



SAW Components

SAW Rx Filter

GSM 1900

| | |
|-----------------------|--------------------------|
| Series/Type: | B9403 |
| Ordering code: | B39202-B9403-K610 |
| Date: | Oct 21, 2005 |
| Version: | 2 |



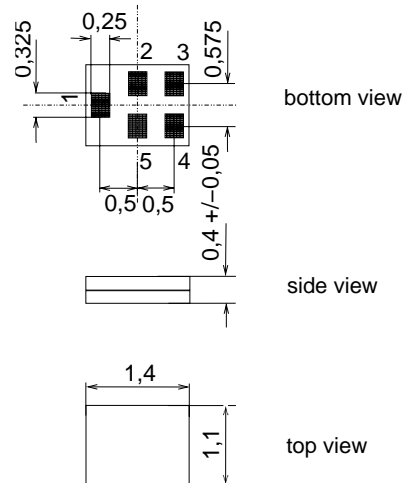
Application

- Low-loss RF filter for mobile telephone GSM 1900 systems, receive path (RX)
- Impedance transform from 50 Ω to 150 Ω
- Unbalanced to balanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 60 MHz
- Suitable for GPRS class 1 to 12



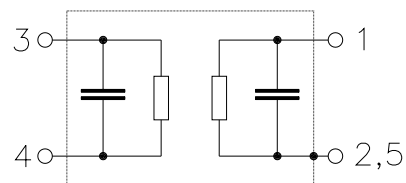
Features

- Package size 1.4 x 1.1 x 0.4 mm³
- RoHS compliant
- Approx. weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals



Pin configuration

- 1 Input, unbalanced
- 3,4 Output balanced
- 2,5 To be grounded





Data Sheet



Characteristics

Operating temperature range: $T = -20$ to $+75$ °C
 Terminating source impedance: $Z_S = 50\Omega$
 Terminating load impedance: $Z_L = 150\Omega \parallel 18$ nH (balanced)

| | | min. | typ. @ 25°C | max. | |
|--------------------------------------------------------------------------------|----------------|------|----------------|------|-----|
| Center frequency | f_C | — | 1960 | — | MHz |
| Maximum insertion attenuation | α_{max} | — | 1.6 | 2.6 | dB |
| 1930.0 ... 1990.0 MHz | | | | | |
| Amplitude ripple (p-p) | $\Delta\alpha$ | — | 0,7 | 1.4 | dB |
| 1930.0 ... 1990.0 MHz | | | | | |
| Input VSWR | | — | 1.7 | 2.2 | |
| 1930.0 ... 1990.0 MHz | | | | | |
| Output VSWR | | — | 1.7 | 2.2 | |
| 1930.0 ... 1990.0 MHz | | | | | |
| Output amplitude balance (S_{31}/S_{21}) | | -1.2 | -0.6/0.5 | 1.2 | dB |
| 1930.0 ... 1990.0 MHz | | | | | |
| Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) | | -10 | -1/+4 | 10 | ° |
| 1930.0 ... 1990.0 MHz | | | | | |
| Attenuation | α | | | | |
| 0.0 ... 1510.0 MHz | | 40 | 46 | — | dB |
| 1510.0 ... 1830.0 MHz | | 30 | 37 | — | dB |
| 1830.0 ... 1850.0 MHz | | 26 | 32 | — | dB |
| 1850.0 ... 1890.0 MHz | | 23 | 28 | — | dB |
| 1890.0 ... 1910.0 MHz | | 12 | 18 | — | dB |
| 2010.0 ... 2070.0 MHz | | 11.5 | 12.5 | — | dB |
| 2070.0 ... 2400.0 MHz | | 27 | 29 | — | dB |
| 2400.0 ... 2500.0 MHz | | 35 | 42 | — | dB |
| 2500.0 ... 3860.0 MHz | | 28 | 33 | — | dB |
| 3860.0 ... 3980.0 MHz | | 40 | 49 | — | dB |
| 3980.0 ... 5790.0 MHz | | 28 | 42 | — | dB |
| 5790.0 ... 6000.0 MHz | | 35 | 45 | — | dB |



