

Actual Size



Product Description

The HC-49/U series is an industry standard AT-cut crystal that is housed in Mil standard HC-49/U packaging.

Product Features

- AT-cut performance
- Resistance weld seal
- Low cost
- Versatile
- Lead (Pb)-free RoHS Compliant Version Available

Typical Applications

- Set-Top Box
- Clock/VCXO Multiplier
- Fibre Channel
- Ethernet
- Modems
- ADSL
- ISDN
- Microcontrollers
- Remote control devices
- Network processors
- Audio/Video

Frequency Range:

- 1.8432 to 27.0000 MHz (Fundamental)
- 27.0001 to 60.0000 MHz (3rd OT)

Temperature Range:

- Operating: -20 to +70°C Standard (see options below)
- Storage: -55 to +125°C

Temperature Stability Tolerance:

- $\pm 30\text{ppm}$, -20 to +70°C
- $\pm 50\text{ppm}$, -40 to +85°C, or
- $\pm 100\text{ppm}$, -40 to +85°C
- Others available

Characteristics at 25°C $\pm 2^\circ\text{C}$:

- Frequency Calibration Tolerance: $\pm 30\text{ppm}$, $\pm 50\text{ppm}$ (others avail)
- Load Capacitance: 12 to 32pF or Series Resonance
- Effective Series Resistance: 20 to 700-ohm (frequency dependent)
- Drive Level: 100 μW correlation, 2000 μW Max operating
- Shunt Capacitance: 7pF Max.

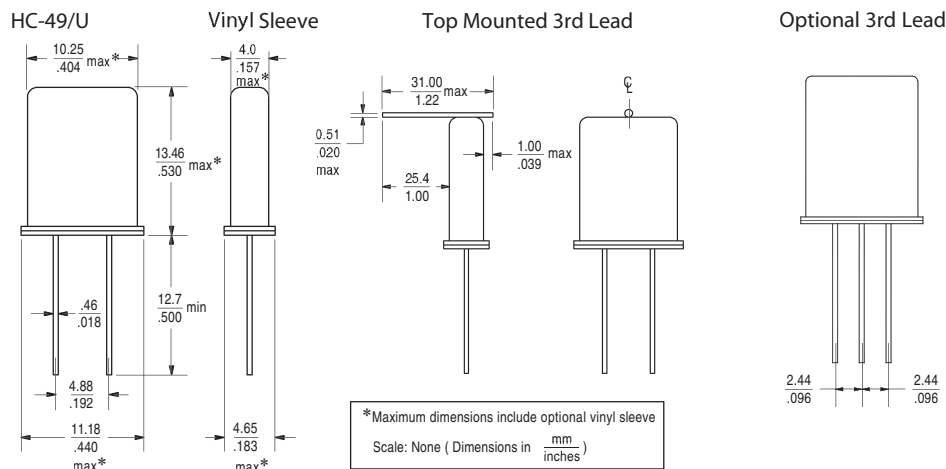
Mechanical:

- Shock: MIL-STD-883, Method 2002, Condition B
- Solderability: MIL-STD-883, Method 2003
- Solderability (lead free): JESD22-B102-D Method 1
- Terminal Strength: MIL-STD-202, Method 211, Conditions A and C
- Vibration: MIL-STD-883, Method 2007, Condition A
- Solvent Resistance: MIL-STD-202, Method 215
- Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition B
- Resistance to Soldering Heat (lead free): JESD22-B106-C

Environmental:

- Gross Test Leak: MIL-STD-883, Method 1014, Condition C
- Fine Test Leak: MIL-STD-883, Method 1014, Condition A
- Thermal Shock: MIL-STD-883, Method 1011, Condition A
- Moisture Resistance: MIL-STD-883, Method 1004

