



## **SAW Components**

### **SAW RF filter**

Automotive telematics

<b>Series/type:</b>	<b>B3514</b>
<b>Ordering code:</b>	<b>B39941B3514H910</b>
<b>Date:</b>	<b>November 16, 2009</b>
<b>Version:</b>	<b>2.1</b>



Data sheet



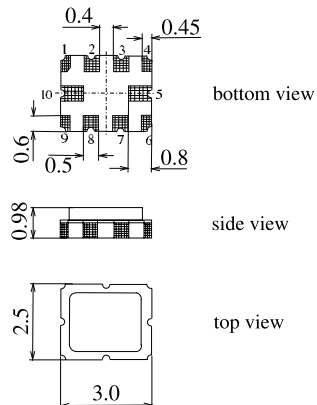
Application

- 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



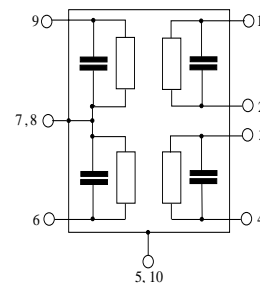
Features

- Package size 3.0 x 2.5 x 0.98 mm<sup>3</sup>
- Package code QCC10G
- RoHS compatible
- Approximate weight 0.027 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- Passivation layer Elpas
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**



Pin configuration<sup>1)</sup>

- 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.



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**B3514**

**SAW RF filter**

**881.5/942.5 MHz**

Data sheet



**Characteristics Filter 1 (GSM850)**

Temperature range for specification:

T = -40 °C to +85 °C

Terminating source impedance:

Z<sub>S</sub> = 50 Ω (unbalanced)

Terminating load impedance:

Z<sub>L</sub> = 150 Ω (balanced) || 56 nH

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	881.5	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	1.8	2.2	dB
869.0 ... 894.0 MHz					
<b>Amplitude ripple</b>		—	0.8	1.1	dB
869.0 ... 894.0 MHz					
<b>VSWR</b>		—	1.8	2.1	
869.0 ... 894.0 MHz					
<b>Output amplitude balance ( S<sub>31</sub>/S<sub>21</sub> )</b>		-1.5		1.5	dB
869.0 ... 894.0 MHz					
<b>Output phase balance</b> (φ(S <sub>31</sub> )-φ(S <sub>21</sub> )+180°)		-12.0		12.0	degree
869.0 ... 894.0 MHz					
<b>Attenuation</b>	α <sub>abs</sub>	46	52	—	dB
10.00 ... 480.00 MHz		30	34	—	
480.00 ... 849.00 MHz		23	27	—	
915.00 ... 1000.00 MHz		30	34	—	
1000.00 ... 3000.00 MHz					



Data sheet



Characteristics Filter 2 (GSM900)

Temperature range for specification:

T = -40 °C to +85 °C

Terminating source impedance:

Z<sub>S</sub> = 50 Ω (unbalanced)

Terminating load impedance:

Z<sub>L</sub> = 150 Ω (balanced) || 68 nH

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	942.5	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	1.9	3.0 <sup>1)</sup>	dB
925.0 ... 960.0 MHz					
<b>Amplitude ripple</b>		—	0.9	1.8	dB
925.0 ... 960.0 MHz					
<b>VSWR</b>		—	1.9	2.3	
925.0 ... 960.0 MHz					
<b>Output amplitude balance ( S<sub>31</sub>/S<sub>21</sub> )</b>		-2.5		2.5	dB
925.0 ... 960.0 MHz					
<b>Output phase balance</b> (φ(S <sub>31</sub> )-φ(S <sub>21</sub> )+180°)		-12.0		12.0	degree
925.0 ... 960.0 MHz					
<b>Attenuation</b>	α <sub>abs</sub>	46	52	—	dB
10.00 ... 480.00 MHz		30	35	—	
480.00 ... 880.00 MHz		24	27	—	
880.00 ... 905.00 MHz		11	18	—	
905.00 ... 915.00 MHz		23	30	—	
980.00 ... 1050.00 MHz		30	34	—	
1050.00 ... 3000.00 MHz					

