

SAW Components

Data Sheet B4233

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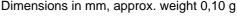
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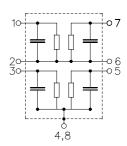
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| SAW Components | | B4233 |
|--|-------------------|-------------------------------------|
| Low-Loss Dual Band Filter for Mob | ile Communication | a 390,0 / 420,0 MHz |
| Data Sheet | SMD | |
| | | Ceramic package QCC8C |
| Features | | |
| Low-loss filter for TETRA Usable passband: 20 MHz Ceramic package for Surface Technology (SMT) RoHS compliant | Mounted | |
| Terminals ■ Ni, gold-plated | | |
| | Dime | nsions in mm, approx. weight 0,10 g |

Pin configuration

| 1 | Input [Filter 1] |
|------|-------------------|
| 3 | Input [Filter 2] |
| 5 | Output [Filter 2] |
| 7 | Output [Filter 1] |
| 2, 6 | To be grounded |
| 4, 8 | Case ground |





| Туре | Ordering code | | Packing according to |
|-------|-------------------|---------------|-------------------------|
| B4233 | B39421-B4233-U310 | C61157-A7-A56 | F61074-V8070-Z000 |

Electrostatic Sensitive Device (ESD)

Maximum ratings

| Operable temperature range | Т | - 30 / + 85 | °C | |
|----------------------------|-------------------------------|-------------|-----|--------------------------|
| Storage temperature range | T _{stg} | - 40 / + 85 | °C | |
| DC voltage | V _{DC} | 3 | V | |
| ESD voltage | V [*] _{ESD} | 100* | V | Machine Model, 10 pulses |
| Source power (CW) | Ps | 12 | dBm | |

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

| SAW Components B4233 | | | | | | |
|---|---------------------------|--------------|--------------|-------------|----------|--|
| Low-Loss Dual Band Filter for Mobile | e Communic | ation | 390 |),0 / 420,0 | MHz | |
| Data Sheet | SMD | | | | | |
| | | | | | | |
| Characteristics Filter 1 | | | | | | |
| Operating temperature range: $T = +25^{\circ}C$ | | | | | | |
| Terminating source impedance: $Z_{\rm S} = 50 \ \Omega$ | | | | | | |
| Terminating load impedance: | $Z_{\rm L} = 50 \ \Omega$ | | | | | |
| | | min. | typ. | max. | | |
| Center frequency | f _c | _ | 390,0 | | MHz | |
| •• • • • • • | | | | | | |
| Maximum insertion attenuation 380,0 400,0 | α _{max} MHz | | 1,9 | 2,2 | dB | |
| 360,0 400,0 | | | 1,9 | ∠,∠ | | |
| Amplitude ripple (p-p) | Δα | | | | | |
| 380,0 400,0 | MHz | _ | 0,7 | 1,1 | dB | |
| | | | | | | |
| Input return loss | | 10.0 | 44.0 | | | |
| 380,0 400,0 | MHz | 10,0 | 11,0 | _ | dB | |
| Output return loss | | | | | | |
| 380,0 400,0 | MHz | 10,0 | 12,0 | _ | dB | |
| | | | | | | |
| Attenuation | α_{abs} | | | | | |
| 0,1 150,0 | MHz | 35,0 | 42,0 | — | dB | |
| 190,0 200,0 | MHz | 30,0 | 41,0 | | dB | |
| 228,0 250,0 252,0 275,0 | MHz MHz | 30,0 30,0 | 41,0 39,0 | | dB dB | |
| 275,0 287,0 | MHz | 30,0 | 39,0 | | dB | |
| 304,0 320,0 | MHz | 30,0 | 34,0 | _ | dB | |
| 320,0 335,0 | MHz | 30,0 | 33,0 | _ | dB | |
| 342,0 360,0 | MHz | 20,0 | 25,0 | — | dB | |
| 418,0 440,0 | MHz | 20,0 | 22,0 | — | dB | |
| 442,0 455,0 | MHz | 25,0 | 31,0 | — | dB | |
| 456,0 480,0 | MHz MHz | 30,0 | 39,0 | | dB | |
| 492,0 531,0 532,0 560,0 | MHz MHz | 30,0 33,0 | 42,0 39,0 | | dB dB | |
| 570,0 600,0 | MHz | 25,0 | 35,0 | _ | dB | |
| 632,0 668,0 | MHz | 35,0 | 46,0 | _ | dB | |
| 684,01000,0 | MHz | 27,0 | 34,0 | | dB | |

