



# 4 Pad Ceramic Package Quartz Crystal, 5.0mm x 3.2mm

## ILCX07 Series

### Product Features:

Low Cost SMD Package  
Low ESR  
Compatible with Leadfree Processing

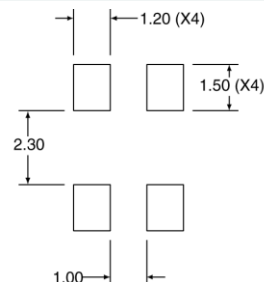
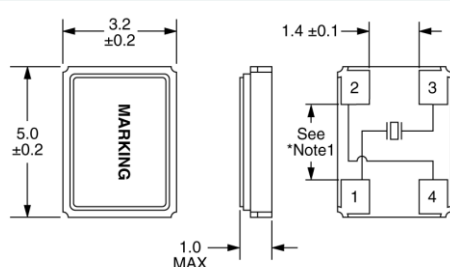
### Applications:

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

### Electrical Specifications

|                                                                                                                                                                                                               |                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency</b>                                                                                                                                                                                              | 8MHz to 150MHz                                                                                                                     |
| <b>Equivalent Series Resistance</b><br>8MHz – 9.999999MHz<br>10MHz – 11.999999MHz<br>12MHz – 15.999999MHz<br>16MHz – 19.999999MHz<br>20MHz – 23.999999MHz<br>24MHz – 50MHz<br>30MHz – 150MHz (Third Overtone) | 100 Ohms Maximum<br>80 Ohms Maximum<br>60 Ohms Maximum<br>50 Ohms Maximum<br>40 Ohms Maximum<br>30 Ohms Maximum<br>80 Ohms Maximum |
| <b>Shunt Capacitance (C0)</b>                                                                                                                                                                                 | 5pF Maximum                                                                                                                        |
| <b>Frequency Tolerance (at 25°C)</b>                                                                                                                                                                          | ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm                                                                                  |
| <b>Frequency Stability (over Temperature)</b>                                                                                                                                                                 | ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm                                                                                  |
| <b>Mode of Operation</b><br>8MHz – 50MHz<br>30MHz – 150MHz                                                                                                                                                    | Fundamental<br>Third Overtone                                                                                                      |
| <b>Crystal Cut</b>                                                                                                                                                                                            | AT Cut                                                                                                                             |
| <b>Load Capacitance</b>                                                                                                                                                                                       | 8pF to 32pF or Specify                                                                                                             |
| <b>Drive Level</b>                                                                                                                                                                                            | 100µW Maximum                                                                                                                      |
| <b>Aging</b>                                                                                                                                                                                                  | ±5ppm/Year Maximum                                                                                                                 |
| <b>Operating Temperature Range</b>                                                                                                                                                                            | See Part Number Guide                                                                                                              |
| <b>Storage Temperature Range</b>                                                                                                                                                                              | -40°C to +85°C                                                                                                                     |

### Mechanical and Solder Pad Dimensions



| Pin | Connection   |
|-----|--------------|
| 1   | Crystal      |
| 2   | Cover/Ground |
| 3   | Crystal      |
| 4   | Cover/Ground |

All Dimensions in Millimeters

Note: Chamfer not shown

\*Note 1: 2.6 ±0.1mm (<= 10MHz)  
2.4 ±0.1mm (> 10MHz)

### Part Number Guide

#### Sample Part Number: ILCX07 – FB1F18 – 20.000 MHz

| Package  | Frequency Tolerance | Frequency Stability | Operating Temperature Range | Mode of Operations | Load Capacitance       | Frequency  |
|----------|---------------------|---------------------|-----------------------------|--------------------|------------------------|------------|
| ILCX07 - | B = ±50ppm          | B = ±50ppm          | 0 = 0°C to +50°C            | F = Fundamental    | 8pF to 32pF or Specify | 20.000 MHz |
|          | F = ±30ppm          | F = ±30ppm          | 1 = 0°C to +70°C            | 3 = Third Overtone |                        |            |
|          | G = ±25ppm          | G = ±25ppm          | 2 = -10°C to +60°C          |                    |                        |            |
|          | H = ±20ppm          | H = ±20ppm          | 3 = -20°C to +70°C          |                    |                        |            |
|          | I = ±15ppm          | I = ±15ppm*, **     | 5 = -40°C to +85°C          |                    |                        |            |
|          | J = ±10ppm*         | J = ±10ppm*, **     | 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.

