



SAW Components

Data Sheet B7653





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Low-Loss Dual Band Filter for Mobile Communication

881,5 & 1960,0 MHz

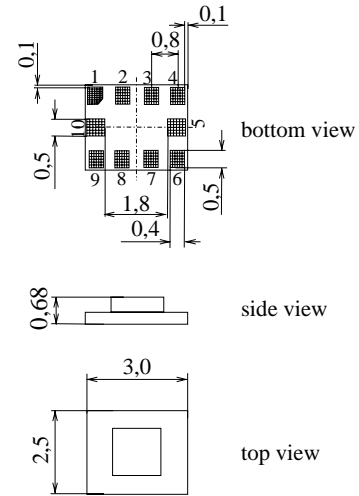
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Chip Sized Saw Package QCS10C

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)**

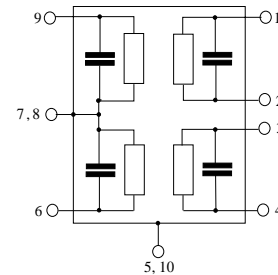


Terminals

- 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

Dimensions in mm, approx. weight 0,015g



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	peak power of GSM signal, duty cycle 4:8
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	
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: $Z_S = 50$ Ω
 Terminating load impedance: $Z_L = 200$ Ω || 56 nH

		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}	—	3,0	3,5*	dB
	869,0 ... 894,0 MHz				
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,5	2,0	dB
	869,0 ... 894,0 MHz				
Input return loss		8,0	12,0	—	dB
	869,0 ... 894,0 MHz				
Output return loss		8,0	11,0	—	dB
	869,0 ... 894,0 MHz				
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)		-5,0	—	+10,0	°
	869,0 ... 894,0 MHz				
Output amplitude balance ($ S_{31} / S_{21} $)		-1,1	—	+0,7	dB
	869,0 ... 894,0 MHz				
Inter-band isolation	α_{min}	30,0	40,0	—	dB
	1930,0 ... 1990,0 MHz				
Attenuation	α_{min}				
	10,0 ... 600,0 MHz	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	α_{min}	35,0	—	—	dB
	824,0 ... 849,0 MHz				

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



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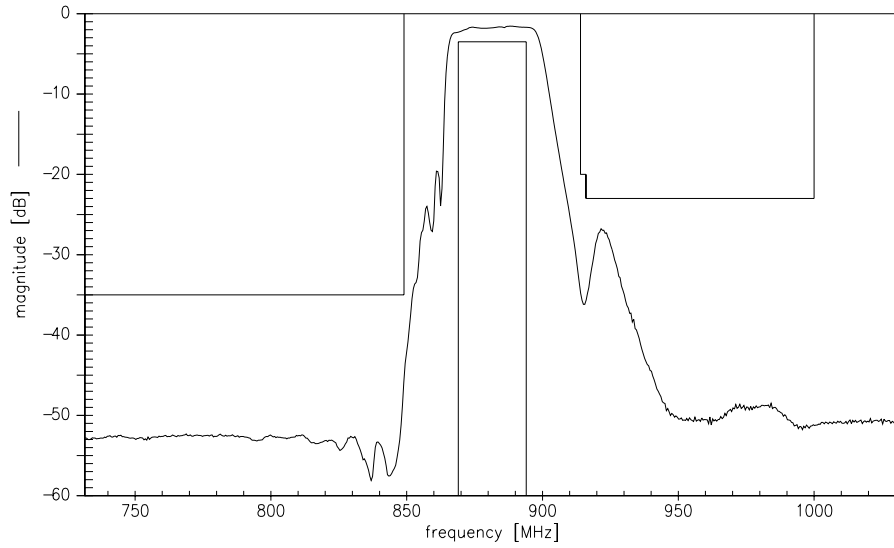
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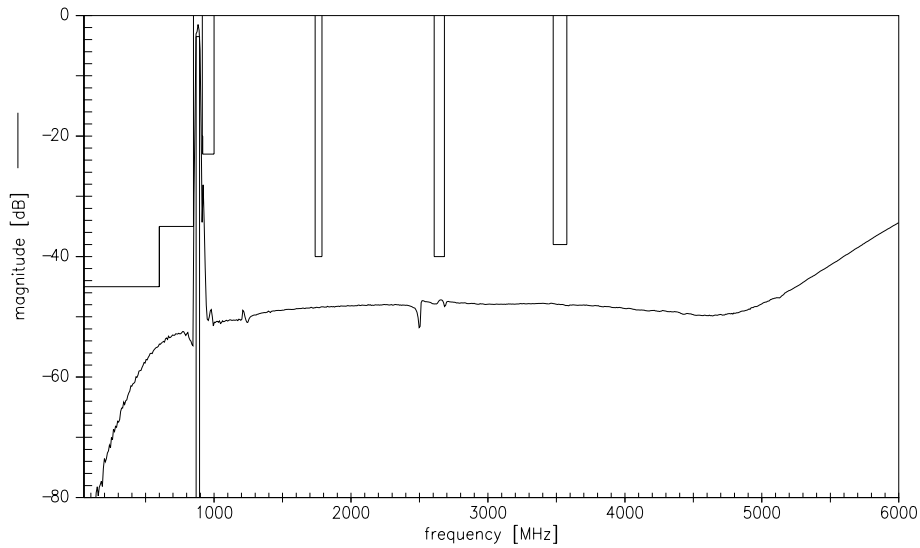
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Transfer function Filter 1 (AMPS)



