

Data Sheet B9200





B9200

#### **Low-Loss Dual Band Filter for Mobile Communication**

881,5 / 1960,0 MHz

**Data Sheet** 

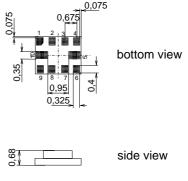


#### **Features**

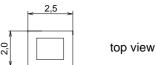
- Low-loss RF filter for mobile telephone CDMA 800/1900 system, receive path
- Usable passband:

Filter 1 (CDMA800): 25 MHz Filter 2 (CDMA1900): 60 MHz

- Unbalanced to balanced operation of both filters
- $\blacksquare$  Impedance transformation from 50  $\Omega$  to 100  $\Omega$  for both filters
- Ceramic package for Surface Mounted Technology (SMT)



Chip sized saw package QCS10D



#### **Terminals**

■ Ni, gold-plated

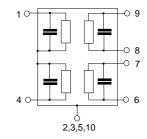
#### Pin configuration

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

# Dimensions in mm, approx. weight 12mg



Туре	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	Τ	<b>– 30 / + 85</b>	°C	
Storage temperature range	$T_{stg}$	<b>- 40 / + 85</b>	°C	
DC voltage	$V_{\rm DC}$	5	V	
ESD voltage	V <sub>ESD</sub> *	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

<sup>\* -</sup> acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses



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# Characteristics Filter 1 ( CDMA800 )

 $T = +25 \pm 2 \,^{\circ}\text{C}$ Operating temperature range:

Terminating source impedance:

 $Z_{\rm S} = 50~\Omega$  (unbalanced)  $Z_{\rm L} = 100~\Omega$  (balanced) || 100nH Terminating load impedance:

					min.	typ.	max.	
Center frequency				f <sub>C</sub>	_	881,50	_	MHz
Maximum insertion attenuation		$\alpha_{max}$						
8	69,0	894,0	MHz		_	1,8	2,1	dB
Amplitude ripple (p-p)				Δα				
8	69,0	894,0	MHz			0,6	1,0	dB
Input VSWR								
Output VSWR	869,0	894,0	MHz			1,7	1,9	
•	869,0	894,0	MHz		_	1,8	2,0	
Output amplitude balance $( S_{31}/S_{21} )$								
8	869,0	894,0	MHz		-0,5	-0,1/+ 0,1	0,5	dB
Output phase balance $(\phi(S_{31})-\phi(S_{21})+180^{\circ})$								
8	69,0	894,0	MHz		-5,0	-1/+ 2	5,0	degree
Inter-band isolation				$\alpha_{\text{min}}$				
19	0,08	1990,0	MHz		30,0	52,0	_	dB
Attenuation				$\alpha_{\text{min}}$				
	•	824,0	MHz		45,0	65,0	_	dB
		849,0	MHz		35,0	48,0	_	dB
		960,0	MHz		23,0	26,0	_	dB
	,	3000,0	MHz		45,0	59,0	_	dB
30	0,00	6000,0	MHz		30,0	60,0		dB



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# Characteristics Filter 1 ( CDMA800 )

 $T = -30 \text{ to } +85^{\circ} \text{ C}$ Operating temperature range:  $Z_{\rm S} = 50~\Omega$  (unbalanced)  $Z_{\rm L} = 100~\Omega$  (balanced) || 100nH Terminating source impedance:

Terminating load impedance:

	min.	typ.	max.	
f <sub>c</sub>	_	881,50	_	MHz
<sup>tx</sup> max		1 9	22	dB
		1,5	۷,۷	ub
Δα				
	_	0,7	1,1	dB
		4.7	4.0	
		1,7	1,9	
		1.8	2.0	
		1,0	2,0	
	-0,5	-0,1/ +0,1	0,5	dB
	5.0	1/1.2	5.0	degree
	-5,0	-1/+ 2	5,0	uegree
$\alpha_{min}$				
	30,0	52,0	_	dB
$\alpha_{min}$				
	•	,	_	dB
		,	_	dB dB
			_	dB
	30,0	60,0	_	dB
_	$^{\chi}_{ ext{max}}$	- X <sub>max</sub> —	- 1,9 Δα - 0,7 - 1,7 - 1,8 -0,5 -0,1/+0,1 -5,0 -1/+ 2  x <sub>min</sub> 30,0 52,0  x <sub>min</sub> 45,0 65,0 35,0 44,0 23,0 25,0 45,0 59,0	



