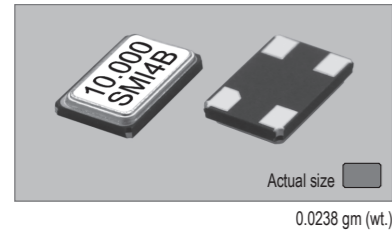
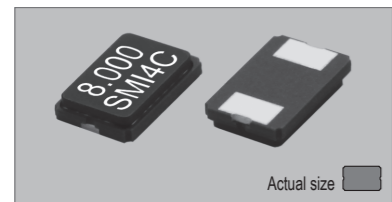


53SMX(B)



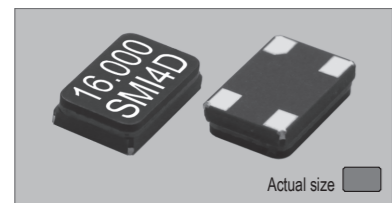
Actual size 0.0238 gm (wt.)

53SMX(C)



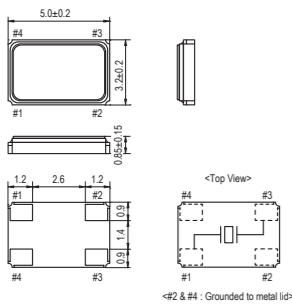
Actual size 0.0413 gm (wt.)

53SMX(D)

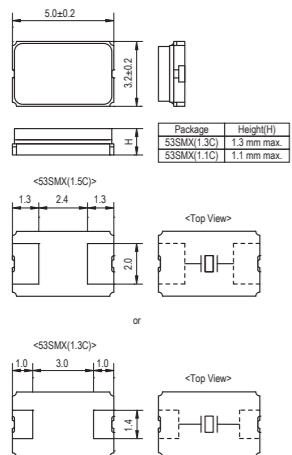


Actual size 0.0564 gm (wt.)

53SMX(B)



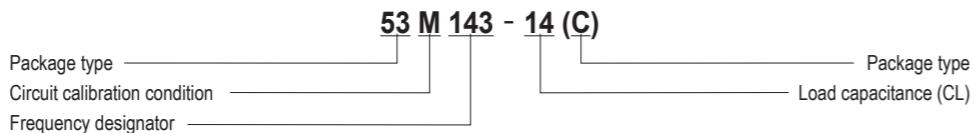
53SMX(C)



STANDARD SPECIFICATIONS

| Item | Specifications | | |
|---|--|---------------------|---------------------|
| | 53SMX(B) | 53SMX(C) | 53SMX(D) |
| Package type | 53SMX(B) | 53SMX(C) | 53SMX(D) |
| Frequency range | 10.0 MHz to 300.0 MHz | 8.0 MHz to 60.0 MHz | 8.0 MHz to 50.0 MHz |
| Frequency tolerance | ±50 ppm at +25°C ±3°C | | |
| Temperature stability (referred to +25°C) | ±50 ppm over -20°C to +70°C | | |
| Load capacitance (CL) | 14 pF, Typical | | |
| Shunt capacitance (C0) | 5 pF max. | | |
| Drive level (P) | 100 µW max. (10 µW for testing) | | |
| Aging | ±5 ppm max. at +25°C ±3°C per year | | |
| Cut / Oscillation mode | AT-Cut / Fundamental / 8.000 MHz to 70.000 MHz | | |
| | AT-Cut / 3rd overtone / 70.000 MHz to 170.000 MHz | | |
| | AT-Cut / 5th overtone / 170.000 MHz to 300.000 MHz | | |
| Reflow condition | 10 seconds max. at +250°C ±10°C | | |

PART NUMBERING GUIDE



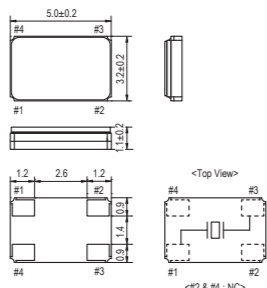
Example

| SMI Part No. | Package | Circuit Calibration Condition | Frequency |
|--------------|------------------|--------------------------------------|--------------------|
| 53M320-16(B) | 53(B) = 53SMX(B) | M = Parallel resonance CL = 16 pF | 320 = 32.000 MHz |
| 53M143-14(C) | 53(C) = 53SMX(C) | M = Parallel resonance CL = 14 pF | 143 = 14.31818 MHz |
| 53S184(D) | 53(D) = 53SMX(D) | S = Series resonance | 184 = 18.432 MHz |

