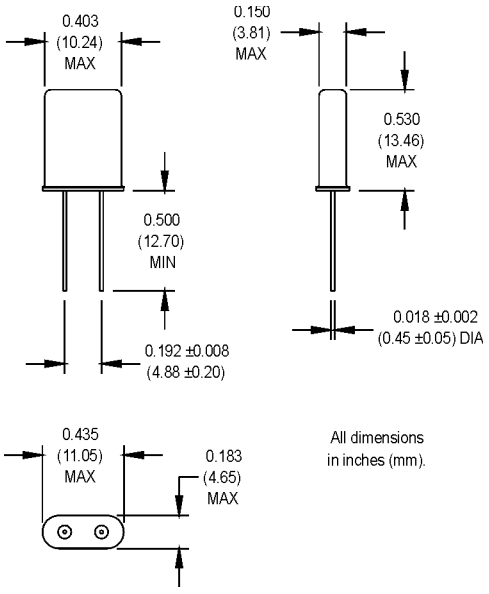
# ATS-49 and MP-1 Crystals



**MP-1** (HC-49/U) **00.0000 MHz** (customer specified frequency)

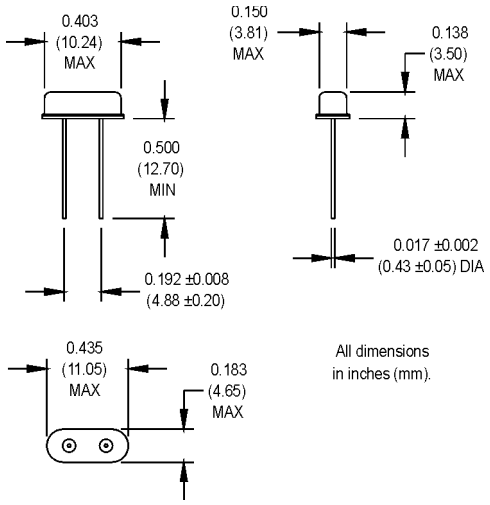
**MP-1-R** (HC-49/U) **00.0000 MHz** (RoHS Compliant and customer specified frequency)




All dimensions in inches (mm).

| Equivalent Series Resistance (ESR), Max. | MP-1 |
|---|---|
| Fundamental (AT-cut) | |
| 1.8432 to 1.999 MHz | 700 Ω |
| 2.000 to 2.399 MHz | 600 Ω |
| 2.400 to 3.299 MHz | 400 Ω |
| 3.300 to 3.569 MHz | 140 Ω |
| 3.570 to 3.999 MHz | 100 Ω |
| 4.000 to 5.999 MHz | 75 Ω |
| 6.000 to 7.999 MHz | 50 Ω |
| 8.000 to 10.999 MHz | 40 Ω |
| 11.000 to 14.999 MHz | 30 Ω |
| 15.000 to 19.999 MHz | 25 Ω |
| 20.000 to 34.000 MHz | 25 Ω |
| Third Overtones (AT-cut) | |
| 20.000 to 49.999 MHz | 40 Ω |
| 50.000 to 75.000 MHz | 50 Ω |
| Fifth Overtones (AT-cut) | |
| 50.000 to 125.000 MHz | 90 Ω |
| Seventh Overtones (AT-cut) | |
| 125.000 to 200.000 MHz | 150 Ω |

| Equivalent Series Resistance (ESR), Max. | ATS-49 |
|---|---|
| Fundamental (AT-cut) | |
| 3.579 to 3.999 MHz | 200 Ω |
| 4.000 to 4.999 MHz | 150 Ω |
| 5.000 to 5.999 MHz | 120 Ω |
| 6.000 to 9.999 MHz | 100 Ω |
| 10.000 to 13.999 MHz | 80 Ω |
| 14.000 to 40.000 MHz | 50 Ω |
| Fundamental (BT-cut) | |
| 24.000 to 50.000 MHz | 100 Ω |
| Third Overtones (AT-cut) | |
| 25.000 to 39.999 MHz | 100 Ω |
| 40.000 to 72.000 MHz | 80 Ω |




All dimensions in inches (mm).

