



SAW Components

SAW Bandpass Filter

IF Filter for SDARS

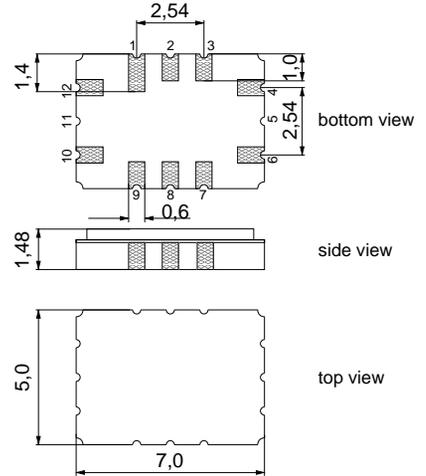
Series/Type:	B1708
Ordering code:	B39725-B1708-H310
Date:	Oct 27, 2005
Version:	1

SMD ceramic package QCC12C
Features

- IF filter for digital radio
- Usable bandwidth 3,7 MHz
- Low insertion attenuation
- Constant group delay
- Balanced to balanced operation
- Ceramic package for **Surface Mounted Technology (SMT)**

Terminals

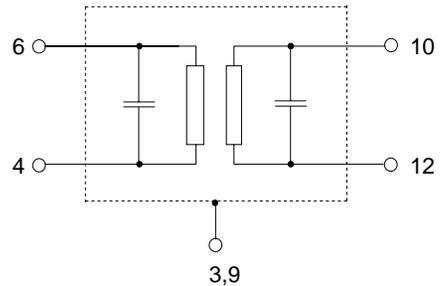
- Ni, gold-plated



Dimensions in mm, approx. weight 0,2 g

Pin configuration

- | | |
|---------|----------------------------------|
| 4 | Balanced input or input ground |
| 6 | Input |
| 10 | Balanced output or output ground |
| 12 | Output |
| 3,9 | Case – ground |
| 1,2,7,8 | To be grounded |



Type	Ordering code	Marking and Package according to	Packing according to
B1708	B39725-B1708-H310	C61157-A7-A95	F61074-V8170-Z000

Electrostatic Sensitive Device (ESD)
Maximum ratings

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T_{stg}	-40/+85	°C	
DC voltage	V_{DC}	0	V	
Source power	P_S	10	dBm	source impedance 50 Ω

Data Sheet

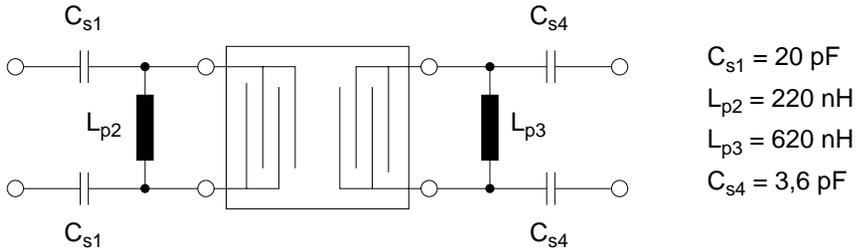


Characteristics

Operating temperature range:	$T = -40\text{ °C} \dots +85\text{ °C}$
Terminating source impedance:	$Z_S = 27\ \Omega$ and matching network
Terminating load impedance:	$Z_L = 1\ \text{k}\Omega$ and matching network

