

Data Sheet B4847





B4847

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

360,00 MHz

### **Data Sheet**



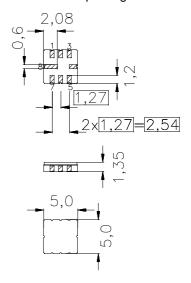
#### **Features**

- Low-loss IF filter for mobile telephone
- Channel selection in GSM, PCN systems
- Ceramic SMD package
- Very small size
- High close in selectivity

## **Terminals**

Gold-plated Ni

## SMD ceramic package QCC8C

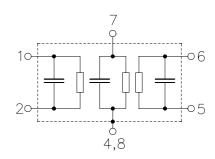


Dimensions in mm, approx. weight 0,10 g

# Pin configuration

1	Input or input ground
2	Input or balanced input
5	Output or output ground
6	Output or balanced output

7 External coil
4,8 Case ground
3 To be grounded



Туре	Ordering code	Marking and Package according to	Packing according to
B4847	B39361-B4847-U310	C61157-A7-A56	F61074-V8070-Z000

Electrostatic Sensitive Device (ESD)

## **Maximum ratings**

Operable temperature range	T	- 30 / +85	°C
Storage temperature range	$T_{\rm stg}$	<b>– 35 / +85</b>	°C
DC voltage	$V_{\rm DC}$	3	V
Source power	$P_{s}$	10	dBm



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#### **Characteristics**

Ambient temperature:  $T = -20^{\circ} \text{C to } +75^{\circ} \text{C}$ Terminating source impedance:  $Z_{\text{S}} = 340 \ \Omega \parallel -1,9 \ \text{pF}$ Terminating load impedance:  $Z_{\text{L}} = 340 \ \Omega \parallel -1,9 \ \text{pF}$ 

		min.	typ.	max.	
Nominal frequency	$f_{N}$	_	360,00	_	MHz
(center frequency between 3 dB points)					
Minimum insertion attenuation	$lpha_{\sf min}$				
(including loss in matching elements)		_	4,3	5,0	dB
Amplitude ripple (p-p)	Δα				
f <sub>N</sub> -67,7kHz f <sub>N</sub> +67,7 kHz		_	0,6	2,0	dB
$f_N$ -80,0kHz $f_N$ +80,0 kHz		_	0,9	3,0	dB
Passband width					
$\alpha_{rel} \leq~3.0~dB$	$B_{3,0dB}$	_	315	_	kHz
Group delay ripple (p-p)					
f <sub>N</sub> -67,7 kHz f <sub>N</sub> +67,7 kHz		_	0,5	1,8	μs
Relative attenuation (relative to $\alpha_{min}$ )	$lpha_{rel}$				
$f_N \pm 400 \text{ kHz} \dots f_N \pm 600 \text{ kHz}$		24	32	_	dB
$f_N \pm 600 \text{ kHz} \dots f_N \pm 800 \text{ kHz}$		38	48	_	dB
$f_N \pm 800 \text{ kHz} \dots f_N \pm 1,6 \text{ MHz}$		42	48	_	dB
$f_N \pm 1,6 \text{ MHz} \dots f_N \pm 5,0 \text{ MHz}$		* 52	54	_	dB
$f_N \pm 5.0 \text{ MHz} \dots f_N \pm 30.0 \text{ MHz}$		55	62	_	dB
Impedance within the pass band					
Input: $Z_{IN} = R_{IN}    C_{IN}$		_	340    1,9	_	Ω    pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		_	340    1,9	_	Ω    pF
Temperature coefficient of frequency 1)	$TC_{f}$	_	- 0,036	_	ppm/K <sup>2</sup>
Turnover temperature	$T_0$	_	28	_	°C

<sup>1)</sup> Temperature dependence of  $f_c$ :  $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$ 

 $<sup>^*)~</sup>$  In the frequency range from 362,5 MHz to 364,0 MHz there exists one spurious response. The minimum attenuation  $\alpha_{\text{rel}}$  of this spurious response is more than 48 dB.



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#### **Characteristics**

Ambient temperature:  $T = -30^{\circ} \text{C to } +85^{\circ} \text{C}$ Terminating source impedance:  $Z_{\text{S}} = 340 \ \Omega \parallel -1,9 \ \text{pF}$ Terminating load impedance:  $Z_{\text{L}} = 340 \ \Omega \parallel -1,9 \ \text{pF}$ 

		min.	typ.	max.	
Nominal frequency	$f_{N}$	_	360,00	_	MHz
(center frequency between 3 dB points)					
Minimum insertion attenuation	$\alpha_{min}$				
(including loss in matching elements)		_	4,3	5,0	dB
Amplitude ripple (p-p)	Δα				
f <sub>N</sub> -67,7kHz f <sub>N</sub> +67,7 kHz		_	0,6	3,0	dB
f <sub>N</sub> -80,0kHz f <sub>N</sub> +80,0 kHz			0,9	4,5	dB
Passband width					
$\alpha_{\text{rel}} \leq 3.0 \text{ dB}$	$B_{3,0dB}$	_	315		kHz
Group delay ripple (p-p)					
$f_N$ -67,7 kHz $f_N$ +67,7 kHz		_	0,5	1,8	μs
Relative attenuation (relative to $\alpha_{min}$ )	$\alpha_{rel}$				
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Turnover temperature	$T_0$		28		°C

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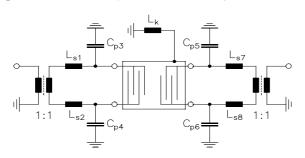
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Test matching network to 50  $\Omega$  (element values depend on PCB layout):



$$\begin{array}{l} L_{s1} = L_{s2} = 18 nH \\ C_{p3} = C_{p4} = 1,2 pF \\ C_{p5} = C_{p6} = 1,2 pF \\ L_{s7} = L_{s8} = 18 nH \\ L_{k} = 68 nH \end{array}$$



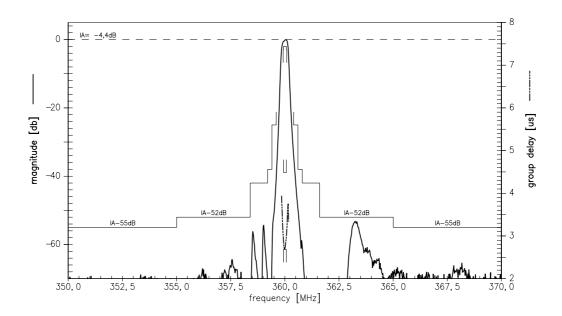
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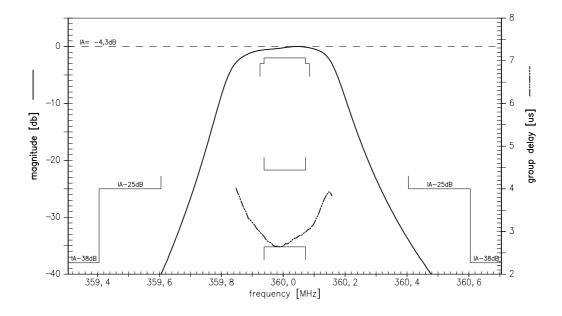
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## Transfer function:



# Transfer function (pass band):





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