1) T = -25 °C to +75 °C : 2.5 dB



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881.5/942.5 MHz

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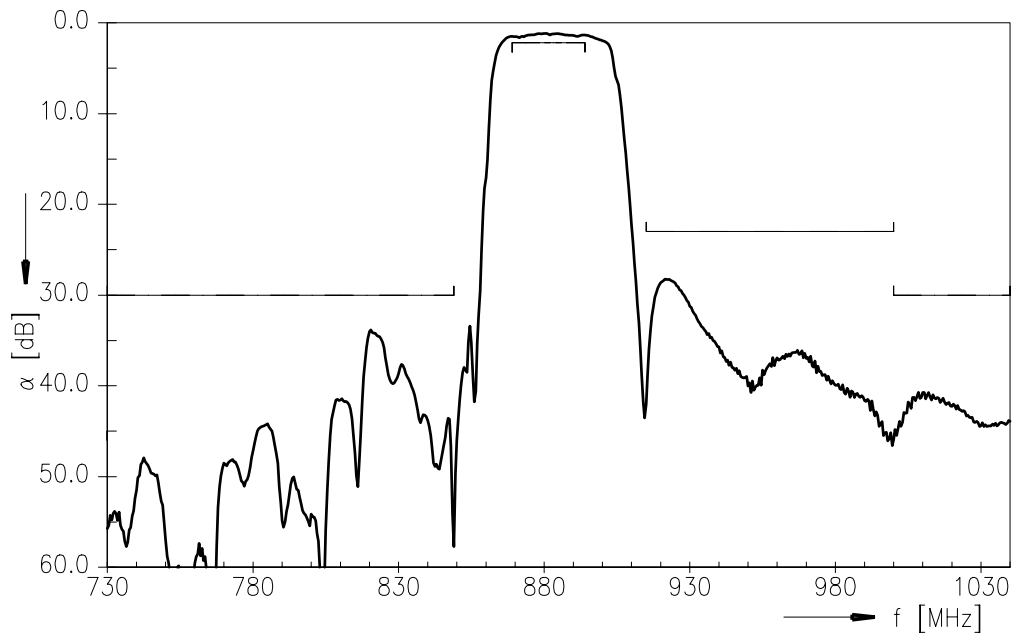


### Maximum ratings

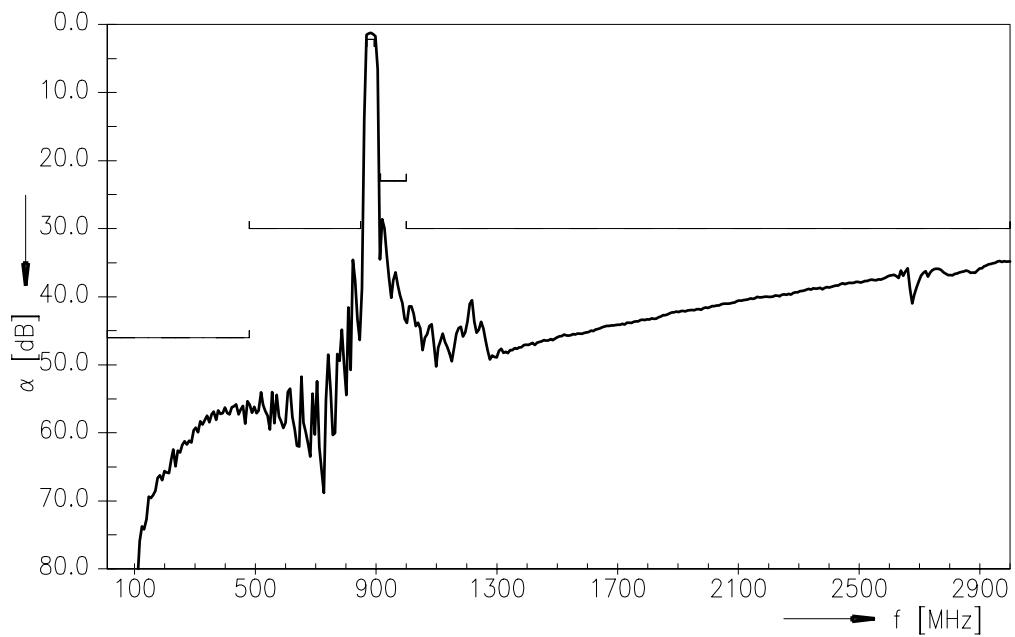
Operable temperature range	T	-45/+125	°C	
Storage temperature range	T <sub>stg</sub>	-45/+125	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	50	V	
Input power at Tx bands: GSM850, GSM900	P <sub>IN</sub>	15	dBm	peak power of GSM signal duty cycle 4:8



