



SAW Components

Data Sheet B4235





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B4235

Low-Loss Dual Band Filter for Mobile Communication

942,5/1842,5 MHz

Data Sheet



Ceramic package **QCC10G**

Features

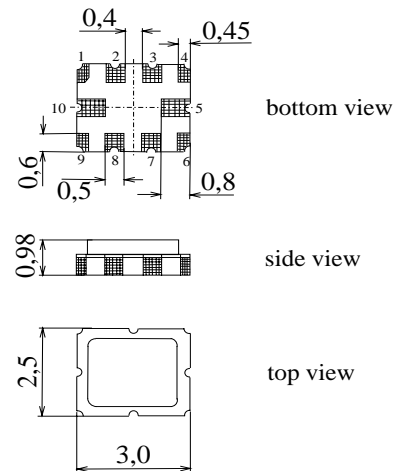
- Low-loss RF filter for mobile telephone GSM 900/1800 system , receive path
- Usable passband:
Filter 1 (GSM900): 35 MHz
Filter 2 (GSM1800): 75 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS class 1 to 12
- Ceramic package for **Surface Mounted Technology (SMT)**
- RoHS compliant

Terminals

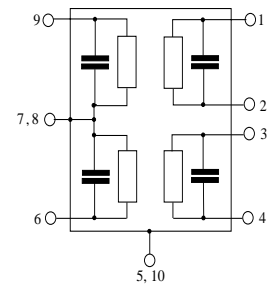
- Ni, gold-plated

Pin configuration

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



Dimensions in mm, approx. weight **27 mg**



Type	Ordering code	Marking and Package according to	Packing according to
B4235	B39182-B4235-H910	C61157-A7-A142	F61074-V8174-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	- 40 / + 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 Tx bands: GSM850, GSM900 GSM1800, GSM1900	P_{IN}	15	dBm	peak power of GSM signal, duty cycle 4:8

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



Characteristics Filter 1 (GSM900)

Operating temperature range: $T = +25 \pm 2 \text{ }^\circ\text{C}$
 Terminating source impedance: $Z_S = 50 \text{ } \Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 150 \text{ } \Omega$ (balanced) || 68 nH

			min.	typ.	max.	
Center frequency	f_c		—	942,5	—	MHz
Maximum insertion attenuation	α_{max}	925,0 ... 960,0 MHz	—	1,8	2,2	dB
Amplitude ripple (p-p)	$\Delta\alpha$	925,0 ... 960,0 MHz	—	0,6	1,2	dB
Input VSWR		925,0 ... 960,0 MHz	—	1,9	2,1	
Output VSWR		925,0 ... 960,0 MHz	—	1,9	2,1	
Output amplitude balance (S_{31}/S_{21})		925,0 ... 960,0 MHz	-2,0	—	2,0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)		925,0 ... 960,0 MHz	-10,0	—	10,0	degree
Absolute attenuation	α_{abs}					
		10,0 ... 480,0 MHz	45,0	53,0	—	dB
		480,0 ... 880,0 MHz	30,0	38,0	—	dB
		880,0 ... 905,0 MHz	24,0	27,0	—	dB
		905,0 ... 915,0 MHz	20,0	25,0	—	dB
		980,0 ... 1050,0 MHz	23,0	30,0	—	dB
		1050,0 ... 3500,0 MHz	30,0	34,0	—	dB
		3500,0 ... 4500,0 MHz	22,0	26,0	—	dB
		4500,0 ... 6000,0 MHz	15,0	17,0	—	dB



