SAW Components

SAW band–stop filter

ISDB–T

Series/type:	**B8741**
Ordering code:	**B39841-B8741-P810**
Date:	October 29, 2010
Version:	2.0

Revision history: changes compared to previous iteration issue

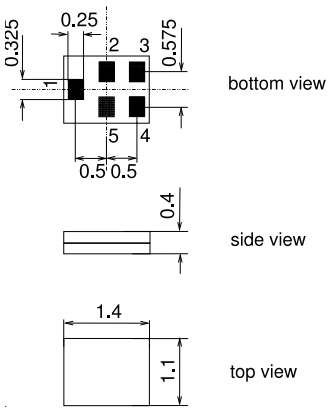
Issue	Originator	Detailed specification changes	Date
v1.0	Atsushi Yamauchi	Initial release	August 5, 2010
v1.1	Atsushi Yamauchi	add the ordering code	September 6, 2010
v2.0	Atsushi Yamauchi	data sheet release	October 29,2010

Application

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

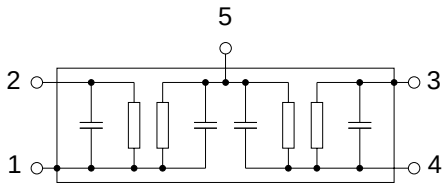
Features

- Package size $1.4 \times 1.1 \times 0.4$ mm^3
- 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

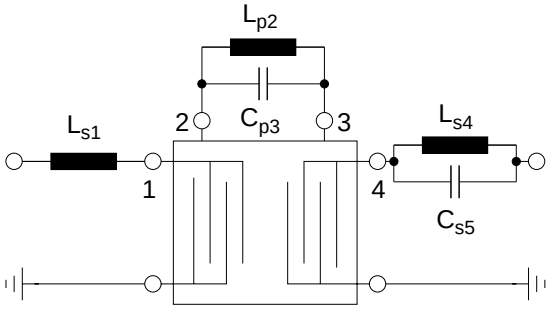


Characteristics (including losses in the matching network)

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 frequency	f_N	—	835.00	—	MHz
Minimum insertion attenuation	α_{max}				
470.00 ... 710.00 MHz		—	0.8	1.2	dB
Maximum insertion attenuation	α_{max}				
470.00 ... 710.00 MHz		—	1.3	1.4	dB
710.00 ... 758.00 MHz		—	1.6	1.9	dB
758.00 ... 770.00 MHz		—	1.9	2.4	dB
Attenuation	α				
90.00 ... 222.00 MHz		13.0	14.0		dB
830.00 ... 840.00 MHz		50.0	53.0	—	dB
1427.90 ... 1447.90 MHz		56.0	65.0	—	dB
1749.90 ... 1784.90 MHz		55.0	60.0	—	dB
1920.00 ... 1980.00 MHz		58.0	64.0	—	dB
Group delay ripple (p-p)	$\Delta\tau$				
470.00 ... 770.00 MHz		—	4	—	ns

Matching network (element values depend on PCB layout)



