EPCOS

SAW Components

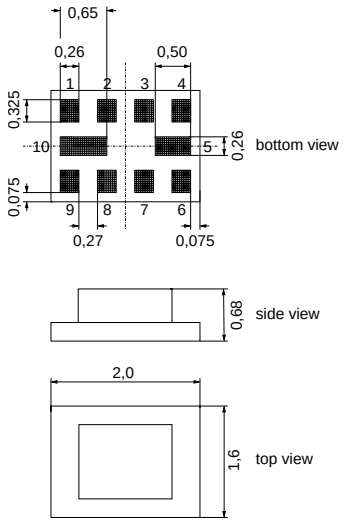
Data Sheet B9301

Data Sheet

Chip Sized Saw Package **QCS10H**

Features

- Low-loss 2in1 RF filter for mobile telephone GSM850/900 systems, receive path
- Usable passband:
  Filter 1 (GSM900): 35 MHz
  Filter 2 (GSM850): 25 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS Class 1 to 12
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)



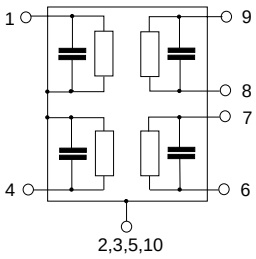
Dimensions in mm, approx. weight 8mg

Terminals

- Ni, gold-plated

Pin configuration

1	Input [Filter 1]
4	Input [Filter 2]
6, 7	Output, balanced [Filter 2]
8, 9	Output, balanced [Filter 1]
2, 3, 5,10	Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B9301	B39941-B9301-G110	C61157-A7-A141	F61074-V8152-Z000

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

Maximum ratings

Operable temperature range	T	– 40 / + 85	˚C	
Storage temperature range	T_{stg}	– 40 / + 85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}*	100	V	Machine Model, 10 pulses
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands:				
Filter 1 (GSM900-Rx)	P_{IN}	15	dBm	effective power in the on-state,
Filter 2 (GSM850-Rx)	P_{IN}	15	dBm	duty cycle 4:8

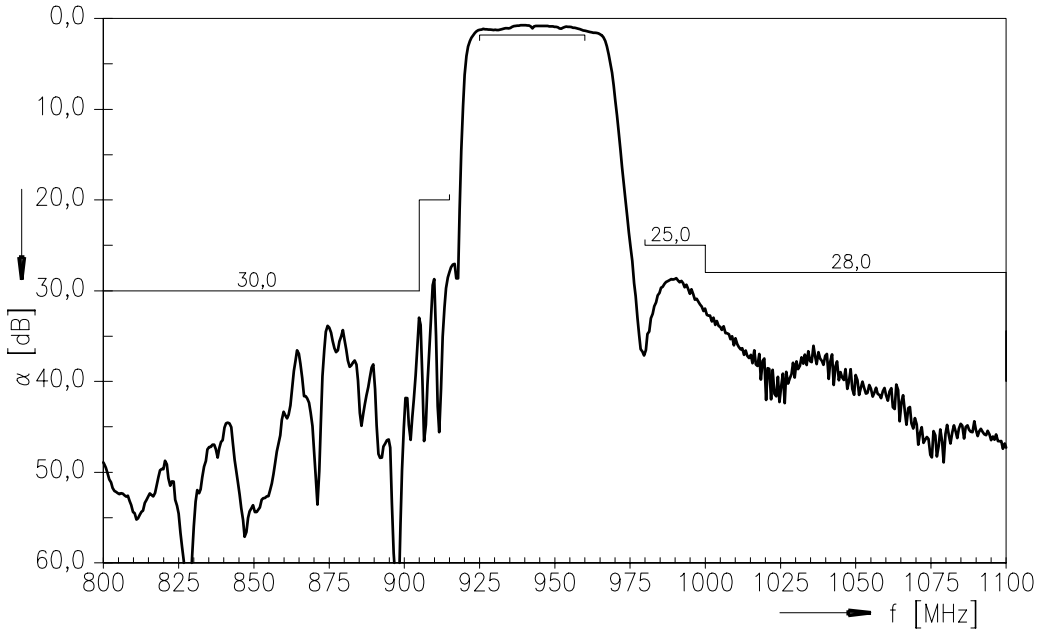
* - acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses

Characteristics Filter 1 (GSM900)

