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# SAW Components

Data Sheet B9200





<b>SAW Components</b>	<b>B9200</b>
<b>Low-Loss Dual Band Filter for Mobile Communication</b>	<b>881,5 / 1960,0 MHz</b>

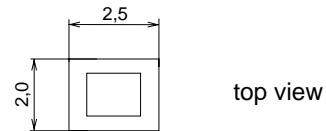
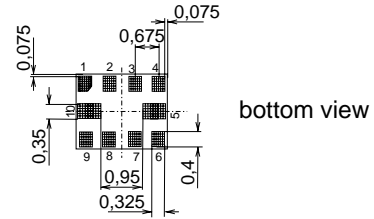
Data Sheet



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 **Surface Mounted Technology (SMT)**



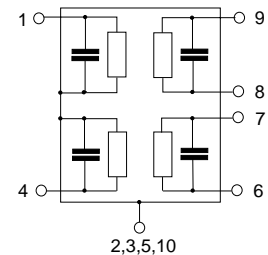
Dimensions in mm, approx. weight 12mg

**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 Sensitive Device (ESD)**

**Maximum ratings**

Operable temperature range	$T$	- 30 / + 85	°C	Machine Model, 10 pulses
Storage temperature range	$T_{stg}$	- 40 / + 85	°C	
DC voltage	$V_{DC}$	5	V	
ESD voltage	$V_{ESD}^*$	50	V	
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



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**Characteristics Filter 1 ( CDMA800 )**

Operating temperature range:  $T = +25 \pm 2 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ } \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 100 \text{ } \Omega$  (balanced) || 100nH

			<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>	$f_c$		—	881,50	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	869,0 ... 894,0 MHz	—	1,8	2,1	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	869,0 ... 894,0 MHz	—	0,6	1,0	dB
<b>Input VSWR</b>		869,0 ... 894,0 MHz	—	1,7	1,9	
<b>Output VSWR</b>		869,0 ... 894,0 MHz	—	1,8	2,0	
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		869,0 ... 894,0 MHz	-0,5	-0,1/+ 0,1	0,5	dB
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^\circ</math>)</b>		869,0 ... 894,0 MHz	-5,0	-1/+ 2	5,0	degree
<b>Inter-band isolation</b>	$\alpha_{min}$	1930,0 ... 1990,0 MHz	30,0	52,0	—	dB
<b>Attenuation</b>	$\alpha_{min}$	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



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**Characteristics Filter 1 ( CDMA800 )**

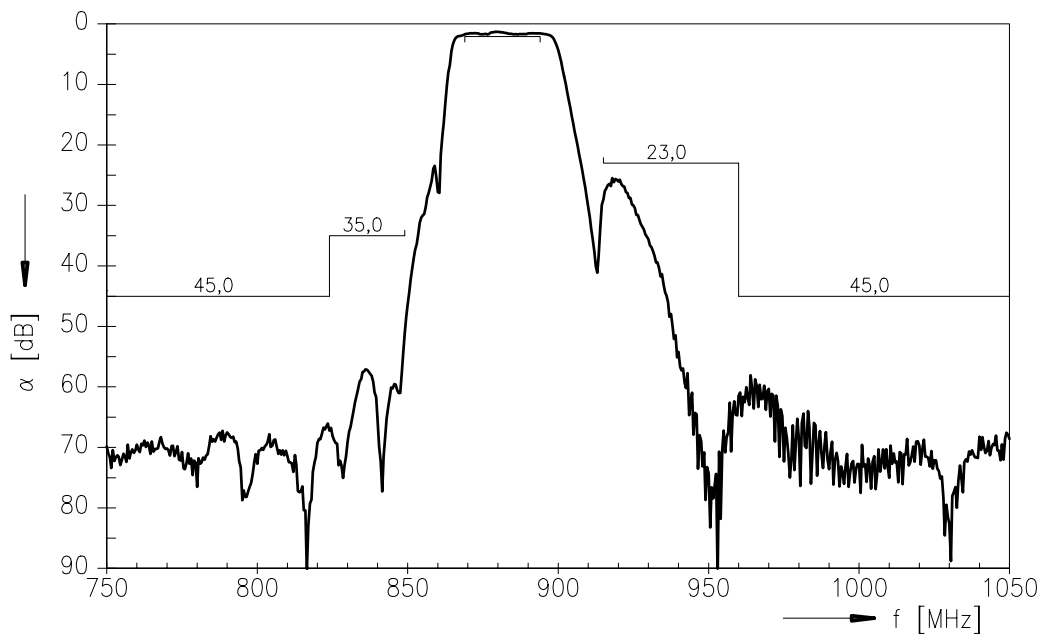
Operating temperature range:  $T = -30$  to  $+85^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 100\ \Omega$  (balanced) || 100nH

