SAW Components

SAW band–stop filter

ISDB–T

Series/type:	**B8740**
Ordering code:	**B39911-B8740-P810**
Date:	September 22, 2010
Version:	2.0

Revision history: changes compared to previous iteration issue

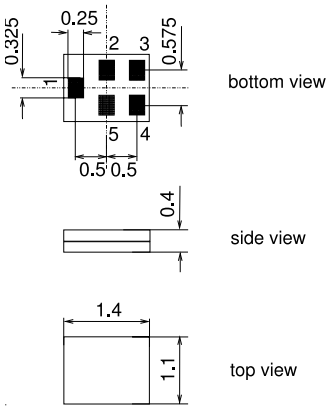
ISSUE	ORIGINATOR	DETAILED SPECIFICATION CHANGES	DATE
LY01A_v1.0	M. Jungkunz	initial release	Nov 12, 2009
B8740_v1.0	TAY Wee Chuan	adaption of specification for maximum and minimum insertion attenuation and suppression levels	Jul 12, 2010
B8740_v2.0	TAY Wee Chuan	data sheet release	Sept 22, 2010

Application

- Low-loss RF band-stop filter for ISDB-T
- Low insertion loss
- Low amplitude ripple and group delay ripple
- Usable pass band width 300 MHz
- Impedance at input and output 50 Ω
- Unbalanced to unbalanced operation

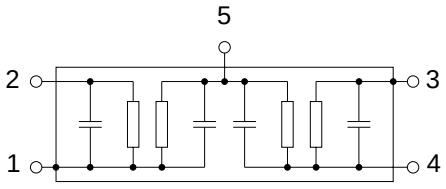
Features

- Package size 1.4 × 1.1 × 0.4 mm³
- Maximum height of 0.45 mm
- Package code QCT5I
- RoHS compatible
- Approximate weight 0.003 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	Coupling pin
■	3	Coupling pin
■	4	Output
■	5	Case ground

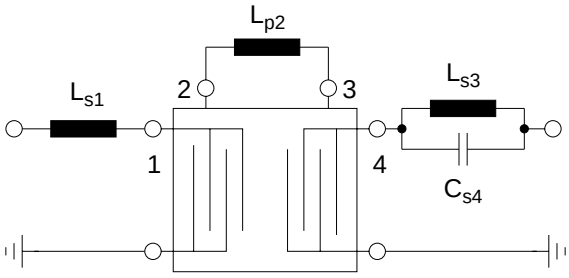


Characteristics (including losses in the matching network)

Temperature range for specification: $T = +25\,^{\circ}C \pm 2\,^{\circ}C$
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 center frequency	f_N	—	832.0 911.5	—	MHz
Minimum insertion attenuation	α_{min}				
470.00 ... 770.00 MHz		—	1.1	1.3	dB
Maximum insertion attenuation	α_{max}				
470.00 ... 710.00 MHz		—	1.7	1.9	dB
710.00 ... 770.00 MHz		—	2.7	3.3	dB
Attenuation	α				
90.00 ... 222.00 MHz		15.0	17.0	—	dB
824.00 ... 840.00 MHz		41.0	43.0	—	dB
898.00 ... 925.00 MHz		44.0	46.0	—	dB
1427.90 ... 1452.90 MHz		48.0	53.0	—	dB
1749.90 ... 1784.90 MHz		45.0	50.0	—	dB
1920.00 ... 1980.00 MHz		46.0	51.0	—	dB
Group delay ripple (p-p)	$\Delta\tau$				
470.00 ... 770.00 MHz		—	6	—	ns

Matching network (element values depend on PCB layout)



L_{s1} = 22 nH
L_{p2} = 36 nH
L_{s3} = 16 nH
C_{s4} = 0.7 pF

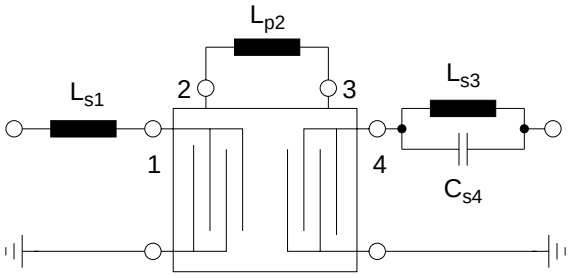
Q factor of inductors:
40 @ 770 MHz

Characteristics (including losses in the matching network)