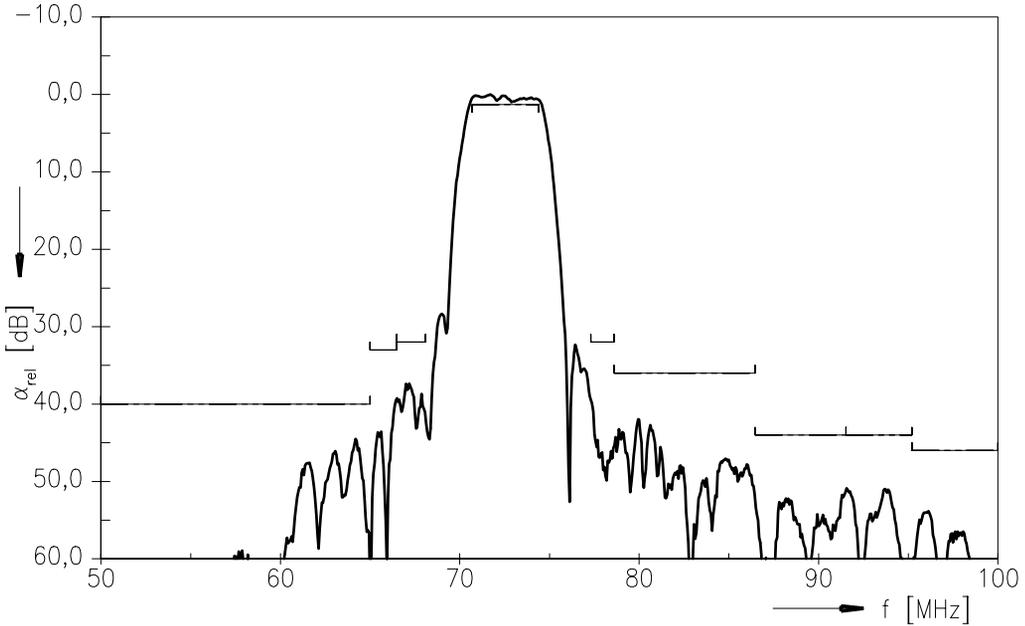
		min.	typ.	max.	
Nominal frequency	f_N	—	72,54	—	MHz
Minimum insertion attenuation (including losses in the matching network)	α_{\min}	—	14,5	16,0	dB
Maximum voltage gain source – load (V_L/V_S)	α_{vgsI}	-4,2	-2,7	—	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	$f_N \pm 1,85\ \text{MHz}$	—	1,0	1,3	dB
Pass bandwidth					
$\alpha_{\text{rel}} \leq 1,5\ \text{dB}$	$B_{1,5\text{dB}}$	—	4,0	—	MHz
$\alpha_{\text{rel}} \leq 3\ \text{dB}$	$B_{3\text{dB}}$	—	4,3	—	MHz
$\alpha_{\text{rel}} \leq 15\ \text{dB}$	$B_{15\text{dB}}$	—	5,7	5,9	MHz
$\alpha_{\text{rel}} \leq 30\ \text{dB}$	$B_{30\text{dB}}$	—	6,6	7,0	MHz
Mean attenuation (relative to α_{\min})	α_{rel}				
Upper sidelobe	86,47 ... 91,53 MHz	48,0	53,0	—	dB
Relative attenuation (relative to α_{\min})	α_{rel}				
Lower sidelobe	50,00 ... 65,00 MHz	40,0	44,0	—	dB
	65,00 ... 66,48 MHz	33,0	38,0	—	dB
	66,48 ... 68,08 MHz	32,0	36,0	—	dB
Upper sidelobe	77,30 ... 78,60 MHz	32,0	36,0	—	dB
	78,60 ... 86,47 MHz	36,0	41,0	—	dB
	86,47 ... 91,53 MHz	44,0	48,0	—	dB
	91,53 ... 95,21 MHz	44,0	48,0	—	dB
	95,21 ... 100,00 MHz	46,0	50,0	—	dB
Group delay ripple (p-p)	$\Delta\tau$				
Aperture 50 kHz	$f_N \pm 1,85\ \text{MHz}$	—	210	—	ns
Temperature coefficient of frequency	TC_f	—	- 18	—	ppm/K

Matching network¹⁾ (based on four port measurement, quality factors $Q_L = 40$, $Q_C = 90$)

