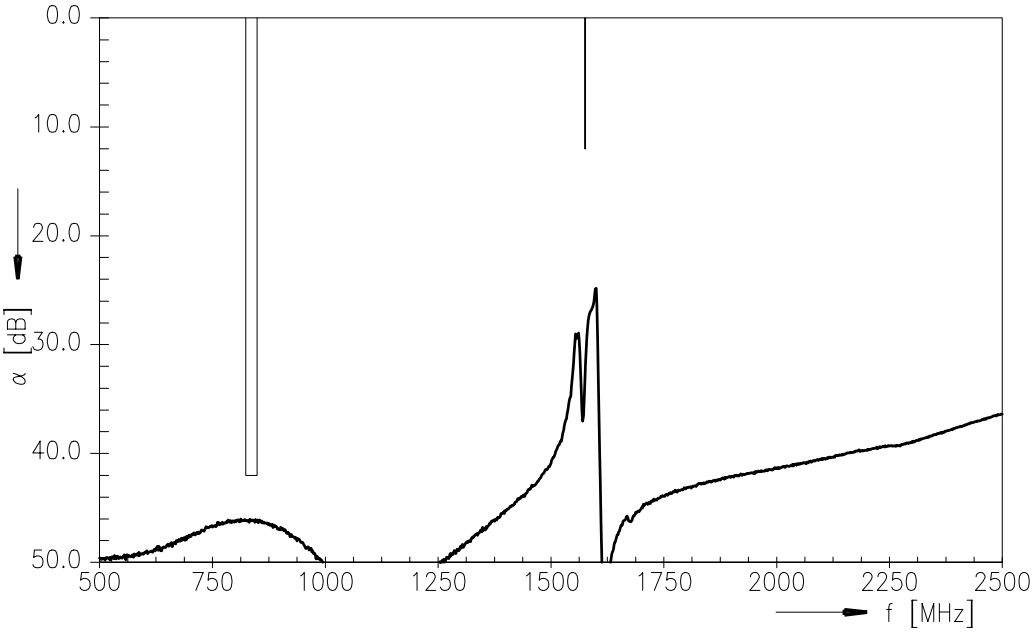
ANT - GPS (transfer function, PCB loss deembedded**):**



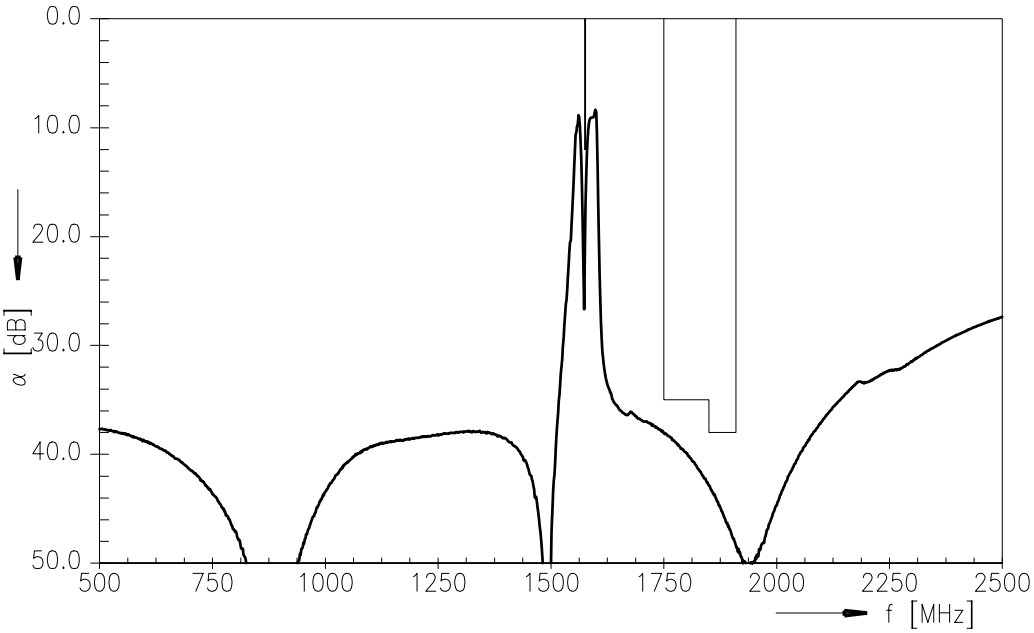
ANT - GPS (transfer function wide band, PCB loss deembedded**):**



