

## 4 Pad Ceramic Crystal, 2.5 mm x 3.2 mm

## ILCX13 Series

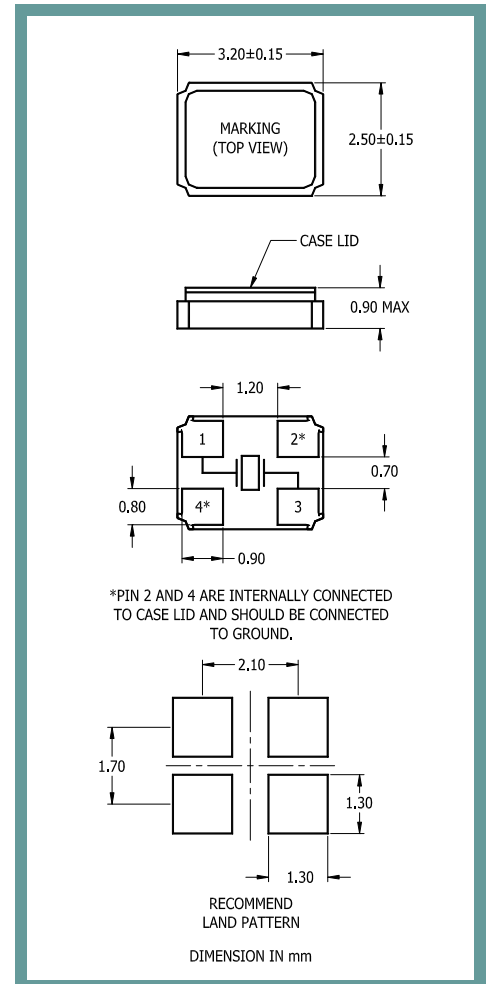
### Product Feature:

SMD Package  
Small package Foot Print  
Supplied in Tape and Reel  
Compatible with Leadfree Processing

### Applications:

PCMCIA Cards  
Storage  
PC's  
Wireless Lan

<b>Frequency</b>	10 MHz to 150 MHz
<b>ESR (Equivalent Series Resistance)</b> 10.0 MHz – 11.9 MHz 12.0 MHz – 15.6 MHz 16.0 MHz – 19.9 MHz 20.0 MHz – 23.9 MHz 24.0 MHz – 60.0 MHz 60.0 MHz – 150.0 MHz (3 <sup>rd</sup> O/T)	200 Ω Max. 100 Ω Max 80 Ω Max. 60 Ω Max. 40 Ω Max. 100 Ω Max.
<b>Shunt Capacitance (C0)</b>	3.5 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>	100 μW Max.
<b>Aging</b>	±3 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

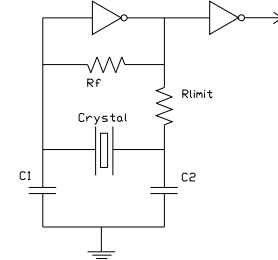
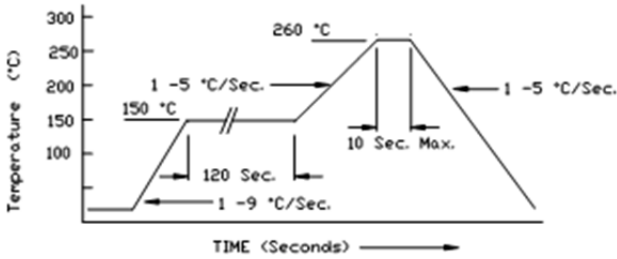


Part Number Guide		Sample Part Number: ILCX13 - FB1F18 - 20.00000M				
Package	Tolerance (ppm) at Room Temperature	Stability (ppm) over Operating Temperature	Operating Temperature Range	Mode (overtone)	Load Capacitance (pF)	Frequency
ILCX13 -	B = ±50 ppm	B = ±50 ppm	0 = 0°C to +50°C	F = Fundamental	18 pF Standard 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.

**Pb Free Solder Reflow Profile:**

**Typical Application:**

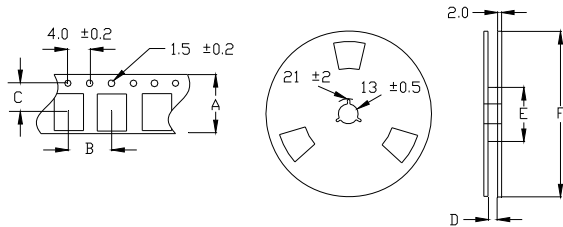


Units are backward compatible with 240C reflow processes

**Package Information:**

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

**Tape and Reel Information:**



Quantity per Reel	3000
A	8.0 ±0.2
B	4.0 ±0.2
C	3.5 ±0.2
D	12.0 ±3.0
E	60 / 80
F	180

**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: I-Date Code (yww)  
Line 2: Frequency