**QUALITY SYSTEM  
CERTIFIED  
= ISO 9001 =**

ILSI America Phone 775-851-8880 • Fax 775-851-8882 • email: e-mail@ilsiamerica.com •

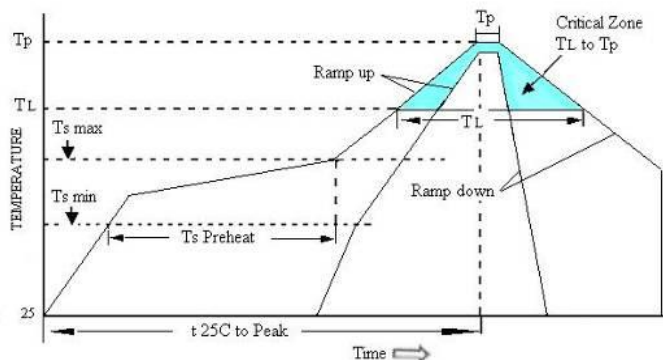
[www.ilsiamerica.com](http://www.ilsiamerica.com)

Specifications subject to change without notice

Rev: 04/17/18\_D

Page 1 of 2

### Pb Free Solder Reflow Profile:



Units are backward compatible with +240°C reflow processes

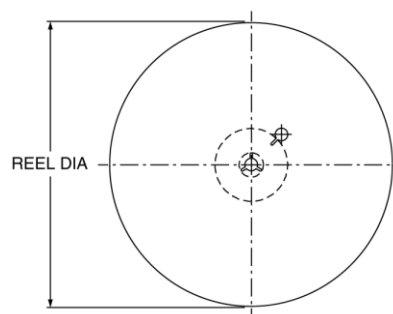
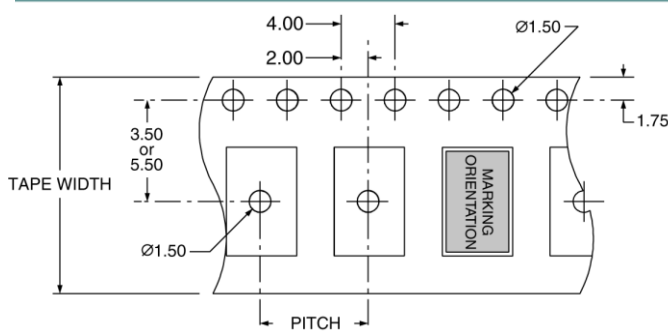
|                                                       |                          |
|-------------------------------------------------------|--------------------------|
| Ts max to T <sub>L</sub> (Ramp-up Rate)               | 3°C / second max         |
| Preheat                                               |                          |
| Temperature min (Ts min)                              | 150°C                    |
| Temperature typ (Ts typ)                              | 175°C                    |
| Temperature max (Ts max)                              | 200°C                    |
| Time (Ts)                                             | 60 to 180 seconds        |
| Ramp-up Rate (T <sub>L</sub> to T <sub>p</sub> )      | 3°C / second max         |
| Time Maintained Above Temperature (T <sub>L</sub> )   |                          |
| Time (T <sub>L</sub> )                                | 217°C                    |
| Peak Temperature (T <sub>p</sub> )                    | 60 to 150 seconds        |
| Time within 5°C to Peak Temperature (T <sub>p</sub> ) | 260°C max for 10 seconds |
| Ramp-down Rate                                        | 20 to 40 seconds         |
| Time 25°C to Peak Temperature                         | 6°C / second max         |
|                                                       | 8 minutes max            |

### Package Information:

MSL = 1 (package does not contain plastic, storage life is unlimited under normal room conditions)

Termination = e4 (Au over Ni over W base metallization)

### Tape and Reel Information:



|              |       |
|--------------|-------|
| PITCH        | 8.00  |
| TAPE WIDTH   | 12.00 |
| REEL DIA     | 180   |
| QTY PER REEL | 1,000 |

All Dimensions in Millimeters

### Environmental Specifications:

|                              |                                        |
|------------------------------|----------------------------------------|
| Mechanical Shock             | MIL-STD-202, Method 213                |
| Vibration                    | MIL-STD-202, Method 204                |
| Resistance to Soldering Heat | MIL-STD-202, Method 210                |
| Solderability                | J-STD-002                              |
| Gross Leak                   | MIL-STD-883, Method 1014, Condition C  |
| Fine Leak                    | MIL-STD-883, Method 1014, Condition A2 |

### Marking:

Line 1: ILSI, Date Code (YWW)

Line 2: Frequency

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## ABRACON:

