



SAW filter for automotive electronics

Series/Type: B3510

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39202B3510U810		2008-11-28	2009-03-31	2009-06-30

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SAW Components

B3510

SAW 2in1 filter

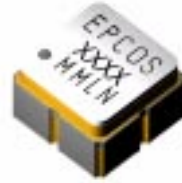
881.5 & 1960.0 MHz MHz

Data sheet



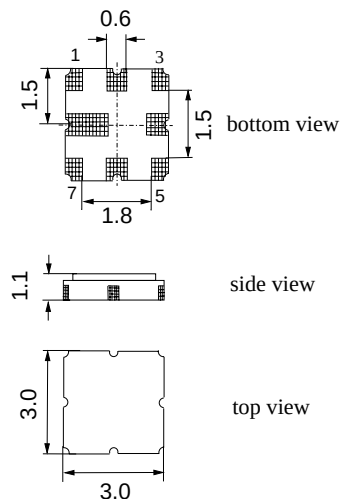
Application

- Low-loss 2-in-1RF filter for mobile telephone AMPS and PCS CDMA systems, receive path
- Device with two integrated Rx filters
- Usable passband of PCS Rx filter: 60 MHz
- Usable passband of AMPS Rx filter: 25 MHz
- No matching network required for operation at 50 Ω



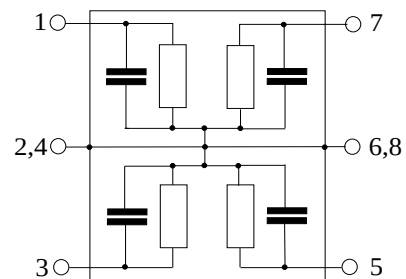
Features

- Package size 3.0 x 3.0 x 1.1 mm³
- Package code QCC8D
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Passivation layer Elpas
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

- 1 Input PCS filter
- 7 Output PCS filter
- 3 Input AMPS filter
- 5 Output AMPS filter
- 2,4,6,8 Case-ground, to be grounded





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Characteristics of PCS Rx filter

Temperature range for specification: $T = -30\text{ °C to }+75\text{ °C}$

Terminating source impedance: $Z_S = 50\ \Omega$

Terminating load impedance: $Z_L = 50\ \Omega$

		min.	typ.	max.	
Center frequency	f_C	—	1960.00	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	3.7	4.2	dB
1930.00 ... 1990.00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	1.9	2.9	dB
1930.00 ... 1990.00 MHz					
Input return loss		7.0	9.0	—	dB
1930.00 ... 1990.00 MHz					
Output return loss		7.0	9.0	—	dB
1930.00 ... 1990.00 MHz					
Attenuation	α	20	22	—	dB
10.00 ... 1850.00 MHz		20	30	—	dB
2110.00 ... 2400.00 MHz					
Tx band suppression		10	12	—	dB
1850.00 ... 1910.00 MHz					



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Characteristics of PCS Rx filter

Temperature range for specification: $T = -40\text{ °C to }+85\text{ °C}$
Terminating source impedance: $Z_S = 50\ \Omega$
Terminating load impedance: $Z_L = 50\ \Omega$

		min.	typ.	max.	
Center frequency	f_C	—	1960.00	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	3.7	4.6	dB
1930.00 ... 1990.00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	2.0	2.9	dB
1930.00 ... 1990.00 MHz					
Input return loss		7.0	9.0	—	dB
1930.00 ... 1990.00 MHz					
Output return loss		7.0	9.0	—	dB
1930.00 ... 1990.00 MHz					
Attenuation	α	20	22	—	dB
10.00 ... 1850.00 MHz		20	30	—	dB
2110.00 ... 2400.00 MHz					
Tx band suppression		7	10	—	dB
1850.00 ... 1910.00 MHz					



