



SAW Components

SAW Duplexer

Cellular / WCDMA Band V

Series/type:	B7664
Ordering code:	B39881B7664P310
Date:	March 22, 2007
Version:	2.0



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SAW Duplexer

836.5 / 881.5 MHz

Preliminary Data



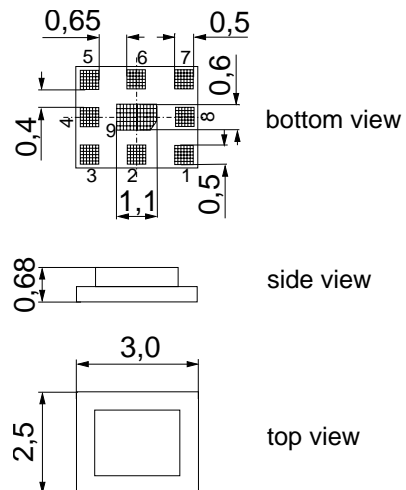
Application

- Low-loss RF duplexer for mobile telephone cellular / WCDMA Band V systems
- Very small size and low height



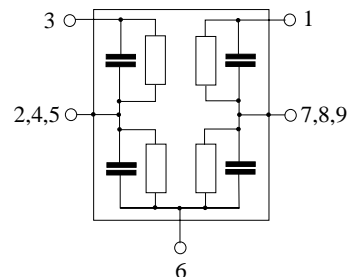
Features

- Package size 3.0 x 2.5 x 0.68 mm³
- Package code QCS9F
- RoHS compatible
- Approx. weight 0.021 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- ESD sensitive device



Pin configuration

- 1 RX output
- 3 TX input
- 6 Antenna
- 2,4,5 Ground
- 7,8,9 Ground



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



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Characteristics

Operating temperature range:	T = -30 °C to +80 °C
ANT terminating impedance:	Z _{ANT} = 50 Ω
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics TX-ANT				min.	typ. @ 25 °C	max.	
Center frequency		f_c		—	836.5	—	MHz
Maximum insertion attenuation	824.0 ... 849.0	MHz	α_{max}	—	1.7	2.5 ¹⁾	dB
Amplitude ripple (p-p)	824.0 ... 849.0	MHz	$\Delta\alpha$	—	0.5	1.4	dB
Return loss							
TX port	824.0 ... 849.0	MHz		10.0	12	—	dB
ANT port	824.0 ... 849.0	MHz		10.0	12	—	dB
Attenuation			α				
	0.3 ... 779.0	MHz		20	32	—	dB
	779.0 ... 804.0	MHz		24	36	—	dB
	869.0 ... 894.0	MHz		45	47	—	dB
	894.0 ... 1570.0	MHz		20	33	—	dB
	1570.0 ... 1580.0	MHz		35	37	—	dB
	1580.0 ... 3000.0	MHz		32	37	—	dB
	3000.0 ... 6000.0	MHz		15	35	—	dB

¹⁾ Including estimated loss of 0.2 dB of matching element.



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Characteristics

Operating temperature range: $T = -30\text{ °C to }+80\text{ °C}$
 ANT terminating impedance: $Z_{ANT} = 50\ \Omega$
 RX terminating impedance: $Z_{RX} = 50\ \Omega$
 TX terminating impedance: $Z_{TX} = 50\ \Omega$

Characteristics ANT-RX		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	881.5	—	MHz
Maximum insertion attenuation	α_{max}	—	2.1	3.5 ¹⁾	dB
869.0 ... 894.0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0.7	2.2	dB
869.0 ... 894.0 MHz					
Return loss					
TX port	869.0 ... 894.0 MHz	10.0	13	—	dB
ANT port	869.0 ... 894.0 MHz	8.5	13	—	dB
Attenuation	α				
0.3 ... 824.0 MHz		35	43	—	dB
434.0 ... 447.0 MHz		42	50	—	dB
824.0 ... 849.0 MHz		54	58	—	dB
954.0 ... 2485.0 MHz		30	46	—	dB
2485.0 ... 6000.0 MHz		20	24	—	dB

¹⁾ Including estimated loss of 0.2 dB of matching element.