| SAW Components | | | | | B4233 |
|--|---|----------|-------|-----------|--------|
| Low-Loss Dual Band Filter for Mob | ile Commur | nication | 39 | 0,0 / 420 | ,0 MHz |
| Data Sheet | SMD | | | | |
| | | | | | |
| Characteristics Filter 1 | | | | | |
| Operating temperature range: | T = -30 | | | | |
| Terminating source impedance: Terminating load impedance: | $Z_{\rm S} = 50 \ \Omega$ $Z_{\rm I} = 50 \ \Omega$ | | | | |
| reminating load impedance. | ZL - 30 3 | 2 | | | |
| | | min. | typ. | max. | |
| Center frequency | f _c | - | 390,0 | - | MHz |
| Maximum insertion attenuation | α_{max} | | | | |
| 380,0 400,0 | | · | 2,6 | 3,3 | dB |
| | | | | | |
| Amplitude ripple (p-p) | $\Delta \alpha$ | | | | |
| 380,0 400,0 | MHz | - | 1,4 | 2,3 | dB |
| Input return loss | | | | | |
| 380,0 400,0 | MHz | 10,0 | 11,0 | _ | dB |
| ,- | | | , - | | |
| Output return loss | | | | | |
| 380,0 400,0 | MHz | 10,0 | 12,0 | - | dB |
| Attenuation | α. | | | | |
| 0,1 150,0 | α _{abs} MHz | 35,0 | 42,0 | _ | dB |
| 190,0 200,0 | | 30,0 | 41,0 | _ | dB |
| 228,0 250,0 | | 30,0 | 41,0 | _ | dB |
| 252,0 275,0 | MHz | 30,0 | 39,0 | _ | dB |
| 275,0 287,0 | MHz | 33,0 | 37,0 | - | dB |
| 304,0 320,0 | | 30,0 | 33,0 | - | dB |
| 320,0 335,0 | MHz | 30,0 | 33,0 | - | dB |
| 342,0 360,0 | | 20,0 | 25,0 | - | dB |
| 418,0 440,0 | | 20,0 | 21,0 | - | dB |
| 442,0 455,0 | | 25,0 | 31,0 | - | dB |
| 456,0 480,0 | | 30,0 | 39,0 | - | dB |
| 492,0 531,0 | | 30,0 | 42,0 | - | dB |
| 532,0 560,0 | | 33,0 | 39,0 | - | dB |
| 570,0 600,0 | | 25,0 | 35,0 | - | dB |
| 632,0 668,0 | | 35,0 | 46,0 | - | dB |
| 684,01000,0 | MHz | 27,0 | 34,0 | - | dB |

