

SAW Components

SAW IF filter

mobile telephone

Series/type:	B4847
Ordering code:	B39361-B4847-U310
Date:	September 11, 2009
Version:	2.1

SAW Components

B4847

SAW IF filter

360.00 MHz

Data sheet



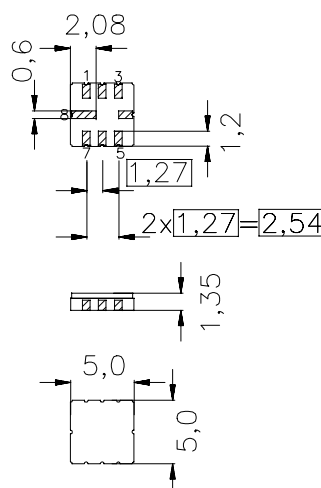
Application

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



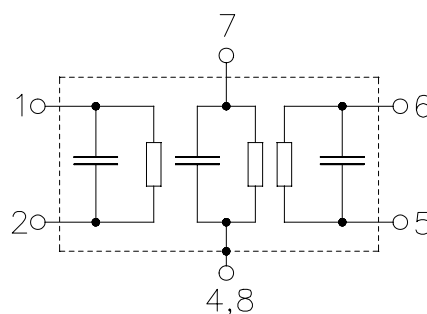
Features

- Package size 5.0 x 5.0 x 1.35 mm³
- Package code QCC8C
- RoHS compatible
- Approx. weight 0.1 g
- Package for Surface Mount Technology (SMT)
- Ni,gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (ESD)
- Filter surface passivated



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
- 3 To be grounded
- 4,8 Case ground



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Characteristics

Operating temperature range:	$T = -20^{\circ}\text{C to } +75^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 340\ \Omega \parallel -1.9\ \text{pF}$
Terminating load impedance:	$Z_L = 340\ \Omega \parallel -1.9\ \text{pF}$

		min.	typ.	max.	
Nominal frequency (center frequency between 3 dB points)	f_N	—	360.00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{\min}	—	4.3	5.0	dB
Amplitude ripple (p-p) $f_N - 67.7\text{ kHz} \dots f_N + 67.7\text{ kHz}$ $f_N - 80.0\text{ kHz} \dots f_N + 80.0\text{ kHz}$	$\Delta\alpha$	— —	0.6 0.9	2.0 3.0	dB dB
Passband width $\alpha_{\text{rel}} \leq 3.0\text{ dB}$	$B_{3.0\text{dB}}$	—	315	—	kHz
Group delay ripple (p-p) $f_N - 67.7\text{ kHz} \dots f_N + 67.7\text{ kHz}$	$\Delta\tau$	—	0.5	1.8	μs
Relative attenuation (relative to α_{\min}) $f_N \pm 400\text{ kHz} \dots f_N \pm 600\text{ kHz}$ $f_N \pm 600\text{ kHz} \dots f_N \pm 800\text{ kHz}$ $f_N \pm 800\text{ kHz} \dots f_N \pm 1.6\text{ MHz}$ $f_N \pm 1.6\text{ MHz} \dots f_N \pm 5.0\text{ MHz}$ $f_N \pm 5.0\text{ MHz} \dots f_N \pm 30.0\text{ MHz}$	α_{rel}	24 38 42 * 52 55	32 48 48 54 62	— — — — —	dB dB dB dB dB
Impedance within the pass band Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$ Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		— —	$340 \parallel 1.9$ $340 \parallel 1.9$	— —	$\Omega \parallel \text{pF}$ $\Omega \parallel \text{pF}$
Temperature coefficient of frequency ¹⁾	TC_f	—	-0.036	—	ppm/K ²
Turnover temperature	T_0	—	28	—	$^{\circ}\text{C}$

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

^{*)} In the frequency range from 362.5 MHz to 364.0 MHz there exists one spurious response.
The minimum attenuation α_{rel} of this spurious response is more than 48 dB.

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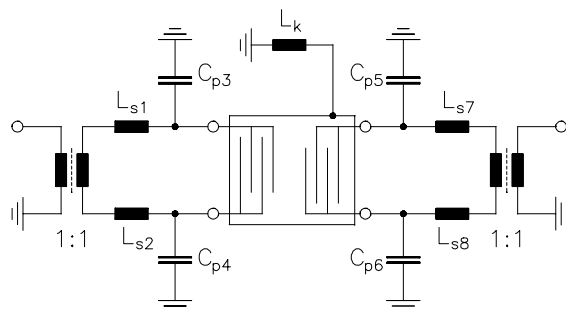
Operating temperature range:	$T = -30\text{ }^{\circ}\text{C to } +85\text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 340\text{ }\Omega \parallel -1.9\text{ pF}$
Terminating load impedance:	$Z_L = 340\text{ }\Omega \parallel -1.9\text{ pF}$