[ILCX07-FF3F12-40.000MHz](#) [ILCX07-FF3F18-24.576MHz](#) [ILCX07-FF5F18-8.000MHz](#) [ILCX07-FF5F18-9.8304MHz](#)  
[ILCX07-HH3F12-32.000MHz](#) [ILCX07-HH3F18-25.000MHz](#) [ILCX07-HH3F18-19.6608MHz](#) [ILCX07-FF3F12-](#)  
[11.0592MHz](#) [ILCX07-FF3F12-33.000MHz](#) [ILCX07-FF5F12-20.000MHz](#) [ILCX07-FF5F12-22.1184MHz](#) [ILCX07-](#)  
[FF5F18-14.31818MHz](#) [ILCX07-HH3F18-10.000MHz](#) [ILCX07-HH3F18-48.000MHz](#) [ILCX07-HH3F18-30.000MHz](#)  
[ILCX07-FF5F18-18.432MHz](#) [ILCX07-FF5F18-20.000MHz](#) [ILCX07-HH3F12-9.8304MHz](#) [ILCX07-FF3F18-20.000MHz](#)  
[ILCX07-FF3F18-48.000MHz](#) [ILCX07-FF5F12-11.2896MHz](#) [ILCX07-FF5F18-11.0592MHz](#) [ILCX07-FF5F18-40.000MHz](#)  
[ILCX07-HH3F12-8.000MHz](#) [ILCX07-FF3F12-11.2896MHz](#) [ILCX07-FF3F12-14.31818MHz](#) [ILCX07-FF3F18-](#)  
[11.0592MHz](#) [ILCX07-FF3F12-30.000MHz](#) [ILCX07-FF3F12-8.000MHz](#) [ILCX07-FF3F18-10.000MHz](#) [ILCX07-FF3F12-](#)  
[14.7456MHz](#) [ILCX07-FF5F12-24.000MHz](#) [ILCX07-FF5F12-9.8304MHz](#) [ILCX07-FF5F18-19.6608MHz](#) [ILCX07-](#)  
[FF5F18-32.000MHz](#) [ILCX07-HH3F18-18.432MHz](#) [ILCX07-HH3F12-11.0592MHz](#) [ILCX07-HH3F12-33.000MHz](#)  
[ILCX07-HH3F12-40.000MHz](#) [ILCX07-HH3F12-48.000MHz](#) [ILCX07-HH3F18-22.1184MHz](#) [ILCX07-HH3F18-24.000MHz](#)  
[ILCX07-FF5F12-16.000MHz](#) [ILCX07-FF5F12-19.6608MHz](#) [ILCX07-FF5F18-11.2896MHz](#) [ILCX07-FF5F18-](#)  
[12.000MHz](#) [ILCX07-FF5F18-14.7456MHz](#) [ILCX07-HH3F12-10.000MHz](#) [ILCX07-HH3F18-32.000MHz](#) [ILCX07-](#)  
[HH3F18-40.000MHz](#) [ILCX07-FF3F12-10.000MHz](#) [ILCX07-FF3F12-32.000MHz](#) [ILCX07-FF3F12-48.000MHz](#) [ILCX07-](#)  
[FF3F18-24.000MHz](#) [ILCX07-FF5F12-40.000MHz](#) [ILCX07-FF5F18-22.1184MHz](#) [ILCX07-HH3F12-20.000MHz](#) [ILCX07-](#)  
[HH3F18-12.000MHz](#) [ILCX07-HH3F18-14.31818MHz](#) [ILCX07-HH3F18-11.0592MHz](#) [ILCX07-FF5F12-8.000MHz](#)  
[ILCX07-FF5F18-10.000MHz](#) [ILCX07-HH3F12-14.31818MHz](#) [ILCX07-HH3F12-24.000MHz](#) [ILCX07-FF5F12-](#)  
[32.000MHz](#) [ILCX07-FF5F12-33.000MHz](#) [ILCX07-FF3F12-9.8304MHz](#) [ILCX07-FF3F18-19.6608MHz](#) [ILCX07-FF3F18-](#)  
[22.1184MHz](#) [ILCX07-FF3F18-32.000MHz](#) [ILCX07-FF5F12-12.000MHz](#) [ILCX07-FF5F12-30.000MHz](#) [ILCX07-HH3F12-](#)  
[25.000MHz](#) [ILCX07-HH3F18-16.000MHz](#) [ILCX07-FF3F12-22.1184MHz](#) [ILCX07-FF3F18-14.7456MHz](#) [ILCX07-](#)  
[FF3F18-16.000MHz](#) [ILCX07-FF3F12-25.000MHz](#) [ILCX07-HH3F18-20.000MHz](#) [ILCX07-HH3F18-33.000MHz](#) [ILCX07-](#)  
[FF5F12-24.576MHz](#) [ILCX07-FF5F18-33.000MHz](#) [ILCX07-FF5F18-48.000MHz](#) [ILCX07-HH3F12-11.2896MHz](#) [ILCX07-](#)  
[FF5F18-16.000MHz](#) [ILCX07-HH3F12-12.000MHz](#) [ILCX07-HH3F12-14.7456MHz](#) [ILCX07-HH3F12-22.1184MHz](#)  
[ILCX07-HH3F12-24.576MHz](#) [ILCX07-HH3F12-30.000MHz](#) [ILCX07-FF3F12-12.000MHz](#) [ILCX07-FF3F12-24.576MHz](#)  
[ILCX07-FF3F18-18.432MHz](#) [ILCX07-FF3F18-33.000MHz](#) [ILCX07-FF5F12-14.31818MHz](#) [ILCX07-FF5F12-25.000MHz](#)  
[ILCX07-FF5F18-30.000MHz](#) [ILCX07-HH3F12-18.432MHz](#) [ILCX07-HH3F12-19.6608MHz](#) [ILCX07-HH3F18-](#)  
[14.7456MHz](#)