SAW Components

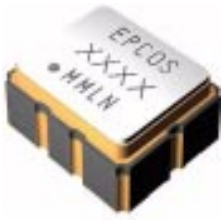
SAW RF filter

Automotive telematics

Series/type:	**B3514**
Ordering code:	**B39941B3514H910**
Date:	March 31, 2009
Version:	2.0

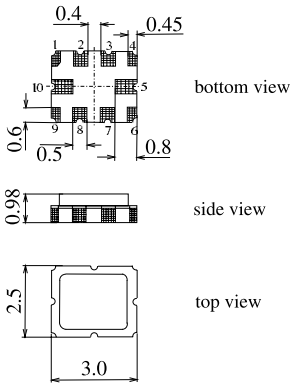
Application

- Low-loss RF filter for mobile telephone GSM 850/900 system, receive path
- Usable passband:
  Filter 1 (GSM850): 25 MHz
  Filter 2 (GSM900): 35 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS class 1 to 12



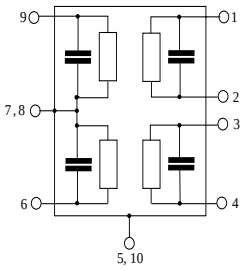
Features

- Package size 3.0 x 2.5 x 0.98 mm³
- Package code QCC10G
- RoHS compatible
- Approximate weight 0.027 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Passivation layer Elpas
- AEC-Q200 qualified component family
- **E**lectrostactic **S**ensitive **D**evice (**ESD**)



Pin configuration[1)]

- 1,2 Output, balanced [Filter 1]
- 3,4 Output, balanced [Filter 2]
- 6 Input [Filter 2]
- 9 Input [Filter 1]
- 5,7,8,10 Case grounded



1) The recommended pin configuration usually offers best suppression of electrical crosstalk. The filter characteristics refer to this configuration.

Data sheet SMD

Characteristics Filter 1 (GSM850)

Temperature range for specification: T = –40 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 150 Ω (balanced) || 56 nH

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	881.5	—	MHz
Maximum insertion attenuation	α_{max}				
869.0 ... 894.0 MHz		—	1.8	2.2	dB
Amplitude ripple					
869.0 ... 894.0 MHz		—	0.8	1.1	dB
VSWR					
869.0 ... 894.0 MHz		—	1.8	2.1	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
869.0 ... 894.0 MHz		–1.5		1.5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
869.0 ... 894.0 MHz		–12.0		12.0	degree
Attenuation	α_{abs}				
10.00 ... 480.00 MHz		46	52	—	dB
480.00 ... 849.00 MHz		30	34	—	dB
915.00 ... 1000.00 MHz		23	27	—	dB
1000.00 ... 3000.00 MHz		30	34	—	dB

Data sheet SMD

Characteristics Filter 2 (GSM900)

Temperature range for specification: T = –40 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 150 Ω (balanced) || 68 nH