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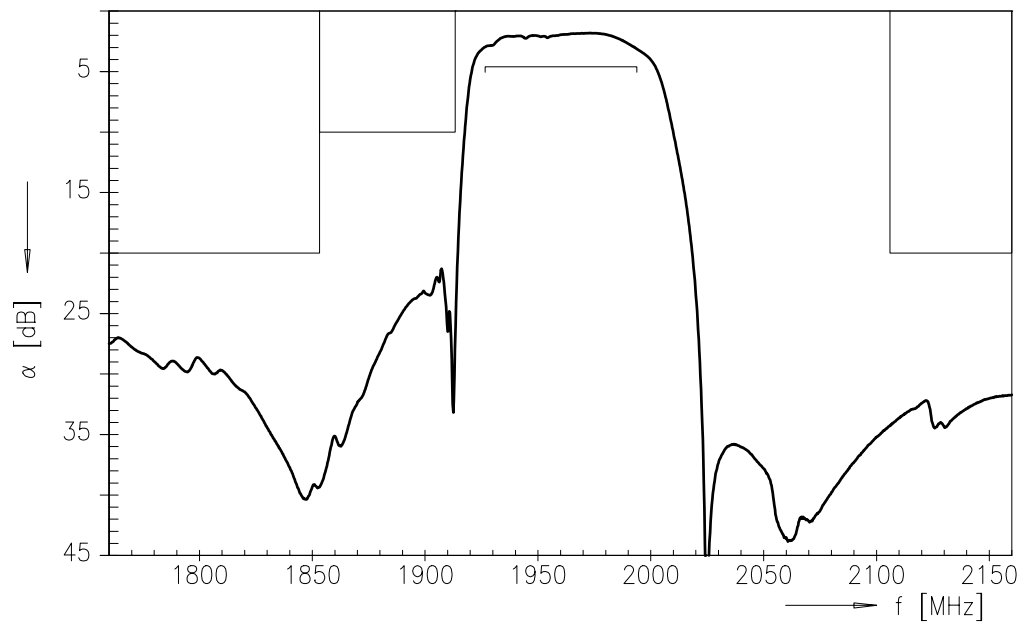
SAW 2in1 filter

881.5 & 1960.0 MHz MHz

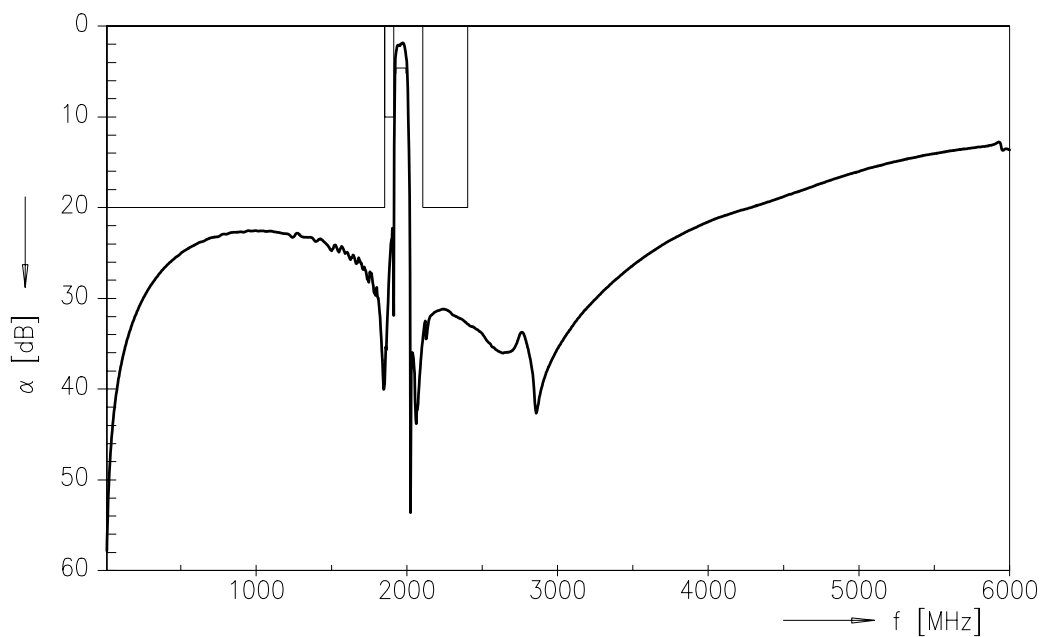
Data sheet



Transfer function of the PCS filter (narrow band measurement)



