



SAW Components

SAW band–stop filter
ISDB–T

Series/type:	B8742
Ordering code:	B39841-B8742-P810
Date:	January 21, 2011
Version:	2.0

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837.50 MHz

Datasheet



Revision history: changes compared to previous iteration issue

Issue	Originator	Detailed specification changes	Date
LK59A_v1.0	Atsushi Yamauchi	Initial release	August 20, 2010
B8742_v1.0	Atsushi Yamauchi	add ordering code and adaption the filter type	November 9, 2010
B8742_v2.0	Atsushi Yamauchi	data sheet release	January 21, 2011

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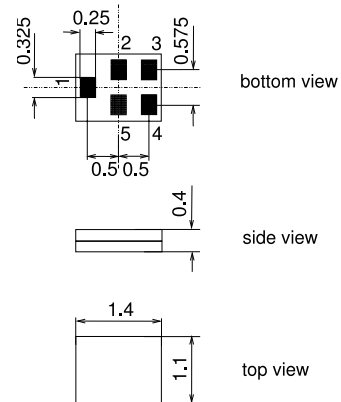
Application

- 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



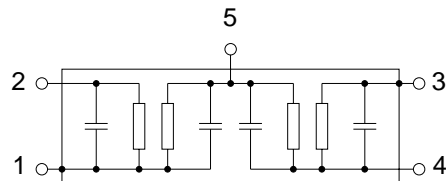
Features

- Package size $1.4 \times 1.1 \times 0.4 \text{ mm}^3$
- Maximum height of 0.45 mm
- Package code QCT5I
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

- 1 Input
- 2 Coupling pin
- 3 Coupling pin
- 4 Output
- 5 Case ground



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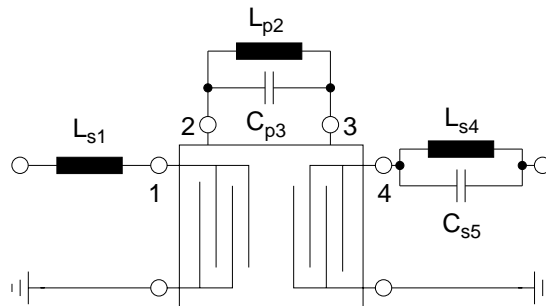


Characteristics (including losses in the matching network)

Temperature range for specification: $T = +25\text{ °C} \pm 2\text{ °C}$
 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	—	837.50	—	MHz
Minimum insertion attenuation	α_{\max}	—	0.9	1.3	dB
470.00 ... 710.00 MHz					
Maximum insertion attenuation	α_{\max}	—	1.3	1.6	dB
470.00 ... 710.00 MHz					
710.00 ... 758.00 MHz					
758.00 ... 770.00 MHz					
Attenuation	α	12.0	13.0	—	dB
90.00 ... 222.00 MHz					
830.00 ... 845.00 MHz					
1427.90 ... 1447.90 MHz					
1749.90 ... 1784.90 MHz					
1920.00 ... 1980.00 MHz					
Group delay ripple (p-p)	$\Delta\tau$	—	5	—	ns
470.00 ... 770.00 MHz					

Matching network (element values depend on PCB layout)



$L_{s1} = 18\text{ nH}$
 $L_{p2} = 15\text{ nH}$
 $C_{p3} = 0.8\text{ pF}$
 $L_{s4} = 15\text{ nH}$
 $C_{s5} = 0.5\text{ pF}$

Q factor of inductors:
40 @ 770 MHz



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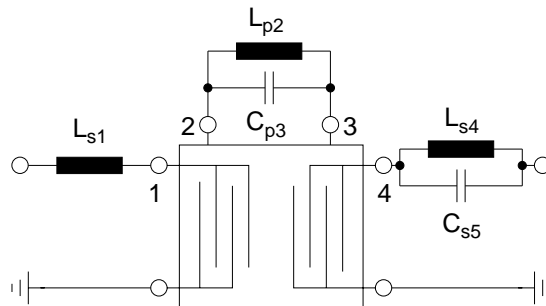


Characteristics (including losses in the matching network)

