



# SAW Components

Data Sheet B7652





**SAW Components**

**B7652**

**Low-Loss Dual Band Filter for Mobile Communication**

**942,5 / 1842,5 MHz**

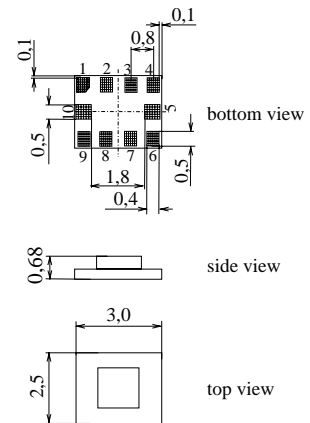
**Data Sheet**



Chip sized saw package **QCS10C**

**Features**

- Low-loss RF filter for mobile telephone EGSM and PCN system , receive path
- Usable passband:  
Filter 1 (EGSM): 35 MHz  
Filter 2 (PCN): 75 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 200 Ω for EGSM filter
- Suitable for GPRS Class 1 to 12
- Ceramic package for **Surface Mounted Technology (SMT)**



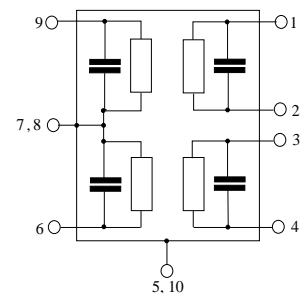
**Terminals**

- Ni, gold-plated

Dimensions in mm, approx. weight 0,015g

**Pin configuration**

- 1, 2 Output, balanced [ Filter 1 ]
- 3, 4 Output, balanced [ Filter 2 ]
- 6 Input [ Filter 2 ]
- 9 Input [ Filter 1 ]
- 5, 7, 8,10 Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B7652	B39182-B7652-G210	C61157-A7-A129	F61074-V8156-Z000

**Electrostatic Sensitive Device (ESD)**

**Maximum ratings**

Operable temperature range	$T$	- 20 / + 70	°C	
Storage temperature range	$T_{stg}$	- 40 / + 85	°C	
DC voltage	$V_{DC}$	5	V	
ESD voltage	$V_{ESD}$	50	V	
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands:				
Filter 1 (EGSM-Rx)	$P_{IN}$	15	dBm	peak power of GSM signal, duty cycle 4:8
Filter 2 (PCN-Rx)	$P_{IN}$	12	dBm	



**Characteristics Filter 1 ( EGSM )**

Operating temperature range:  $T = 25 \pm 2^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 200 \Omega \parallel 68\text{nH}$

		min.	typ.	max.	
<b>Center frequency</b>	$f_c$	—	942,50	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\text{max}}$	—	2,3	2,8	dB
925,0 ... 960,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,1	1,6	dB
925,0 ... 960,0 MHz					
<b>Input return loss</b>		8,0	10,0	—	dB
925,0 ... 960,0 MHz					
<b>Output return loss</b>		8,0	12,0	—	dB
925,0 ... 960,0 MHz					
<b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^\circ$ )		-10,0	0	10,0	degree
925,0 ... 960,0 MHz					
<b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )		-1,0	0	1,0	dB
925,0 ... 960,0 MHz					
<b>Attenuation</b>	$\alpha_{\text{min}}$	45,0	49,0	—	dB
10,0 ... 880,0 MHz		32,0	37,0	—	
880,0 ... 905,0 MHz		20,0	28,0	—	
905,0 ... 915,0 MHz		24,0	26,0	—	
980,0 ... 1050,0 MHz		40,0	44,0	—	
1050,0 ... 1920,0 MHz		38,0	43,0	—	
1920,0 ... 3840,0 MHz		30,0	35,0	—	
3840,0 ... 6000,0 MHz					