				<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>	$f_c$			—	881,50	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	869,0 ... 894,0	MHz	—	1,9	2,2	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	869,0 ... 894,0	MHz	—	0,7	1,1	dB
<b>Input VSWR</b>		869,0 ... 894,0	MHz	—	1,7	1,9	
<b>Output VSWR</b>		869,0 ... 894,0	MHz	—	1,8	2,0	
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		869,0 ... 894,0	MHz	-0,5	-0,1/ +0,1	0,5	dB
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^{\circ}</math>)</b>		869,0 ... 894,0	MHz	-5,0	-1/+ 2	5,0	degree
<b>Inter-band isolation</b>	$\alpha_{\min}$	1930,0 ... 1990,0	MHz	30,0	52,0	—	dB
<b>Attenuation</b>	$\alpha_{\min}$	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

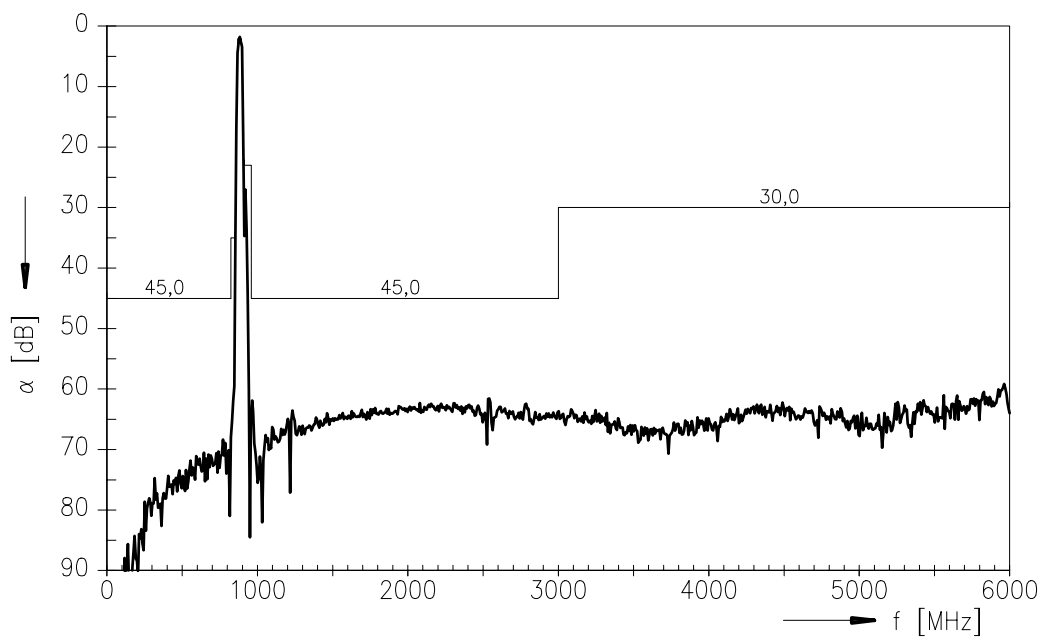


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**Transfer function Filter 1 ( CDMA800 ) - spec for 25 °C**



