



## **SAW Components**

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

<b>Series/type:</b>	<b>B9102</b>
<b>Ordering code:</b>	<b>B39162B9102J810</b>
Date:	March 10, 2008
Version:	2.1



Data Sheet



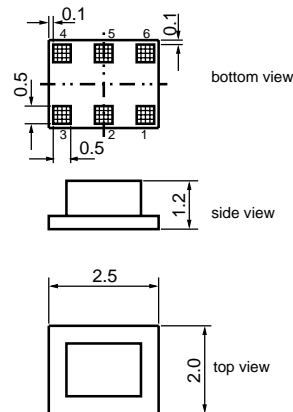
Application

- 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



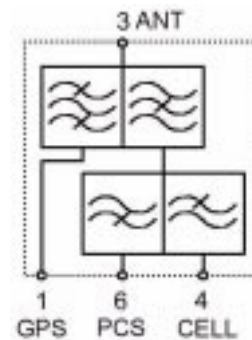
Features

- Package size 2.5 x 2.0 x 1.2 mm<sup>3</sup>
- Package code DCT6C
- RoHS compatible
- Approximate weight 0.021 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

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





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

**Data Sheet**



**Characteristics**

Temperature range for specification: T = -30 °C to +85 °C  
 Terminating source impedance: Z<sub>S</sub> = 50 Ω || 6.8 nH (ANT)  
 Terminating load impedance: Z<sub>L</sub> = 50 Ω (CELL, GPS, PCS/K-PCS/WCDMA)

		<b>B9102</b>			
		<b>min.</b>	<b>typ. @ 25 °C</b>	<b>max.</b>	
<b>ANT - CELL</b>					
<b>Center frequency</b>	f <sub>C</sub>	—	859.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	0.65	0.9	dB
824.0 ... 894.0 MHz					
<b>VSWR</b>					
<b>(ANT port)</b>	824.0 ... 894.0 MHz	—	1.35	1.7	
<b>(CELL port)</b>	824.0 ... 894.0 MHz	—	1.25	1.7	
<b>ANT - K-PCS</b>					
<b>Center frequency</b>	f <sub>C</sub>	—	1810.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	0.75	1.0	dB
1750.0 ... 1870.0 MHz					
<b>VSWR</b>					
<b>(ANT port)</b>	1750.0 ... 1870.0 MHz	—	1.25	1.6	
<b>(K-PCS port)</b>	1750.0 ... 1870.0 MHz	—	1.25	1.6	
<b>ANT - PCS</b>					
<b>Center frequency</b>	f <sub>C</sub>	—	1920.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	0.65	0.9	dB
1850.0 ... 1990.0 MHz					
<b>VSWR</b>					
<b>(ANT port)</b>	1850.0 ... 1990.0 MHz	—	1.25	1.6	
<b>(PCS port)</b>	1850.0 ... 1990.0 MHz	—	1.2	1.6	
<b>ANT - WCDMA (Band 1 Rx)</b>					
<b>Center frequency</b>	f <sub>C</sub>	—	2140.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	1.3	1.6	dB
2110.0 ... 2170.0 MHz					
<b>VSWR</b>					
<b>(ANT port)</b>	2110.0 ... 2170.0 MHz	—	2.0	2.3	
<b>(WCDMA port)</b>	2110.0...2170.0 MHz	—	1.7	2.0	



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		B9102			
		min.	typ. @ 25 °C	max.	
<b>ANT - GPS</b>					
<b>Center frequency</b>	$f_C$	—	1575.42	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	1.1	1.8	dB
1574.42 ... 1576.42 MHz					
<b>VSWR</b>					
<b>(ANT port)</b>	1574.42 ... 1576.42 MHz	—	1.2	1.8	
<b>(GPS port)</b>	1574.42 ... 1576.42 MHz	—	1.25	1.8	
<b>Attenuation</b>					
10.0 ... 824.0 MHz	$\alpha$	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
<b>CELL - GPS</b>					
<b>Attenuation</b>					
1574.42 ... 1576.42 MHz	$\alpha$	12	33	—	dB
824.0 ... 849.0 MHz		42	46	—	dB
<b>K-PCS - GPS</b>					
<b>Attenuation</b>					
1574.42 ... 1576.42 MHz	$\alpha$	12	21	—	dB
1750.0 ... 1870.0 MHz		35	38	—	dB
<b>PCS - GPS</b>					
<b>Attenuation</b>					
1574.42 ... 1576.42 MHz	$\alpha$	12	21	—	dB
1850.0 ... 1910.0 MHz		38	43	—	dB



