EPCOS

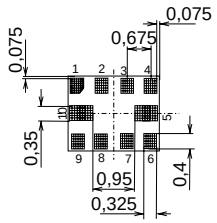
SAW Components

Data Sheet B9200

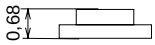
Chip sized saw package **QCS10D**

Features

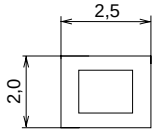
- Low-loss RF filter for mobile telephone CDMA 800/1900 system , receive path
- Usable passband:
  Filter 1 (CDMA800): 25 MHz
  Filter 2 (CDMA1900): 60 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 100 Ω for both filters
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)



bottom view



side view



top view

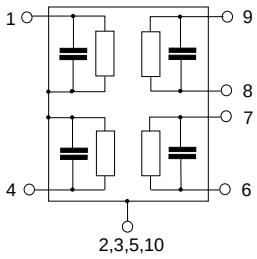
Dimensions in mm, approx. weight 12mg

Terminals

- Ni, gold-plated

Pin configuration

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



Type	Ordering code	Marking and Package according to	Packing according to
B9200	B39202-B9200-G610	C61157-A7-A112	F61074-V8153-Z000

Electrostatic **S**ensitive **D**evice (**ESD)**

Maximum ratings

Operable temperature range	T	– 30 / + 85	˚C	
Storage temperature range	T_{stg}	– 40 / + 85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}*	50	V	Machine Model, 10 pulses
Input power at CDMA800/1900 Tx bands:				
Filter 1 (CDMA800-Rx)	P_{IN}	15	dBm	continuous wave
Filter 2 (CDMA1900-Rx)	P_{IN}	12	dBm	@ +55 ˚C ambient

* - acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses

Characteristics Filter 1 (CDMA800)

Operating temperature range: T = +25 ± 2 °C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 100 Ω (balanced) || 100nH

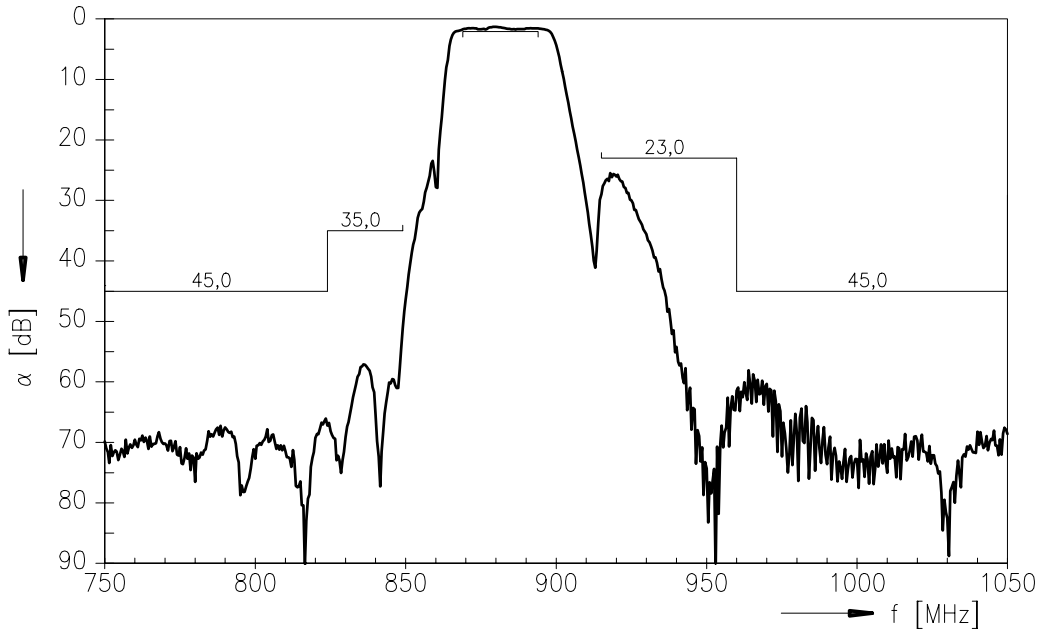
		min.	typ.	max.	
Center frequency	f_c	—	881,50	—	MHz
Maximum insertion attenuation	α_{max}				
869,0 ... 894,0 MHz		—	1,8	2,1	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,6	1,0	dB
Input VSWR					
869,0 ... 894,0 MHz		—	1,7	1,9	
Output VSWR					
869,0 ... 894,0 MHz		—	1,8	2,0	
Output amplitude balance ($\|S_{31}/S_{21}\|$)					
869,0 ... 894,0 MHz		-0,5	-0,1/+ 0,1	0,5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180°$)					
869,0 ... 894,0 MHz		-5,0	-1/+ 2	5,0	degree
Inter-band isolation	α_{min}				
1930,0 ...1990,0 MHz		30,0	52,0	—	dB
Attenuation	α_{min}				
10,0 ... 824,0 MHz		45,0	65,0	—	dB
824,0 ... 849,0 MHz		35,0	48,0	—	dB
915,0 ... 960,0 MHz		23,0	26,0	—	dB
960,0 ...3000,0 MHz		45,0	59,0	—	dB
3000,0 ...6000,0 MHz		30,0	60,0	—	dB

