



Actual Size 

Product Description

The crystals are miniature AT or BT cut strip resonators housed in low profile packages for surface mounting. The parts utilize a proven, low-cost, metal package technology with a precision molded base and universal contact configuration.

Product Features

- 49SNC is interchangeable with common plastic-molded crystal configurations.
- Pb-free and RoHS/Green compliant available.

Typical Applications

- Set-Top Box/Multimedia
- Clock/VCXO Multiplier
- Network Adapter Cards
- Modems
- Microcontrollers and Processors
- Remote control devices

Frequency Range:

- 3.2 to 29.999 MHz, AT Fundamental
- 30.0 to 54.000 MHz, AT 3rd OT
- 26.8 to 54.000 MHz, BT Fundamental

Characteristics at 25°C ±2°C:

- Frequency Calibration Tolerance (as specified): ±30ppm, ±50ppm
- Load Capacitance (as specified): 12 to 32pF or Series Resonance
- Effective Series Resistance:
 - 200Ω max (3.2 to 3.499MHz)
 - 180Ω max (3.5 to 3.999MHz)
 - 150Ω max (4 to 4.999MHz)
 - 120Ω max (5 to 5.999MHz)
 - 100Ω max (6 to 6.999MHz)
 - 80Ω max (7 to 8.999MHz)
 - 60Ω max (9 to 12.999MHz)
 - 40Ω max (13 to 19.999MHz)
 - 30Ω max (20 to 29.999MHz, AT Fund)
 - 80Ω max (30 to 54MHz, AT (3rd overtone))
 - 30Ω max (26.8 to 54MHz, BT Fund)

- Drive Level: 100μW correlation, (500μW Max)
- Shunt Capacitance: 7pF Max.

Temperature Range:

- Operating: -20 to +70°C ; -40 to +85°C (as specified)
- Storage: -55 to +125°C

Temperature Stability (as specified):

- ±30ppm (-20 to +70°C) AT Cut
- ±50 or ±100ppm (-40 to +85°C) AT Cut
- 0 to -100ppm (-20 to +70°C) BT Cut

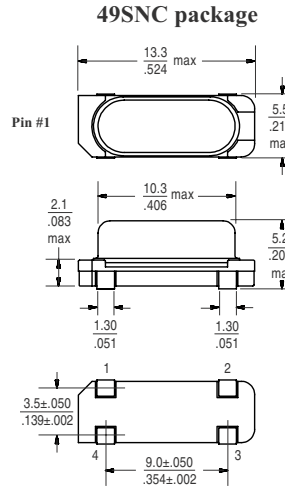
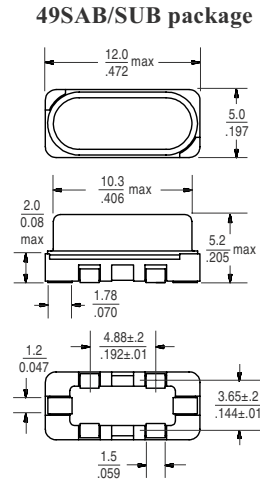
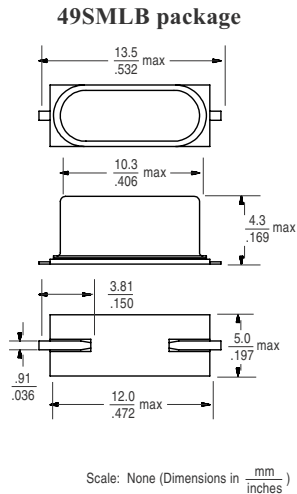
Aging @ 25°C, first year:

- ±3ppm (typ), ±5ppm (max)

Reflow Temperature:

- 240°C Max (non-RoHS package)
- 260°C Max, 10 sec max (RoHS package)

Packaging Information: HC-49

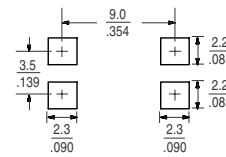
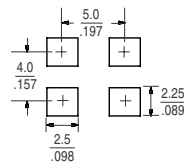
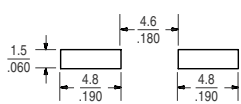


Package Marking Information

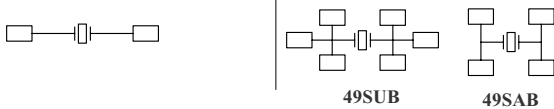
Line 1: S = SaRonix
xxx = Calib/Stability/Temp Code
YYWWX = Date Code
Line 2: Frequency (up to 7 digits, including decimal point)
Z = - (dash) for AT-cut parallel resonant
= blank for AT-cut series resonant
= B for BT-cut
xx = Load Capacitance (leave Blank if Series)

SxxxYYWWX
24.5760zxx

Land Pattern



Pad Connection Configurations



Ordering Information

49SMLB 03.6864 = 18 GGC -E (X)

Type / Package _____
49SMLB = 2 contact, 4mm high
49SAB = 4 contact, 5 mm high
49SNC = 4 contact, 5mm high
49SUB = 6 contact, 5mm high

Frequency _____
Frequency (in MHz) = 0x.xxxx, xx.xxxx
(a zero is used in front of frequencies under 10 MHz)

Cut Type _____
- (dash) = AT-cut Parallel Resonance
Blank = AT-cut Series Resonance
B = BT-Cut

Load Capacitance _____
xx = Parallel Resonance (specify load)
Blank = Series Resonance

Options
(T) = Tape and Reel (full increments only) 1000 pieces
(Q) = Manufactured in a TS16949 or QS9000 registered facility
Blank = Bulk

-E (dash E) = Lead (Pb)-free RoHS Compliant Version
Blank = non-RoHS (not available for new designs)

Calibration / Stability / Temp Range
GGC = $\pm 30\text{ppm} / \pm 30\text{ppm} / -20 \text{ to } +70^\circ\text{C}$ (ATCut)
GHE = $\pm 30\text{ppm} / \pm 50\text{ppm} / -40 \text{ to } +85^\circ\text{C}$ (ATCut)
HJE = $\pm 50\text{ppm} / \pm 100\text{ppm} / -40 \text{ to } +85^\circ\text{C}$ (ATCut)
Blank = $\pm 50\text{ppm}/0 \text{ to } -100\text{ppm}/-20 \text{ to } +70^\circ\text{C}$ (BTCut)
*others available

Part Number Examples: Freq 5.1234MHz, $\pm 30\text{ppm}$ calib, $\pm 30\text{ppm}$ stability, $-20 \text{ to } +70^\circ\text{C}$, 16pF
= 49SMLB05.1234-16GGC
= 49SMLB05.1234-16GGC-E (for Pb-Free/RoHS Compliant)

Mechanical:

- Shock: JESD22-B104 Condition B
- Solderability: MIL-STD-883, Method 2003 (non-RoHS package)
- Solderability: J-STD-002(RoHS package)
- Terminal Strength: MIL-STD-883 Method 2004
- Vibration: JESD22-B103
- Solvent Resistance: JESD22-B107
- Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition I or J (Non-RoHS package)
- Resistance to Soldering Heat: J-STD-020C Table 5-2 Pb-free devices (3 cycles max) (RoHS package)

Environmental:

- Gross Test Leak: JESD22-A109, Condition C
- Fine Test Leak: JESD22-A109, Condition A1
- Moisture Resistance: JESD22-A113
- Insulation Resistance: 500 M Ω min (100 VDC)