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Characteristics

Operating temperature range: T = -30 °C to +80 °C
ANT terminating impedance: Z_{ANT} = 50 Ω
RX terminating impedance: Z_{RX} = 50 Ω
TX terminating impedance: Z_{TX} = 50 Ω

Characteristics TX-RX	min.	typ. @ 25 °C	max.	
Isolation between RX and TX				
824.0 ... 849.0 MHz	56	59	—	dB
869.0 ... 894.0 MHz	45	48	—	dB
1648.0 ... 1698.0 MHz	45	60	—	dB



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Maximum ratings

Operating temperature range ¹⁾	T	-30/+80	°C	
Operable temperature range ²⁾	T _{stg}	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	100 ³⁾	V	machine model, 10 pulses
Input Power at				source and load impedance 50Ω
824.0 ... 849.0 MHz	P _{IN}	31	dBm	continuous wave, 55 °C, 10000h
elsewhere	P _{IN}	10	dBm	continuous wave, 55 °C, 10000h

¹⁾ Defines the temperature range in which the specification values are guaranteed.

²⁾ Defines the temperature range in which the SAW device keeps its typical characteristics, however the specification values are not guaranteed.

³⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

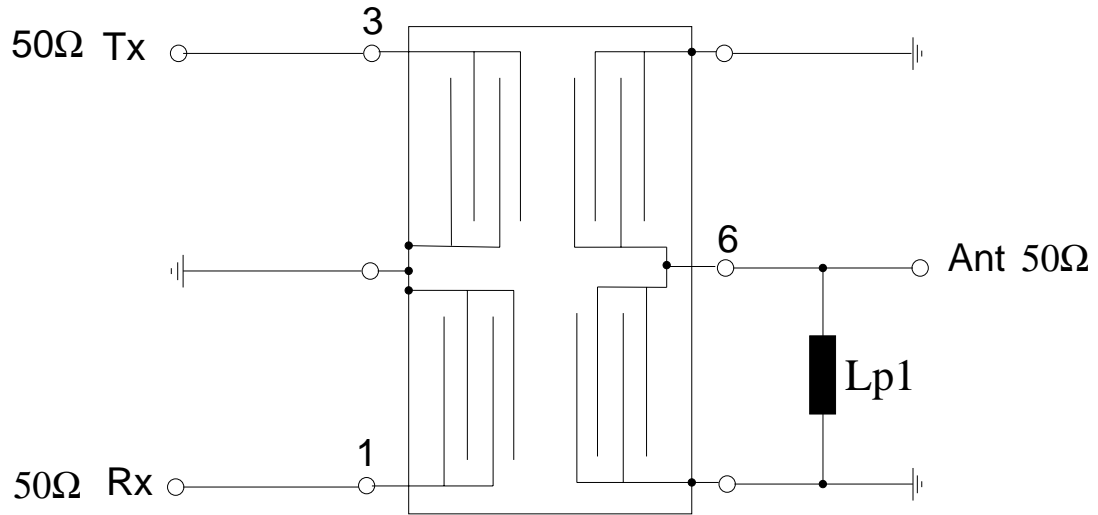


Preliminary Data



Matching circuit to terminating impedances

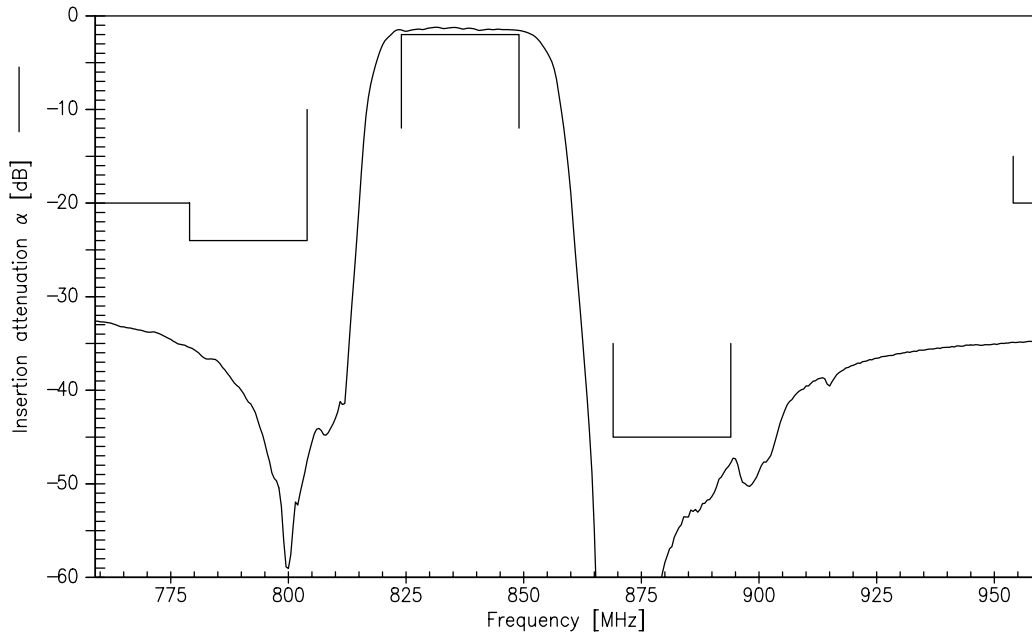
(Element values depend upon PCB layout)



