



SAW Components

Data Sheet B4228





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Low-Loss Filter for Mobile Communication

836,5 / 881,5 MHz

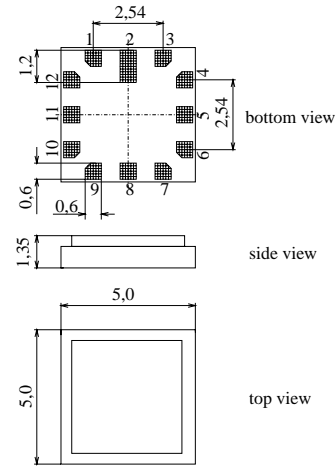
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Features

- Low-loss duplexer for cellular band mobile telephone systems
- 50 Ω ports by integrated matching network
- Multifunctional ceramic base material for **Surface Mounted Technology (SMT)**
- Small size and low height

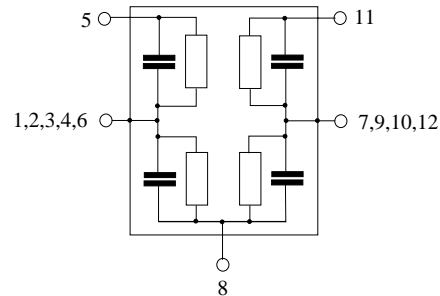
Chip sized SAW package QCS12B



Dimensions in mm, approx. weight 0,13 g

Pin configuration

- | | |
|---------------|-----------|
| 5 | TX Input |
| 11 | RX Output |
| 8 | Antenna |
| 1, 2, 3, 4, 6 | Ground |
| 7, 9, 10, 12 | Ground |



Type	Ordering code	Marking and Package according to	Packing according to
B4228	B39881-B4228-D410	C61157-A3-A2	F61074-V8159-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operating temperature range	T	- 30/+ 85	°C	source and load impedance 50 Ω } continuous wave
Storage temperature range	T_{stg}	- 40/+ 85	°C	
DC voltage	V_{DC}	0	V	
Input power max.	P_{IN}	30	dBm	
824,0 ... 849,0 MHz elsewhere		10	dBm	



Characteristics

Reference temperature $T = 25 \pm 2^\circ\text{C}$
 ANT terminating impedance $Z_{\text{ANT}} = 50 \Omega$
 RX terminating impedance $Z_{\text{RX}} = 50 \Omega$
 TX terminating impedance $Z_{\text{TX}} = 50 \Omega$

Characteristics TX - ANT		min.	typ.	max.	
Center frequency	f_c	—	836,5	—	MHz
Maximum insertion attenuation	α_{max}	—	2,2	2,4	dB
824,00 ... 849,00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,8	1,1	dB
824,00 ... 849,00 MHz					
Return loss		7,5	8,2	—	dB
824,00 ... 849,00 MHz					
Attenuation	α				
0,03 ... 800,00 MHz		21	32	—	dB
869,00 ... 894,00 MHz		44	46	—	dB
914,00 ... 1004,00 MHz		30	34	—	dB
1004,00 ... 3200,00 MHz		20	23	—	dB
1648,00 ... 1698,00 MHz		30	38	—	dB
2472,00 ... 2547,00 MHz		20	25	—	dB

Characteristics ANT - RX		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}	—	2,9	3,3	dB
869,00 ... 894,00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,0	1,8	dB
869,00 ... 894,00 MHz					
Return loss		9,0	10,0	—	dB
869,00 ... 894,00 MHz					
Attenuation	α				
0,03 ... 824,00 MHz		35	40	—	dB
824,00 ... 849,00 MHz		54	55	—	dB
914,00 ... 1000,00 MHz		36	40	—	dB
1000,00 ... 1200,00 MHz		36	39	—	dB
1200,00 ... 3200,00 MHz		30	35	—	dB

Characteristics TX - RX		min.	typ.	max.	
Isolation between TX and RX path	α				
824,00 ... 849,00 MHz		54	56	—	dB
869,00 ... 894,00 MHz		45	46	—	dB



Characteristics

Reference temperature $T = -30$ to 85 °C
 ANT terminating impedance $Z_{ANT} = 50$ Ω
 RX terminating impedance $Z_{RX} = 50$ Ω
 TX terminating impedance $Z_{TX} = 50$ Ω