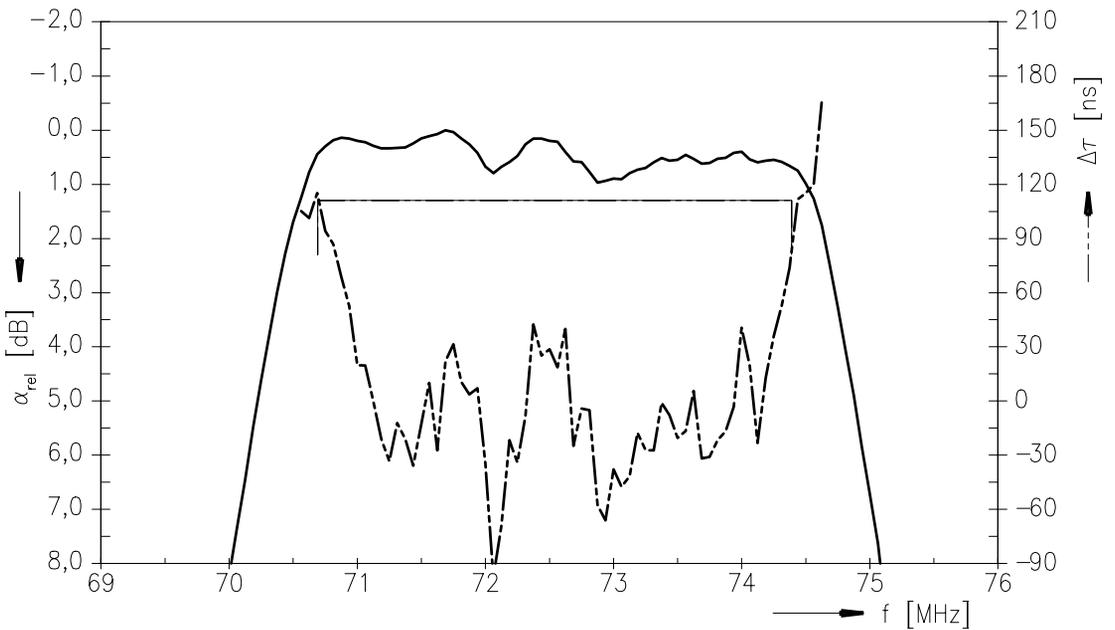


1) The input matching circuit has been designed as a power match of the filter's input port to 175 Ω . In a second step it has been optimized in a narrow range in order to operate at 27 Ω with optimum filter performance.

Transfer function



Transfer function (passband)



Data Sheet

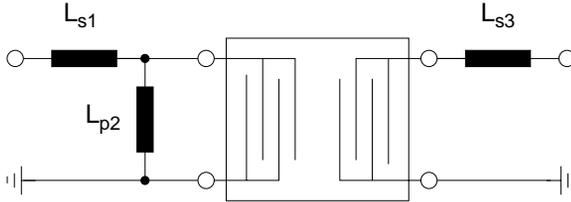


Characteristics

Operating temperature range:	$T = -40\text{ °C} \dots +85\text{ °C}$
Terminating source impedance:	$Z_S = 50\ \Omega$ (single ended) and matching network
Terminating load impedance:	$Z_L = 50\ \Omega$ (single ended) and matching network

		min.	typ.	max.	
Nominal frequency	f_N	—	72,54	—	MHz
Minimum insertion attenuation (including losses in the matching network)	α_{\min}	—	12,9	14,4	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	$f_N \pm 1,85\text{ MHz}$	—	1,2	1,5	dB
Pass bandwidth					
$\alpha_{\text{rel}} \leq 1,5\text{ dB}$	$B_{1,5\text{dB}}$	—	4,0	—	MHz
$\alpha_{\text{rel}} \leq 3\text{ dB}$	$B_{3\text{dB}}$	—	4,4	—	MHz
$\alpha_{\text{rel}} \leq 15\text{ dB}$	$B_{15\text{dB}}$	—	5,8	6,0	MHz
$\alpha_{\text{rel}} \leq 30\text{ dB}$	$B_{30\text{dB}}$	—	6,7	7,0	MHz
Mean attenuation (relative to α_{\min})	α_{rel}				
Upper sidelobe	86,47 ... 91,53 MHz	48,0	52,0	—	dB
Relative attenuation (relative to α_{\min})	α_{rel}				
Lower sidelobe	50,00 ... 65,00 MHz	34,0	38,0	—	dB
	65,00 ... 66,48 MHz	36,0	42,0	—	dB
	66,48 ... 68,08 MHz	34,0	38,0	—	dB
Upper sidelobe	77,30 ... 78,60 MHz	28,0	32,0	—	dB
	78,60 ... 86,47 MHz	34,0	39,0	—	dB
	86,47 ... 91,53 MHz	42,0	46,0	—	dB
	91,53 ... 95,21 MHz	44,0	48,0	—	dB
	95,21 ... 100,00 MHz	48,0	53,0	—	dB
Group delay ripple (p-p)	$\Delta\tau$				
Aperture 50 kHz	$f_N \pm 1,85\text{ MHz}$	—	190	—	ns
Temperature coefficient of frequency	TC_f	—	- 18	—	ppm/K