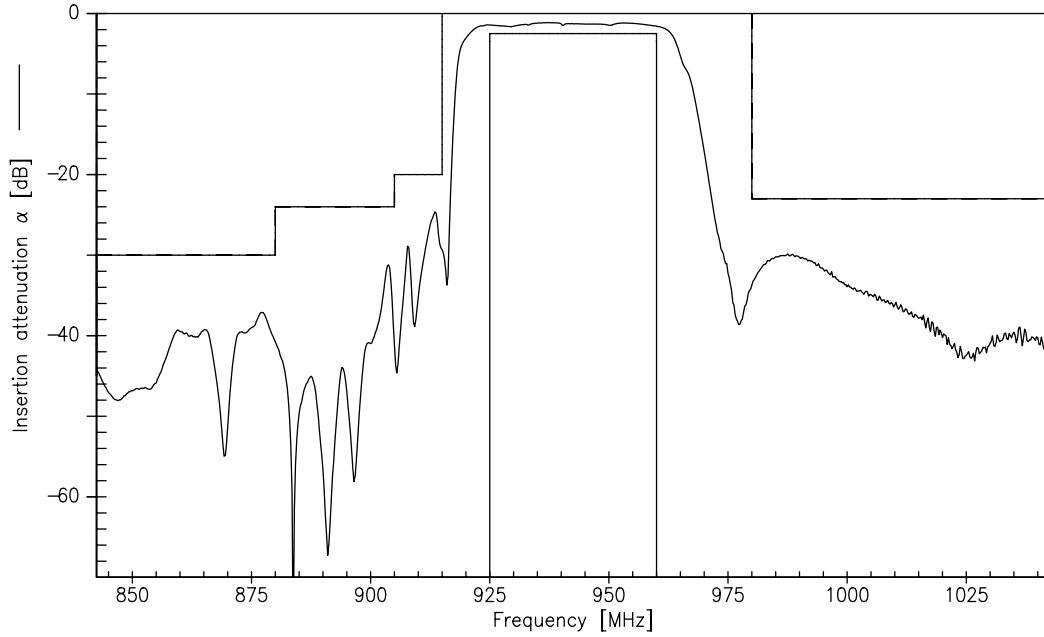
Characteristics Filter 1 (GSM900)

Operating temperature range: $T = -20$ to $+75^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 150\ \Omega$ (balanced) || 68 nH

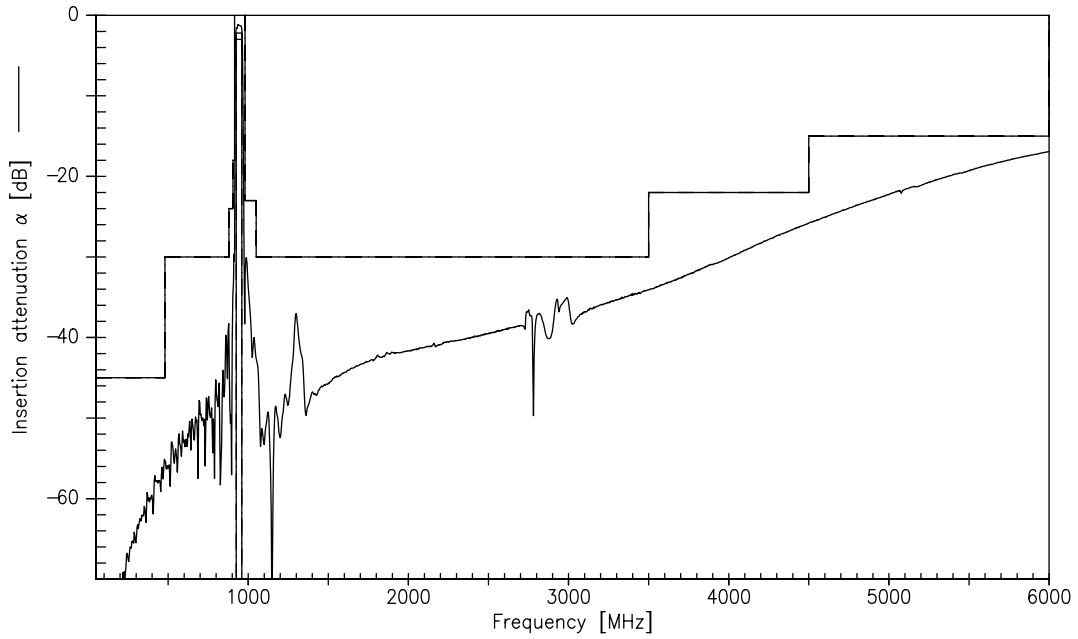
			min.	typ.	max.	
Center frequency	f_c		—	942,5	—	MHz
Maximum insertion attenuation	α_{\max}	925,0 ... 960,0 MHz	—	1,8	2,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$	925,0 ... 960,0 MHz	—	0,9	1,5	dB
Input VSWR		925,0 ... 960,0 MHz	—	1,9	2,1	
Output VSWR		925,0 ... 960,0 MHz	—	1,9	2,1	
Output amplitude balance (S_{31}/S_{21})		925,0 ... 960,0 MHz	-2,5	—	2,5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^{\circ}$)		925,0 ... 960,0 MHz	-12,0	—	12,0	degree
Absolute attenuation	α_{abs}					
		10,0 ... 480,0 MHz	45,0	50,0	—	dB
		480,0 ... 880,0 MHz	30,0	38,0	—	dB
		880,0 ... 905,0 MHz	24,0	27,0	—	dB
		905,0 ... 915,0 MHz	11,0	18,0	—	dB
		980,0 ... 1050,0 MHz	23,0	30,0	—	dB
		1050,0 ... 3500,0 MHz	30,0	34,0	—	dB
		3500,0 ... 4500,0 MHz	22,0	26,0	—	dB
		4500,0 ... 6000,0 MHz	15,0	17,0	—	dB



