



SAW Components

Data Sheet B9001

Data Sheet

An abstract graphic featuring the word "EPCOS" in large, glowing, 3D letters. The letters are white with a blue glow and are set against a dark, textured background. In the background, there is a faint, stylized globe and some circuitry patterns, suggesting a global and technological theme.



SAW Components

B9001

Low-Loss Filter for Mobile Communication

881,5 MHz

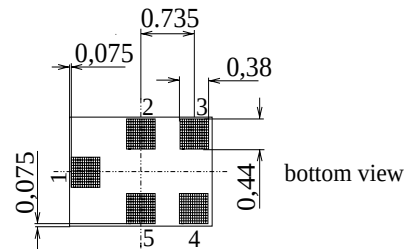
Data Sheet



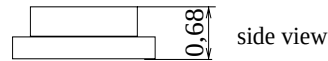
Chip sized SAW package QCS5C

Features

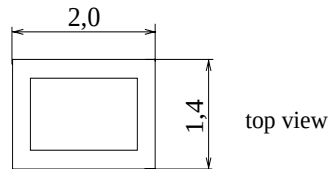
- Low-loss RF filter for mobile telephone GSM850/AMPS system, receive path
- Usable passband 25 MHz
- Unbalanced to balanced operation
- Excellent symmetry
- Impedance transformation from 50 Ω to 150 Ω or 50 Ω to 200 Ω optional
- Suitable for GPRS class 1 to 12
- Ceramic package for Surface Mounted Technology (SMT)



bottom view



side view



top view

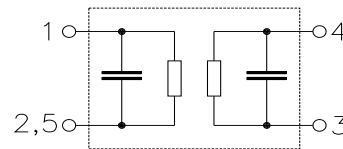
Dimensions in mm, approx. weight 0,007g

Terminals

- Ni, gold-plated

Pin configuration

- | | |
|------|------------------|
| 1 | Unbalanced input |
| 3, 4 | Balanced output |
| 2, 5 | To be grounded |



Type	Ordering code	Marking and Package according to	Packing according to
B9001	B39881-B9001-C710	C61157-A7-A111	F61074-V8151-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	- 30 / + 85	$^{\circ}\text{C}$	HBM peak power of GSM signal, duty cycle 4:8
Storage temperature range	T_{stg}	- 40 / + 85	$^{\circ}\text{C}$	
DC voltage	V_{DC}	5	V	
ESD	V_{ESD}	250	V	
Input power at GSM850, GSM900, GSM1800 and GSM1900 Tx bands	P_{IN}	16	dBm	



SAW Components

B9001

Low-Loss Filter for Mobile Communication

881,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = +25\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\text{ }\Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 150\text{ }\Omega$ (balanced)

		min.	typ.	max.	
Center frequency	f_C	—	881,5	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	1,7	2,0	dB
	869,0 ... 894,0 MHz				
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,5	0,8	dB
	869,0 ... 894,0 MHz				
Input return loss		10,0	13,0	—	dB
	869,0 ... 894,0 MHz				
Output return loss		10,0	13,0	—	dB
	869,0 ... 894,0 MHz				
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$)		-5	0	5	degree
	869,0 ... 894,0 MHz				
Output amplitude balance ($ S_{31}/S_{21} $)		-0,5	0	0,5	dB
	869,0 ... 894,0 MHz				
Attenuation	α				
	0,0 ... 840,0 MHz	45	52	—	dB
	840,0 ... 849,0 MHz	35	40	—	dB
	914,0 ... 940,0 MHz	24	27	—	dB
	940,0 ... 6000,0 MHz	45	55	—	dB



SAW Components

B9001

Low-Loss Filter for Mobile Communication

881,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -30$ to $+85$ °C
Terminating source impedance: $Z_S = 50 \Omega$ (unbalanced)
Terminating load impedance: $Z_L = 150 \Omega$ (balanced)

		min.	typ.	max.	
Center frequency	f_C	—	881,5	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$				
869,0 ... 894,0 MHz		—	1,9	2,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,7	1,3	dB
Input return loss					
869,0 ... 894,0 MHz		10,0	13,0	—	dB
Output return loss					
869,0 ... 894,0 MHz		10,0	13,0	—	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)					
869,0 ... 894,0 MHz		-5	0	5	degree
Output amplitude balance ($ S_{31}/S_{21} $)					
869,0 ... 894,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 840,0 MHz		45	52	—	dB
840,0 ... 849,0 MHz		35	40	—	dB
914,0 ... 940,0 MHz		24	27	—	dB
940,0 ... 6000,0 MHz		45	55	—	dB



