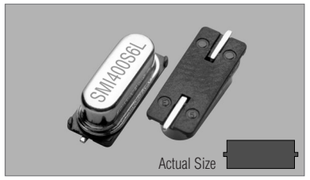
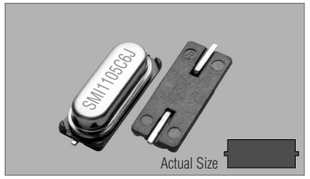
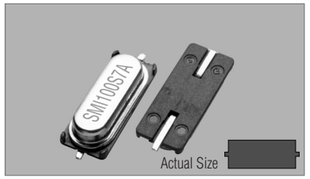
4HLB



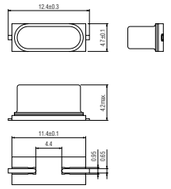

3HLB



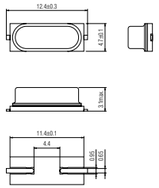

25HLB



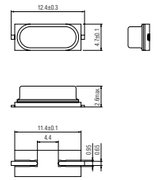

4HLB




3HLB




25HLB




## STANDARD SPECIFICATIONS

1. Package type ..... 4HLB, 3HLB & 25HLB
2. Frequency range ..... 4HLB : 3.27680 MHz to 80.000 MHz
   3HLB : 3.579545 MHz to 80.000 MHz
   25HLB : 3.579545 MHz to 80.000 MHz
3. Frequency tolerance ..... ±50 ppm at +25°C ±3°C
4. Temperature stability (referred to +25°C) ..... ±50 ppm over −20°C to +70°C (AT−Cut)
   ±100 ppm over −10°C to +60°C (BT−Cut)
5. Load capacitance (CL) ..... 18 pF, Typical
6. Shunt capacitance (Co) ..... 5 pF max.
7. Drive level (P) ..... 100 μW max. (10 μW for testing)
8. Aging ..... ± 5 ppm max. at +25°C ±3°C per year
9. Cut/Oscillation mode ..... AT−Cut/Fundamental ( 3.276800 MHz to 40.000 MHz)
   BT−Cut/Fundamental (28.636363 MHz to 54.000 MHz)
   AT−Cut/3rd overtone (26.690000 MHz to 80.000 MHz)
10. Reflow condition ..... 10 seconds max. at +250°C±10°C

## PART NUMBERING GUIDE

**3HLB 1105 — 18**

- 3HLB — Package type
- 1105 — Frequency designator
- 18 — Load capacitance (CL)

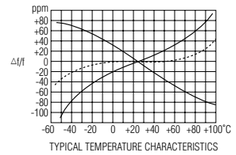
**EXAMPLE**

| SMI PART NO. | Package | Frequency | Circuit Calibration Condition |
|---|---|---|---|
| **3HLB1105-18** | 3HLB | 1105 = 11.05920 MHz | Parallel resonance CL = 18 pF |
| **4HLB400-16** | 4HLB | 400 = 40.000 MHz | Parallel resonance CL = 16 pF |
| **25HLB360S** | 25HLB | 360 = 36.000 MHz | S = Series resonance |

## PACKAGE DATA

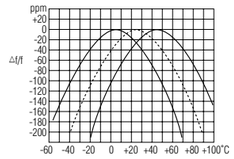
| Item \ Package | 4HLB | 3HLB | 25HLB |
|---|---|---|---|
| **Cover** | Metal | Metal | Metal |
| **Base** | Metal | Metal | Metal |
| **Insulator** | PPS | PPS | PPS |
| **Sealing** | Resistance | Resistance | Resistance |
| **Terminal lead** | Alloy (FeNiCo) | Alloy (FeNiCo) | Alloy (FeNiCo) |
| **Terminal plating** | SnCu | SnCu | SnCu |
| **RoHS** | Compliant(Pb-free) | Compliant(Pb-free) | Compliant(Pb-free) |

AT-CUT



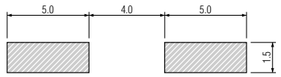
TYPICAL TEMPERATURE CHARACTERISTICS

BT-CUT

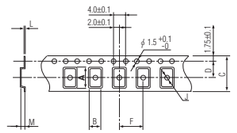


TYPICAL TEMPERATURE CHARACTERISTICS

SOLDERING PATTERN

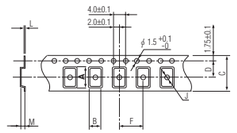



TAPE SPECIFICATIONS for 4HLB




| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|---|---|---|---|---|---|---|---|---|---|
| 15.4 | 5.3 | 24.0 | 11.5 | 12.0 | 1.7 | 0.4 | 4.0 | 300 | 1000pcs |

