Siemens Matsushita Components

SAW Components
Bandpass Filter

B8100
110,59 MHz

Data Sheet

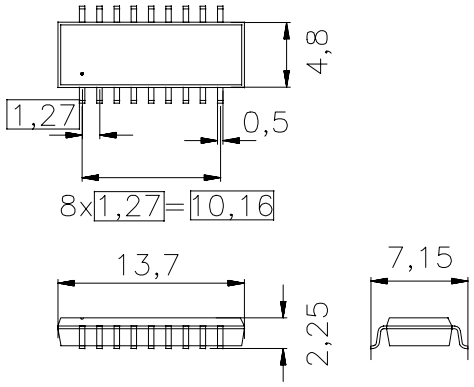
duroplast package **DIP18D**

Features

- IF filter for cordless application
- Channel selection in DECT system
- Low group delay ripple
- **S**urface **M**ounted **T**echnology (**SMT**)
- Standard IC small outline (SO) package
- Balanced and unbalanced operation possible

Terminals

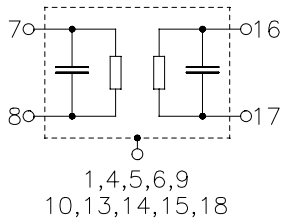
- Tinned CuFe alloy



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 13,14,15,18	Chip carrier – ground
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 **S**ensitive **D**evice (**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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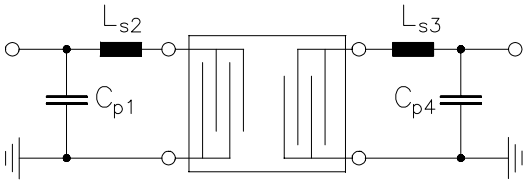
Characteristics

Operating temperature range: T = +25 °C
Terminating source impedance: Z_S = 50 Ω (600 Ω || 240 nH*)
Terminating load impedance: Z_L = 50 Ω (140 Ω || 110 nH*)

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

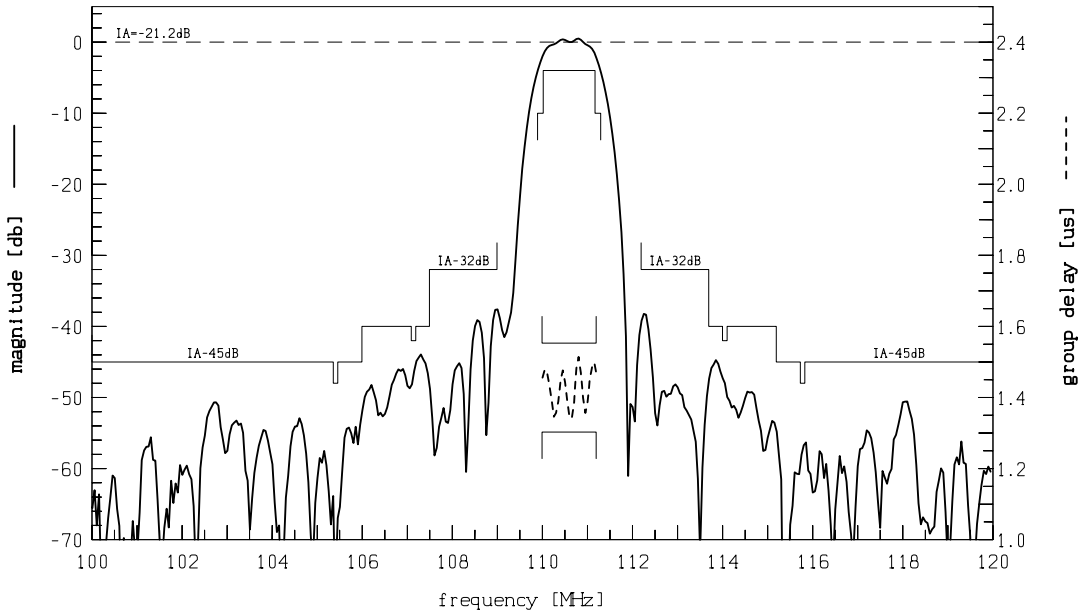
***) with matching network to 50 Ω** (element values depend on PCB layout):