SAW Components

B9001

Low-Loss Filter for Mobile Communication

881,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = +25\text{ °C}$
Terminating source impedance: $Z_S = 50\ \Omega$ (unbalanced)
Terminating load impedance: $Z_L = 200\ \Omega$ (balanced)

		min.	typ.	max.	
Center frequency	f_C	—	881,5	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$				
869,0 ... 894,0 MHz		—	1,9	2,2	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,7	1,0	dB
Input return loss					
869,0 ... 894,0 MHz		10,0	13,0	—	dB
Output return loss					
869,0 ... 894,0 MHz		10,0	12,0	—	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)					
869,0 ... 894,0 MHz		-5	0	5	degree
Output amplitude balance ($ S_{31}/S_{21} $)					
869,0 ... 894,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 840,0 MHz		45	52	—	dB
840,0 ... 849,0 MHz		35	40	—	dB
914,0 ... 940,0 MHz		24	26	—	dB
940,0 ... 6000,0 MHz		45	55	—	dB



SAW Components

B9001

Low-Loss Filter for Mobile Communication

881,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -30$ to $+85$ °C
Terminating source impedance: $Z_S = 50$ Ω (unbalanced)
Terminating load impedance: $Z_L = 200$ Ω (balanced)

		min.	typ.	max.	
Center frequency	f_C	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}				
869,0 ... 894,0 MHz		—	2,1	2,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,9	1,3	dB
Input return loss					
869,0 ... 894,0 MHz		10,0	13,0	—	dB
Output return loss					
869,0 ... 894,0 MHz		10,0	12,0	—	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)					
869,0 ... 894,0 MHz		-5	0	5	degree
Output amplitude balance ($ S_{31}/S_{21} $)					
869,0 ... 894,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 840,0 MHz		45	52	—	dB
840,0 ... 849,0 MHz		35	40	—	dB
914,0 ... 940,0 MHz		24	26	—	dB
940,0 ... 6000,0 MHz		45	55	—	dB



SAW Components

B9001

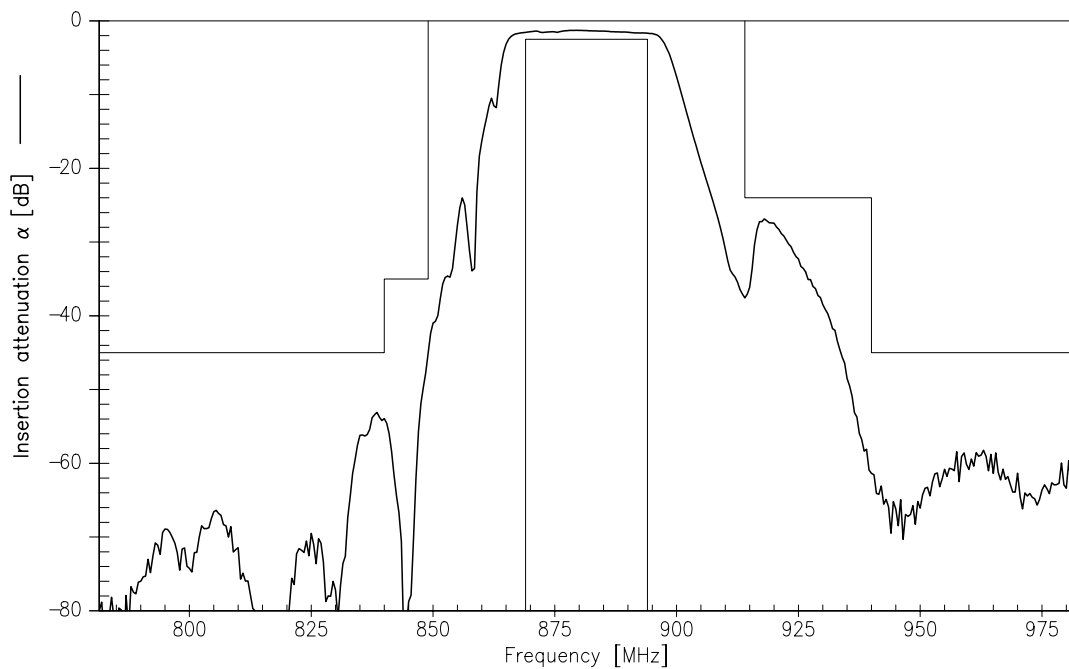
Low-Loss Filter for Mobile Communication

