



SAW Components

Data Sheet B3842





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B3842

Low-Loss Filter

170,6 MHz

Data Sheet

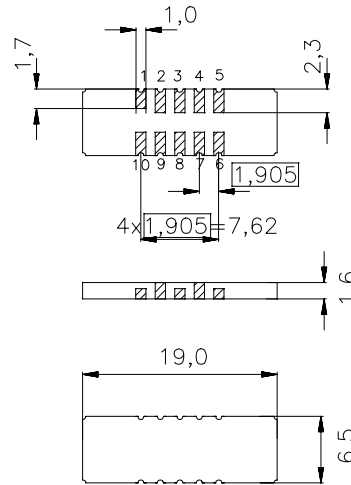
Features

- Low-loss IF filter for GSM-EDGE base station
- Temperature stable
- Balanced or unbalanced operation possible
- Ceramic SMD package

Terminals

- Gold plated

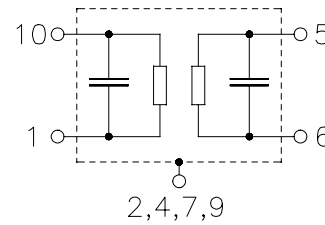
Ceramic package **DCC18**



Dimensions in mm, approx. weight 0,8 g

Pin configuration

- | | |
|------------|----------------------------------|
| 10 | Input |
| 1 | Input ground |
| 5 | Output or balanced output |
| 6 | Output ground or balanced output |
| 3, 8 | Ground |
| 2, 4, 7, 9 | Case ground |



Type	Ordering code	Marking and Package according to	Packing according to
B3842	B39171-B3842-U210	C61157-A7-A54	F61074-V8069-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


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Characteristics

Operating temperature range:

 $T = -10 \dots 85 \text{ }^\circ\text{C}$

Terminating source impedance:

 $Z_S = 50 \text{ } \Omega$ and matching network

Terminating load impedance:

 $Z_L = 50 \text{ } \Omega$ or $150 \text{ } \Omega$ and matching network

		min.	typ.	max.		
Nominal frequency	f_N	—	170,6	—	MHz	
Minimum insertion attenuation	α_{\min}	—	6,4	8,0	dB	
Pass bandwidth	$\alpha_{\text{rel}} \leq 1,0 \text{ dB}$	$B_{1\text{dB}}$	—	390	—	kHz
	$\alpha_{\text{rel}} \leq 3,0 \text{ dB}$	$B_{3\text{dB}}$	—	500	—	kHz
Amplitude ripple (p-p)		$\Delta\alpha$				
	$f_N \pm 90 \text{ kHz}$	—	0,2	0,5	dB	
	$f_N \pm 150 \text{ kHz}$	—	0,5	1,0	dB	
Group delay ripple (p-p)		$\Delta\tau$				
	$f_N \pm 90 \text{ kHz}$	—	0,2	0,4	μs	
	$f_N \pm 150 \text{ kHz}$	—	0,4	1,0	μs	
Relative attenuation (relative to α_{\min})		α_{rel}				
$f_N \pm 0,4 \text{ MHz} \dots f_N \pm 0,6 \text{ MHz}$		13	20	—	dB	
$f_N \pm 0,6 \text{ MHz} \dots f_N \pm 0,8 \text{ MHz}$		27	30	—	dB	
$f_N \pm 0,8 \text{ MHz} \dots f_N \pm 1,6 \text{ MHz}$		40	43	—	dB	
$f_N \pm 1,6 \text{ MHz} \dots f_N \pm 3,0 \text{ MHz}$		43	50	—	dB	
$f_N \pm 3,0 \text{ MHz} \dots f_N \pm 5,8 \text{ MHz}$		47	55	—	dB	
10,0 MHz ... $f_N - 75,0 \text{ MHz}$		40	70	—	dB	
$f_N - 75,0 \text{ MHz} \dots f_N - 35,0 \text{ MHz}$		45	60	—	dB	
$f_N - 35,0 \text{ MHz} \dots f_N - 5,8 \text{ MHz}$		50	55	—	dB	
$f_N + 5,8 \text{ MHz} \dots f_N + 35,0 \text{ MHz}^1)$		50	55	—	dB	
$f_N + 35,0 \text{ MHz} \dots f_N + 75,0 \text{ MHz}$		45	60	—	dB	
$f_N + 75,0 \text{ MHz} \dots f_N + 2,0 \text{ GHz}$		40	60	—	dB	
VSWR (Input and output)	$f_N \pm 150 \text{ kHz}$	—	1,7	2,0		



