



Siemens Matsushita Components

SAW Components Bandpass Filter

B8100
110,59 MHz

Data Sheet

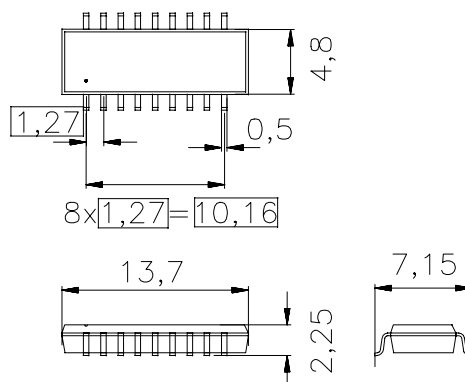
duroplast package **DIP18D**

Features

- IF filter for cordless application
- Channel selection in DECT system
- Low group delay ripple
- Surface Mounted Technology (SMT)
- Standard IC small outline (SO) package
- Balanced and unbalanced operation possible

Terminals

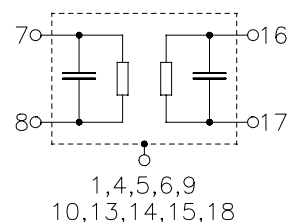
- Tinned CuFe alloy



Dimensions in mm, approx. weight 0,4 g

Pin configuration

7	Input
8	Input ground or balanced input
16	Output
17	Output ground or balanced output
1,4,5,6,9,10	Chip carrier – ground
13,14,15,18	
2,3,11,12	not connected



Type	Ordering code	Marking and Package according to	Packing according to
B8100	B39111-B8100-L100	C61157-A2-A4	F61074-V8058-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	- 25/+ 65	°C
Storage temperature range	T_{stg}	- 40/+ 85	°C
DC voltage	V_{DC}	5	V
Source power	P_s	10	dBm



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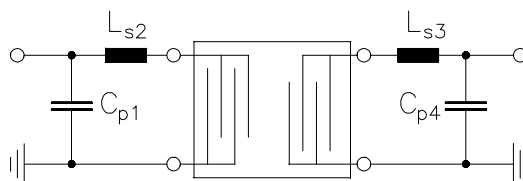
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Characteristics

Operating temperature range: $T = +25\text{ }^{\circ}\text{C}$
Terminating source impedance: $Z_S = 50\text{ }\Omega$ ($600\text{ }\Omega \parallel 240\text{ nH}^*$)
Terminating load impedance: $Z_L = 50\text{ }\Omega$ ($140\text{ }\Omega \parallel 110\text{ nH}^*$)

		min.	typ.	max.	
Nominal frequency	f_N	—	110,59	—	MHz
Center frequency (center frequency between 10 dB points)	f_c	110,48	110,59	110,70	MHz
Insertion attenuation at f_N (including losses in matching network)	α_N	—	20,9 (13,5*)	22,4 (15,0*)	dB
Passband width	$B_{3\text{dB}}$	—	1,28	—	MHz
	$B_{30\text{dB}}$	—	2,40	—	MHz
Group delay ripple (p-p)	$\Delta\tau$				
$f_N - 600\text{ kHz}$... $f_N + 600\text{ kHz}$		—	180	250	ns
		—	(300*)	(400*)	ns
Relative attenuation (relative to α_N)	α_{rel}				
$f_N - 576\text{ kHz}$... $f_N + 576\text{ kHz}$		—	2,0	4,0	dB
$f_N \pm 576\text{ kHz}$... $f_N \pm 700\text{ kHz}$		—	—	10,0	dB
$f_N \pm 1,6\text{ MHz}$... $f_N \pm 3,1\text{ MHz}$		32	38	—	dB
$f_N \pm 3,1\text{ MHz}$... $f_N \pm 4,6\text{ MHz}$		40	44	—	dB
$f_N \pm 4,6\text{ MHz}$... $f_N \pm 20\text{ MHz}$		45	50	—	dB
$f_N \pm 1,728\text{ MHz}$		32	38	—	dB
$f_N \pm 2 \times 1,728\text{ MHz}$		42	47	—	dB
$f_N \pm 3 \times 1,728\text{ MHz}$		48	53	—	dB
Impedance at f_N					
Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$		—	600 $\parallel$ 8,5	—	$\Omega \parallel \text{pF}$
Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	140 $\parallel$ 19,0	—	$\Omega \parallel \text{pF}$
Temperature coefficient of frequency	TC_f	—	- 18	—	ppm/K

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



$C_{p1} = 0\text{ pF}$
 $L_{s2} = 220\text{ nH}$
 $L_{s3} = 120\text{ nH}$
 $C_{p4} = 22\text{ pF}$