881,5 MHz

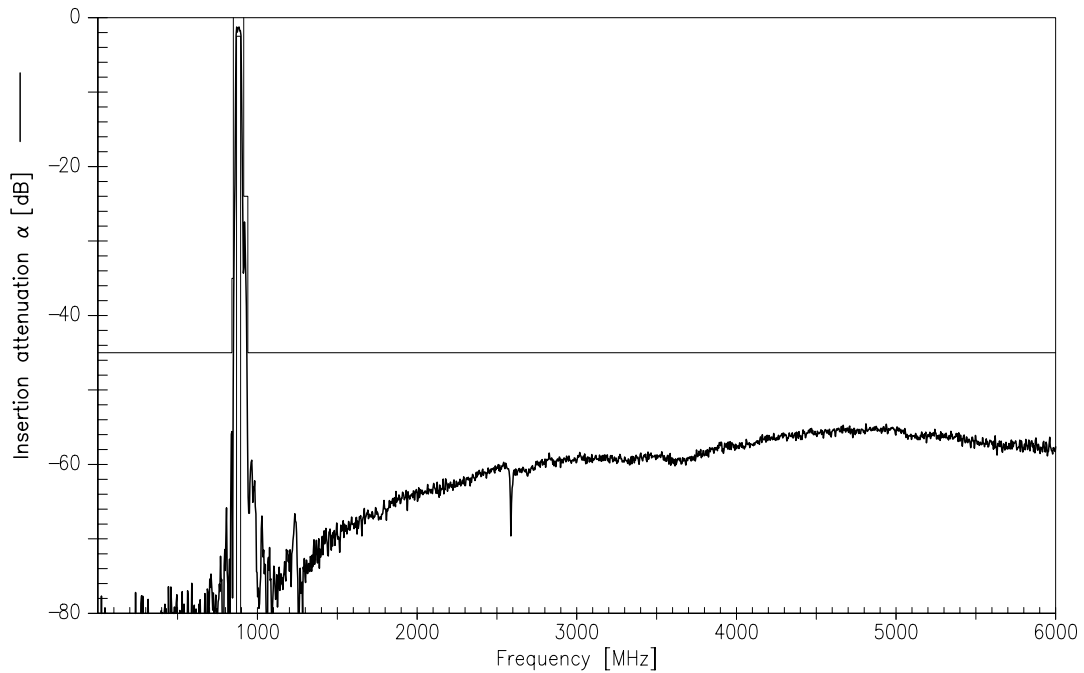
Data Sheet



Transfer function (narrowband; 50 Ω to 150 Ω operation)



Transfer function (wideband; 50 Ω to 150 Ω operation)