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1960.0 MHz

Data Sheet



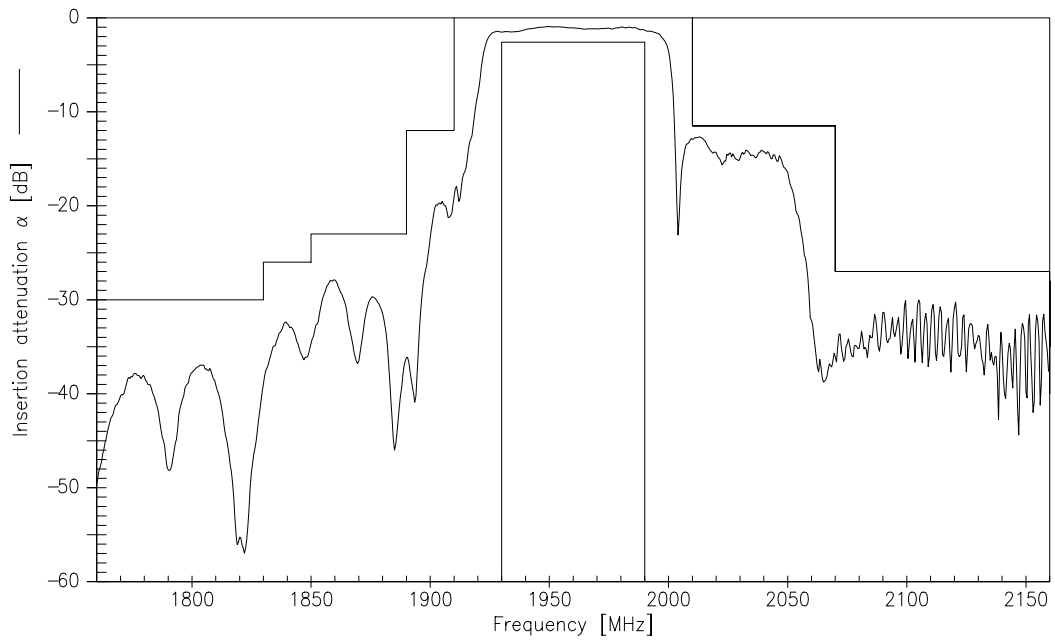
Maximum ratings

| | | | | |
|----------------------------|------------------|------------------|-----|----------------------------------------------------|
| Operable temperature range | T | -30/+85 | °C | |
| Storage temperature range | T _{stg} | -40/+85 | °C | |
| DC voltage | V _{DC} | 5 | V | |
| ESD voltage | V _{ESD} | 50 ¹⁾ | V | machine model, 10 pulses |
| Input Power at | | | | |
| GSM850, GSM900 | P _{IN} | 15 | dBm | effective power in the on-state, duty cycle 4:8 |
| GSM1800, GSM1900 | P _{IN} | 15 | dBm | |
| Tx bands | | | | |

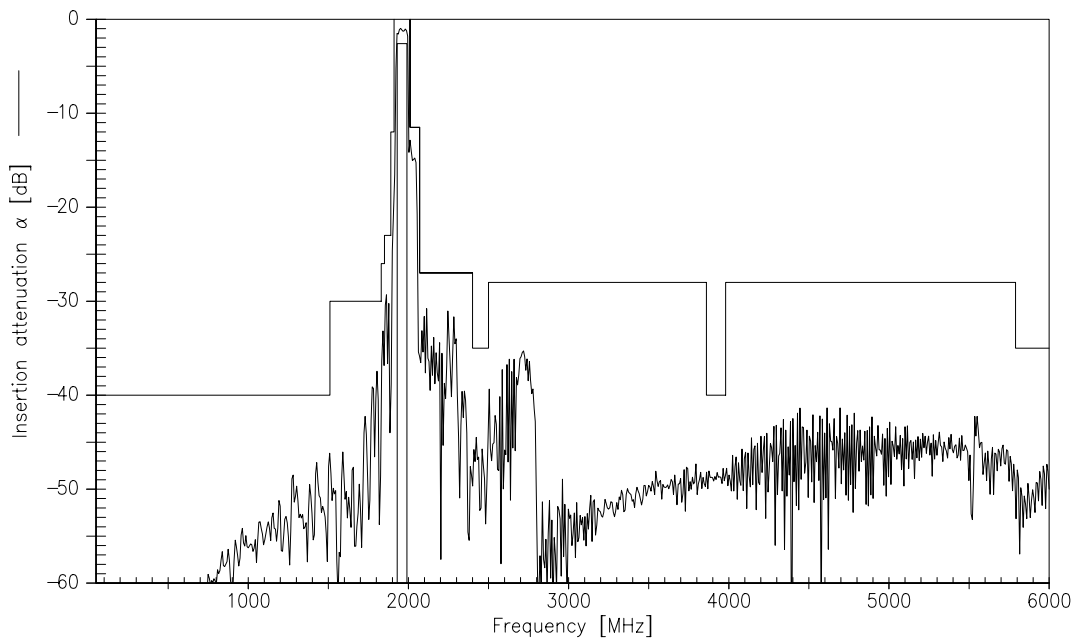
¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function