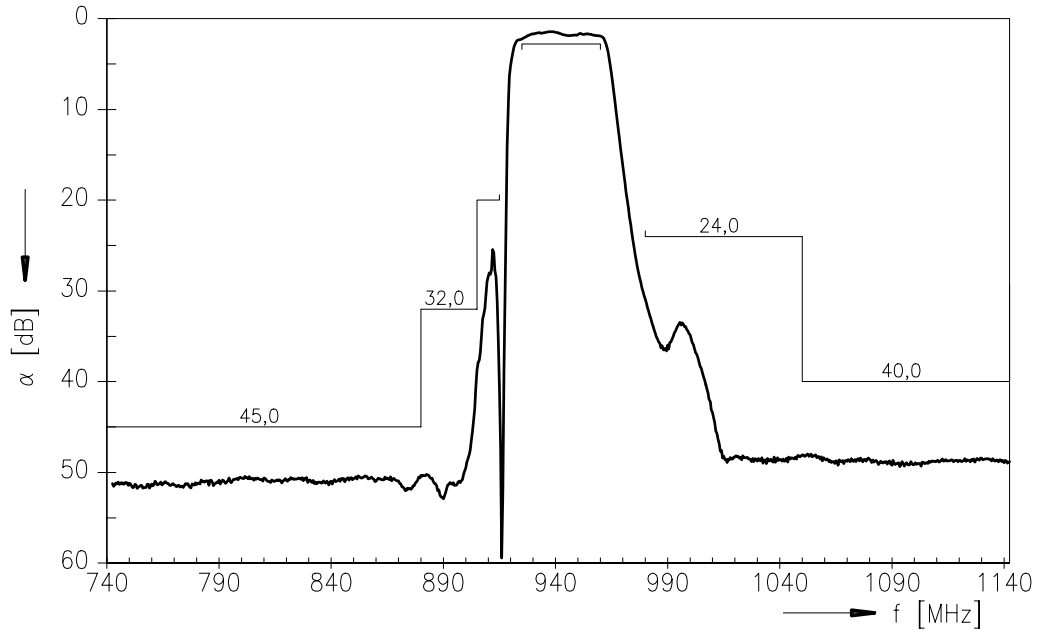
**Characteristics Filter 1 ( EGSM )**

Operating temperature range:  $T = -20$  to  $+70^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 200\ \Omega \parallel 68\text{nH}$

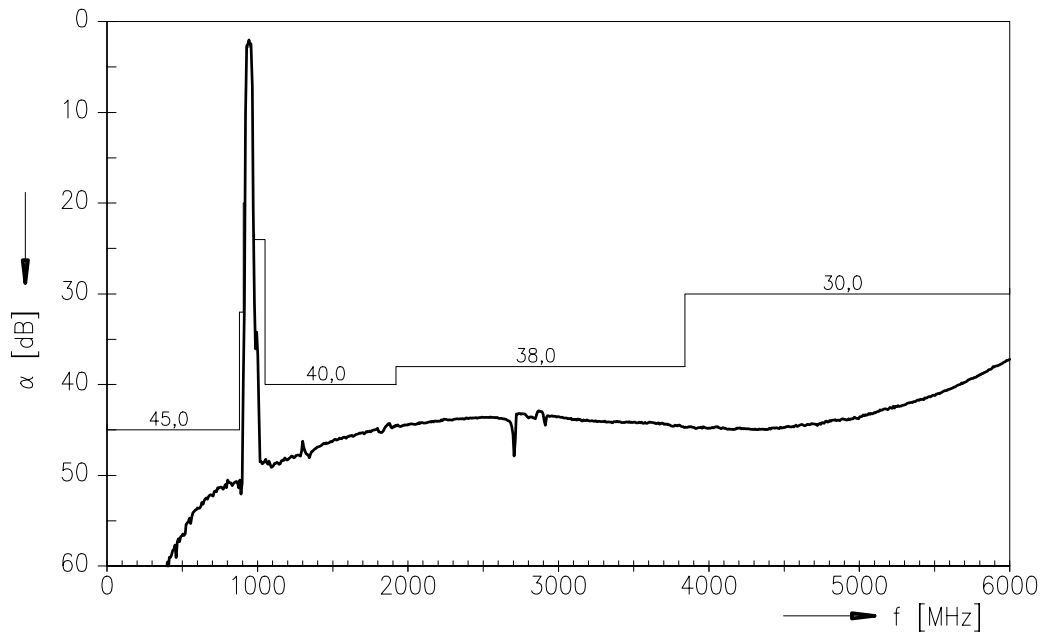
			min.	typ.	max.	
<b>Center frequency</b>	$f_c$		—	942,50	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\text{max}}$	925,0 ... 960,0 MHz	—	2,6	3,3	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	925,0 ... 960,0 MHz	—	1,3	2,0	dB
<b>Input return loss</b>		925,0 ... 960,0 MHz	8,0	9,5	—	
<b>Output return loss</b>		925,0 ... 960,0 MHz	8,0	11,0	—	
<b>Output phase balance</b> ( $\phi(S_{31})-\phi(S_{21})+180^{\circ}$ )		925,0 ... 960,0 MHz	-10,0	0	10,0	degree
<b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )		925,0 ... 960,0 MHz	-1,0	0	1,0	dB
<b>Attenuation</b>	$\alpha_{\text{min}}$	10,0 ... 880,0 MHz	45,0	49,0	—	dB
		880,0 ... 905,0 MHz	30,0	35,0	—	dB
		905,0 ... 915,0 MHz	18,0	25,0	—	dB
		980,0 ... 1050,0 MHz	23,0	25,0	—	dB
		1050,0 ... 1920,0 MHz	40,0	44,0	—	dB
		1920,0 ... 3840,0 MHz	38,0	43,0	—	dB
		3840,0 ... 6000,0 MHz	30,0	35,0	—	dB