SAW Components

B9001

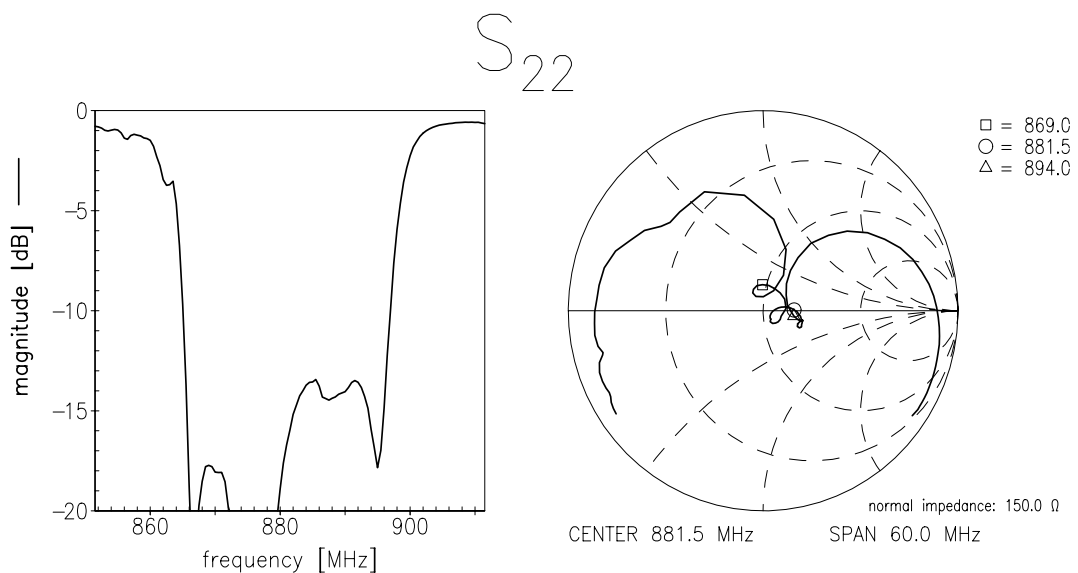
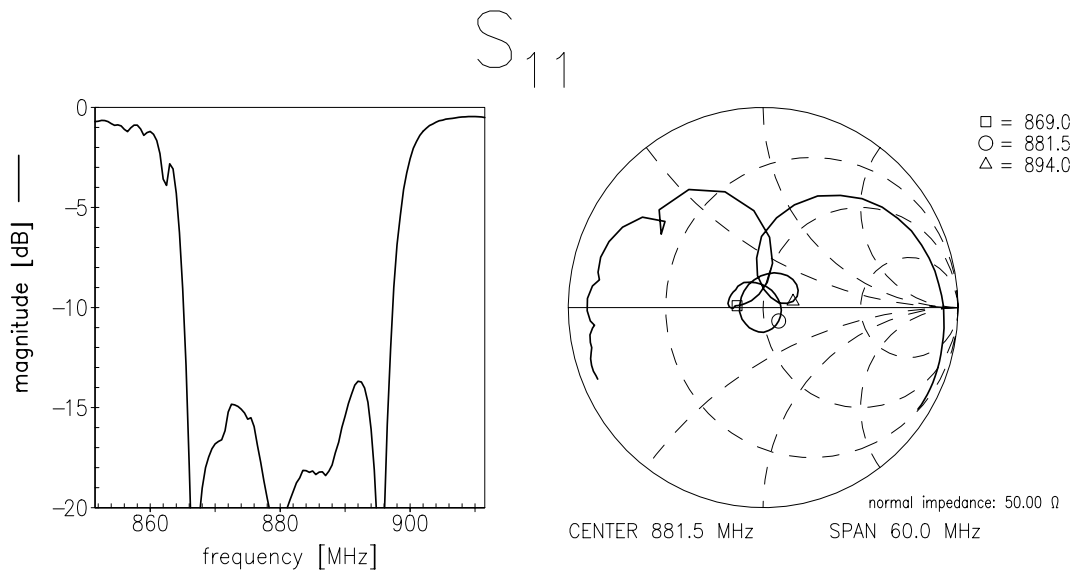
Low-Loss Filter for Mobile Communication

