



4 Pad Ceramic Package Quartz Crystal, 3.2 mm x 5 mm



ILCX07 Series

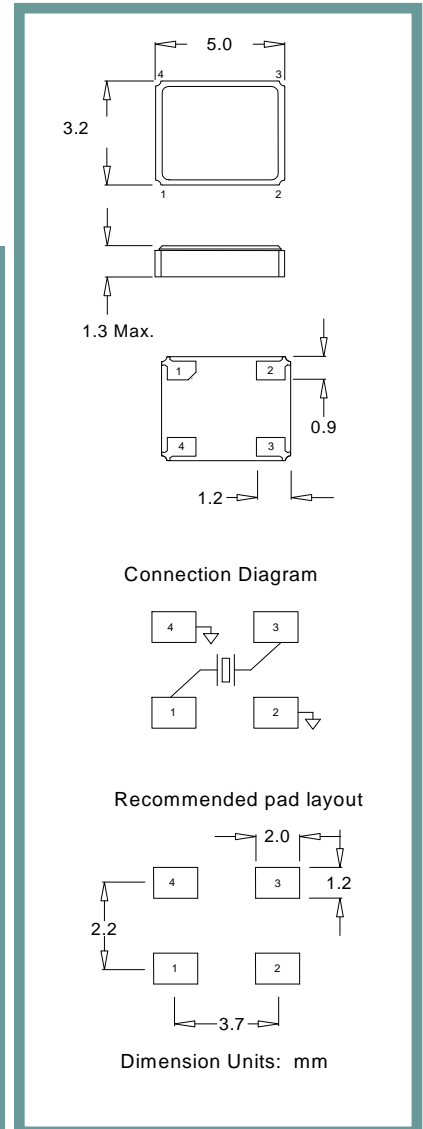
**Product Features:**

- Low Cost SMD Package
- Low ESR
- Compatible with Leadfree Processing

**Applications:**

- Fibre Channel
- Server & Storage
- Sonet /SDH
- 802.11 / Wifi
- T1/E1, T3/E3

|   |  |
|---|--|
| <b>Frequency</b>                            | 8 MHz to 150 MHz   |
| <b>ESR (Equivalent Series Resistance)</b>   |  |
| 8.0 MHz – 9.9 MHz                           | 100 Ω Max.   |
| 10.0 MHz – 11.9 MHz                         | 80 Ω Max.  |
| 12.0 MHz – 15.9 MHz                         | 60 Ω Max.  |
| 16.0 MHz – 19.9 MHz                         | 50 Ω Max.  |
| 20.0 MHz – 23.9 MHz                         | 40 Ω Max.  |
| 24.0 MHz – 50.0 MHz                         | 30 Ω Max.  |
| 40.0 MHz – 150.0 MHz (3 <sup>rd</sup> O.T.) | 80 Ω Max.  |
| <b>Shunt Capacitance (C0)</b>               | 5 pF Max.  |
| <b>Frequency Tolerance @ 25° C</b>          | ±30 ppm Standard (see Part Number Guide for more options)        |
| <b>Frequency Stability over Temperature</b> | ±50 ppm Standard (see Part Number Guide for more options)        |
| <b>Crystal Cut</b>                          | AT Cut   |
| <b>Load Capacitance</b>                     | 18 pF Standard (see Part Number Guide for more options)          |
| <b>Drive Level</b>                          | 500 uW Max.  |
| <b>Aging</b>                                | ±5 ppm Max. / Year Standard                                      |
| <b>Temperature</b>                          |  |
| <b>Operating</b>                            | 0° C to +70° C Standard (see Part Number Guide for more options) |
| <b>Storage</b>                              | -40° C to +85° C Standard  |



