



# SAW Components

Data Sheet B7652

Data Sheet

A large, stylized, 3D-rendered graphic of the word "EPCOS" in a light gray, sans-serif font. The letters are tilted and appear to be floating or emerging from a dark, textured background that resembles a globe or a complex circuit board. The overall effect is a sense of depth and modernity.



## SAW Components

B7652

## Low-Loss Dual Band Filter for Mobile Communication

942,5 / 1842,5 MHz

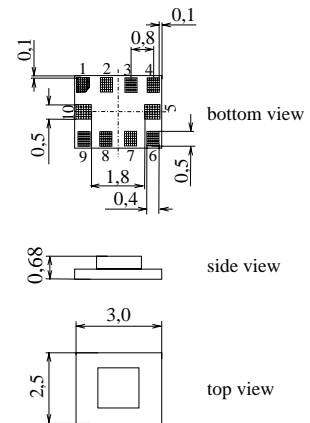
### Data Sheet



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  $\Omega$  to 200  $\Omega$  for EGSM filter
- Suitable for GPRS Class 1 to 12
- Ceramic package for **Surface Mounted Technology (SMT)**



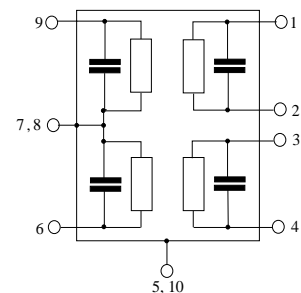
### Terminals

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



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#### 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>	$\alpha_{\max}$				
925,0 ... 960,0 MHz		—	2,3	2,8	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	1,1	1,6	dB
<b>Input return loss</b>					
925,0 ... 960,0 MHz		8,0	10,0	—	dB
<b>Output return loss</b>					
925,0 ... 960,0 MHz		8,0	12,0	—	dB
<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>	$\alpha_{\min}$				
10,0 ... 880,0 MHz		45,0	49,0	—	dB
880,0 ... 905,0 MHz		32,0	37,0	—	dB
905,0 ... 915,0 MHz		20,0	28,0	—	dB
980,0 ... 1050,0 MHz		24,0	26,0	—	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



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<b>Low-Loss Dual Band Filter for Mobile Communication</b>	<b>942,5 / 1842,5 MHz</b>
<b>Data Sheet</b>	<b>SMD</b>

### 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>	$\alpha_{\max}$				
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>	$\alpha_{\min}$				
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



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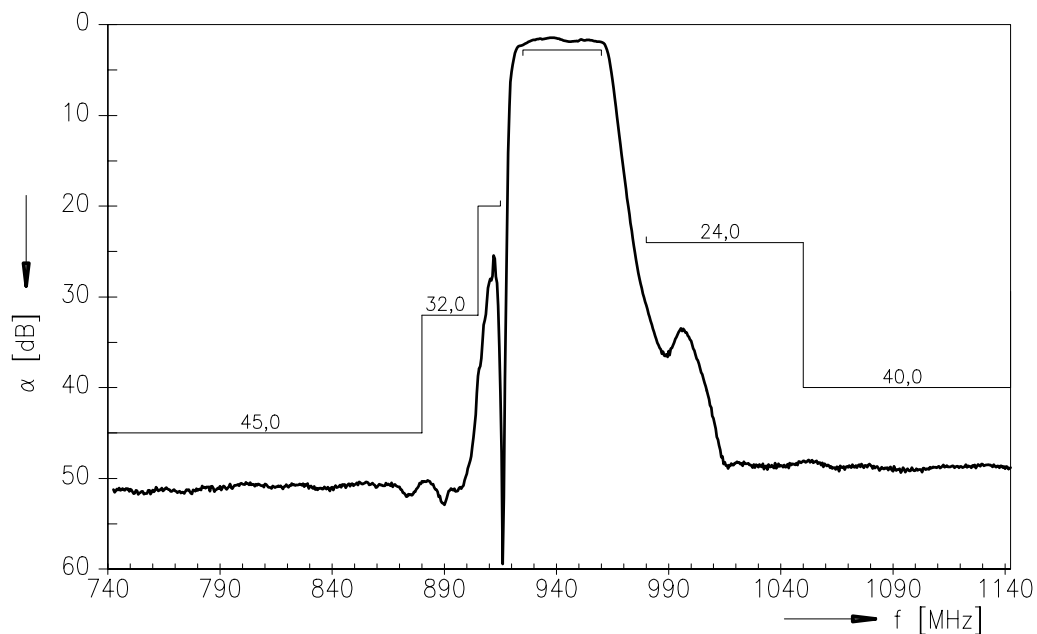
Low-Loss Dual Band Filter for Mobile Communication