Transfer function Filter 1 (AMPS) - wideband





Data Sheet



Characteristics of Filter 2 (PCS)

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

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

* 3,5 dB (2,9 dB typ.) for temperature range $25 \pm 10^\circ\text{C}$

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



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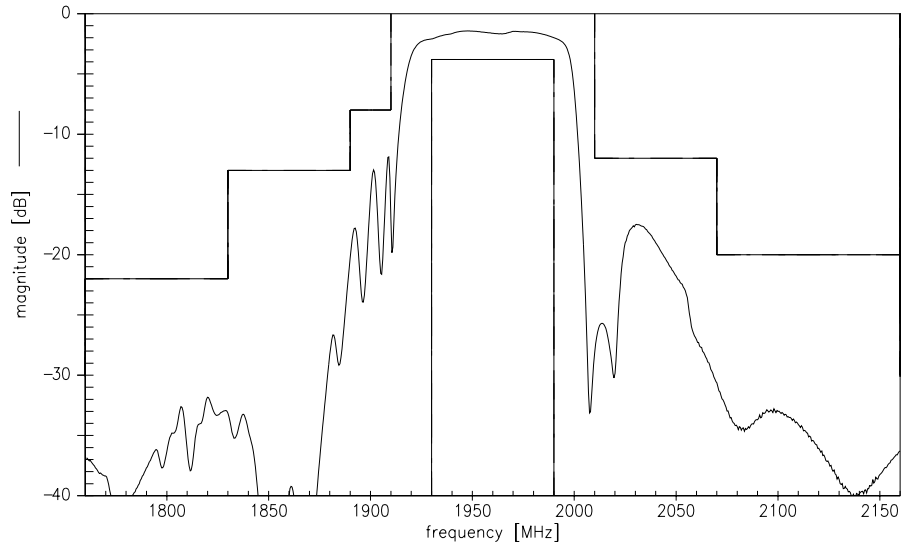
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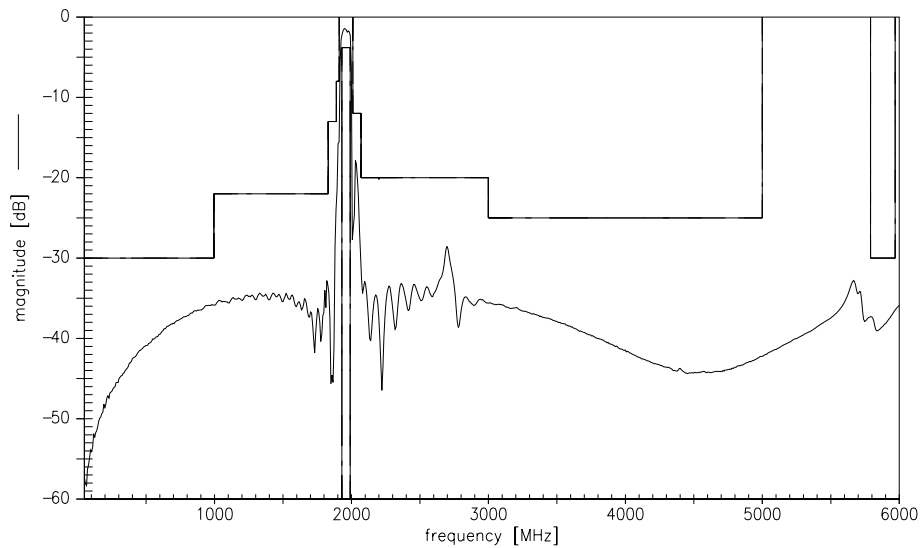
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Transfer function Filter 2 (PCS)



Transfer function Filter 2 (PCS) - wideband





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