**Transfer function Filter 1 ( CDMA800 ) - wideband**





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<b>Low-Loss Dual Band Filter for Mobile Communication</b>	<b>881,5 / 1960,0 MHz</b>
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**Characteristics Filter 2 ( CDMA1900 )**

Operating temperature range:  $T = +25 \pm 2 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ } \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 100 \text{ } \Omega$  (balanced) || 15nH

			min.	typ.	max.	
<b>Center frequency</b>	$f_c$		—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$		—	2,6	3,2	
		1930,0 ... 1990,0 MHz				dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$		—	1,2	1,8	
		1930,0 ... 1990,0 MHz				dB
<b>Input VSWR</b>			—	2,0	2,3	
		1930,0 ... 1990,0 MHz				
<b>Output VSWR</b>			—	2,0	2,3	
		1930,0 ... 1990,0 MHz				
<b>Output amplitude balance (<math> S_{31} / S_{21} </math>)</b>			-1,4	-1,0/+ 0,8	1,4	
		1930,0 ... 1990,0 MHz				dB
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^\circ</math>)</b>			-12,0	-9/+ 9	12,0	
		1930,0 ... 1990,0 MHz				degree
<b>Inter-band isolation</b>	$\alpha_{min}$		30,0	52,0	—	
		869,0 ... 894,0 MHz				dB
<b>Attenuation</b>	$\alpha_{min}$		30,0	37,0	—	
		10,0 ... 1850,0 MHz				dB
		1850,0 ... 1910,0 MHz				dB
		2040,0 ... 2200,0 MHz				dB
		2200,0 ... 2800,0 MHz				dB
		2800,0 ... 3400,0 MHz				dB
		3400,0 ... 6000,0 MHz				dB



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**Characteristics Filter 2 ( CDMA1900 )**

Operating temperature range:  $T = -30$  to  $+85^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50 \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 100 \Omega$  (balanced) || 15nH

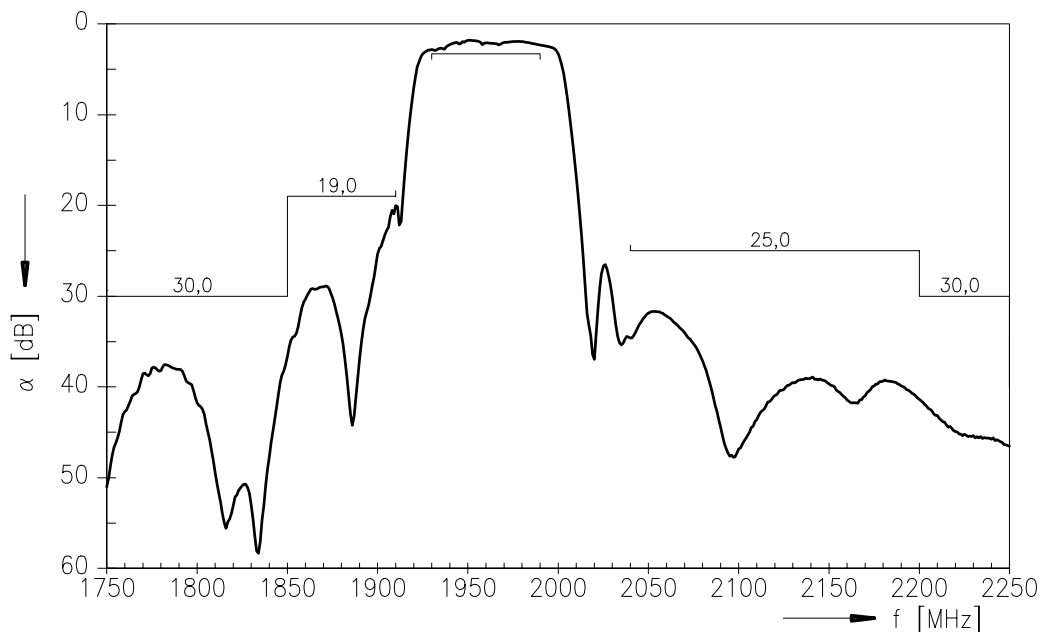
			min.	typ.	max.	
<b>Center frequency</b>	$f_c$		—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	1930,0 ... 1990,0 MHz	—	2,7	3,6	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	1930,0 ... 1990,0 MHz	—	1,3	2,2 <sup>1)</sup>	dB
<b>Input VSWR</b>		1930,0 ... 1990,0 MHz	—	2,0	2,3	
<b>Output VSWR</b>		1930,0 ... 1990,0 MHz	—	2,0	2,3	
<b>Output amplitude balance (<math> S_{31} / S_{21} </math>)</b>		1930,0 ... 1990,0 MHz	-1,8	-1,0/+ 1,2	1,8	dB
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^{\circ}</math>)</b>		1930,0 ... 1990,0 MHz	-12,0	-9/ +9	12,0	degree
<b>Inter-band isolation</b>	$\alpha_{\min}$	869,0 ... 894,0 MHz	30,0	52,0	—	dB
<b>Attenuation</b>	$\alpha_{\min}$	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  $+70^{\circ}\text{C}$

