

# ATSM-49-R Surface Mount Crystals



### Order by:

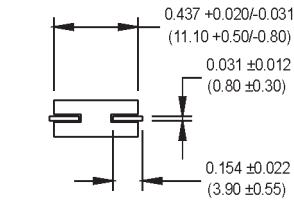
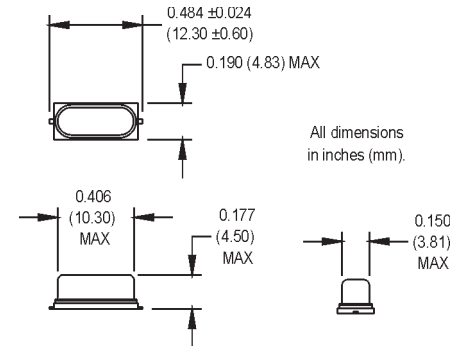
\*ATSM-49-R 00.0000 MHz (Frequency)  
-R signifies RoHS compliant part

### For Custom P/N:

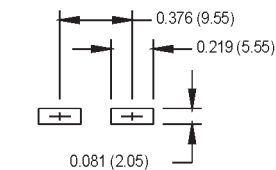
M1001Sxxx - Contact factory for datasheet

### Equivalent Series Resistance (ESR), Max.

| Frequency Range                                  | ESR (Ω) |
|--|---------|
| Fundamental (AT-cut)<br>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)<br>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  | 3 <sup>rd</sup> overtone frequencies, 18 pF load capacitance               |
| 520-930-R  | 3 <sup>rd</sup> overtone frequencies, 20pF load capacitance                |
| 520-960-R  | 3 <sup>rd</sup> overtone frequencies, 32pF load capacitance                |
| 522-210-R  | Fundamental frequencies, -40°C to +85°C operating temperature              |
| 522-215-R  | 3 <sup>rd</sup> 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 <sub>A</sub>  | -10           |      | +70  | °C    |                            |
|                          | Storage Temperature           | T <sub>S</sub>  | -55           |      | +125 | °C    |                            |
|                          | Aging<br>1 <sup>st</sup> Year |   |               |      | +3   | ppm   | Up to 3 <sup>rd</sup> year |
|                          | Thereafter (per year)         |   |               |      | +5   | ppm   |                            |
|                          | Load Capacitance              | C <sub>L</sub>  |               | 18   |      | pF    | See Note 2                 |
|                          | Shunt Capacitance             | C <sub>O</sub>  |               |      | 7    | pF    |                            |
|                          | ESR                           |   | See ESR Table |      |      |       |                            |
|                          | Drive Level                   | D <sub>L</sub>  | 25            | 100  | 500  | μW    |                            |
| Insulation Resistance    | I <sub>R</sub>                | 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 <sup>-8</sup> 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).

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Please see [www.mtronpti.com](http://www.mtronpti.com) for our complete offering and detailed datasheets. Contact us for your application specific requirements: MtronPTI 1-800-762-8800.

# MtronPTI Lead Free Solder Profile



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