Vectron International’s XR-P (SM1 style) resistance weld crystals provide a precision, high reliability surface mount design in a rugged mount. These precision crystals offer excellent industry leading performance characteristics and tight stabilities in a wide range of frequencies (comparable to Vectron’s XR-R AT-Cut HC35/TO-5 offerings). Low phase noise and low g-sensitivity options make this an ideal choice for Microwave, Satellite, Telemetry, Radar and Military Communication applications.

**Features**
- Robust 4 pt blank mount
- Surface Mount or Hybrid Wirebonded applications
- AT-Cut Fundamental and OT Modes
- Low Phase Noise, Low G-Sensitivity options
- Tight Stabilities and Tolerances, Excellent Aging
- Rugged Design for demanding environments
- Swept Quartz & Hi-Rel Screening Options Available
- High Temperature Options to +200°C

**Applications**
- Telecommunications
- Military & Defense
- Microwave
- Telemetry
- Ground and Satellite Communications
- Precision Oscillators (TCXO, VCXO, OCXO)
- Hybrid, Wirebondable Mount

**Standard Physical Specifications**

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Vectron International • 4914 Gray Road • Cincinnati, OH 45232 • Tel: 513-542-5555 • Tel: 1-88-VECTRON-1 • http://www.vectron.com
Vectron International designs and manufactures SM1 surface mount crystals for a wide variety of commercial, hybrid and high reliability applications. Our proven cleanroom finish processes yield excellent aging and low perturbations.

We have tight controls over series resistance, motional capacitance, temperature characteristics and other parameters critical to your application. We primarily build to customer specifications but we’ve optimized designs on all frequencies that are commonly used in telecommunications.

Please feel free to contact us with your questions. We are here to assist you with selecting the best performing and most cost effective crystal for your application.
### PART NUMBER ORDERING INFORMATION

**A**
- **CODE** XR
- **CRISTAL RESONATOR**
- **PART NUMBER CODES (see B details)**

**B**
- **CODE**
- **PACKAGE**
- **ATTRIBUTES**

**C**
- **CODE**
- **MODE**
- **OPERATING TEMPERATURE RANGE**

**D**
- **CODE**
- **FREQUENCY STABILITY OVER TEMPERATURE**

**E**
- **CODE**
- **FREQUENCY**
- **CALIBRATION TEMPERATURE**

**F**
- **CODE**
- **FREQUENCY CALIBRATION TOLERANCE**

**G**
- **CODE**
- **FREQUENCY CALIBRATION TEMPERATURE**

**H**
- **CODE**
- **FREQUENCY CALIBRATION TEMPERATURE**

**J**
- **CODE** TBD
- **B TBD**
- **C TBD**
- **D TBD**
- **E TBD**
- **F TBD**
- **G TBD**
- **H TBD**
- **J TBD**
- **K TBD**
- **M TBD**
- **N TBD**
- **P TBD**
- **R TBD**
- **S TBD**
- **T TBD**
- **U TBD**
- **Z TBD**

**K**
- **FREQUENCY**

**L**
- **OUTPUT FREQUENCY (MHz)**

---

*Note: not all combination of options are available. Other specification parameters may be available (i.e., tighter tolerances/stabilities). Please consult the factory for your specific needs.*

---

**PART NUMBER CODES (attribute details)**

<table>
<thead>
<tr>
<th>CODE</th>
<th>PACKAGE TYPE</th>
<th>CODE</th>
<th>PACKAGE HEIGHT (A)</th>
<th>CODE</th>
<th>SEAL METHOD</th>
<th>CODE</th>
<th>LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>SM1</td>
<td>1</td>
<td>.098 (2.49)</td>
<td>1</td>
<td>RW</td>
<td>1</td>
<td>STANDARD</td>
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</tbody>
</table>

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**PART NUMBER CODES**

- **CODE**
- **MODE**

- **LOAD CAPACITANCE**

- **OPERATING TEMPERATURE RANGE**

- **FREQUENCY STABILITY OVER TEMPERATURE**

- **FREQUENCY CALIBRATION TOLERANCE**

- **FREQUENCY CALIBRATION TEMPERATURE**

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**CALIBRATION TEMPERATURE IS ALWAYS +25°C UNLESS OTHERWISE SPECIFIED**

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Typical Environmental Specifications

<table>
<thead>
<tr>
<th>TEST DESCRIPTION</th>
<th>SPECIFICATION REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHOCK</td>
<td>MIL-STD-202, Method 213, Cond. C (100g, 6ms, Half-Sine)</td>
</tr>
<tr>
<td>VIBRATION</td>
<td>MIL-STD-202, Method 201/204 (Random-Sine, 20g)</td>
</tr>
<tr>
<td>TEMPERATURE CYCLE</td>
<td>MIL-STD-883, Method 1010 (-55°C/+125°C), 10 cycles</td>
</tr>
<tr>
<td>THERMAL SHOCK</td>
<td>MIL-STD-202, Method 107</td>
</tr>
<tr>
<td>MOISTURE RESISTANCE</td>
<td>MIL-STD-202, Method 106</td>
</tr>
<tr>
<td>SALT ATMOSPHERE</td>
<td>MIL-STD-202, Method 101</td>
</tr>
<tr>
<td>ACCELERATION</td>
<td>MIL-STD-883, Method 2001, Condition A (5,000g)</td>
</tr>
<tr>
<td>TERMINAL STRENGTH</td>
<td>MIL-STD-202, Method 211 (2lbs)</td>
</tr>
<tr>
<td>PIND</td>
<td>MIL-STD-883, Method 2020, Condition A or B (20g, 10g)</td>
</tr>
<tr>
<td>FINE LEAK</td>
<td>MIL-STD-202, Method 112, Condition C-Illc (1x10^-8 atm/cc²)</td>
</tr>
<tr>
<td>GROSS LEAK</td>
<td>MIL-STD-202, Method 112, Condition D</td>
</tr>
<tr>
<td>RESISTANCE TO SOLVENTS</td>
<td>MIL-STD-202, Method 215</td>
</tr>
<tr>
<td>RESISTANCE TO SOLDERING HEAT</td>
<td>MIL-STD-202, Method 210, Condition K</td>
</tr>
<tr>
<td>HIGH TEMPERATURE STORAGE</td>
<td>MIL-STD-883, Method 1008, Condition C (+125°C, 168 hours)</td>
</tr>
<tr>
<td>LOW TEMPERATURE STORAGE</td>
<td>MIL-PRF-3098</td>
</tr>
</tbody>
</table>

Vectron is uniquely equipped to handle all of your special test requirements. All environmental and qualification related tests are performed in house. We’ve demonstrated compliance and the ability to test to the requirements of all governing industry and military crystal specifications (past and present).

Some of which include;
- MIL-PRF-3098
- MIL-C-49468
- MIL-C-3098
- TOR-2006 (8583)-5236
- EEE-INST-002
- MIL-PRF-55310
- MIL-STD-202
- MIL-STD-883
- OTHERS

Additional Technical Information

- Diagrams of Series and Parallel Resonant Circuits
- Typical Wave Solder Reflow Profile (Sn-Pb)

For Additional Information, Please Contact

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Fax: 86.21.5048.1881

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