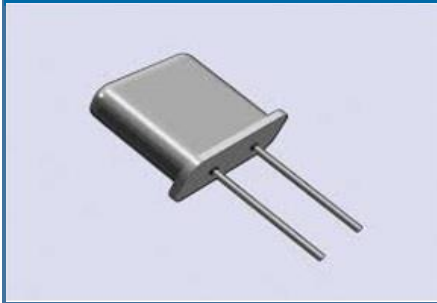


The HC-49UX is an "AT" cut resistance weld type Thru Hole quartz crystal.

# HC-49UX QUARTZ CRYSTAL

Request a Sample

## HC-49UX QUARTZ CRYSTAL

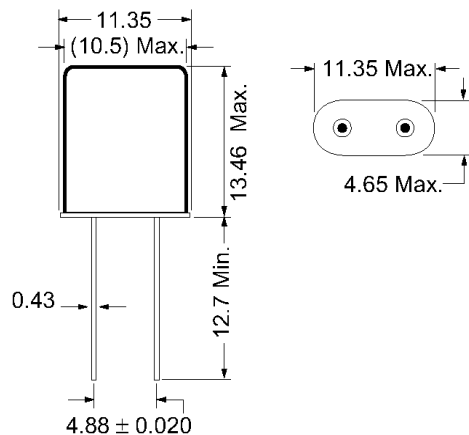


- Cost Effective
- Excellent Aging
- "AT" Cut Crystal
- Wide Frequency Range
- PB Free/RoHS Compliant
- MSL 1

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS             | CONDITIONS     | HC-49UX |     |         | UNITS |
|------------------------|----------------|---------|-----|---------|-------|
|                        |                | MIN     | TYP | MAX     |       |
| Frequency              | Fo             | 1.800   |     | 100.000 | MHz   |
| Frequency Tolerance*   | @ +25°C        |         |     | ± 30    | ppm   |
| Frequency Stability*   | -10 ~ +70°C    |         |     | ± 50    | ppm   |
| Shunt Capacitance      | Co             |         |     | 7       | pF    |
| Load Capacitance       | Specify in P/N | 10      | 20  | Series  | pF    |
| Drive Level            | DL             |         |     | 1.0     | mW    |
| Operating Temperature* | Topr           | -10     |     | +70     | °C    |
| Storage Temperature    | Tstg           | -55     |     | +125    | °C    |
| Aging (First Year)     | @ +25°C ±3°C   |         |     | ±5      | ppm   |

## DIMENSIONS (mm)



| Frequency (MHz)  | ESR Ω Max. | Mode of Osc.             |
|------------------|------------|--------------------------|
| 1.800 ~ 1.999    | 750        | Fundamental              |
| 2.000 ~ 2.399    | 500        | Fundamental              |
| 2.400 ~ 2.999    | 300        | Fundamental              |
| 3.000 ~ 3.199    | 200        | Fundamental              |
| 3.200 ~ 3.699    | 120        | Fundamental              |
| 3.700 ~ 4.199    | 100        | Fundamental              |
| 4.200 ~ 4.899    | 70         | Fundamental              |
| 4.900 ~ 4.999    | 55         | Fundamental              |
| 5.000 ~ 5.999    | 50         | Fundamental              |
| 6.000 ~ 7.999    | 40         | Fundamental              |
| 8.000 ~ 9.999    | 35         | Fundamental              |
| 10.000 ~ 12.499  | 30         | Fundamental              |
| 12.500 ~ 15.999  | 25         | Fundamental              |
| 16.000 ~ 30.000  | 20         | Fundamental              |
| 30.000 ~ 100.000 | 40         | 3 <sup>rd</sup> Overtone |

