



SAW Components

Data Sheet B4223





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B4223

Low-Loss Dual Band Filter for Mobile Communication

881,5 / 1960 MHz

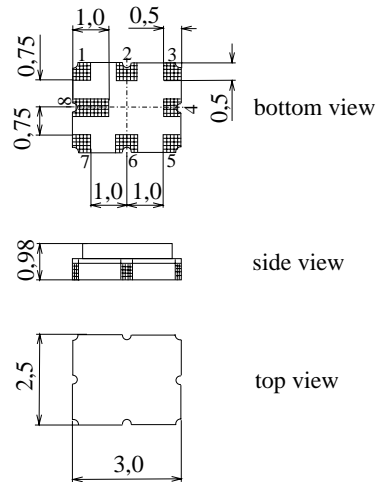
Data Sheet



Ceramic package **QCC8E**

Features

- Low-loss RF filter for mobile telephone GSM 850 and GSM 1900 system, receive path
- Usable Passband
Filter 1 (GSM 850): 25 MHz
Filter 2 (GSM 1900): 60 MHz
- 50 Ω ports for both filters
- Unbalanced to unbalanced operation
- Ceramic package for **Surface Mounted Device (SMD)**



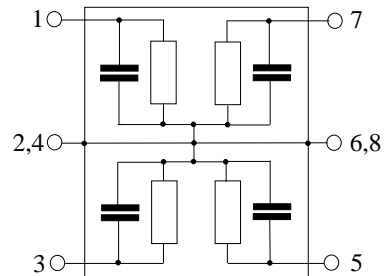
Dimensions in mm, approx. weight 27mg

Terminals

- Ni, gold-plated

Pin configuration

- 1 GSM 850 Input
- 7 GSM 850 Output
- 2,4,6,8 Ground
- 3 GSM 1900 Input
- 5 GSM 1900 Output



Type	Ordering code	Marking and Package according to	Packing according to
B4223	B39202-B4223-H410	C61157-A7-A92	F61074-V8129-Z0000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operating temperature range	T	- 20/+ 80	°C	Source and load impedance 50 Ω
Storage temperature range	T_{stg}	- 40/+ 85	°C	
DC voltage	V_{DC}	2,86	V	
Input power max				
824...849 MHz	P_{IN}	15	dBm	1:4 duty cycle
1850...1910 MHz		12	dBm	1:4 duty cycle



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Characteristics Filter 1 (GSM 850)

Operating temperature range $T = 25 \pm 2^\circ\text{C}$
 Terminating source impedance $Z_S = 50 \Omega$
 Terminating load impedance $Z_L = 50 \Omega$

		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}	—	2,5	2,8	dB
	869 ... 894 MHz				
Amplitude ripple	$\Delta\alpha$	—	0,9	1,2	dB
	869 ... 894 MHz				
Input return loss		10,0	15,5	—	dB
	869 ... 894 MHz				
Output return loss		10,0	15,5	—	dB
	869 ... 894 MHz				
Attenuation	α				
	0 ... 824 MHz	35	40	—	dB
	824 ... 849 MHz (Tx)	30	34	—	dB
	914 ... 916 MHz	25	27	—	dB
	916 ... 965 MHz	26	30	—	dB
	965 ... 1200 MHz	35	38	—	dB
	1200 ... 3700 MHz	27	30	—	dB
	3700 ... 4000 MHz	20	27	—	dB
	4000 ... 6000 MHz	4	6	—	dB



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Characteristics Filter 1 (GSM 850)

