



Crystal Product Brief – AE49 & AE49SM4

Quartz Crystal

anderson electronics, Inc.



Great Electrical Performance
Low Frequency Capability

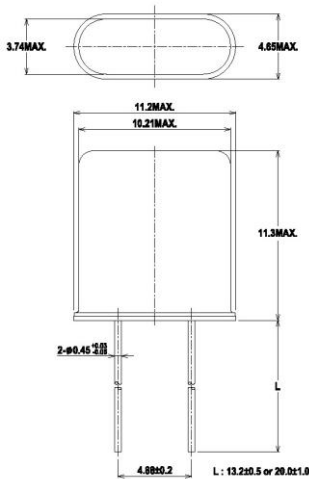
Features

- Frequency range: 1.8 to 200 MHz
- Custom Frequencies & Tolerances
- Fundamentals up to 36 MHz
- Wide Temperature range
- Standard HC49 footprint
- Mil-PRF Screening Available

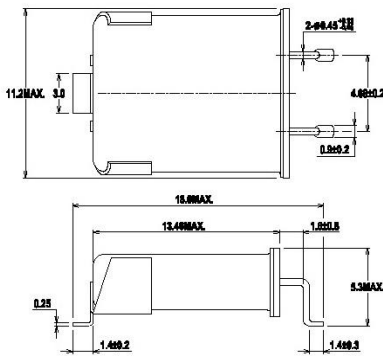
Applications

- Networking / Communications
- SD/HD video clock generation
- Microprocessor Clocking
- FPGA/ASIC clock generation

HC-49/u



HC-49SM4



Specifications are subject to change without notice



ELECTRICAL SPECIFICATIONS:

| | | |
|---------------------------------|--|-----------------|
| Frequency Range | 1.800 to 36.000 MHz | AT Fundamental |
| | 10.000 to 125.000 MHz | AT 3rd Overtone |
| | 85.000 to 200.000 MHz | AT 5th Overtone |
| | 150.000 to 200.000 MHz | AT 7th Overtone |
| Holder | HC-49/u or HC49SM4, Resistance Weld | |
| Load Capacitance | Series to 50 pF, 15 pF, 18 pF, 20 pF (Typical) | |
| Calibration Tolerance | +/- 30 ppm, max (Typical) | |
| | Optional: +/-10 PPM to +/-100 PPM | |
| Operating Temperature Range | -20 to +70 C (Typical) | |
| | Optional: -40 to +85 C, -55 to +105 C | |
| Stability vs Temp. (Ref to 25C) | +/- 30 PPM, max, over -20 to +70 C (Typical) | |
| | Optional: +/-10 PPM to +/-100 PPM | |
| Aging | +/- 5 PPM, max, 1st Yr at 25 C average ambient | |
| Series Resistance (ESR) | Fund - 1.8 to 1.999 MHz | 700 Ω (Max) |
| | Fund - 2.0 to 2.399 MHz | 500 Ω (Max) |
| | Fund - 2.4 to 2.999 MHz | 300 Ω (Max) |
| | Fund - 3.0 to 3.499 MHz | 200 Ω (Max) |
| | Fund - 3.5 to 4.9 MHz | 120 Ω (Max) |
| | Fund - 5.0 to 9.99 MHz | 50 Ω (max) |
| | Fund - 10.0 to 12.999 MHz | 30 Ω (max) |
| | Fund - 13.0 to 36.0 MHz | 25 Ω (max) |
| | 3rd OT - 10.0 to 23.9 MHz | 75 Ω (max) |
| | 3rd OT - 24.0 to 125.0 MHz | 40 Ω (max) |
| 5th OT - 85.0 to 200.0 MHz | 60 Ω (max) | |
| 7th OT - 150.0 to 200.0 MHz | 100 Ω (max) | |
| Drive Level | 1000 uW, max / 100 uW, correlation | |
| Shunt Capacitance | 7.0 pF maximum | |
| Packaging | Bulk | |

Part Number Definition Guide

| Example | AE | L | A | 5 | F | 3 | C | 20M0000 (Freq in MHz) |
|-----------------------|----|----|---|---|---|---|---|------------------------|
| Package type | | L | | | | | | L- HC49 |
| | | N1 | | | | | | N1- HC49SM4 |
| Mode / Cut | | A | | | | | | Fundamental AT |
| | | B | | | | | | 3rd Overtone AT |
| Calibration Tolerance | | | 2 | | | | | +/- .001% (+/- 10 PPM) |
| | | | 3 | | | | | +/- .002% (+/- 20 PPM) |
| | | | 5 | | | | | +/- .003% (+/- 30 PPM) |
| | | | 6 | | | | | +/- .005% (+/- 50 PPM) |
| Temperature Range | | | | B | | | | -55 TO + 105C |
| | | | | C | | | | -40 TO +85C |
| | | | | D | | | | -30 TO +60C |
| | | | | F | | | | -20 TO +70C |
| Temperature Stability | | | 2 | | | | | +/- .005% (+/- 50 PPM) |
| | | | 3 | | | | | +/- .003% (+/- 30 PPM) |
| | | | 5 | | | | | +/- .002% (+/- 20 PPM) |
| | | | 6 | | | | | +/- .001% (+/- 10 PPM) |
| Load Capacitance | | | | | | B | | B = 18 pF |
| | | | | | | C | | C = 20 pF |
| | | | | | | D | | D = 30 pF |
| | | | | | | E | | E = 32 pF |
| | | | | | | S | | S = Series |
| | | | | | | Z | | Z = Other (Specify) |

Note: Some PN combinations or specifications may not be available at all frequencies