



4 Pad Ceramic Package, 2.5 mm x 3.2 mm



ILCX13 Series

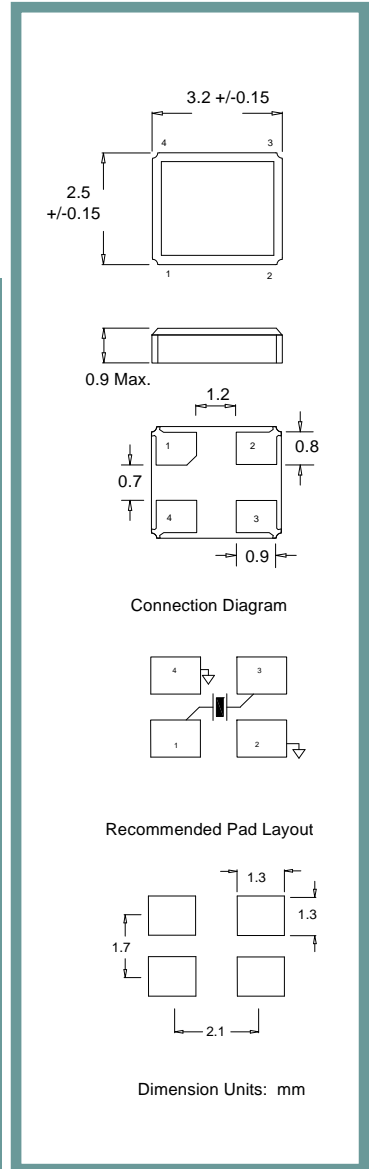
**Product Features:**

- 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>	12 MHz to 150 MHz
<b>ESR (Equivalent Series Resistance)</b>	
12.0 MHz – 15.9 MHz	100 Ω Max.
16.0 MHz – 19.9 MHz	80 Ω Max.
20.0 MHz – 23.9 MHz	60 Ω Max.
24.0 MHz – 60.0 MHz	40 Ω Max.
60.0 MHz – 150.0 MHz (3 <sup>rd</sup> O/T)	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>	±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: ILCX13 - FB1F18 - 20.000				
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.



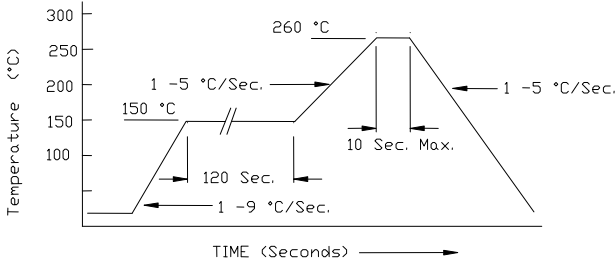
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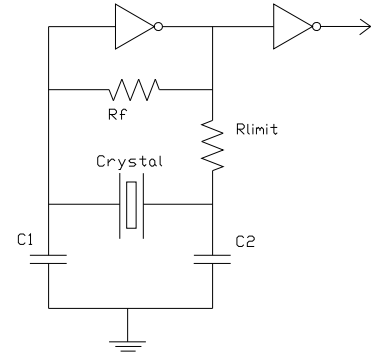
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**Pb Free Solder Reflow Profile:**

**Typical Circuit:**



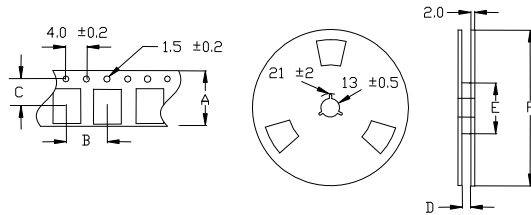
\*Units are backward compatible with 240C reflow processes



**Package Information:**

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

**Tape and Reel Information:**



Quantity per Reel	1000
A	8.0+/- .2
B	4.0 +/- .2
C	3.5 +/- .2
D	16.5 +/- .2
E	50 / 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