Temperature range for specification: $T = -30\text{ °C to }+85\text{ °C}$
 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	—	837.50	—	MHz
Minimum insertion attenuation	α_{max}	—	0.9	1.4	dB
	470.00 ... 710.00 MHz				
Maximum insertion attenuation	α_{max}	—	1.3	1.7	dB
	470.00 ... 710.00 MHz				
	710.00 ... 758.00 MHz	—	1.8	2.2	dB
	758.00 ... 770.00 MHz	—	2.2	2.7	dB
Attenuation	α				
	90.00 ... 222.00 MHz	11.0	13.0	—	dB
	830.00 ... 845.00 MHz	44.0	49.0	—	dB
	1427.90 ... 1447.90 MHz	52.0	61.0	—	dB
	1749.90 ... 1784.90 MHz	53.0	63.0	—	dB
	1920.00 ... 1980.00 MHz	52.0	60.0	—	dB
Group delay ripple (p-p)	$\Delta\tau$	—	5	—	ns
	470.00 ... 770.00 MHz				

Matching network (element values depend on PCB layout)



$L_{s1} = 18\text{ nH}$
 $L_{p2} = 15\text{ nH}$
 $C_{p3} = 0.8\text{ pF}$
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Q factor of inductors:
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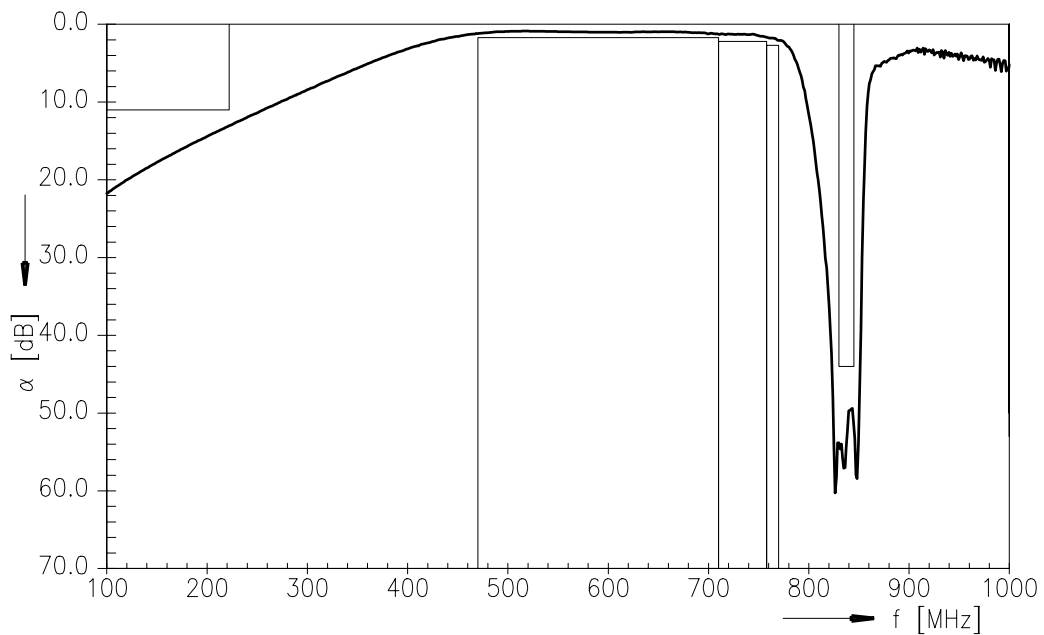


Maximum ratings

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 ... 845.0 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



