SAW Components

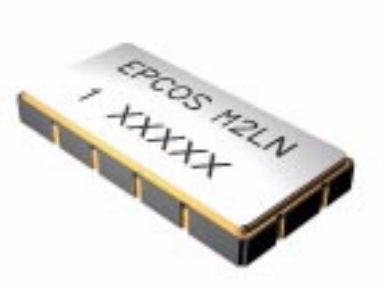
SAW IF filter

TD-SCDMA

Series/type:	**B5077**
Ordering code:	**B39141-B5077-Z510**
Date:	Sep 19, 2007
Version:	2.0

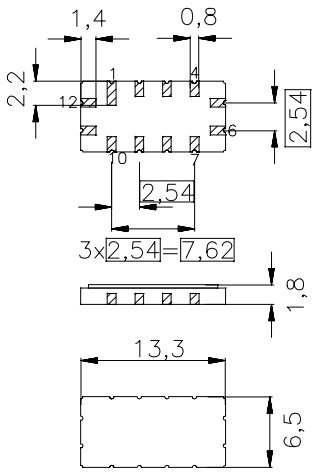
Application

- Low-loss IF filter for TD-SCDMA base station
- Usable passband 8 MHz
- Balanced or unbalanced operation possible



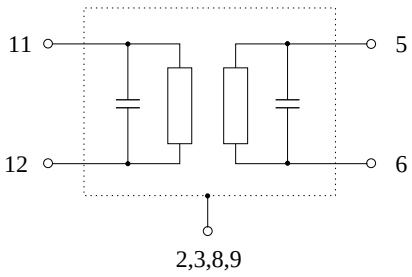
Features

- Package size 13.3 x 6.5 x 1.8 mm³
- Package code QCC12
- RoHS compatible
- Approx. weight 0.44 g
- Ceramic package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- Filter surface passivated



Pin configuration

■	11	Input
■	12	Input ground
■	5	Output
■	6	Output ground
■	2, 3, 8, 9	To be grounded
■	1, 4, 7, 10	Case ground



Characteristics

Operating temperature range: T = +25 °C
Terminating source impedance: Z_S = 50 Ω and matching network
Terminating load impedance: Z_L = 50 Ω and matching network

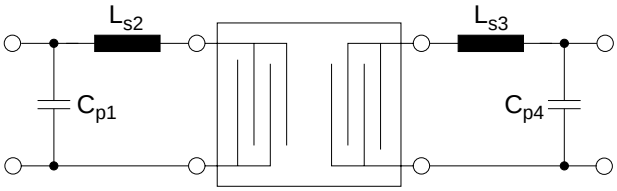
		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N	—	140.0	—	MHz
Minimum insertion attenuation (including matching network)	α_{min}	—	9.3	9.7	dB
Passband width					
$\alpha_{rel} \leq$ 1 dB	B_{1dB}	9.6	9.9	—	MHz
$\alpha_{rel} \leq$ 3 dB	B_{3dB}	10.6	10.9	—	MHz
$\alpha_{rel} \leq$ 35 dB	B_{35dB}	—	14.1	15	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 4.24$ MHz		—	0.4	0.8	dB
Phase ripple (p-p)	$\Delta\varphi$				
$f_N \pm 4.24$ MHz		—	5	15	°
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 4.24$ MHz		—	50	120	ns
Absolute group delay (at f_N)	τ	—	940	—	ns
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N - 30.0$ MHz ... $f_N - 10.0$ MHz		40	46	—	dB
$f_N - 10.0$ MHz ... $f_N - 7.5$ MHz		35	45	—	dB
$f_N + 7.5$ MHz ... $f_N + 15.0$ MHz		35	39	—	dB
$f_N + 15.0$ MHz ... $f_N + 30.0$ MHz		40	43	—	dB
Temperature coefficient of frequency	TC_f	—	–87	—	ppm/K

Characteristics

Operating temperature range: T = –10 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	—	140.0	—	MHz
Minimum insertion attenuation (including matching network)	α_{min}	—	9.3	10.0	dB
Passband width					
$\alpha_{rel} \leq$ 1 dB	B_{1dB}	9.6	9.9	—	MHz
$\alpha_{rel} \leq$ 3 dB	B_{3dB}	10.6	10.9	—	MHz
$\alpha_{rel} \leq$ 35 dB	B_{35dB}	—	14.1	15	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 4.0$ MHz		—	0.4	1.0	dB
Phase ripple (p-p)	$\Delta\varphi$				
$f_N \pm 4.0$ MHz		—	5	15	°
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 4.0$ MHz		—	50	120	ns
Absolute group delay (at f_N)	τ	—	940	—	ns
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N - 30.0$ MHz ... $f_N - 10.0$ MHz		40	46	—	dB
$f_N - 10.0$ MHz ... $f_N - 8.0$ MHz		35	45	—	dB
$f_N + 8.0$ MHz ... $f_N + 15.0$ MHz		35	39	—	dB
$f_N + 15.0$ MHz ... $f_N + 30.0$ MHz		40	43	—	dB
Temperature coefficient of frequency	TC_f	—	–87	—	ppm/K