Temperature range for specification: T = –30 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω and matching network
Terminating load impedance: Z_L = 50 Ω and matching network

		min.	typ. @ 25 ˚C	max.	
Nominal center frequency	f_N	—	832.0 911.5	—	MHz
Minimum insertion attenuation	α_{min}				
470.00 ... 770.00 MHz		—	1.1	1.3	dB
Maximum insertion attenuation	α_{max}				
470.00 ... 710.00 MHz		—	1.7	2.2	dB
710.00 ... 770.00 MHz		—	2.7	4.2	dB
Attenuation	α				
90.00 ... 222.00 MHz		14.0	17.0	—	dB
824.00 ... 840.00 MHz		36.0	43.0	—	dB
898.00 ... 925.00 MHz		40.0	46.0	—	dB
1427.90 ... 1452.90 MHz		48.0	53.0	—	dB
1749.90 ... 1784.90 MHz		45.0	50.0	—	dB
1920.00 ... 1980.00 MHz		46.0	51.0	—	dB
Group delay ripple (p-p)	$\Delta\tau$				
470.00 ... 770.00 MHz		—	6	—	ns

Matching network (element values depend on PCB layout)



L_{s1} = 22 nH
L_{p2} = 36 nH
L_{s3} = 16 nH
C_{s4} = 0.7 pF

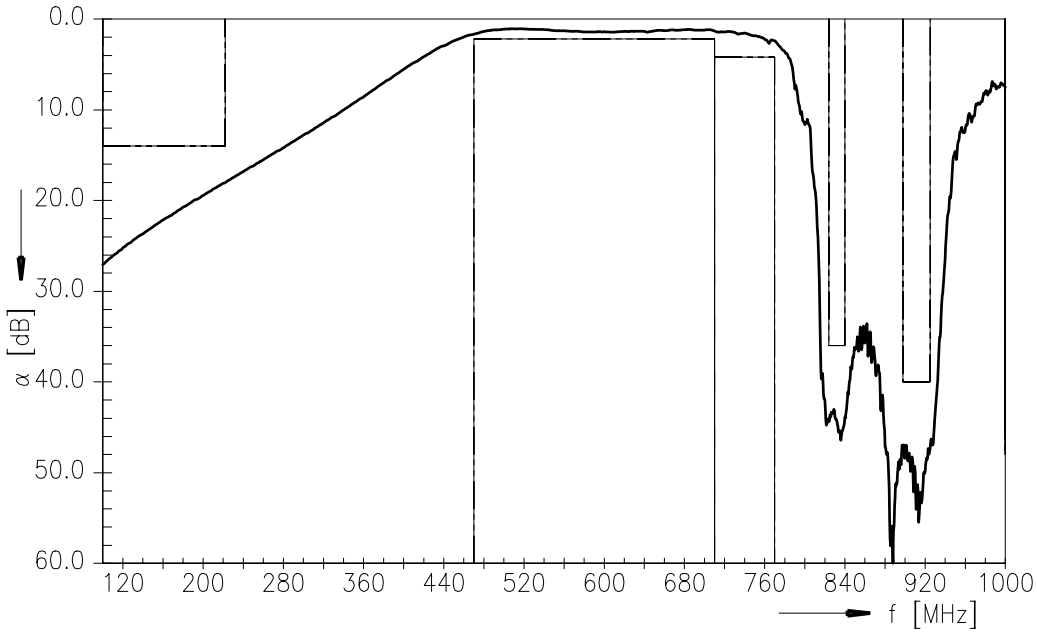