Matching network (based on four port measurement, quality factors $Q_L = 40$, $Q_C = 90$)



$$L_{s1} = 620 \text{ nH}$$

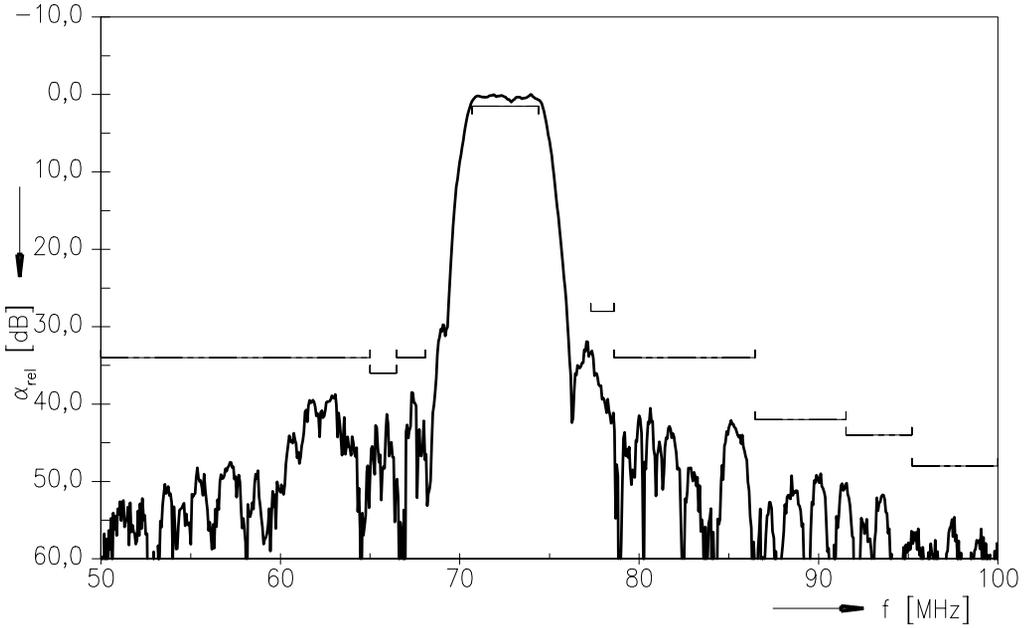
$$L_{p2} = 750 \text{ nH}$$

$$L_{s3} = 560 \text{ nH}$$

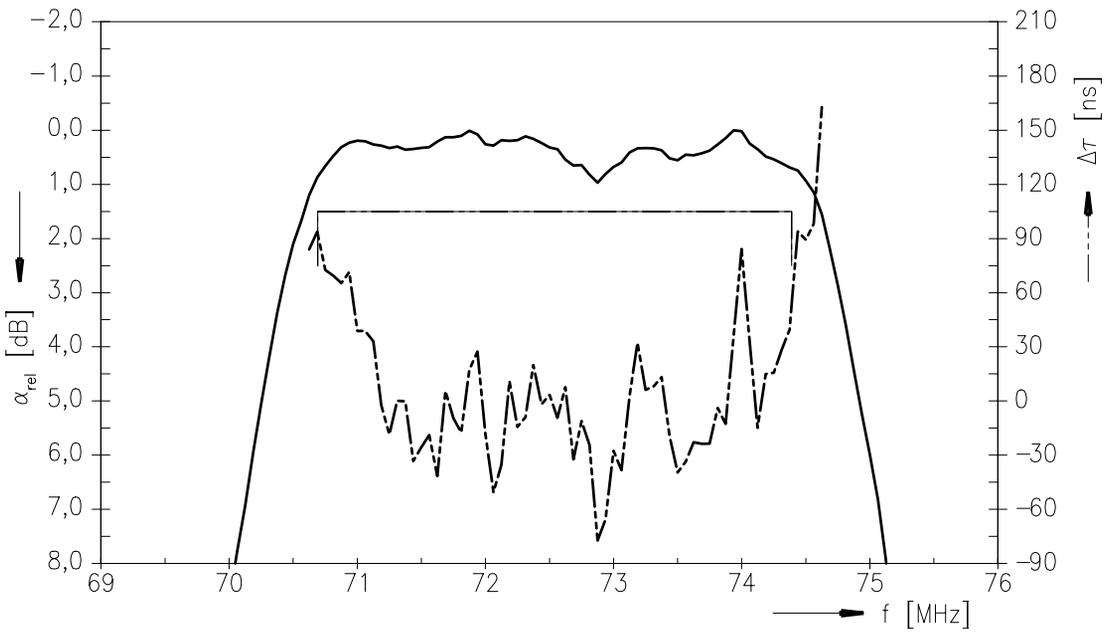
Data Sheet



Transfer function



Transfer function (passband)



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