



SAW Components

SAW Tx 2in1 Filter

CDMA Cellular / CDMA PCS

Series/type:	Preliminary Data
Ordering code:	B39192B9314N410
Date:	January 09, 2007
Version:	1.2



Preliminary Data



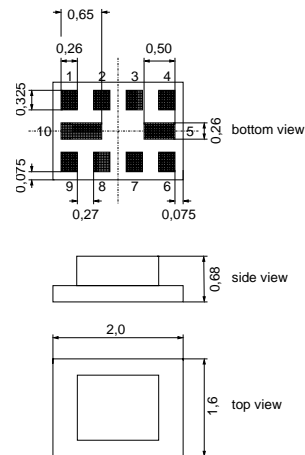
Application

- Low-loss RF filter for mobile telephone CDMA Cellular/PCS systems, transmit path (Tx)
- Usable passband:
 Filter 1 (Cellular): 25 MHz
 Filter 2 (PCS): 60 MHz
- 50 Ω/50 Ω unbalanced operation for both filters
- Input & Output can be exchanged, B9314 is bidirectional type.



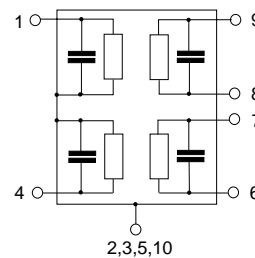
Features

- Package size 2.0 x 1.6 x 0.68 mm³
- Package code QCS10I
- RoHS compatible
- Approximate weight 0.008 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

- 1 Output/Input [Filter 1: Cellular band]
- 4 Output/Input [Filter 2: PCS band]
- 6 Input/Output [Filter 2: PCS band]
- 9 Input/Output [Filter 1: Cellular band]
- 2,3,5,7,8,10 Ground





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836.5 / 1880.0 MHz

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Characteristics filter 1 (CDMA Cellular band)

Temperature range for specification: $T = -30\text{ °C to }+85\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 50\ \Omega$ (unbalanced)

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	836.5	—	MHz
Maximum insertion attenuation	α_{max}				
824.0 ... 849.0	MHz	—	1.7	2.2	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
824.0 ... 849.0	MHz	—	0.7	1.3	dB
Input return loss					
824.0 ... 849.0	MHz	9.5	11.5	—	dB
Output return loss					
824.0 ... 849.0	MHz	9.5	11.5	—	dB
Attenuation	α				
0.0 ... 779.0	MHz	31.0	50.0	—	dB
779.0 ... 804.0	MHz	35.0	42.0	—	dB
869.0 ... 894.0	MHz	40.0	43.0	—	dB
894.0 ... 2547.0	MHz	33.0	38.0	—	dB
2547.0 ... 6000.0	MHz	15.0	29.0	—	dB

Maximum ratings

Operable temperature range	T	-30/+85	°C	machine model, 10 pulses
Storage temperature range	T_{stg}	-40/+85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100 ¹⁾	V	
Input power at				
CDMA Cellular	P_{IN}	12	dBm	continuous wave @ +55°C ambient
Tx band				

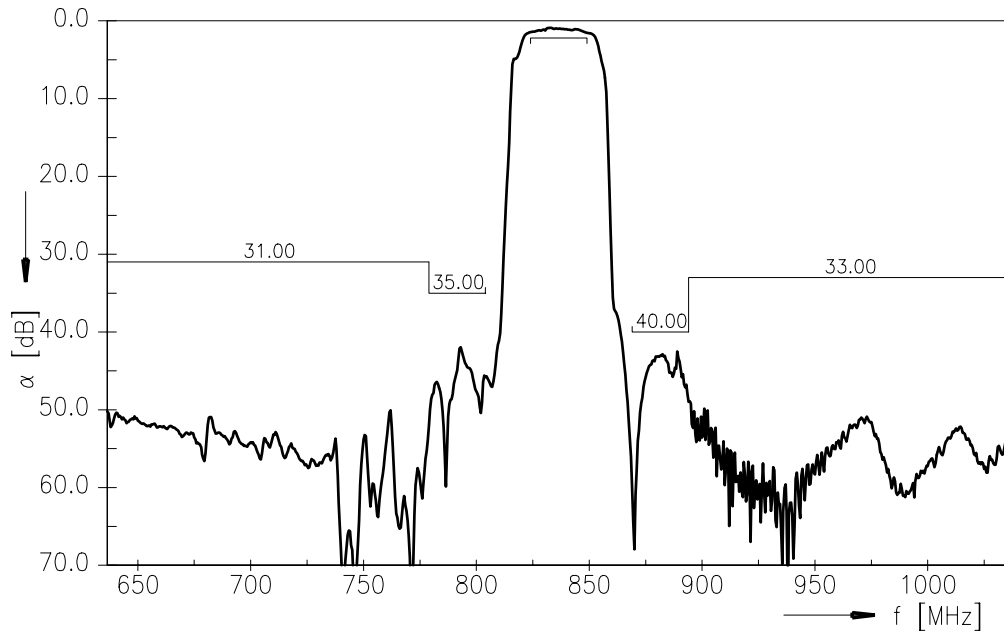
¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