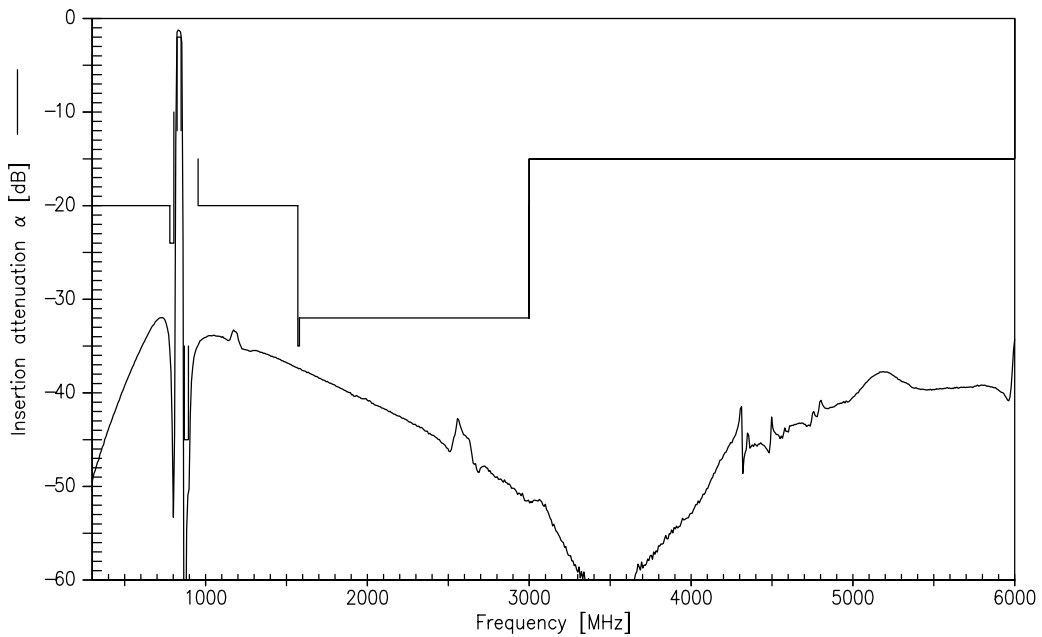
$L_{p1} = 8.2 \text{ nH}$



Frequency Response TX-ANT



Frequency Response TX-ANT (wideband)

