## Electrical SPECIFICATIONS

<table>
<thead>
<tr>
<th>Dash Number</th>
<th>Frequency Range (MHz)</th>
<th>Supply Current @ 3.3V ±10% (mA)</th>
<th>Rise/Fall Time (tr/tf) max (nsec)</th>
<th>Symmetry min / max (%)</th>
<th>Aging per year max 1/ (ppm)</th>
<th>Stability over Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>03</td>
<td>0.01 to 1</td>
<td>8</td>
<td>4</td>
<td>45/55</td>
<td>±5</td>
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<tr>
<td>06</td>
<td>07</td>
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<td>8</td>
<td>4</td>
<td>45/55</td>
<td>±10</td>
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<td>22</td>
<td>23</td>
<td>1 to 4</td>
<td>8</td>
<td>4</td>
<td>45/55</td>
<td>±5</td>
</tr>
<tr>
<td>26</td>
<td>27</td>
<td>1 to 4</td>
<td>8</td>
<td>4</td>
<td>45/55</td>
<td>±10</td>
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<td>32</td>
<td>33</td>
<td>4 to 20</td>
<td>8</td>
<td>4</td>
<td>40/60</td>
<td>±5</td>
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<tr>
<td>36</td>
<td>37</td>
<td>4 to 20</td>
<td>8</td>
<td>4</td>
<td>40/60</td>
<td>±10</td>
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<td>42</td>
<td>43</td>
<td>20 to 35</td>
<td>12</td>
<td>4</td>
<td>40/60</td>
<td>±5</td>
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<tr>
<td>46</td>
<td>47</td>
<td>20 to 35</td>
<td>12</td>
<td>4</td>
<td>40/60</td>
<td>±10</td>
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<td>52</td>
<td>53</td>
<td>35 to 50</td>
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<td>4</td>
<td>40/60</td>
<td>±5</td>
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<tr>
<td>56</td>
<td>57</td>
<td>35 to 50</td>
<td>15</td>
<td>4</td>
<td>40/60</td>
<td>±10</td>
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<tr>
<td>62</td>
<td>63</td>
<td>50 to 65</td>
<td>18</td>
<td>4</td>
<td>40/60</td>
<td>±5</td>
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<tr>
<td>66</td>
<td>67</td>
<td>50 to 65</td>
<td>18</td>
<td>4</td>
<td>40/60</td>
<td>±10</td>
</tr>
<tr>
<td>72</td>
<td>73</td>
<td>65 to 80</td>
<td>20</td>
<td>4</td>
<td>40/60</td>
<td>±5</td>
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<td>76</td>
<td>77</td>
<td>65 to 80</td>
<td>20</td>
<td>4</td>
<td>40/60</td>
<td>±10</td>
</tr>
<tr>
<td>82</td>
<td>83</td>
<td>80 to 135</td>
<td>30</td>
<td>4</td>
<td>40/60</td>
<td>±5</td>
</tr>
<tr>
<td>86</td>
<td>87</td>
<td>80 to 135</td>
<td>30</td>
<td>4</td>
<td>40/60</td>
<td>±10</td>
</tr>
</tbody>
</table>

### Comments
- **CMOS Output, 15 pF Load**: Output Voltage - Logic “0” is Vcc x 0.1 Vdc, Output Voltage - Logic “1” is Vcc x 0.9 Vdc, Start-up Time: 10 msec max
- **Stability over Operating Temperature**
  - Max change over 30 days: ±0.7 ppm, ±1.5 ppm
  - Projected max change for ±0.7 ppm after 30 days

### Output Characteristics
- Frequency Aging Limits: 5 ppm per year, 10 ppm per year
- Example of Frequency Management: S62S02A-1M000000