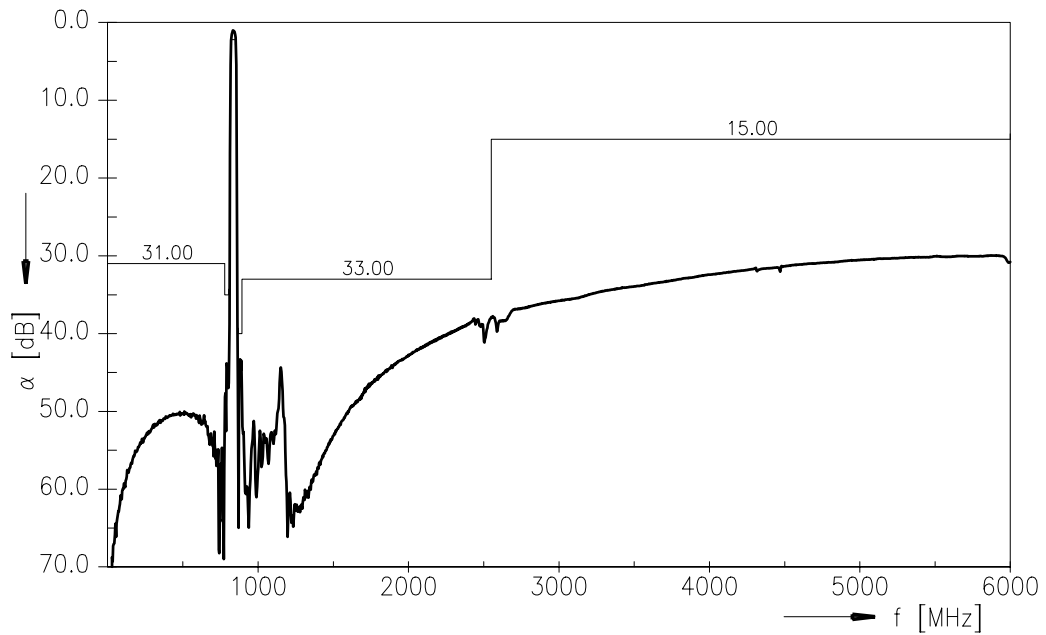
Preliminary Data



Transfer function filter 1 (CDMA Cellular band)



