SAW Components

SAW RF low loss filter

Cable modem

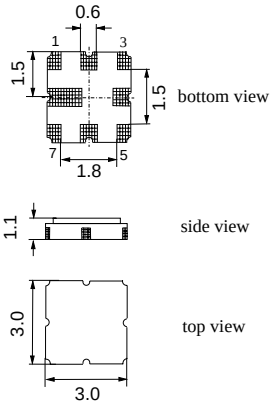
Series/type:	**B1642**
Ordering code:	**B39132-B1642-U810**
Date:	June 25, 2008
Version:	2.2

Application

- Low-loss RF filter for cable modem
- Balanced to balanced operation
- Low insertion attenuation
- Low amplitude ripple
- Low group delay ripple
- Usable passband 96.0 MHz

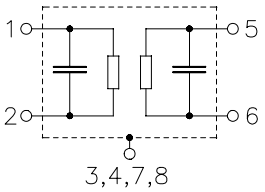
Features

- Package size 3.0 x 3.0 x 1.1 mm^3
- Maximum height of 1.225 mm
- Package code QCC8D
- RoHS compatible
- Approximate weight 0.037 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

■	1	Input
■	2	Input
■	5	Output
■	6	Output
■	3,7	To be grounded
■	4,8	Case ground, to be grounded



Characteristics

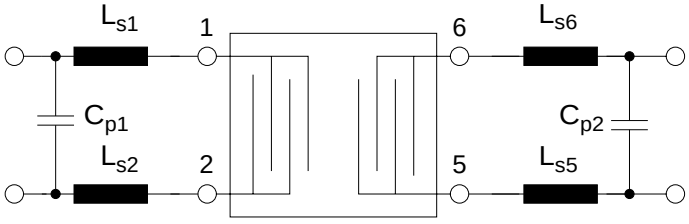
Temperature range for specification: T = 0 ˚C to +70 ˚C

Terminating source impedance: Z_{Sd} = 180 Ω (differential)
Z_{Sc} = 45 Ω (common)
and matching network

Terminating load impedance: Z_{Ld} = 180 Ω (differential)
Z_{Lc} = 45 Ω (common)
and matching network

		min.	typ. @ 25 ˚C	max.	
Nominal frequency	f_N	—	1250.0	—	MHz
Maximum insertion attenuation	α_{max}				
1202.0 ... 1298.0 MHz		—	7.4	8.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1202.0 ... 1298.0 MHz		—	1.0	1.5	dB
Amplitude ripple in any 6MHz band(p-p)	$\Delta\alpha$				
1202.0 ... 1298.0 MHz		—	0.6	1.0	dB
Amplitude ripple in any 8MHz band(p-p)	$\Delta\alpha$				
1202.0 ... 1298.0 MHz		—	0.7	1.1	dB
Group delay ripple (p-p)	$\Delta\tau$				
1202.0 ... 1298.0 MHz		—	28.0	40.0	ns
Group delay ripple in any 8MHz band (p-p)	$\Delta\tau$				
1202.0 ... 1298.0 MHz		—	13.0	25.0	ns
Attenuation	α				
54.0 ... 1052.0 MHz		50	58	—	dB
1052.0 ... 1152.0 MHz		48	55	—	dB
1152.0 ... 1170.0 MHz		38	50	—	dB
1450.0 ... 2429.6 MHz		40	47	—	dB
2429.6 ... 6000.0 MHz		65	70	—	dB

Matching network (element values depend on PCB layout)



L_{s1} =10.0 nH
L_{s2} =11.0 nH
C_{p1}= 1.6 pF
L_{s5} = 9.1 nH
L_{s6} =10.0 nH
C_{p2}= 1.1 pF

Characteristics

Temperature range for specification: T = -40 ˚C to +85 ˚C

Terminating source impedance: Z_{Sd} = 180 Ω (differential)
Z_{Sc} = 45 Ω (common)
and matching network

