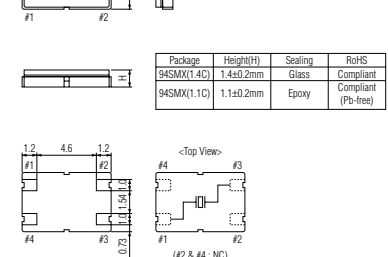
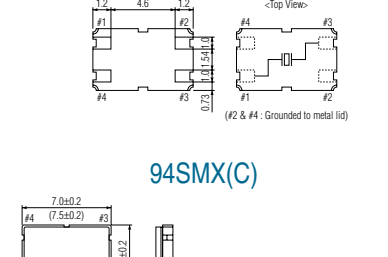
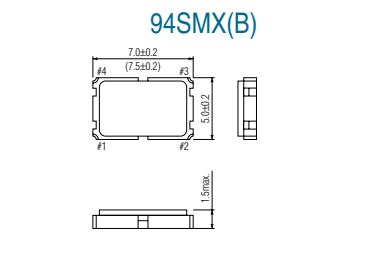
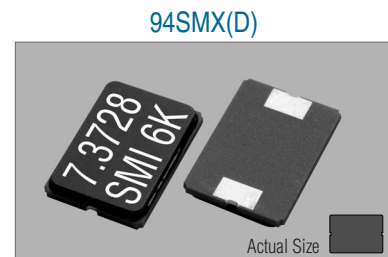
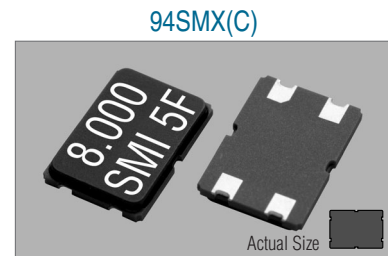
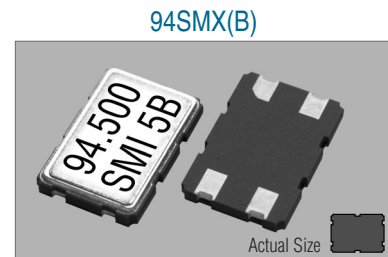


94SMX FAMILY

STANDARD SMD CRYSTALS

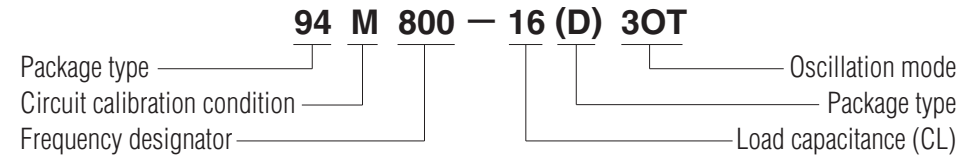
XTAL



STANDARD SPECIFICATIONS

- Package type ..... 94SMX(B), 94SMX(C) & 94SMX(D)
- Frequency range ..... 94SMX(B) : 8.000 MHz to 150.000 MHz  
94SMX(C) : 6.000 MHz to 160.000 MHz  
94SMX(D) : 6.000 MHz to 160.000 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) ..... 16 pF, Typical
- Shunt capacitance (Co) ..... 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 ( 6.000 MHz to 80.000 MHz)  
AT-Cut/3rd overtone (40.000 MHz to 160.000 MHz)
- Reflow condition ..... 10 seconds max. at +250°C ±10°C

PART NUMBERING GUIDE

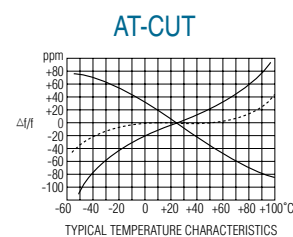
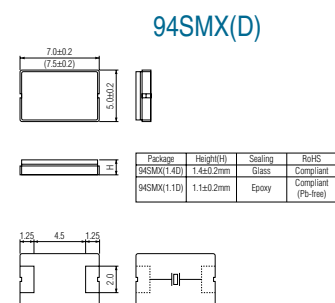


EXAMPLE

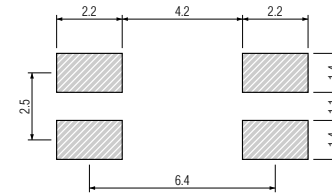
| SMI PART NO.    | Package          | Circuit Calibration Condition       | Frequency         | Oscillation mode                        |
|-----------------|------------------|-------------------------------------|-------------------|---|
| 94M800-16(D)30T | 94(D) = 94SMX(D) | M = Parallel resonance<br>CL = 16pF | 800 = 80.000 MHz  | 30T = 3rd overtone                      |
| 94M073-18(C)    | 94(C) = 94SMX(C) | M = Parallel resonance<br>CL = 18pF | 073 = 7.37280 MHz | Fundamental<br>(No indication with P/N) |
| 94S945(B)30T    | 94(B) = 94SMX(B) | S = Series resonance                | 945 = 94.500 MHz  | 30T = 3rd overtone                      |

PACKAGE DATA

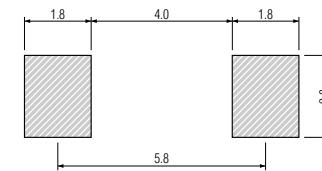
| Item             | Package | 94SMX(B)                          | 94SMX(C)                          | 94SMX(D)                          |
|------------------|---------|-----------------------------------|-----------------------------------|-----------------------------------|
| Lid              |         | Metal                             | Ceramic                           | Ceramic                           |
| Base             |         | Ceramic                           | Ceramic                           | Ceramic                           |
| Sealing          |         | Seam                              | See drawing                       | See drawing                       |
| 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)                | See drawing                       | See drawing                       |