**Maximum ratings**

Operable temperature range	T	-30/+85	°C	at GPS port machine model, 10 pulses source and load impedance 50 Ω effective power in the on-state continuous wave signal
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	
Input power at CELL port				
824 ... 849 MHz	P <sub>IN</sub>	31	dBm	
PCS/K-PCS port				
1750 ... 1910 MHz	P <sub>IN</sub>	31	dBm	

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



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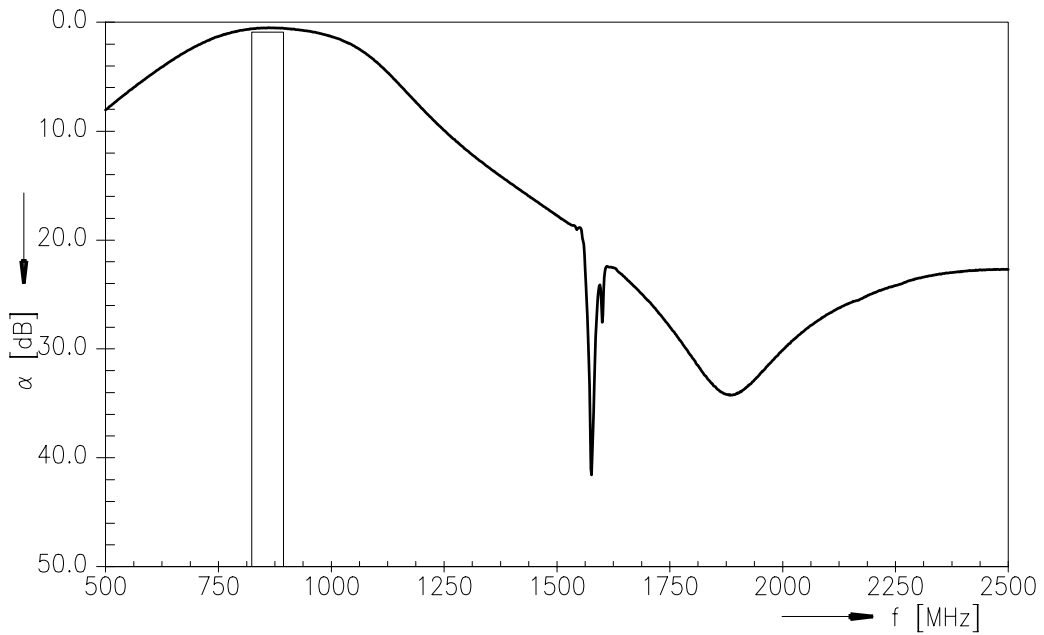
B9102