***ATS-49 00.0000 MHz** (customer specified)

***ATS-49-R 00.0000 MHz** (RoHS Compliant and customer specified frequency )

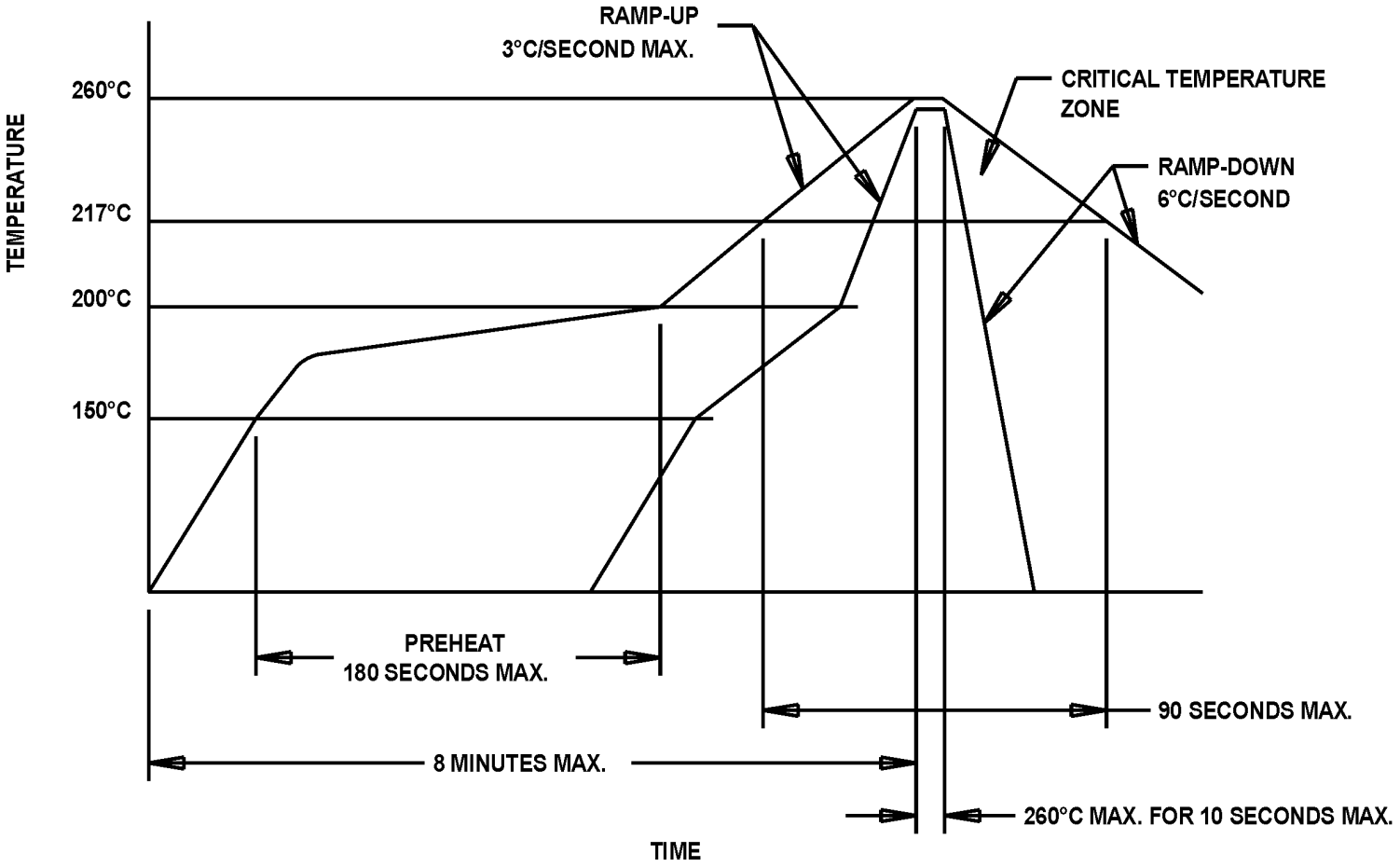
| | PARAMETER | Symbol | Min. | Typ. | Max. | Units | Condition/Notes |
|---|---|---|---|---|---|---|---|
| Electrical Specifications | Frequency Range | F | 1.8432<br>3.579545 | | 200<br>72 | MHz<br>MHz | MP-1<br>ATS-49 |
| | Frequency Tolerance | F/F | | | ±30 | ppm | |
| | Frequency Stability | ΔF/F | | | ±50 | ppm | See Note 1 |
| | Operating Temperature | TA | -10 | | +70 | °C | |
| | Storage Temperature | Ts | -55 | | +125 | | °C |
| | Aging<br>Per Year | | | ±5 | ±5 | ppm | |
| | Load Capacitance | CL | | 18 | | pF | See Note 2 |
| | Shunt Capacitance | Co | | | 7 | pF | |
| | ESR | | See ESR Tables | | | | |
| | Drive Level | DL | | | 1<br>500 | mW<br>µW | MP-1<br>ATS-49 |
| | Insulation Resistance | IR | 500 | | | MΩ | |

Note 1: BT cut fundamentals from 24.000 to 40.000 MHz have a stability of ±100 ppm (ATS-49).

Note 2: Series resonant designated "SR" prefix (i.e., SRATS-49 or SRMP-1)

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# MtronPTI Lead Free Solder Profile




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