



SAW Components

Data Sheet B7820





SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

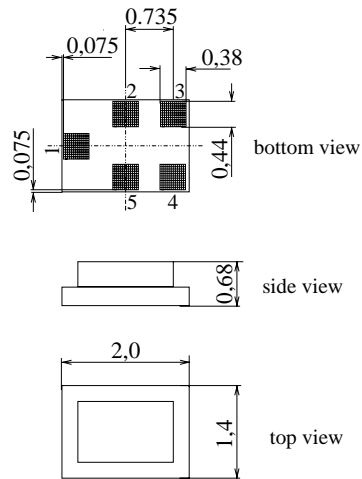
Data Sheet



Features

- Low-loss RF filter for mobile telephone EGSM system, receive path
- Low amplitude ripple
- Usable passband 35 MHz
- Unbalanced to balanced operation
- Excellent symmetry
- Impedance transformation from 50 Ω to 150 Ω
- Suitable for GPRS class 1 to 12
- Ceramic package for **Surface Mounted Technology (SMT)**

Chip sized SAW package QCS5C



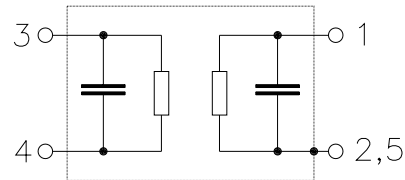
Terminals

- Ni, gold-plated

Dimensions in mm, approx. weight 0,007 g

Pin configuration

- 1 Input, unbalanced
- 3, 4 Output, balanced
- 2, 5 Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B7820	B39941-B7820-C710	C61157-A7-A111	F61074-V8151-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	- 30 / + 85	°C	human body model
Storage temperature range	T_{stg}	- 40 / + 85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	250	V	
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands	P_{IN}	15	dBm	peak power of GSM signal, duty cycle 4:8



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = +25\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 150\ \Omega$

			min.	typ.	max.	
Center frequency	f_C		—	942,5	—	MHz
Maximum insertion attenuation	α_{max}					
	925,0 ... 960,0 MHz		—	1,9	2,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$					
	925,0 ... 960,0 MHz		—	0,8	1,4	dB
Input VSWR						
	925,0 ... 960,0 MHz		—	2,0	2,3	
Output VSWR						
	925,0 ... 960,0 MHz		—	2,1	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$						
	925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance (S_{31}/S_{21})						
	925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α					
	0,0 ... 880,0 MHz		50	65	—	dB
	880,0 ... 905,0 MHz		30	41	—	dB
	905,0 ... 915,0 MHz		22	26	—	dB
	980,0 ... 1050,0 MHz		27	31	—	dB
	1050,0 ... 2775,0 MHz		50	64	—	dB
	2775,0 ... 2880,0 MHz		54	62	—	dB
	2880,0 ... 6000,0 MHz		50	60	—	dB



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -10$ to $+80$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 150 \Omega$

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	—	1,9	2,7	dB
925,0 ... 960,0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,8	1,8	dB
925,0 ... 960,0 MHz					
Input VSWR		—	2,0	2,3	
925,0 ... 960,0 MHz					
Output VSWR		—	2,1	2,3	
925,0 ... 960,0 MHz					
Output phase balance $\phi(S_{31})-\phi(S_{21})$		-5	0	5	degree
925,0 ... 960,0 MHz					
Output amplitude balance (S_{31}/S_{21})		-0,5	0	0,5	dB
925,0 ... 960,0 MHz					
Attenuation	α	50	65	—	dB
0,0 ... 880,0 MHz					
880,0 ... 905,0 MHz		30	38	—	
905,0 ... 915,0 MHz		20	26	—	
980,0 ... 1050,0 MHz		26	29	—	
1050,0 ... 2775,0 MHz		50	64	—	
2775,0 ... 2880,0 MHz		54	62	—	
2880,0 ... 6000,0 MHz		50	60	—	



