



## SAW Components

### SAW filter

EGSM 900 Rx

<b>Series/type:</b>	<b>B4124</b>
<b>Ordering code:</b>	<b>B39941B4124U410</b>
Date:	September 07, 2012
Version:	2.2



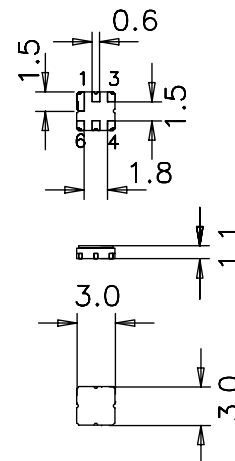
**Application**

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



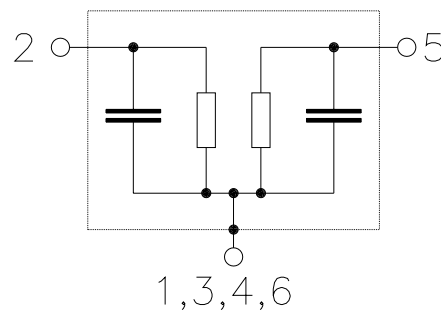
**Features**

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- 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





**Characteristics**

Operating temperature range:  $T = +25\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$				
	925,0 ... 960,0 MHz	—	3,0	4,0	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
	925,0 ... 960,0 MHz	—	1,3	2,3	dB
<b>Input VSWR</b>					
	925,0 ... 960,0 MHz	—	2,3	2,5	
<b>Output VSWR</b>					
	925,0 ... 960,0 MHz	—	2,3	2,5	
<b>Attenuation</b>	$\alpha$				
	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
<b>Input reflection coefficient @1842,5 MHz</b>					
	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:  $Z_L = 50 \Omega$

			<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>	$f_C$		—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	925,0 ... 960,0 MHz	—	3,2	4,5	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	925,0 ... 960,0 MHz	—	1,5	2,8 <sup>1)</sup>	dB
<b>Input VSWR</b>		925,0 ... 960,0 MHz	—	2,3	2,5	
<b>Output VSWR</b>		925,0 ... 960,0 MHz	—	2,3	2,5	
<b>Attenuation</b>	$\alpha$					
		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 <sup>2)</sup>
		980,0 ... 1005,0 MHz	23	27	—	dB <sup>3)</sup>
		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
<b>Input reflection coefficient @ 1842,5 MHz</b>						
	Phase		-150	-140	-130	°

<sup>1)</sup> 2,5dB<sub>max</sub> at +5 °C to +70 °C

<sup>2)</sup> Specification valid for  $T < 25$  °C

<sup>3)</sup> Specification valid for  $T \geq 25$  °C



Data sheet



Characteristics

Operating temperature range:  $T = -30$  to  $+80$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$				
	925,0 ... 960,0 MHz	—	3,2	4,5	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
	925,0 ... 960,0 MHz	—	1,5	2,8	dB
<b>Input VSWR</b>					
	925,0 ... 960,0 MHz	—	2,3	2,5	
<b>Output VSWR</b>					
	925,0 ... 960,0 MHz	—	2,3	2,5	
<b>Attenuation</b>	$\alpha$				
	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	15	28	—	dB
	980,0 ... 1005,0 MHz	20	23	—	dB <sup>1)</sup>
	980,0 ... 1005,0 MHz	23	27	—	dB <sup>2)</sup>
	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
<b>Input reflection coefficient @1842,5 MHz</b>					
	Phase	-150	-140	-130	°

<sup>1)</sup> Specification valid for  $T < 25$  °C

<sup>2)</sup> Specification valid for  $T \geq 25$  °C



Data sheet



Characteristics

Operating temperature range:  $T = -30$  to  $+85$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$				
	925,0 ... 960,0 MHz	—	3,2	4,8	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
	925,0 ... 960,0 MHz	—	1,5	3,1	dB
<b>Input VSWR</b>					
	925,0 ... 960,0 MHz	—	2,3	2,6	
<b>Output VSWR</b>					
	925,0 ... 960,0 MHz	—	2,3	2,6	
<b>Attenuation</b>	$\alpha$				
	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	13	28	—	dB
	980,0 ... 1005,0 MHz	20	23	—	dB <sup>1)</sup>
	980,0 ... 1005,0 MHz	23	27	—	dB <sup>2)</sup>
	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
<b>Input reflection coefficient @1842,5 MHz</b>					
	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 <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	3	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	machine model, 10 pulses
ESD voltage	V <sub>ESD</sub>	700 <sup>2)</sup>	V	charged device model, 3 pulses
Input power				source and load impedance 50 Ω
925.0 ... 960.0 MHz	P <sub>IN</sub>	11	dBm	CW