Transfer function Filter 1

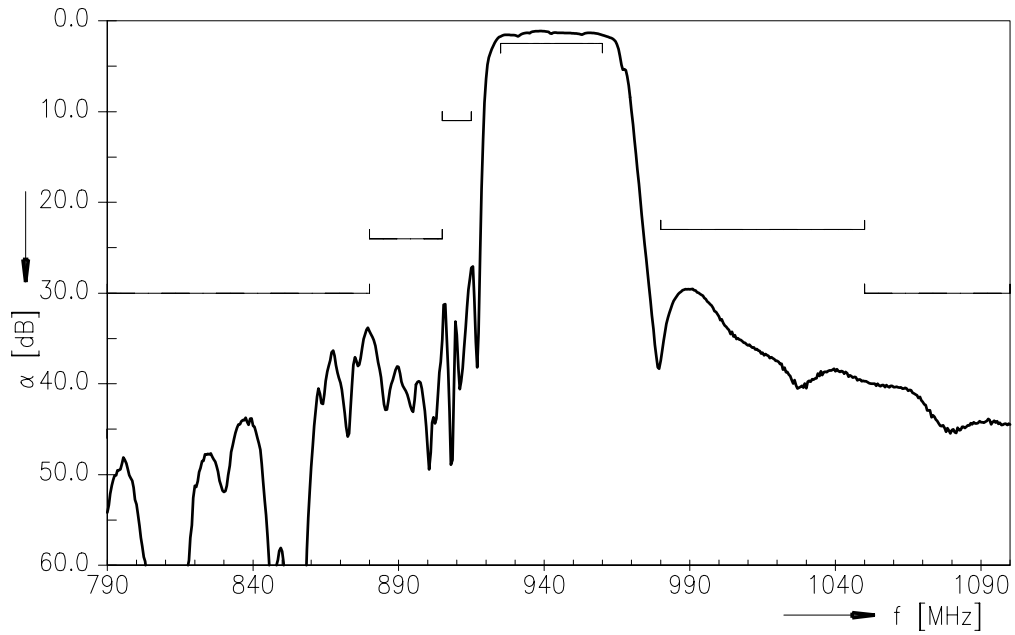


Transfer function Filter 1 (wideband)

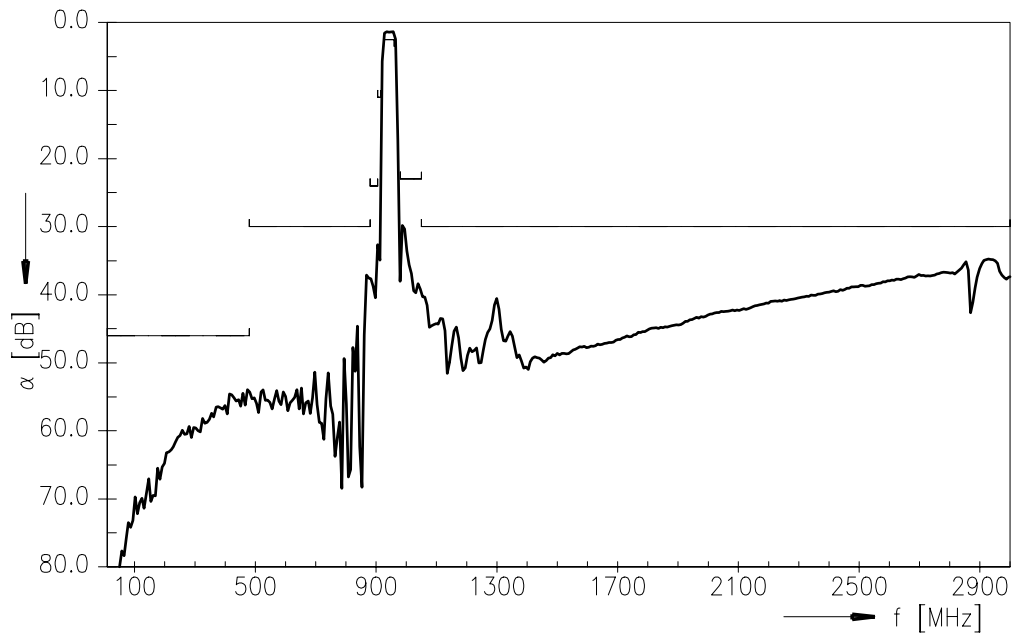




Transfer function Filter 2



Transfer function Filter 2 (wideband)





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881.5/942.5 MHz

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## 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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