Characteristics Filter 1 (CDMA800)

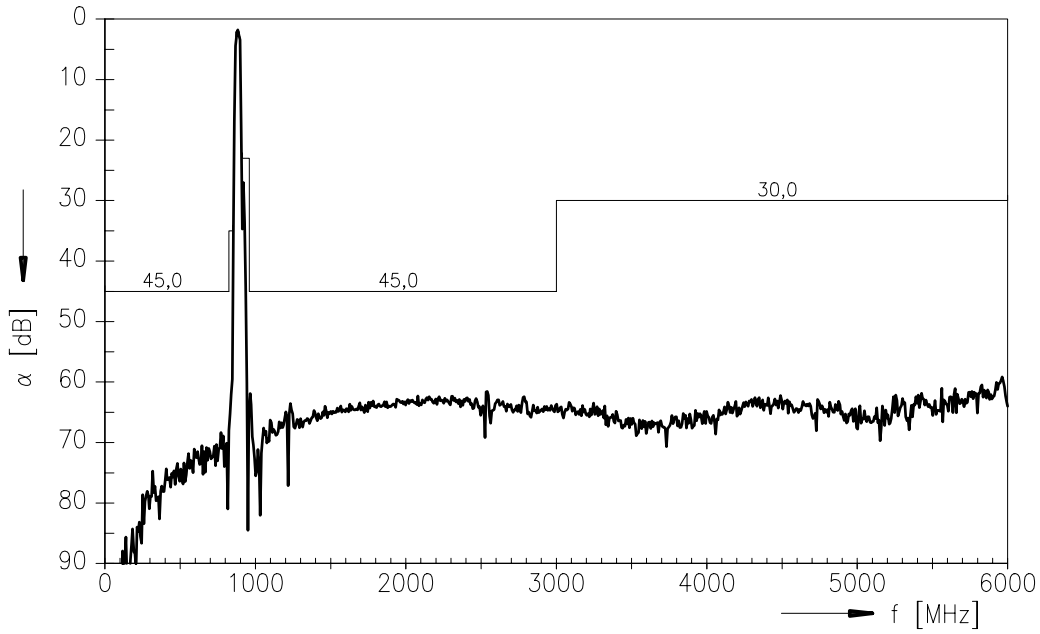
Operating temperature range: T = -30 to +85˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 100 Ω (balanced) || 100nH

		min.	typ.	max.	
Center frequency	f_c	—	881,50	—	MHz
Maximum insertion attenuation	α_{max}				
869,0 ... 894,0 MHz		—	1,9	2,2	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,7	1,1	dB
Input VSWR					
869,0 ... 894,0 MHz		—	1,7	1,9	
Output VSWR					
869,0 ... 894,0 MHz		—	1,8	2,0	
Output amplitude balance ($\|S_{31}/S_{21}\|$)					
869,0 ... 894,0 MHz		-0,5	-0,1/ +0,1	0,5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
869,0 ... 894,0 MHz		-5,0	-1/+ 2	5,0	degree
Inter-band isolation	α_{min}				
1930,0 ...1990,0 MHz		30,0	52,0	—	dB
Attenuation	α_{min}				
10,0 ... 824,0 MHz		45,0	65,0	—	dB
824,0 ... 849,0 MHz		35,0	44,0	—	dB
915,0 ... 960,0 MHz		23,0	25,0	—	dB
960,0 ...3000,0 MHz		45,0	59,0	—	dB
3000,0 ...6000,0 MHz		30,0	60,0	—	dB

