



SAW Components

SAW IF filter

GSM Base Station

Series/type:	B5233
Ordering code:	B39141B5233H810
Date:	Jun 30, 2011
Version:	2.0

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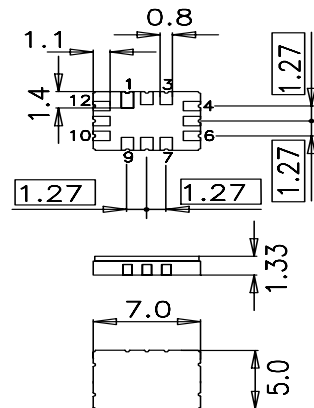
Application

- Low-loss IF filter for GSM applications
- Usable passband 35 MHz
- Balanced operation



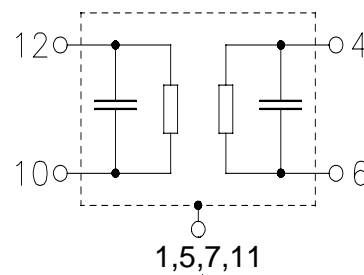
Features

- Package size 7.0 x 5.0 x 1.33 mm³
- Package code QCC12E
- RoHS compatible
- Approx. weight 0.25 g
- Ceramic package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Filter surface passivated
- Moisture Sensitivity Level 1



Pin configuration

- 10, 12 Input
- 4, 6 Output
- 1,5,7,11 Case Ground
- 2,3,8,9 To be grounded





SAW Components

B5233

SAW IF filter

138.2 MHz

Data Sheet



Characteristics

Operating temperature range: $T = -40$ to $85\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 200\ \Omega$ balanced and matching network
 Terminating load impedance: $Z_L = 200\ \Omega$ balanced and matching network

		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N	—	138.2	—	MHz
Minimum insertion attenuation (including matching network)	α_{\min}	—	10.4	12	dB
Passband width	$\alpha_{\text{rel}} \leq 1.2\text{ dB}$	$B_{1.2\text{dB}}$	35.0	41	— MHz
Amplitude ripple (p-p)	$f_N \pm 17.6\text{ MHz}$	$\Delta\alpha$	—	0.7	1.4 dB
Group delay ripple (p-p)	$f_N \pm 17.6\text{ MHz}$	$\Delta\tau$	—	30	100 ns
Relative attenuation (relative to α_{\min})		α_{rel}			
28.00 MHz ... 64.00 MHz		40	58	—	dB
212.0 MHz ... 464.0 MHz		40	44	—	dB
464.0 MHz ... 3000 MHz		45	60	—	dB
Average group delay	$f_N \pm 17.6\text{ MHz}$	τ_{mean}	—	0.540	1.0 μs
Temperature coefficient of frequency	TC_f	—	-75	—	ppm/K

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



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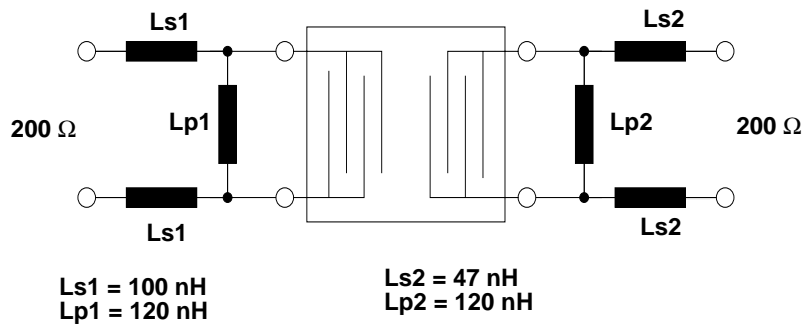
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138.2 MHz

Data Sheet



Matching network to 200 Ω balanced input - 200 Ω balanced output



(Element values depend upon PCB properties and layout)

