



SAW Components

Data Sheet B7653





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Low-Loss Dual Band Filter for Mobile Communication

881,5 & 1960,0 MHz

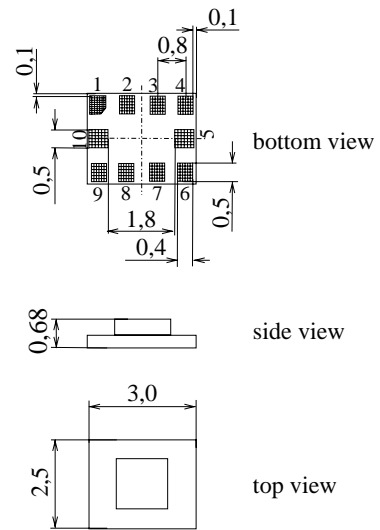
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Chip Sized Saw Package **QCS10C**

Features

- Low-loss 2-in-1 RF filter for mobile telephone AMPS and PCS bands, receive path
- Usable passband:
Filter 1 (AMPS): 25 MHz
Filter 2 (PCS): 60 MHz
- Unbalanced to balanced operation for both filters
- Impedance transformation from 50 Ω to 200 Ω for AMPS filter
- Suitable for GPRS class 1 to 12
- Package for **Surface Mounted Technology (SMT)**



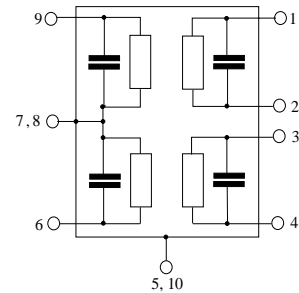
Dimensions in mm, approx. weight 0,015g

Terminals

- Ni, gold-plated

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
B7653	B39202-B7653-G210	C61157-A7-A129	F6104-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 (AMPS-Rx)	P_{IN}	15	dBm	peak power of GSM signal, duty cycle 4:8
Filter 2 (PCS-Rx)	P_{IN}	13	dBm	



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Characteristics of Filter 1 (AMPS)

Operating temperature range: $T = -20$ to $+70$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 200 \Omega \parallel 56$ nH

				min.	typ.	max.	
Center frequency	f_c			—	881,5	—	MHz
Maximum insertion attenuation							
		869,0 ... 894,0	MHz	α_{max}	—	3,0	3,5* dB
Amplitude ripple (p-p)							
		869,0 ... 894,0	MHz	$\Delta\alpha$	—	1,5	2,0 dB
Input return loss							
		869,0 ... 894,0	MHz		8,0	12,0	— dB
Output return loss							
		869,0 ... 894,0	MHz		8,0	11,0	— dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)							
		869,0 ... 894,0	MHz		-5,0	—	+10,0 °
Output amplitude balance ($ S_{31}/S_{21} $)							
		869,0 ... 894,0	MHz		-1,1	—	+0,7 dB
Inter-band isolation							
		1930,0 ... 1990,0	MHz	α_{min}	30,0	40,0	— dB
Attenuation							
		10,0 ... 600,0	MHz	α_{min}	45,0	54,0	— dB
		600,0 ... 849,0	MHz		35,0	40,0	— dB
		914,0 ... 916,0	MHz		20,0	24,0	— dB
		916,0 ... 1000,0	MHz		23,0	27,0	— dB
		1738,0 ... 1788,0	MHz		40,0	48,0	— dB
		2607,0 ... 2682,0	MHz		40,0	48,0	— dB
		3476,0 ... 3576,0	MHz		38,0	46,0	— dB
Tx band suppression							
		824,0 ... 849,0	MHz	α_{min}	35,0	—	— dB