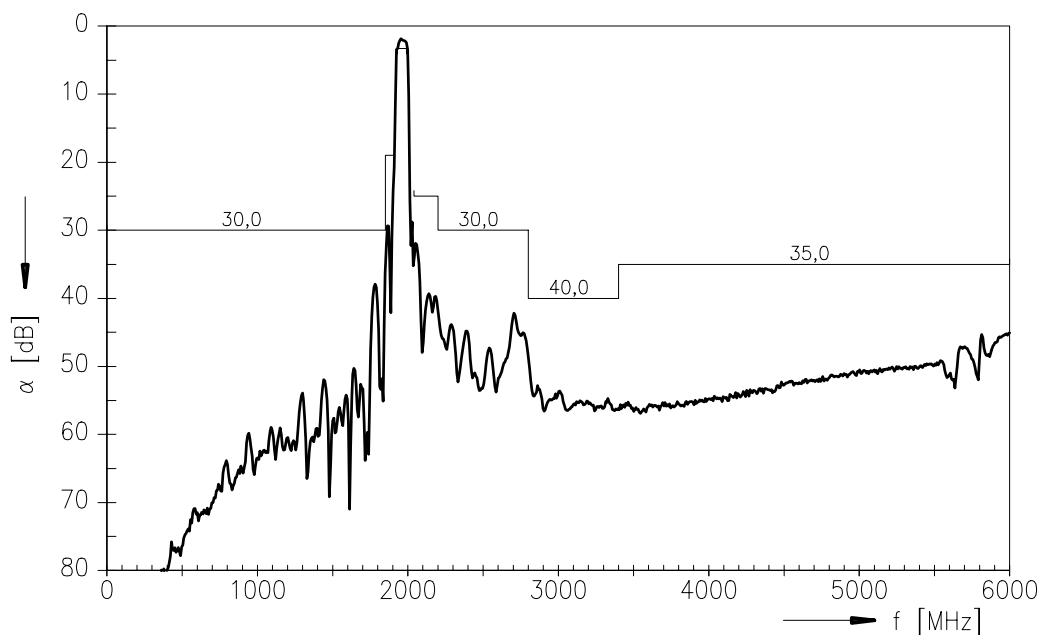


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**Transfer function Filter 2 ( CDMA1900 ) - spec for 25 °C**



**Transfer function Filter 2 ( CDMA1900 ) - wideband**







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Data Sheet	The SMD logo is a stylized, bold, sans-serif font with a horizontal line through the middle of the letters, giving it a modern, industrial appearance.

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