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

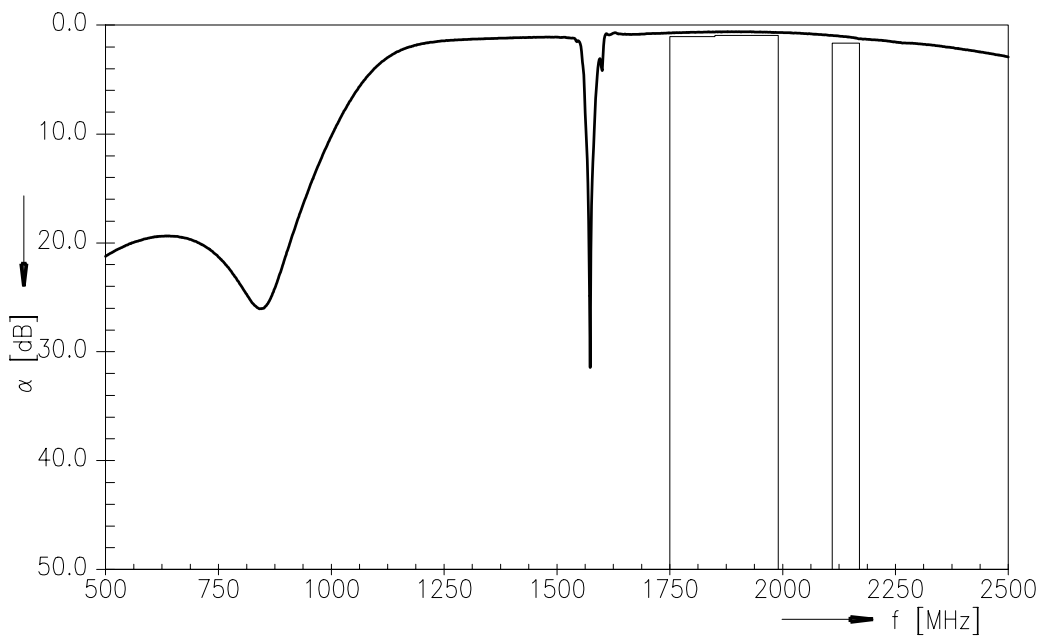
Data Sheet



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



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



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



SAW Components

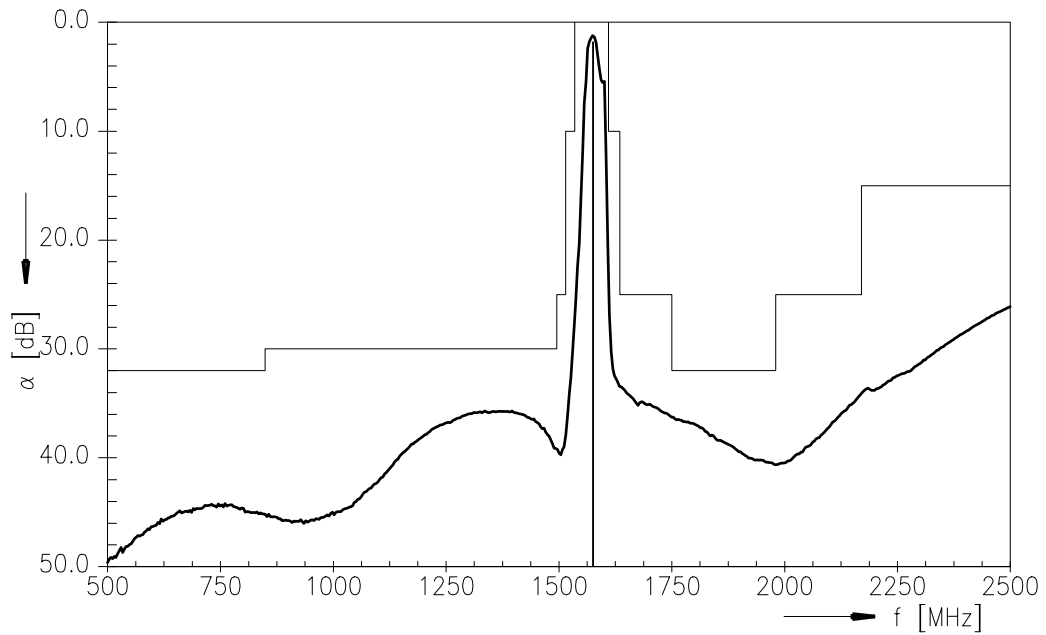
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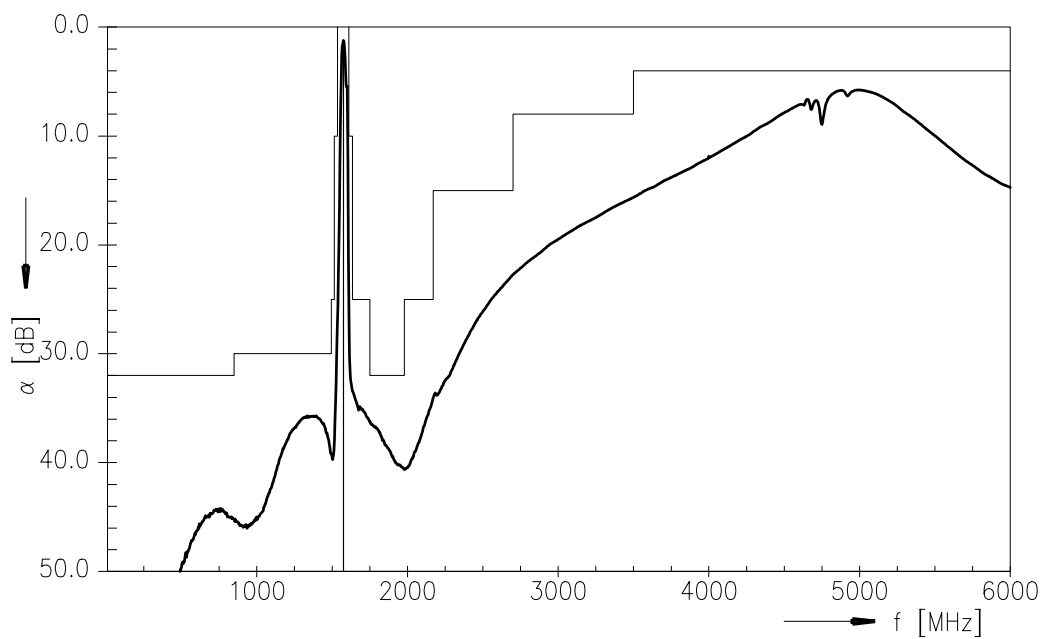
Data Sheet



