



## **SAW Components**

### **SAW Rx 2in1 filter**

<b>Series/type:</b>	<b>B4236</b>
<b>Ordering code:</b>	<b>B39811B4236H410</b>
<b>Date:</b>	<b>July 06, 2007</b>
<b>Version:</b>	<b>2.0</b>

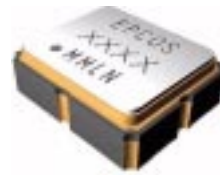


Data sheet



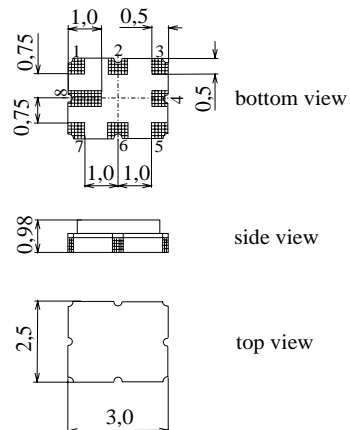
Application

- Low-loss 2in1 RF filter for Trunked Radio
- Device with two integrated Rx filters
- Low amplitude ripple
- Usable passband:  
Filter 1 : 31.0 MHz  
Filter 2 : 14.0 MHz
- No matching network required for operation at 50 Ω



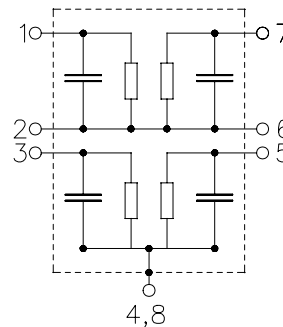
Features

- Package size 3.0 x 2.5 x 0.98 mm<sup>3</sup>
- Package code QCC8E
- RoHS compatible
- Approx. weight 0.008 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)



Pin configuration

- 1 Input (filter 1)
- 7 Output (filter 1)
- 3 Input (filter 2)
- 5 Output (filter 2)
- 2,6 Ground
- 4,8 Case ground





Data sheet



**Characteristics of Filter 1**

Temperature range for specification:  $T = -30 \dots +70 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ }\Omega$   
 Terminating load impedance:  $Z_L = 50 \text{ }\Omega$

		min.	typ. @25°C	max.	
<b>Center frequency</b>	$f_C$	—	809.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	2.3	3.3 <sup>1)</sup>	dB
794.0 ... 825.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.9	1.9 <sup>2)</sup>	dB
794.0 ... 825.0 MHz					
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	27.0	75.0 <sup>3)</sup>	ns
794.0 ... 825.0 MHz					
<b>Return loss (Input and Output)</b>		8.0	9.0	—	dB
794.0 ... 825.0 MHz					
<b>Attenuation</b>	$\alpha$				
0.0 ... 645.0 MHz		40	62	—	dB
674.0 ... 735.0 MHz		30	56	—	dB
735.0 ... 777.0 MHz		20	28	—	dB
851.0 ... 884.0 MHz		20	28	—	dB
884.0 ... 945.0 MHz		30	56	—	dB
974.0 ... 1065.0 MHz		40	54	—	dB
1065.0 ... 1564.5 MHz		20	42	—	dB
1564.5 ... 1594.5 MHz		30	43	—	dB
2326.5 ... 2371.5 MHz		36	41	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

1) 2.8 dB at  $25 \pm 2 \text{ }^\circ\text{C}$ .

2) 1.4 dB at  $25 \pm 2 \text{ }^\circ\text{C}$ .

3) 50 ns at  $25 \pm 2 \text{ }^\circ\text{C}$ .



