



# SAW Components

Data Sheet B7846





**SAW Components**

**B7846**

**Low-Loss Filter for Mobile Communication**

**1960,0 MHz**

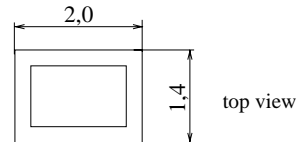
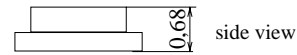
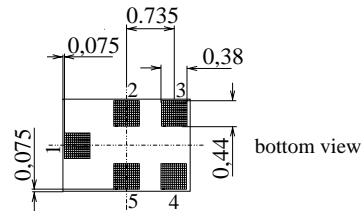
**Data Sheet**



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



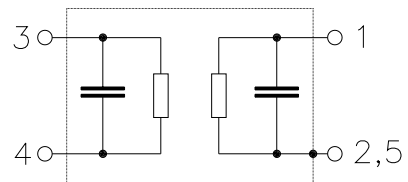
Dimensions in mm, approx. weight 0,007 g

**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



**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



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<b>Low-Loss Filter for Mobile Communication</b>	<b>1960,0 MHz</b>

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**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



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Low-Loss Filter for Mobile Communication

1960,0 MHz

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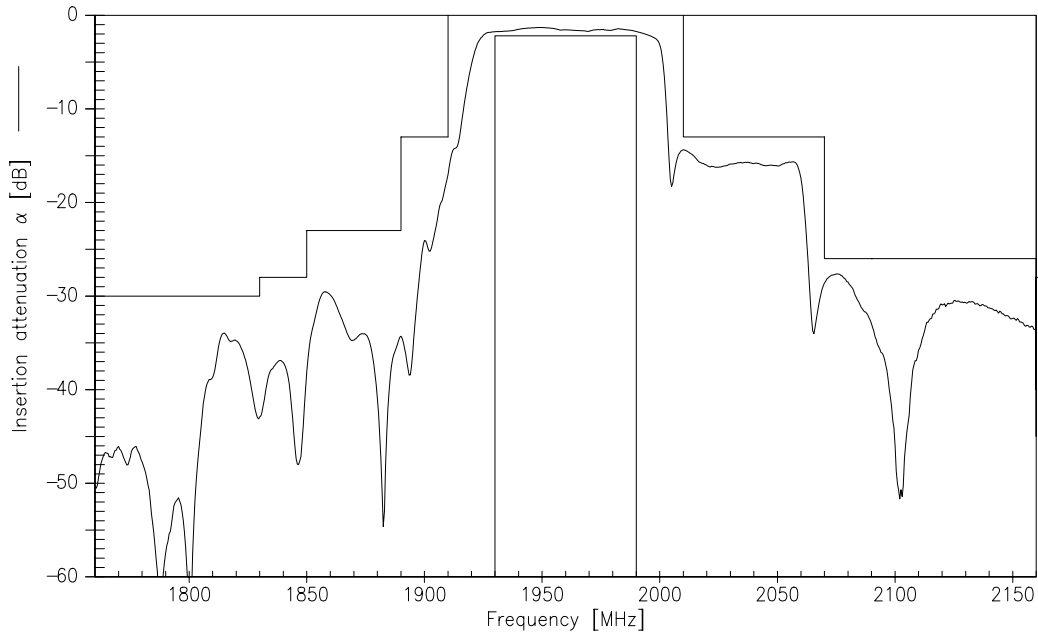
**Characteristics**

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)

