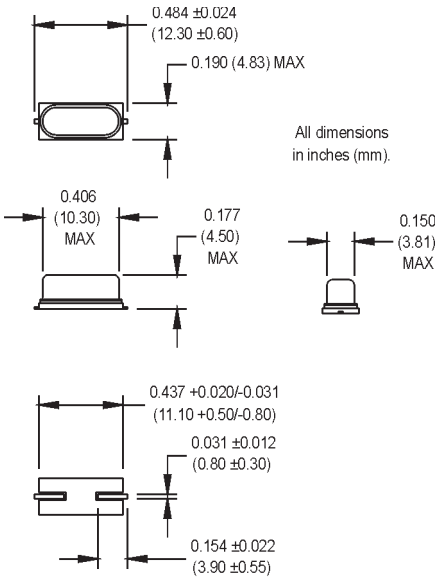
# ATSM-49-R Surface Mount Crystals

**Order by:**

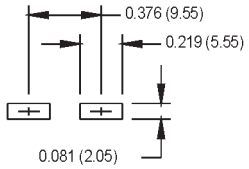
***ATSM-49-R 00.0000 MHz** (Frequency)
-R signifies RoHS compliant part

**For Custom P/N:**
M1001Sxxx - Contact factory for datasheet

| Equivalent Series Resistance (ESR), Max. | |
|---|---|
| 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) | Note 1 |
| 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 |




SUGGESTED SOLDER PAD LAYOUT




| MtronPTI ATSM-49 Options | |
|---|---|
| Order by part number listed followed by the desired frequency. | |
| **Part No.** | **Description** |
| 520-010-R | Fundamental frequencies, -20°C to +70°C operating temperature |
| 520-230-R | Fundamental frequencies, 20pF load capacitance |
| 520-260-R | Fundamental frequencies, 32pF load capacitance |
| 520-910-R | 3rd overtone frequencies, 18 pF load capacitance |
| 520-930-R | 3rd overtone frequencies, 20pF load capacitance |
| 520-960-R | 3rd overtone frequencies, 32pF load capacitance |
| 522-210-R | Fundamental frequencies, -40°C to +85°C operating temperature |
| 522-215-R | 3rd overtone frequencies, -40°C to +85°C operating temperature |
| Balance of specifications same as shown in "Electrical Specifications" | |
| Contact the factory for options not listed above. | |

| | PARAMETER | Symbol | Min. | Typ. | Max. | Units | Condition/Notes |
|---|---|---|---|---|---|---|---|
| Electrical Specification | **Frequency Range** | F | 3.579545 | | 72 | MHz | |
| | **Frequency Tolerance** | F/F | | | ±30 | ppm | |
| | **Frequency Stability** | ΔF/F | | | ±50 | ppm | |
| | **Operating Temperature** | $T_A$ | -10 | | +70 | °C | |
| | **Storage Temperature** | $T_S$ | -55 | | +125 | °C | |
| | **Aging**<br>**1st Year**<br>**Thereafter (per year)** | | | | <br>+3<br>+5 | <br>ppm<br>ppm | <br><br>Up to 3rd year |
| | **Load Capacitance** | $C_L$ | | 18 | | pF | See Note 2 |
| | **Shunt Capacitance** | $C_O$ | | | 7 | pF | |
| | **ESR** | | See ESR Table | | | | |
| | **Drive Level** | $D_L$ | 25 | 100 | 500 | µW | |
| | **Insulation Resistance** | $I_R$ | 500 | | | MΩ | |

| | | |
|---|---|---|
| Environmental | **Aging** | Internal Specification, 168 hrs. at +55°C |
| | **Physical Dimensions** | MIL-STD-883, Method 2016 |
| | **Shock** | MIL-STD-202, Method 213 Condition C, 100 g |
| | **Vibration** | MIL-STD-202, Methods 201 & 204, 10 g from 10-2000 Hz |
| | **Thermal Cycle** | MIL-STD-883, Method 1010, Condition B, -55°C to +125°C |
| | **Gross Leak** | MIL-STD-202, Method 112, 30 sec. Immersion |
| | **Fine Leak** | MIL-STD-202, Method 112, 1 x $10^{-8}$ atmcc/sec. min. |
| | **Resistance to Solvents** | MIL-STD-883, Method 2015, Three 1 minute soaks |
| | **Max Soldering Conditions** | See solder profile |

Note 1: BT Cut fundamentals from 24.000 to 40.000 MHz have a tolerance of ±50 ppm and 100 ppm stability. Order by P/N 471-010-R-Frequency.
Note 2: Series resonant designated by "SR" prefix (ie., SRATSM-49-R).

# MtronPTI Lead Free Solder Profile