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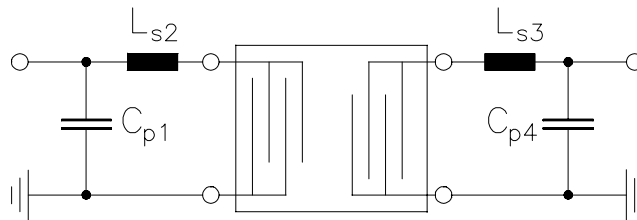
		min.	typ.	max.	
Impulse response attenuation (relative to max.)					
	5 μ s	10	20	—	dB
	10 μ s	20	45	—	dB
	30 μ s	76	90	—	dB
	35 μ s	79	90	—	dB
	40 μ s ... 50 μ s	80	90	—	dB
Impedance (of unmatched filter) at f_N					
Input:	$Z_{IN} = R_{IN} \parallel C_{IN}$	—	82 \parallel 30	—	$\Omega \parallel$ pF
Output:	$Z_{OUT} = R_{OUT} \parallel C_{OUT}$	—	93 \parallel 29	—	$\Omega \parallel$ pF
Temperature coefficient of frequency ²⁾	TC_f	—	-0,036	—	ppm/K ²
Turnover temperature	T_0	—	40	—	°C

¹⁾ Except for a few narrowband responses between 179 and 185 MHz (typ. 47 .. 50 dB)

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

Data Sheet
Matching network to 50 Ω

(Element values depend upon PCB layout)



$$C_{p1} = 33 \text{ pF}$$

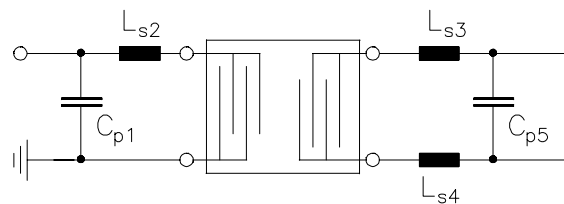
$$L_{s2} = 39 \text{ nH}$$

$$L_{s3} = 39 \text{ nH}$$

$$C_{p4} = 33 \text{ pF}$$

Matching network to 50 Ω single ended (source) and 150 Ω balanced (load)

(Element values depend upon PCB layout)



