



SAW Components

SAW IF filter

BWA

Series/type:	B5249
Ordering code:	B39141B5249H810
Date:	Jun 04, 2012
Version:	2.1



SAW Components

B5249

SAW IF filter

140.0 MHz

Data sheet



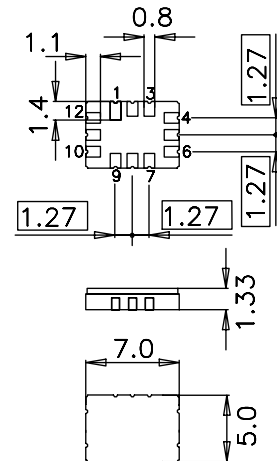
Application

- Low-loss IF filter for broadband wireless access
- Usable passband 7.4 MHz
- Balanced operation



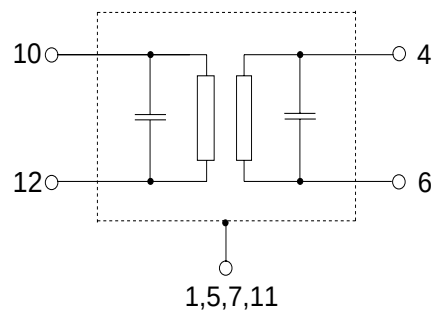
Features

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



Pin configuration

- | | |
|---------------|---------------------------------|
| ■ 10, 12 | Input, input return or ground |
| ■ 4, 6 | Output, output return or ground |
| ■ 1, 5, 7, 11 | Case ground |
| ■ 2, 3, 8, 9 | To be grounded |





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Characteristics

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

		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N	—	140.0	—	MHz
Minimum insertion attenuation (including matching network)	$\alpha_{\min}$	—	12.4	14.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 3.7\text{ MHz}$		—	0.3	1.2	dB
$f_N \pm 4.1\text{ MHz}$		—	0.7	3.0	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 3.7\text{ MHz}$		—	30	120	ns
Absolute group delay					
$f_N \pm 3.7\text{ MHz}$	τ	—	0.65	—	μs
Phase ripple (p-p)					
$f_N \pm 3.7\text{ MHz}$	$\Delta\varphi$	—	3	10	$^{\circ}$
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
10.0 MHz ... 129.5 MHz		40.0	50	—	dB
129.5 MHz ... 132.0 MHz		35.0	42	—	dB
148.5 MHz ... 149.5 MHz		30.0	41	—	dB
149.5 MHz ... 157.0 MHz		35.0	41	—	dB
157.0 MHz ... 250.0 MHz		40.0	45	—	dB
250.0 MHz ... 425.0 MHz		20.0	32	—	dB
Return loss, input	$f_N \pm 3.7\text{ MHz}$	9.0	12.4	—	dB
Return loss, output	$f_N \pm 3.7\text{ MHz}$	10.0	16.5	—	dB
Triple transit suppression		40.0	45.0	—	dB
Temperature coefficient of frequency	TC_f		-87		ppm/K

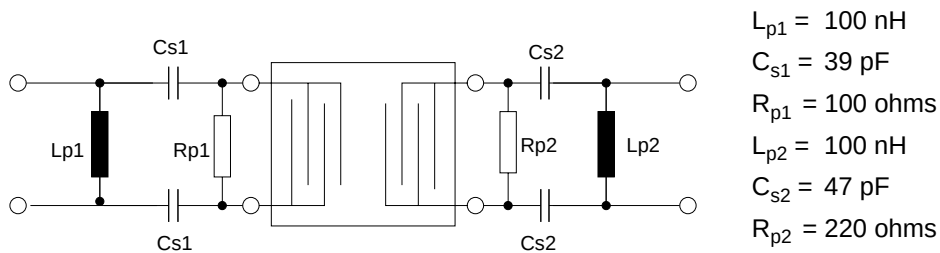


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Matching network to 200 Ω balanced / 200 Ω balanced



(Element values depend upon PCB properties and layout)