Packaging Information: HC-49/U

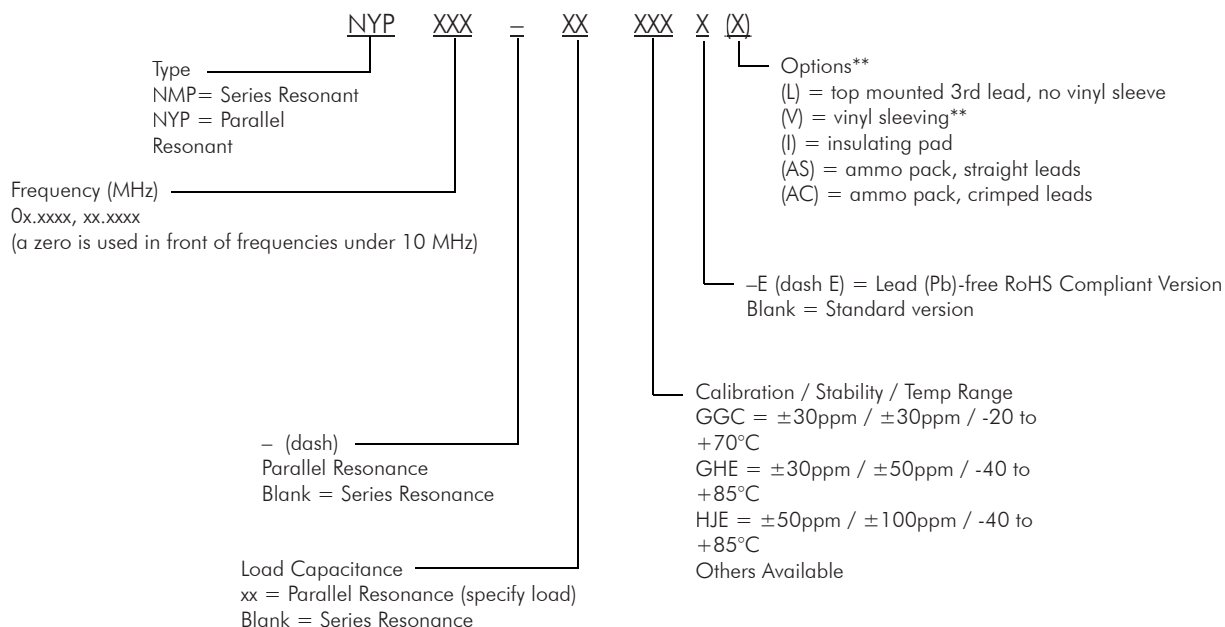


Package Marking Information

Line 1: Company name
Line 2: Frequency (up to 9 digits, including decimal point)
Line 3: Calib/Stability/Temp Code - Load Capacitance (marked "S" for Series Resonance)
Line 4: Date Code: YYWWX

SaRonix
xx.xxxxxx
GGC - 12
YYWWX

Ordering Information

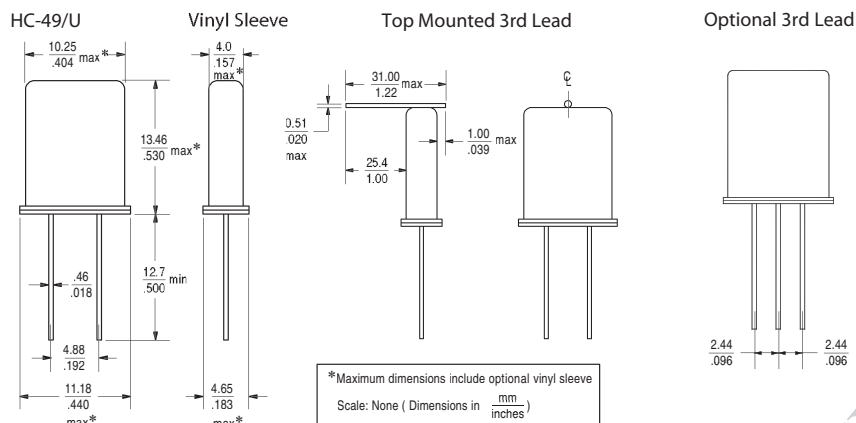


**Optional vinyl shrink sleeve may be specified, as needed

Part Number Example: Spec: Freq 5.1234MHz, $\pm 30\text{ppm}$ calib, $\pm 30\text{ppm}$ stab, -20 to +70°C, 16pF
= NYP05.1234-16GGC
= NYP05.1234-16GGC-E (for lead-free)

THIS PAGE NOT RECOMMENDED FOR NEW DESIGNS, SEE PAGES 1-2

Packaging Information: HC-49/U



Package Marking Information

Products with custom frequency, calibration, stability, temp:

Line 1: Company name
Line 2: Frequency (up to 9 digits, including decimal point)
Line 3: Calib/Stability/Temp Code - Load Capacitance (marked "S" for Series Resonance)
Line 4: Date Code: YYWW

