



SAW Components

SAW RF filter

Automotive telematics

Series/type:	B3515
Ordering code:	B39202B3515H910
Date:	March 31, 2009
Version:	2.0

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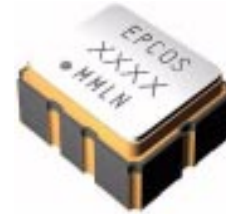


Data sheet



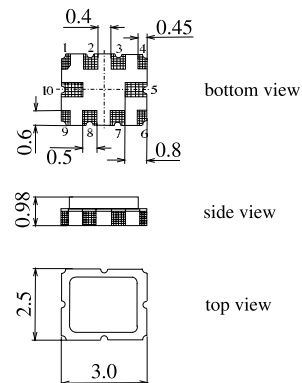
Application

- Low-loss RF filter for mobile telephone GSM 1800/1900 system, receive path
- Usable passband:
 - Filter 1 (GSM1800): 75 MHz
 - Filter 2 (GSM1900): 60 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

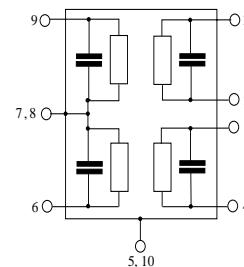


Features

- Package size 3.0 x 2.5 x 0.98 mm³
- Package code QCC10G
- RoHS compatible
- Approximate weight 0.027 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**

Pin configuration¹⁾

- 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



Characteristics Filter 1 (GSM1800)

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) || 12 nH

		min.	typ. @ 25 °C	max.	
Center frequency	f _C	—	1842.5	—	MHz
Maximum insertion attenuation	α _{max}	—	2.6	3.0	dB
1805.0 ... 1880.0 MHz					
Amplitude ripple		—	1.2	1.6	
1805.0 ... 1880.0 MHz					
VSWR		—	2.2	2.4	
1805.0 ... 1880.0 MHz					
Output amplitude balance (S ₃₁ /S ₂₁)		-1.5		1.5	dB
1805.0 ... 1880.0 MHz					
Output phase balance (φ(S ₃₁)-φ(S ₂₁)+180°)		-15.0		15.0	degree
1805.0 ... 1880.0 MHz					
Attenuation	α _{abs}	40	50	—	dB
10.00 ... 1000.00 MHz		26	30	—	
1000.00 ... 1700.00 MHz		10	17	—	
1700.00 ... 1785.00 MHz		15	20	—	
1920.00 ... 1980.00 MHz		24	28	—	
1980.00 ... 2030.00 MHz		30	32	—	
2030.00 ... 3000.00 MHz					



Data sheet



Characteristics Filter 2 (GSM1900)

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) || 12 nH

		min.	typ. @ 25 °C	max.	
Center frequency	f _C	—	1960.0	—	MHz
Maximum insertion attenuation	α _{max}	—	2.6	3.1	dB
1930.0 ... 1990.0 MHz					
Amplitude ripple		—	1.0	1.5	
1930.0 ... 1990.0 MHz					
VSWR		—	2.2	2.4	
1930.0 ... 1990.0 MHz					
Output amplitude balance (S ₃₁ /S ₂₁)		-1.5		1.5	dB
1930.0 ... 1990.0 MHz					
Output phase balance (φ(S ₃₁)-φ(S ₂₁)+180°)		-15.0		15.0	degree
1930.0 ... 1990.0 MHz					
Attenuation	α _{abs}				
10.00 ... 1480.00 MHz		38	42	—	dB
1480.00 ... 1820.00 MHz		30	34	—	dB
1820.00 ... 1880.00 MHz		26	30	—	dB
1880.00 ... 1910.00 MHz		10	13	—	dB
2020.00 ... 2100.00 MHz		12	16	—	dB
2100.00 ... 2400.00 MHz		25	31	—	dB
2400.00 ... 3000.00 MHz		30	32	—	dB