| SAW Components | | | | | B4233 |
|--|--|---------|-------|------------|-------|
| Low-Loss Dual Band Filter for Mo | bile Communi | cation | 39 | 0,0 / 420, | 0 MHz |
| Data Sheet | <u>SMD</u> | | | | |
| Characteristics Filter 1 | | | | | |
| Characteristics Filter 1 | | | | | |
| Operating temperature range: | T = -30 to | o +85°C | | | |
| Terminating source impedance: Terminating load impedance: | $Z_{\rm S} = 50 \ \Omega$ $Z_{\rm I} = 50 \ \Omega$ | | | | |
| reminating load impedance. | 2L - 30 32 | | | | |
| | | min. | typ. | max. | |
| Center frequency | f _c | - | 390,0 | - | MHz |
| Maximum insertion attenuation | α_{max} | | | | |
| 380,0 400 | | _ | 2,7 | 3,3 | dB |
| • • · · · · · · · | | | | | |
| Amplitude ripple (p-p) | $\Delta \alpha$ | | 1 5 | 2.2 | dD |
| 380,0 400 | ,0 MHz | _ | 1,5 | 2,3 | dB |
| Input return loss | | | | | |
| 380,0 400 | ,0 MHz | 10,0 | 11,0 | - | dB |
| Output roturn loop | | | | | |
| Output return loss 380,0 400 | 0 MHz | 10,0 | 12,0 | _ | dB |
| , | - | | , - | | - |
| Attenuation | α_{abs} | | | | |
| 0,1 150 | | 35,0 | 42,0 | - | dB |
| 190,0 200 | | 30,0 | 41,0 | - | dB |
| 228,0 250 | | 30,0 | 41,0 | - | dB |
| 252,0 275 | | 30,0 | 39,0 | - | dB |
| 275,0 287 | | 33,0 | 37,0 | - | dB |
| 304,0 320 | | 30,0 | 33,0 | - | dB |
| 320,0 335 | | 30,0 | 33,0 | - | dB |
| 342,0 360 | | 20,0 | 25,0 | - | dB |
| 418,0 440 | | 20,0 | 21,0 | - | dB |
| 442,0 455 | | 25,0 | 31,0 | - | dB |
| 456,0 480 | | 30,0 | 39,0 | - | dB |
| 492,0 531 | | 30,0 | 42,0 | - | dB |
| 532,0 560 | | 33,0 | 39,0 | - | dB |
| 570,0 600 | | 25,0 | 35,0 | - | dB |
| 632,0 668 | | 35,0 | 46,0 | - | dB |
| 684,01000 | ,0 MHz | 27,0 | 34,0 | | dB |

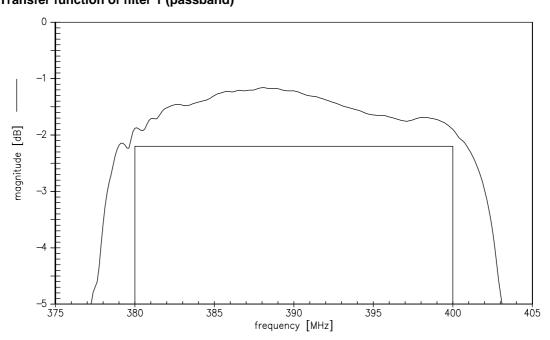
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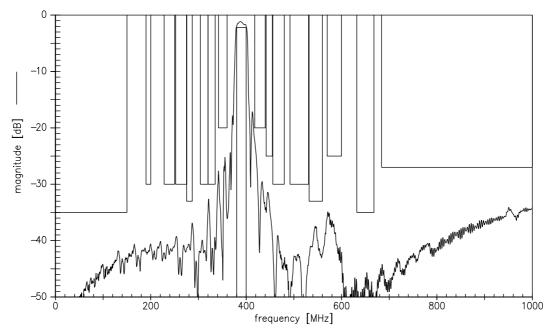
Data Sheet

SMD

Transfer function of filter 1 (passband)



Transfer function of filter 1 (narrow band)