Transfer function Filter 1 (CDMA800) - spec for 25 ˚C



Transfer function Filter 1 (CDMA800) - wideband



Characteristics Filter 2 (CDMA1900)

Operating temperature range: T = +25 ± 2 °C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 100 Ω (balanced) || 15nH

		min.	typ.	max.	
Center frequency	f_c	—	1960,0	—	MHz
Maximum insertion attenuation	α_{max}				
1930,0 ...1990,0 MHz		—	2,6	3,2	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930,0 ...1990,0 MHz		—	1,2	1,8	dB
Input VSWR					
1930,0 ...1990,0 MHz		—	2,0	2,3	
Output VSWR					
1930,0 ...1990,0 MHz		—	2,0	2,3	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
1930,0 ...1990,0 MHz		-1,4	-1,0/+ 0,8	1,4	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180°$)					
1930,0 ...1990,0 MHz		-12,0	-9/+ 9	12,0	degree
Inter-band isolation	α_{min}				
869,0 ... 894,0 MHz		30,0	52,0	—	dB
Attenuation	α_{min}				
10,0 ...1850,0 MHz		30,0	37,0	—	dB
1850,0 ...1910,0 MHz		19,0	20,0	—	dB
2040,0 ...2200,0 MHz		25,0	32,0	—	dB
2200,0 ...2800,0 MHz		30,0	41,0	—	dB
2800,0 ...3400,0 MHz		40,0	46,0	—	dB
3400,0 ...6000,0 MHz		35,0	45,0	—	dB

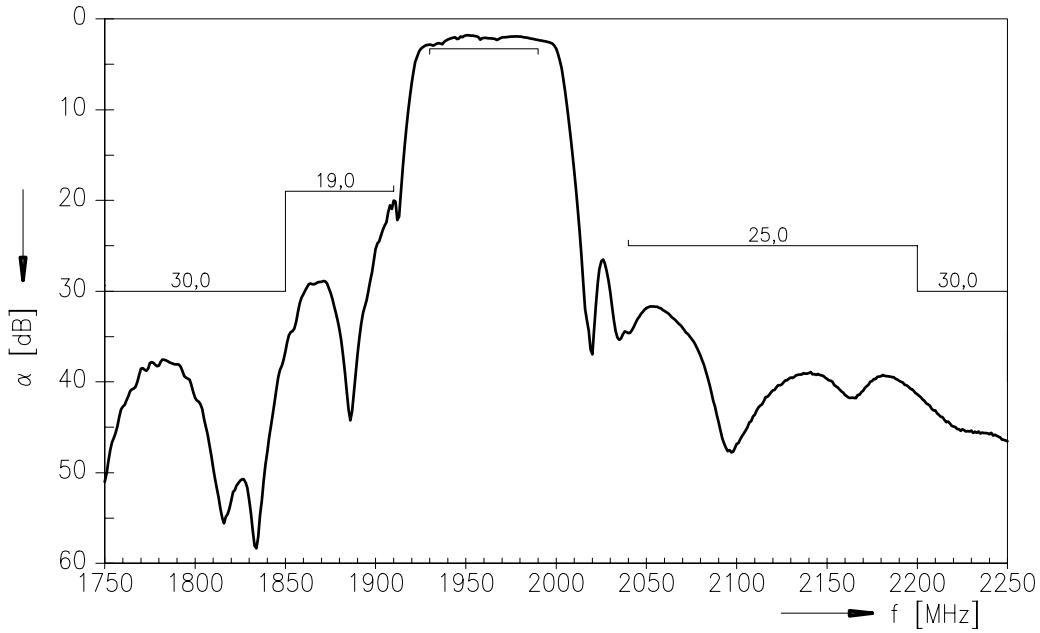
Characteristics Filter 2 (CDMA1900)