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



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



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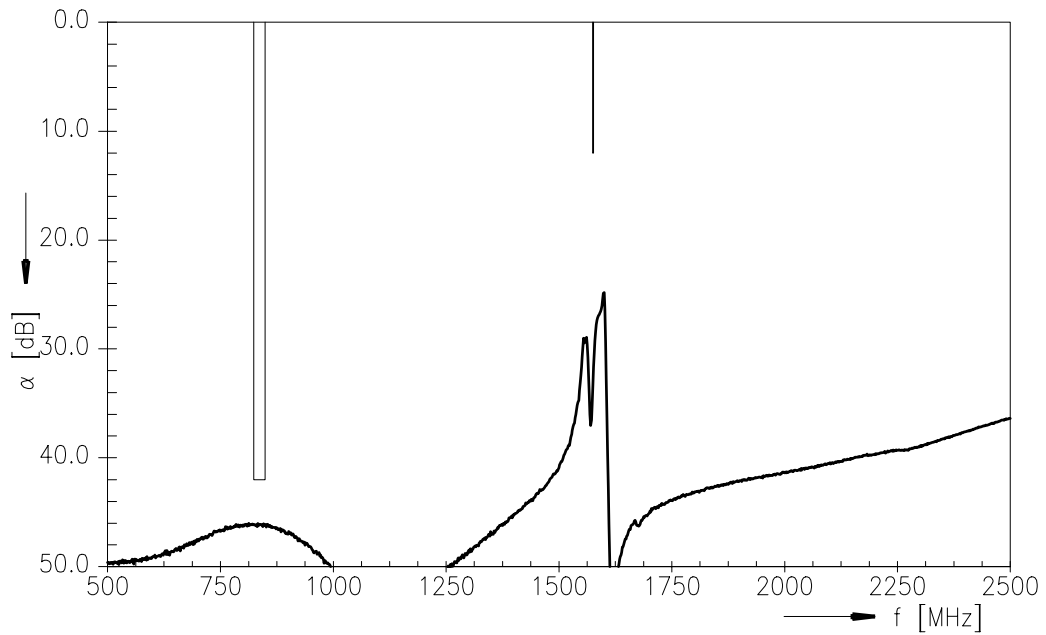
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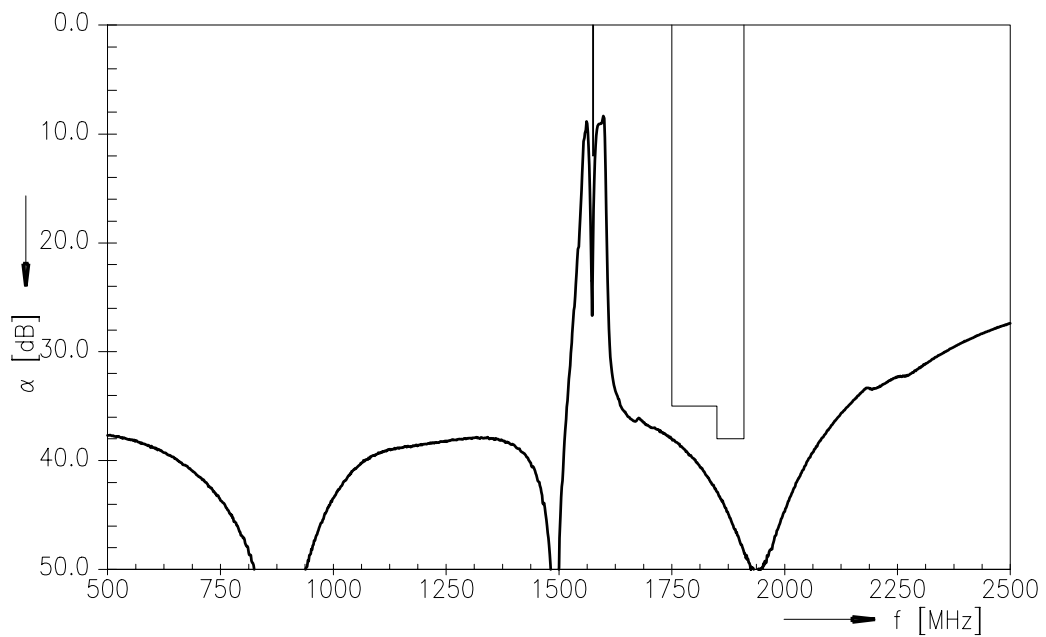
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CELL - GPS (transfer function, PCB loss deembedded):