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| SAW Components | | | | | | B4233 |
|------------------------|----------------------------|---------------------------|--------|--------------|------------|----------|
| Low-Loss Dual Bar | nd Filter for Mo | bile Communi | cation | 39 | 90,0 / 420 | ,0 MHz |
| Data Sheet | | | | | | |
| Characteristics Filter | 2 | | | | | |
| Operating temperature | | T = +25° | | | | |
| Terminating source imp | | $Z_{\rm S} = 50 \Omega$ | | | | |
| Terminating load imped | lance: | $Z_{\rm L} = 50 \ \Omega$ | 2 | | | |
| | | | min. | typ. | max. | |
| Center frequency | | f _c | - | 420,0 | _ | MHz |
| Maximum insertion at | tenuation | $lpha_{max}$ | | | | |
| | 410,0 430,0 | | _ | 1,9 | 2,2 | dB |
| Amplitude ripple (p-p) | | Δα | | | | |
| | 410,0 430,0 | 0 MHz | _ | 0,6 | 1,0 | dB |
| Input return loss | | | | | | |
| | 410,0 430, | 0 MHz | 10,0 | 11,5 | — | dB |
| Output return loss | | | | | | |
| | 410,0 430,0 | 0 MHz | 10,0 | 13,5 | — | dB |
| Attenuation | | α_{abs} | | | | |
| | 0,1 150,0 | | 35,0 | 42,0 | — | dB |
| | 204,0 216, | | 30,0 | 41,0 | | dB |
| | 246,0 270,0 | | 30,0 | 41,0 | | dB |
| | 272,0 301,0 | | 35,0 | 41,0 | | dB |
| | 328,0 344,0 | | 30,0 | 42,0 | | dB |
| | 345,0 360,0 | | 25,0 | 31,0 | | dB |
| | 369,0 387,0 | | 18,0 | 23,0 | | dB |
| | 451,0 473, | | 20,0 | 23,0 | | dB |
| | 477,0 491,0 | | 25,0 | 35,0 30,0 | | dB |
| | 492,0 516,0 | | 30,0 | 39,0 38.0 | | dB |
| | 532,0 573,0 574,0 602,0 | | 30,0 | 38,0 39.0 | _ | dB dB |
| | 574,0 602,0 602,01000,0 | | 33,0 | 39,0 34.0 | | dB |
| | 002,0 1000,0 | | 27,0 | 34,0 | | dB |

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| SAW Components | | | | | | | B4233 |
|--|---------------------------|------------|------------------------------|--------------|--------------|------------|----------|
| Low-Loss Dual Band F | ilter for Mobi | le Con | nmunio | cation | 39 | 90,0 / 420 | ,0 MHz |
| Data Sheet | | SD | | | | | |
| Characteristics Filter 2 | | | | | | | |
| Operating temperature rang Terminating source impedar Terminating load impedance | nce: | | = -30 to = 50 Ω = 50 Ω | | | | |
| | | | | min. | typ. | max. | |
| Center frequency | | | f _c | _ | 420,0 | | MHz |
| Maximum insertion attenu 410 | ation 0,0 430,0 | MHz | α_{max} | _ | 2,4 | 3,3 | dB |
| Amplitude ripple (p-p) 410 | ,0 430,0 | MHz | Δα | _ | 1,1 | 2,2 | dB |
| Input return loss 410 | ,0 430,0 | MHz | | 10,0 | 11,5 | _ | dB |
| Output return loss 410 | 0,0 430,0 | MHz | | 10,0 | 13,5 | _ | dB |
| Attenuation | | | α_{abs} | | | | |
| C | ,1 150,0 | MHz | | 35,0 | 42,0 | _ | dB |
| 204 | | MHz | | 30,0 | 41,0 | — | dB |
| | ,0 270,0 | MHz | | 30,0 | 41,0 | | dB |
| | 2,0 301,0 | MHz | | 35,0 | 41,0 | _ | dB |
| | ,0 344,0 | MHz | | 30,0 | 35,0 | _ | dB |
| | ,0 360,0 | MHz | | 25,0 | 31,0 | | dB |
| 369 | | MHz | | 18,0 | 23,0 | | dB |
| | ,0 473,0 | MHz | | 20,0 | 21,0 | | dB |
| | 7,0 491,0 | MHz | | 25,0 | 35,0 20.0 | | dB dB |
| 492 532 | | MHz MHz | | 30,0 20.0 | 39,0 28.0 | | dB dB |
| 532 | | MHz | | 30,0 33,0 | 38,0 39,0 | | dВ |
| 602 | | MHz | | 33,0 27,0 | 34,0 | _ | dB |