Transfer function Filter 1 ( EGSM )



Transfer function Filter 1 ( EGSM ) - wideband





**Characteristics Filter 2 ( PCN )**

Operating temperature range:  $T = 25 \pm 2^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega \parallel 18\text{nH}$

			min.	typ.	max.	
<b>Center frequency</b>	$f_c$		—	1842,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\text{max}}$		—	2,3	3,0	dB
		1805,0 ... 1880,0 MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$		—	0,7	1,4	dB
		1805,0 ... 1880,0 MHz				
<b>Input return loss</b>			8,0	9,0	—	
		1805,0 ... 1880,0 MHz				
<b>Output return loss</b>			8,0	10,0	—	
		1805,0 ... 1880,0 MHz				
<b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^\circ$ )			-13,0	0	13,0	degree
		1805,0 ... 1880,0 MHz				
<b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )			-1,5	0	1,9	dB
		1805,0 ... 1880,0 MHz				
<b>Attenuation</b>	$\alpha_{\text{min}}$		35,0	38,0	—	dB
		10,0 ... 1000,0 MHz				
		1000,0 ... 1710,0 MHz	30,0	35,0	—	dB
		1710,0 ... 1750,0 MHz	26,0	30,0	—	dB
		1750,0 ... 1765,0 MHz	19,0	22,0	—	dB
		1765,0 ... 1785,0 MHz	12,0	14,0	—	dB
		1920,0 ... 1980,0 MHz	18,0	20,0	—	dB
		1980,0 ... 2100,0 MHz	20,0	25,0	—	dB
		2100,0 ... 2800,0 MHz	26,0	29,0	—	dB
		2800,0 ... 6000,0 MHz	30,0	32,0	—	dB



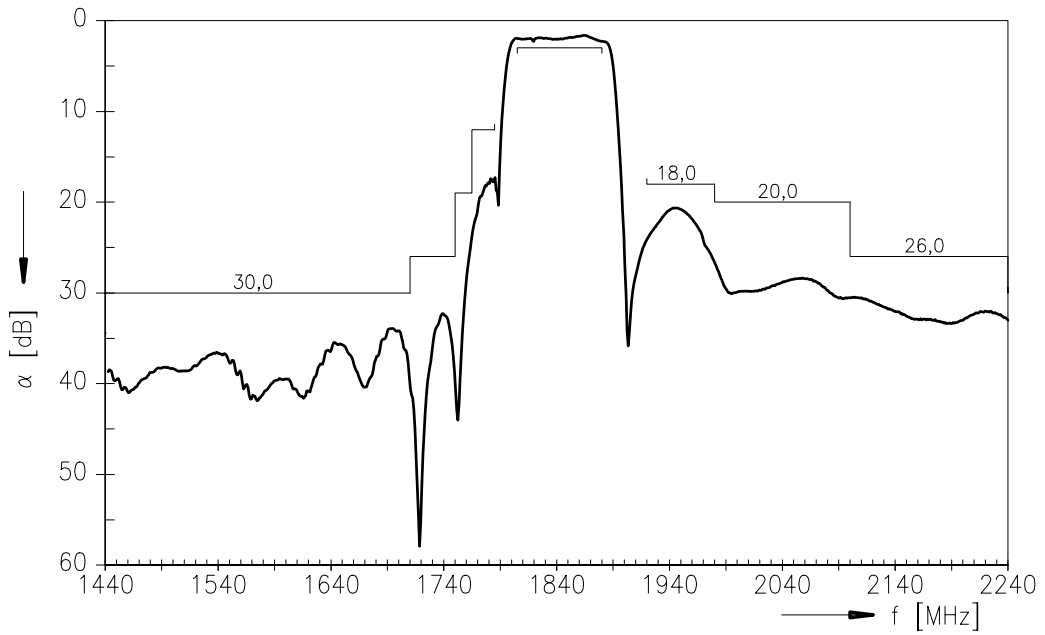
**Characteristics Filter 2 ( PCN )**

Operating temperature range:  $T = -20$  to  $+70^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega \parallel 18\text{nH}$