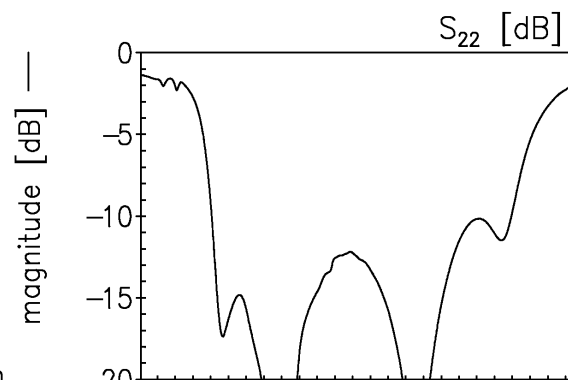
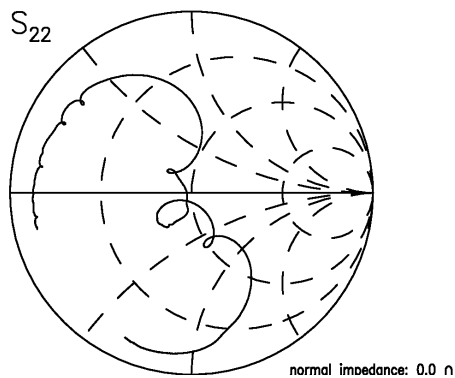
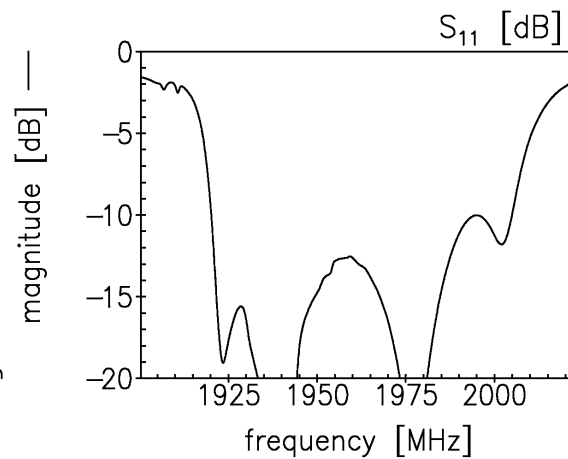
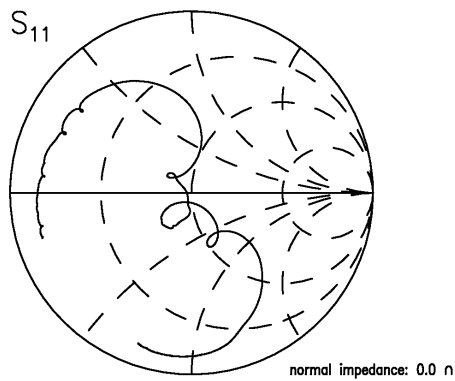
Transfer function of the PCS filter(wide band measurement)



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



Reflection coefficients of the PCS filter (measurement)





SAW Components

B3510

SAW 2in1 filter

881.5 & 1960.0 MHz MHz

Data sheet



Characteristics of AMPS Rx filter

Temperature range for specification: $T = -30\text{ °C to }+75\text{ °C}$

Terminating source impedance: $Z_S = 50\ \Omega$

Terminating load impedance: $Z_L = 50\ \Omega$

		min.	typ.	max.	
Center frequency	f_C	—	881.50	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	2.6	3.1	dB
869.00 ... 894.00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	1.0	1.5	dB
869.00 ... 894.00 MHz					
Input return loss		10.0	11.0	—	dB
869.00 ... 894.00 MHz					
Output return loss		10.0	12.0	—	dB
869.00 ... 894.00 MHz					
Attenuation	α				
30.00 ... 824.00 MHz		35	42	—	dB
1050.00 ... 1080.00 MHz		38	42	—	dB
1080.00 ... 2300.00 MHz		30	32	—	dB
2300.00 ... 2600.00 MHz		25	30	—	dB
Tx band suppression		35	40	—	dB
824.00 ... 849.00 MHz					



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SAW 2in1 filter	881.5 & 1960.0 MHz MHz

Data sheet



Characteristics of AMPS Rx filter

Temperature range for specification:	$T = -40\text{ }^{\circ}\text{C to } +85\text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 50\text{ }\Omega$
Terminating load impedance:	$Z_L = 50\text{ }\Omega$

		min.	typ.	max.	
Center frequency	f_C	—	881.50	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	2.6	3.3	dB
869.00 ... 894.00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	1.0	1.5	dB
869.00 ... 894.00 MHz					
Input return loss		9.5	11.0	—	dB
869.00 ... 894.00 MHz					
Output return loss		9.5	12.0	—	dB
869.00 ... 894.00 MHz					
Attenuation	α				
30.00 ... 824.00 MHz		35	42	—	dB
1050.00 ... 1080.00 MHz		38	42	—	dB
1080.00 ... 2300.00 MHz		30	32	—	dB
2300.00 ... 2600.00 MHz		25	30	—	dB
Tx band suppression		35	40	—	dB
824.00 ... 849.00 MHz					