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

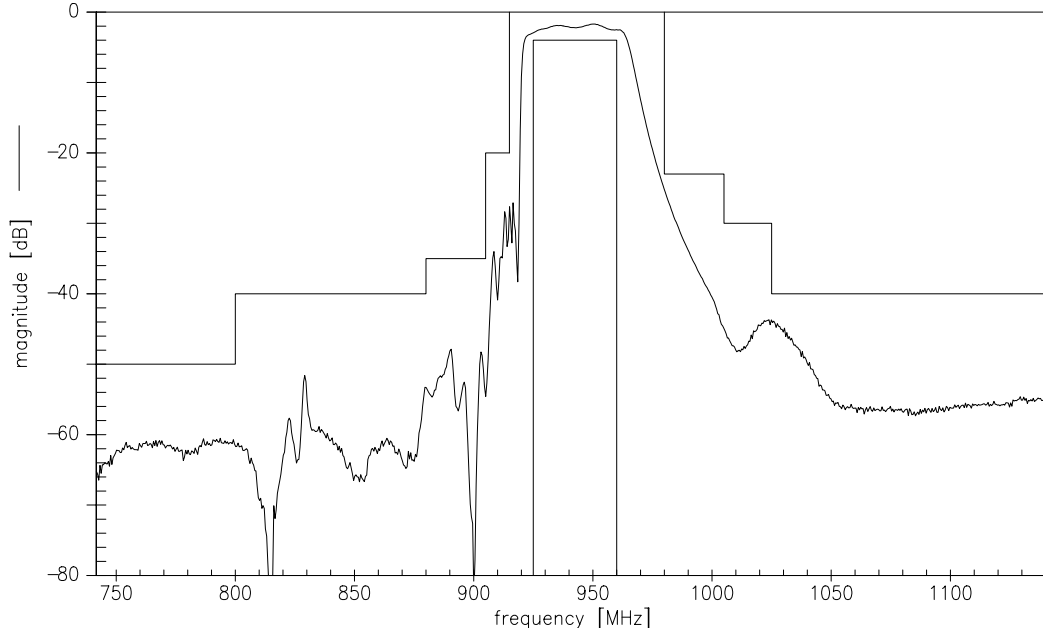
<sup>2)</sup> acc. to JESD22-C101E (charged device model), 3 negative & 3 positive pulses.