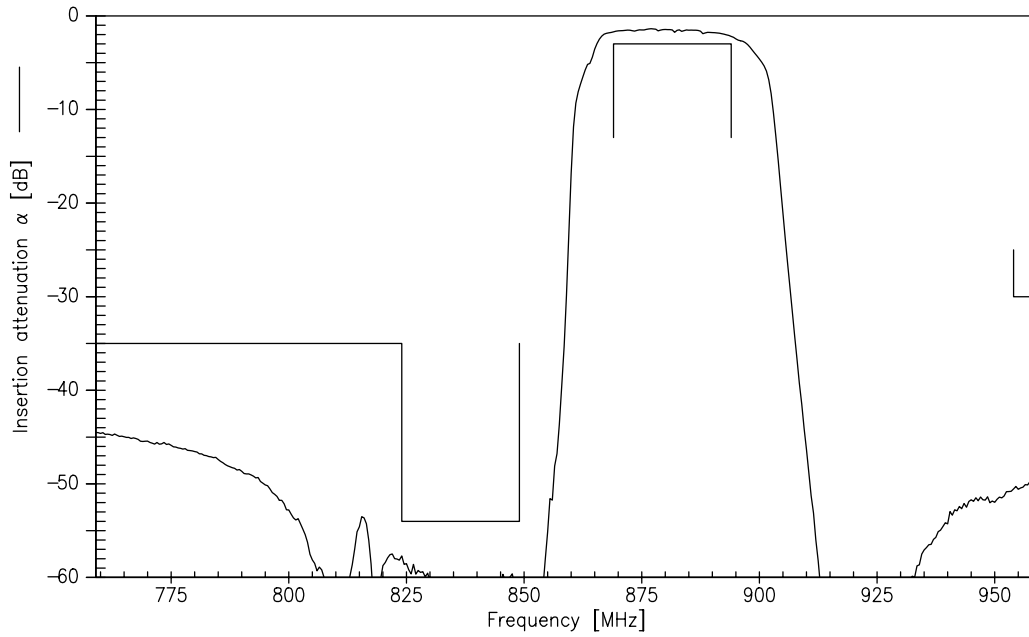




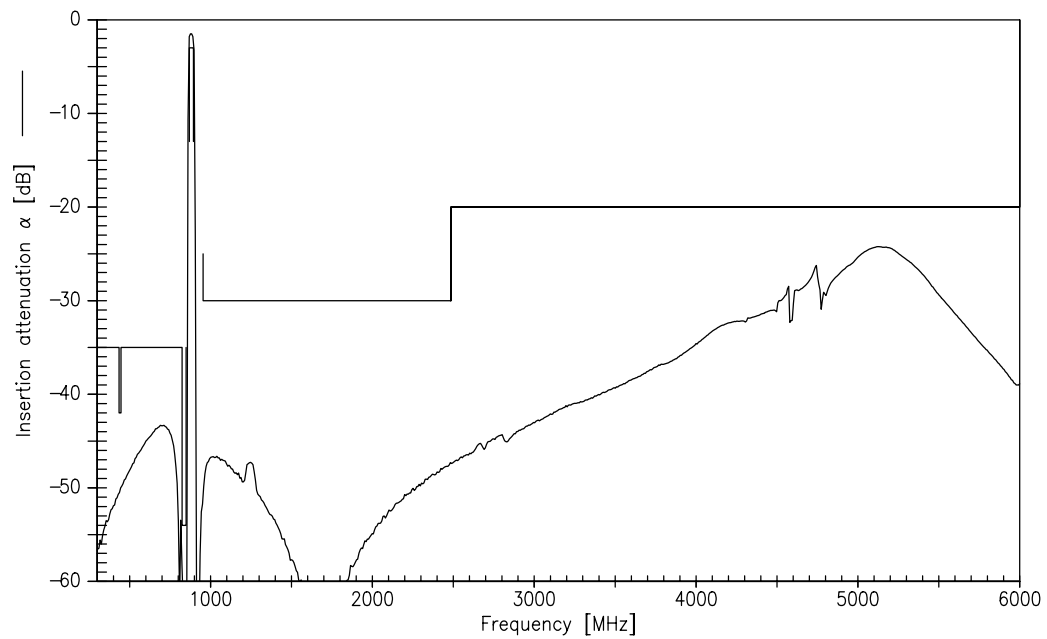
Preliminary Data



Frequency Response RX-ANT



Frequency Response RX-ANT (wideband)