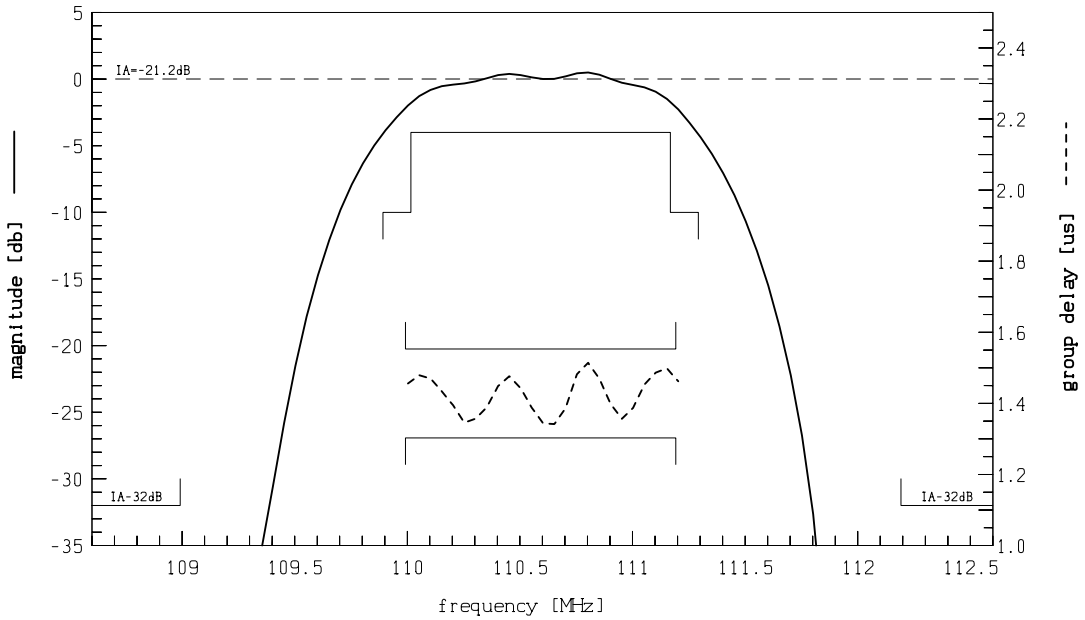
C_{p1} = 0 pF
L_{s2} = 220 nH
L_{s3} = 120 nH
C_{p4} = 22 pF

Data Sheet

Transfer function:



Transfer function (pass band):



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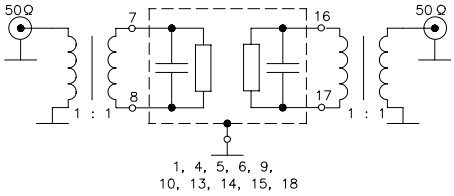
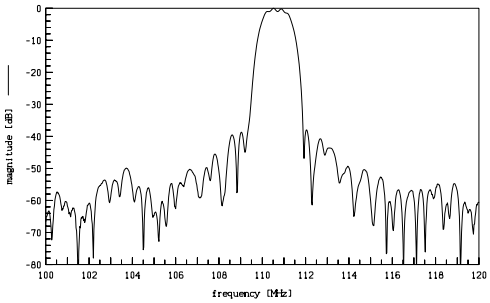
Application Note

Recommended Pin Configurations:

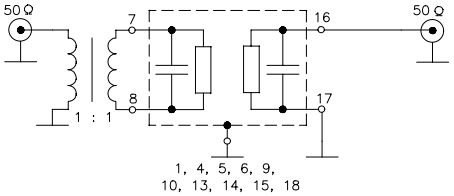
For optimum performance use the following pin configurations.