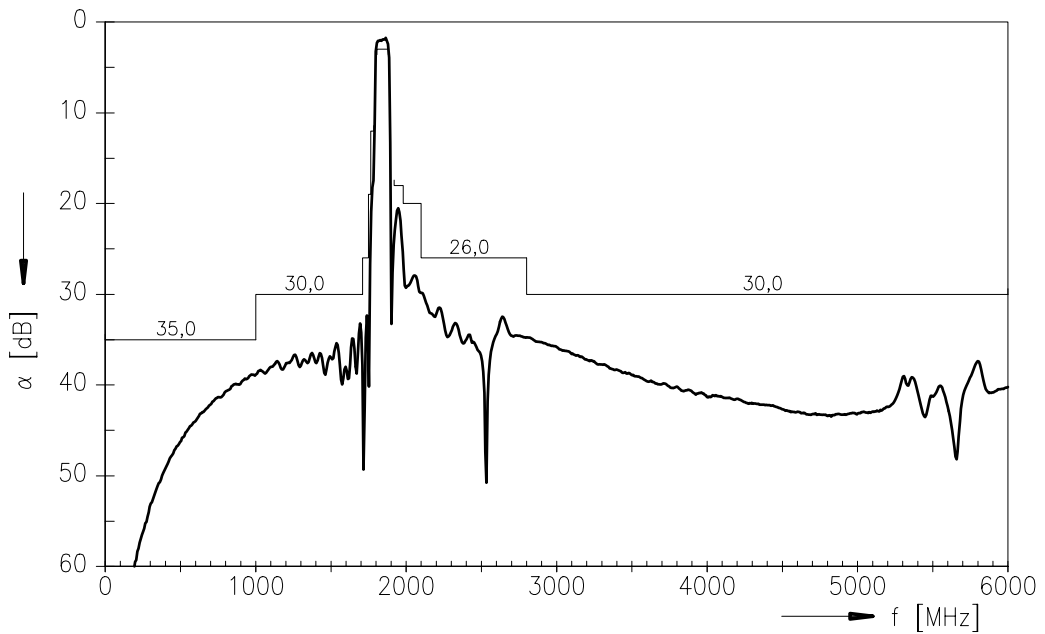
			min.	typ.	max.	
<b>Center frequency</b>	$f_c$		—	1842,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	1805,0 ... 1880,0 MHz	—	2,6	3,4	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	1805,0 ... 1880,0 MHz	—	1,0	1,8	dB
<b>Input return loss</b>		1805,0 ... 1880,0 MHz	8,0	9,0	—	
<b>Output VSWR</b>		1805,0 ... 1880,0 MHz	8,0	10,0	—	
<b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$ )		1805,0 ... 1880,0 MHz	-13,0	0	13,0	degree
<b>Output amplitude balance</b> ( $ S_{31}/S_{21} $ )		1805,0 ... 1880,0 MHz	-1,5	0	2,0	dB
<b>Attenuation</b>	$\alpha_{\min}$	10,0 ... 1000,0 MHz	35,0	38,0	—	dB
		1000,0 ... 1710,0 MHz	30,0	35,0	—	dB
		1710,0 ... 1750,0 MHz	23,0	27,0	—	dB
		1750,0 ... 1765,0 MHz	18,0	20,0	—	dB
		1765,0 ... 1785,0 MHz	8,0	12,0	—	dB
		1920,0 ... 1980,0 MHz	18,0	20,0	—	dB
		1980,0 ... 2100,0 MHz	20,0	25,0	—	dB
		2100,0 ... 2800,0 MHz	26,0	29,0	—	dB
		2800,0 ... 6000,0 MHz	30,0	32,0	—	dB



Transfer function Filter 2 ( PCN )



Transfer function Filter 2 ( PCN ) - wideband







**SAW Components**

**B7652**

**Low-Loss Dual Band Filter for Mobile Communication**

**942,5 / 1842,5 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 2003. 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.