Maximum ratings

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
Input power	P _{IN}	10	dBm	



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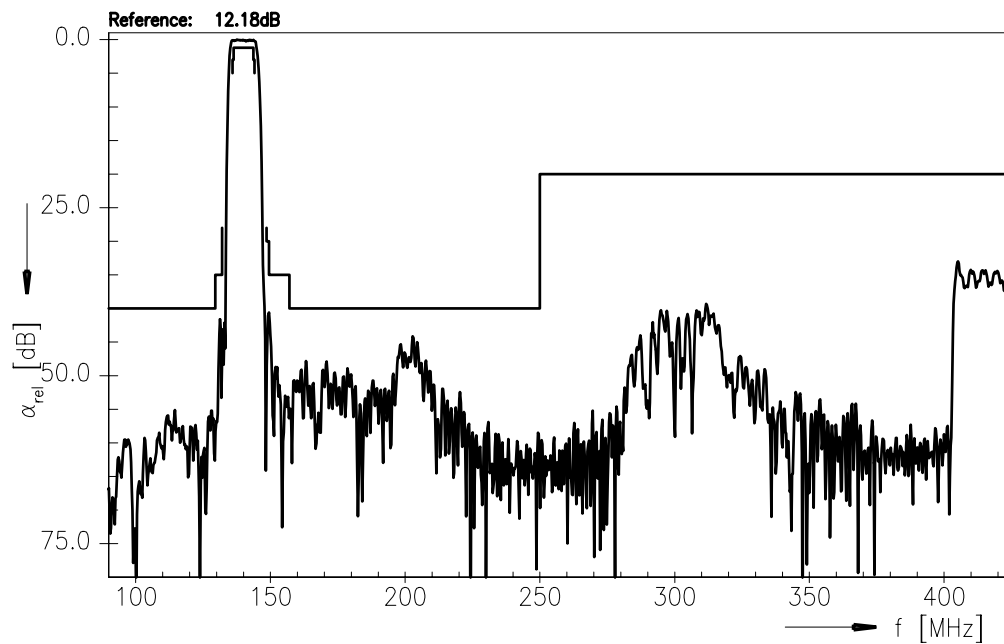
SAW IF filter

140.0 MHz

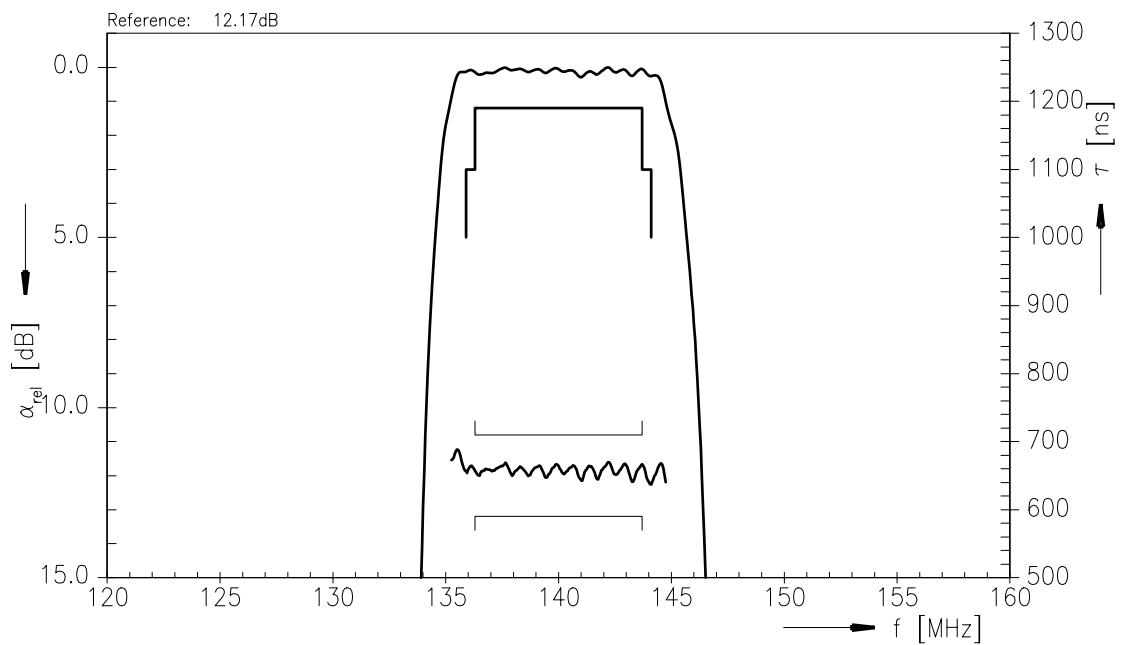
Data sheet



Transfer function



Transfer function (Passband)



