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# SAW filters for infrastructure systems

## Series/Type: B3605

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39700B3605Z510	B39700B5018Z510	2011-04-01	2011-06-30	2011-09-30

For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at [www.epcos.com/sales](http://www.epcos.com/sales).

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**SAW Components**

**B3605**

**Low-Loss Filter**

**70,00 MHz**

**Data Sheet**

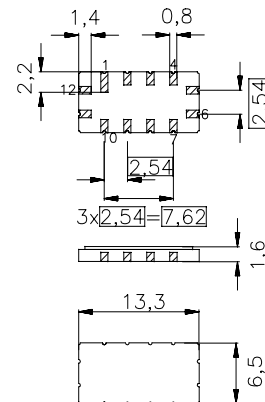
Ceramic package **QCC12**

**Features**

- High performance IF bandpass filter
- Constant group delay
- Hermetically sealed ceramic package
- Filter surface passivated

**Terminals**

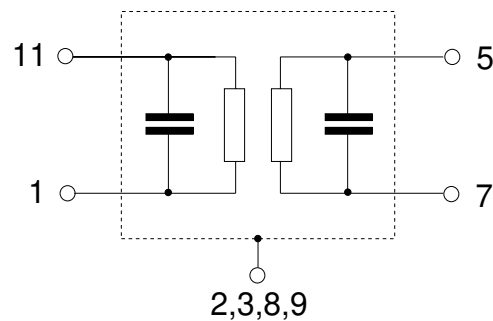
- Gold plated



Dimensions in mm, approx. weight 0,4 g

**Pin configuration**

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



Type	Ordering code	Marking and Package according to	Packing according to
B3605	B39700-B3605-Z510	C61157-A7-A55	F61074-V8163-Z000

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

Operable temperature range	$T$	- 40/+ 85	°C	source impedance 50 $\Omega$
Storage temperature range	$T_{stg}$	- 40/+ 85	°C	
DC voltage	$V_{DC}$	0	V	
Source power	$P_s$	10	dBm	

**SAW Components**
**B3605**
**Low-Loss Filter**
**70,00 MHz**
**Data Sheet**
**Characteristics**

Operating temperature:	$T = -40\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 50\ \Omega$ and matching circuit(Unbalanced)
Terminating load impedance:	$Z_L = 50\ \Omega$ and matching circuit(Unbalanced)
Group delay aperture	80 kHz

		min.	typ.	max.	
<b>Center frequency</b> (Center between 6dB points)	$f_C$	69,50	70,00	70,50	MHz
<b>Insertion attenuation</b> at $f_C$	$\alpha_C$	—	9,6	10,8	dB
<b>Amplitude ripple</b> (p-p) 67,00 ... 73,00 MHz	$\Delta\alpha$	—	0,6	1,0	dB
<b>Phase ripple</b> (p-p) 65,50 ... 74,50 MHz	$\Delta\phi$	—	15,0	18,0	°
<b>Pass bandwidth</b>					
$\alpha_{rel} \leq 1\text{ dB}$	$B_{1dB}$	8,1	8,3	—	MHz
$\alpha_{rel} \leq 3\text{ dB}$	$B_{3dB}$	9,1	9,3	—	MHz
$\alpha_{rel} \leq 30\text{ dB}$	$B_{30dB}$	—	12,8	13,2	MHz
<b>Relative attenuation</b> (relative to $\alpha_C$ )	$\alpha_{rel}$				
50,00 ... 62,50 MHz		43	47	—	dB
62,50 ... 63,00 MHz		34	38	—	dB
77,00 ... 77,50 MHz		28	36	—	dB
77,50 ... 90,00 MHz		35	41	—	dB
<b>Group delay</b> at $f_C$	$\tau_C$	—	1,1	—	$\mu\text{s}$
<b>Group delay ripple</b> (p-p) 65,50 ... 74,50 MHz	$\Delta\tau$	—	80	200	ns
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-87	—	ppm/K

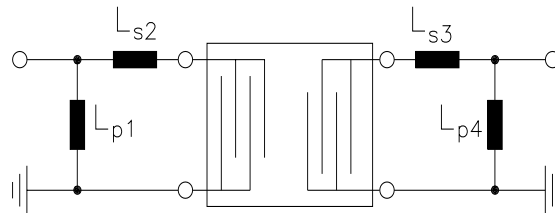
**SAW Components**
**B3605**
**Low-Loss Filter**
**70,00 MHz**
**Data Sheet**
**Characteristics**

