EPCOS

SAW Components

Data Sheet B7706

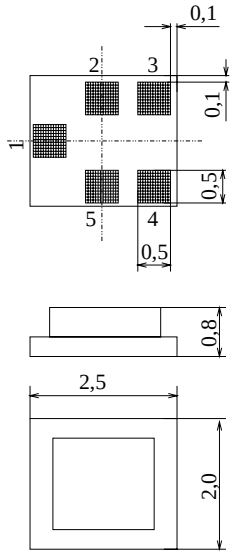


Data Sheet SMD

Features

- Low-loss RF filter for mobile telephone EGSM system, receive path
- Usable passband 35 MHz
- Unbalanced to balanced operation
- Excellent symmetry between balanced ports
- Impedance transformation from 50 Ω to 200 Ω
- Suitable for GPRS class 1 to 12
- Ceramic Package for **S**urface **M**ounted **T**echnology (**SMT**)

Chip sized SAW package QCS5A



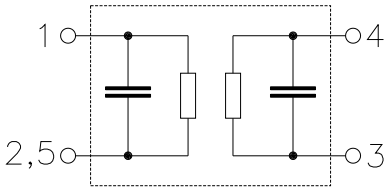
Dimensions in mm, approx. weight 0,015 g

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
B7706	B39941-B7706-B610	C61157-A7-A71	F61074-V8104-Z000

Electrostatic **S**ensitive **D**evice (**ESD**)

Maximum ratings

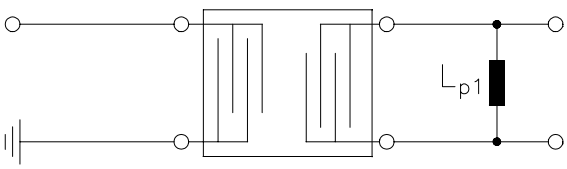
Operable temperature range	T	– 30 / + 85	˚C	
Storage temperature range	T_{stg}	– 40 / + 85	˚C	
DC voltage	V_{DC}	3	V	
Input power at GSM850, GSM900, GSM1800 and GSM1900 Tx bands	P_{IN}	15	dBm	peak power of GSM signal, duty cycle 4:8

Characteristics

Operating temperature: T = 25 +- 2˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω including matching network

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	2,6	3,2	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	1,3	1,9	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
925,0 ... 960,0 MHz		-4	0	4	degree
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
925,0 ... 960,0 MHz		-0,3	0	0,3	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Attenuation	α				
0,0 ... 880,0 MHz		50	60	—	dB
880,0 ... 905,0 MHz		30	40	—	dB
905,0 ... 915,0 MHz		20	27	—	dB
980,0 ...1050,0 MHz		22	24	—	dB
1050,0 ...6000,0 MHz		50	65	—	dB

Test matching network



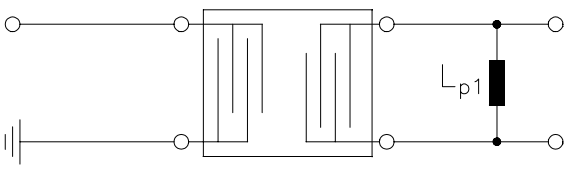
L_{p1} = 100 nH
(20% tolerance, Q = 30)

Characteristics

Operating temperature range: T = -10 to +80 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω including matching network

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	2,7	3,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	1,4	2,2	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180°$)					
925,0 ... 960,0 MHz		-4	0	4	degree
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
925,0 ... 960,0 MHz		-0,3	0	0,3	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Attenuation	α				
0,0 ... 880,0 MHz		50	60	—	dB
880,0 ... 905,0 MHz		30	40	—	dB
905,0 ... 915,0 MHz		20	27	—	dB
980,0 ...1050,0 MHz		22	23	—	dB
1050,0 ...6000,0 MHz		50	65	—	dB

Test matching network



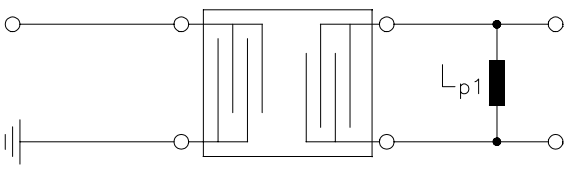
L_{p1} = 100 nH
(20% tolerance, Q = 30)

Characteristics

Operating temperature range: T = -30 to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω including matching network