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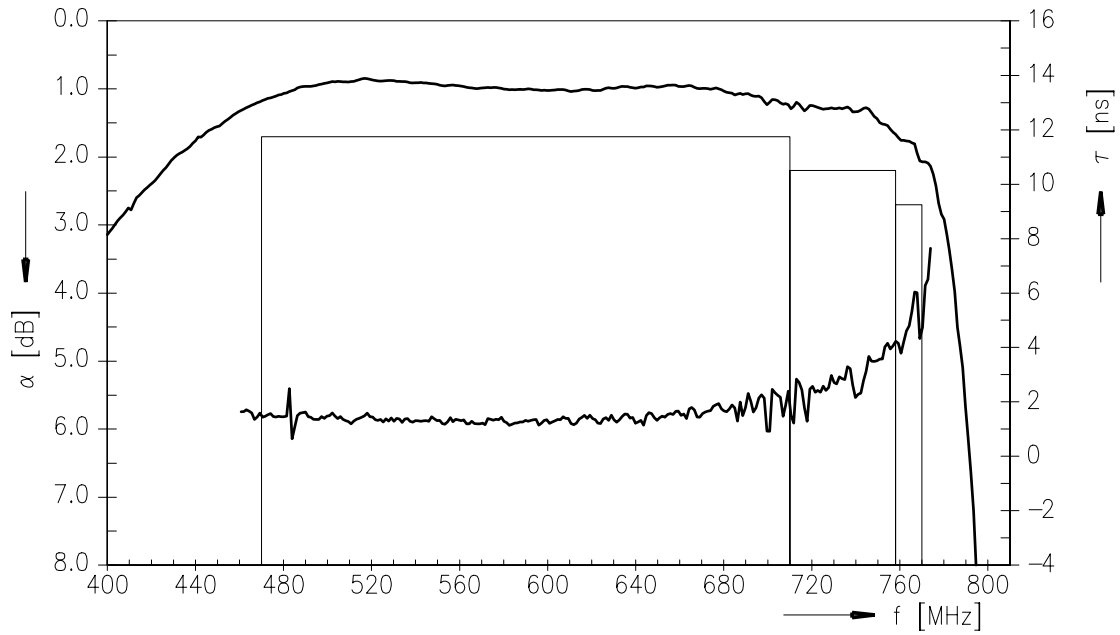
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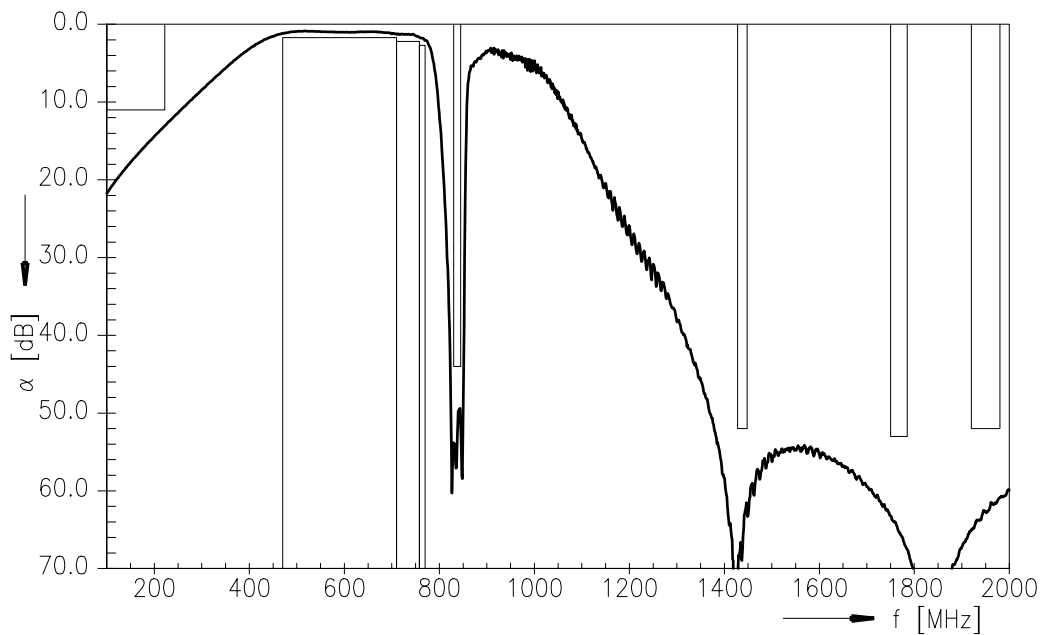
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Transfer function (pass band)



Transfer function (wide band)



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References

Type	B8742
Ordering code	B39841-B8742-P810
Marking and package	C61157-A8-A33
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	LK59A_WB_UN.s4p (unmatched) LK59A_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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