



# SAW Components

Data Sheet B7846





**SAW Components**

**B7846**

**Low-Loss Filter for Mobile Communication**

**1960,0 MHz**

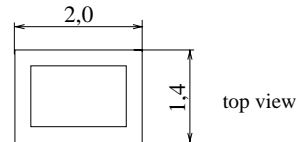
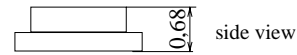
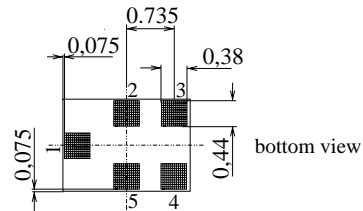
**Data Sheet**



Chip sized SAW package QCS5E

**Features**

- Low-loss RF filter for mobile telephone PCS systems, receive path
- Low amplitude ripple
- Very low insertion loss
- Usable passband 60 MHz
- Unbalanced to balanced operation
- Impedance transform from 50 Ω to 150 Ω
- Suitable for GPRS class 1 to 12
- Package for **Surface Mount Technology (SMT)**
- Pb-free



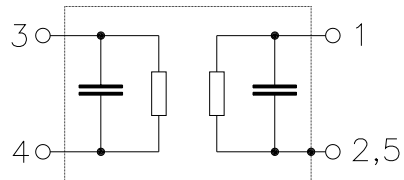
Dimensions in mm, approx. weight 0,007 g

**Terminals**

- Ni, gold-plated

**Pin configuration**

- 1 Input, unbalanced
- 3,4 Output, balanced
- 2,5 Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B7846	B39202-B7846-K410	C61157-A7-A111	F61074-V8151-Z000

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

Operable temperature range	$T$	- 30 / + 85	°C	Machine Model, 10 pulses
Storage temperature range	$T_{stg}$	- 40 / + 85	°C	
ESD voltage	$V_{ESD}^{1)}$	50	V	
DC voltage	$V_{DC}$	5	V	
Input Power at				
GSM850, GSM900	$P_{IN}$	15	dBm	peak power of GSM signal, duty cycle 4:8
GSM1800, GSM1900	$P_{IN}$	12	dBm	
Tx bands				

1) acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses



SAW Components

B7846

Low-Loss Filter for Mobile Communication

1960,0 MHz

Data Sheet



**Characteristics**

Operating Temperature Range:  $T = 25^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\Omega$   
 Terminating load impedance:  $Z_L = 150\Omega \parallel 18\text{nH}$  (balanced)

			min.	typ.	max.	
<b>Center frequency</b>	$f_C$		—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\text{max}}$		—	1,7	2,2	dB
		1930,0 ... 1990,0 MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$		—	0,7	1,3	dB
		1930,0 ... 1990,0 MHz				
<b>Input VSWR</b>			—	1,8	2,2	
		1930,0 ... 1990,0 MHz				
<b>Output VSWR</b>			—	1,7	2,2	
		1930,0 ... 1990,0 MHz				
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}</math>)</b>			-10	-4 ... 2	10	degree
		1930,0 ... 1990,0 MHz				
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>			-1,0	-0.8 ... 0.8	1,0	dB
		1930,0 ... 1990,0 MHz				
<b>Attenuation</b>	$\alpha$					
		0,0 ... 1510,0 MHz	40	44	—	dB
		1510,0 ... 1830,0 MHz	30	34	—	dB
		1830,0 ... 1850,0 MHz	28	31	—	dB
		1850,0 ... 1890,0 MHz	23	29	—	dB
		1890,0 ... 1910,0 MHz	12	15	—	dB
		2010,0 ... 2070,0 MHz	13	15	—	dB
		2070,0 ... 2400,0 MHz	26	28	—	dB
		2400,0 ... 2500,0 MHz	35	42	—	dB
		2500,0 ... 3860,0 MHz	28	34	—	dB
		3860,0 ... 3980,0 MHz	45	53	—	dB
		3980,0 ... 5790,0 MHz	28	44	—	dB
		5790,0 ... 6000,0 MHz	40	45	—	dB



<b>SAW Components</b>	<b>B7846</b>
<b>Low-Loss Filter for Mobile Communication</b>	<b>1960,0 MHz</b>
<b>Data Sheet</b>	

**Characteristics**

Operating Temperature Range:  $T = -20$  to  $+75^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\Omega$   
 Terminating load impedance:  $Z_L = 150\Omega \parallel 18\text{nH}$  (balanced)