Maximum ratings

Operable temperature range	T	$-45/+125$	$^{\circ}\text{C}$	source and load impedance $50\text{ }\Omega$ continuous wave continuous wave
Storage temperature range	T_{stg}	$-45/+125$	$^{\circ}\text{C}$	
DC voltage	V_{DC}	0	V	
Input power max.	P_{IN}	13	dBm	
824...849 MHz				
1850...1910 MHz		13	dBm	

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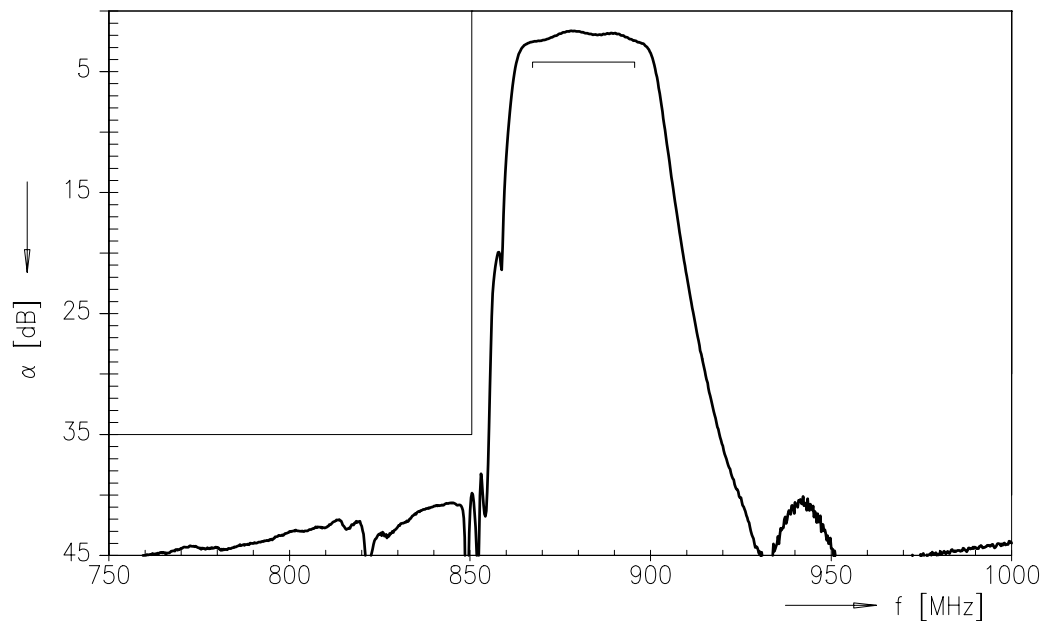
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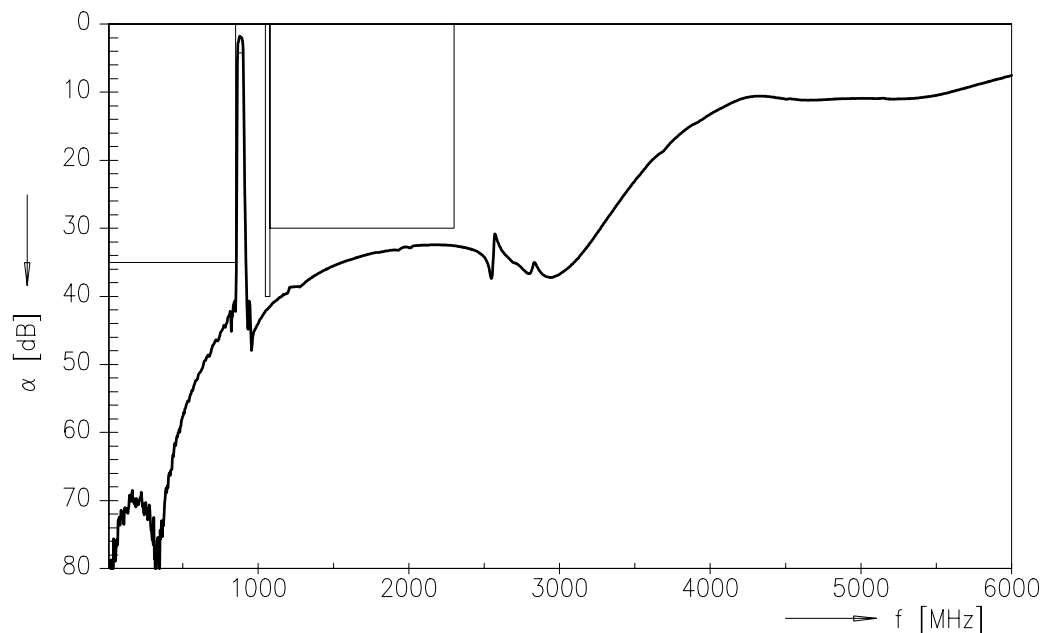
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Transfer function of the AMPS filter (narrow band measurement)