942,5 / 1842,5 MHz

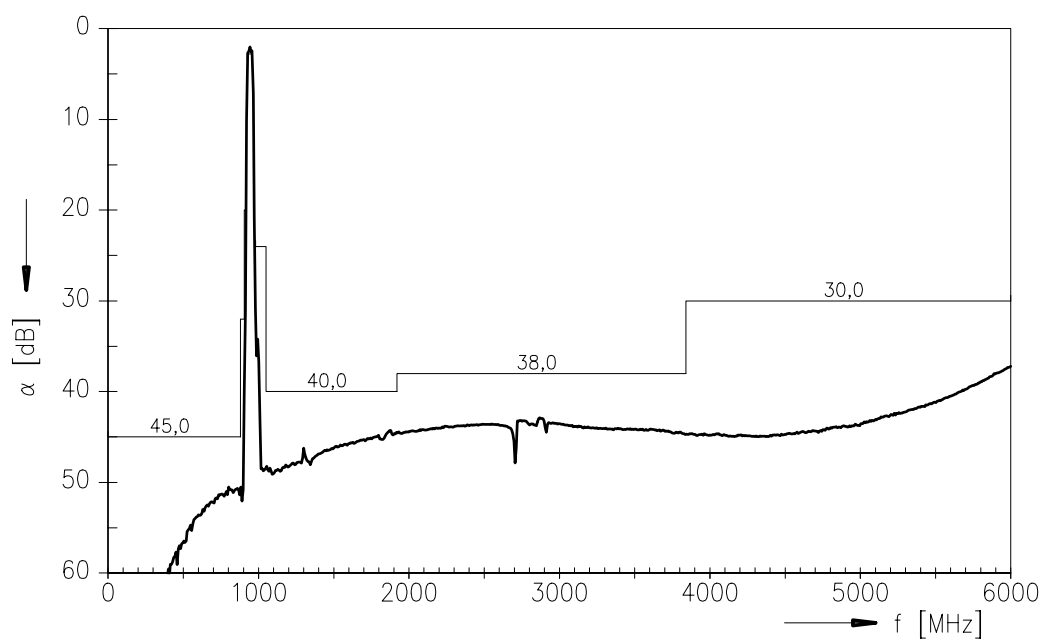
Data Sheet



Transfer function Filter 1 ( EGSM )



Transfer function Filter 1 ( EGSM ) - wideband





# SAW Components

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## Low-Loss Dual Band Filter for Mobile Communication

942,5 / 1842,5 MHz

### Data Sheet



#### 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>	$\alpha_{\max}$					
	1805,0 ... 1880,0 MHz		—	2,3	3,0	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$					
	1805,0 ... 1880,0 MHz		—	0,7	1,4	dB
<b>Input return loss</b>						
	1805,0 ... 1880,0 MHz		8,0	9,0	—	
<b>Output return loss</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	1,9	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		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



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## Low-Loss Dual Band Filter for Mobile Communication

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#### 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



