

**Miniature Quartz Crystal  
HC-49, Low Profile**



Actual Size



### Product Description

The 49S Series is a miniature, AT or BT cut strip resonator crystal, housed in low profile 3.5mm high packaging.

### Product Features

- Low profile 3.5mm high
- AT or BT cut performance
- Resistance weld seal
- 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

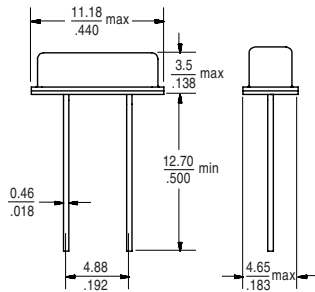
### Aging @ 25°C, first year:

- ±3ppm (typ), ±5ppm (max)

### Reflow Temperature:

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

### Packaging Information: 49S



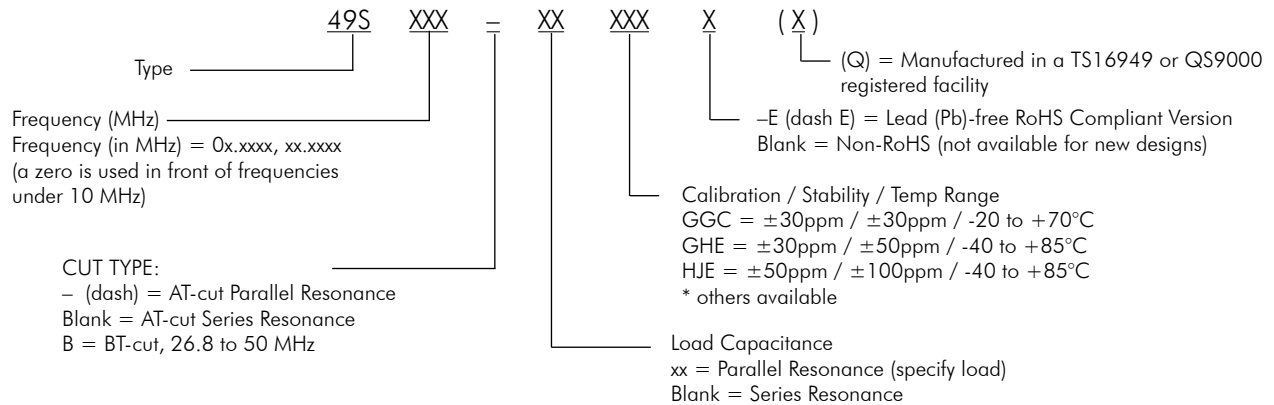
Scale: None (Dimensions in  $\frac{\text{mm}}{\text{inches}}$ )

### 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  
24.5760-xx

### Ordering Information



Part Number Example:

Spec: Freq 5.1234MHz,  $\pm 30\text{ppm}$  calib,  $\pm 30\text{ppm}$  stab, -20 to +70°C, 16pF = 49S05.1234-16GGC

= 49S05.1234-16GGC-E (for lead-free)

### **Mechanical:**

- Shock: JESD22-B104 Condition B
- Solderability: JESD22 method 1 (Predconditioning E) RoHS package
- Terminal Strength: MIL-STD-883 Method 2004
- Vibration: JESD22-B103
- Solvent Resistance: JESD22-B107
- Resistance to Soldering Heat: JESD22-B106 (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 $\Omega$  min (100 VDC)