SAW Components

SAW 2in1 filter

GSM 1800 / GSM 1900

Series/type:	**B9909**
Ordering code:	**B39192B9909P810**
Date:	October 22,2013
Version:	2.0

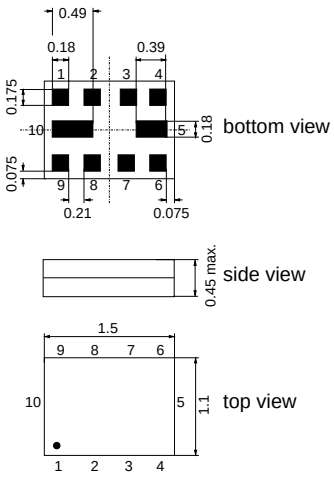
EPCOS AG is a TDK Group Company.

Application

- Low-loss RF filter for mobile telephone GSM 1800 and GSM 1900 systems, recieve path (Rx)
- Usable passband:
  GSM 1800: 75 MHz
  GSM 1900: 60 MHz
- Unbalanced to unbalanced operation for both filters
- Impedance at input and output 50 Ω for both filters
- Low amplitude ripple

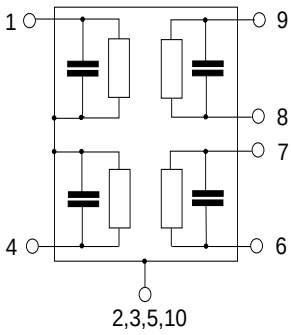
Features

- Package size 1.5 x 1.1 mm^2
- Maximum package height 0.45 mm
- RoHS compatible
- Approx. weight 0.003g.
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitive **L**evel 3



Pin configuration

6	Input [GSM 1800]
9	Input [GSM 1900]
1	Output Diplex [GSM 1800 and GSM 1900]
2, 3, 5, 10	Case ground
4, 7, 8	To be grounded



Data sheet SMD

Characteristics of GSM 1800

Temperature range for specification: T = -20 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω || 3 nH

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1842.5	—	MHz
Maximum insertion attenuation	α_{max}				
1805.0 ... 1880.0MHz		—	2.3	3.5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805.0 ... 1880.0MHz		—	1.6	2.5	dB
Input VSWR					
1805.0 ... 1880.0MHz		—	1.9	2.2	
Output VSWR					
1805.0 ... 1880.0MHz		—	1.8	2.2	
Attenuation	α				
10.0 ... 902.0MHz		33	38	—	dB
902.0 ... 940.0MHz		33	37	—	dB
940.0 ... 1705.0MHz		23	28	—	dB
1705.0 ... 1785.0MHz		9	15	—	dB
1920.0 ... 1980.0MHz		23	26	—	dB
1980.0 ... 2030.0MHz		22	29	—	dB
2030.0 ... 2400.0MHz		24	30	—	dB
2400.0 ... 2500.0MHz		26	33	—	dB
2500.0 ... 2775.0MHz		23	28	—	dB
2775.0 ... 2880.0MHz		25	35	—	dB
2880.0 ... 3610.0MHz		25	30	—	dB
3610.0 ... 3760.0MHz		27	33	—	dB
3760.0 ... 5415.0MHz		28	36	—	dB
5415.0 ... 5640.0MHz		32	44	—	dB
5640.0 ... 6000.0MHz		25	45	—	dB