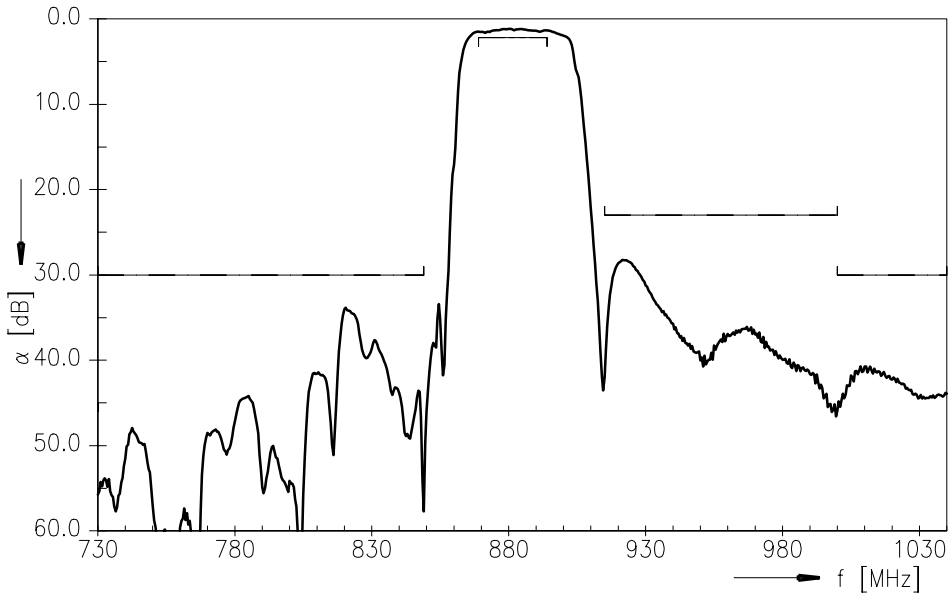
		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	942.5	—	MHz
Maximum insertion attenuation	α_{max}				
925.0 ... 960.0 MHz		—	1.9	3.0[1)]	dB
Amplitude ripple					
925.0 ... 960.0 MHz		—	0.9	1.8	dB
VSWR					
925.0 ... 960.0 MHz		—	1.9	2.3	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
925.0 ... 960.0 MHz		–2.5		2.5	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
925.0 ... 960.0 MHz		–12.0		12.0	degree
Attenuation	α_{abs}				
10.00 ... 480.00 MHz		46	52	—	dB
480.00 ... 880.00 MHz		30	35	—	dB
880.00 ... 905.00 MHz		24	27	—	dB
905.00 ... 915.00 MHz		11	18	—	dB
980.00 ... 1050.00 MHz		23	30	—	dB
1050.00 ... 3000.00 MHz		30	34	—	dB

[1)] T = –25˚C to +75˚C : 2.5 dB

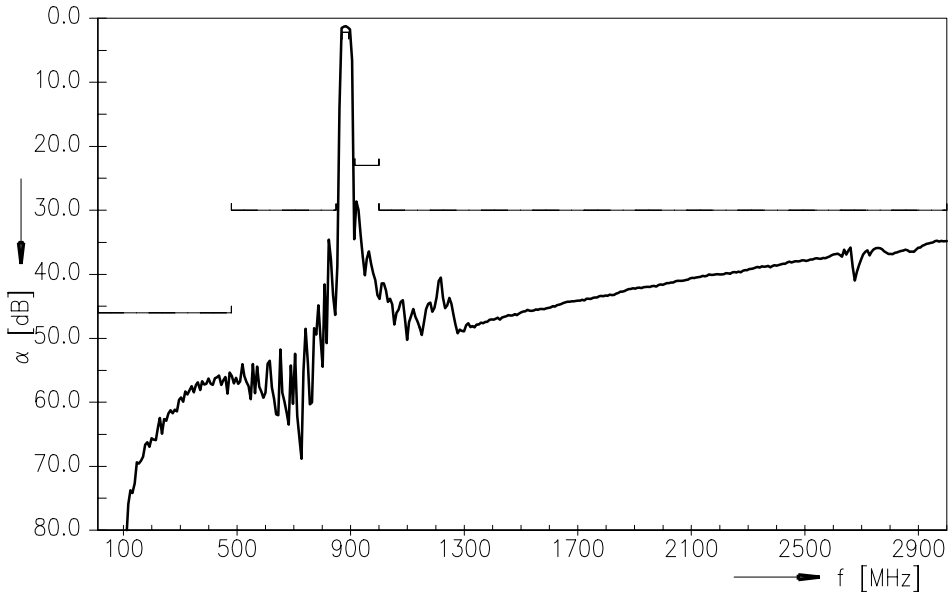
Maximum ratings

Operable temperature range	T	–45/+125	˚C	
Storage temperature range	T_{stg}	–45/+125	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50	V	
Input power at Tx bands:				
GSM850, GSM900	P_{IN}	15	dBm	peak power of GSM signal duty cycle 4:8