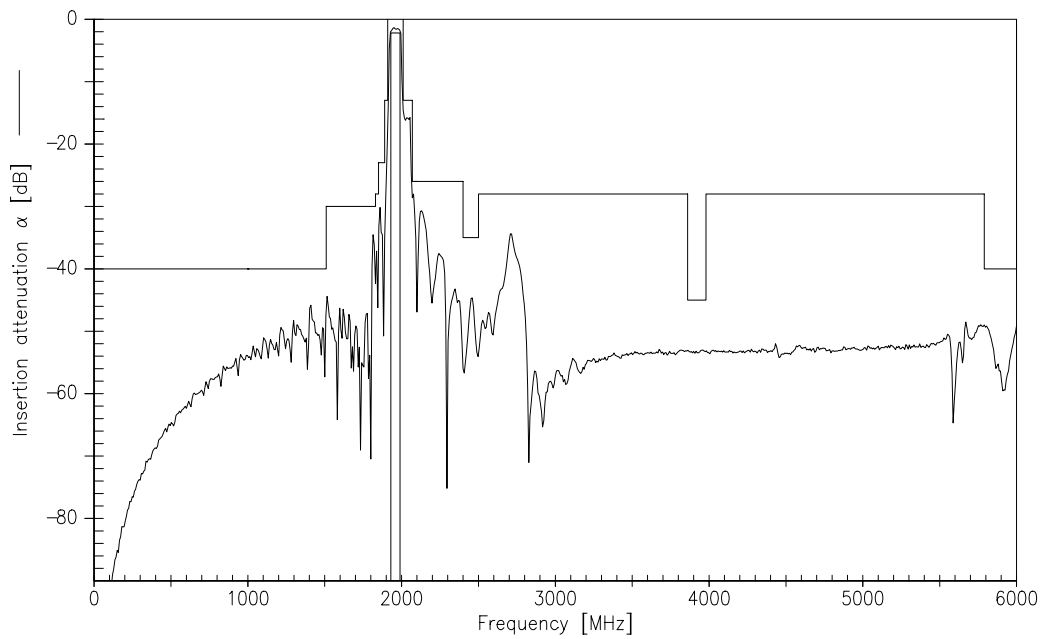
		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2,1	2,6	dB
1930,0 ... 1990,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,1	1,4	dB
1930,0 ... 1990,0 MHz					
<b>Input VSWR</b>		—	1,9	2,2	
1930,0 ... 1990,0 MHz					
<b>Output 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



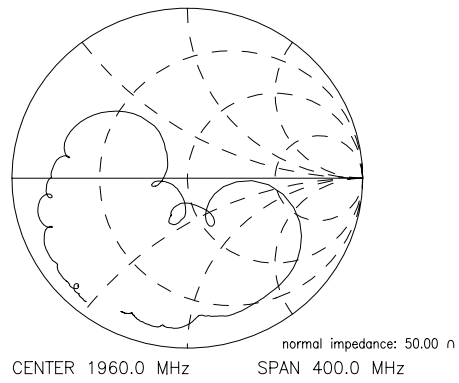
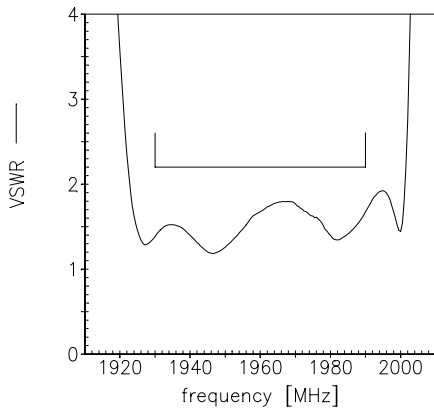
Transfer function (wide band)



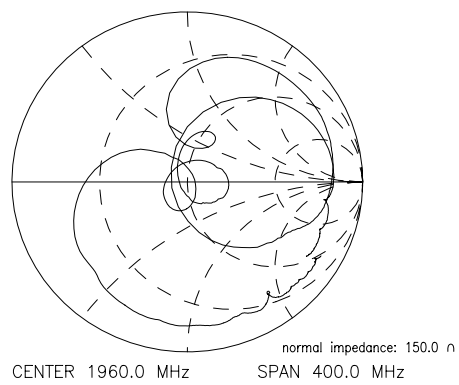
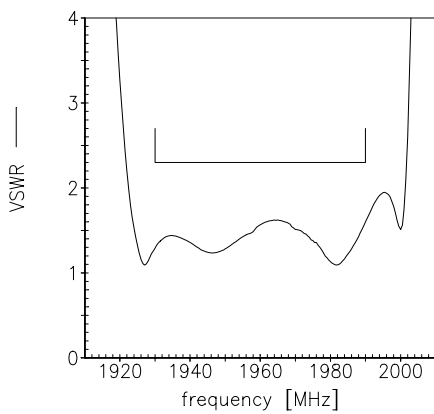


Reflection functions

S11



S22





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**1960,0 MHz**

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