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



SAW Components

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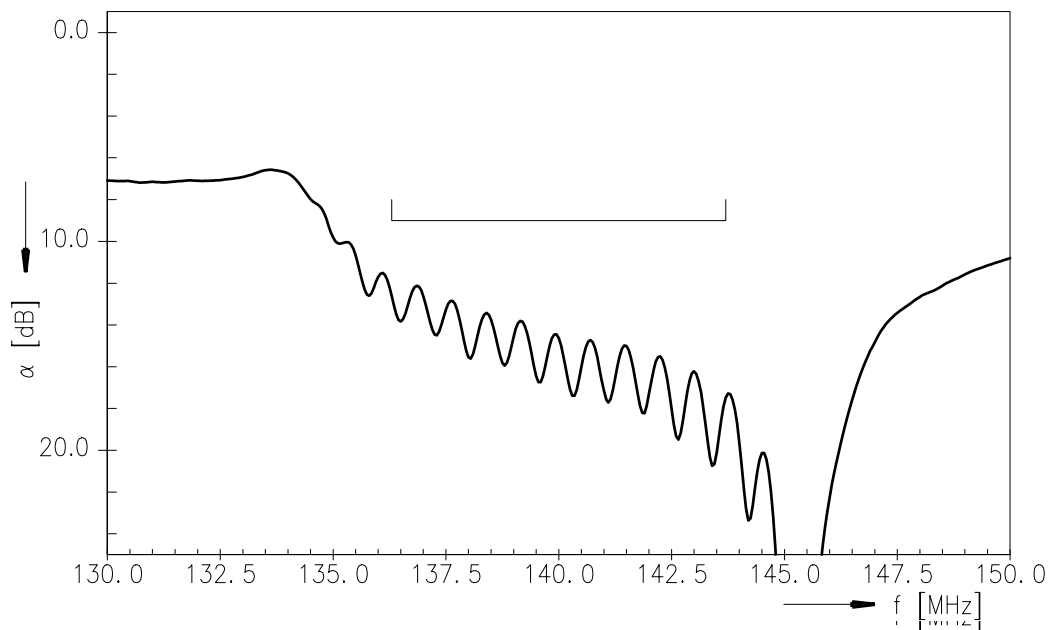
SAW IF filter

140.0 MHz

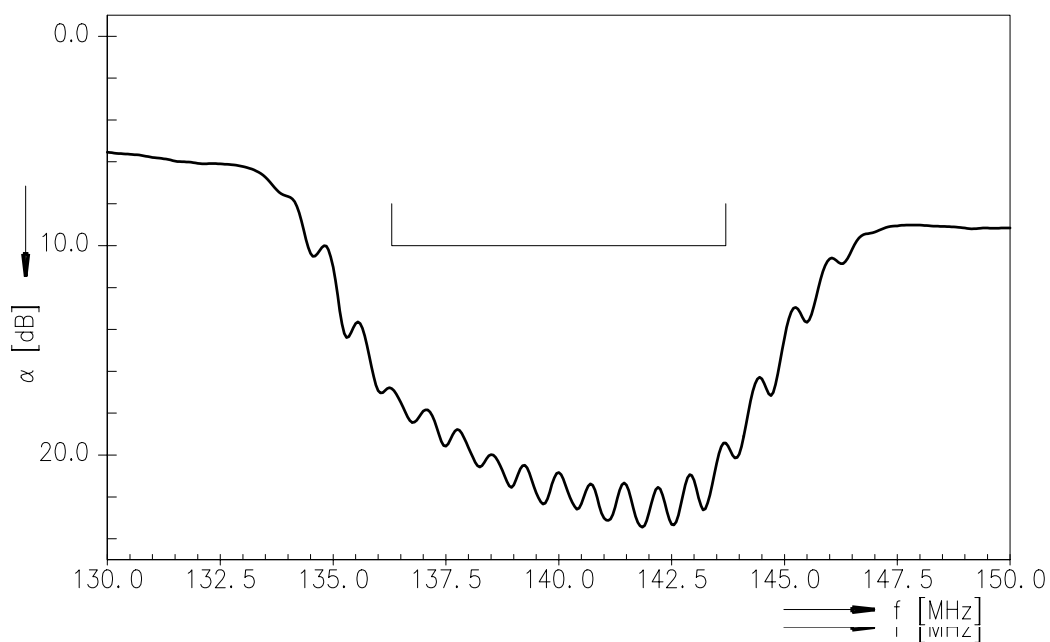
Data sheet



Return loss (S11)