Figure 1) Side and Bottom

## PART NUMBERING GUIDE: Example ECS-200-20-1X

| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE                  | PACKAGE                  | AVAILABLE OPTIONS |   |  | PACKAGING   |      |
|------------------------------|-----------------------------------|--------------------------|-------------------|---|--|---|------|
|                              |                                   |                          | Tolerance         | Stability   | Temp Range   |   |      |
| ECS                          | 200 = 20.000 MHz<br>See P/N Guide | 20 = 20 pF<br>S = Series | 1X =<br>HC-49UX   | Blank = Std<br>A = ± 25 ppm<br>J = ± 20 ppm<br>R = ± 15 ppm<br>C = ± 10 ppm | Blank = Std<br>D = ± 100 ppm<br>E = ± 50 ppm<br>G = ± 30 ppm<br>H = ± 25 ppm<br>T = ± 20 ppm †<br>W = ± 15 ppm †<br>K = ± 10 ppm † | Blank = Std<br>L = -10 ~ +70°C<br>M = -20 ~ +70°C<br>Y = -30 ~ +85°C<br>N = -40 ~ +85°C<br>P = -40 ~ +105°C<br>S = -40 ~ +125°C<br>U = -55 ~ +125°C | Bulk |

\* Specify available options in P/N.

† Contact ECS for availability over extended temp range.

Rev.2017

| SOLDER PROFILE                          |
|---|
| Peak solder Temp +260°C Max 10 sec Max. |
| 2 Cycles Max.                           |
| MSL 1, Lead Finish Sn/Cu Matte          |

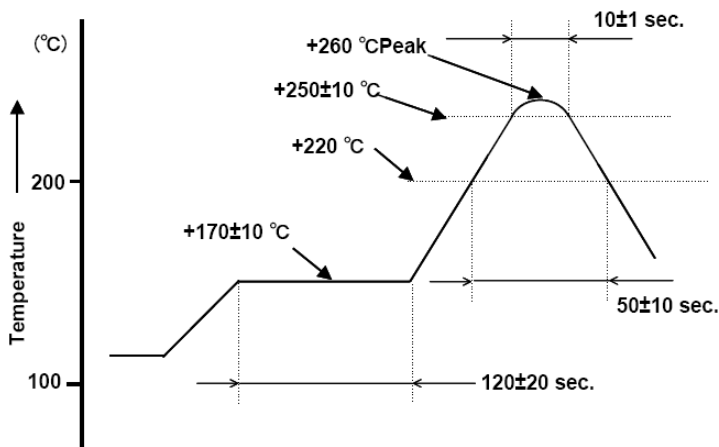


Figure 1) Suggested Solder Profile

| DEVELOPED FREQUENCIES |                 |
|-----------------------|-----------------|
| Abbreviation          | Frequency (MHZ) |
| 018                   | 1.8432          |
| 020                   | 2.000           |
| 020.48                | 2.048           |
| 024                   | 2.4576          |
| 030                   | 3.000           |
| 032                   | 3.2768          |
| 035                   | 3.579545        |
| 036                   | 3.6864          |
| 039                   | 3.93216         |
| 040                   | 4.000           |
| 040.3                 | 4.032           |
| 041                   | 4.096           |
| 042                   | 4.194304        |
| 044                   | 4.433618        |
| 049                   | 4.9152          |
| 050                   | 5.000           |
| 051                   | 5.0688          |
| 060                   | 6.000           |
| 065                   | 6.5536          |
| 073                   | 7.3728          |
| 080                   | 8.000           |
| 092.1                 | 9.216           |
| 098.3                 | 9.8304          |
| 100                   | 10.000          |
| 110                   | 11.000          |
| 110.5                 | 11.0592         |
| 120                   | 12.000          |
| 122.8                 | 12.288          |
| 143                   | 14.31818        |
| 147.4                 | 14.7456         |
| 150                   | 15.000          |
| 160                   | 16.000          |
| 180                   | 18.000          |
| 184                   | 18.432          |
| 196.6                 | 19.6608         |
| 200                   | 20.000          |
| 221                   | 22.1184         |
| 240                   | 24.000          |
| 480                   | 48.000          |



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