PACKAGE DATA

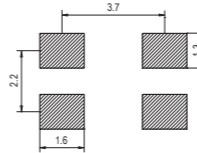
| Item | Package | 53SMX(B) | 53SMX(C) | 53SMX(D) |
|------------------|---------|-----------------------------------|-----------------------------------|-----------------------------------|
| Lid | | Metal | Ceramic | Ceramic |
| Base | | Ceramic | Ceramic | Ceramic |
| Sealing | | Seam | Glass | Glass |
| Terminal | | Tungsten (metalized) | Tungsten (metalized) | Tungsten (metalized) |
| Terminal plating | | Gold / Nickel (surface) / (under) | Gold / Nickel (surface) / (under) | Gold / Nickel (surface) / (under) |
| RoHS | | Compliant (Pb-free) | Compliant | Compliant |

53SMX(D)

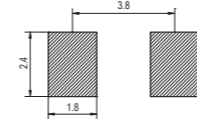


SOLDERING PATTERN

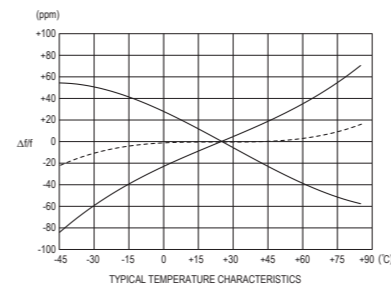
53SMX(B) & 53SMX(D)



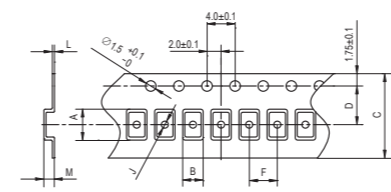
53SMX(C)



AT-CUT



TAPE SPECIFICATIONS



| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|------|-----|-----------|----------|
| 5.4 | 3.5 | 12.0 | 5.5 | 8.0 | 1.6 | 0.25 | 1.0 | 180 | 1000pcs |

| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|-----|------|-----------|----------|
| 5.5 | 3.7 | 12.0 | 5.5 | 8.0 | 1.5 | 0.3 | 1.65 | 180 | 1000pcs |

| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|-----|-----|-----------|----------|
| 5.5 | 3.5 | 12.0 | 5.5 | 8.0 | 1.5 | 0.3 | 1.4 | 180 | 1000pcs |