Return loss (S22)



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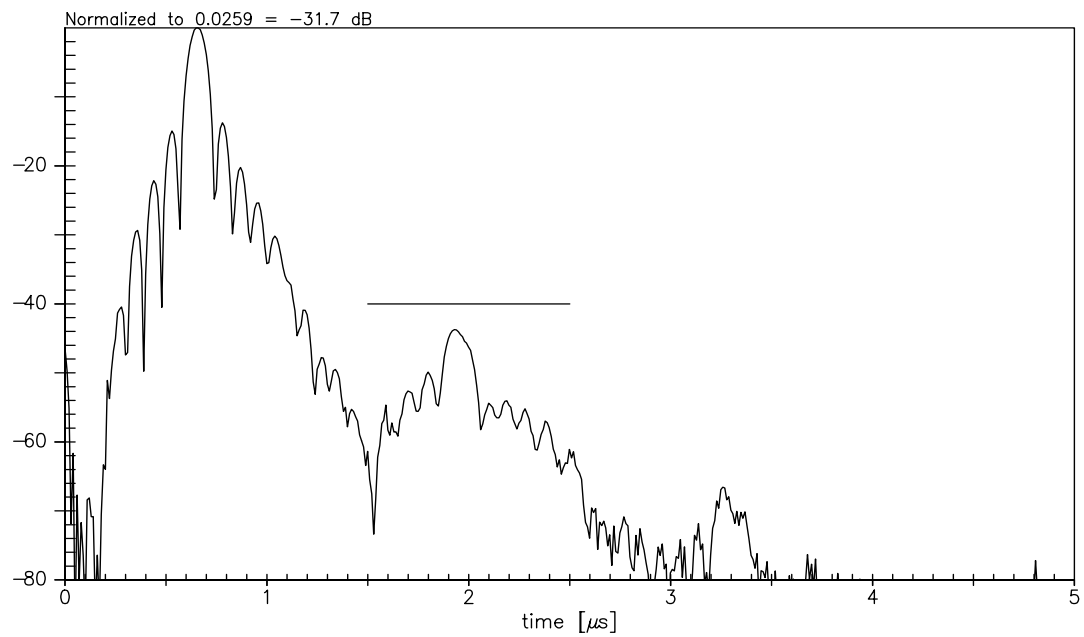
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Triple transit





SAW Components

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SAW IF filter

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Characteristics

Operating temperature range: $T = -40$ to $85\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ and matching network
 Terminating load impedance: $Z_L = 50\ \Omega$ and matching network

		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N	—	140.0	—	MHz
Minimum insertion attenuation (including matching network)	$\alpha_{\min}$	—	12.6	14.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 3.7\text{ MHz}$		—	0.3	1.2	dB
$f_N \pm 4.1\text{ MHz}$		—	0.4	3.0	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 3.7\text{ MHz}$		—	30	120	ns
Absolute group delay					
$f_N \pm 3.7\text{ MHz}$	τ	—	0.65	—	μs
Phase ripple (p-p)					
$f_N \pm 3.7\text{ MHz}$	$\Delta\varphi$	—	3	10	$^{\circ}$
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
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129.5 MHz ... 132.0 MHz		35.0	42	—	dB
148.5 MHz ... 149.5 MHz		30.0	41	—	dB
149.5 MHz ... 157.0 MHz		35.0	46	—	dB
157.0 MHz ... 191.0 MHz		40.0	46	—	dB
191.0 MHz ... 209.0 MHz		37.0	51	—	dB
209.0 MHz ... 250.0 MHz		40.0	51	—	dB
250.0 MHz ... 425.0 MHz		20.0	42	—	dB
Return loss, input	$f_N \pm 3.7\text{ MHz}$	9.0	13	—	dB
Return loss, output	$f_N \pm 3.7\text{ MHz}$	10.0	15	—	dB
Triple transit suppression		39.0	44	—	dB
Temperature coefficient of frequency	TC_f		-87		ppm/K

