SAW Components

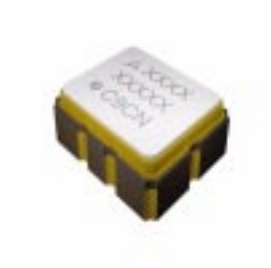
SAW RF filter

Automotive telematics

Series/type:	**B3514**
Ordering code:	**B39941B3514H910**
Date:	December 07, 2012
Version:	2.2

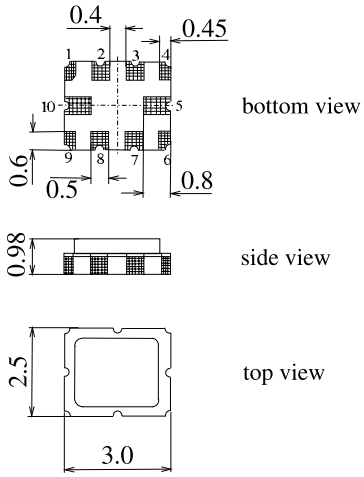
Application

- 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



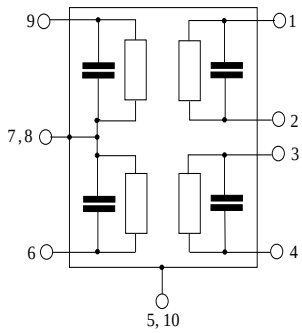
Features

- 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.

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

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

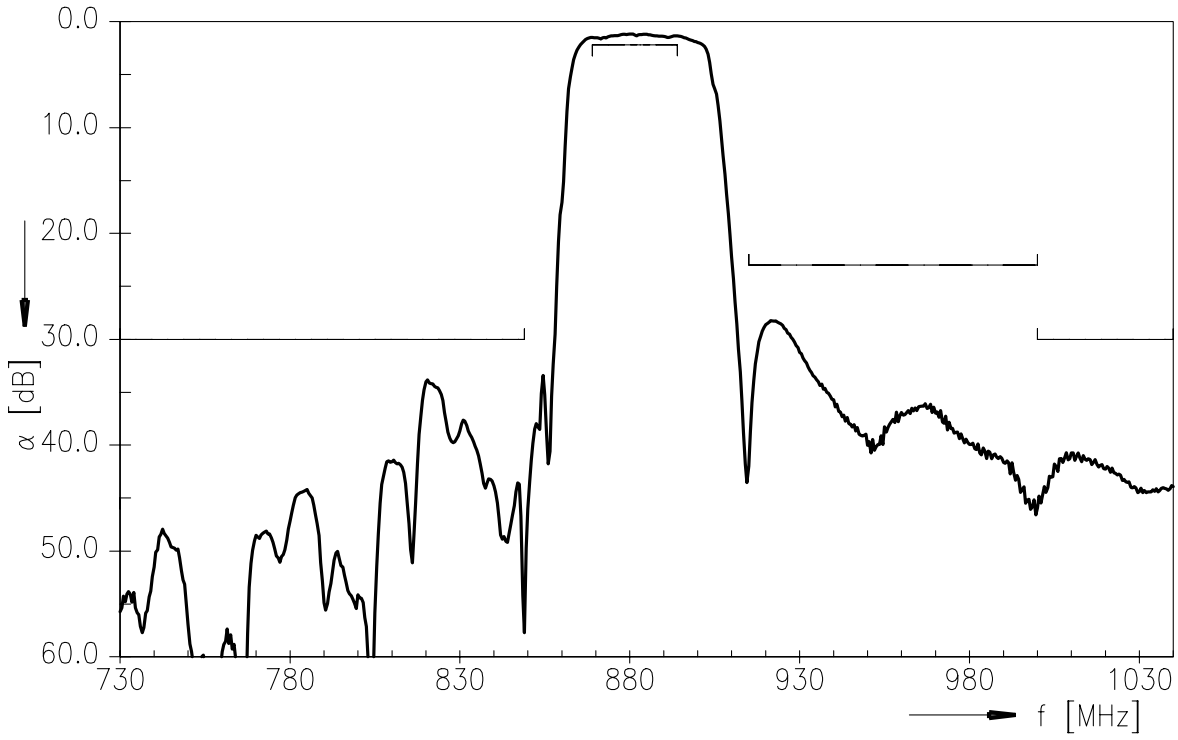
		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	942.5	—	MHz
Maximum insertion attenuation	α_{max}				
925.0 ... 960.0 MHz		—	1.9	3.0[1)]	dB
Amplitude ripple					
925.0 ... 960.0 MHz		—	0.9	1.8	dB
VSWR					
925.0 ... 960.0 MHz		—	1.9	2.3	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
925.0 ... 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