Characteristics TX - ANT		min.	typ.	max.	
Center frequency	f_c	—	836,5	—	MHz
Maximum insertion attenuation	α_{max}	—	2,2	2,5	dB
824,00 ... 849,00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,8	1,1	dB
824,00 ... 849,00 MHz					
Return loss		7,5	8,2	—	dB
824,00 ... 849,00 MHz					
Attenuation	α				
0,03 ... 800,00 MHz		21	32	—	dB
869,00 ... 894,00 MHz		44	45	—	dB
914,00 ... 1004,00 MHz		30	34	—	dB
1004,00 ... 3200,00 MHz		20	23	—	dB
1648,00 ... 1698,00 MHz		30	38	—	dB
2472,00 ... 2547,00 MHz		20	25	—	dB

Characteristics ANT - RX		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}	—	3,4	3,8	dB
869,00 ... 894,00 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	1,5	2,3	dB
869,00 ... 894,00 MHz					
Return loss		9,0	10,0	—	dB
869,00 ... 894,00 MHz					
Attenuation	α				
0,03 ... 824,00 MHz		35	40	—	dB
824,00 ... 849,00 MHz		53	54	—	dB
914,00 ... 1000,00 MHz		36	40	—	dB
1000,00 ... 1200,00 MHz		36	39	—	dB
1200,00 ... 3200,00 MHz		30	35	—	dB

Characteristics TX - RX		min.	typ.	max.	
Isolation between TX and RX path	α				
824,00 ... 849,00 MHz		52	53	—	dB
869,00 ... 894,00 MHz		45	46	—	dB



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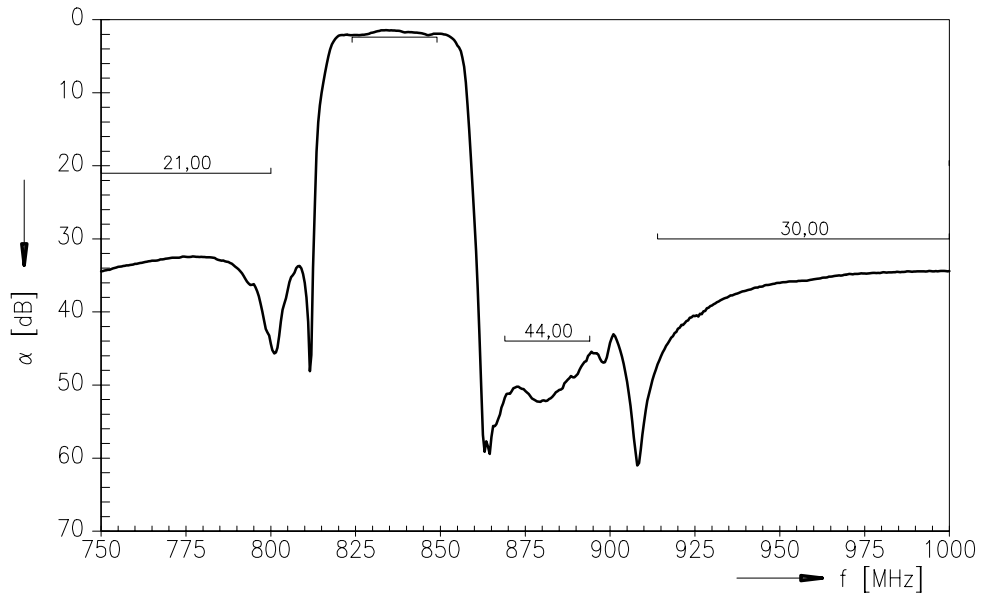
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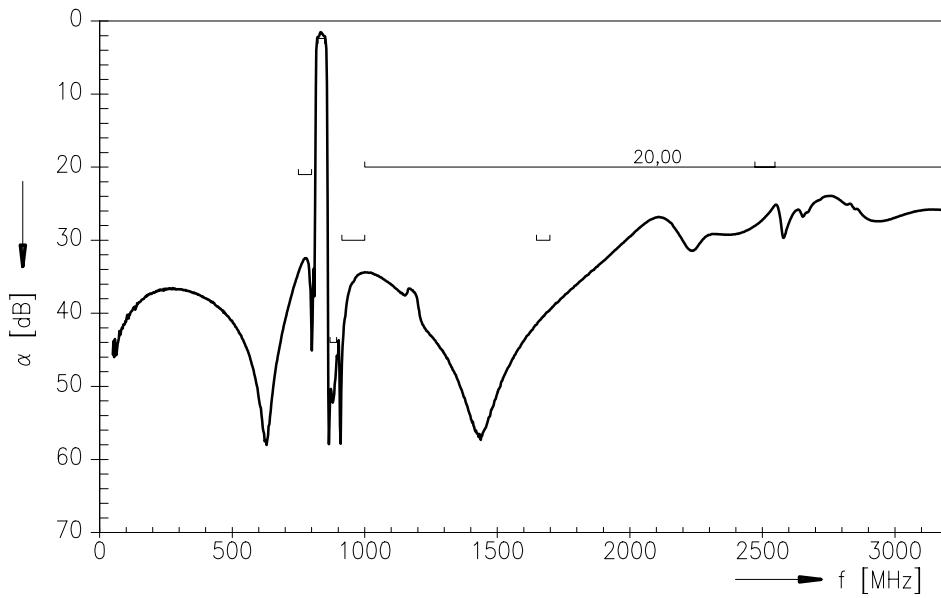
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Frequency Response TX - ANT