L_{s1} = 20 nH
L_{p2} = 15 nH
C_{p3} = 0.8 pF
L_{s4} = 16 nH
C_{s5} = 0.4 pF

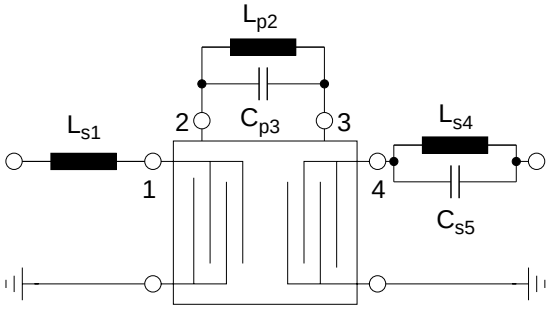
Q factor of inductors:
40 @ 770 MHz

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 frequency	f_N	—	835.00	—	MHz
Minimum insertion attenuation	α_{max}				
470.00 ... 710.00 MHz		—	0.8	1.2	dB
Maximum insertion attenuation	α_{max}				
470.00 ... 710.00 MHz		—	1.3	1.5	dB
710.00 ... 758.00 MHz		—	1.6	1.9	dB
758.00 ... 770.00 MHz		—	1.9	2.5	dB
Attenuation	α				
90.00 ... 222.00 MHz		12.0	14.0		dB
830.00 ... 840.00 MHz		48.0	53.0	—	dB
1427.90 ... 1447.90 MHz		56.0	65.0	—	dB
1749.90 ... 1784.90 MHz		55.0	60.0	—	dB
1920.00 ... 1980.00 MHz		58.0	64.0	—	dB
Group delay ripple (p-p)	$\Delta\tau$				
470.00 ... 770.00 MHz		—	4	—	ns

Matching network (element values depend on PCB layout)



L_{s1} = 20 nH
L_{p2} = 15 nH
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L_{s4} = 16 nH
C_{s5} = 0.4 pF

