



SAW Components

SAW filter

EGSM 900 Rx

Series/type: B4124

Ordering code: B39941B4124U410

Date: April 18, 2013

Version: 2.3

SAW Components

B4124

SAW filter

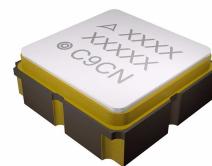
942.5 MHz

Data sheet



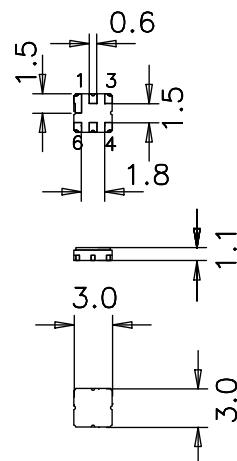
Application

- Low-loss RF filter for EGSM mobile systems
- Low amplitude ripple
- No matching required for operation at 50Ω
- Usable passband 35 MHz



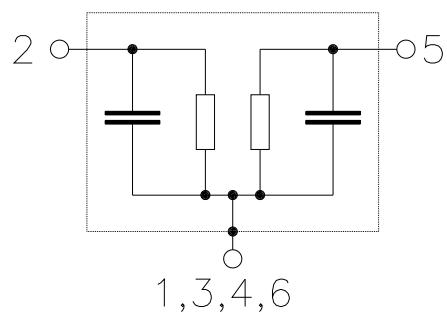
Features

- Package size $3.0 \times 3.0 \times 1.1 \text{ mm}^3$
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Electrostatic **Sensitive Device (ESD)**



Pin configuration

- 2 Input unbalanced
- 5 Output unbalanced
- 1,3,4,6 To be grounded



Please read *cautions and warnings and important notes* at the end of this document.

SAW Components		B4124		
SAW filter		942,5 MHz		
Data sheet				
Characteristics				
Operating temperature range:		$T = +25$ °C		
Terminating source impedance:		$Z_S = 50 \Omega$		
Terminating load impedance:		$Z_L = 50 \Omega$		
Center frequency	f_C	—	942,5	— MHz
Maximum insertion attenuation	α_{max}	—	3,0	4,0 dB
925,0 ... 960,0 MHz				
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,3	2,3 dB
925,0 ... 960,0 MHz				
Input VSWR		—	2,3	2,5
925,0 ... 960,0 MHz				
Output VSWR		—	2,3	2,5
925,0 ... 960,0 MHz				
Attenuation	α			
0,0 ... 800,0 MHz	50	60	—	dB
800,0 ... 880,0 MHz	40	52	—	dB
880,0 ... 905,0 MHz	35	45	—	dB
905,0 ... 915,0 MHz	24	28	—	dB
980,0 ... 1005,0 MHz	23	25	—	dB
1005,0 ... 1025,0 MHz	30	42	—	dB
1025,0 ... 1760,0 MHz	40	50	—	dB
1760,0 ... 2500,0 MHz	30	40	—	dB
2500,0 ... 3120,0 MHz	20	27	—	dB
3120,0 ... 4000,0 MHz	18	25	—	dB
4000,0 ... 6000,0 MHz	—	8	—	dB
Input reflection coefficient @1842,5 MHz				
Phase	-150	-140	-130	°

SAW Components		B4124		
SAW filter		942,5 MHz		
Data sheet				
Characteristics				
Operating temperature range:		$T = -10$ to $+80$ °C		
Terminating source impedance:		$Z_S = 50 \Omega$		
Terminating load impedance:		$Z_L = 50 \Omega$		
Center frequency	f_C	—	942,5	— MHz
Maximum insertion attenuation	α_{max}	—	3,2	4,5 dB
925,0 ... 960,0 MHz				
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,5	2,8 ¹⁾ dB
925,0 ... 960,0 MHz				
Input VSWR		—	2,3	2,5
925,0 ... 960,0 MHz				
Output VSWR		—	2,3	2,5
925,0 ... 960,0 MHz				
Attenuation	α	—	—	— dB
0,0 ... 800,0 MHz	50	60	—	dB
800,0 ... 880,0 MHz	40	52	—	dB
880,0 ... 905,0 MHz	35	45	—	dB
905,0 ... 915,0 MHz	20	28	—	dB
980,0 ... 1005,0 MHz	20	23	—	dB ²⁾
980,0 ... 1005,0 MHz	23	27	—	dB ³⁾
980,0 ... 982,0 MHz	20	23	—	dB
982,0 ... 1005,0 MHz	23	27	—	dB
1005,0 ... 1025,0 MHz	30	42	—	dB
1025,0 ... 1760,0 MHz	40	50	—	dB
1760,0 ... 2500,0 MHz	30	40	—	dB
2500,0 ... 3120,0 MHz	20	27	—	dB
3120,0 ... 4000,0 MHz	18	25	—	dB
4000,0 ... 6000,0 MHz	—	8	—	dB
Input reflection coefficient @1842,5 MHz		—	—	—
Phase		-150	-140	-130 °