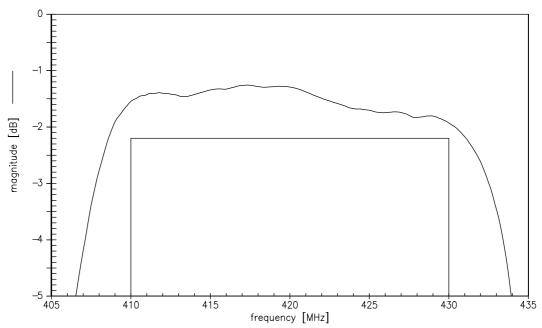
| SAW Components | | | | | | B4233 |
|--|-----------|---|--------------|--------------|------------|----------|
| Low-Loss Dual Band Filter for | Nobile Co | ommuni | cation | 39 | 90,0 / 420 |),0 MHz |
| Data Sheet | | MD | | | | |
| Characteristics Filter 2 | | | | | | |
| Operating temperature range: Terminating source impedance: Terminating load impedance: | | = -30 t $= 50 \Omega$ $= 50 \Omega$ | | | | |
| | | | min. | typ. | max. | |
| Center frequency | | f _c | — | 420,0 | _ | MHz |
| Maximum insertion attenuation 410,0 43 | 30,0 MH | α _{max} z | _ | 2,5 | 3,3 | dB |
| Amplitude ripple (p-p) 410,0 43 | 30,0 MH | Δα z | _ | 1,2 | 2,2 | dB |
| Input return loss 410,0 43 | 30,0 MH | Z | 10,0 | 11,5 | _ | dB |
| Output return loss 410,0 43 | 30,0 MH | Z | 10,0 | 13,5 | _ | dB |
| Attenuation | | α_{abs} | | | | |
| 0,1 15 | | | 35,0 | 42,0 | | dB |
| 204,0 21 | | | 30,0 | 41,0 | - | dB |
| 246,0 27 | | | 30,0 | 41,0 | | dB |
| 272,0 30 | | | 35,0 | 41,0 | - | dB |
| 328,0 34 | | | 30,0 | 35,0 | - | dB |
| 345,0 30 | | | 25,0 | 31,0 | _ | dB |
| 369,0 38 | , | | 18,0 | 23,0 | _ | dB dB |
| 451,0 47 477,0 49 | , | | 20,0 25,0 | 21,0 35,0 | | dB dB |
| 477,0 48 | | | 25,0 30,0 | 39,0 39,0 | | dВ |
| 492,0 5 532,0 57 | | _ | 30,0 | 39,0 | | dB |
| 574,0 60 | | | 33,0 | 39,0 | _ | dB |
| 602,0100 | | | 27,0 | 34,0 | | dB |

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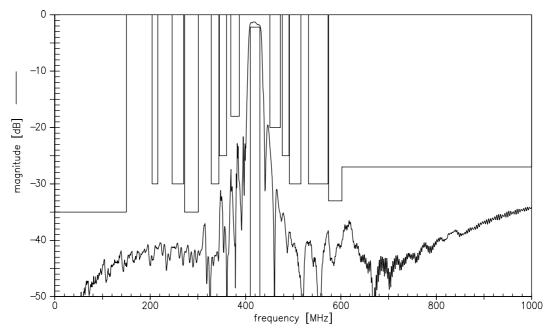


Data Sheet

Transfer function of filter 2 (passband)



Transfer function of filter 2 (narrow band)



| SAW Components | | B4233 |
|--------------------|---------------------------------|-------------------|
| Low-Loss Dual Band | Filter for Mobile Communication | 390,0 / 420,0 MHz |
| Data Sheet | SMD | |

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