		min.	typ.	max.	
Nominal frequency (center frequency between 3 dB points)	f_N	—	360.00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{\min}	—	4.3	5.0	dB
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Passband width $\alpha_{\text{rel}} \leq 3.0\text{ dB}$	$B_{3.0\text{dB}}$	—	315	—	kHz
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Matching network to 50 Ω (element values depend on PCB layout)


$$L_{s1} = L_{s2} = 18 \text{ nH}$$

$$C_{p3} = C_{p4} = 1.2 \text{ pF}$$

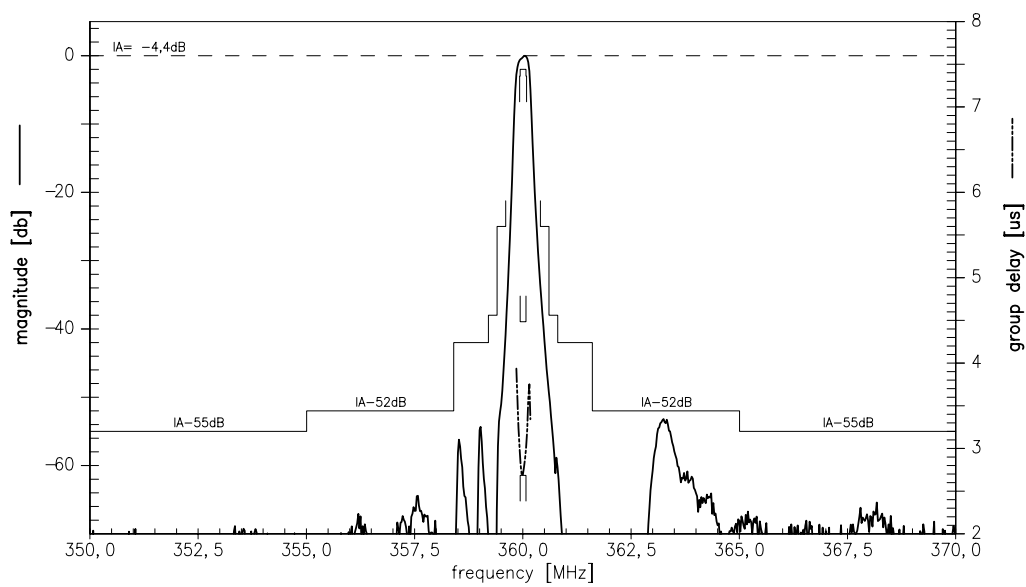
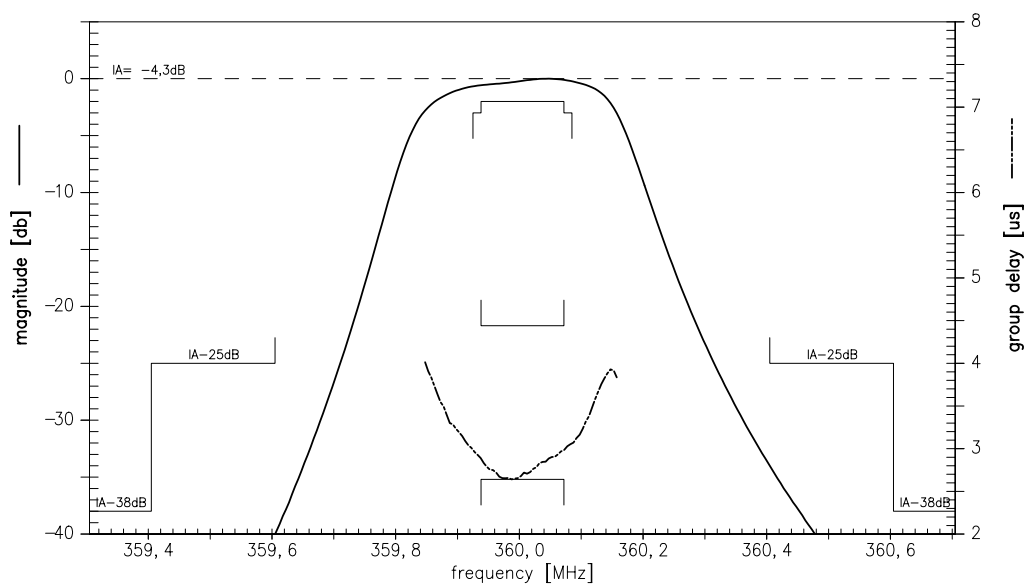
$$C_{p5} = C_{p6} = 1.2 \text{ pF}$$

$$L_{s7} = L_{s8} = 18 \text{ nH}$$

$$L_k = 68 \text{ nH}$$

Maximum ratings

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	3	V	
Input Power at	P _{IN}	10	dBm	

Transfer function

Transfer function (passband)


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**References**

Type	B4847
Ordering code	B39361-B4847-U310
Marking and package	C61157-A7 A56
Packaging	F61074-V8169-Z000
Date codes	L_1126
Soldering profile	S_6001
RoHS compatible	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."

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