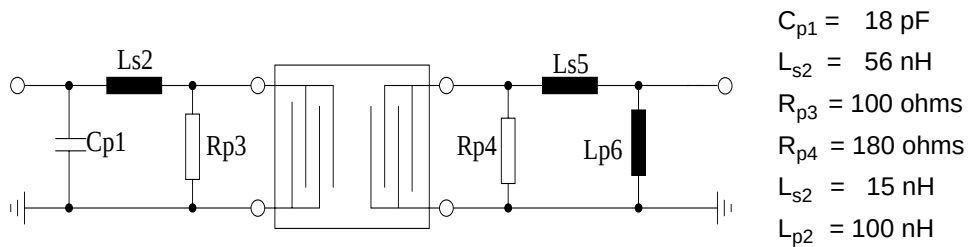


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Matching network to 50 Ω single ended/ 50 Ω single ended



(Element values depend upon PCB properties and layout)

Maximum ratings

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
Input power	P _{IN}	10	dBm	



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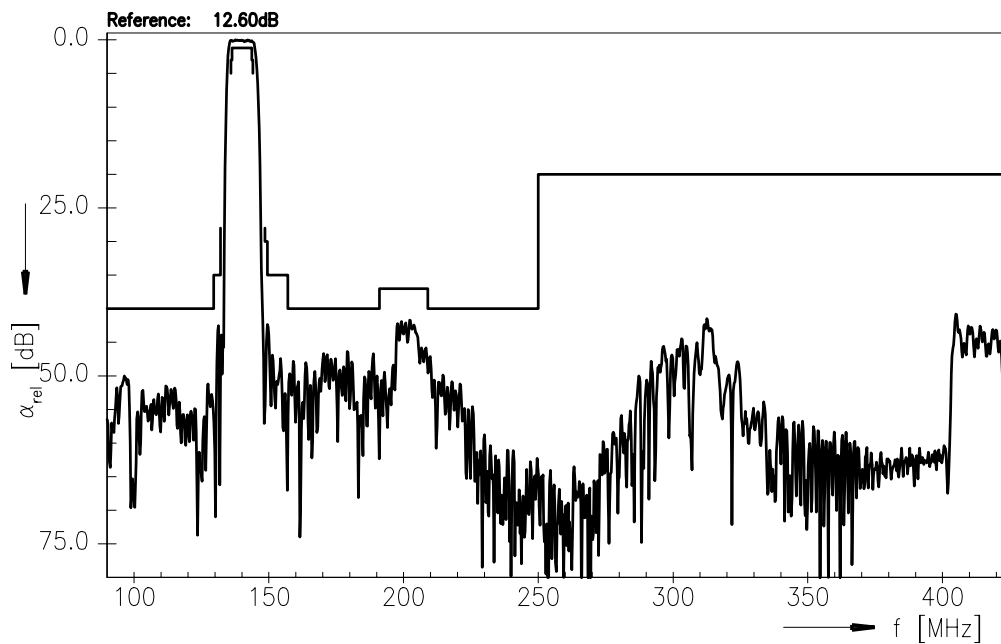
SAW IF filter