TAPE SPECIFICATIONS for 3HLB & 25HLB




| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|---|---|---|---|---|---|---|---|---|---|
| 15.4 | 5.3 | 24.0 | 11.5 | 12.0 | 1.7 | 0.4 | 3.1 | 300 | 1000pcs |

## LB STANDARD FREQUENCIES

| FREQUENCY MHz | FREQUENCY DESIGNATOR | MAX EQUIVALENT SERIES RESISTANCE OHMS(Ω) ESR | FREQUENCY MHz | FREQUENCY DESIGNATOR | MAX EQUIVALENT SERIES RESISTANCE OHMS(Ω) ESR |
|---|---|---|---|---|---|
| 3.276800 | 032 | 200 | 13.248000 | 132 | 50 |
| 3.320800 | 033 | 200 | 13.500000 | 135 | 50 |
| 3.571200 | 0357 | 200 | 14.000000 | 140 | 50 |
| 3.579545 | 035 | 200 | 14.318180 | 143 | 50 |
| 3.648000 | 0364 | 200 | 14.400000 | 144 | 50 |
| 3.686400 | 0368 | 200 | 14.745600 | 147 | 50 |
| 3.840000 | 0384 | 200 | 15.000000 | 150 | 50 |
| 3.932160 | 039 | 200 | 15.360000 | 153 | 50 |
| 4.000000 | 040 | 150 | 16.000000 | 160 | 50 |
| 4.032000 | 0403 | 150 | 16.384000 | 163 | 50 |
| 4.096000 | 0409 | 150 | 17.700000 | 177 | 50 |
| 4.194304 | 041 | 150 | 17.734475 | 1773 | 50 |
| 4.433619 | 044 | 150 | 18.000000 | 180 | 50 |
| 4.500000 | 045 | 150 | 18.432000 | 184 | 50 |
| 4.608000 | 046 | 150 | 19.069929 | 1906 | 50 |
| 4.800000 | 048 | 150 | 19.312000 | 193 | 50 |
| 4.906250 | 04906 | 150 | 19.440000 | 194 | 50 |
| 4.915200 | 049 | 150 | 19.660800 | 196 | 50 |
| 5.000000 | 050 | 120 | 20.000000 | 200 | 40 |
| 5.333000 | 053 | 120 | 20.480000 | 204 | 40 |
| 5.699623 | 056 | 120 | 22.118400 | 221 | 40 |
| 6.000000 | 060 | 100 | 23.000000 | 230 | 40 |
| 6.144000 | 061 | 100 | 24.000000 | 240 | 40 |
| 6.176000 | 0617 | 100 | 24.576000 | 245 | 40 |
| 6.745800 | 0674 | 100 | 25.000000 | 250 | 40 |
| 6.764380 | 0676 | 100 | 26.540000 | 265 | 40 |
| 7.372800 | 073 | 80 | 27.000000 | 270 | 40 |
| 7.500000 | 075 | 80 | 27.586000 | 275 | 40 |
| 7.680000 | 076 | 80 | 28.000000 | 280 | 40 |
| 8.000000 | 080 | 80 | 28.636363 | 2863 | 40 |
| 8.192000 | 081 | 80 | 29.000000 | 290 | 40 |
| 8.400000 | 084 | 80 | 29.491200 | 294 | 40 |
| 9.000000 | 090 | 60 | 30.000000 | 300 | 40 |
| 9.216000 | 092 | 60 | 30.800000 | 308 | 40 |
| 9.600000 | 096 | 60 | 32.000000 | 320 | 40 |
| 9.830400 | 098 | 60 | 33.000000 | 330 | 40 |
| 9.843750 | 0984 | 60 | 33.333000 | 333 | 40 |
| 10.000000 | 100 | 60 | 33.868800 | 338 | 40 |
| 10.368000 | 103 | 60 | 35.468950 | 354 | 40 |
| 10.202000 | 102 | 60 | 36.000000 | 360 | 40 |
| 10.245000 | 10245 | 60 | 36.864000 | 368 | 40 |
| 11.000000 | 110 | 60 | 37.745000 | 377 | 40 |
| 11.059200 | 1105 | 60 | 38.000000 | 380 | 40 |
| 12.000000 | 120 | 60 | 40.000000 | 400 | 40 |
| 12.288000 | 122 | 60 | 45.000000 | 450 | 40 (BT-Cut) |
| 12.296000 | 1229 | 60 | 48.000000 | 480 | 40 (BT-Cut) |
| 13.000000 | 130 | 50 | 50.000000 | 500 | 40 (BT-Cut) |
| | | | 54.000000 | 540 | 40 (BT-Cut) |