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769.0 / 809.5 MHz

Data sheet



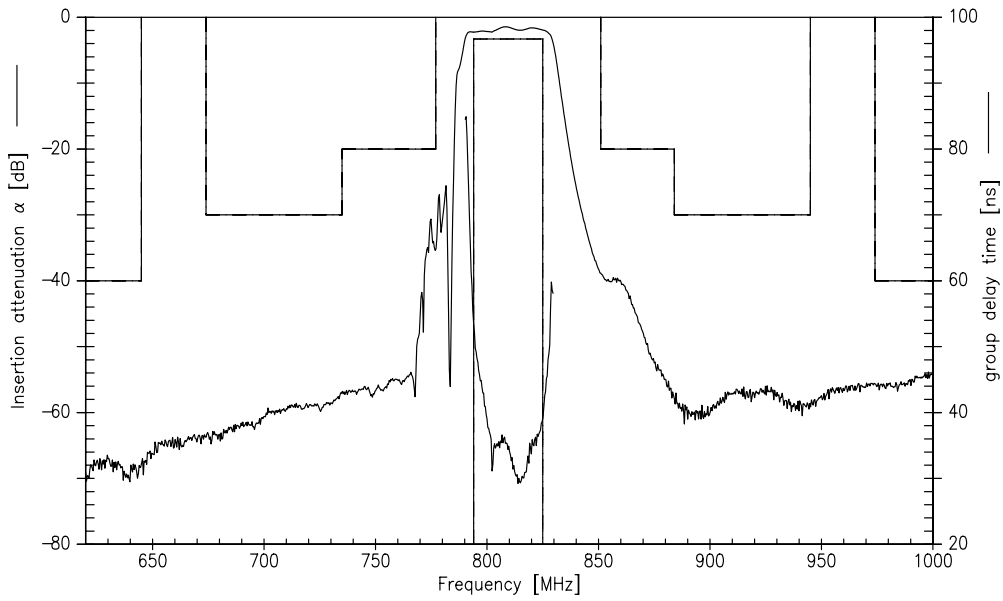
### Maximum ratings of Filter 1

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	machine model, 10 pulses
Source power (cw)	P <sub>s</sub>	15	dBm	source and load impedance 50 Ω

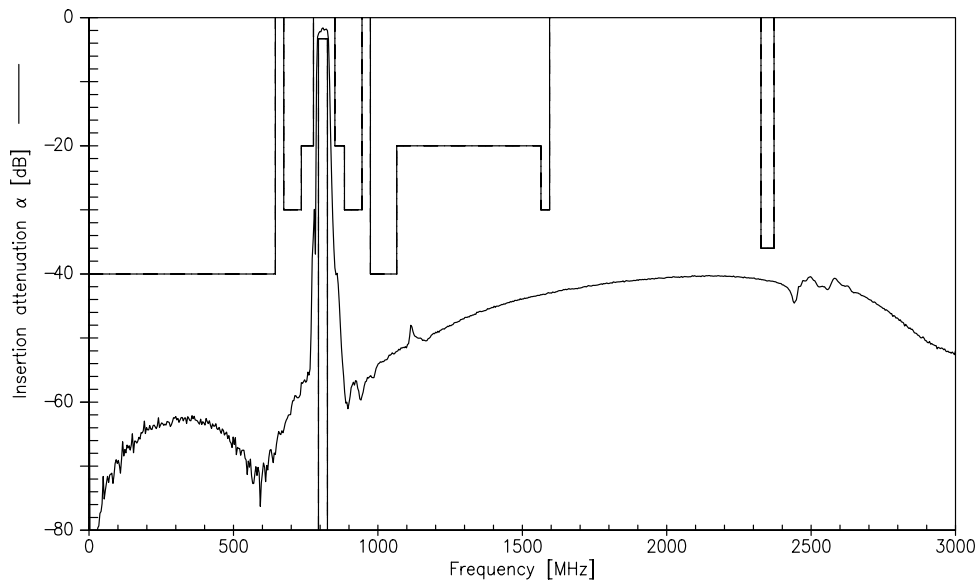
<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function of Filter 1



Transfer function of Filter 1 (wideband)





Data sheet



Characteristics of Filter 2

Temperature range for specification:  $T = -30 \dots +70 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ } \Omega$   
 Terminating load impedance:  $Z_L = 50 \text{ } \Omega$

		min.	typ. @25°C	max.	
<b>Center frequency</b>	$f_C$	—	769.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	1.7	2.6 <sup>1)</sup>	dB
	762.0 ... 776.0 MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.4	1.0	dB
	762.0 ... 776.0 MHz				
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	22.0	50.0	ns
	762.0 ... 776.0 MHz				
<b>Return loss (Input and Output)</b>		12.0	13.5	—	dB
	762.0 ... 776.0 MHz				
<b>Attenuation</b>	$\alpha$				
	0.0 ... 431.0 MHz	57	60	—	dB
	431.0 ... 604.0 MHz	50	60	—	dB
	604.0 ... 690.0 MHz	30	58	—	dB
	690.0 ... 733.0 MHz	20	52	—	dB
	733.0 ... 752.0 MHz	9	22	—	dB
	804.0 ... 847.0 MHz	25	36	—	dB
	847.0 ... 892.7 MHz	30	52	—	dB
	892.7 ... 910.7 MHz	50	56	—	dB
	910.7 ... 995.3 MHz	47	54	—	dB
	995.3 ... 1121.0 MHz	42	52	—	dB
	1524.0 ... 1554.0 MHz	30	42	—	dB
	2286.0 ... 2331.0 MHz	30	39	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

<sup>1)</sup> 2.4 dB at  $25 \pm 2 \text{ }^\circ\text{C}$ .