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1842.5/1960.0 MHz

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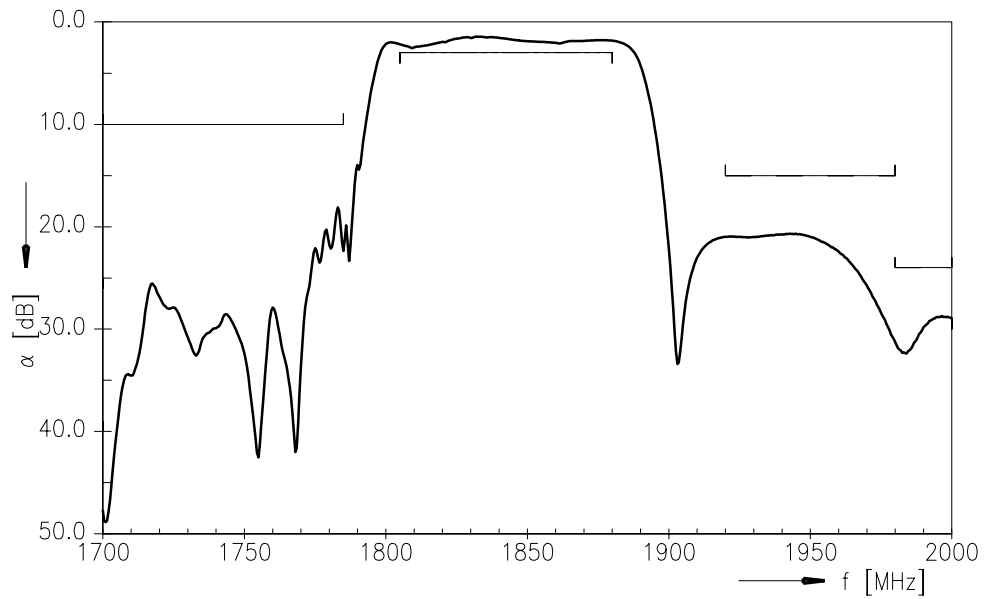
Maximum ratings

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: GSM1800, GSM1900	P _{IN}	15	dBm	peak power of GSM signal duty cycle 4:8

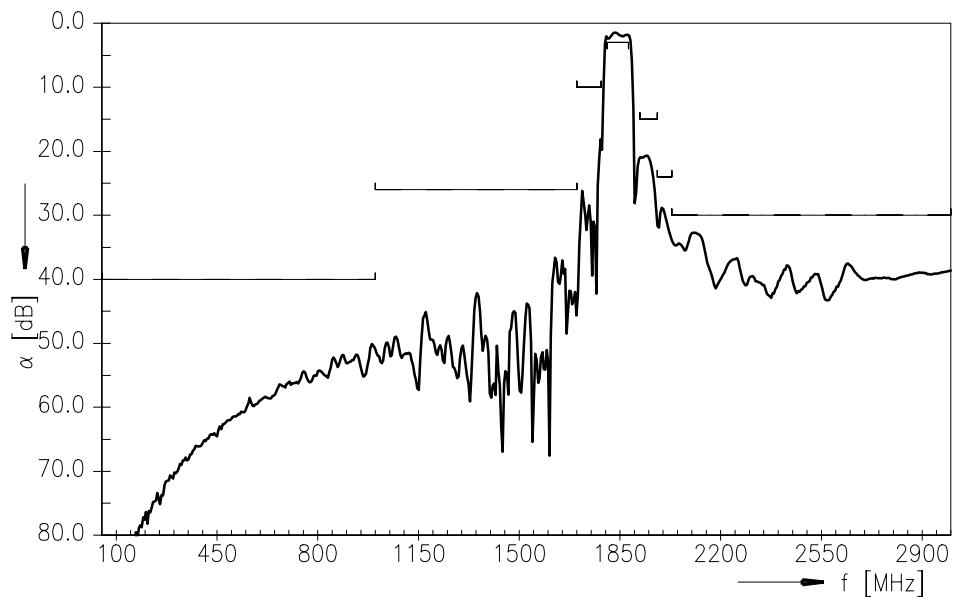
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Transfer function Filter 1