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -20$ to $+85$ °C
 Terminating source impedance: $Z_S = 50$ Ω
 Terminating load impedance: $Z_L = 150$ Ω

			min.	typ.	max.	
Center frequency	f_C		—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	925,0 ... 960,0 MHz	—	1,9	2,8	dB
Amplitude ripple (p-p)	$\Delta\alpha$	925,0 ... 960,0 MHz	—	0,8	1,8	dB
Input VSWR		925,0 ... 960,0 MHz	—	2,0	2,3	
Output VSWR		925,0 ... 960,0 MHz	—	2,1	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$		925,0 ... 960,0 MHz	-5	0	5	degree
Output amplitude balance (S_{31}/S_{21})		925,0 ... 960,0 MHz	-0,5	0	0,5	dB
Attenuation	α	0,0 ... 880,0 MHz	50	65	—	dB
		880,0 ... 905,0 MHz	30	38	—	dB
		905,0 ... 915,0 MHz	20	26	—	dB
		980,0 ... 1050,0 MHz	25	29	—	dB
		1050,0 ... 2775,0 MHz	50	64	—	dB
		2775,0 ... 2880,0 MHz	54	62	—	dB
		2880,0 ... 6000,0 MHz	50	60	—	dB



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -30$ to $+80$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 150 \Omega$

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	—	1,9	3,0	dB
925,0 ... 960,0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,8	2,1	dB
925,0 ... 960,0 MHz					
Input VSWR		—	2,0	2,3	
925,0 ... 960,0 MHz					
Output VSWR		—	2,1	2,3	
925,0 ... 960,0 MHz					
Output phase balance $\phi(S_{31})-\phi(S_{21})$		-5	0	5	degree
925,0 ... 960,0 MHz					
Output amplitude balance (S_{31}/S_{21})		-0,5	0	0,5	dB
925,0 ... 960,0 MHz					
Attenuation	α	50	65	—	dB
0,0 ... 880,0 MHz					
880,0 ... 905,0 MHz		30	38	—	
905,0 ... 915,0 MHz		20	26	—	
980,0 ... 1050,0 MHz		25	27	—	
1050,0 ... 2775,0 MHz		50	64	—	
2775,0 ... 2880,0 MHz		54	62	—	
2880,0 ... 6000,0 MHz		50	60	—	



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = +25\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 200\ \Omega$ and $200\ \Omega \parallel 100\ \text{nH}$

			min.	typ.	max.	
Center frequency	f_C		—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	925,0 ... 960,0 MHz	—	1,8	2,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$	925,0 ... 960,0 MHz	—	0,8	1,4	dB
Input VSWR		925,0 ... 960,0 MHz	—	1,8	2,3	
Output VSWR		925,0 ... 960,0 MHz	—	1,8	2,3	
Output phase balance	$\phi(S_{31}) - \phi(S_{21})$	925,0 ... 960,0 MHz	-5	0	5	degree
Output amplitude balance	(S_{31}/S_{21})	925,0 ... 960,0 MHz	-0,5	0	0,5	dB
Attenuation	α	0,0 ... 880,0 MHz	50	65	—	dB
		880,0 ... 905,0 MHz	30	41	—	dB
		905,0 ... 915,0 MHz	22	26	—	dB
		980,0 ... 1050,0 MHz	27	30	—	dB
		1050,0 ... 2775,0 MHz	50	64	—	dB
		2775,0 ... 2880,0 MHz	54	62	—	dB
		2880,0 ... 6000,0 MHz	50	60	—	dB



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -10$ to $+80$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 200 \Omega$

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	—	1,9	2,7	dB
925,0 ... 960,0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,8	1,8	dB
925,0 ... 960,0 MHz					
Input VSWR		—	1,8	2,3	
925,0 ... 960,0 MHz					
Output VSWR		—	1,8	2,3	
925,0 ... 960,0 MHz					
Output phase balance $\phi(S_{31})-\phi(S_{21})$		-5	0	5	degree
925,0 ... 960,0 MHz					
Output amplitude balance (S_{31}/S_{21})		-0,5	0	0,5	dB
925,0 ... 960,0 MHz					
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ... 1050,0 MHz		26	28	—	dB
1050,0 ... 2775,0 MHz		50	64	—	dB
2775,0 ... 2880,0 MHz		54	62	—	dB
2880,0 ... 6000,0 MHz		50	60	—	dB



SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -20$ to $+85$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 200 \Omega \parallel 100$ nH