Transfer function filter 1 (CDMA Cellular band) - wideband



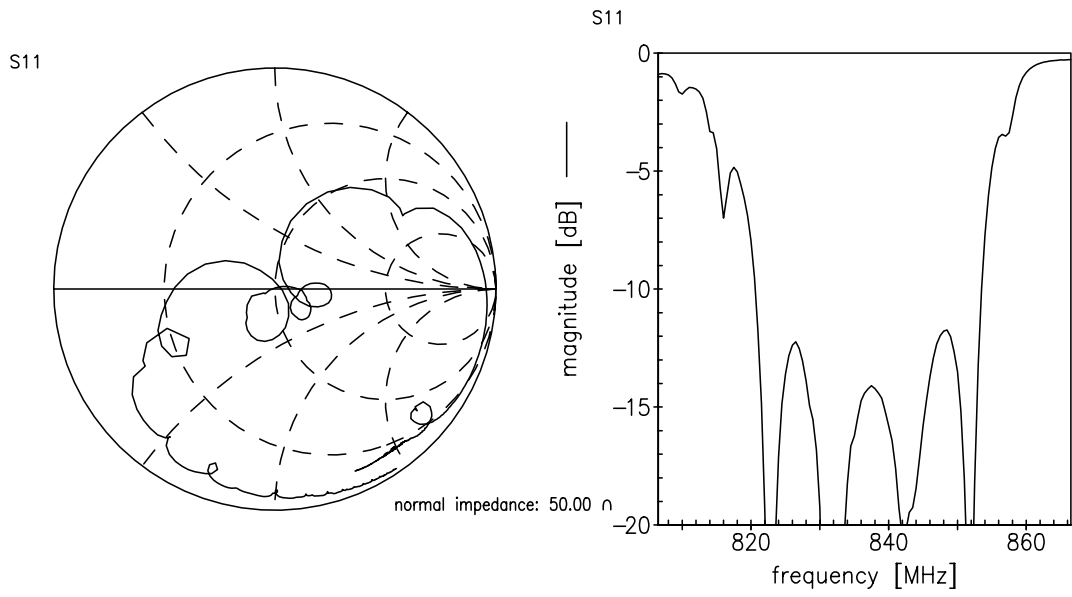


Preliminary Data

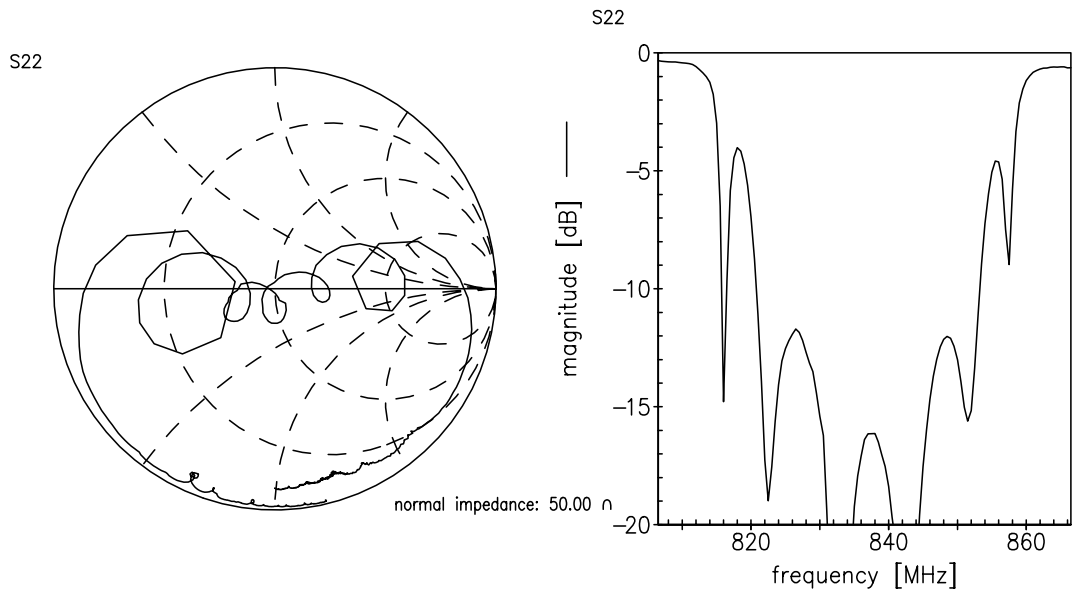


Smith charts filter 1 (CDMA Cellular band)

S₁₁ function (Input at pin 1)



S₂₂ function (Output at pin 9)



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



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SAW Tx 2in1 Filter

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Preliminary Data



Characteristics filter 2 (CDMA PCS band)

Temperature range for specification: $T = -30\text{ °C to }+85\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 50\ \Omega$ (unbalanced)

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	1880.0	—	MHz
Maximum insertion attenuation	α_{max}				
1850.625... 1909.375MHz		—	2.4	4.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1850.625... 1909.375MHz		—	1.2	2.8	dB
Input return loss					
1850.625... 1909.375MHz		8.0	10.0	—	dB
Output return loss					
1850.625... 1909.375MHz		8.0	10.0	—	dB
Attenuation	α				
0.0 ... 1570.0 MHz		24.0	50.0	—	dB
1570.0 ... 1760.0 MHz		30.0	40.0	—	dB
1760.0 ... 1830.0 MHz		15.0	18.5	—	dB
1930.625... 1989.4 MHz		30.0	32.5	—	dB
1989.4 ... 2500.0 MHz		30.0	34.0	—	dB
2500.0 ... 6000.0 MHz		15.0	28.0	—	dB