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



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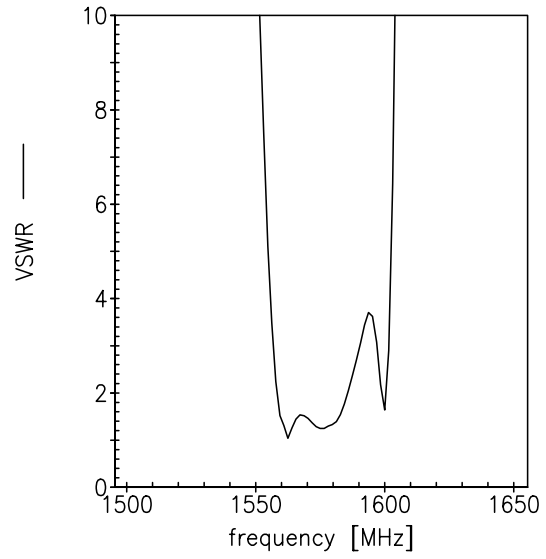
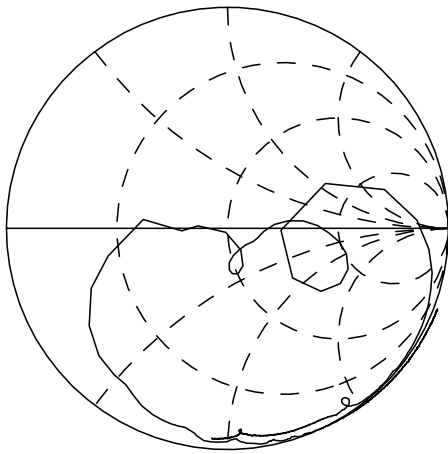
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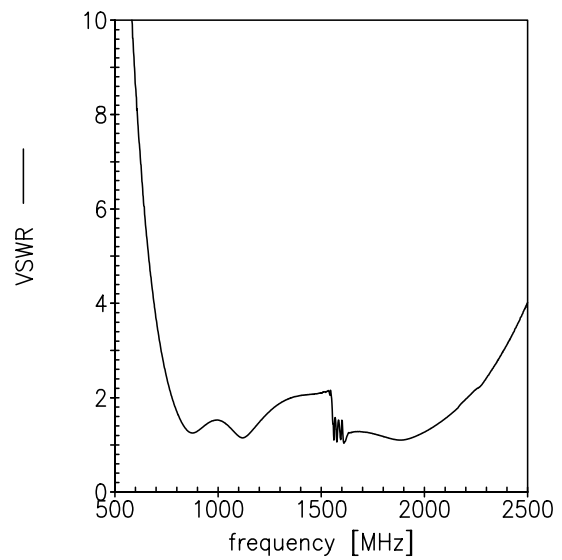
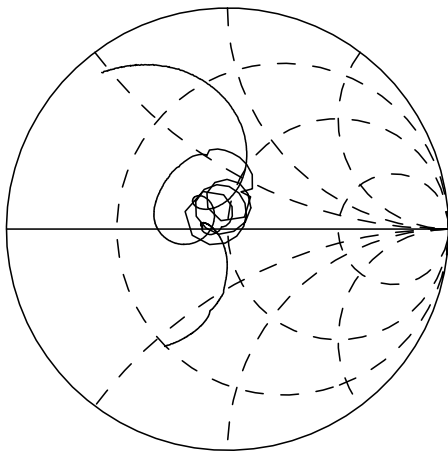