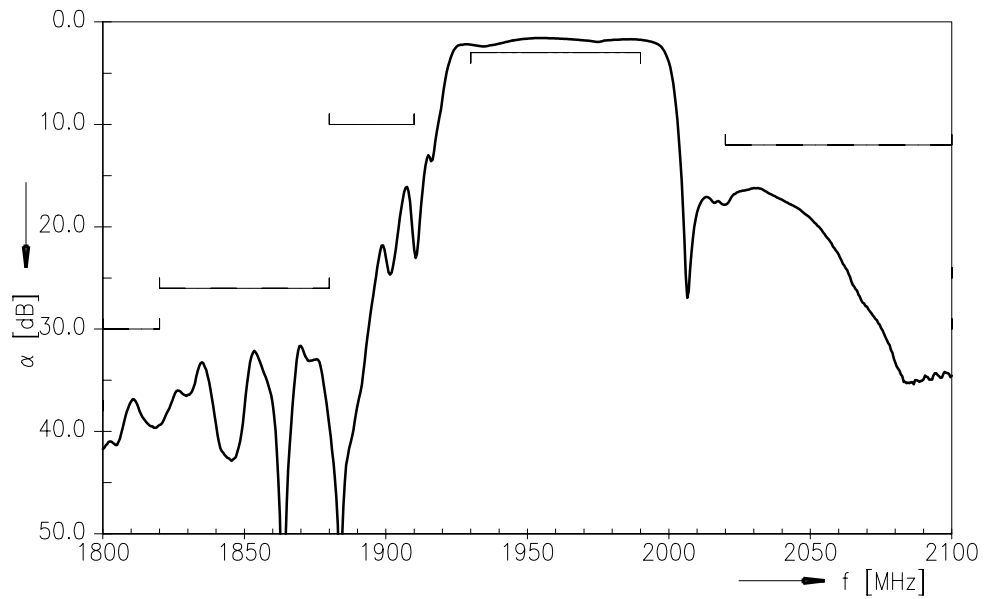
Transfer function Filter 1 (wideband)



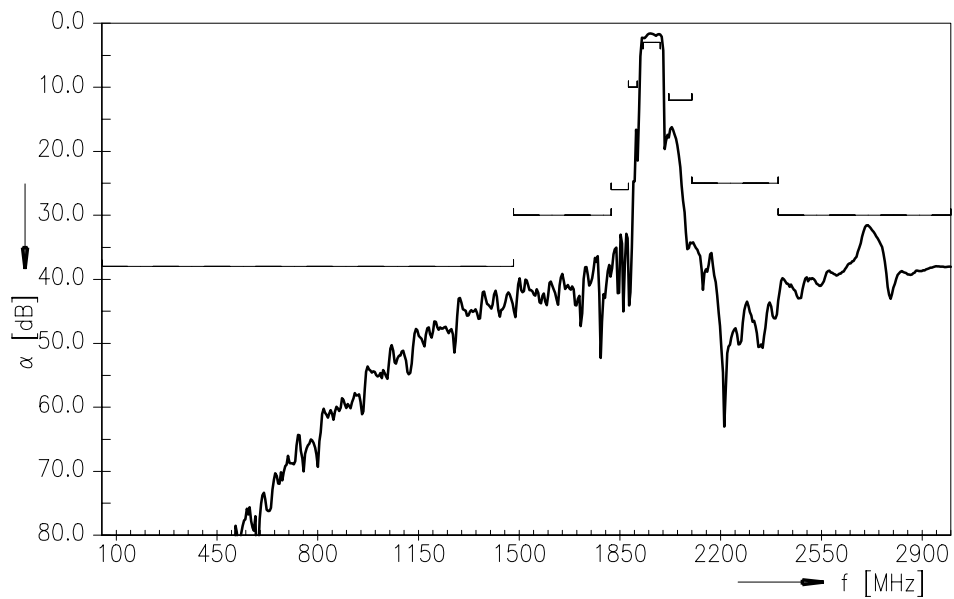
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Transfer function Filter 2



Transfer function Filter 2 (wideband)



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SAW Components **B3515**

SAW RF filter **1842.5/1960.0 MHz**

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References

Type	B3515
Ordering code	B39202B3515H910
Marking and package	C61157-A7-A142
Packaging	F61074-V8174-Z000
Date codes	L_1126
S-parameters	B3515_LB_NB.s3p B3515_LB_WB.s3p B3515_UB_NB.s3p B3515_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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