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769.0 / 809.5 MHz

Data sheet



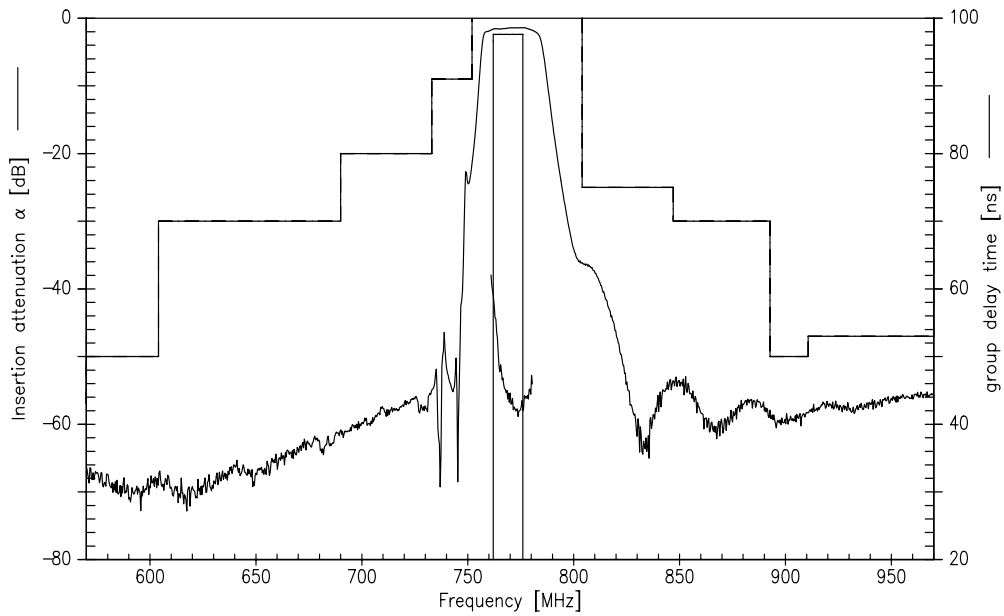
### Maximum ratings of Filter 2

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	machine model, 10 pulses
Source power (cw)	P <sub>s</sub>	15	dBm	source and load impedance 50 Ω

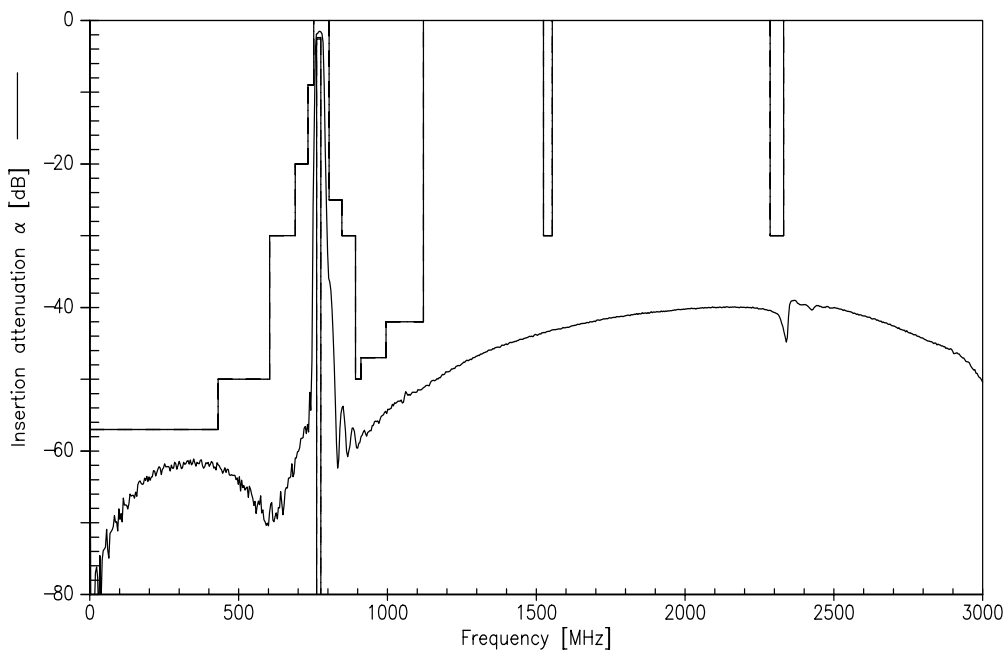
<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function of Filter 2



Transfer function of Filter 2 (wideband)







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## References

Type	B4236
Ordering code	B39811B4236H410
Marking and package	C61157-A7-A92
Packaging	F61074-V8174-Z000
Date code	L_1126
S-parameters	B4236_LB_NB.s2p B4236_LB_WB.s2p B4236_UB_NB.s2p B4236_UB_WB.s2p
Soldering profile	S_6001
RoHS compatible	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."

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