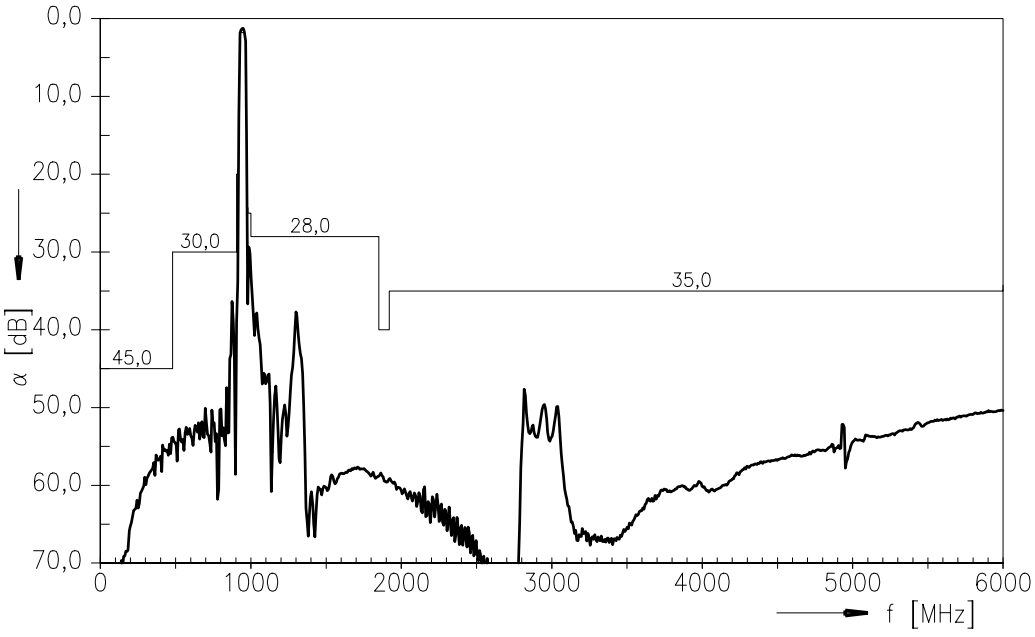
Operating temperature range: T = -20 to +85˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 150 Ω (balanced) || 82nH

		min.	typ.	max.	
Center frequency	f_c	—	942,5	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,6	2,1	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,9	1,4	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,1	
Output VSWR					
925,0 ... 960,0 MHz		—	1,9	2,2	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
925,0 ... 960,0 MHz		-1,1	-0,6/+0,6	1,1	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
925,0 ... 960,0 MHz		-10	-2/+1	10	degree
Attenuation	α_{min}				
10,0 ... 480,0 MHz		45	54	—	dB
480,0 ... 905,0 MHz		30	33	—	dB
905,0 ... 915,0 MHz		20	27	—	dB
980,0 ...1000,0 MHz		25	28	—	dB
1000,0 ...1850,0 MHz		28	32	—	dB
1850,0 ...1920,0 MHz		40	58	—	dB
1920,0 ...6000,0 MHz		35	47	—	dB

Transfer function Filter 1 (GSM900)