Operating temperature range T = -20 to 80° C

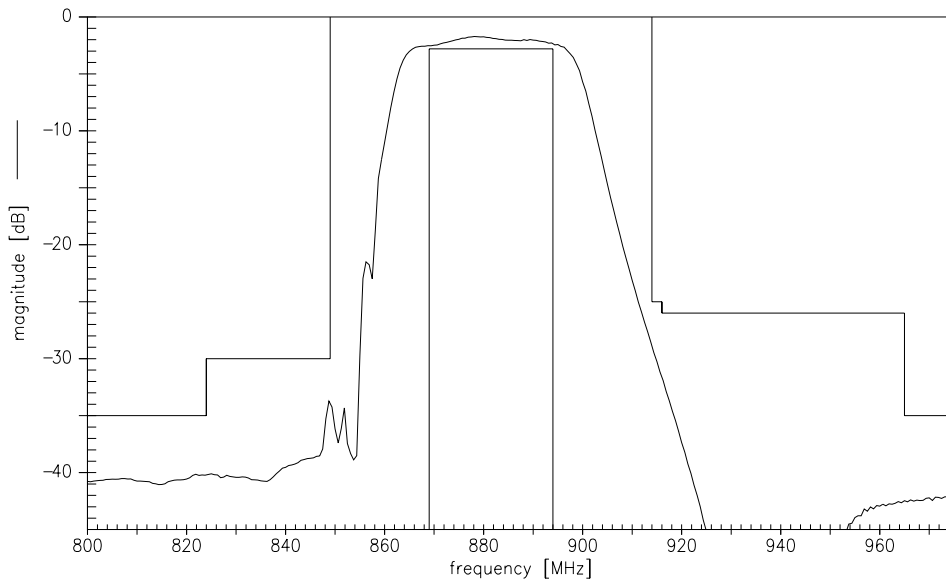
Terminating source impedance Z_S = 50 Ω

Terminating load impedance Z_L = 50 Ω

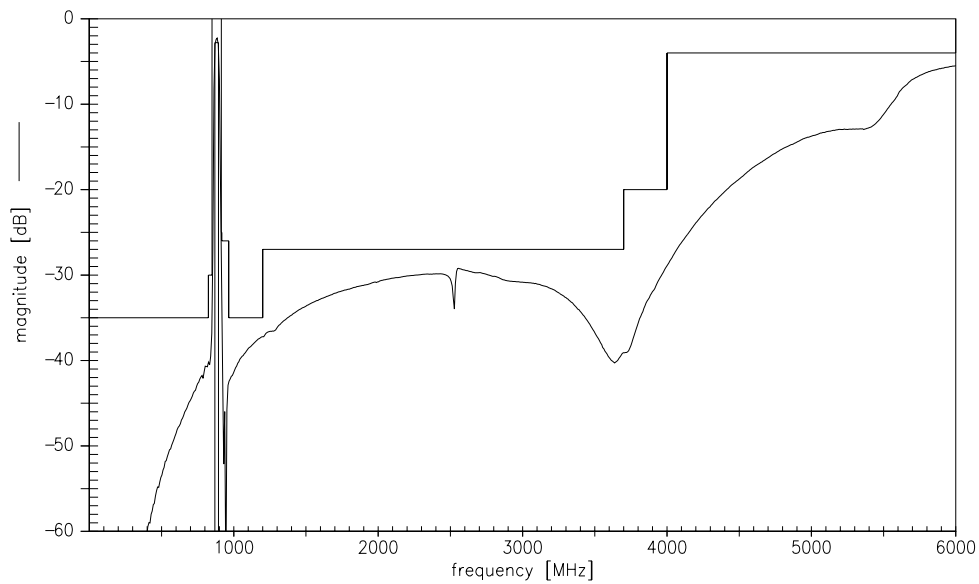
		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}	—	2,7	3,0	dB
869 ... 894 MHz					
Amplitude ripple	$\Delta\alpha$	—	1,1	1,4	dB
869 ... 894 MHz					
Input return loss		10,0	15,0	—	dB
869 ... 894 MHz					
Output return loss		10,0	15,0	—	dB
869 ... 894 MHz					
Attenuation	α				
0 ... 824 MHz		35	40	—	dB
824 ... 849 MHz (Tx)		30	34	—	
914 ... 916 MHz		23,5	26	—	dB
916 ... 965 MHz		26	29	—	
965 ... 1200 MHz		35	38	—	dB
1200 ... 3700 MHz		27	30	—	
3700 ... 4000 MHz		20	27	—	dB
4000 ... 6000 MHz		4	6	—	



Transfer function of the AMPS filter (narrow band measurement, all values at 25°C)

