



SAW Components

Preliminary Data LM42A





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LM42A

Low-Loss Filter

456,00 MHz

Preliminary Data

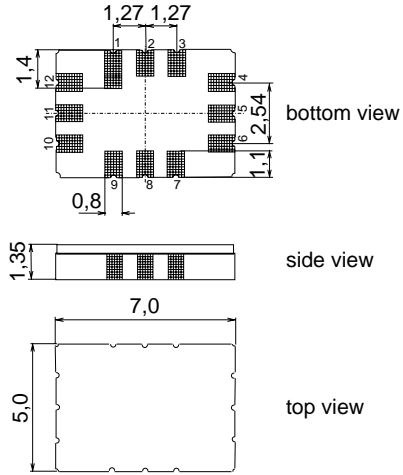
Features

- Low-loss filter for WiMAX
- Usable bandwidth 3,7 MHz
- Low insertion attenuation
- Package for Surface Mounted Technology (SMT)

Terminals

- Gold plated

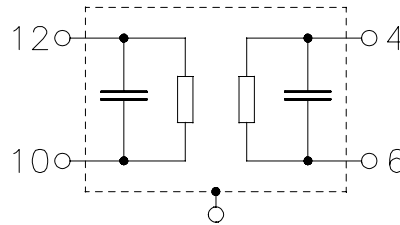
Ceramic SMD package QCC12E



Dimensions in mm, approx. weight 0,2 g

Pin configuration

- | | |
|-------------------|-----------------|
| 10,12 | Balanced Input |
| 4, 6 | Balanced Output |
| 2, 3, 5, 8, 9, 11 | Ground |
| 1, 7 | Case ground |



Type	Ordering code	Marking and Package according to	Packing according to
LM42A		C61157-A7-A103	F61074-V8170-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	-40/ +85	°C	10 years peak < 1s
Storage temperature range	T_{stg}	-40/ +85	°C	
DC voltage	V_{DC}	0	V	
Source power	P_s	10	dBm	
Peak source power	P_s	13	dBm	


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Characteristics

Operating temperature: $T = -40 \dots +85 \text{ }^\circ\text{C}$
 Terminating source impedance: $200 \text{ } \Omega$ balanced and matching network
 Terminating load impedance: $200 \text{ } \Omega$ balanced and matching network

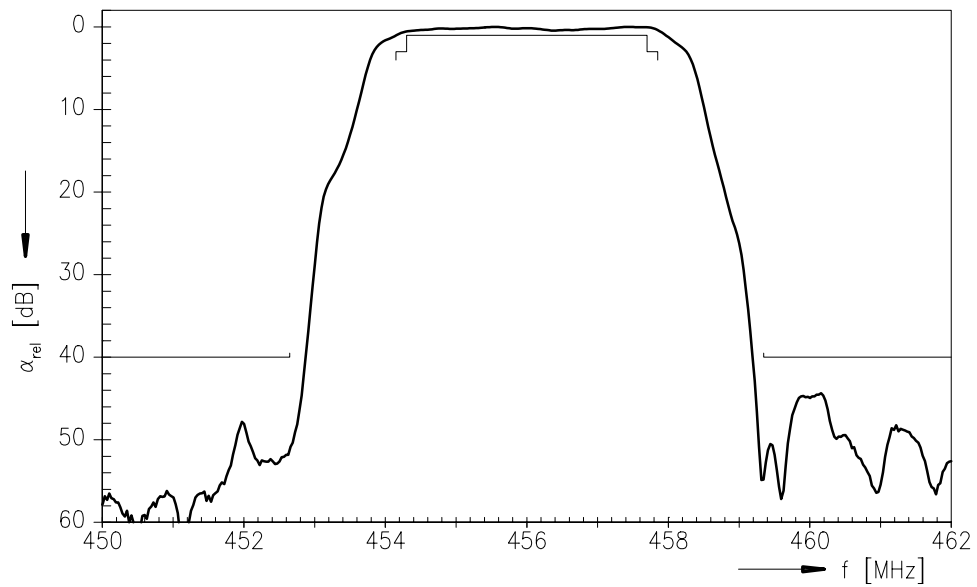
		min.	typ.	max.	
Nominal frequency	f_N	—	456,00	—	MHz
Minimum insertion attenuation (including matching network)	α_{\min}	—	8,5	10,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	$f_N \pm 1,7 \text{ MHz}$	—	0,6	1,0	dB
	$f_N \pm 1,85 \text{ MHz}$	—	1,5	3,0	dB
Absolute group delay (at f_N)	τ	—	0,55	3,0	μs
Group delay ripple (p-p)	$\Delta\tau$				
	$f_N \pm 1,7 \text{ MHz}$	—	120	250	ns
Return loss	$f_N \pm 1,7 \text{ MHz}$				
	Input	8	12	—	dB
	Output	10	14	—	dB
Impulse response attenuation (Time/Height values are relative to the main time response lobe)					
	1-2 μs	20	30	—	dB
	2-3 μs	35	38	—	dB
	> 3 μs	45	49	—	dB
Relative attenuation (relative to α_{\min})	α_{rel}				
	1 MHz ... 256 MHz	30	70	—	dB
	256 MHz ... 360 MHz	40	70	—	dB
	360 MHz ... 416,0 MHz	50	64	—	dB
	416 MHz ... 452,65 MHz	40	46	—	dB
	459,35 MHz ... 656 MHz	40	44	—	dB
	656 MHz ... 946 MHz	30	44	—	dB
Temperature coefficient of frequency ¹⁾	TC_f	—	-0,036	—	ppm/K ²
Turnover temperature	T_0	—	30	—	$^\circ\text{C}$