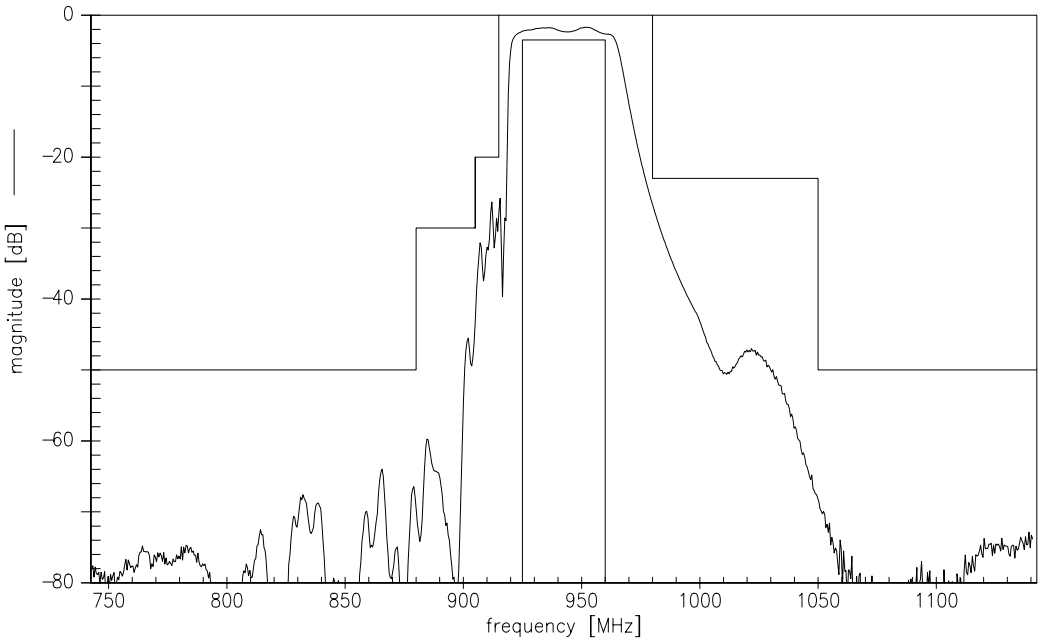
		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	2,8	3,6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	1,5	2,3	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
925,0 ... 960,0 MHz		-10	0	10	degree
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
925,0 ... 960,0 MHz		-1	0	1	dB
Input VSWR					
925,0 ... 960,0 MHz		—	2,0	—	
Output VSWR					
925,0 ... 960,0 MHz		—	2,0	—	
Attenuation	α				
0,0 ... 880,0 MHz		50	60	—	dB
880,0 ... 905,0 MHz		30	40	—	dB
905,0 ... 915,0 MHz		16	20	—	dB
980,0 ...1050,0 MHz		20	22	—	dB
1050,0 ...6000,0 MHz		50	65	—	dB

Test matching network

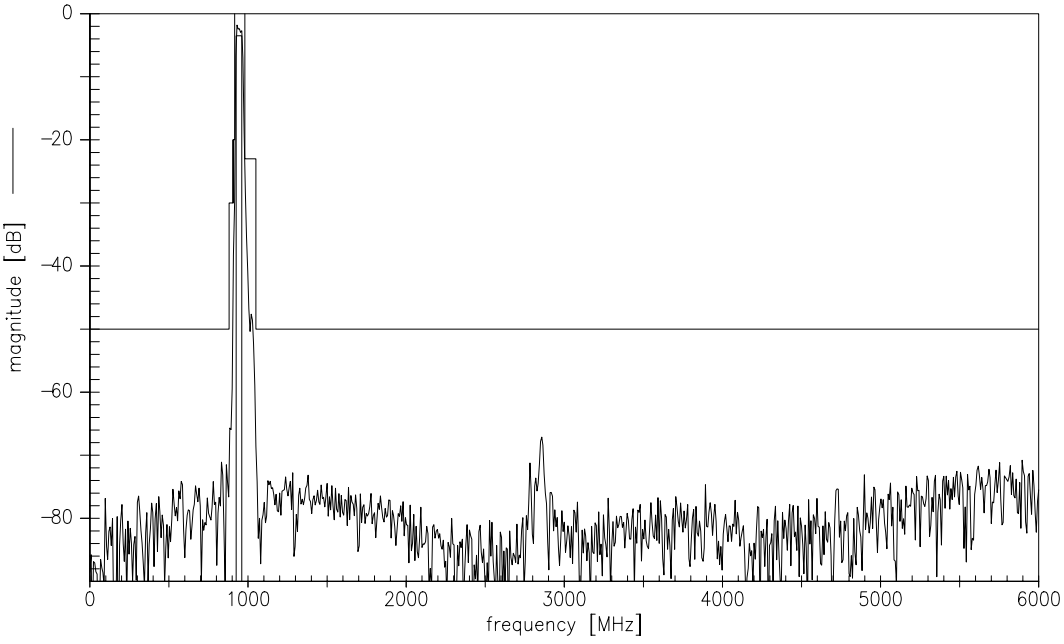


L_{p1} = 100 nH
(20% tolerance, Q = 30)

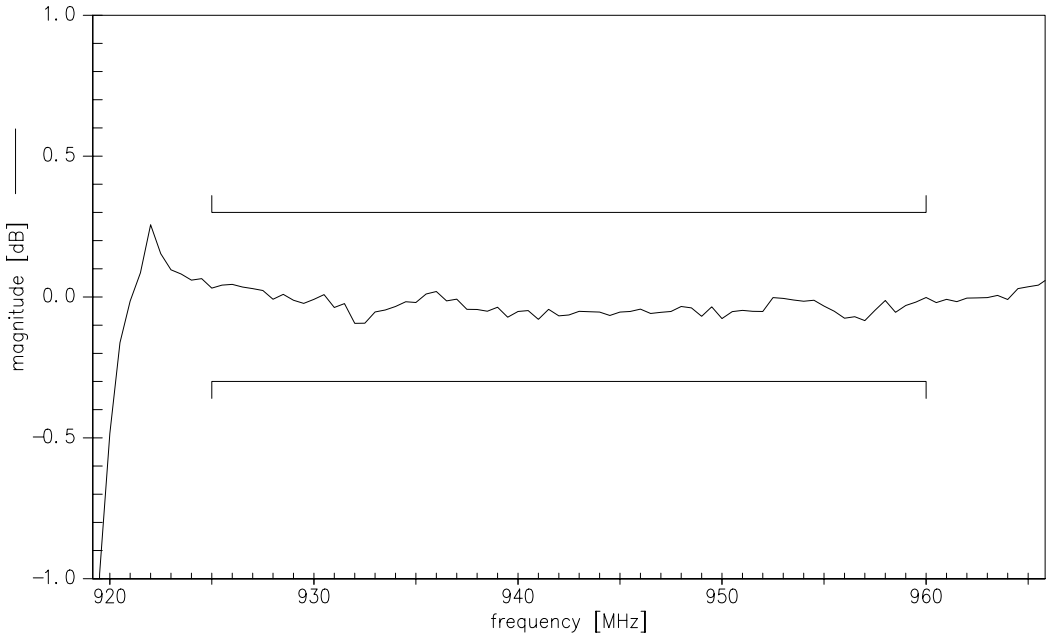
Transfer function



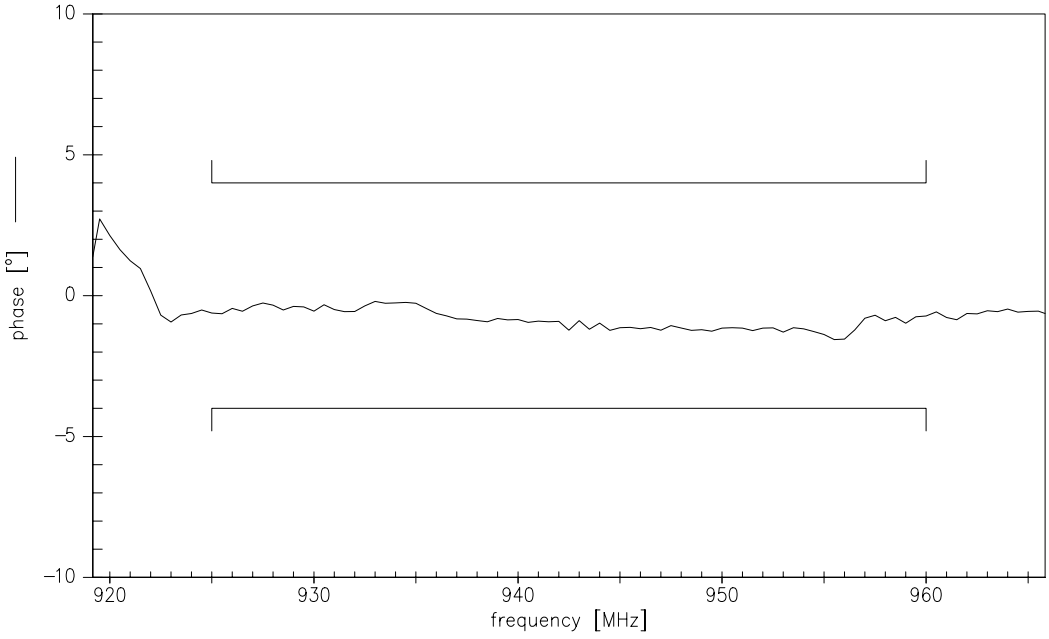
Transfer function (wideband)



Output amplitude balance ($|S_{31}/S_{21}|$)



Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^{\circ}$)



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