$$C_{p1} = 33 \text{ pF}$$

$$L_{s2} = 39 \text{ nH}$$

$$L_{s3} = 27 \text{ nH}$$

$$L_{s4} = 27 \text{ nH}$$

$$C_{p5} = 22 \text{ pF}$$



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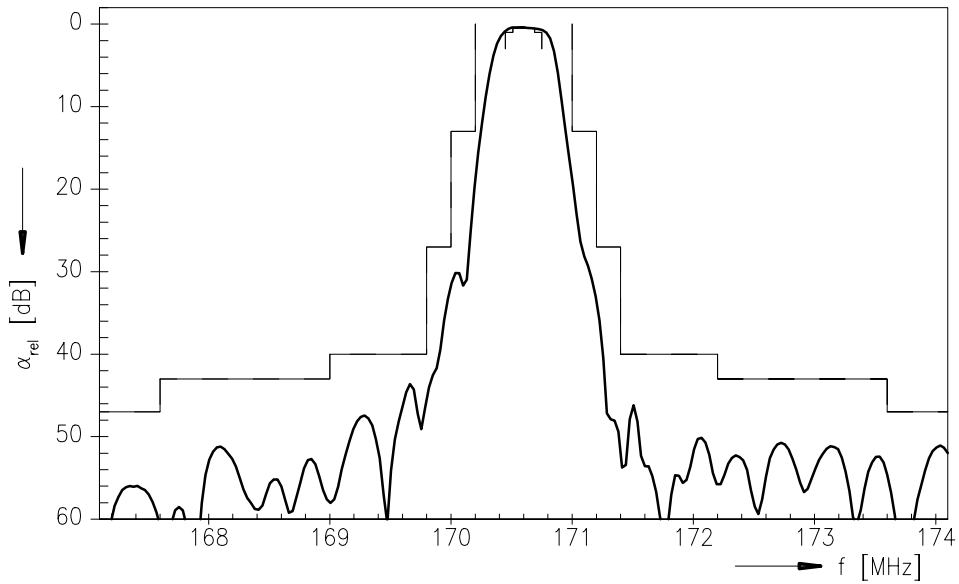
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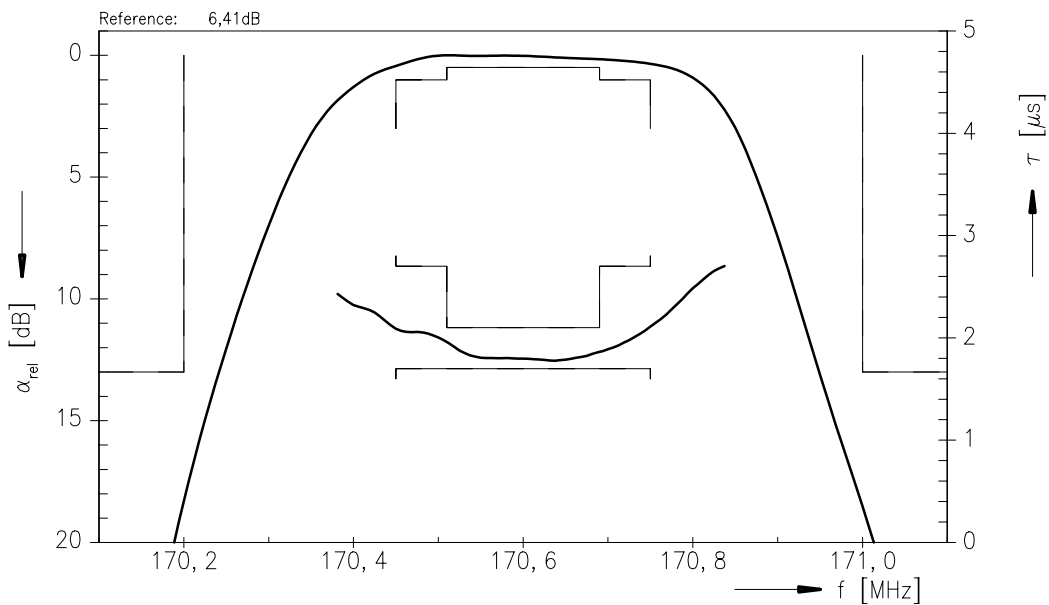
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Data Sheet

Normalized frequency response



Normalized frequency response (pass band)





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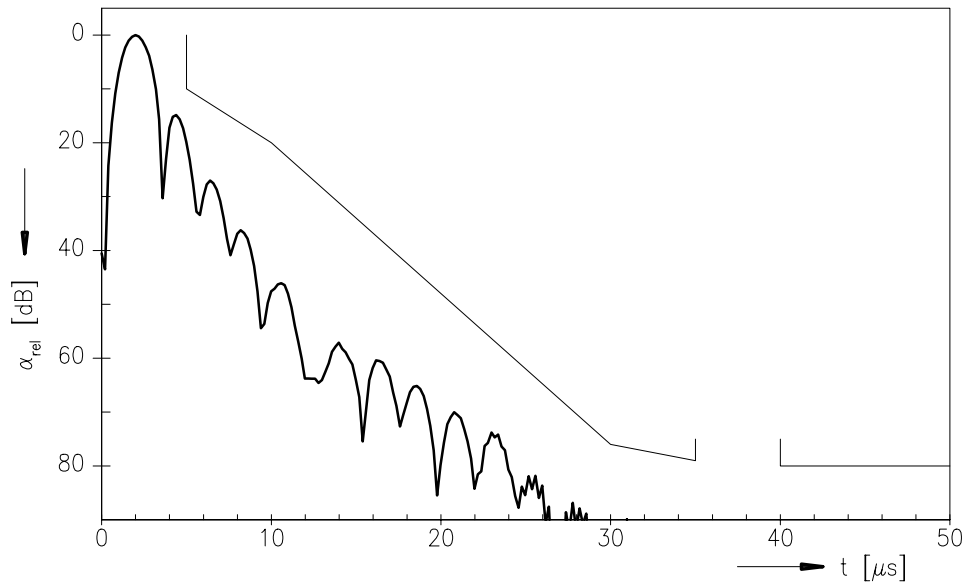
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Normalized impuls response





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