* 3,0 dB (2,6 dB typ.) for temperature range 25 ± 10 °C



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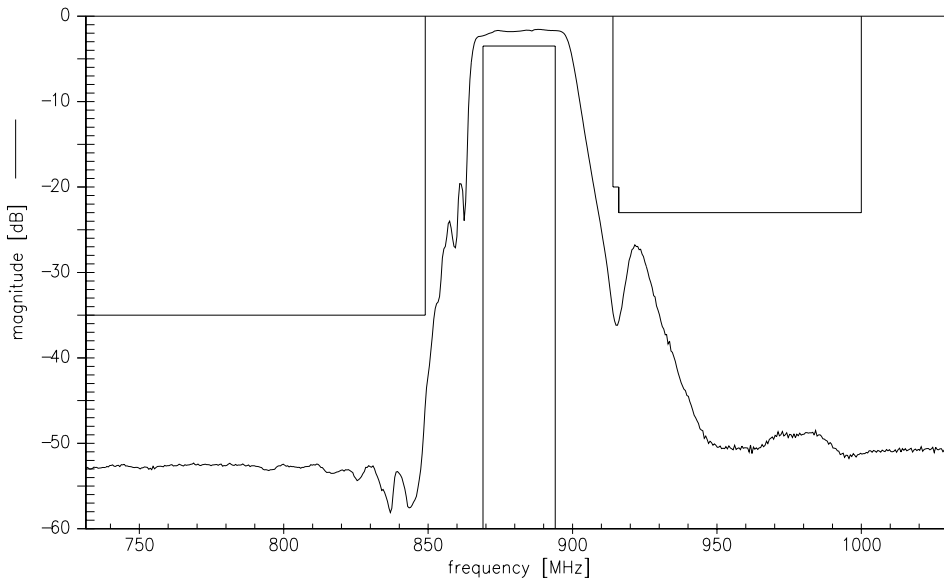
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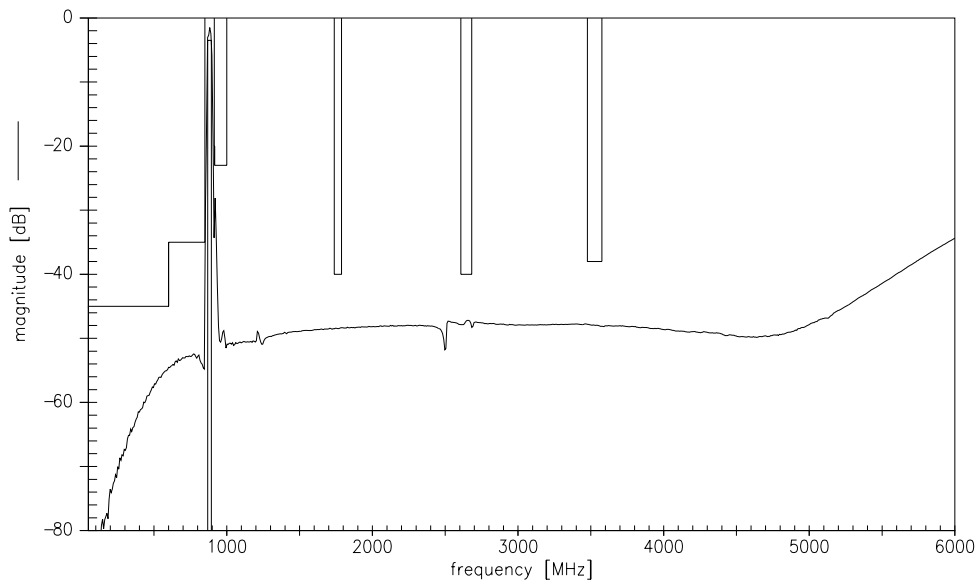
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Transfer function Filter 1 (AMPS)



Transfer function Filter 1 (AMPS) - wideband





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Characteristics of Filter 2 (PCS)

Operating temperature range: $T = -20$ to $+70$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 50 \Omega$

			min.	typ.	max.	
Center frequency	f_c		—	1960,0	—	MHz
Maximum insertion attenuation	α_{max}	1930,0 ... 1990,0 MHz	—	3,3	3,8*	dB
Amplitude ripple		1930,0 ... 1990,0 MHz	—	1,3	2,2	dB
Input return loss		1930,0 ... 1990,0 MHz	8,0	10,0	—	dB
Output return loss		1930,0 ... 1990,0 MHz	8,0	10,0	—	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)		1930,0 ... 1990,0 MHz	-15,0	—	+15,0	°
Output amplitude balance ($ S_{31}/S_{21} $)		1930,0 ... 1990,0 MHz	-2,7**	—	+2,7**	dB
Inter-band isolation	α_{min}	869,0 ... 894,0 MHz	30,0	40,0	—	dB
Attenuation	α_{min}	10,0 ... 995,0 MHz	30,0	36,0	—	dB
		995,0 ... 1830,0 MHz	22,0	30,0	—	dB
		1830,0 ... 1890,0 MHz	13,0	17,0	—	dB
		1890,0 ... 1910,0 MHz	8,0	10,0	—	dB
		2010,0 ... 2070,0 MHz	12,0	14,0	—	dB
		2070,0 ... 3000,0 MHz	20,0	28,0	—	dB
		3000,0 ... 5000,0 MHz	25,0	35,0	—	dB
		5790,0 ... 5970,0 MHz	30,0	39,0	—	dB
Tx band suppression	α_{min}	1830,0 ... 1890,0 MHz	13,0	17,0	—	dB
		1890,0 ... 1910,0 MHz	8,0	10,0	—	dB