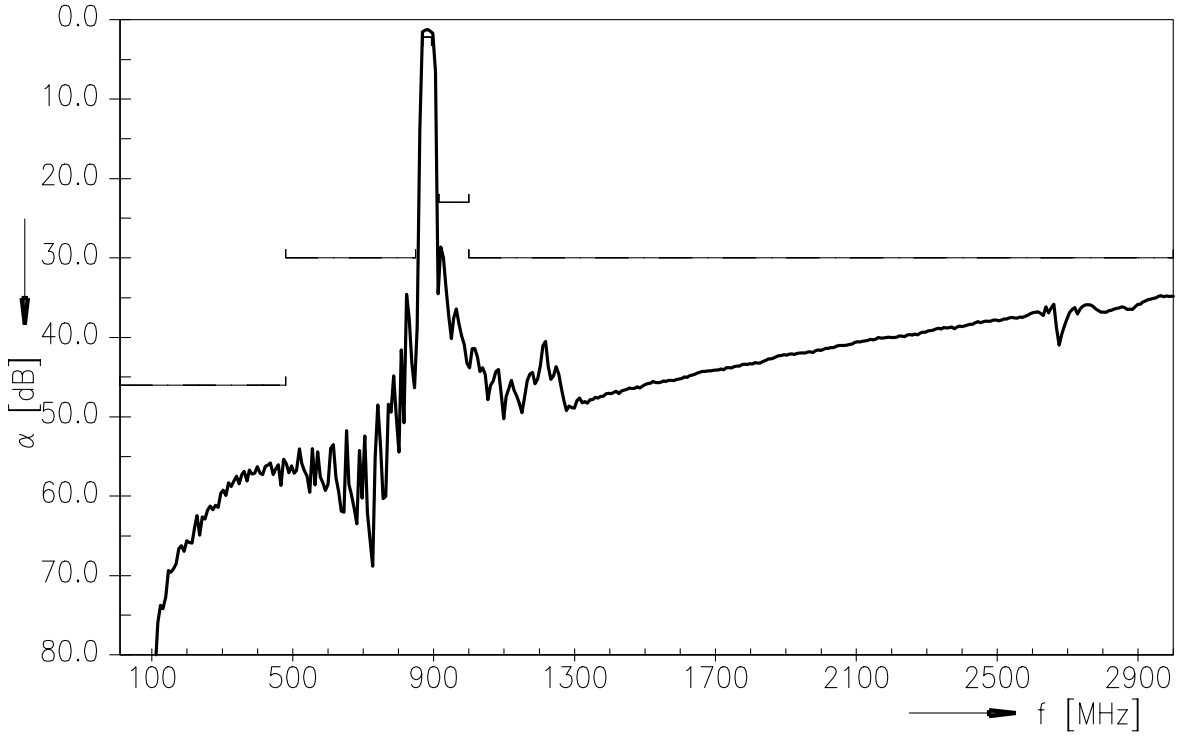
Maximum ratings

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

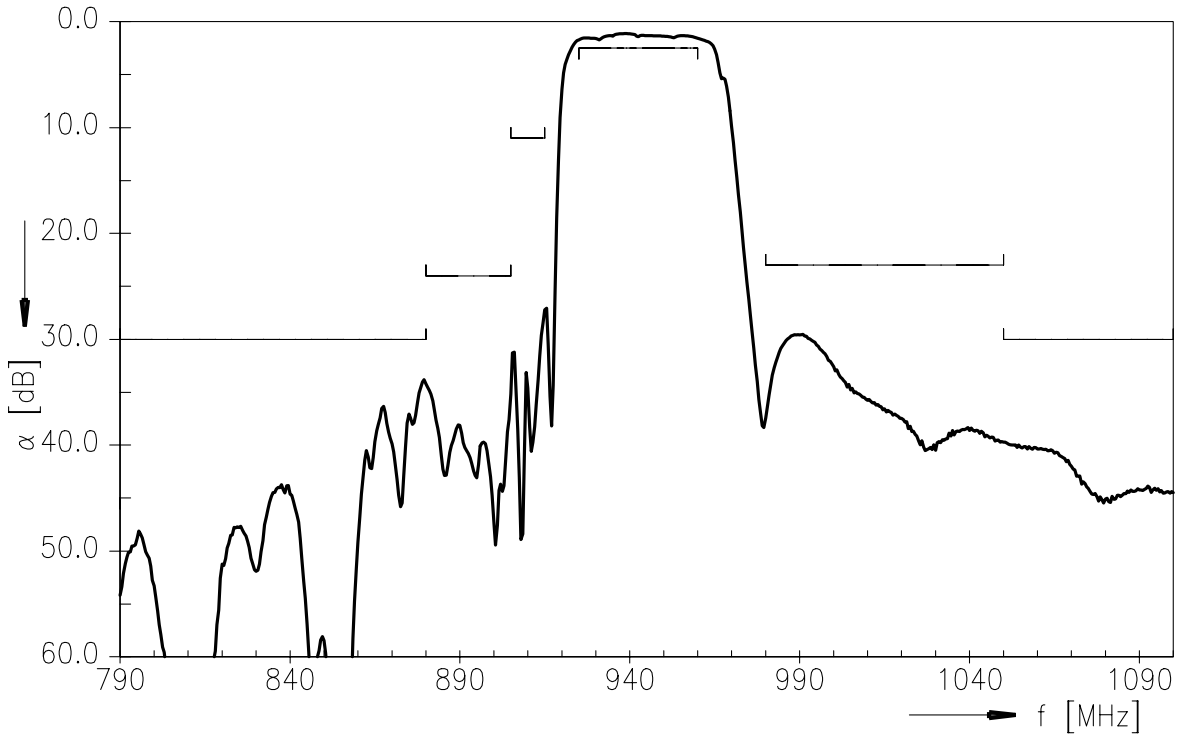
Transfer function Filter 1



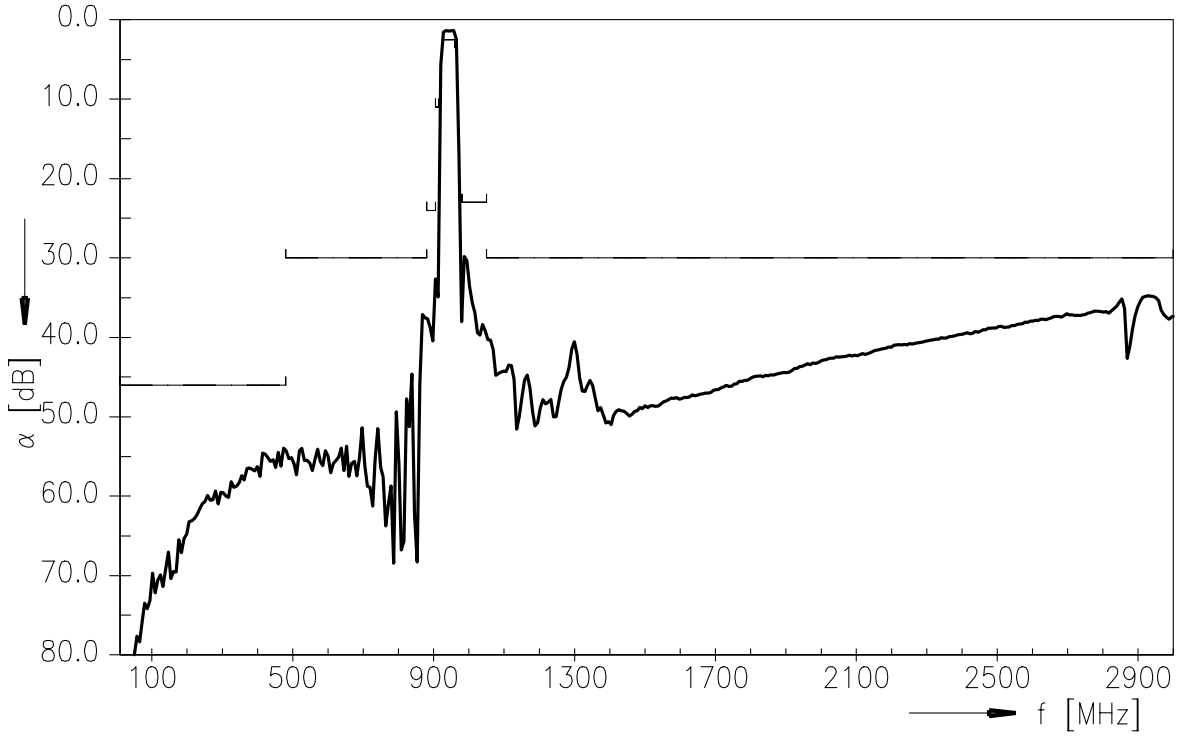
Transfer function Filter 1 (wideband)



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	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.

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