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	machine model, 10 pulses
Input power at				
CDMA PCS	P _{IN}	12	dBm	continuous wave @ +55°C ambient
Tx band				

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



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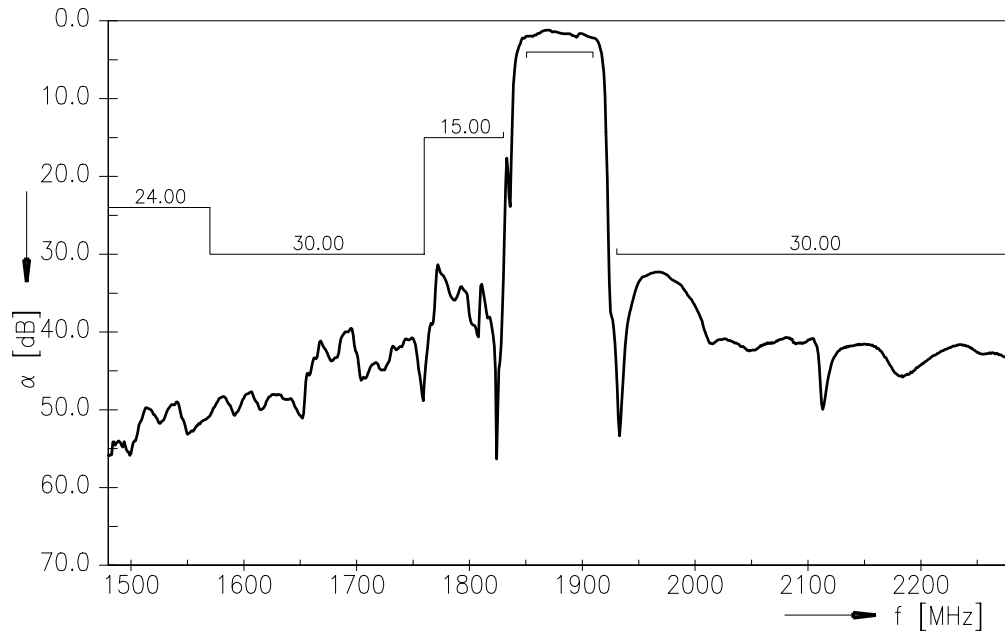
SAW Tx 2in1 Filter

836.5 / 1880.0 MHz

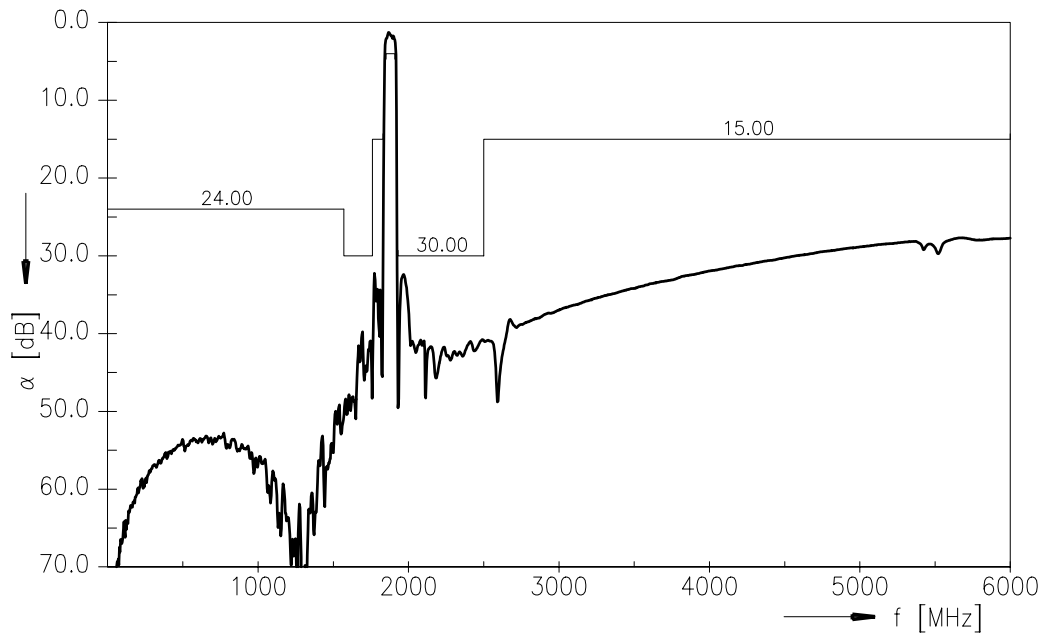
Preliminary Data



Transfer function filter 2 (CDMA PCS band)