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\text{max}}$	—	2,1	2,6	dB
	1930,0 ... 1990,0 MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,1	1,4	dB
	1930,0 ... 1990,0 MHz				
<b>Input VSWR</b>		—	1,9	2,2	
	1930,0 ... 1990,0 MHz				
<b>Output VSWR</b>		—	2,0	2,2	
	1930,0 ... 1990,0 MHz				
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}</math>)</b>		-10	-4... 2	10	degree
	1930,0 ... 1990,0 MHz				
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1,0	-0.8 ... 0.8	1,0	dB
	1930,0 ... 1990,0 MHz				
<b>Attenuation</b>	$\alpha$				
	0,0 ... 1510,0 MHz	40	44	—	dB
	1510,0 ... 1830,0 MHz	30	34	—	dB
	1830,0 ... 1850,0 MHz	28	31	—	dB
	1850,0 ... 1890,0 MHz	23	29	—	dB
	1890,0 ... 1910,0 MHz	12	14	—	dB
	2010,0 ... 2070,0 MHz	11	15	—	dB
	2070,0 ... 2400,0 MHz	26	28	—	dB
	2400,0 ... 2500,0 MHz	35	42	—	dB
	2500,0 ... 3860,0 MHz	28	34	—	dB
	3860,0 ... 3980,0 MHz	45	53	—	dB
	3980,0 ... 5790,0 MHz	28	44	—	dB
	5790,0 ... 6000,0 MHz	40	45	—	dB



SAW Components

B7846

Low-Loss Filter for Mobile Communication

1960,0 MHz

Data Sheet



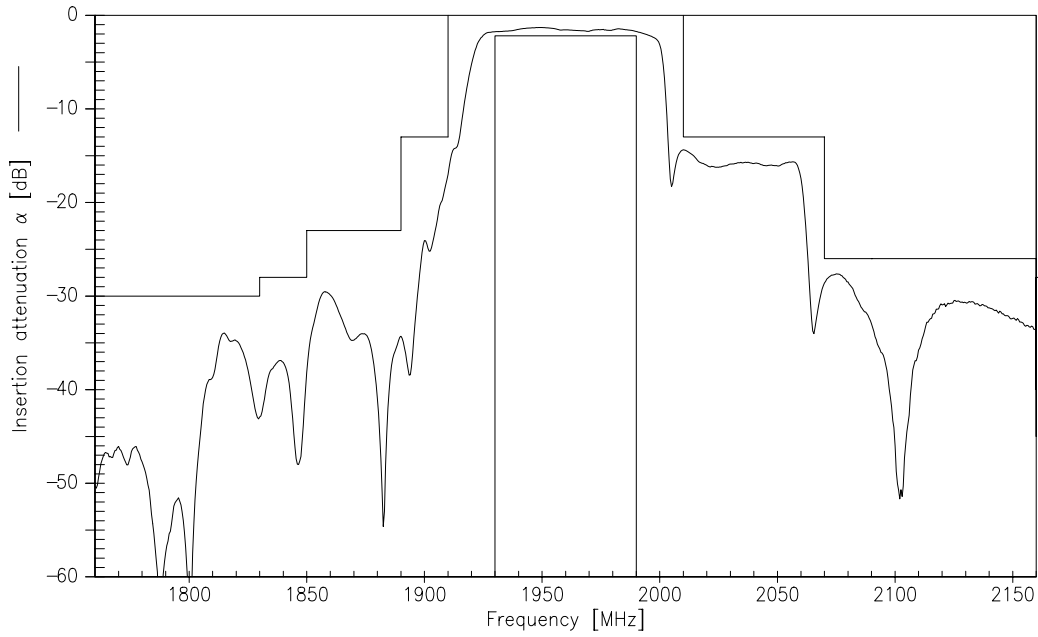
**Characteristics**

Operating Temperature Range:  $T = -20$  to  $+85^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\Omega$   
 Terminating load impedance:  $Z_L = 150\Omega \parallel 18\text{nH}$  (balanced)