Frequency Response TX - ANT (wideband)





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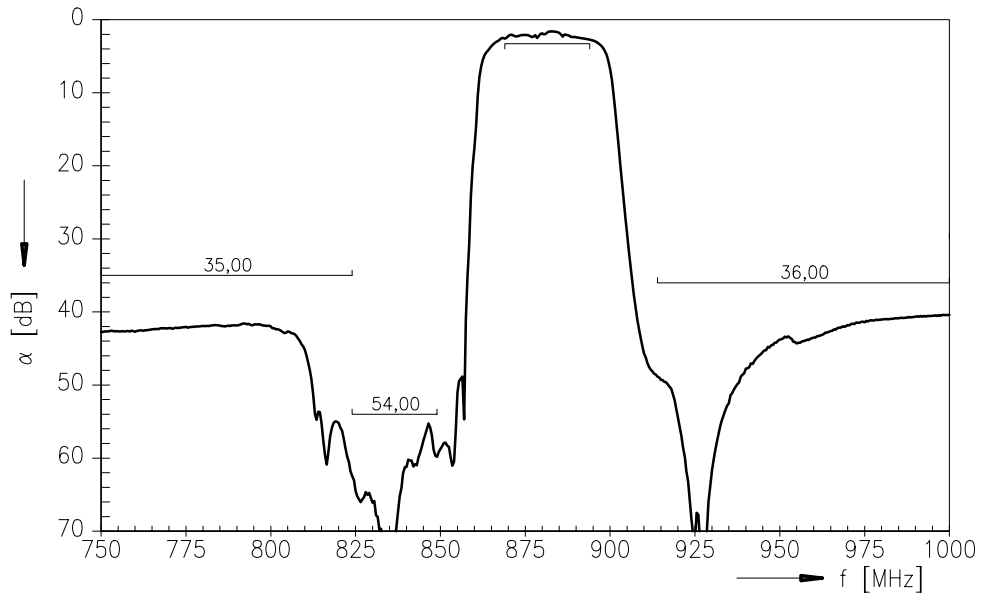
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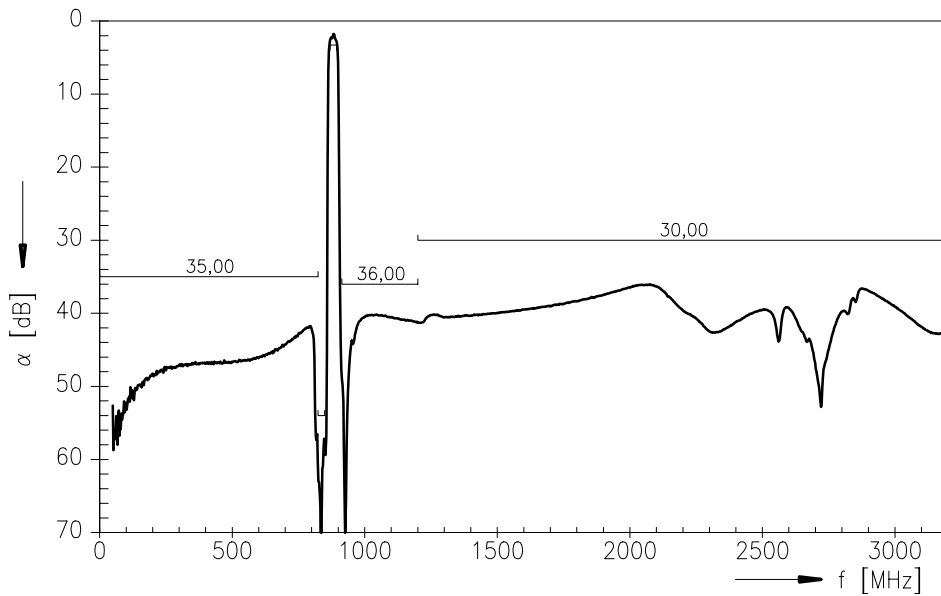
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Frequency Response ANT - RX