Transfer function of filter 1 (Narrow Band)



Transfer function of filter 1 (Wide Band)





Characteristics Filter 2 (GSM1800)

Operating temperature range: $T = +25 \pm 2 \text{ }^\circ\text{C}$
 Terminating source impedance: $Z_S = 50 \text{ } \Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 150 \text{ } \Omega$ (balanced) || 12.0 nH

			min.	typ.	max.	
Center frequency	f_c		—	1842,5	—	MHz
Maximum insertion attenuation	α_{\max}	1805,0 ... 1880,0 MHz	—	2,4	2,7	dB
Amplitude ripple (p-p)	$\Delta\alpha$	1805,0 ... 1880,0 MHz	—	1,2	1,5	dB
Input VSWR		1805,0 ... 1880,0 MHz	—	2,4	2,6	
Output VSWR		1805,0 ... 1880,0 MHz	—	2,2	2,4	
Output amplitude balance (S_{31}/S_{21})		1805,0 ... 1880,0 MHz	-1,5	—	1,5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)		1805,0 ... 1880,0 MHz	-10,0	—	10,0	degree
Absolute attenuation	α_{abs}					
		10,0 ... 1000,0 MHz	40,0	50,0	—	dB
		1000,0 ... 1705,0 MHz	26,0	28,0	—	dB
		1705,0 ... 1785,0 MHz	13,0	17,0	—	dB
		1920,0 ... 1980,0 MHz	15,0	24,0	—	dB
		1980,0 ... 2030,0 MHz	24,0	28,0	—	dB
		2030,0 ... 5000,0 MHz	30,0	34,0	—	dB
		5000,0 ... 6000,0 MHz	25,0	30,0	—	dB



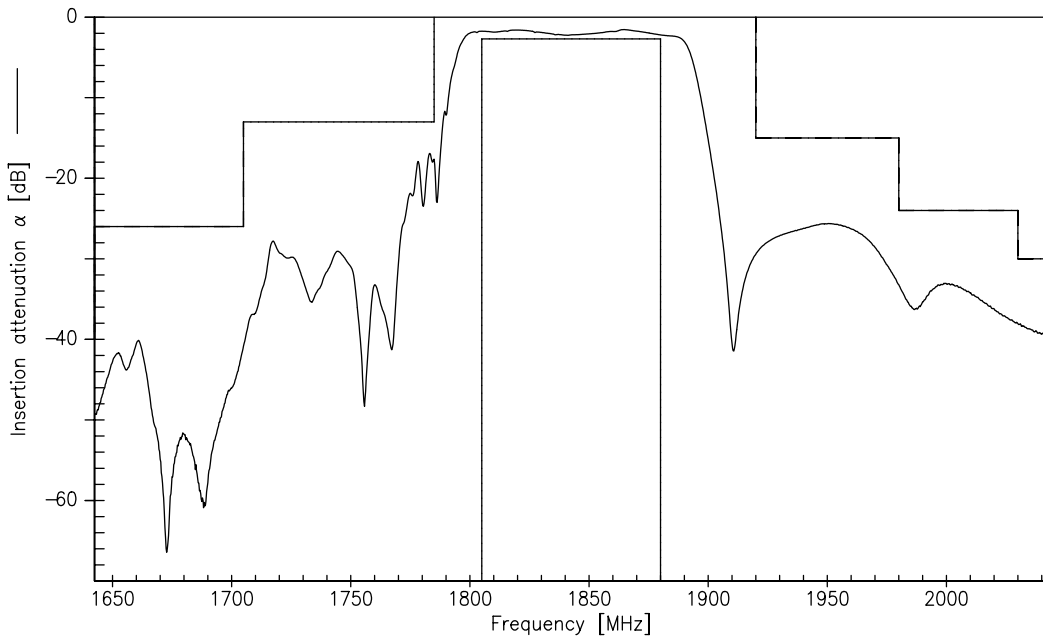
Characteristics Filter 2 (GSM1800)