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	—	2,1	3,1	dB
925,0 ... 960,0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,1	2,2	dB
925,0 ... 960,0 MHz					
Input VSWR		—	1,8	2,3	
925,0 ... 960,0 MHz					
Output VSWR		—	1,8	2,3	
925,0 ... 960,0 MHz					
Output phase balance $\phi(S_{31})-\phi(S_{21})$		-5	0	5	degree
925,0 ... 960,0 MHz					
Output amplitude balance (S_{31}/S_{21})		-0,5	0	0,5	dB
925,0 ... 960,0 MHz					
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ... 1050,0 MHz		25	28	—	dB
1050,0 ... 2775,0 MHz		50	64	—	dB
2775,0 ... 2880,0 MHz		54	62	—	dB
2880,0 ... 6000,0 MHz		50	60	—	dB



SAW Components

B7820

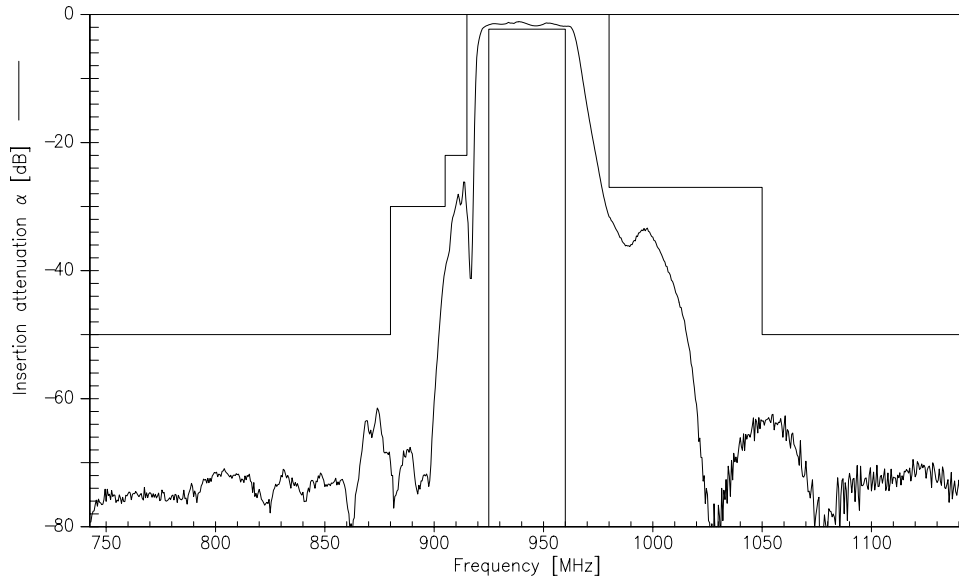
Low-Loss Filter for Mobile Communication