Matching network to 50 Ω



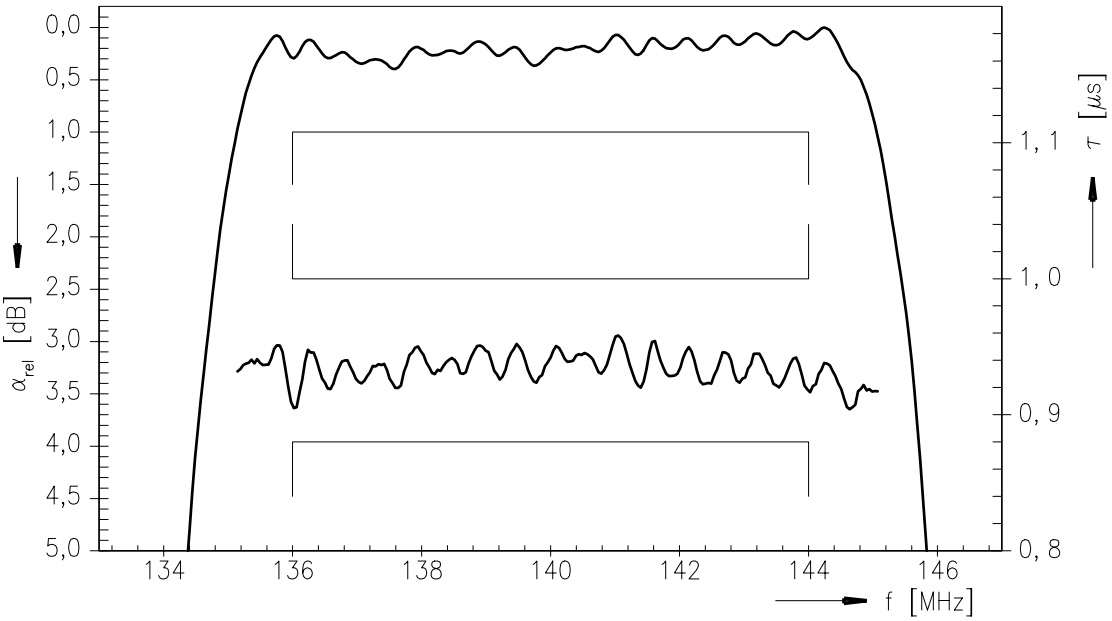
C_{p1} = 27.0 pF
L_{s2} = 56.0 nH
L_{s3} = 56.0 nH
C_{p4} = 5.6 pF

Element values depend upon PCB layout.

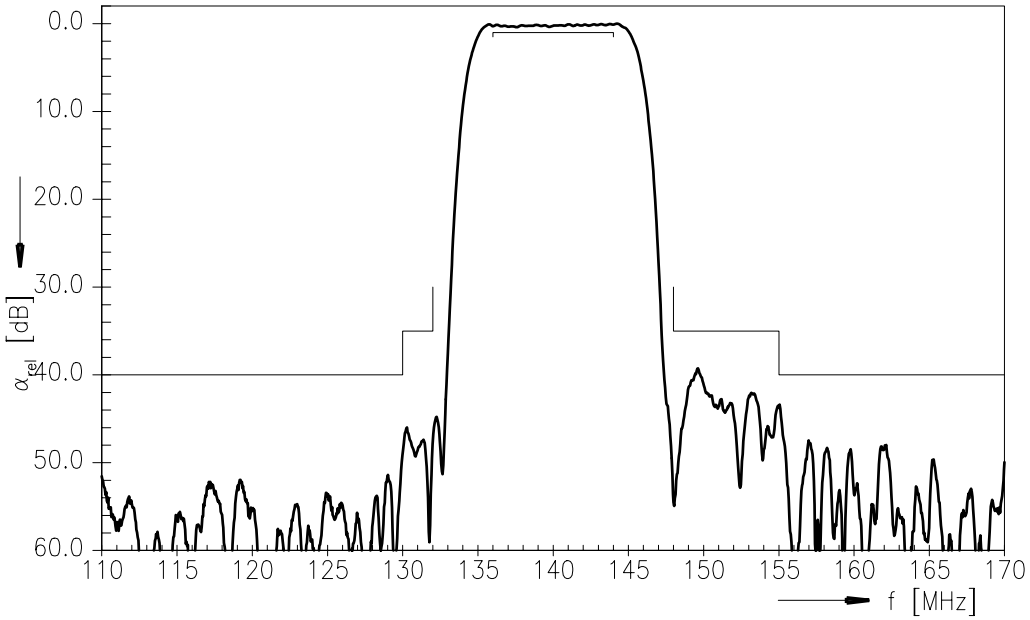
Maximum ratings

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}	5	dBm	

Transfer function



Transfer function (wideband)



References

Type	B5077
Ordering code	B39141-B5077-Z510
Marking and package	C61157-A7-A103
Packaging	F61074-V8170-Z000
Date codes	L_1126
S-parameters	
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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