53SMX STANDARD FREQUENCIES

| Frequency MHz | Frequency Designator | Max. Equivalent Series Resistance Ohms (Ω) ESR | Frequency MHz | Frequency Designator | Max. Equivalent Series Resistance Ohms (Ω) ESR | Frequency MHz | Frequency Designator | Max. Equivalent Series Resistance Ohms (Ω) ESR |
|---------------|----------------------|--|---------------|----------------------|--|---------------|----------------------|--|
| 8.000000 | 080 | 300 | 19.312500 | 193125 | 50 | 40.000000 | 400 | 50 |
| 9.000000 | 090 | 300 | 19.440000 | 194 | 50 | 40.500000 | 405 | 50 |
| 9.519200 | 09519 | 100 | 19.500000 | 195 | 50 | 41.600000 | 416 | 50 |
| 9.600000 | 096 | 100 | 19.660800 | 196 | 50 | 41.850000 | 418 | 50 |
| 9.830400 | 098 | 100 | 19.680000 | 1968 | 50 | 42.000000 | 420 | 50 |
| 9.843750 | 0984 | 100 | 19.800000 | 198 | 50 | 44.000000 | 440 | 50 |
| 10.000000 | 100 | 100 | 20.000000 | 200 | 50 | 45.000000 | 450 | 50 |
| 10.178125 | 1017 | 100 | 20.250000 | 2025 | 50 | 45.158400 | 451 | 50 |
| 11.059200 | 1105 | 100 | 20.480000 | 2048 | 50 | 48.000000 | 480 | 50 |
| 11.289600 | 1128 | 100 | 20.500000 | 205 | 50 | 49.152000 | 491 | 50 |
| 12.000000 | 120 | 100 | 20.945000 | 20945 | 50 | 50.000000 | 500 | 50 |
| 12.272700 | 1227 | 100 | 21.250000 | 2125 | 50 | 52.902500 | 529 | 50 |
| 12.288000 | 122 | 100 | 22.000000 | 220 | 50 | 54.000000 | 540 | 50 |
| 12.500000 | 125 | 100 | 22.118400 | 221 | 50 | | | |
| 12.504000 | 12504 | 100 | 22.168000 | 2216 | 50 | | | |
| 12.600000 | 126 | 100 | 22.579200 | 225 | 50 | | | |
| 12.731930 | 1273 | 100 | 22.579600 | 225796 | 50 | | | |
| 12.800000 | 128 | 100 | 23.104000 | 23104 | 50 | | | |
| 13.000000 | 130 | 100 | 24.000000 | 240 | 50 | | | |
| 13.081480 | 1308 | 100 | 24.288000 | 242 | 50 | | | |
| 13.225625 | 1322562 | 100 | 24.504200 | 24504 | 50 | | | |
| 13.440000 | 1344 | 100 | 24.545450 | 2454545 | 50 | | | |
| 13.500000 | 135 | 100 | 24.553500 | 2455 | 50 | | | |
| 13.560000 | 1356 | 100 | 24.576000 | 245 | 50 | | | |
| 14.187500 | 1418 | 100 | 25.000000 | 250 | 50 | | | |
| 14.296875 | 1429 | 100 | 25.140000 | 2514 | 50 | | | |
| 14.300000 | 143 | 100 | 25.400000 | 254 | 50 | | | |
| 14.318180 | 1431 | 100 | 26.000000 | 260 | 50 | | | |
| 14.400000 | 144 | 100 | 26.973100 | 2697 | 50 | | | |
| 14.745600 | 147 | 100 | 27.000000 | 270 | 50 | | | |
| 15.000000 | 150 | 50 | 27.120000 | 271 | 50 | | | |
| 15.360000 | 1536 | 100 | 27.480000 | 276 | 50 | | | |
| 15.600000 | 156 | 50 | 27.820800 | 2782 | 50 | | | |
| 15.968000 | 159 | 50 | 28.224000 | 282 | 50 | | | |
| 15.974400 | 1597 | 50 | 28.322000 | 2832 | 50 | | | |
| 15.978000 | 15978 | 50 | 28.375000 | 283 | 50 | | | |
| 16.000000 | 160 | 50 | 28.500000 | 285 | 50 | | | |
| 16.050000 | 1605 | 50 | 28.636360 | 2863636 | 50 | | | |
| 16.367000 | 16367 | 50 | 28.636363 | 2863 | 50 | | | |
| 16.368000 | 16368 | 50 | 29.491200 | 294 | 50 | | | |
| 16.369000 | 16369 | 50 | 29.498900 | 294989 | 50 | | | |
| 16.370000 | 1637 | 50 | 30.000000 | 300 | 50 | | | |
| 16.384000 | 163 | 50 | 30.080000 | 3008 | 50 | | | |
| 16.500000 | 165 | 50 | 32.000000 | 320 | 50 | | | |
| 16.670000 | 1667 | 50 | 32.110000 | 321 | 50 | | | |
| 16.800000 | 168 | 50 | 32.720000 | 327 | 50 | | | |
| 16.900000 | 169 | 50 | 32.768000 | 32768 | 50 | | | |
| 16.920000 | 1692 | 50 | 33.000000 | 330 | 50 | | | |
| 16.934400 | 1693 | 50 | 33.231000 | 332 | 50 | | | |
| 17.328000 | 173 | 50 | 33.330000 | 3333 | 50 | | | |
| 17.581400 | 175 | 50 | 33.333000 | 33333 | 50 | | | |
| 17.734475 | 1773 | 50 | 33.750000 | 3375 | 50 | | | |
| 18.000000 | 180 | 50 | 33.868800 | 338 | 50 | | | |
| 18.414000 | 1841 | 50 | 34.368000 | 343 | 50 | | | |
| 18.432000 | 184 | 50 | 35.280000 | 3528 | 50 | | | |
| 19.069928 | 19069928 | 50 | 35.328000 | 353 | 50 | | | |
| 19.069929 | 1906 | 50 | 35.468950 | 354 | 50 | | | |
| 19.200000 | 192 | 50 | 36.000000 | 360 | 50 | | | |
| 19.312000 | 193 | 50 | 36.864000 | 368 | 50 | | | |