* 3,5 dB (2,9 dB typ.) for temperature range 25 ± 10 °C

** -2,3 dB (min.) and 2,3 dB (max.) @ 25 °C



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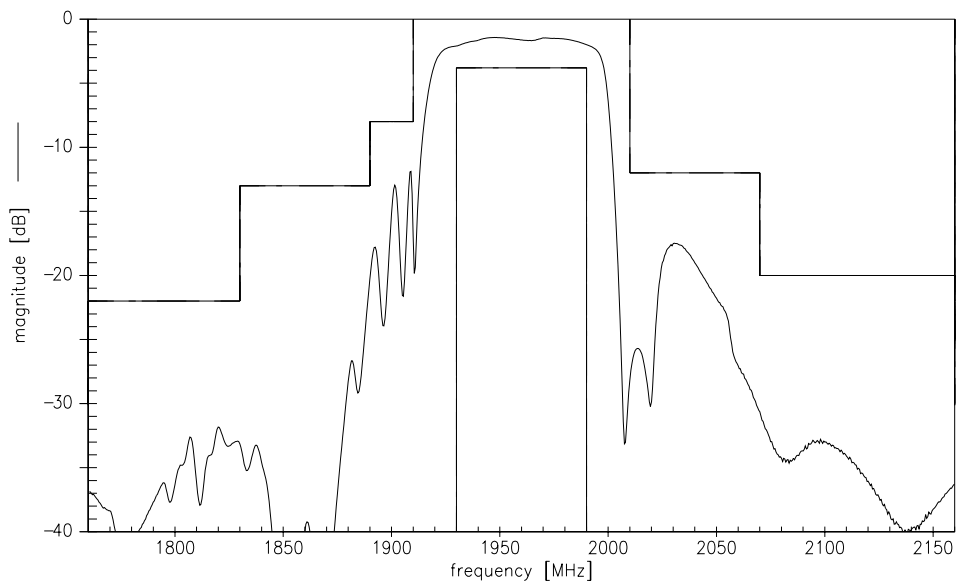
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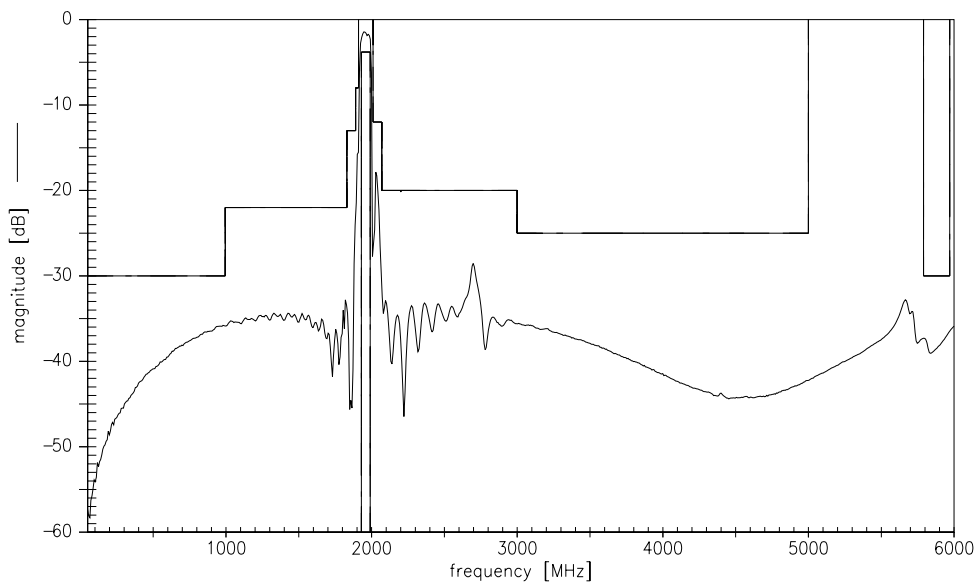
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Transfer function Filter 2 (PCS)



Transfer function Filter 2 (PCS) - wideband





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