Terminating load impedance: Z_{Ld} = 180 Ω (differential)
Z_{Lc} = 45 Ω (common)
and matching network

		min.	typ. @ 25 ˚C	max.	
Nominal frequency	f_N	—	1250.0	—	MHz
Maximum insertion attenuation	α_{max}				
1202.0 ... 1298.0 MHz		—	7.4	8.6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1202.0 ... 1298.0 MHz		—	1.0	2.2	dB
Amplitude ripple in any 6MHz band(p-p)	$\Delta\alpha$				
1202.0 ... 1298.0 MHz		—	0.6	1.5	dB
Amplitude ripple in any 8MHz band(p-p)	$\Delta\alpha$				
1202.0 ... 1298.0 MHz		—	0.7	1.7	dB
Group delay ripple (p-p)	$\Delta\tau$				
1202.0 ... 1298.0 MHz		—	28.0	40.0	ns
Group delay ripple in any 8MHz band (p-p)	$\Delta\tau$				
1202.0 ... 1298.0 MHz		—	13.0	30.0	ns
Attenuation	α				
54.0 ... 1052.0 MHz		50	58	—	dB
1052.0 ... 1152.0 MHz		48	55	—	dB
1152.0 ... 1170.0 MHz		38	50	—	dB
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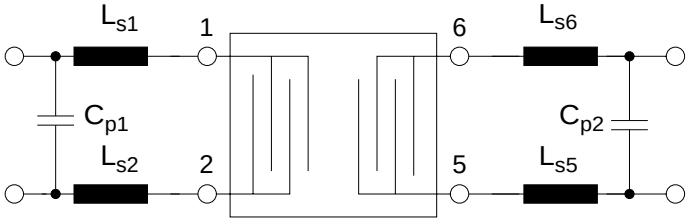
Matching network (element values depend on PCB layout)

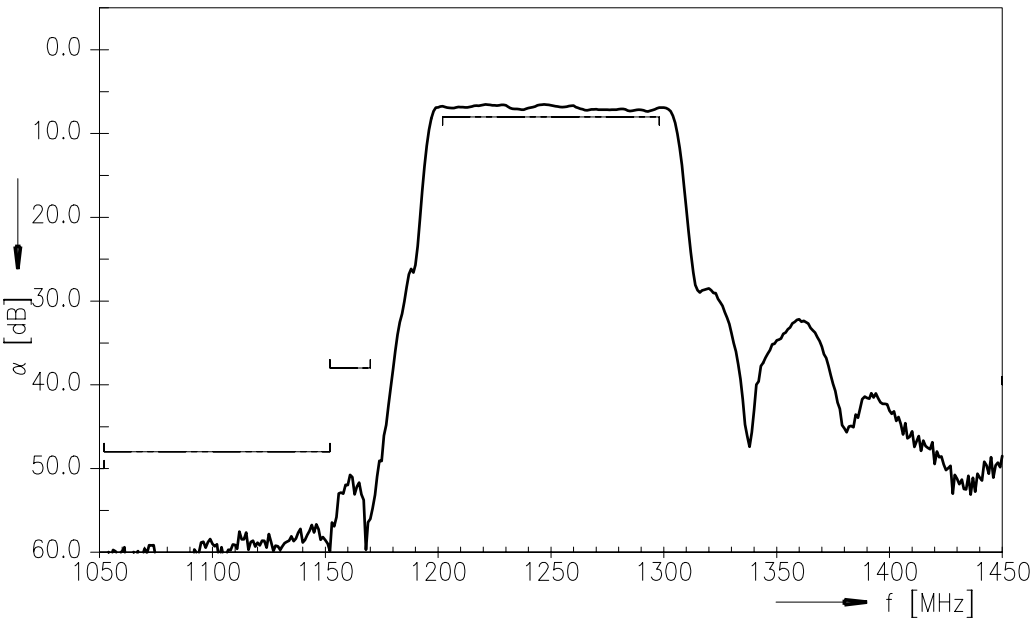


L_{s1} =10.0 nH
L_{s2} =11.0 nH
C_{p1}= 1.6 pF
L_{s5} = 9.1 nH
L_{s6} =10.0 nH
C_{p2}= 1.1 pF