942,5 MHz

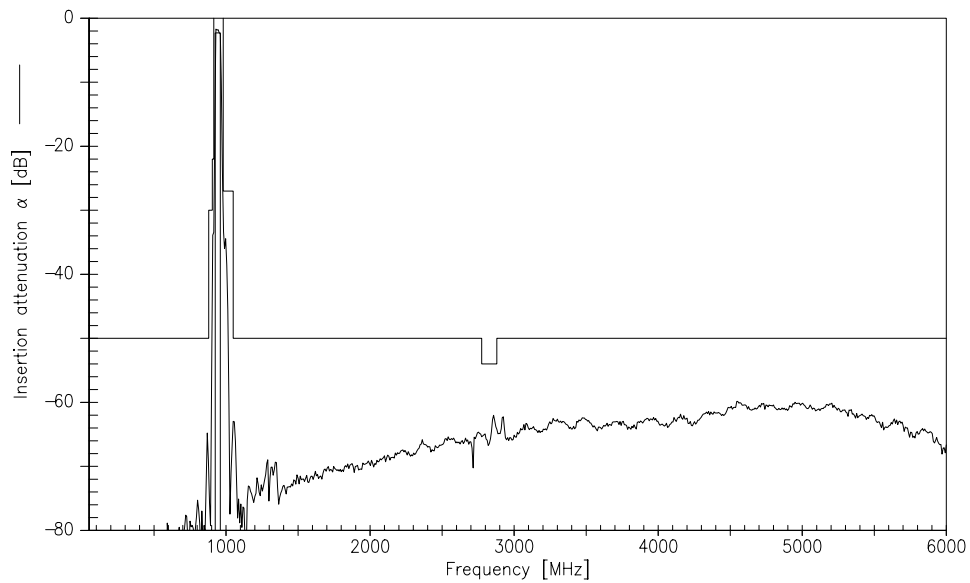
Data Sheet



Transfer function

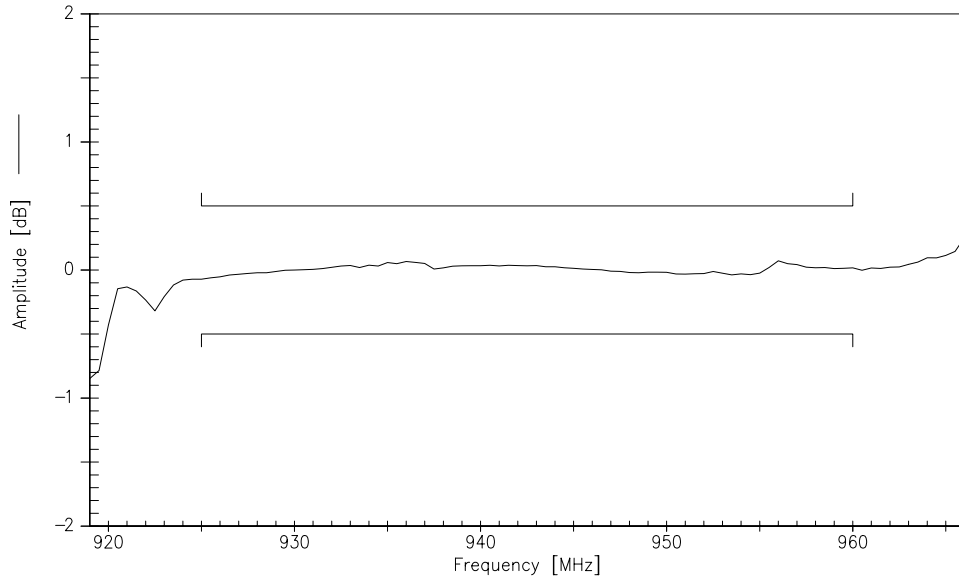


Transfer function (wideband)

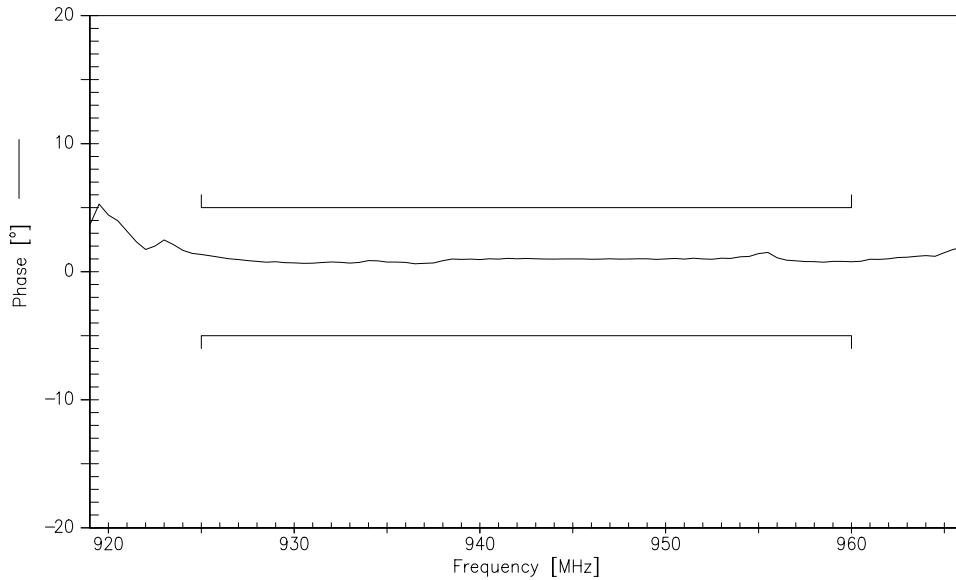




Output amplitude balance ($|S_{31}|/|S_{21}|$)



Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)





SAW Components

B7820

Low-Loss Filter for Mobile Communication

942,5 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.