140.0 MHz

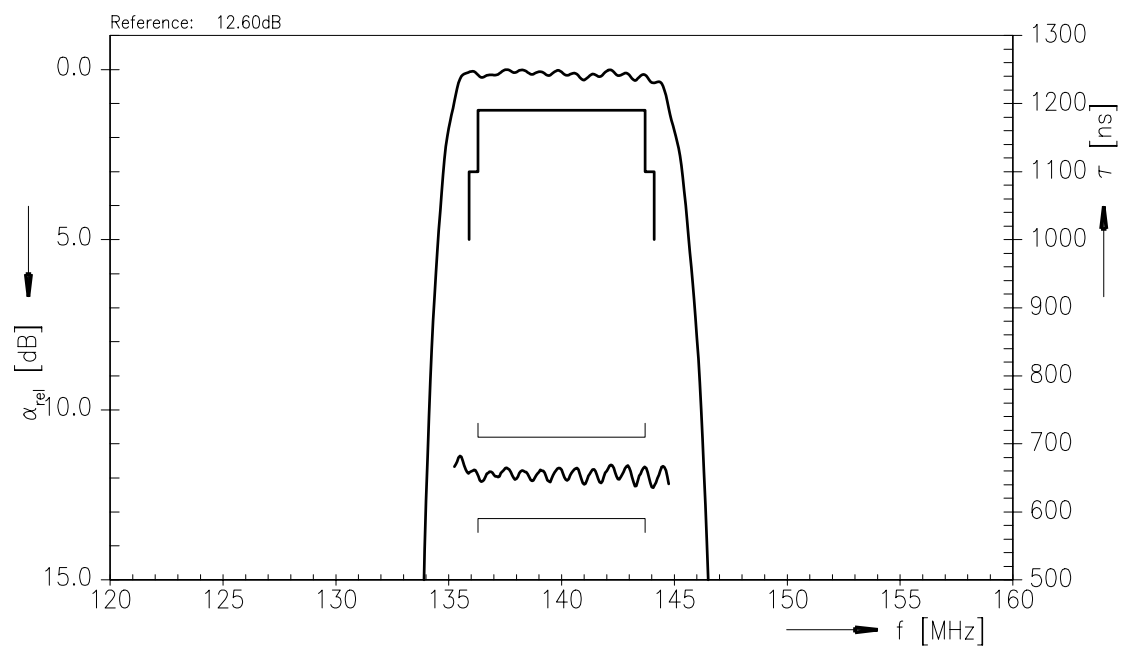
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Transfer function



Transfer function (Passband)



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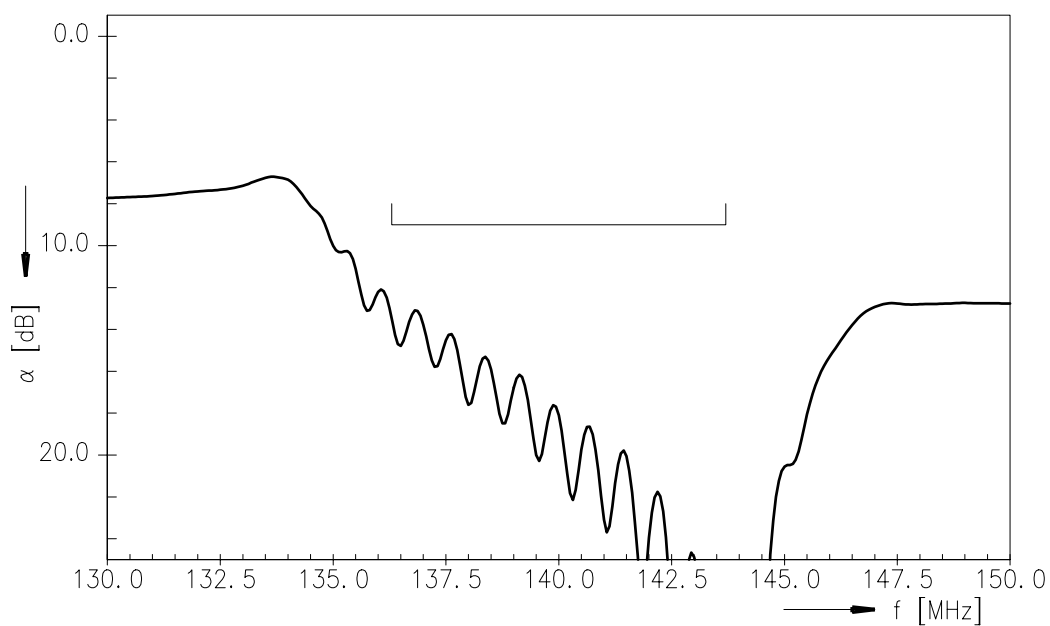
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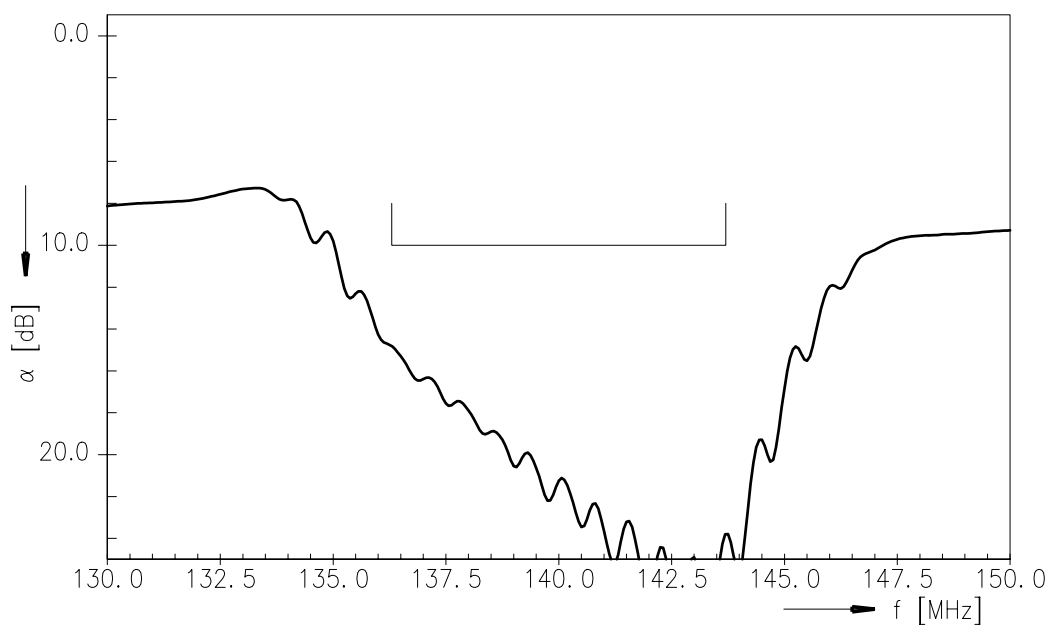
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Return loss (S11)