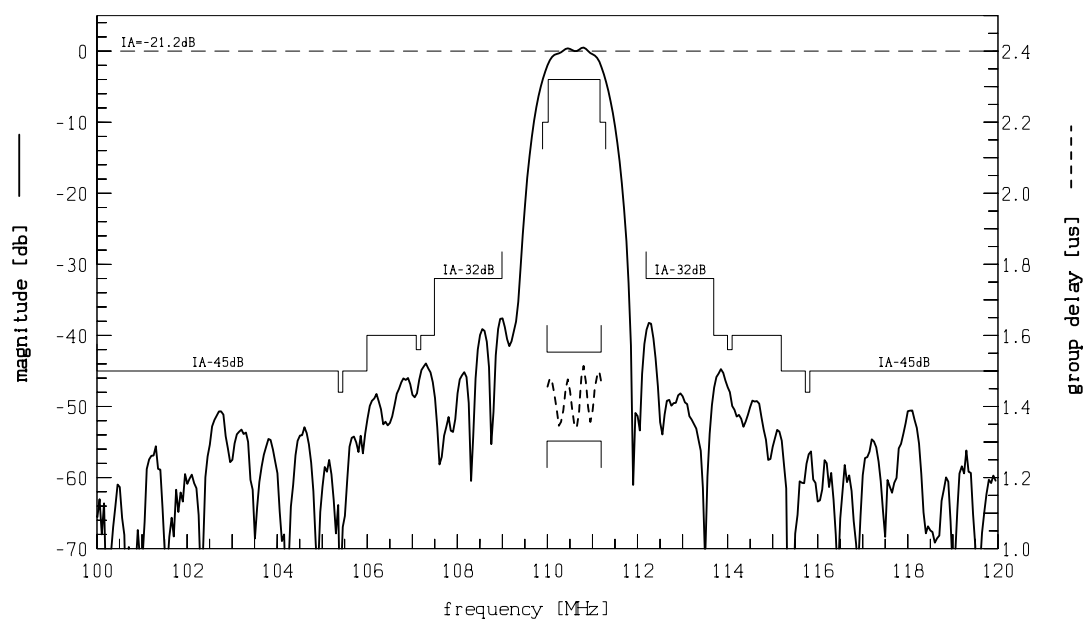
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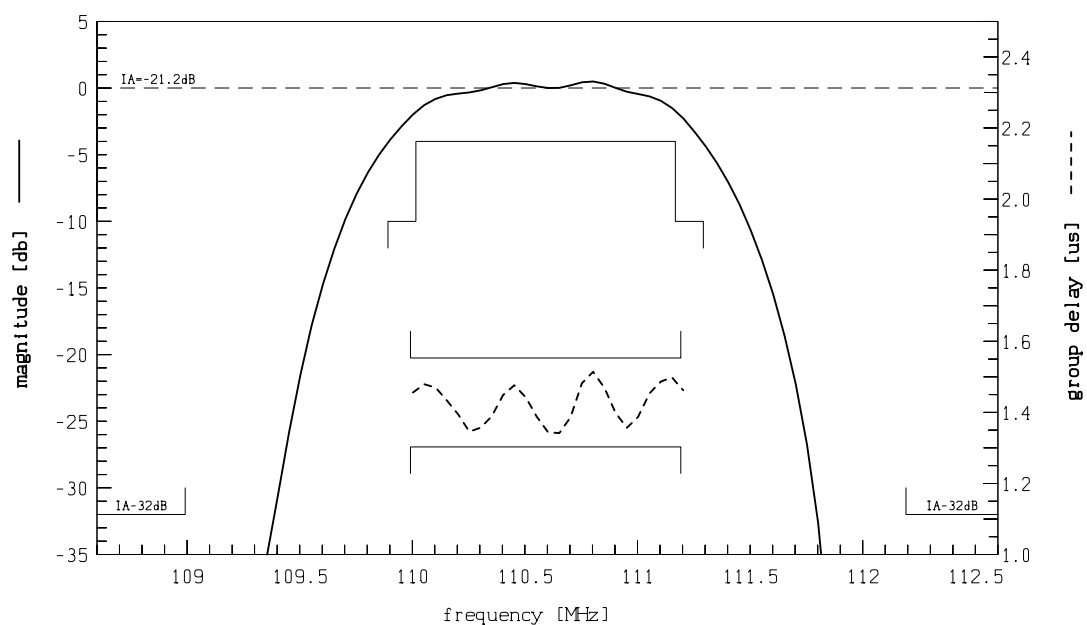
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Transfer function:



Transfer function (pass band):