Operating temperature:	$T = -40\text{ }^{\circ}\text{C} \dots 85\text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 50\ \Omega$ and matching circuit(Balanced)
Terminating load impedance:	$Z_L = 50\ \Omega$ and matching circuit(Balanced)
Group delay aperture	80 kHz

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	69,50	70,00	70,50	MHz
(Center between 6dB points)					
<b>Insertion attenuation at <math>f_C</math></b>	$\alpha_C$	—	9,8	10,8	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
	67,00 ... 73,00 MHz	—	0,6	1,0	dB
<b>Phase ripple (p-p)</b>	$\Delta\varphi$				
	65,50 ... 74,50 MHz	—	17,0	20,0	°
<b>Pass bandwidth</b>					
	$\alpha_{rel} \leq 1\text{ dB}$	$B_{1dB}$	8,1	8,3	— MHz
	$\alpha_{rel} \leq 3\text{ dB}$	$B_{3dB}$	9,1	9,3	— MHz
	$\alpha_{rel} \leq 30\text{ dB}$	$B_{30dB}$	—	12,8	13,2 MHz
<b>Relative attenuation (relative to <math>\alpha_C</math>)</b>	$\alpha_{rel}$				
	50,00 ... 62,50 MHz	43	45	—	dB
	62,50 ... 63,00 MHz	34	38	—	dB
	77,00 ... 77,50 MHz	26	35	—	dB
	77,50 ... 90,00 MHz	35	38	—	dB
<b>Group delay at <math>f_C</math></b>	$\tau_C$	—	1,1	—	$\mu\text{s}$
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
	65,50 ... 74,50 MHz	—	80	200	ns
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-87	—	ppm/K

Data Sheet

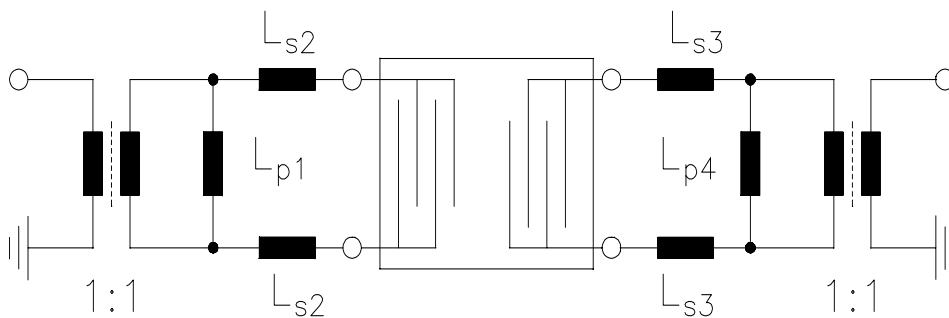
Matching circuit: unbalanced - unbalanced



$L_{s1}=180\text{nH}$   
 $L_{s2}=100\text{nH}$

$L_{s3}=18\text{nH}$   
 $L_{s4}=270\text{nH}$

Matching circuit: balanced - balanced



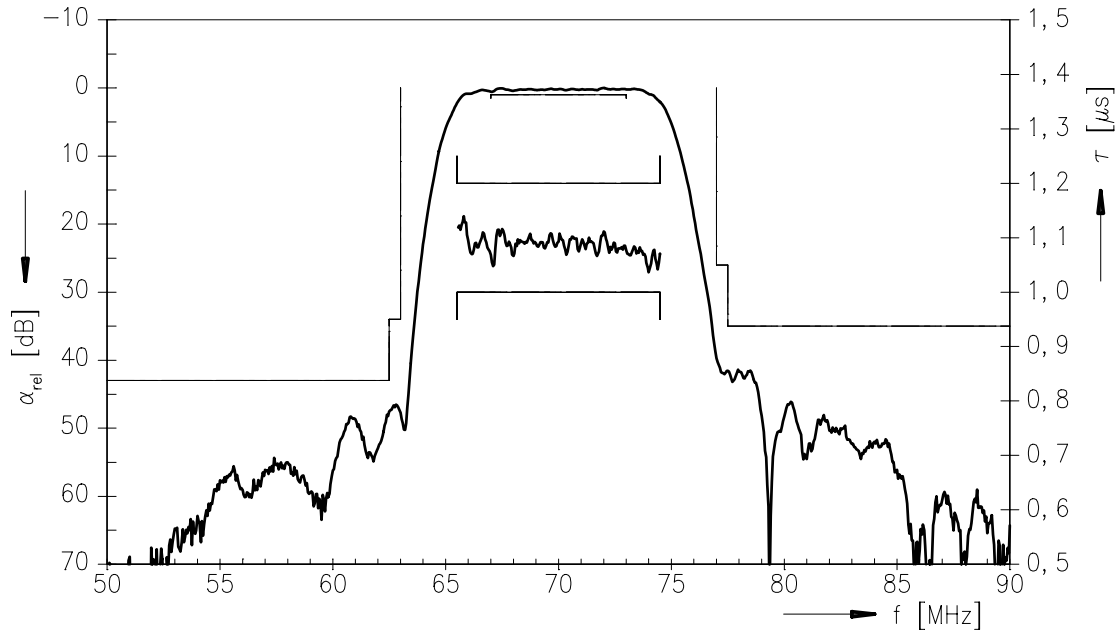
$L_{s1}=180\text{nH}$   
 $L_{s2}=56\text{nH}$