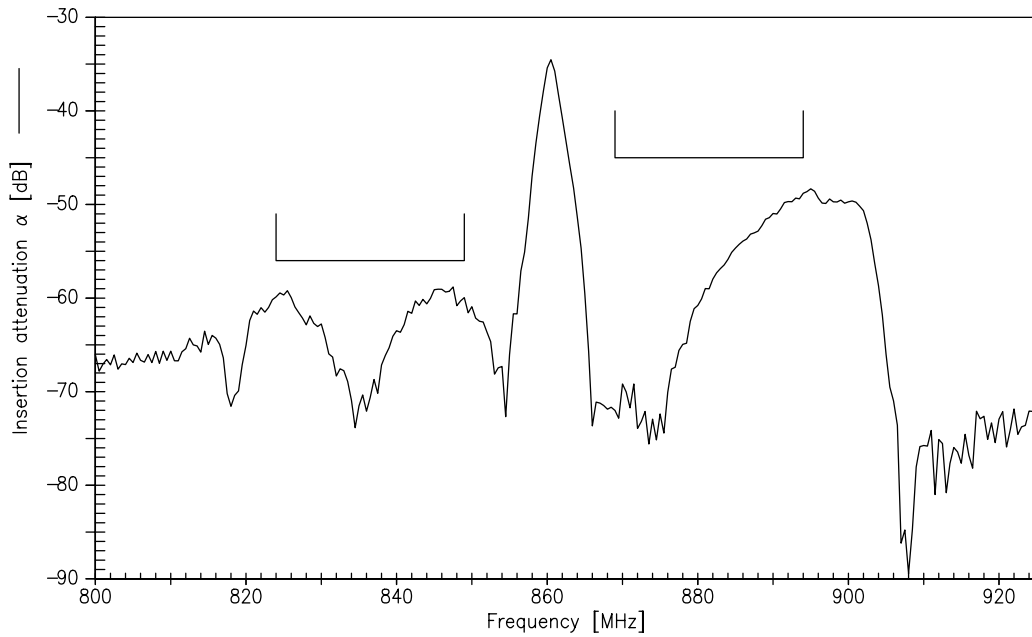
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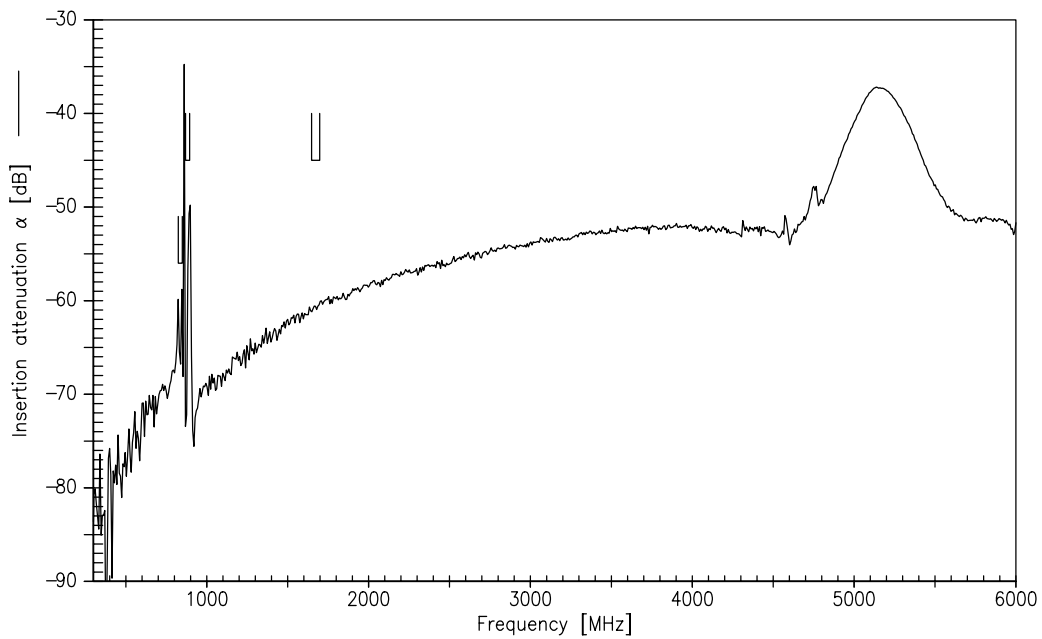
Preliminary Data



Frequency Response TX-RX



Frequency Response TX-RX (wideband)