Maximum ratings of GSM 1800

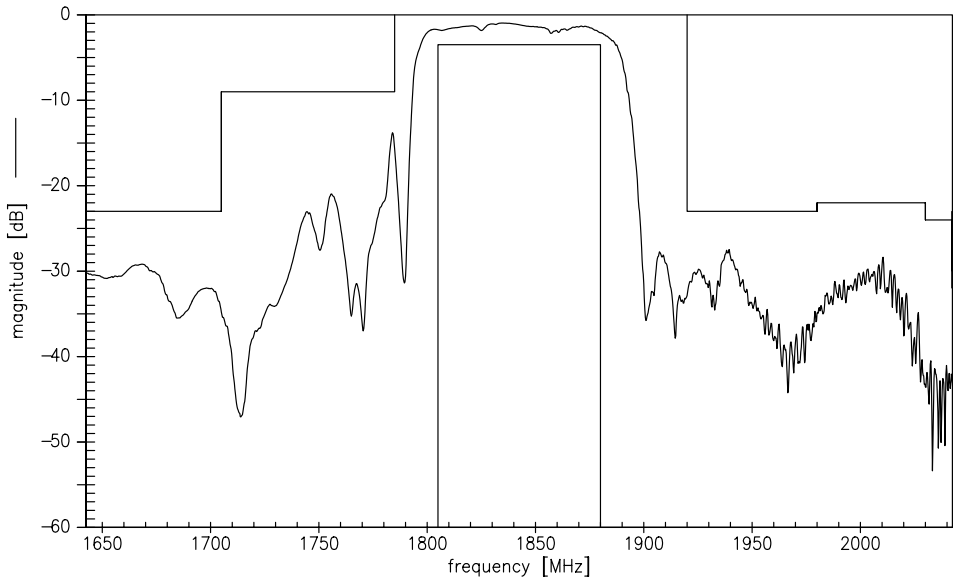
Storage temperature range	T_{stg}	–40/85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[1)]	V	Machine Model
	V_{ESD}	150[2)]	V	Human Body Model
	V_{ESD}	600[3)]	V	Charged Device Model
Input Power				
1710.0 ... 1785.0 MHz	P_{IN}	15	dBm	duty cycle 4 : 8

1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

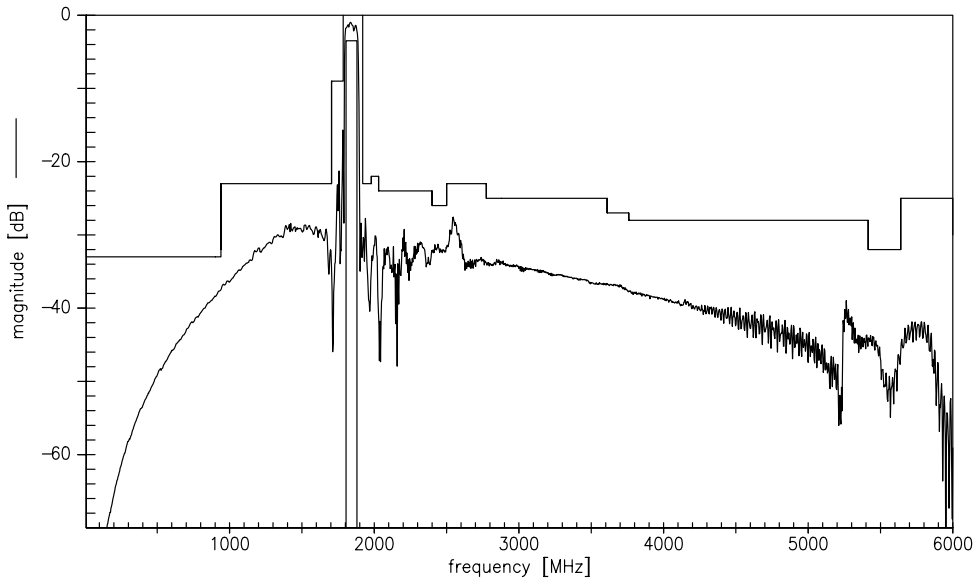
2) acc. to JESD22-A114F (HBM - Human Body Model), 1 negative & 1 positive pulse.

3) acc. to JESD22-C101C (CDM - Charged Device Model), 3 negative & 3 positive pulses.

