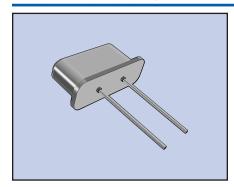
HC-49US QUARTZ CRYSTAL





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

OPTIONS:

- extended temperature range
- tighter tolerances
- mylar spacer
- 3rd in line lead base
- radial tape and reel (1,000 pcs)

FEATURES

- Cost effective
- Excellent aging
- Wide frequency range
- Low profile
- Excellent reliability
- "AT strip" blank technology

PART NUMBERING GUIDE "EXAMPLE"

| | FREQUENCY (16.0000 MHz) | | LOAD CAPACITANCE* | | PACKAGE TYPE** | |
|-----|-------------------------|---|-------------------|---|----------------|--|
| ECS | - 160 | - | 20 | _ | 4 | |

^{*} Load capacitance (xx=xx pF, S= series resonance), ** Package Type examples (4= 3.5mm max. height, 4L= 2.5mm max. height) For extended temp range of -40 to +85°C ad -DN suffix for example ECS-160-20-4-DN Note: See Product Selection Guide for additional options.

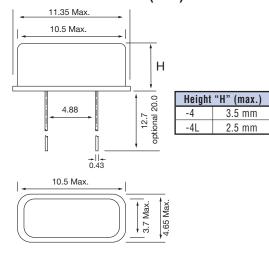
OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | MINIMUM | MAXIMUM | UNITS |
|--|-------------------------|---------|---------|-------|
| FREQUENCY RANGE | f ₀ | 3.57 | 70.000 | MHz |
| FREQUENCY TOLERANCE | @ +25°C | | ±30 | PPM |
| FREQUENCY STABILITY, ref @ 25°C | Standard -10 ~ +70°C | | ±50 | PPM |
| | "DN" Option -40 ~ +85°C | | ±100 | PPM |
| ODED ATIMO TEMPED ATUDE | Standard | -10 | ±70 | °C |
| OPERATING TEMPERATURE | DN option | -40 | +85 | °C |
| STORAGE TEMPERATURE | | -40 | +105 | °C |
| SHUNT CAPACITANCE | C_0 | | 7.0 | pF |
| LOAD CAPACITANCE C _L (Customer Specified) | | 10.0 | Series | pF |
| DRIVE LEVEL 3.57 ~ 70.000MHz | | | 0.5 | mW |
| AGING (FIRST YEAR) | @ +25°C | | ±5.0 | PPM |

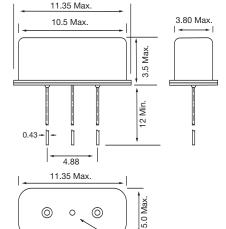
EQUIVALENT SERIES RESISTANCE / MODE OF OSCILLATION

| FREQUENCY RANGE (MHz) | MODE | MAX ESR Ω | FREQUENCY RANGE (MHz) | MODE | MAX ESR Ω |
|-----------------------|-------------|------------------|-----------------------|-------------|------------------|
| 3.570 ~ 3.999 | Fundamental | 200 | 9.000 ~ 12.999 | Fundamental | 60 |
| 4.000 ~ 4.999 | Fundamental | 150 | 13.000 ~ 19.999 | Fundamental | 40 |
| 5.000 ~ 5.999 | Fundamental | 120 | 20.000 ~ 30.000 | Fundamental | 30 |
| 6.000 ~ 6.999 | Fundamental | 100 | 27.000 ~ 70.000 | 3rd O/T | 100 |
| 7.000 ~ 8.999 | Fundamental | 80 | | | |

PACKAGE DIMENSIONS (mm)







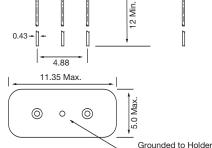


Figure 3) Frequency vs Temperature Curve

25

60 EMP.(C)

△f/f₀ PPM

+ 30

30

Figure 2) HC-49US - 3rd In Line Lead Base - Side & Bottom View