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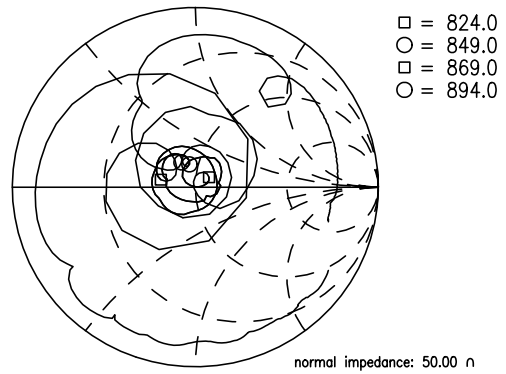
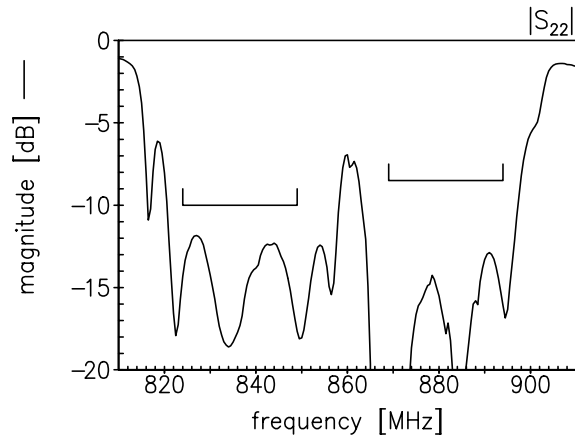
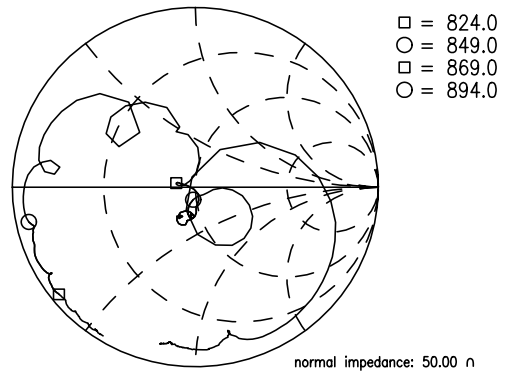
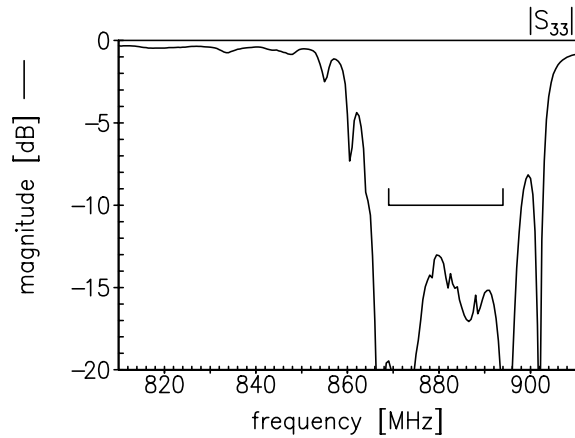
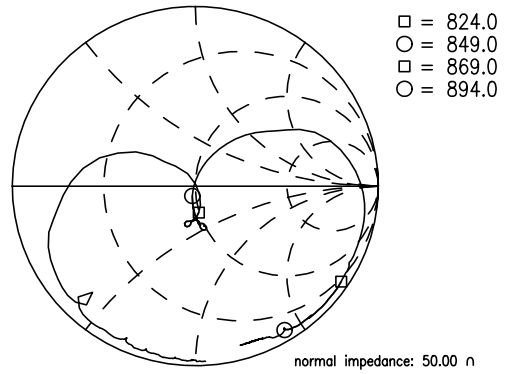
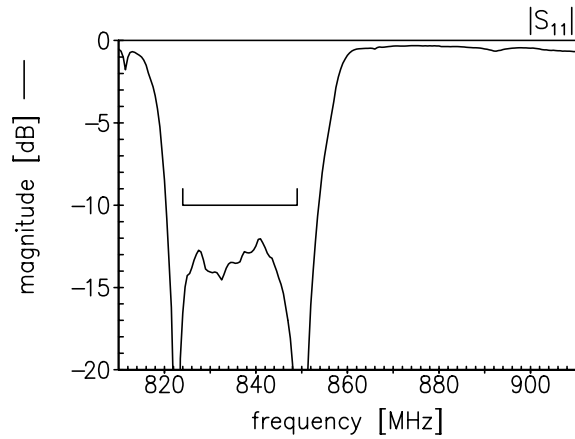


Return Loss: S₁₁ TX-port

S₂₂ ANT-port

S₃₃ RX-port

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proprietary



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References

Type	B7664
Ordering code	B39881B7664P310
Marking and package	C61157-A3-A16
Packaging	F61074-V8156-Z000
Date codes	L_1126
S-parameters	B7664_NB.s3p B7664_WB.s3p
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."

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