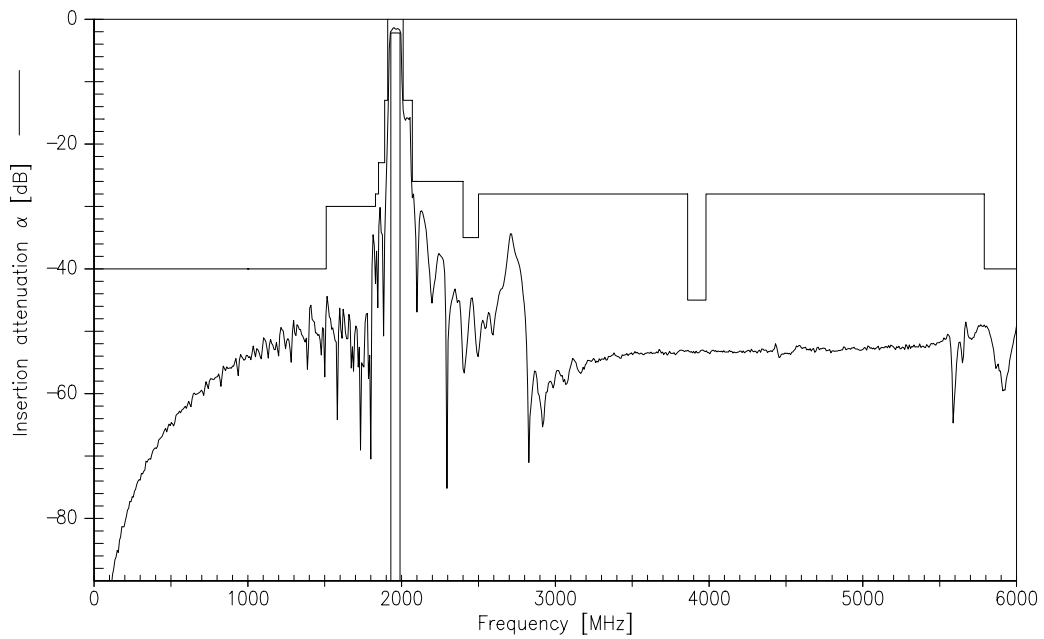
		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\text{max}}$	—	2,1	2,6	dB
1930,0 ... 1990,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,1	1,4	dB
1930,0 ... 1990,0 MHz					
<b>Input VSWR</b>		—	1,9	2,2	
1930,0 ... 1990,0 MHz					
<b>Output VSWR</b>		—	2,0	2,2	
1930,0 ... 1990,0 MHz					
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}</math>)</b>		-10	-4... 2	10	degree
1930,0 ... 1990,0 MHz					
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1,0	-0.8 ... 0.8	1,0	dB
1930,0 ... 1990,0 MHz					
<b>Attenuation</b>	$\alpha$				
0,0 ... 1510,0 MHz		40	44	—	dB
1510,0 ... 1830,0 MHz		30	34	—	dB
1830,0 ... 1850,0 MHz		28	31	—	dB
1850,0 ... 1890,0 MHz		23	29	—	dB
1890,0 ... 1910,0 MHz		10	14	—	dB
2010,0 ... 2070,0 MHz		10	15	—	dB
2070,0 ... 2400,0 MHz		26	28	—	dB
2400,0 ... 2500,0 MHz		35	42	—	dB
2500,0 ... 3860,0 MHz		28	34	—	dB
3860,0 ... 3980,0 MHz		45	53	—	dB
3980,0 ... 5790,0 MHz		28	44	—	dB
5790,0 ... 6000,0 MHz		40	45	—	dB



Transfer function



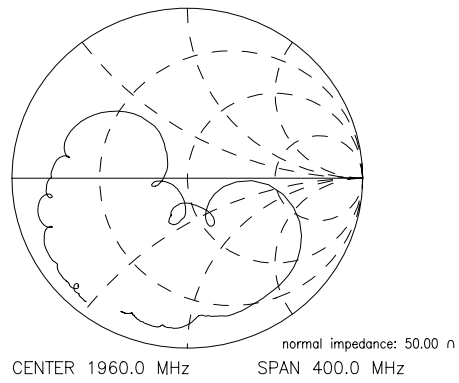
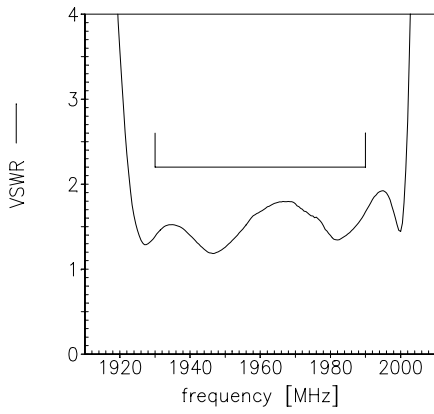
Transfer function (wide band)



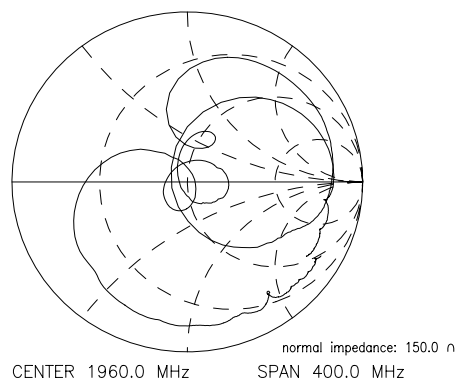
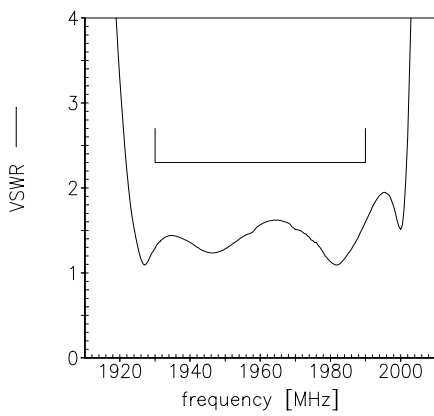


Reflection functions

### S11



### S22





**SAW Components**

**B7846**

**Low-Loss Filter for Mobile Communication**

**1960,0 MHz**

Data Sheet



**Published by EPCOS AG**

**Surface Acoustic Wave Components Division, SAW MC WT**

**P.O. Box 80 17 09, 81617 Munich, GERMANY**

© EPCOS AG 2003. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

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.