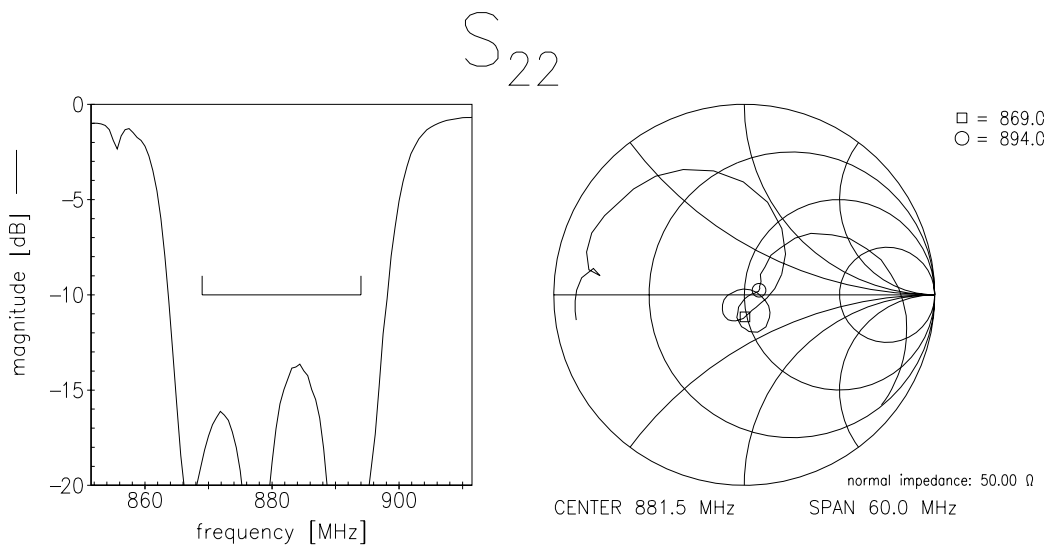
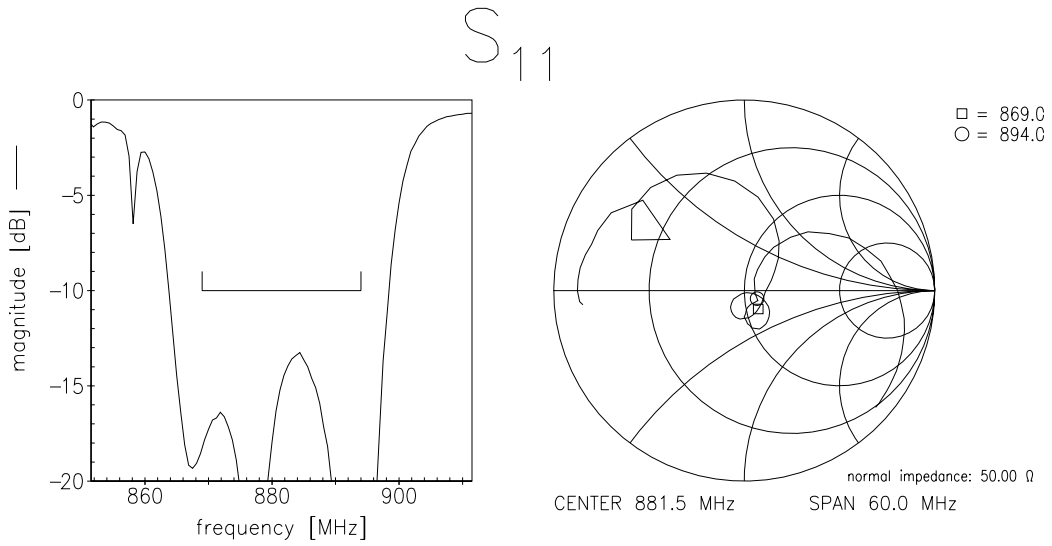


Transfer function of the AMPS filter (wide band measurement)





Reflection coefficients AMPS filter (measurement)





Characteristics Filter 2 (GSM 1900)

Operating temperature range $T = 25 \pm 2 \text{ }^\circ\text{C}$
 Terminating source impedance $Z_S = 50 \text{ } \Omega$
 Terminating load impedance $Z_L = 50 \text{ } \Omega$

		min.	typ.	max.	
Center frequency	f_c	—	1960	—	MHz
Maximum insertion attenuation	α_{\max}	—	2,5	2,8	dB
	1930 ... 1990 MHz				
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,1	1,4	dB
	1930 ... 1990 MHz				
Input return loss		9,0	10,5	—	dB
	1930 ... 1990 MHz				
Output return loss		9,5	10,5	—	dB
	1930 ... 1990 MHz				
Attenuation	α				
	0 ... 1830 MHz	28	30	—	dB
	1830 ... 1900 MHz (Tx)	13	15	—	dB
	1900 ... 1910 MHz (Tx)	11	14	—	dB
	2010 ... 2020 MHz	12	17	—	dB
	2020 ... 2070 MHz	13	15	—	dB
	2070 ... 2095 MHz	18	20	—	dB
	2095 ... 2500 MHz	23	26	—	dB
	2500 ... 4000 MHz	18	25	—	dB
	4000 ... 5500 MHz	13	21	—	dB
	5500 ... 6000 MHz	8	18	—	dB