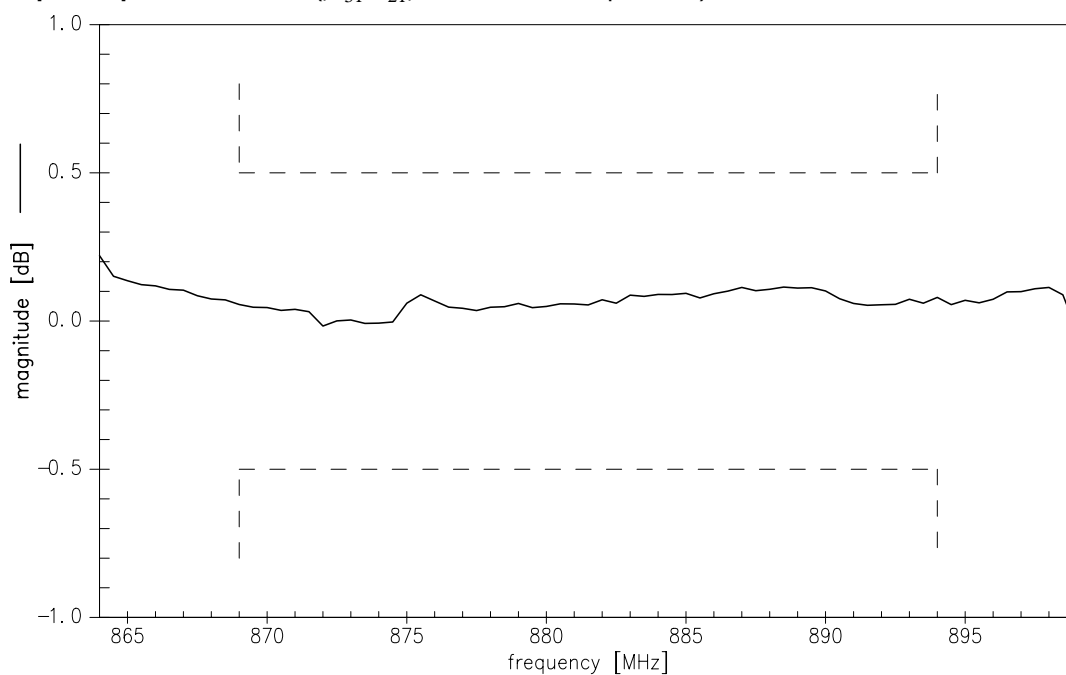
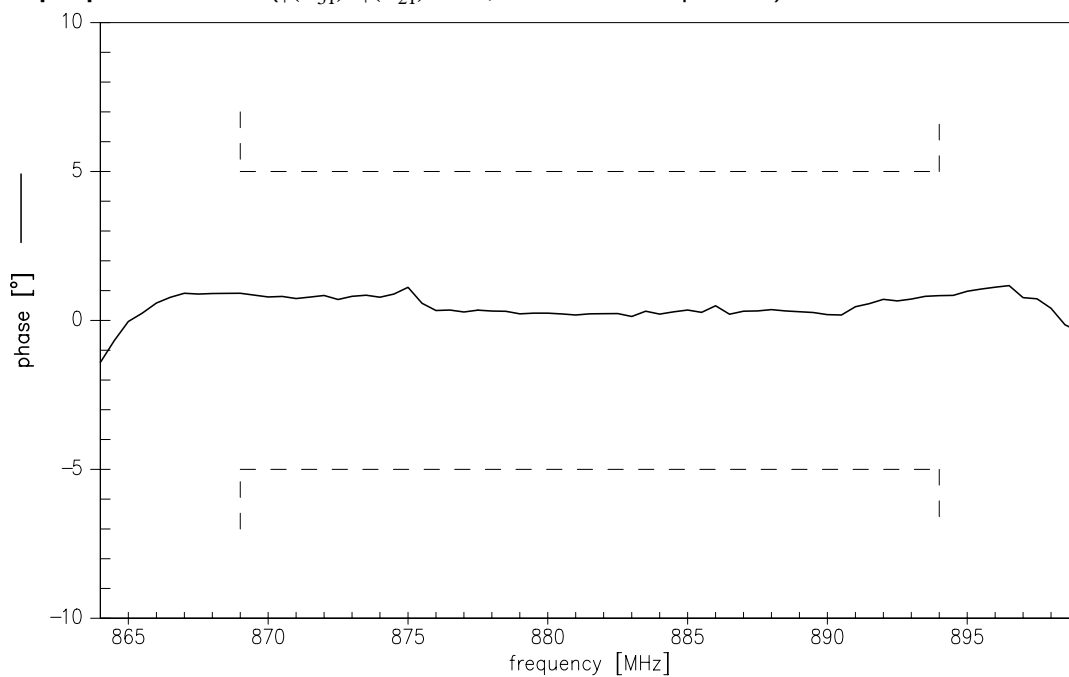
881,5 MHz

Data Sheet



Matching (measurement; 50 Ω to 150 Ω operation)



**Output amplitude balance ($|S_{31}/S_{21}|$; 50 Ω to 150 Ω operation)****Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$; 50 Ω to 150 Ω operation)**



SAW Components

B9001

Low-Loss Filter for Mobile Communication

881,5 MHz

Data Sheet



Published by EPCOS AG

Surface Acoustic Wave Components Division, SAW MC WT

P.O. Box 80 17 09, 81617 Munich, GERMANY

© EPCOS AG 2002. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.