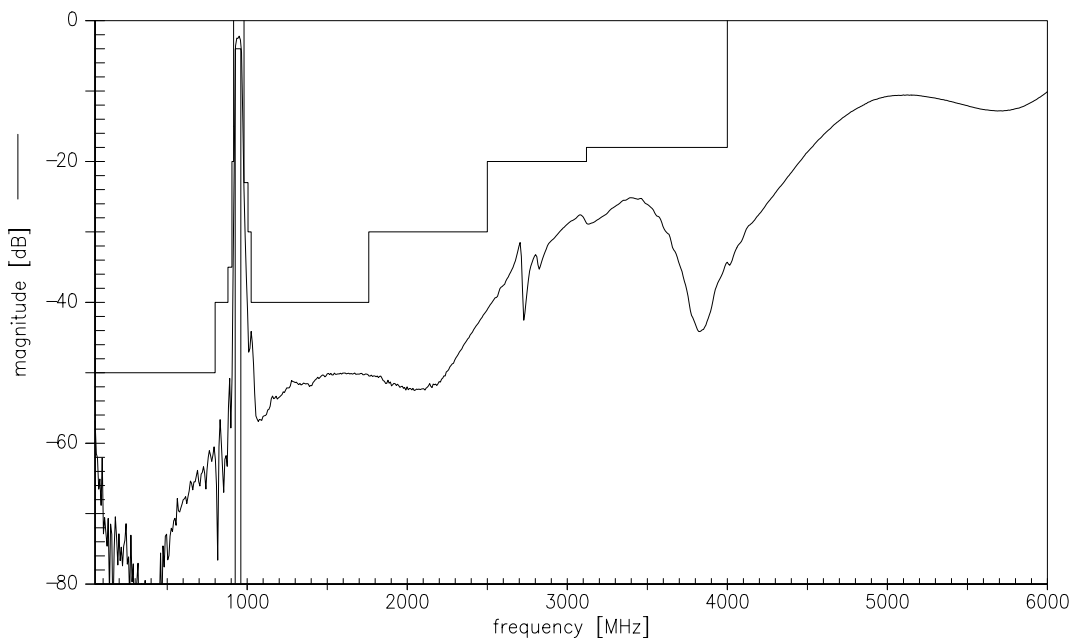
Data sheet



Transfer function



Transfer function (wideband)



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





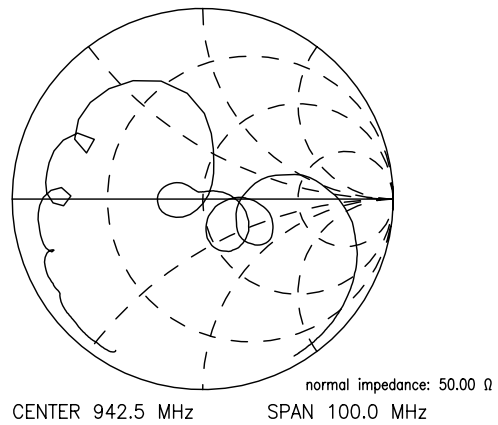
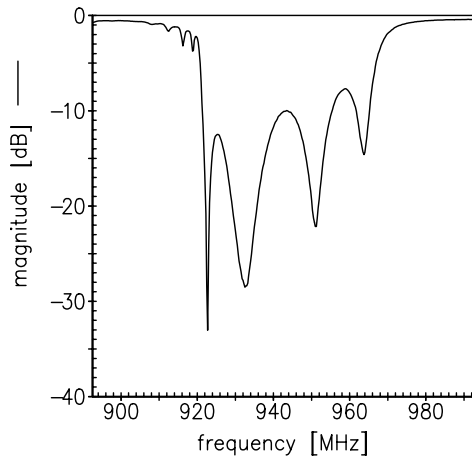
Data sheet



Smith charts

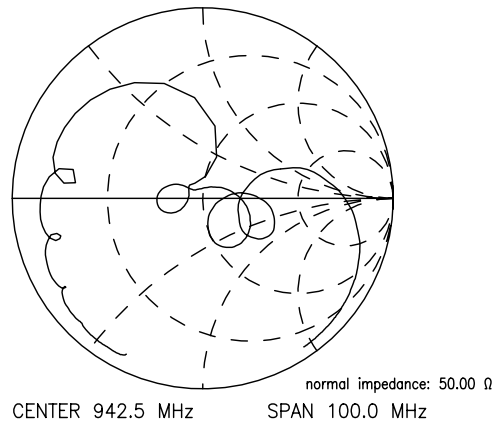
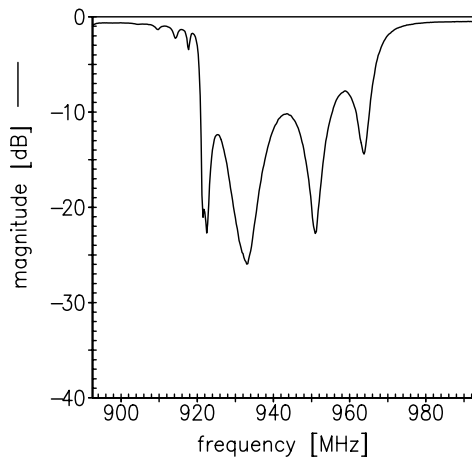
S<sub>11</sub> function

S<sub>11</sub>



S<sub>22</sub> function

S<sub>22</sub>





<b>SAW Components</b>	<b>B4124</b>
<b>SAW filter</b>	<b>942.5 MHz</b>
Data sheet	

## References

<b>Type</b>	B4124
<b>Ordering code</b>	B39941B4124U410
<b>Marking and package</b>	C61157-A7-A67
<b>Packaging</b>	F61074-V8088-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B4124_NB.s2p B4124_WB.s2p See file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
<b>Matching coils</b>	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>

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