## Mechanical SPECIFICATIONS

### Standard PIN CONFIGURATION

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Connect or TriState Enable</td>
</tr>
<tr>
<td>10</td>
<td>Ground (case)</td>
</tr>
<tr>
<td>11</td>
<td>Output</td>
</tr>
<tr>
<td>13</td>
<td>Supply V (Vcc)</td>
</tr>
</tbody>
</table>

All Other Pins N/C
**Military Reference Specifications**

- MIL-PRF-55310: Oscillators, Crystal Controlled, General Specification For
- MIL-PRF-38534: Hybrid Microcircuits, General Specification For
- MIL-STD-1686: Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment

**Materials**

1. Package Materials:
   - Eyelet & Leads: ASTM F-15 Kovar
   - Glass: 7052 or Equivalent
2. Plating Material:
   - 100-300 µ Inch Electrolytic Nickel under 50 µ Inch min. Gold

**Environmental COMPLIANCE**

- Vibration – Sine: MIL-STD-202, Method 204, Condition D
- Vibration – Random: MIL-202, Method 214, Condition 1
- Seal Test: MIL-883, Method 1014, Condition A1
- Seal Test: MIL-883, Method 1014, Condition C1
- Temperature Cycling: MIL-STD-883, Method 1010, Condition B
- Constant Acceleration: MIL-STD-883, Method 2001, Condition A
- Burn-in (load): MIL-883, Condition B
- Burn-in (load): MIL-883, Condition A
- Final Electrical Test: MIL-883, Condition B
- Interim Electrical: MIL-883, Condition C
- Final Electrical Test: MIL-883, Condition D

**Options Available for FLIGHT MODELS**

- Groups B, C, & D
- Data Packages
- Swept Quartz Crystals

**Environmental Specification Method**

- Condition: Condition D
- 20g, 10 to 2 KHz
- Condition: Condition 1
- 30g rms, 10 to 2 KHz Random
- Condition: Condition I
- 100g, 6 ms, F:1500, 0.5 ms
- Condition: Condition A1
- Fine Leak
- Condition: Condition C1
- Gross Leak
- Condition: Condition B
- 10 Cycles Minimum
- Condition: Condition A
- 5000g, Y1 Axis

**Features**

- Ruggedized Design
- High-Shock & Vibration
- Industry Standard Package
- Shortest Lead Time
- Smallest Hi-Rel Package
- Best Stability Over Temperature
- Customer Support & Service

**Screening- S, B & C LEVELS**

<table>
<thead>
<tr>
<th>Screening</th>
<th>Method</th>
<th>Level:</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Destruct Bond Pull</td>
<td>MIL-STD-883, Method 2023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Visual</td>
<td>MIL-STD-883, Method 2017, Class K; Method 2032</td>
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<td></td>
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<tr>
<td>Stabilization (Vacuum) Bake</td>
<td>MIL-STD-883, Method 1008, Condition C, 150ºC, 48 hours min</td>
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<td></td>
</tr>
<tr>
<td>Temperature Cycling</td>
<td>MIL-STD-883, Method 1010, Condition B, 10 Cycles</td>
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<td></td>
</tr>
<tr>
<td>Constant Acceleration</td>
<td>MIL-STD-883, Method 2001, Condition A (Y1 only, 5000 g’s)</td>
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<td></td>
</tr>
<tr>
<td>PIND Test</td>
<td>MIL-STD-883, Method 2020, Condition B, 5 passes max</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seal: Fine Leak</td>
<td>MIL-STD-883, Method 1014, Condition A1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seal: Gross Leak</td>
<td>MIL-STD-883, Method 112, Condition C, 111A</td>
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</tr>
<tr>
<td>Electrical Test</td>
<td>Functional Test Only at +3°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking &amp; Serialization</td>
<td>MIL-STD-1285</td>
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<td></td>
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<tr>
<td>Electrical Test</td>
<td>Nominal Vcc &amp; Extremes and Nominal Temp and Extremes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn-in (load)</td>
<td>+125ºC, Nominal Supply Voltage and Burn-in load, 160 hours min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn-in (no-load)</td>
<td>+125ºC, Nominal Supply Voltage and Burn-in load, 48 hours min</td>
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<td></td>
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<tr>
<td>Interim Electrical</td>
<td>Functional Test Only</td>
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<td></td>
</tr>
<tr>
<td>Burn-in (load)</td>
<td>+125ºC, Nominal Supply Voltage and Burn-in load, 160 hours min</td>
<td></td>
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</tr>
</tbody>
</table>