Transfer function



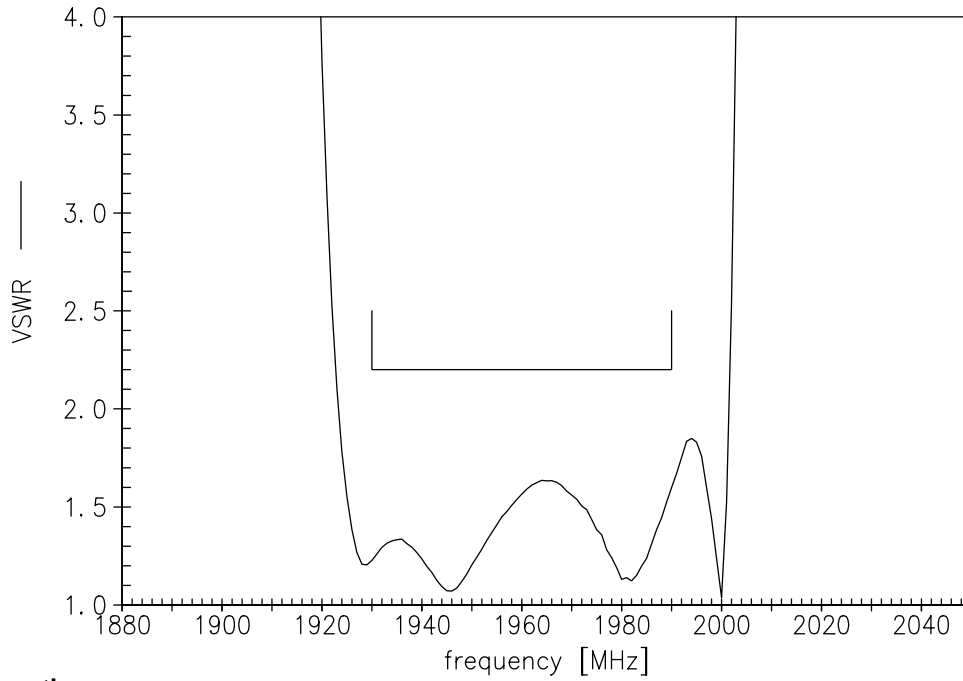


Data Sheet

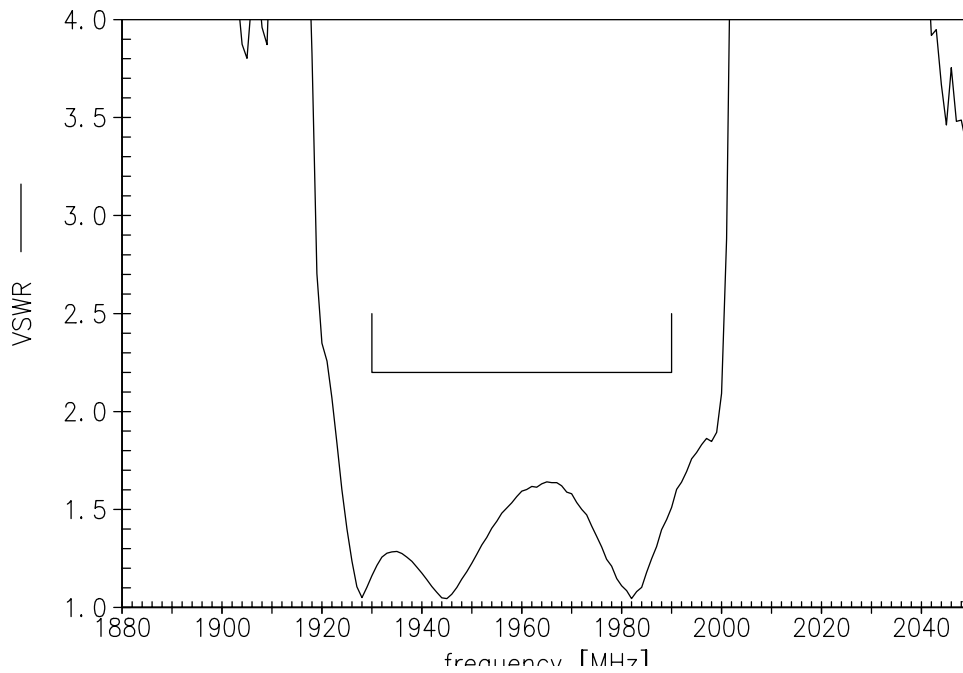


Matching

S₁₁ function



S₂₂ function





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| | | |
|----------------------------|------------------------------|--|
| Type | B9403 | |
| Ordering code | B39202-B9403-K610 | |
| Marking and Package | C61157-A8-A1 | |
| Packaging | F61074-V8212-Z000 | |
| Date Codes | L_1126 | |
| S-Parameters | B9403_NB.s3p B9403_WB.s3p | |
| Soldering profile | S_6001 | |

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

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