CELL - GPS (transfer function, PCB loss deembedded**):**

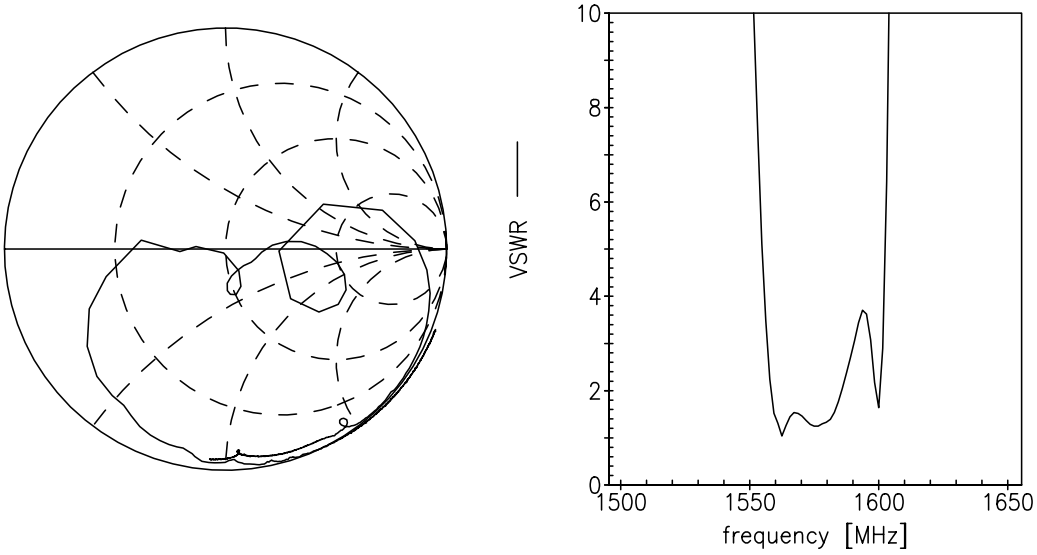


PCS/K-PCS - GPS (transfer function, PCB loss deembedded**):**

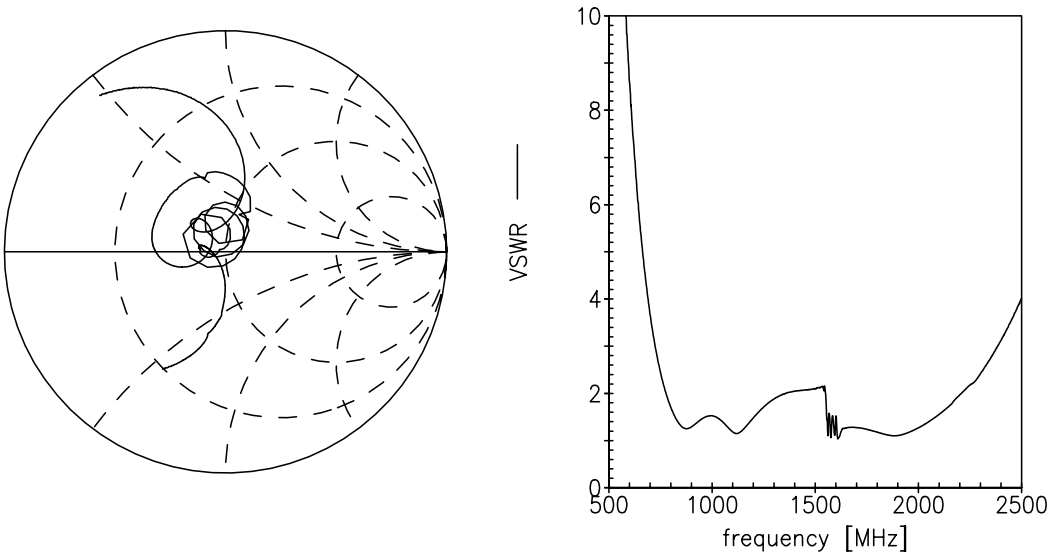


Smith charts / VSWR

S_{11} GPS

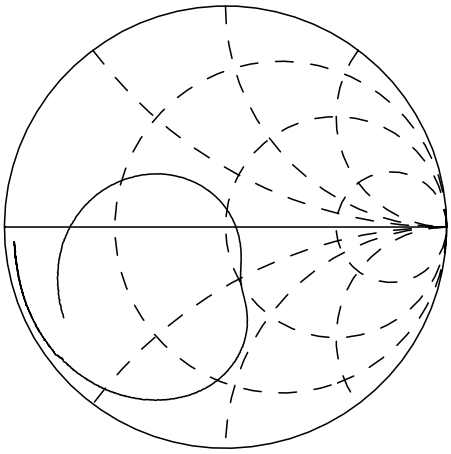


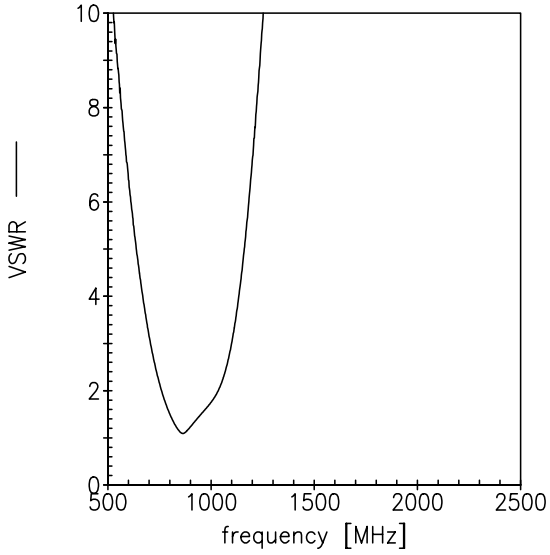
S_{22} ANT



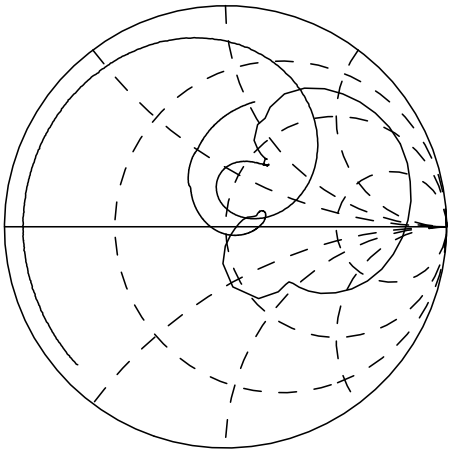