**Note:** other options, screening levels and custom test plans available.

**Environmental Specification Method**

- Condition: Condition D
- 20g, 10 to 2 KHz
- Condition: Condition 1
- 30g rms, 10 to 2 KHz Random
- Condition: Condition I
- 100g, 6 ms, F:1500, 0.5 ms
- Condition: Condition A1
- Fine Leak
- Condition: Condition C1
- Gross Leak
- Condition: Condition B
- 10 Cycles Minimum
- Condition: Condition A
- 5000g, Y1 Axis

**Military Reference Specifications**

- Oscillators, Crystal Controlled, General Specification For
- Hybrid Microcircuits, General Specification For
- Test Method Standard, Electronic and Electrical Components
- Test Methods and Procedures for Microelectronics
- Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment

**Materials**

- 1. Package Materials:
  - Eyelet & Leads: ASTM F-15 Kovar
  - Glass: 7052 or Equivalent
- 2. Plating Material:
  - 100-300 µ Inch Electrolytic Nickel under 50 µ Inch min. Gold

**Products for Space Applications**

Contact us for assistance with your specification. We will provide you with the technical support and the required documentation.

**Screening Methods**

- Non-Destruct Bond Pull: MIL-STD-883, Method 2023
- Stabilization (Vacuum) Bake: MIL-STD-883, Method 1008, Condition C, 150ºC, 48 hours min
- Temperature Cycling: MIL-STD-883, Method 1010, Condition B, 10 Cycles
- Constant Acceleration: MIL-STD-883, Method 2001, Condition A (Y1 only, 5000 g’s)
- PIND Test: MIL-STD-883, Method 2020, Condition B, 5 passes max
- Seal: Fine Leak: MIL-STD-883, Method 1014, Condition A1
- Seal: Gross Leak: MIL-STD-883, Method 112, Condition C, 111A
- Electrical Test: Functional Test Only at +3°C
- Marking & Serialization: MIL-STD-1285
- Electrical Test: Nominal Vcc & Extremes and Nominal Temp and Extremes
- Burn-in (load): +125ºC, Nominal Supply Voltage and Burn-in load, 160 hours min
- Burn-in (no-load): +125ºC, Nominal Supply Voltage and Burn-in load, 48 hours min
- Interim Electrical: Functional Test Only
- Burn-in (load): +125ºC, Nominal Supply Voltage and Burn-in load, 160 hours min

**Final Electrical Test**

- Input current, output frequency, output waveform, are tested at +23ºC ±2ºC
- Frequency stability is tested over the specified temperature range; at both extremes and at +25ºC at a minimum of 5 temperature increments
- Recording of test data is by lot # and then serial #

**Radiography**

- MIL-STD-883, Method 2012

**Frequency Aging**

- MIL-PRF-55310, +70ºC Condition

**External Visual & Mechanical**

- MIL-STD-883, Method 2009

**Environmental Specification Method**

- Vibration – Sine: MIL-STD-202, Method 204, Condition D
- Vibration – Random: MIL-202, Method 214, Condition 1
- Seal Test: MIL-883, Method 1014, Condition A1
- Seal Test: MIL-883, Method 1014, Condition C1
- Temperature Cycling: MIL-883, Method 1010, Condition B
- Constant Acceleration: MIL-883, Method 2001, Condition A
- Final Electrical Test: MIL-883, Condition B

**Note:** other options, screening levels and custom test plans available.