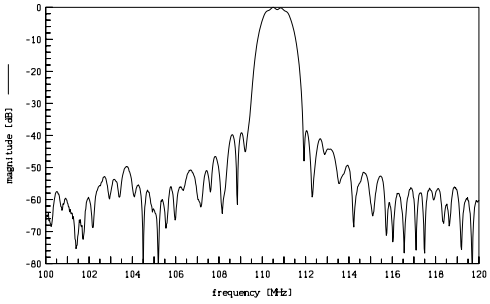
Balanced-balanced operation:



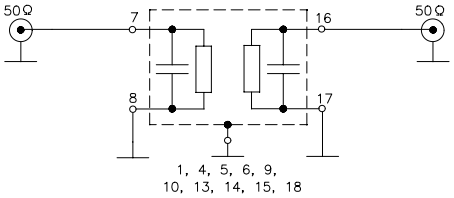


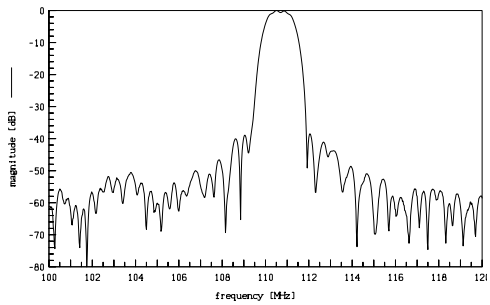
Balanced-unbalanced operation:





Unbalanced-unbalanced operation

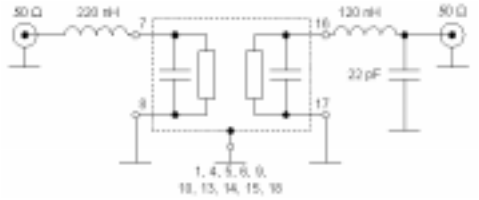




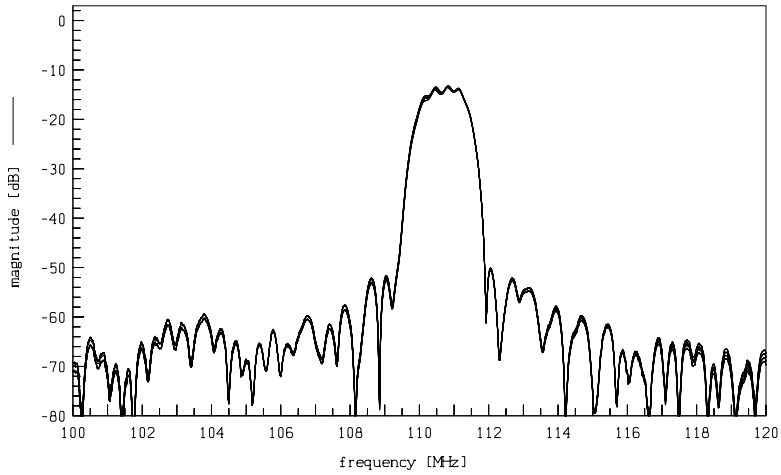
Application Note

Matching Stability / Variation of the Matching Network:

All matching-elements changed by ±10% (simulation).

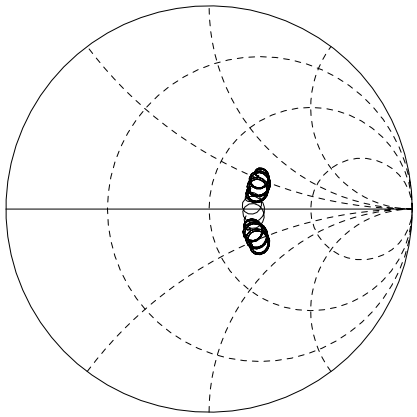


Transfer function of matched filter (S_{21}):



Impedance variation of matched filter (in passband):

S_{11}:



S_{22}: