EPCOS

SAW Components

Data Sheet B7820

Data Sheet SMD

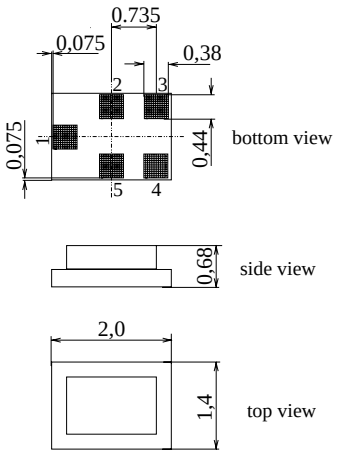
Features

- Low-loss RF filter for mobile telephone EGSM system, receive path
- Low amplitude ripple
- Usable passband 35 MHz
- Unbalanced to balanced operation
- Excellent symmetry
- Impedance transformation from 50 Ω to 150 Ω
- Suitable for GPRS class 1 to 12
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)

Terminals

- Ni, gold-plated

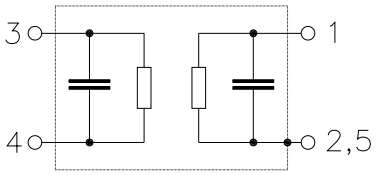
Chip sized SAW package QCS5C



Dimensions in mm, approx. weight 0,007 g

Pin configuration

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



Type	Ordering code	Marking and Package according to	Packing according to
B7820	B39941-B7820-C710	C61157-A7-A111	F61074-V8151-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}	5	V	
ESD voltage	V_{ESD}	250	V	human body model
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands	P_{IN}	15	dBm	peak power of GSM signal, duty cycle 4:8

Characteristics

Operating temperature range: T = +25 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,9	2,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,8	1,4	dB
Input VSWR					
925,0 ... 960,0 MHz		—	2,0	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	2,1	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	41	—	dB
905,0 ... 915,0 MHz		22	26	—	dB
980,0 ...1050,0 MHz		27	31	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

Characteristics

Operating temperature range: T = -10 to +80 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,9	2,7	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,8	1,8	dB
Input VSWR					
925,0 ... 960,0 MHz		—	2,0	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	2,1	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ...1050,0 MHz		26	29	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

Characteristics

Operating temperature range: T = -20 to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,9	2,8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,8	1,8	dB
Input VSWR					
925,0 ... 960,0 MHz		—	2,0	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	2,1	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ...1050,0 MHz		25	29	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

Characteristics

Operating temperature range: T = -30 to +80 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,9	3,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,8	2,1	dB
Input VSWR					
925,0 ... 960,0 MHz		—	2,0	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	2,1	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ...1050,0 MHz		25	27	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

Characteristics

Operating temperature range: T = +25 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω and 200 Ω || 100 nH

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,8	2,3	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,8	1,4	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	41	—	dB
905,0 ... 915,0 MHz		22	26	—	dB
980,0 ...1050,0 MHz		27	30	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

Characteristics

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

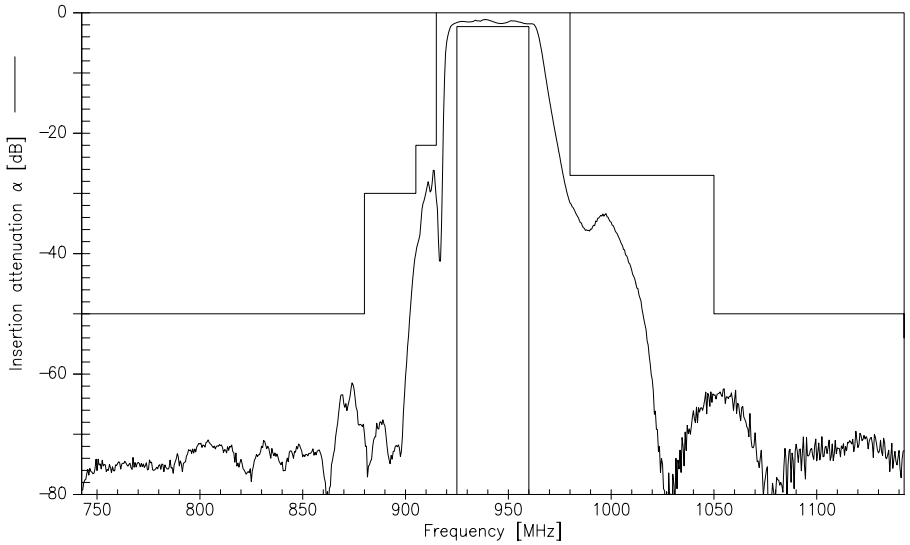
		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,9	2,7	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,8	1,8	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ...1050,0 MHz		26	28	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

Characteristics

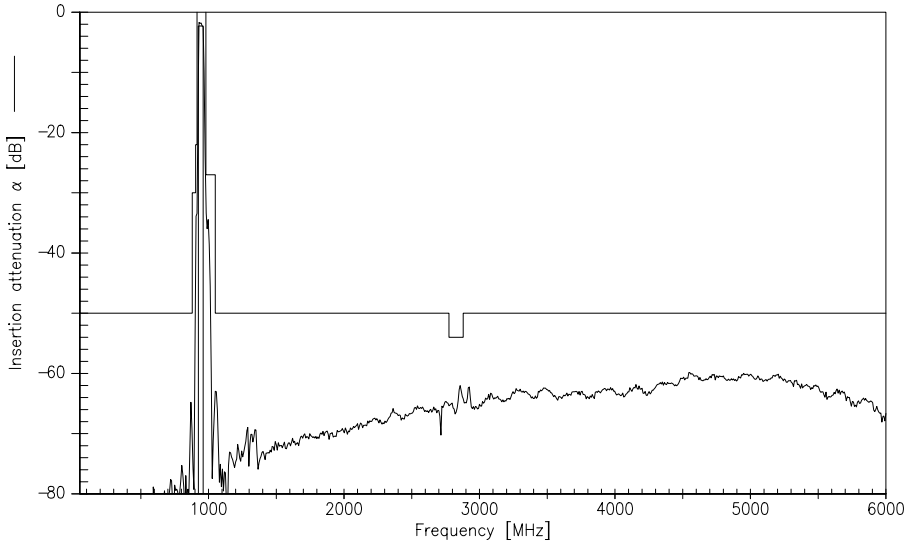
Operating temperature range: T = -20 to +85 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω || 100 nH

		min.	typ.	max.	
Center frequency	f_C	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	2,1	3,1	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	1,1	2,2	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output VSWR					
925,0 ... 960,0 MHz		—	1,8	2,3	
Output phase balance $\phi(S_{31})-\phi(S_{21})$					
925,0 ... 960,0 MHz		-5	0	5	degree
Output amplitude balance $(\lvert S_{31}/S_{21}\rvert)$					
925,0 ... 960,0 MHz		-0,5	0	0,5	dB
Attenuation	α				
0,0 ... 880,0 MHz		50	65	—	dB
880,0 ... 905,0 MHz		30	38	—	dB
905,0 ... 915,0 MHz		20	26	—	dB
980,0 ...1050,0 MHz		25	28	—	dB
1050,0 ...2775,0 MHz		50	64	—	dB
2775,0 ...2880,0 MHz		54	62	—	dB
2880,0 ...6000,0 MHz		50	60	—	dB

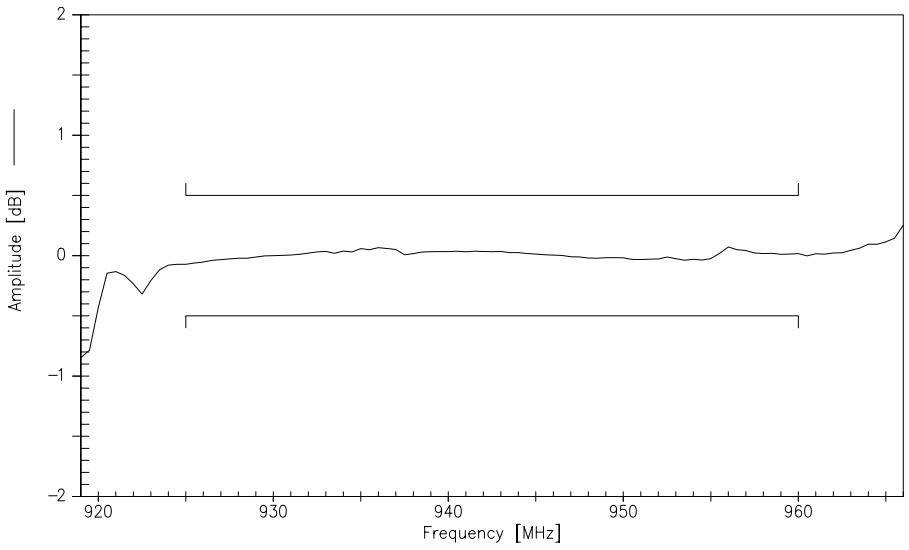
Transfer function



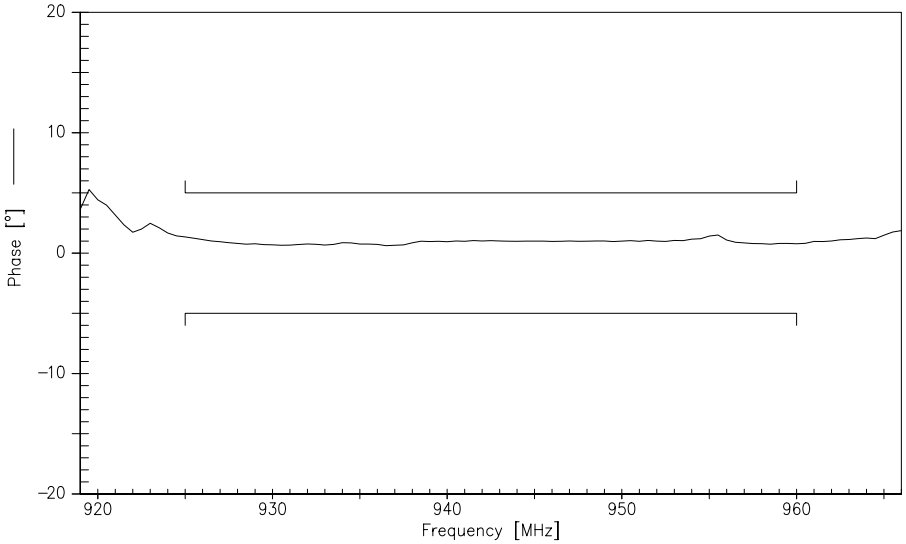
Transfer function (wideband)



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



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



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