$L_{s3}=10\text{nH}$   
 $L_{s4}=270\text{nH}$

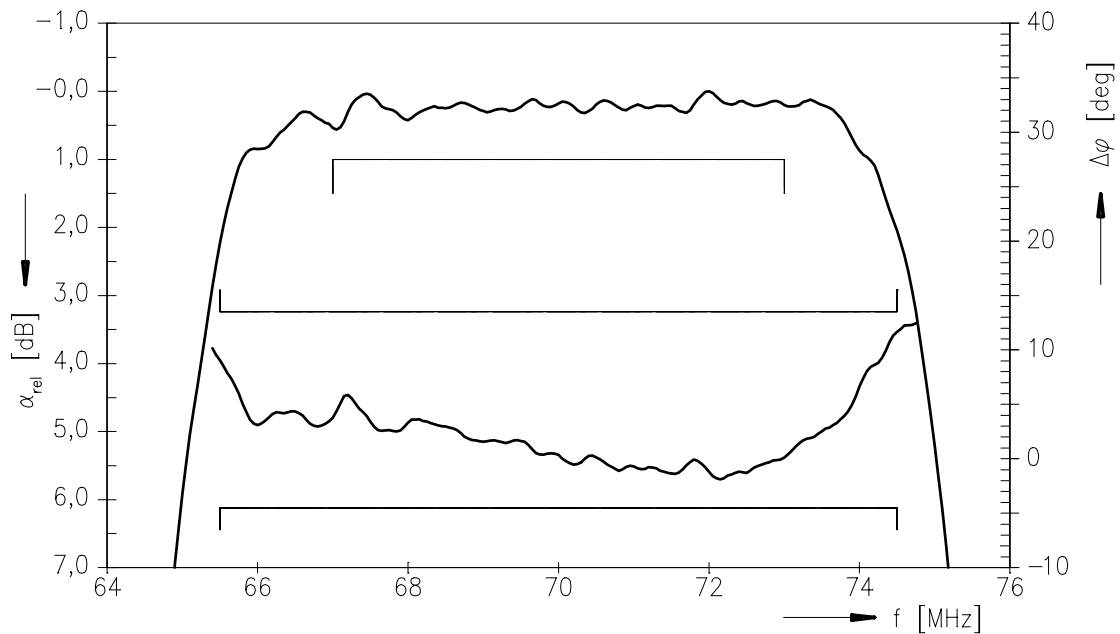
Note: Component values depend on PCB layout.

Data Sheet

Normalized frequency response(unbalanced-unbalanced)