¹⁾ 2,5dB_{max} at +5°C to +70°C

²⁾ Specification valid for T < 25°C

³⁾ Specification valid for T >= 25°C

SAW Components		B4124					
SAW filter		942,5 MHz					
Data sheet							
Characteristics							
Operating temperature range: $T = -30$ to $+80$ °C							
Terminating source impedance: $Z_S = 50 \Omega$							
Terminating load impedance: $Z_L = 50 \Omega$							
Center frequency	f_C	min.	typ.	max.			
		—	942,5	—			
		MHz	MHz	MHz			
Maximum insertion attenuation	α_{max}						
925,0 ... 960,0	MHz	—	3,2	4,5			
		dB					
Amplitude ripple (p-p)	$\Delta\alpha$						
925,0 ... 960,0	MHz	—	1,5	2,8			
		dB					
Input VSWR							
925,0 ... 960,0	MHz	—	2,3	2,5			
Output VSWR							
925,0 ... 960,0	MHz	—	2,3	2,5			
Attenuation	α						
0,0 ... 800,0	MHz	50	60	—			
800,0 ... 880,0	MHz	40	52	—			
880,0 ... 905,0	MHz	35	45	—			
905,0 ... 915,0	MHz	15	28	—			
980,0 ... 1005,0	MHz	20	23	—			
980,0 ... 1005,0	MHz	23	27	—			
980,0 ... 982,0	MHz	20	23	—			
982,0 ... 1005,0	MHz	23	27	—			
1005,0 ... 1025,0	MHz	30	42	—			
1025,0 ... 1760,0	MHz	40	50	—			
1760,0 ... 2500,0	MHz	30	40	—			
2500,0 ... 3120,0	MHz	20	27	—			
3120,0 ... 4000,0	MHz	18	25	—			
4000,0 ... 6000,0	MHz	—	8	—			
Input reflection coefficient @1842,5 MHz							
Phase		-150	-140	-130			
		°					

¹⁾ Specification valid for $T < 25$ °C

²⁾ Specification valid for $T \geq 25$ °C

SAW Components		B4124					
SAW filter		942,5 MHz					
Data sheet							
Characteristics							
Operating temperature range: $T = -30$ to $+85$ °C							
Terminating source impedance: $Z_S = 50 \Omega$							
Terminating load impedance: $Z_L = 50 \Omega$							
Center frequency	f_C	min.	typ.	max.			
		—	942,5	—			
		MHz	MHz	MHz			
Maximum insertion attenuation	α_{max}						
925,0 ... 960,0	MHz	—	3,2	4,8			
		dB					
Amplitude ripple (p-p)	$\Delta\alpha$						
925,0 ... 960,0	MHz	—	1,5	3,1			
		dB					
Input VSWR							
925,0 ... 960,0	MHz	—	2,3	2,6			
Output VSWR							
925,0 ... 960,0	MHz	—	2,3	2,6			
Attenuation	α						
0,0 ... 800,0	MHz	50	60	—			
800,0 ... 880,0	MHz	40	52	—			
880,0 ... 905,0	MHz	35	45	—			
905,0 ... 915,0	MHz	13	28	—			
980,0 ... 1005,0	MHz	20	23	—			
980,0 ... 1005,0	MHz	23	27	—			
980,0 ... 982,0	MHz	20	23	—			
982,0 ... 1005,0	MHz	23	27	—			
1005,0 ... 1025,0	MHz	30	42	—			
1025,0 ... 1760,0	MHz	40	50	—			
1760,0 ... 2500,0	MHz	30	40	—			
2500,0 ... 3120,0	MHz	20	27	—			
3120,0 ... 4000,0	MHz	18	25	—			
4000,0 ... 6000,0	MHz	—	8	—			
Input reflection coefficient @1842,5 MHz							
Phase		-150	-140	-130			
		°					