¹⁾ Temperature dependance of f_c : $f_c(T_A) = f_c(T_0)(1 + TC_f(T_A - T_0)^2)$

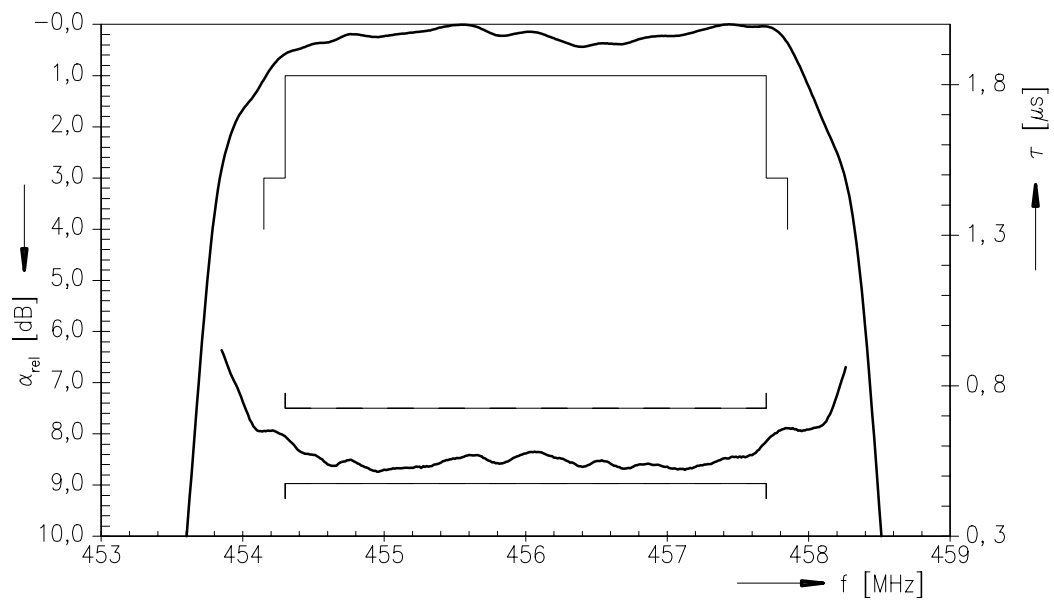


Preliminary Data

Normalized transfer function



Normalized transfer function (pass band)





