



This product represents our selection of standard resistance weld type quartz crystals.

- OPTIONS:**
- extended temperature range
 - pullability
 - mylar spacer
 - vinyl sleeve
 - third ground lead
 - radial Tape and Reel (1,000 pcs)

FEATURES

- Cost effective
- Excellent aging
- Wide frequency range
- Tight tolerances
- Excellent reliability
- "AT" cut crystal

PART NUMBERING GUIDE *"EXAMPLE"*

| | FREQUENCY (16.0000 MHz) | LOAD CAPACITANCE* | PACKAGE TYPE |
|-----|-------------------------|-------------------|--------------|
| ECS | 160 | 20 | 1 |

* Load capacitance (xx=xx pF, S= series resonance)
 Note: See Product Selection Guide for additional options.

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | MINIMUM | MAXIMUM | UNITS |
|-----------------------|--------------------------------------|---------|----------|-------|
| FREQUENCY RANGE | f_0 | 1.800 | 100.000 | MHz |
| FREQUENCY TOLERANCE | Ref @ +25°C | -30 | +30 | PPM |
| FREQUENCY STABILITY | Ta=-10°C ~ +70°C | -50 | +50 | PPM |
| OPERATING TEMPERATURE | T _{OPR} | -10 | +70 | °C |
| STORAGE TEMPERATURE | T _{STG} | -30 | +85 | °C |
| SHUNT CAPACITANCE | C ₀ | | 7.0 | pF |
| LOAD CAPACITANCE | C _L (Customer Specified) | 10.0 | Series | pF |
| DRIVE LEVEL | 1.800 ~ 3.000MHz, 3.000 ~ 100.000MHz | | 2.0, 1.0 | mW |
| AGING (FIRST YEAR) | @ +25°C | -5.0 | +5.0 | PPM |

EQUIVALENT SERIES RESISTANCE / MODE OF OSCILLATION

| FREQUENCY RANGE (MHz) | MODE | MAX ESR Ω | FREQUENCY RANGE (MHz) | MODE | MAX ESR Ω |
|-----------------------|-------------|-----------|-----------------------|-------------|-----------|
| 1.800 ~ 1.999 | Fundamental | 750 | 5.000 ~ 5.999 | Fundamental | 50 |
| 2.000 ~ 2.399 | Fundamental | 500 | 6.000 ~ 7.999 | Fundamental | 40 |
| 2.400 ~ 2.999 | Fundamental | 300 | 8.000 ~ 9.999 | Fundamental | 35 |
| 3.000 ~ 3.199 | Fundamental | 200 | 10.000 ~ 12.499 | Fundamental | 30 |
| 3.200 ~ 3.699 | Fundamental | 120 | 12.500 ~ 15.999 | Fundamental | 25 |
| 3.700 ~ 4.199 | Fundamental | 100 | 16.000 ~ 25.000 | Fundamental | 20 |
| 4.200 ~ 4.899 | Fundamental | 70 | 23.000 ~ 100.000 | 3rd O/T | 40 |
| 4.900 ~ 4.999 | Fundamental | 55 | | | |

PACKAGE DIMENSIONS (mm)

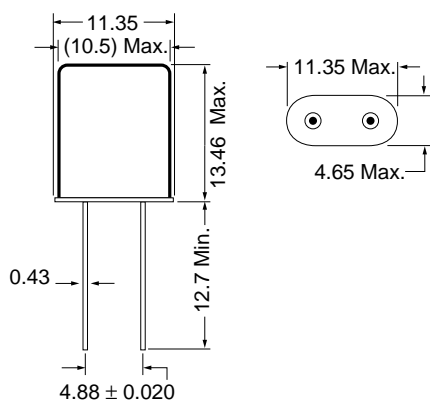


Figure 1) HC-49U - Side and Bottom views

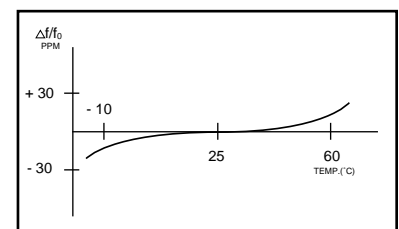


Figure 2) Frequency vs Temperature Curve