| Part Number Guide |                                     | Sample Part Number: ILCX07 - FB1F18 - 20.000 |                             |                              |                              |              |
|-------------------|-------------------------------------|--|-----------------------------|------------------------------|------------------------------|--------------|
| Package           | Tolerance (ppm) at Room Temperature | Stability (ppm) over Operating Temperature   | Operating Temperature Range | Mode (overtone)              | Load Capacitance (pF)        | Frequency    |
| ILCX07 -          | B = ±50 ppm                         | B = ±50 ppm                                  | 0 = 0°C to +50°C            | F = Fundamental              | 18 pF Standard<br>Or Specify | - 20.000 MHz |
|                   | F = ±30 ppm                         | F = ±30 ppm                                  | 1 = 0°C to +70°C            | 3 = 3 <sup>rd</sup> overtone |                              |              |
|                   | G = ±25 ppm                         | G = ±25 ppm                                  | 2 = -10°C to +60°C          |                              |                              |              |
|                   | H = ±20 ppm                         | H = ±20 ppm                                  | 3 = -20°C to +70°C          |                              |                              |              |
|                   | I = ±15 ppm                         | I = ±15 ppm**                                | 5 = -40°C to +85°C          |                              |                              |              |
|                   | J = ±10 ppm*                        | J = ±10 ppm**                                | 9 = -10°C to +50°C          |                              |                              |              |
|                   |                                     |  | D = -10°C to +105°C*        |                              |                              |              |
|                   |                                     | E = -40°C to +105°C*                         |                             |                              |                              |              |

\* Not available at all frequencies. \*\* Not available for all temperature ranges.



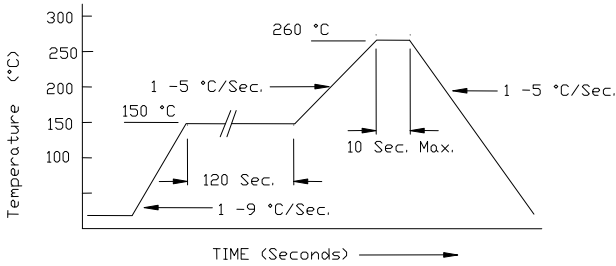
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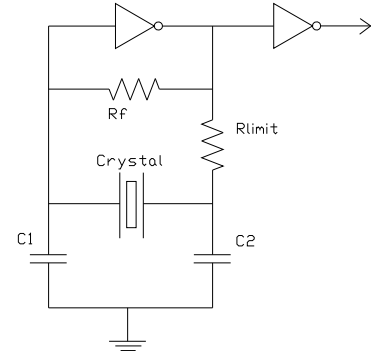
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**Pb Free Solder Reflow Profile:**

**Typical Circuit:**



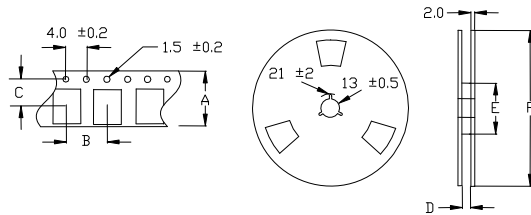
\*Units are backward compatible with 240C reflow processes



**Package Information:**

MSL = 1  
Termination = e4 (Au over Ni over W base metal).

**Tape and Reel Information:**



| Quantity per Reel | 1000                   |
|-------------------|------------------------|
| A                 | 12 +/- .3              |
| B                 | 8 +/- .2               |
| C                 | 5.5 +/- .2             |
| D                 | 13.5 +/- 1 or 12 +/- 3 |
| E                 | 60 / 80                |
| F                 | 180 / 250              |

**Environmental Specifications**

|                              |  |
|------------------------------|--|
| Thermal Shock                | MIL-STD-883, Method 1011, Condition A                                  |
| Moisture Resistance          | MIL-STD-883, Method 1004   |
| Mechanical Shock             | MIL-STD-883, Method 2002, Condition B                                  |
| Mechanical Vibration         | MIL-STD-883, Method 2007, Condition A                                  |
| Resistance to Soldering Heat | J-STD-020C, Table 5-2 Pb-free devices (except 2 cycles max)            |
| Hazardous Substance          | Pb-Free / RoHS / Green Compliant                                       |
| Solderability                | JESD22-B102-D Method 2 (Preconditioning E)                             |
| Terminal Strength            | MIL-STD-883, Method 2004, Test Condition D                             |
| Gross Leak                   | MIL-STD-883, Method 1014, Condition C                                  |
| Fine Leak                    | MIL-STD-883, Method 1014, Condition A2, R1=2x10 <sup>-8</sup> atm cc/s |
| Solvent Resistance           | MIL-STD-202, Method 215  |

**Marking**

Line 1: ILSI, Date Code (yww)  
Line 2: Frequency