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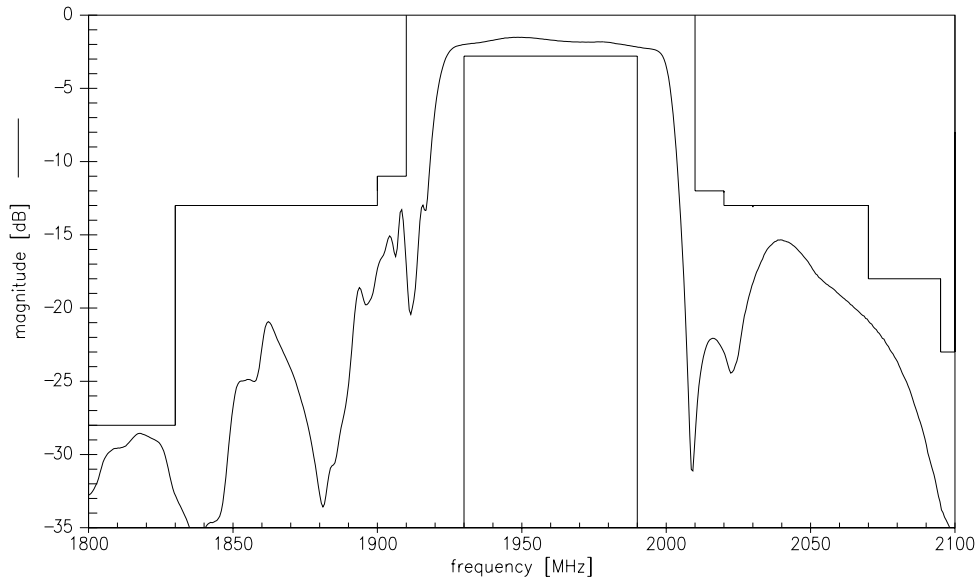
Characteristics Filter 2 (GSM 1900)

Operating temperature range T = -20 to 80° C
 Terminating source impedance Z_S = 50 Ω
 Terminating load impedance Z_L = 50 Ω

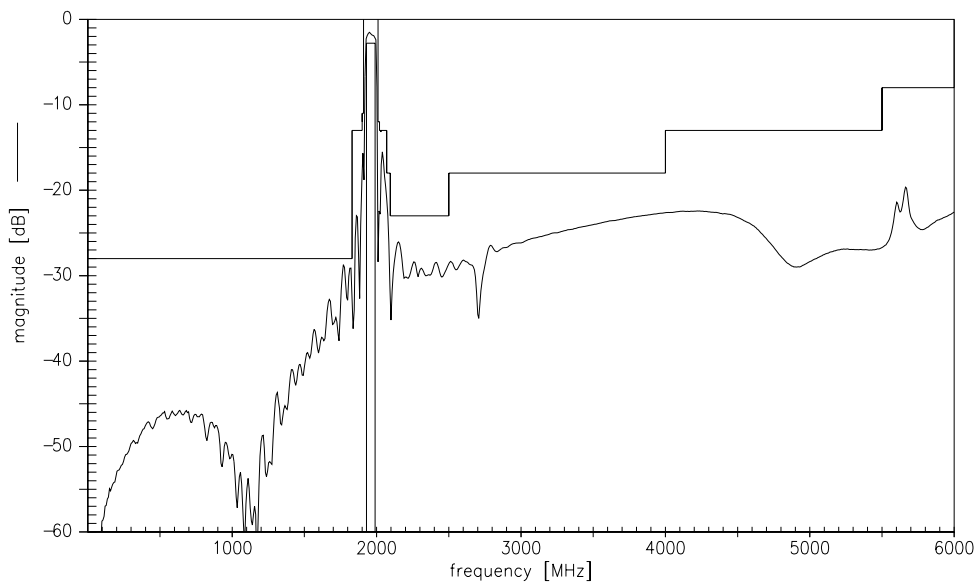
		min.	typ.	max.	
Center frequency	f_c	—	1960	—	MHz
Maximum insertion attenuation	α_{max}				
1930 ... 1990 MHz		—	2,6	3,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930 ... 1990 MHz		—	1,2	1,6	dB
Input return loss					
1930 ... 1990 MHz		8,5	10,5	—	dB
Output return loss					
1930 ... 1990 MHz		9,5	10,5	—	dB
Attenuation	α				
0 ... 1830 MHz		28	30	—	dB
1830 ... 1900 MHz (Tx)		13	15	—	dB
1900 ... 1910 MHz (Tx)		10	13	—	dB
2010 ... 2020 MHz		12	14	—	dB
2020 ... 2070 MHz		13	15	—	dB
2070 ... 2095 MHz		18	20	—	dB
2095 ... 2500 MHz		23	26	—	dB
2500 ... 4000 MHz		18	25	—	dB
4000 ... 5500 MHz		13	21	—	dB
5500 ... 6000 MHz		8	18	—	dB