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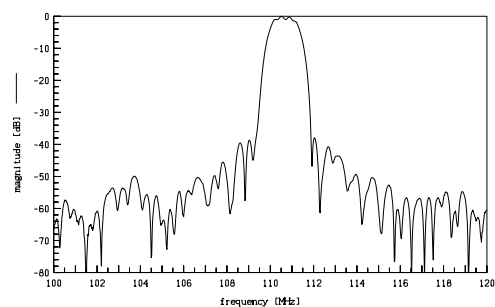
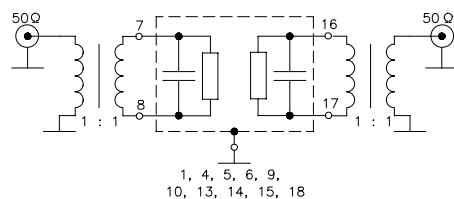
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Application Note

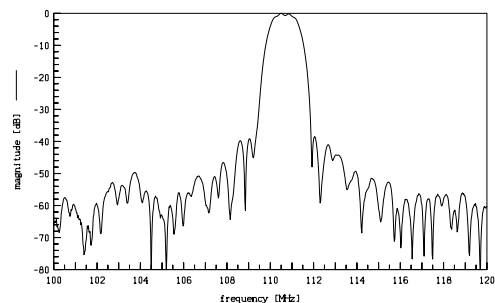
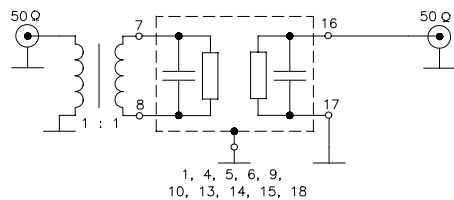
Recommended Pin Configurations:

For optimum performance use the following pin configurations.

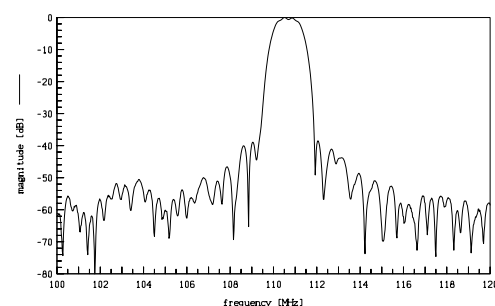
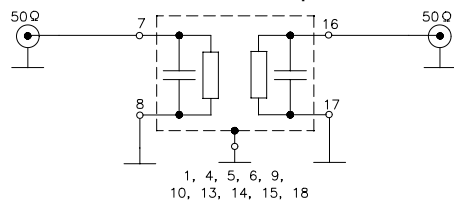
Balanced-balanced operation:



Balanced-unbalanced operation:



Unbalanced-unbalanced operation





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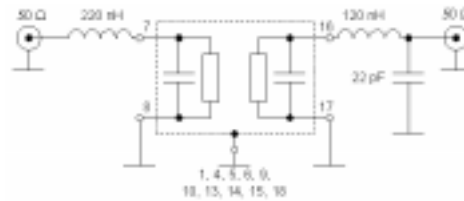
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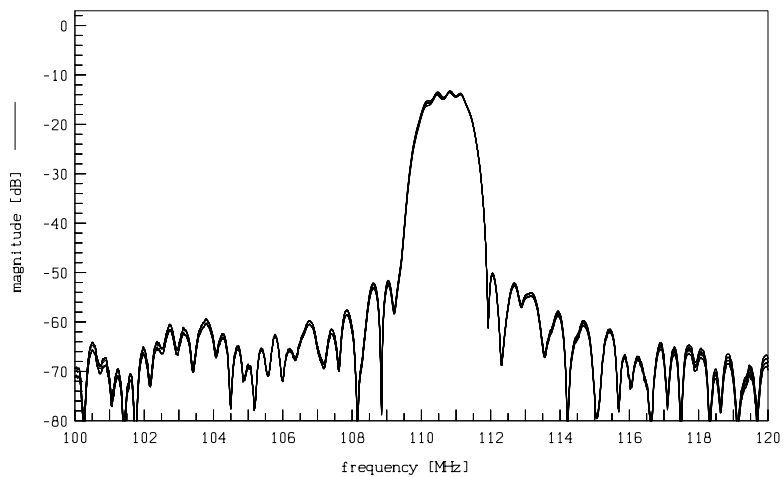
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Matching Stability / Variation of the Matching Network:

All matching-elements changed by $\pm 10\%$ (simulation).

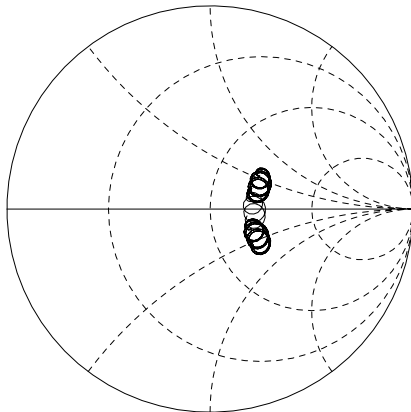


Transfer function of matched filter (S_{21}):



Impedance variation of matched filter (in passband):

S_{11} :



S_{22} :