Transfer function of GSM 1800

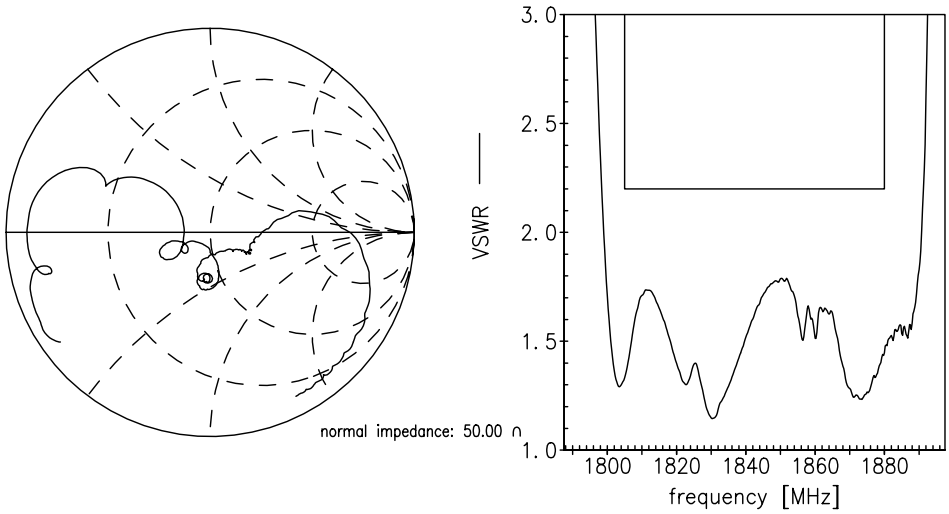


Transfer function (wideband) of GSM 1800

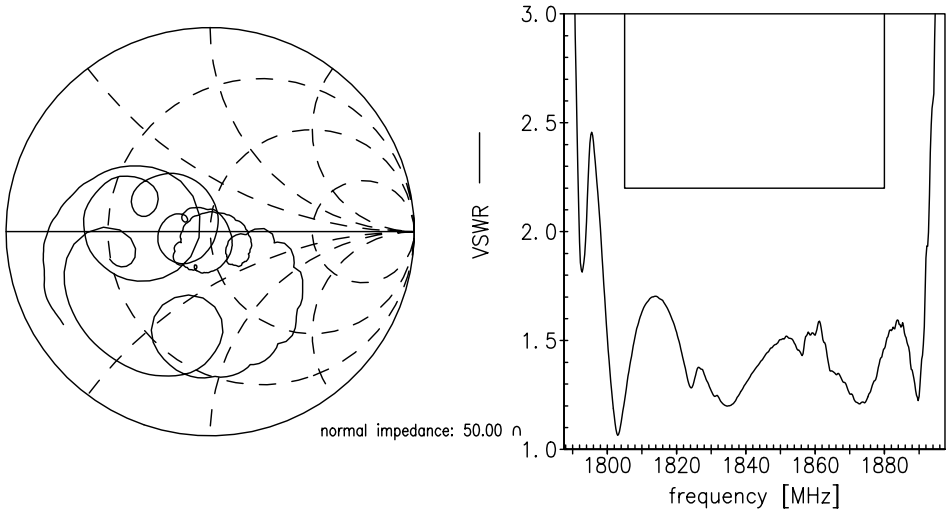


Smith charts of GSM 1800

S_{11} function



S_{22} function



Characteristics of GSM 1900

Temperature range for specification: T = -20 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω || 3 nH

		min.	typ. @ 25˚C	max.	
Center frequency	f_C	—	1960.0	—	MHz
Maximum insertion attenuation	α_{max}				
1930.0 ... 1990.0 MHz		—	2.2	3.5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930.0 ... 1990.0 MHz		—	1.1	2.4	dB
Input VSWR					
1930.0 ... 1990.0 MHz		—	1.7	2.1	
Output VSWR					
1930.0 ... 1990.0 MHz		—	1.7	2.1	
Attenuation	α				
10.0 ... 1200.0 MHz		28	33	—	dB
1200.0 ... 1510.0 MHz		24	29	—	dB
1510.0 ... 1830.0 MHz		25	30	—	dB
1830.0 ... 1850.0 MHz		30	35	—	dB
1850.0 ... 1890.0 MHz		26	31	—	dB
1890.0 ... 1910.0 MHz		11	16	—	dB
2010.0 ... 2070.0 MHz		2	7	—	dB
2070.0 ... 2400.0 MHz		20	25	—	dB
2400.0 ... 2500.0 MHz		30	36	—	dB
2500.0 ... 3860.0 MHz		28	33	—	dB
3860.0 ... 3980.0 MHz		35	42	—	dB
3980.0 ... 5790.0 MHz		24	36	—	dB
5790.0 ... 6000.0 MHz		24	34	—	dB