Smith charts / VSWR

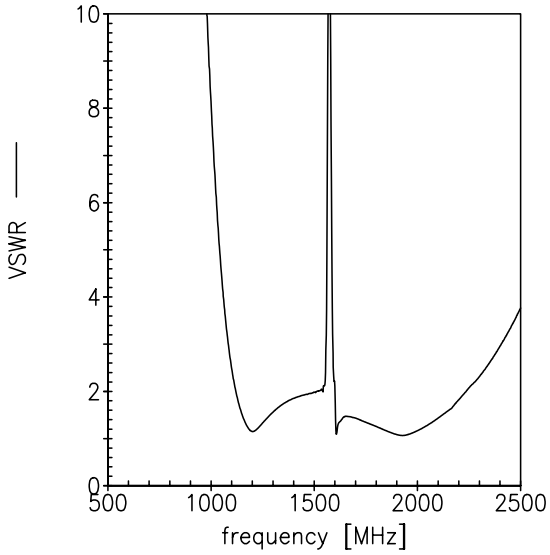
S_{33} CELL





S_{44} PCS/K-PCS





References

Type	B9102
Ordering code	B39162B9102J810
Marking and package	C61157-A3-A36
Packaging	F61074-V8225-Z000
Date codes	L_1126
S-parameters	B9102_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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