Transfer function filter 2 (CDMA PCS band) - wideband



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



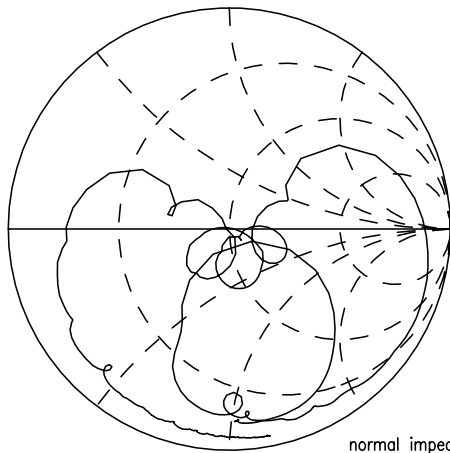
Preliminary Data



Smith charts filter 2 (CDMA PCS band)

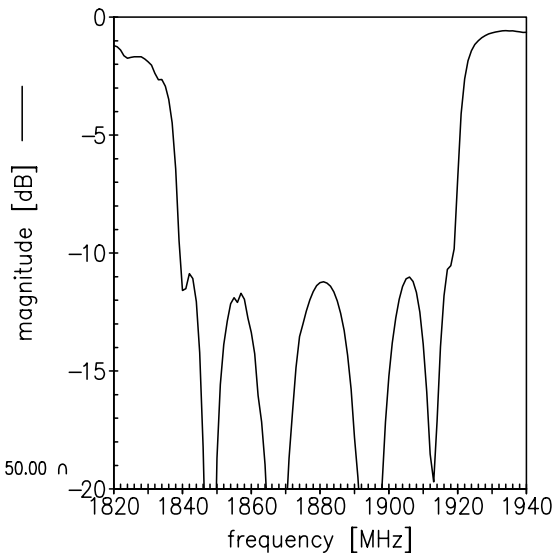
S₁₁ function (Input at pin 4)

S₁₁



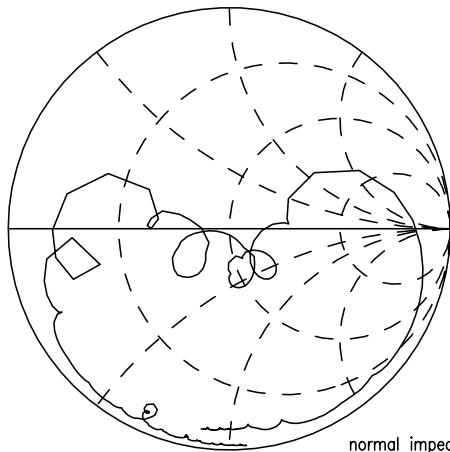
normal impedance: 50.00 Ω

S₁₁



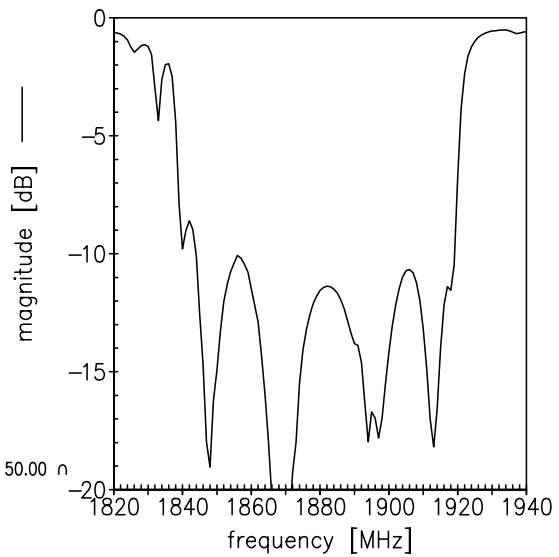
S₂₂ function (Output at pin 6)

S₂₂



normal impedance: 50.00 Ω

S₂₂





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Preliminary Data



References

Type	B9314
Ordering code	B39192B9314N410
Marking and package	C61157-A7-A146
Packaging	F61074-V8152-Z000
Date codes	L_1126
S-parameters	B9314_LB_NB.s2p, B9314_LB_WB.s2p B9314_UB_NB.s2p, B9314_UB_WB.s2p
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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