



SAW Components

Data Sheet B4847

Data Sheet

A large, stylized, and somewhat abstract graphic of the EPCOS logo. The letters "EPCOS" are rendered in a bold, sans-serif font, appearing to be part of a larger, curved structure that resembles a stylized globe or a series of overlapping planes. The graphic is in grayscale and has a soft, glowing effect.



SAW Components	B4847
Low-Loss Filter for Mobile Communication	360,00 MHz

Data Sheet



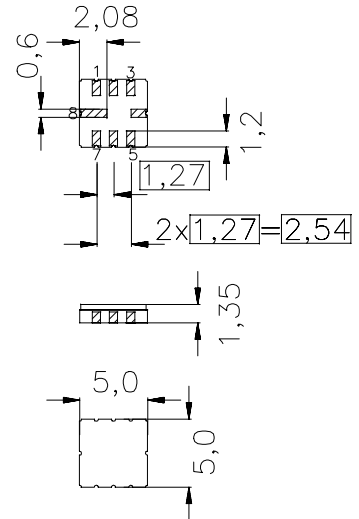
SMD ceramic package **QCC8C**

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

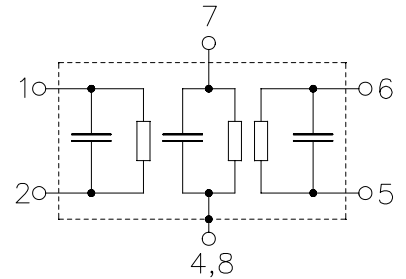
- Gold-plated Ni



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 |



Type	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 / +80	°C
Storage temperature range	T_{stg}	- 35 / +85	°C
DC voltage	V_{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:	$Z_S = 340\ \Omega \parallel -1,9\ \text{pF}$
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) $f_N - 67,7\text{ kHz} \dots f_N + 67,7\text{ kHz}$	$\Delta\alpha$	—	0,6	2,0	dB
$f_N - 80,0\text{ kHz} \dots f_N + 80,0\text{ kHz}$		—	0,9	3,0	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}) $f_N \pm 400\text{ kHz} \dots f_N \pm 600\text{ kHz}$	α_{rel}	25	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: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$ 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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Characteristics

Ambient temperature:	$T = -30^{\circ}\text{C to } +80^{\circ}\text{C}$
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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	3,0 4,5	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}	25 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	—	$^{\circ}\text{C}$

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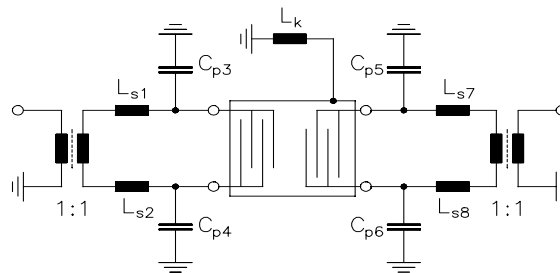
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Test matching network to 50 Ω (element values depend on PCB layout):



$$\begin{aligned} L_{s1} &= L_{s2} = 18\text{nH} \\ C_{p3} &= C_{p4} = 1,2\text{pF} \\ C_{p5} &= C_{p6} = 1,2\text{pF} \\ L_{s7} &= L_{s8} = 18\text{nH} \\ L_k &= 68\text{ nH} \end{aligned}$$



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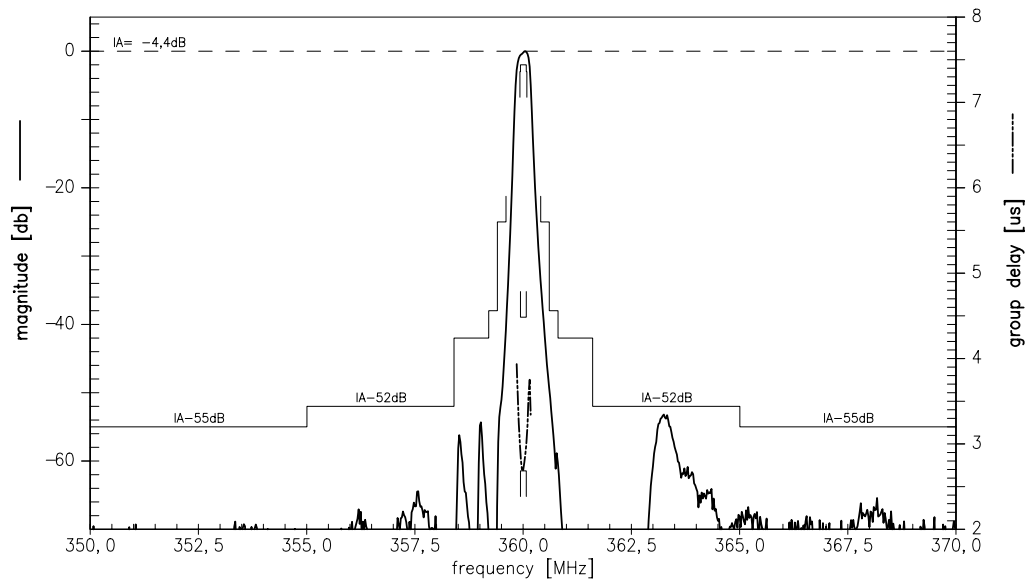
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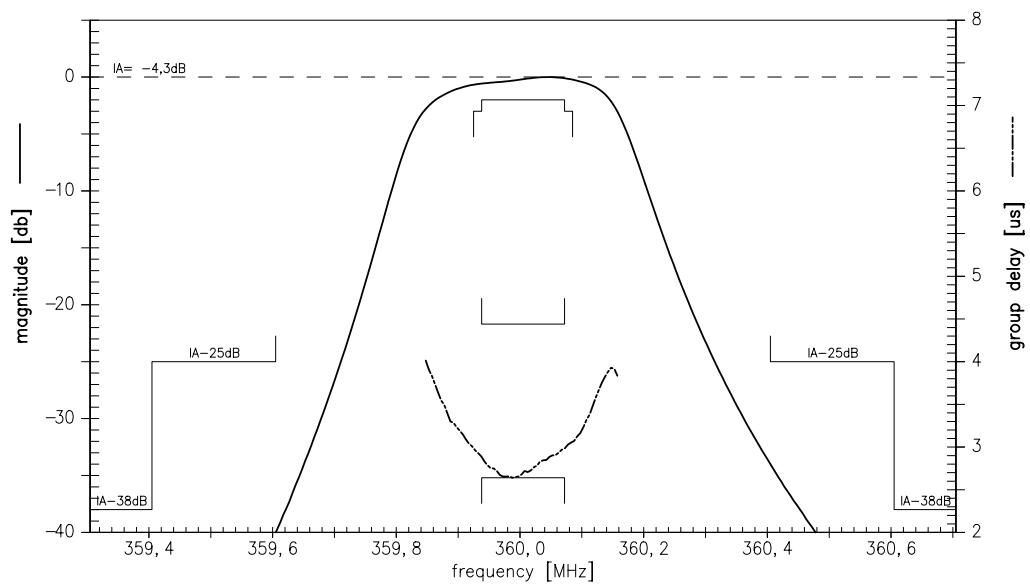
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Transfer function:



Transfer function (pass band):





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