Q factor of inductors:
40 @ 770 MHz

Maximum ratings

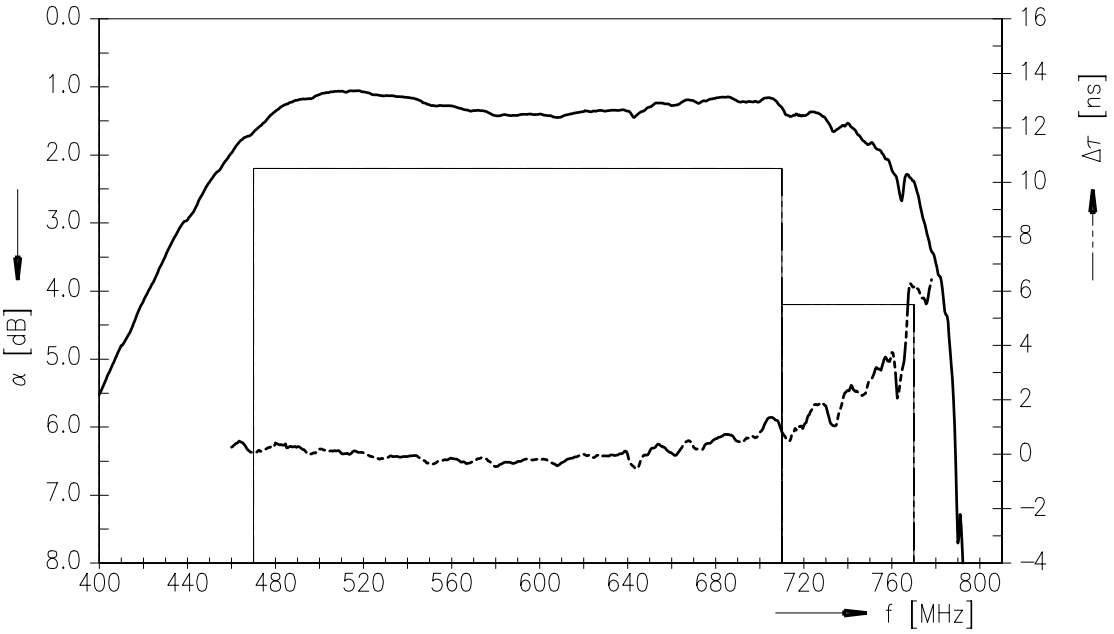
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 10 pulses
Source power at				
824 ... 840 MHz	P_{IN}	21	dBm	peak power of (W–)CDMA signal
898 ... 925 MHz				

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

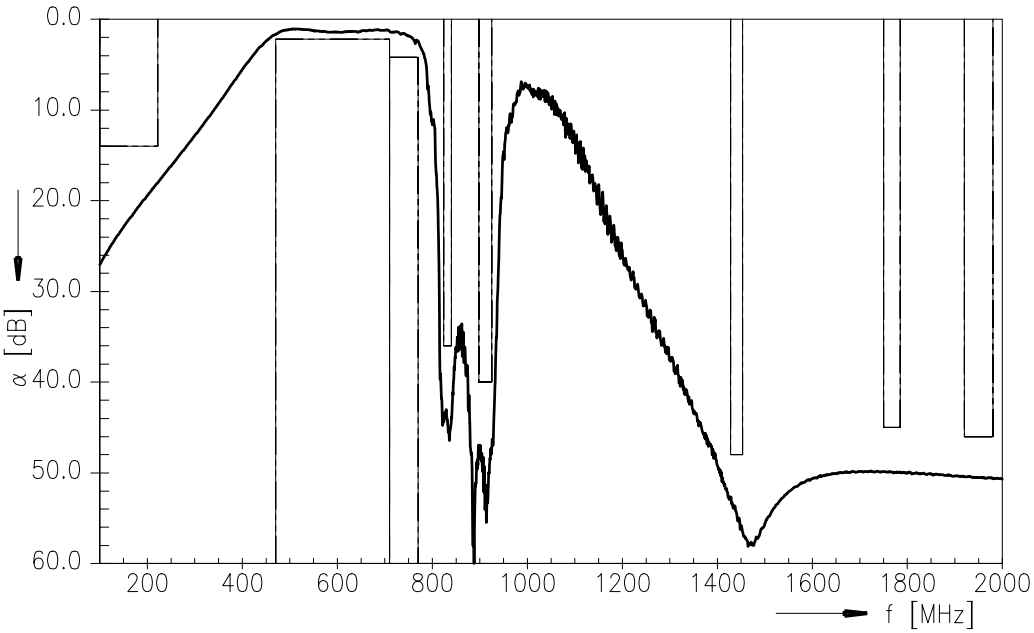
Transfer function



Transfer function (pass band)



Transfer function (wide band)



References

Type	B8740
Ordering code	B39911-B8740-P810
Marking and package	C61157-A8-A33
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	LY01A_WB_UN.s4p (unmatched) LY01A_WB.s2p (matched)
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."
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
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
Surface Acoustic Wave Components Division
P.O. Box 80 17 09, 81617 Munich, GERMANY

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