¹⁾ Specification valid for $T < 25$ °C

²⁾ Specification valid for $T \geq 25$ °C

SAW Components	B4124
SAW filter	942.5 MHz
Data sheet	

Maximum ratings

Operable temperature range	T	–40/+85	°C	
Storage temperature range	T_{stg}	–40/+85	°C	
DC voltage	V_{DC}	3	V	
ESD voltage	V_{ESD}	100 ¹⁾	V	machine model, 10 pulses
ESD voltage	V_{ESD}	700 ²⁾	V	charged device model, 3 pulses
Input power				source and load impedance 50 Ω
925.0 ... 960.0 MHz	P_{IN}	11	dBm	CW, 100 000 hrs, 85 °C

¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

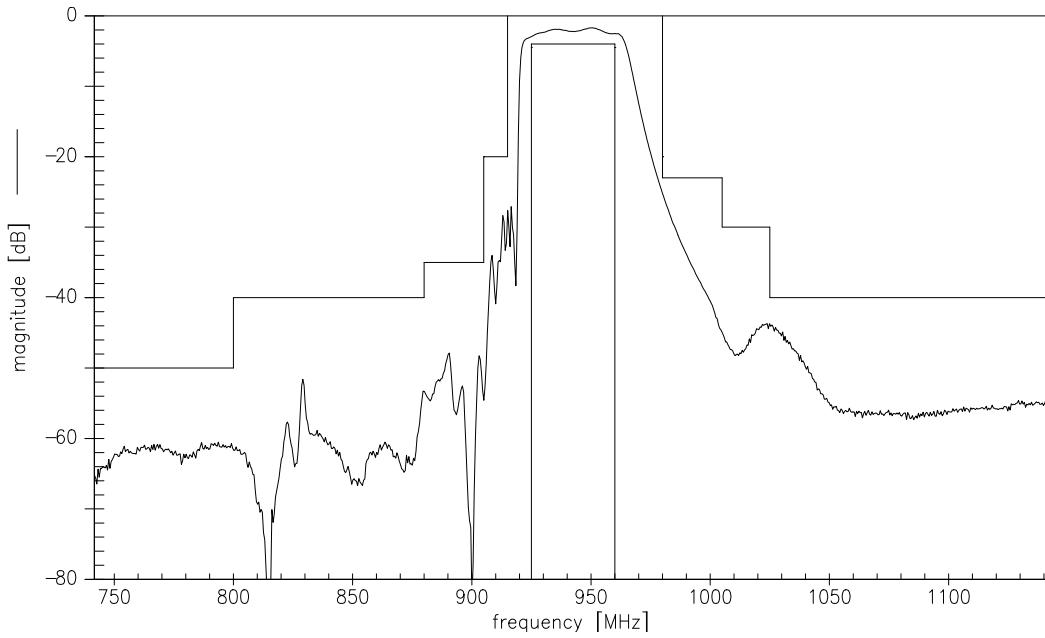
²⁾ acc. to JESD22-C101E (charged device model), 3 negative & 3 positive pulses.