Transfer function Filter 1 (GSM900) - wideband

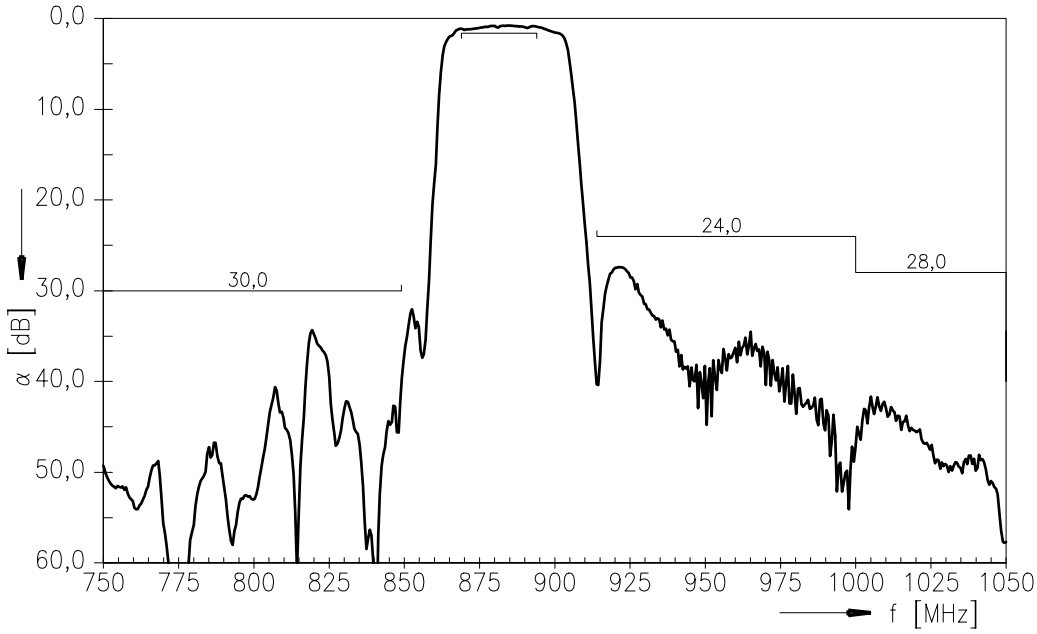


Characteristics Filter 2 (GSM850)

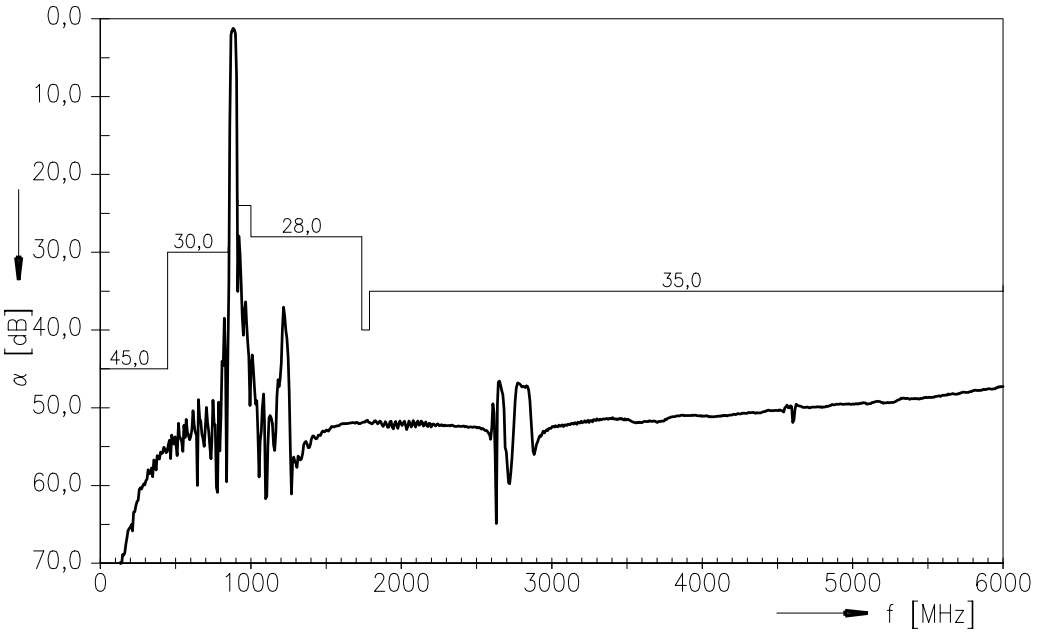
Operating temperature range: T = -20 to +85˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 150 Ω (balanced) || 82nH

		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}				
869,0 ... 894,0 MHz		—	1,2	1,8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,5	1,0	dB
Input VSWR					
869,0 ... 894,0 MHz		—	1,8	2,1	
Output VSWR					
869,0 ... 894,0 MHz		—	1,7	2,0	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
869,0 ... 894,0 MHz		-1,0	-0,5/+0,2	1,0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
869,0 ... 894,0 MHz		-10	-3/+4	10	degree
Attenuation	α_{min}				
10,0 ... 447,0 MHz		45	55	—	dB
447,0 ... 849,0 MHz		30	34	—	dB
914,0 ...1000,0 MHz		24	27	—	dB
1000,0 ...1738,0 MHz		28	37	—	dB
1738,0 ...1788,0 MHz		40	52	—	dB
1788,0 ...6000,0 MHz		35	46	—	dB

Transfer function Filter 2 (GSM850)



Transfer function Filter 2 (GSM850) - wideband



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