Transfer function of the PCS filter (narrow band measurement, all values at 25° C)

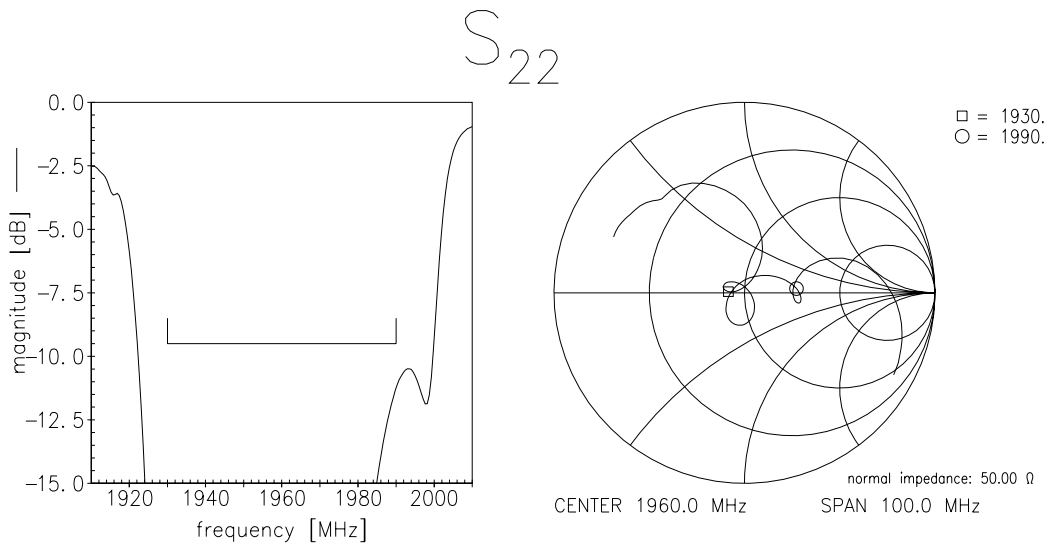
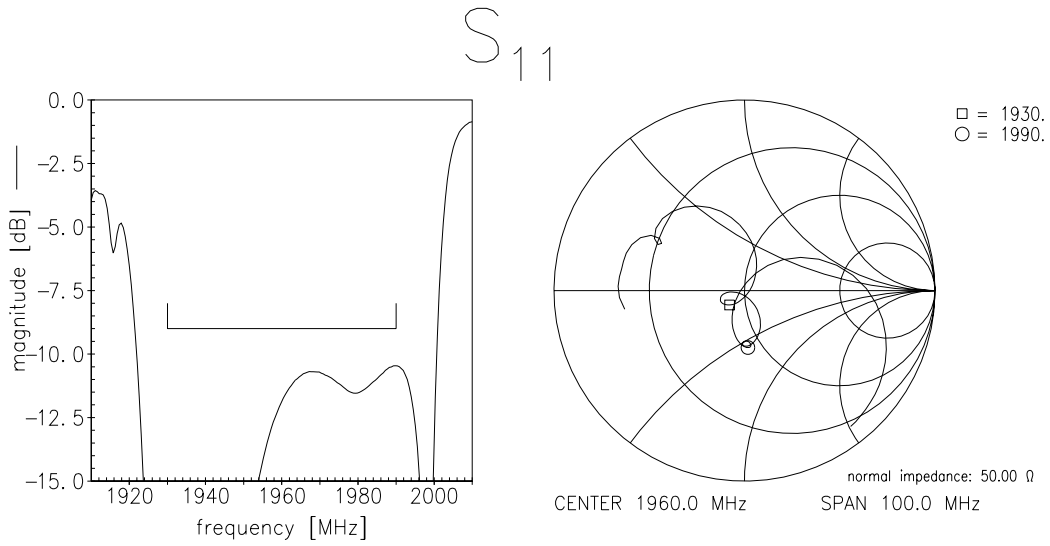


Transfer function of the PCS filter (wide band measurement)





Reflection coefficients PCS filter (measurement)





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