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SAW filter **942.5 MHz**

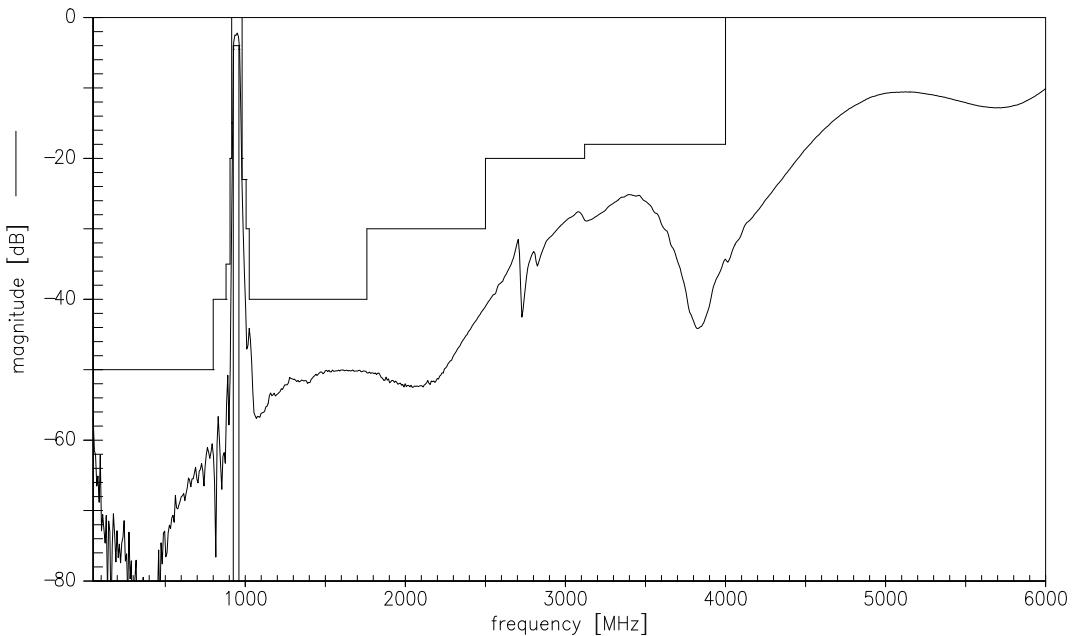
Data sheet

SMD

Transfer function

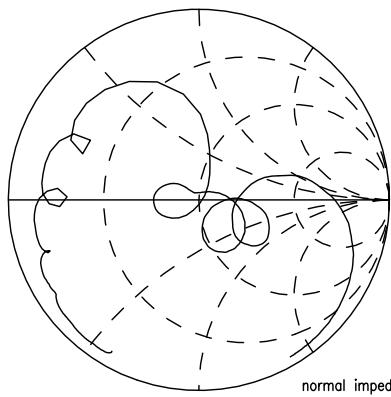
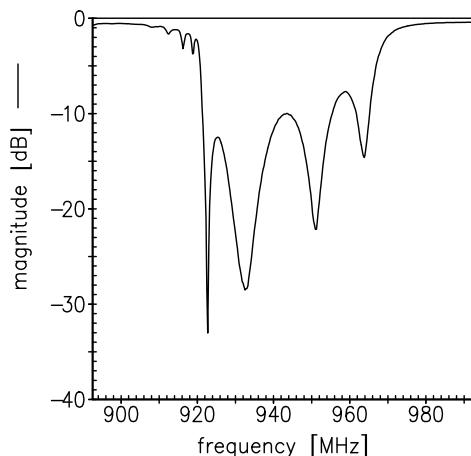
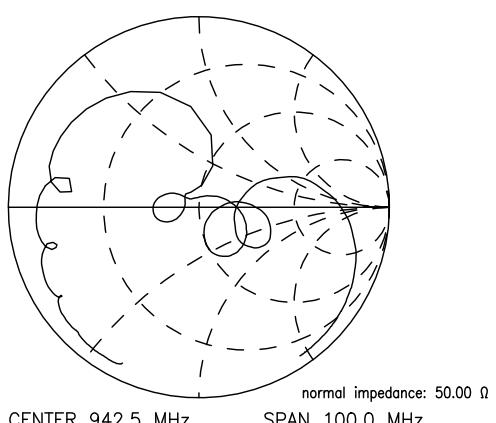
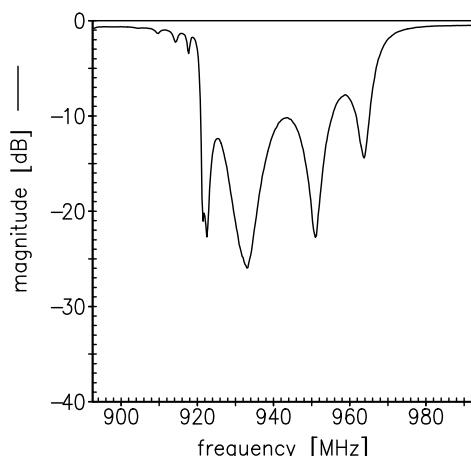


Transfer function (wideband)



Please read *cautions and warnings* and
important notes at the end of this document.

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Smith charts
 S_{11} function
 S_{11}

 S_{22} function
 S_{22}


SAW Components	B4124
SAW filter	942.5 MHz
Data sheet	

References

Type	B4124
Ordering code	B39941B4124U410
Marking and package	C61157-A7-A67
Packaging	F61074-V8088-Z000
Date codes	L_1126
S-parameters	B4124_NB.s2p B4124_WB.s2p See file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

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Published by EPCOS AG

Systems, Acoustics, Waves Business Group
P.O. Box 80 17 09, 81617 Munich, GERMANY

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