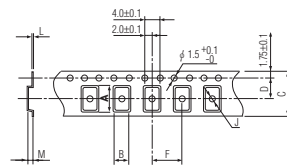
SOLDERING PATTERN for 94SMX(B) & 94SMX(C)



SOLDERING PATTERN for 94SMX(D)

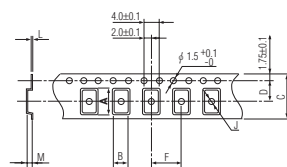


TAPE SPECIFICATIONS for 94SMX(B)



| A   | B   | C    | D   | F   | J   | L   | M   | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|-----|-----|-----------|----------|
| 7.3 | 5.3 | 16.0 | 7.5 | 8.0 | 1.5 | 0.3 | 1.9 | 330/300   | 1000pcs  |

TAPE SPECIFICATIONS for 94SMX(C) & 94SMX(D)



| A   | B   | C    | D   | F   | J   | L   | M   | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|-----|-----|-----------|----------|
| 7.4 | 5.4 | 16.0 | 7.5 | 8.0 | 1.5 | 0.3 | 1.8 | 178       | 1000pcs  |

94SMX STANDARD FREQUENCIES

| FREQUENCY MHz | FREQUENCY DESIGNATOR | MAX EQUIVALENT SERIES RESISTANCE OHMS(Ω) ESR | FREQUENCY MHz | FREQUENCY DESIGNATOR | MAX EQUIVALENT SERIES RESISTANCE OHMS(Ω) ESR |
|---------------|----------------------|--|---------------|----------------------|--|
| 6.000000      | 060                  | 80   | 27.000000     | 270                  | 40   |
| 6.144000      | 061                  | 80   | 28.224000     | 282                  | 40   |
| 7.372800      | 073                  | 80   | 28.600000     | 286                  | 40   |
| 7.600000      | 076                  | 80   | 28.636363     | 2863                 | 40   |
| 8.000000      | 080                  | 60   | 29.498928     | 29498                | 40   |
| 9.216000      | 092                  | 60   | 30.000000     | 300                  | 40   |
| 9.830400      | 098                  | 60   | 31.914800     | 319                  | 40   |
| 9.843750      | 0984                 | 60   | 33.333000     | 333                  | 40   |
| 10.000000     | 100                  | 50   | 33.553000     | 335                  | 40   |
| 10.245000     | 1024                 | 50   | 35.328000     | 353                  | 40   |
| 10.368000     | 103                  | 50   | 35.468950     | 354                  | 40   |
| 11.059200     | 1105                 | 50   | 36.000000     | 360                  | 40   |
| 12.000000     | 120                  | 50   | 36.864000     | 368                  | 40   |
| 12.288000     | 122                  | 50   | 39.600000     | 396                  | 40   |
| 12.800000     | 128                  | 50   | 40.000000     | 400                  | 40   |
| 13.000000     | 130                  | 50   | 45.555000     | 455                  | 80 (3rd OT)                                  |
| 13.500000     | 135                  | 50   | 49.152000     | 491                  | 80 (3rd OT)                                  |
| 13.560000     | 1356                 | 50   | 56.448000     | 564                  | 80 (3rd OT)                                  |
| 13.567200     | 135672               | 50   | 56.500000     | 565                  | 80 (3rd OT)                                  |
| 13.824000     | 138                  | 50   | 57.645000     | 576                  | 80 (3rd OT)                                  |
| 14.318180     | 143                  | 50   | 61.440000     | 614                  | 40   |
| 14.725000     | 1472                 | 50   | 64.000000     | 640                  | 80 (3rd OT)                                  |
| 14.745600     | 147                  | 50   | 70.537600     | 705                  | 80 (3rd OT)                                  |
| 15.360000     | 153                  | 50   | 72.303330     | 723                  | 40   |
| 16.000000     | 160                  | 50   | 72.837500     | 728                  | 80 (3rd OT)                                  |
| 16.368000     | 1636                 | 50   | 76.210000     | 762                  | 80 (3rd OT)                                  |
| 16.384000     | 163                  | 50   | 77.500000     | 775                  | 80 (3rd OT)                                  |
| 16.670000     | 1667                 | 50   | 78.555000     | 7855                 | 80 (3rd OT)                                  |
| 18.000000     | 180                  | 50   | 78.587500     | 7858                 | 80 (3rd OT)                                  |
| 18.432000     | 184                  | 50   | 80.000000     | 800                  | 80 (3rd OT)                                  |
| 19.660800     | 196                  | 50   | 80.910000     | 809                  | 80 (3rd OT)                                  |
| 20.000000     | 200                  | 40   | 81.840000     | 818                  | 80 (3rd OT)                                  |
| 20.480000     | 204                  | 40   | 85.250000     | 852                  | 80 (3rd OT)                                  |
| 20.945000     | 209                  | 40   | 86.784000     | 867                  | 80 (3rd OT)                                  |
| 21.245000     | 2124                 | 40   | 94.500000     | 945                  | 80 (3rd OT)                                  |
| 23.421000     | 234                  | 40   | 100.000000    | 100                  | 80 (3rd OT)                                  |
| 23.670833     | 236                  | 40   |               |                      |  |
| 24.576000     | 245                  | 40   |               |                      |  |
| 25.000000     | 250                  | 40   |               |                      |  |