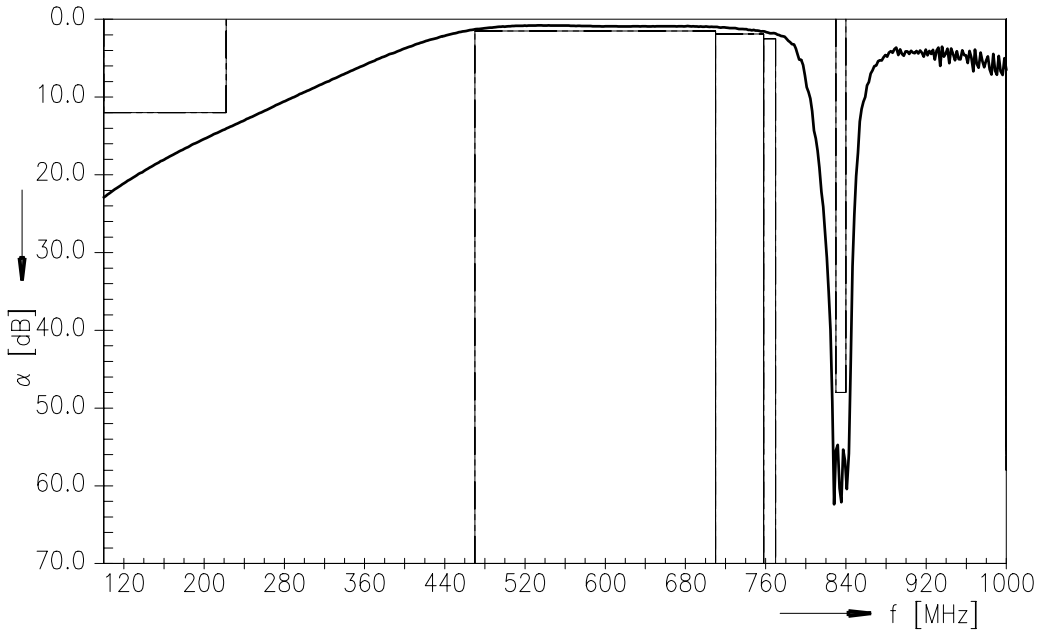
Q factor of inductors:
40 @ 770 MHz

Maximum ratings

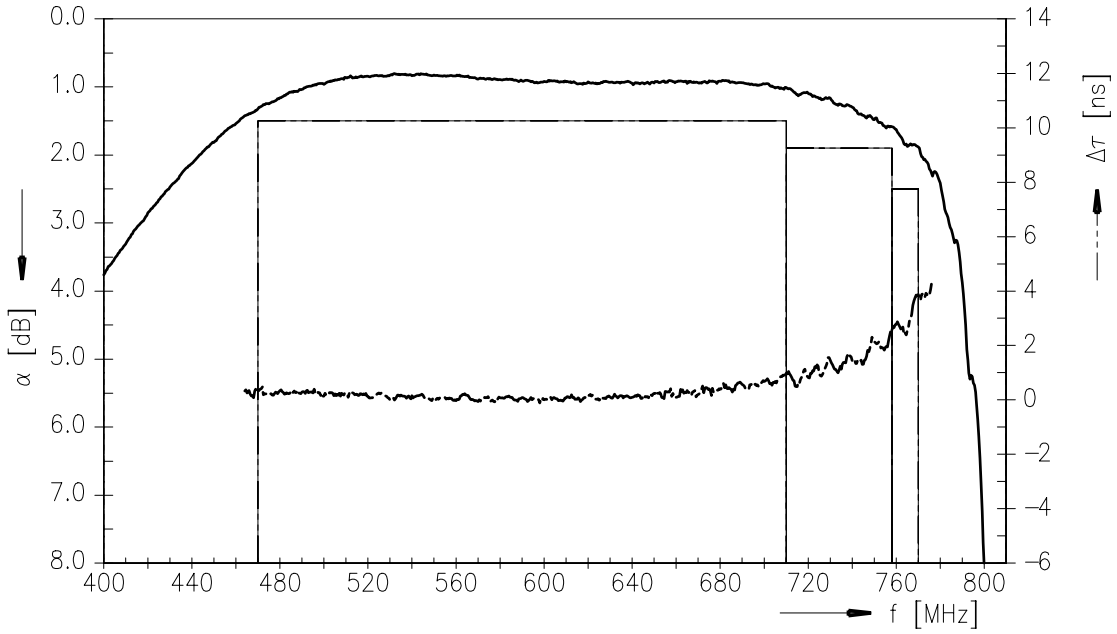
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 10 pulses
Source power at				
830.0 ... 840.0 MHz	P_S	24	dBm	peak power of W-CDMA signal

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

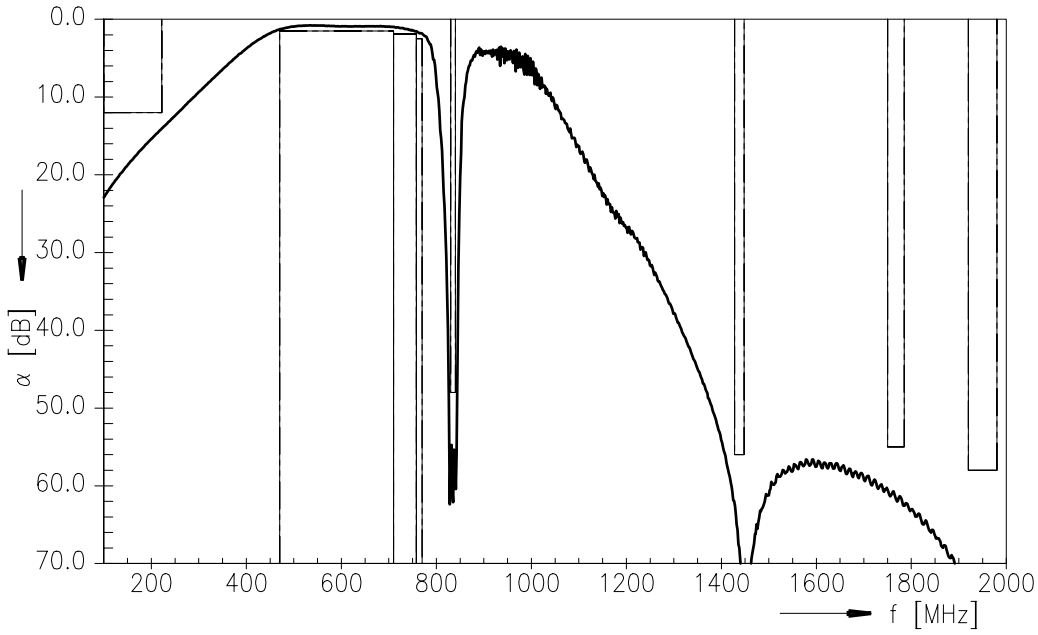
Transfer function



Transfer function (pass band)



Transfer function (wide band)



References

Type	B8741
Ordering code	B39841-B8741-P810
Marking and package	C61157-A8-A33
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	LU90A_WB_UN.s4p (unmatched) LU90A_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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