Transfer function of the AMPS filter (wide band measurement)



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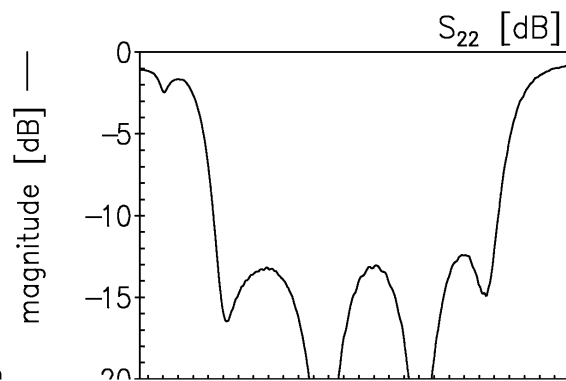
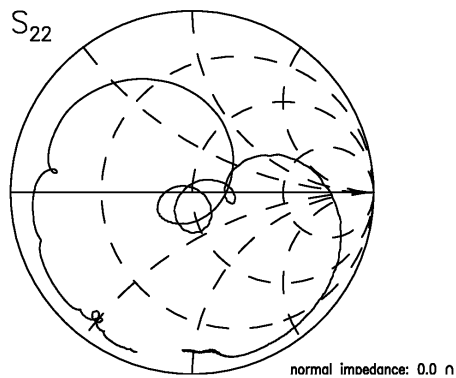
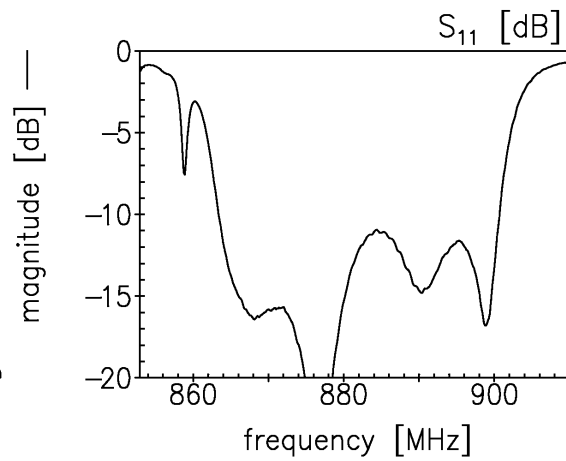
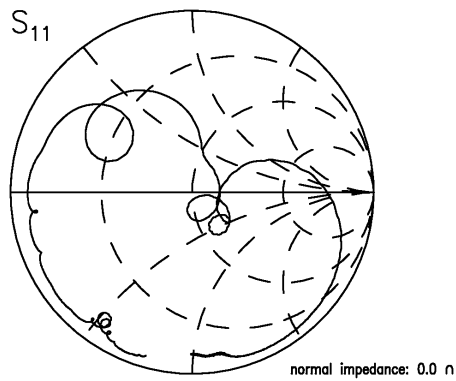
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Reflection coefficients of the AMPS filter (measurement)



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**References**

Type	B3510
Ordering code	B39202B3510U810
Marking and package	C61157-A7-A72
Packaging	F61074-V8168-Z000
Date codes	L_1126
S-parameters	B3510_SB.s2p B3510_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."

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