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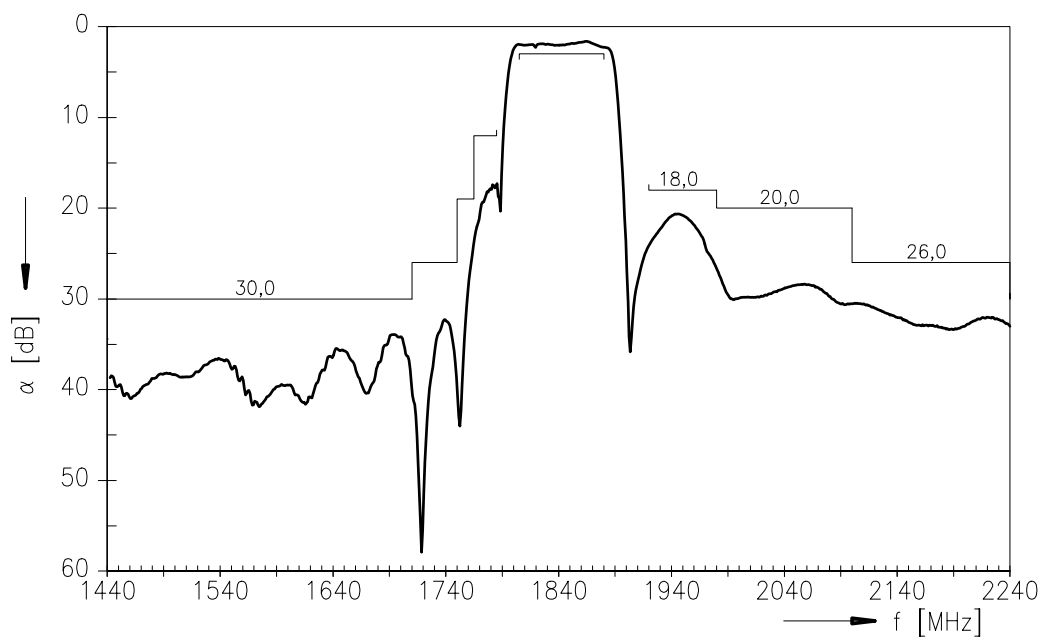
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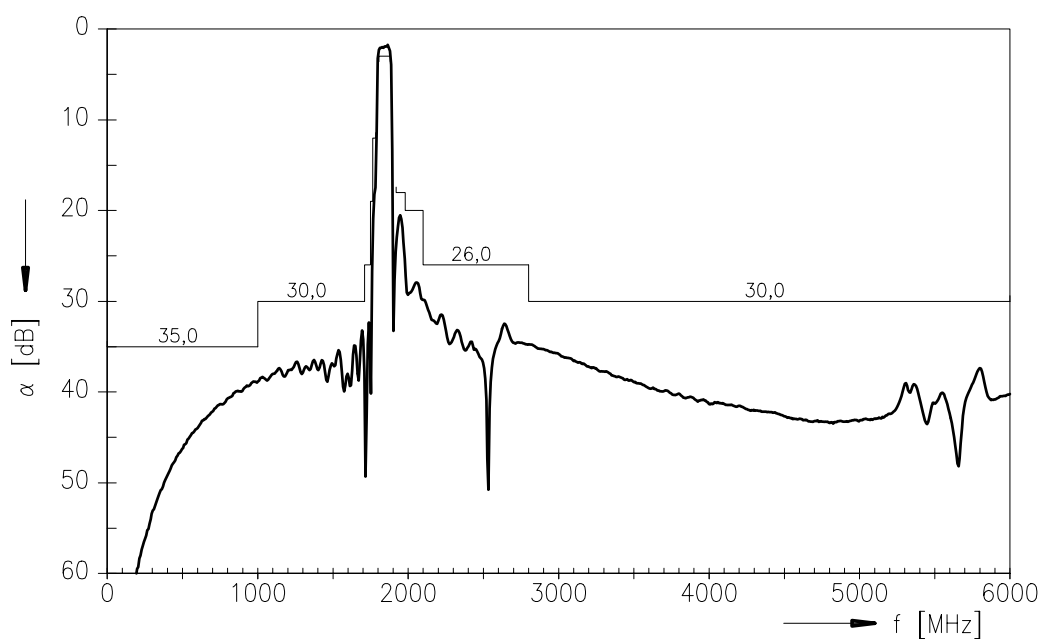
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### Transfer function Filter 2 ( PCN )



### Transfer function Filter 2 ( PCN ) - wideband







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