Return loss (S22)





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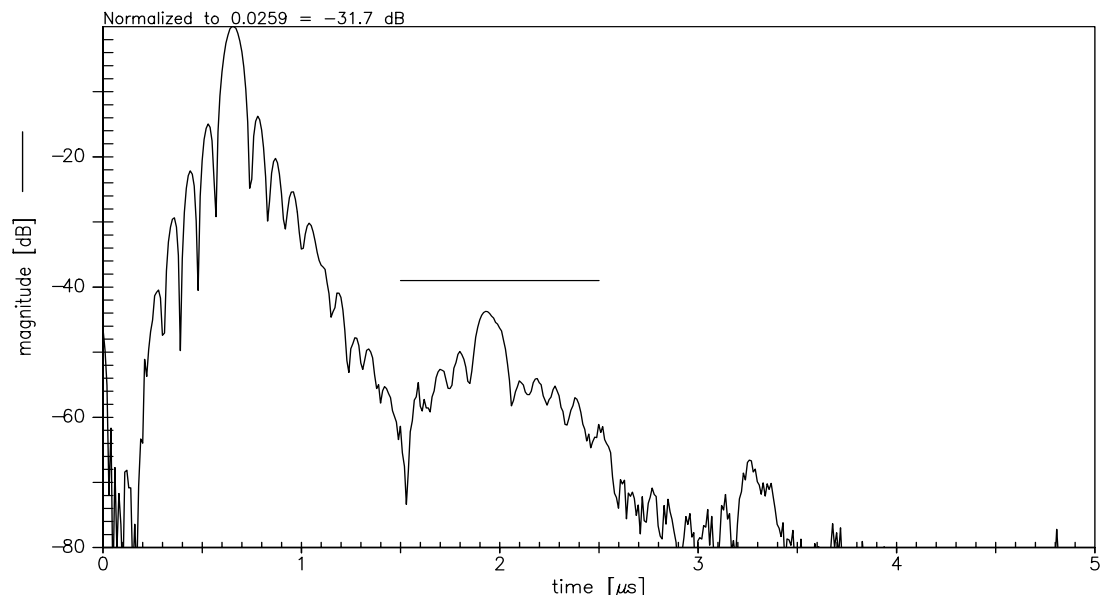
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Triple transit



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**References**

Type	B5249
Ordering code	B39141B5249H810
Marking and package	C61157-A7-A103
Packaging	F61074-V8170-Z000
Date codes	L_1126
S-parameters	B5249_NB.s4p,B5249_WB.s4p see file header for port/in assignment table
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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Published by EPCOS AG
Systems, Acoustics, Waves Business Group
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