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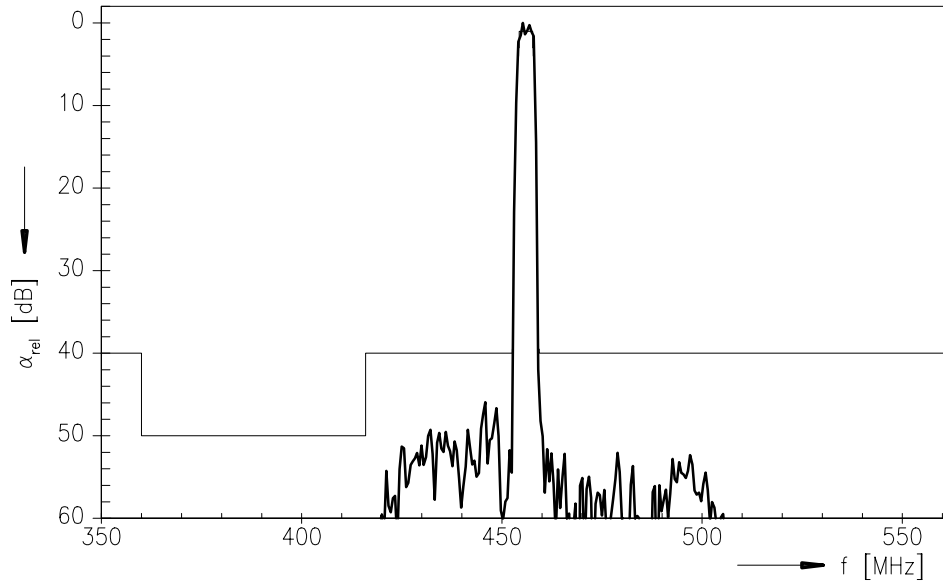
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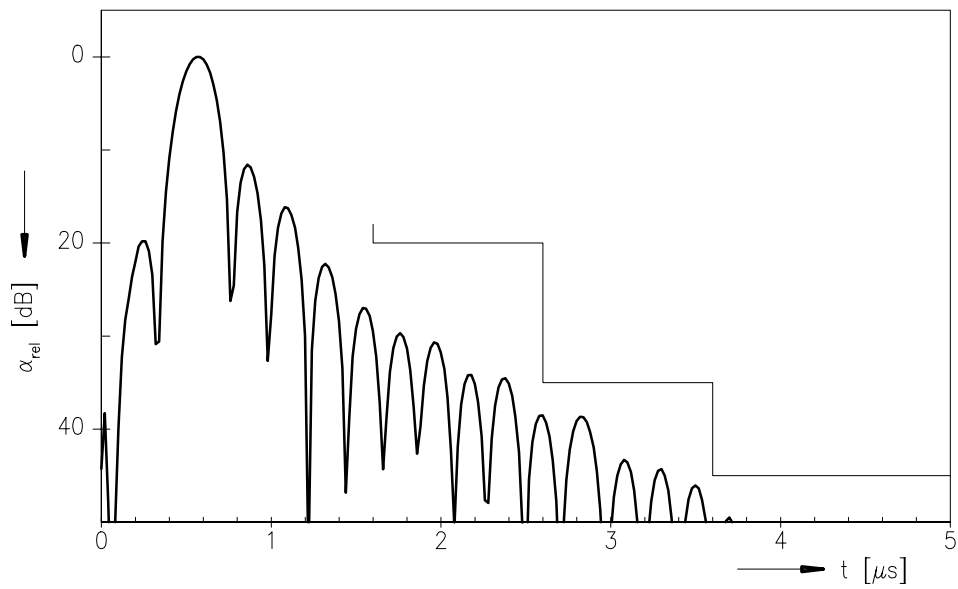
456,00 MHz

Preliminary Data

Normalized transfer function



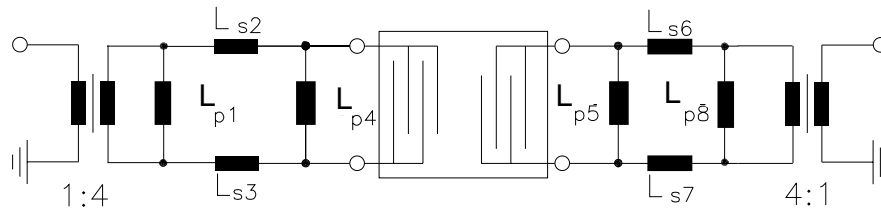
Transfer function (Impulse response)



Preliminary Data
Matching network to 200 Ω balanced

4:1 transformer is only required for measurement in a 50 Ω environment

(element values depend on PCB layout)



$$L_{p1} = 100 \text{ nH}$$

$$L_{p4} = 22 \text{ nH}$$

$$L_{s6} = L_{s7} = 18 \text{ nH}$$

$$L_{s2} = L_{s3} = 33 \text{ nH}$$

$$L_{p5} = 27 \text{ nH}$$

$$L_{p8} = 62 \text{ nH}$$

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