Maximum ratings of GSM 1900

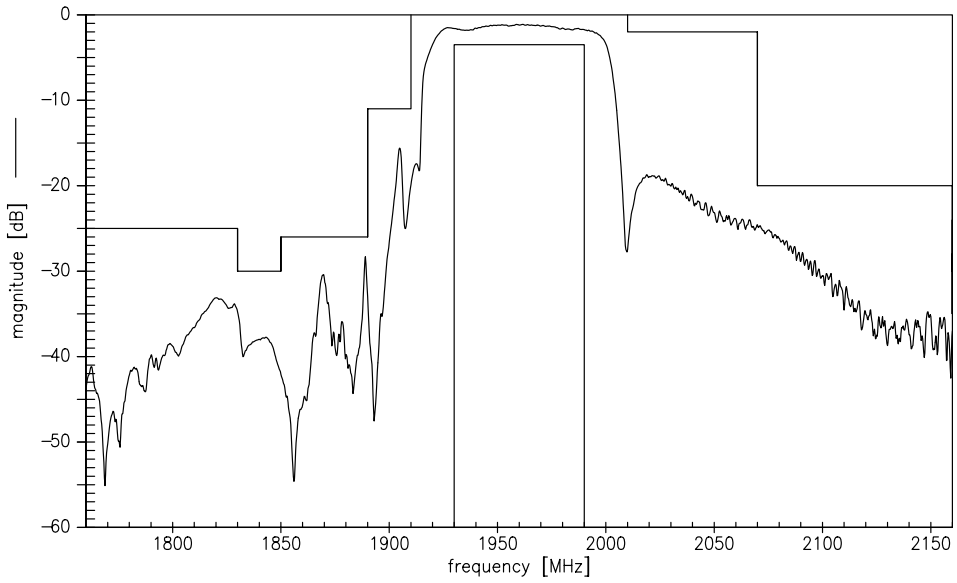
Storage temperature range	T_{stg}	–40/85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[1)]	V	Machine Model
	V_{ESD}	150[2)]	V	Human Body Model
	V_{ESD}	600[3)]	V	Charged Device Model
Input Power				
1850.0 ... 1910.0 MHz	P_{IN}	16	dBm	duty cycle 4 : 8

1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

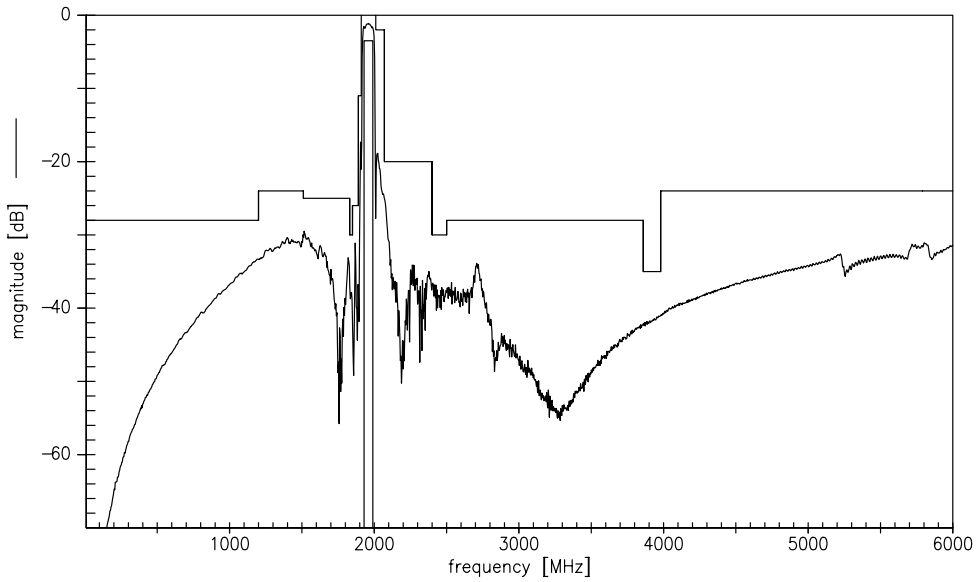
2) acc. to JESD22-A114F (HBM - Human Body Model), 1 negative & 1 positive pulse.

3) acc. to JESD22-C101C (CDM - Charged Device Model), 3 negative & 3 positive pulses.