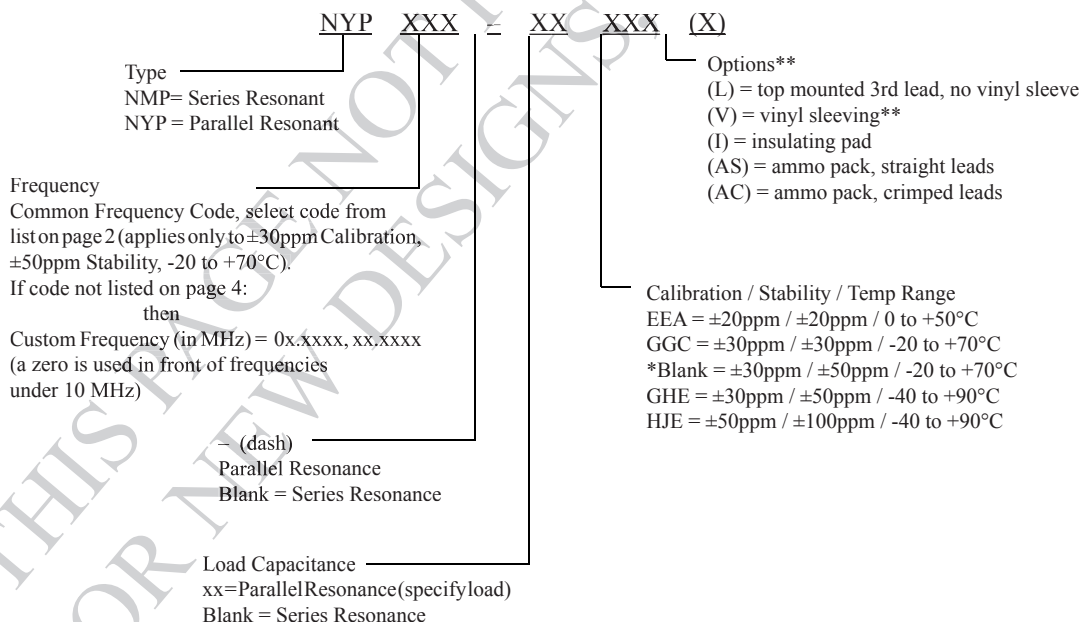
SaRonix
xx.xxxxxx
GGC - 12
YYWW

LEGACY common frequency and standard specifications:

Line 1: Company Name
Line 2: Frequency (up to 9 digits, including decimal point)
Line 3: NMP (for Series) or NYP (for Parallel), Frequency Code - Load Capacitance (marked "S" for Series Resonance)
Line 4: Date Code: YYWW

SaRonix
xx.xxxxxx
NMPxxx - S
YYWW

LEGACY Ordering Information (not recommended for new designs)



*no code used, as these specs designate standard configuration for this series

**Optional vinyl shrink sleeve may be specified, as needed

Part Number Examples:

Spec: Common Freq 20MHz, ±30ppm calib, ±50ppm stab, -20 to +70°C, 12pF = NYP200-12

Spec: Common Freq 20MHz, ±30ppm calib, ±50ppm stab, -20 to +70°C, Series = NMP200

Spec: Custom Freq 5.1234MHz, ±30ppm calib, ±30ppm stab, -20 to +70°C, 16pF = NYP05.1234-16GGC

THIS PAGE NOT RECOMMENDED FOR NEW DESIGNS, SEE PAGES 1-2

Legacy Part Number Format

Freq. MHz	Freq. Code	Maximum ESR (Fundamental)
1.843200	018A	700
2.000000	020A	500
2.097425	021A	500
2.457600	024A	300
3.000000	030A	200
3.276800	032A	150
3.579545	035A	150
3.600000	036	150
3.686400	037	120
3.932160	039	120
4.000000	040	100
4.096000	0409	100
4.194304	041	100
4.433619	044	80
4.915200	049	55
5.000000	050	50
5.068800	051	50
5.185000	052	50
5.714300	057	50
6.000000	060	50
6.144000	061	40
6.553600	065	40
7.000000	070	40
7.159090	071	40
7.372800	073	40
8.000000	080	35
8.192000	081	35
9.216000	092	35
9.830400	098	35
10.000000	100	30
10.738635	107	30
11.000000	110	30
11.059200	111	30
12.000000	120	30
12.288000	122	30
14.318180	143	25
14.745600	147	25
15.000000	150	25
16.000000	160	25
16.384000	163	25
18.000000	180	20
18.432000	184	20
19.660800	196	20
20.000000	200	20
22.118400	221	20
24.000000	240	20
24.576000	245	40 (3rd OT)
25.000000	250	40 (3rd OT)
27.000000	270	40 (3rd OT)
28.636360	286	40 (3rd OT)
30.000000	300	25
32.000000	320	40 (3rd OT)
36.000000	360	40 (3rd OT)
40.000000	400	40 (3rd OT)
48.000000	480	40 (3rd OT)