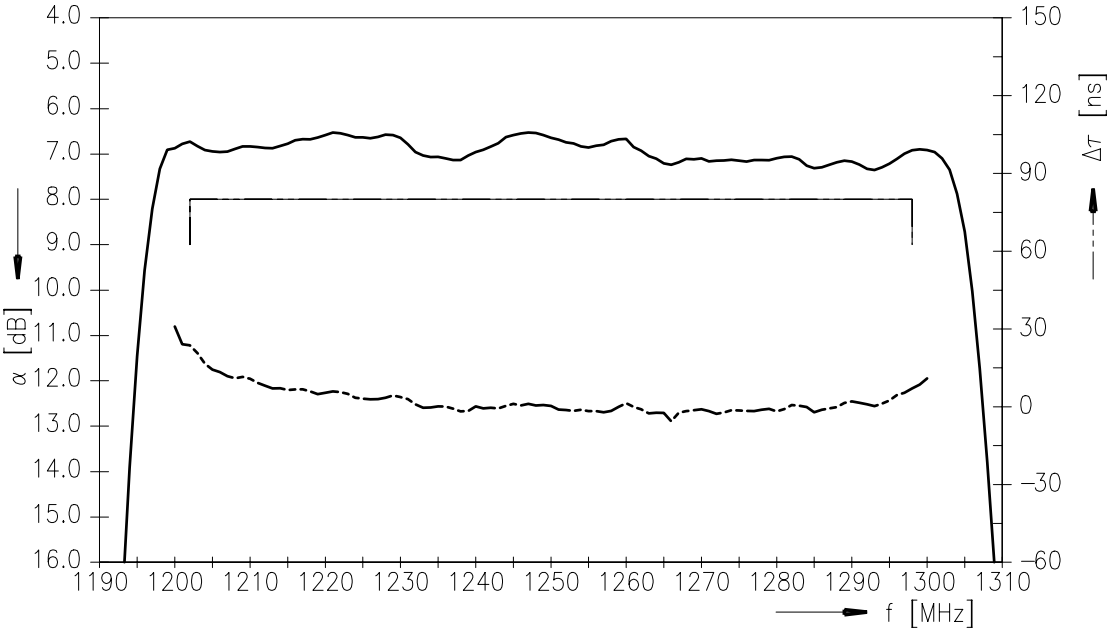
Maximum ratings

Operable temperature range	T	–40/+85	°C	
Storage temperature range	Tstg	–40/+85	°C	
DC voltage	V_{DC}	0	V	
Source power	P_S	0	dBm	source impedance 180 Ω

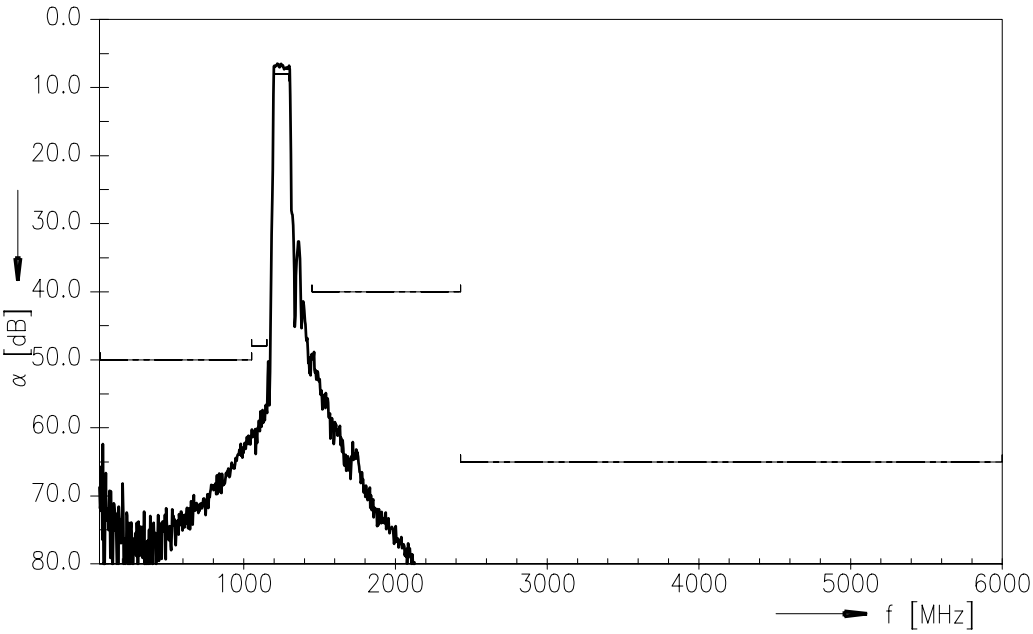
Transfer function S_{dd21}



Transfer function S_{dd21} (passband)



Transfer function S_{dd21} (wideband)



References

Type	B1642
Ordering code	B39132-B1642-U810
Marking and package	C61157-A7-A72
Packaging	F61074-V8168-Z000
Date codes	L_1126
S-parameters	B1642_NB_UN.s4p B1642_WB_UN.s4p
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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  Email service@ameya360.com

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