Transfer function of GSM 1900

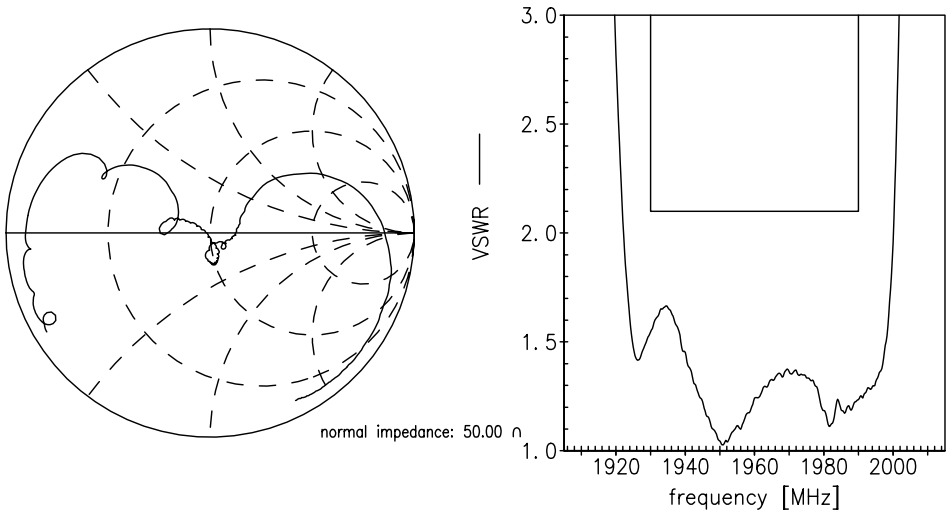


Transfer function (wideband) of GSM 1900

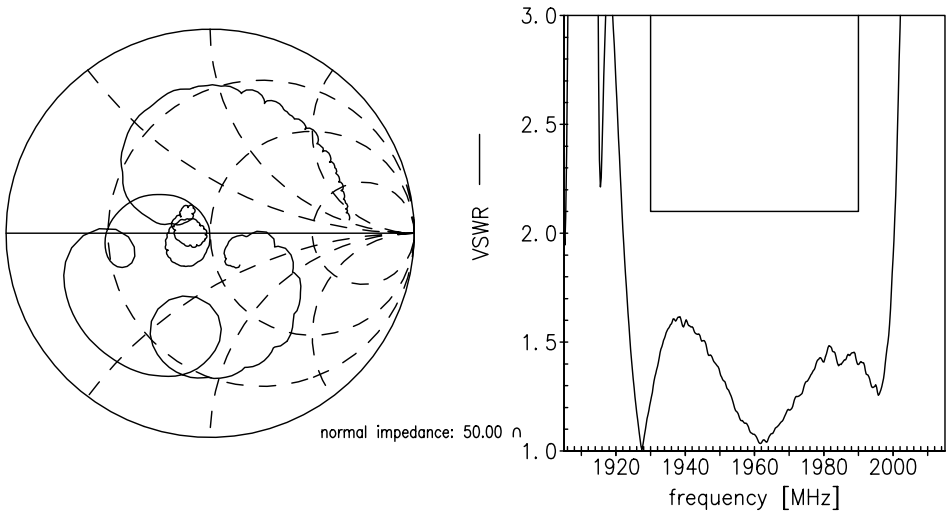


Smith charts of GSM 1900

S_{11} function



S_{22} function



References

Type	B9909
Ordering code	B39192B9909P810
Marking and package	C61157-A8-A94
Packaging	F61074-V8227-Z000
Date codes	L_1126
S-parameters	B9909_LB_NB.s2p, B9909_LB_WB.s2p B9909_UB_NB.s2p, B9909_UB_WB.s2p 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.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching coils	See http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils

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

Published by EPCOS AG
Systems, Acoustics, Waves Business Group
P.O. Box 80 17 09, 81617 Munich, GERMANY

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.
   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the "General Terms of Delivery for Products and Services in the Electrical Industry" published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, CeraLink, CeraPlas, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FilterCap, FormFit, MiniBlue, MiniCell, MKD, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.epcos.com/trademarks.

单击下面可查看定价，库存，交付和生命周期等信息

>>Qualcomm-RF360