Operating temperature range: T = -30 to +85˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 100 Ω (balanced) || 15nH

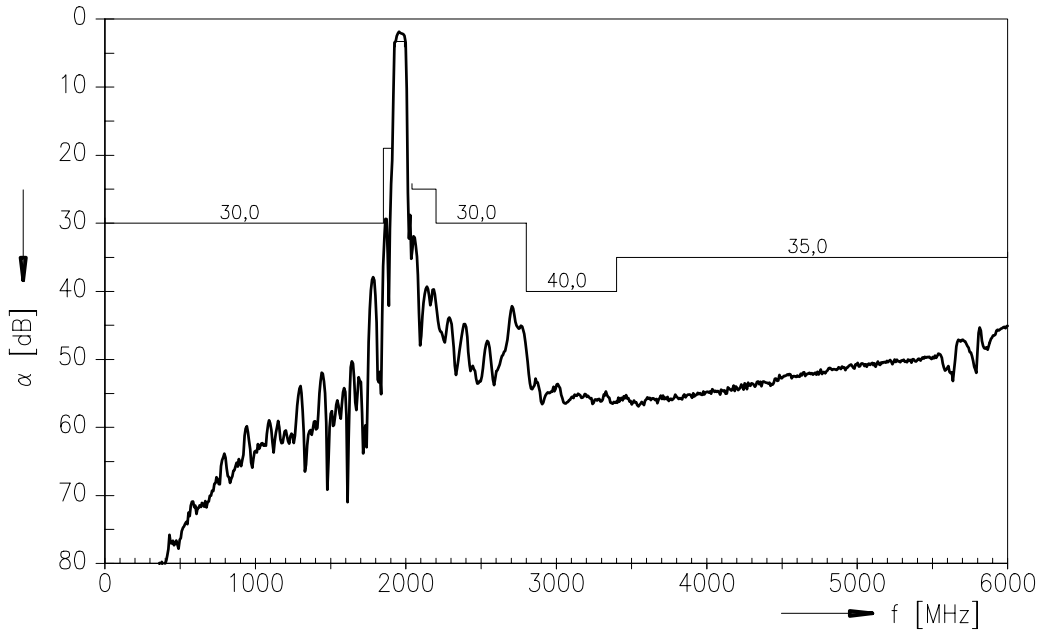
		min.	typ.	max.	
Center frequency	f_c	—	1960,0	—	MHz
Maximum insertion attenuation	α_{max}				
1930,0 ...1990,0 MHz		—	2,7	3,6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930,0 ...1990,0 MHz		—	1,3	2,2 1)	dB
Input VSWR					
1930,0 ...1990,0 MHz		—	2,0	2,3	
Output VSWR					
1930,0 ...1990,0 MHz		—	2,0	2,3	
Output amplitude balance ($\|S_{31}/S_{21}\|$)					
1930,0 ...1990,0 MHz		-1,8	-1,0/+ 1,2	1,8	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
1930,0 ...1990,0 MHz		-12,0	-9/ +9	12,0	degree
Inter-band isolation	α_{min}				
869,0 ... 894,0 MHz		30,0	52,0	—	dB
Attenuation	α_{min}				
10,0 ...1850,0 MHz		30,0	37,0	—	dB
1850,0 ...1910,0 MHz		15,0	20,0	—	dB
2040,0 ...2200,0 MHz		25,0	32,0	—	dB
2200,0 ...2800,0 MHz		30,0	41,0	—	dB
2800,0 ...3400,0 MHz		40,0	46,0	—	dB
3400,0 ...6000,0 MHz		35,0	45,0	—	dB

1) 2,1 for T = -30 to +70˚C

Transfer function Filter 2 (CDMA1900) - spec for 25 ˚C



Transfer function Filter 2 (CDMA1900) - wideband



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