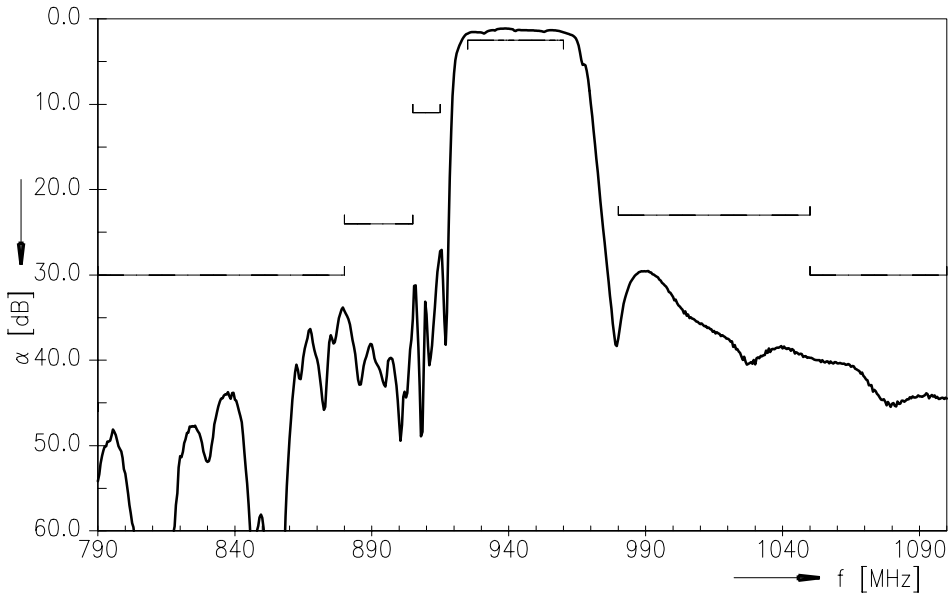
Transfer function Filter 1



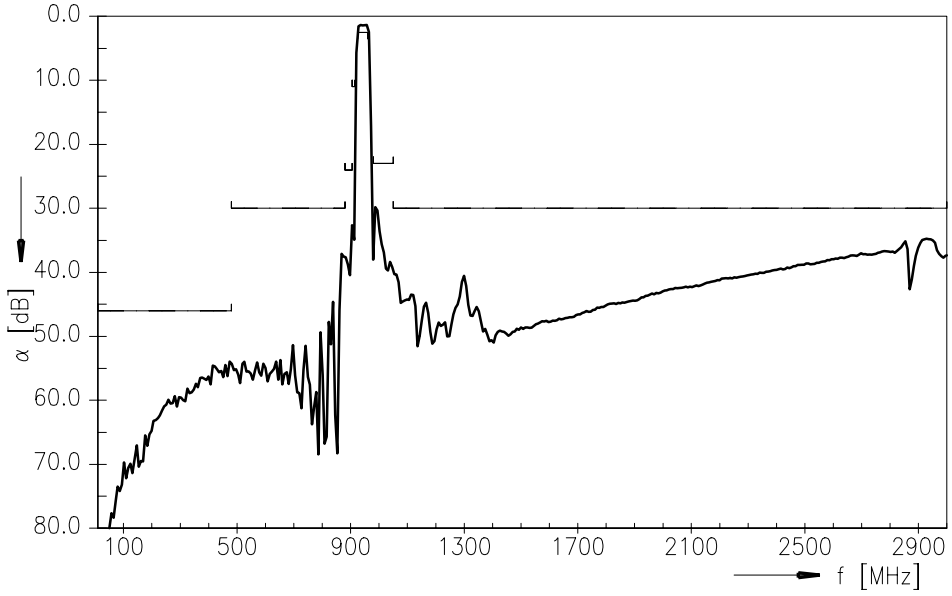
Transfer function Filter 1 (wideband)



Transfer function Filter 2



Transfer function Filter 2 (wideband)



References

Type	B3514
Ordering code	B39941B3514H910
Marking and package	C61157-A7-A142
Packaging	F61074-V8174-Z000
Date codes	L_1126
S-parameters	B3514_LB_NB.s3p B3514_LB_WB.s3p B3514_UB_NB.s3p B3514_UB_WB.s3p See file header for port/pin assignment table.
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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