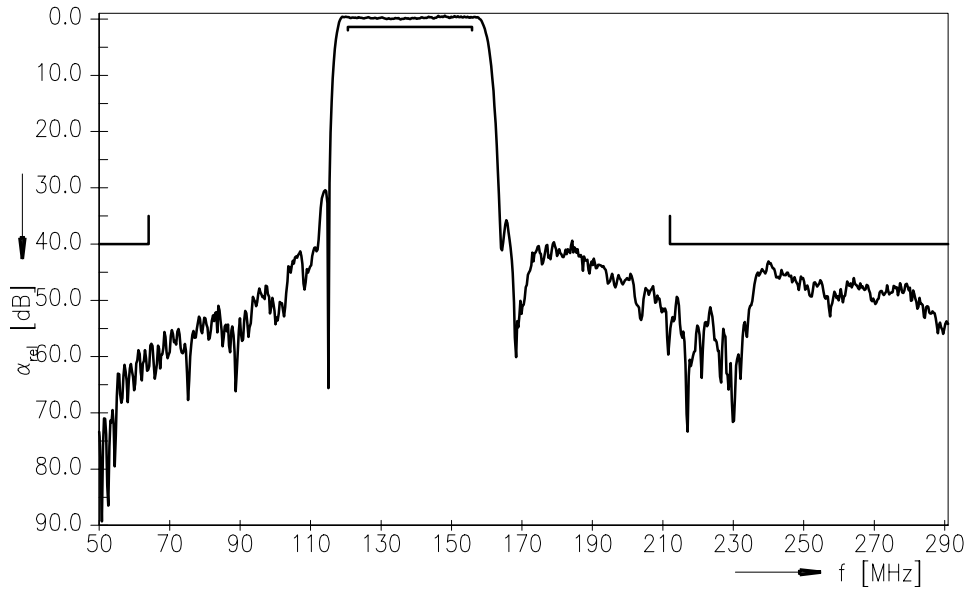
Maximum ratings

Operable temperature range	T	-40/+85	$^{\circ}\text{C}$	
Storage temperature range	T_{sta}	-55/+125	$^{\circ}\text{C}$	
DC voltage	V_{DC}	0	V	
Input power at 120.6-155.8 MHz	P_{IN}	20	dBm	CW

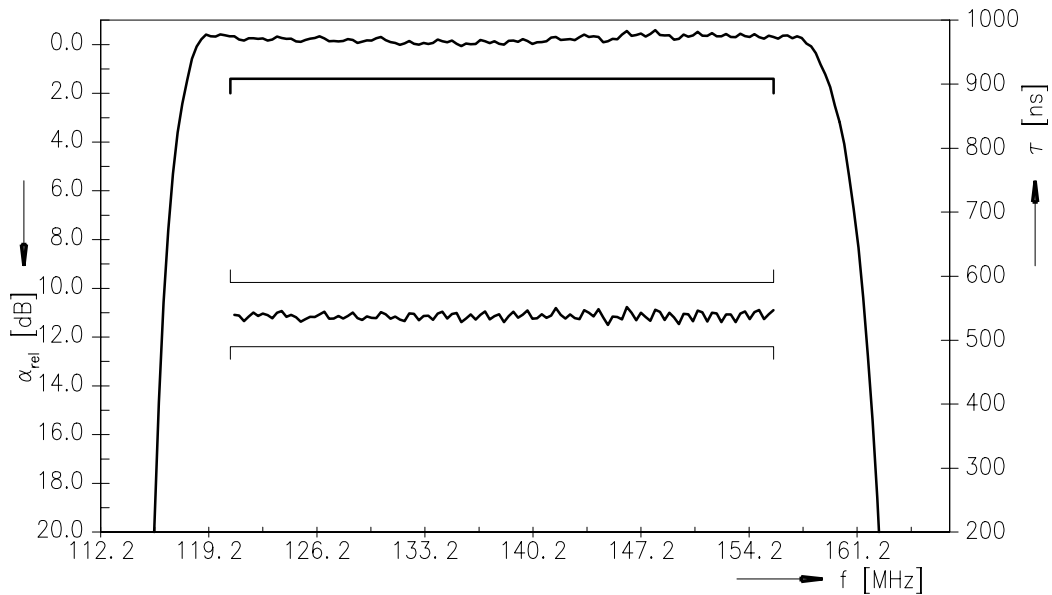
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Transfer function (S21, wideband, normalised)



Transfer function (S21, narrowband, normalised)



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**SAW Components****B5233****SAW IF filter****138.2 MHz**

Data Sheet

**References**

Type	B5233
Ordering code	B39141B5233H810
Marking and package	C61157-A7-A103
Packaging	F61074-V8170-Z000
Date codes	L_1126
S-parameters	B5233_NB.s2p; B5233_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."
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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