Smith charts / VSWR

S<sub>11</sub> GPS



S<sub>22</sub> ANT



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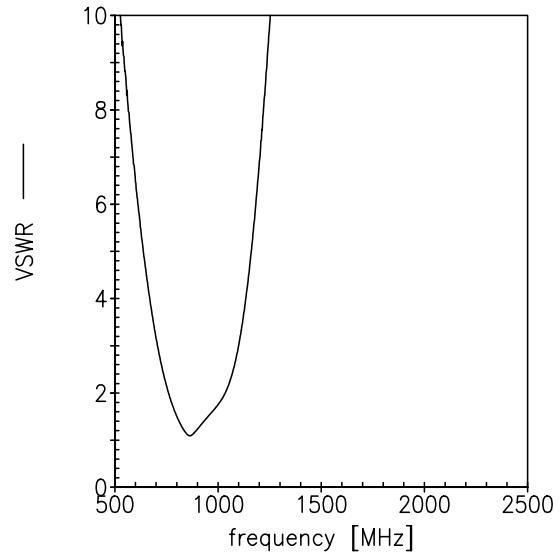
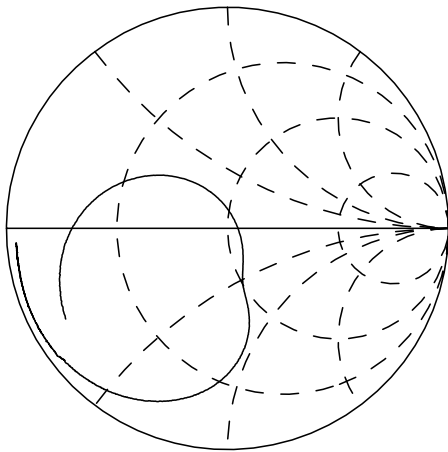
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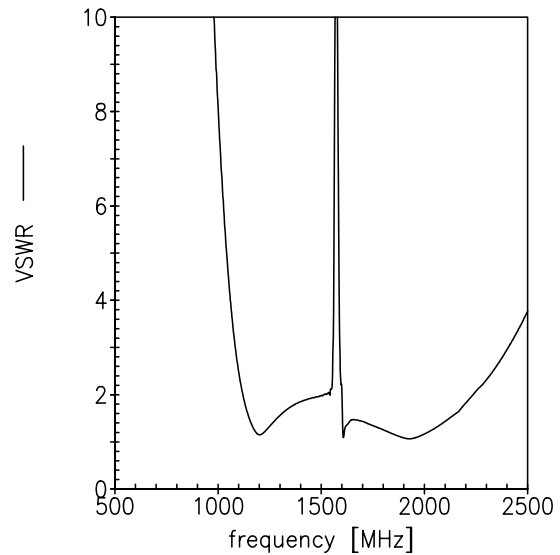
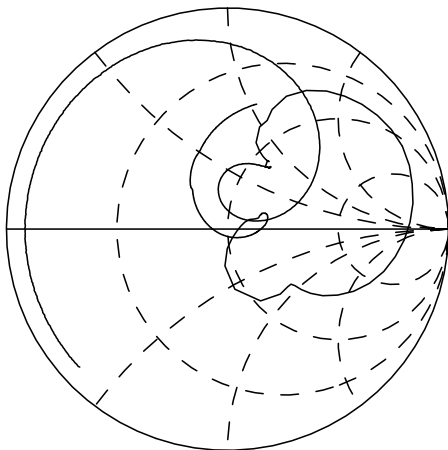


Smith charts / VSWR

S<sub>33</sub> CELL



S<sub>44</sub> PCS/K-PCS



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## 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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