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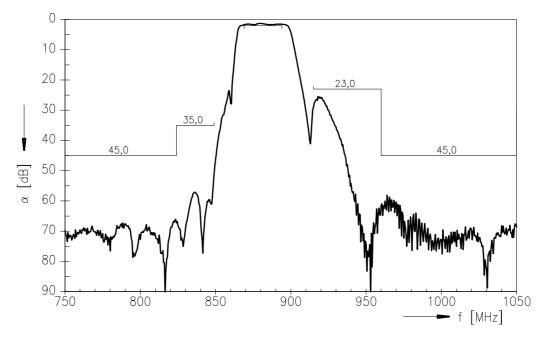
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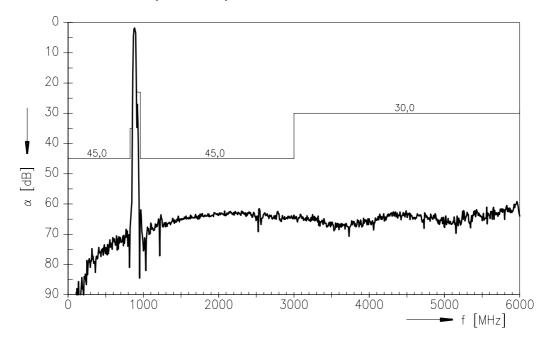
**Data Sheet** 



# Transfer function Filter 1 ( CDMA800 ) - spec for 25 $^{\circ}\text{C}$



# Transfer function Filter 1 ( CDMA800 ) - wideband





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**Data Sheet** 



# Characteristics Filter 2 ( CDMA1900 )

Operating temperature range:  $T = +25 \pm 2 \,^{\circ}\text{C}$ 

Terminating source impedance:  $Z_{\rm S}=50~\Omega$  (unbalanced) Terminating load impedance:  $Z_{\rm L}=100~\Omega$  (balanced) || 15nH

			min.	typ.	max.	
Center frequency		f <sub>C</sub>	_	1960,0	_	MHz
Maximum in aution attanuation		O.				
Maximum insertion attenuation 1930,019	90,0 MHz	$\alpha_{\text{max}}$		2,6	3,2	dB
1000,0 10	30,0 111112			2,0	0,2	u B
Amplitude ripple (p-p)		Δα				
1930,019	90,0 MHz		_	1,2	1,8	dB
Input VSWR						
1930,0199	90,0 MHz		_	2,0	2,3	
Output VSWR 1930,019	90,0 MHz			2,0	2,3	
1930,0 19	90,0 IVII 12			2,0	2,0	
Output amplitude balance $( S_{31}/S_{21} $	)					
1930,019			-1,4	-1,0/+ 0,8	1,4	dB
Output phase balance $(\phi(S_{31})-\phi(S_{21})$						
1930,0199	90,0 MHz		-12,0	-9/+ 9	12,0	degree
Inter-band isolation	α.					
869,0 8	94,0 MHz	$\alpha_{min}$	30,0	52,0	_	dB
333,3 3	.,.		00,0	02,0		
Attenuation		$\alpha_{\text{min}}$				
10,018	50,0 MHz		30,0	37,0	_	dB
1850,019	•		19,0	20,0	_	dB
2040,022			25,0	32,0		dB
2200,0280	•		30,0	41,0	_	dB
2800,034	•		40,0	46,0	_	dB
3400,060	00,0 MHz		35,0	45,0		dB



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#### Characteristics Filter 2 (CDMA1900)

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

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

<sup>1) 2,1</sup> for  $T = -30 \text{ to } +70^{\circ}\text{C}$ 



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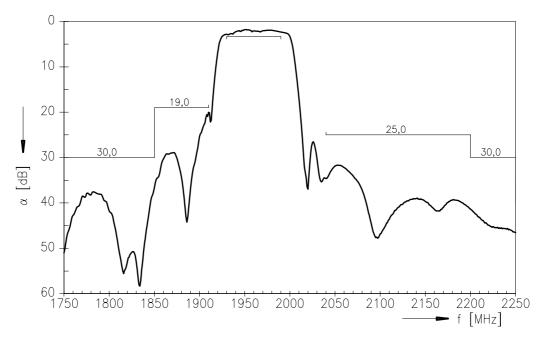
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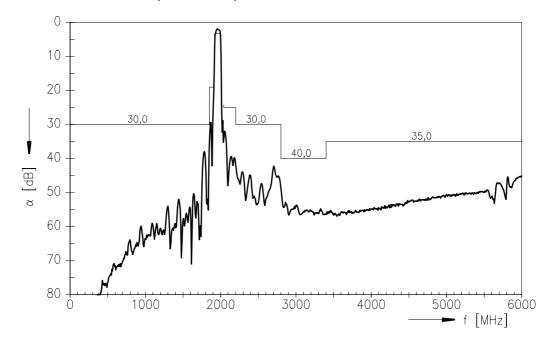
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# Transfer function Filter 2 ( CDMA1900 ) - spec for 25 °C



# Transfer function Filter 2 ( CDMA1900 ) - wideband





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# Published by EPCOS AG Surface Acoustic Wave Components Division, SAW MC WT P.O. Box 80 17 09, 81617 Munich, GERMANY

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