Operating temperature range: $T = -20$ to $+75^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ (unbalanced)
 Terminating load impedance: $Z_L = 150\ \Omega$ (balanced) || $12.0\ \text{nH}$

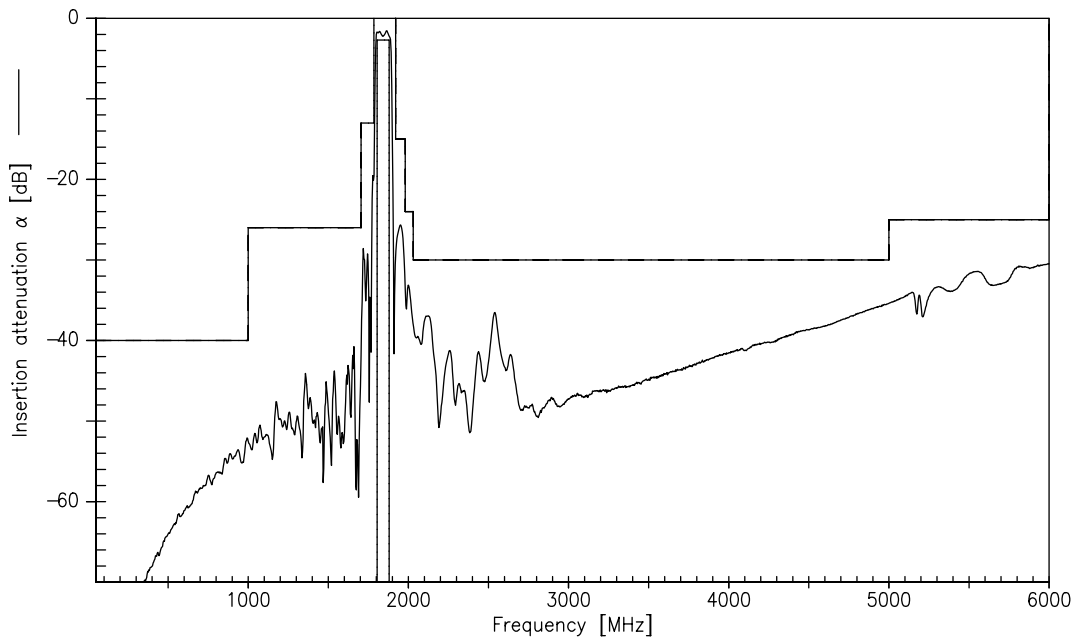
			min.	typ.	max.	
Center frequency	f_c		—	1842,5	—	MHz
Maximum insertion attenuation	α_{max}	1805,0 ... 1880,0 MHz	—	2,4	2,7	dB
Amplitude ripple (p-p)	$\Delta\alpha$	1805,0 ... 1880,0 MHz	—	1,5	1,8	dB
Input VSWR		1805,0 ... 1880,0 MHz	—	2,4	2,6	
Output VSWR		1805,0 ... 1880,0 MHz	—	2,2	2,4	
Output amplitude balance (S_{31}/S_{21})		1805,0 ... 1880,0 MHz	-1,5	—	1,5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^{\circ}$)		1805,0 ... 1880,0 MHz	-10,0	—	10,0	degree
Absolute attenuation	α_{abs}	10,0 ... 1000,0 MHz	40,0	50,0	—	dB
		1000,0 ... 1705,0 MHz	26,0	28,0	—	dB
		1705,0 ... 1785,0 MHz	10,0	17,0	—	dB
		1920,0 ... 1980,0 MHz	15,0	24,0	—	dB
		1980,0 ... 2030,0 MHz	24,0	28,0	—	dB
		2030,0 ... 5000,0 MHz	30,0	34,0	—	dB
		5000,0 ... 6000,0 MHz	25,0	30,0	—	dB



Transfer function of filter 2 (Narrow Band)



Transfer function of filter 2 (Wide Band)





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942,5/1842,5 MHz

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