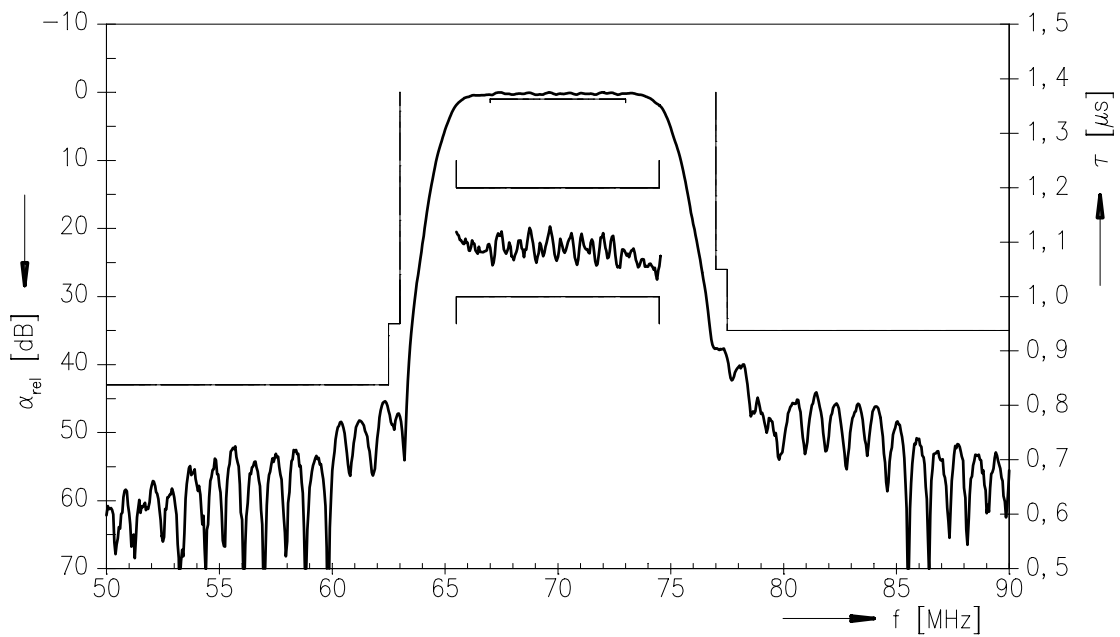


Normalized frequency response

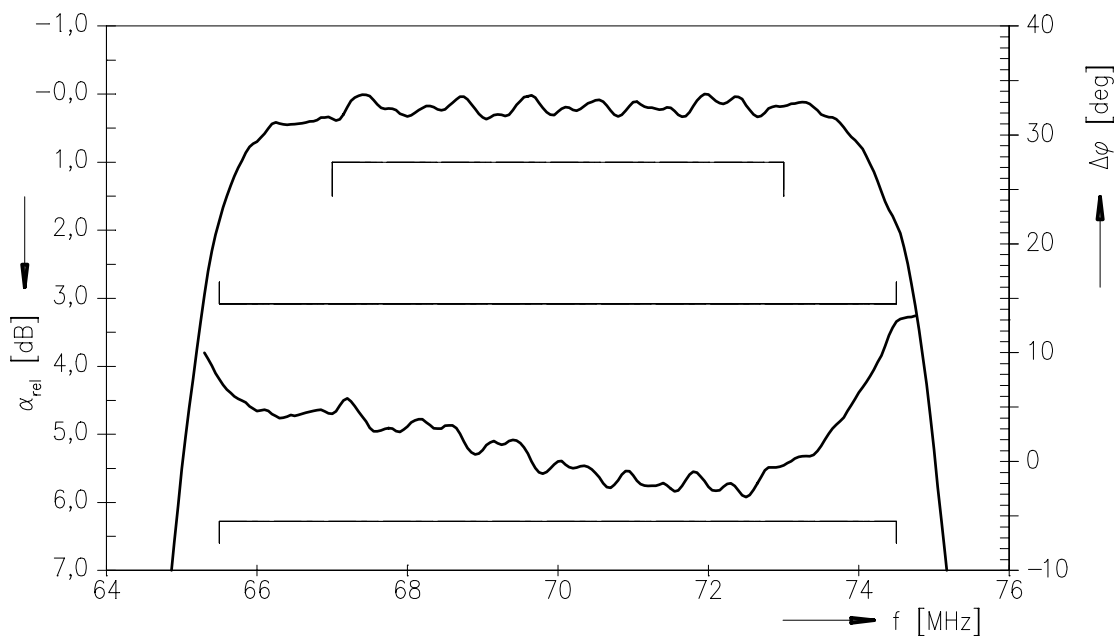


Data Sheet

Normalized frequency response(balanced-balanced)



Normalized frequency response





**Data Sheet****Attachment**

- 1) For a duration < 50 ms source power may be raised to 20 dBm.
- 2) Pyroelectric pulse amplitude < 50 mV.
- 3) If external impedances are the same, input port and output port may be reversed without any changes of the performance.

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