Frequency Response ANT - RX (wideband)





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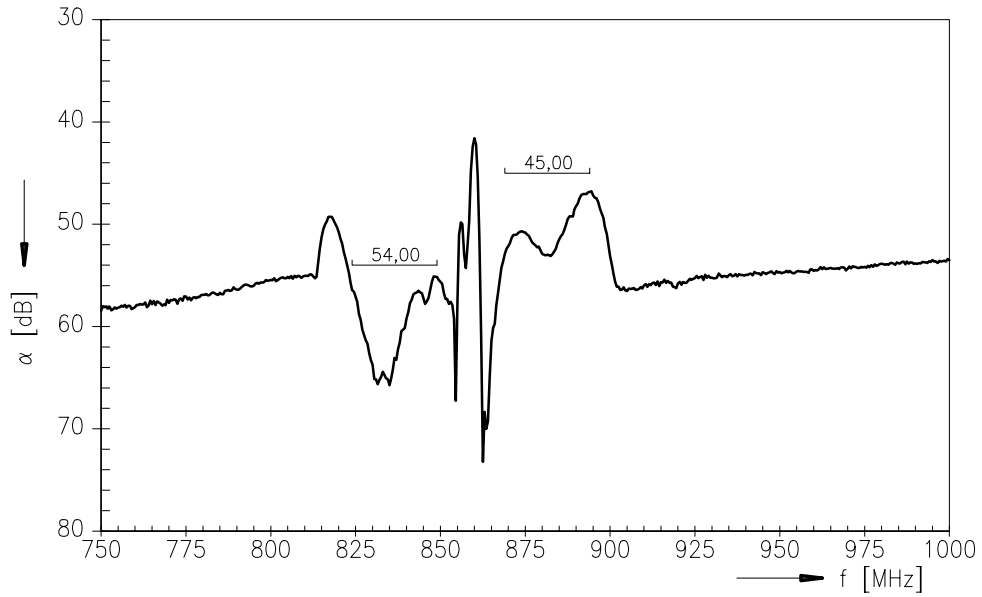
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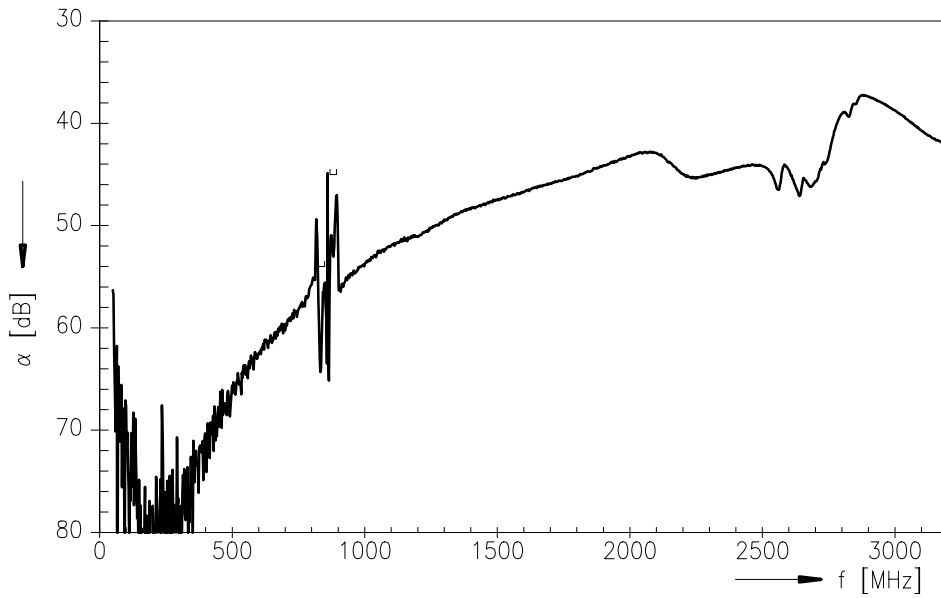
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Frequency Response TX - RX



Frequency Response TX - RX (wideband)





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