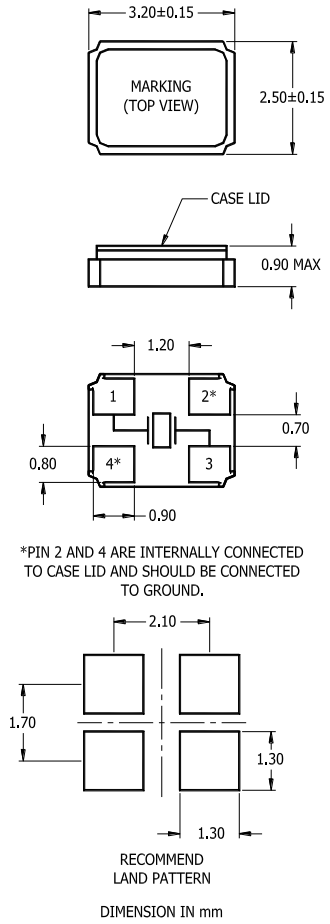
4 Pad Ceramic Crystal, 3.2mm x 2.5mm

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

Frequency	10 MHz to 150 MHz
ESR (Equivalent Series Resistance) 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 (3rd O/T)	 250 Ohms Maximum 100 Ohms Maximum 80 Ohms Maximum 60 Ohms Maximum 40 Ohms Maximum 100 Ohms Maximum
Shunt Capacitance (C0)	3.5pF Maximum
Frequency Tolerance @ 25° C	(See Part Number Guide)
Frequency Stability over Temperature	(See Part Number Guide)
Crystal Cut	AT Cut
Load Capacitance	8pF to 32pF or Specify
Drive Level	100µW Maximum
Aging	±3ppm/Year Maximum
Operating Temperature Range	(See Part Number Guide)
Storage Temperature Range	-40°C to +85°C

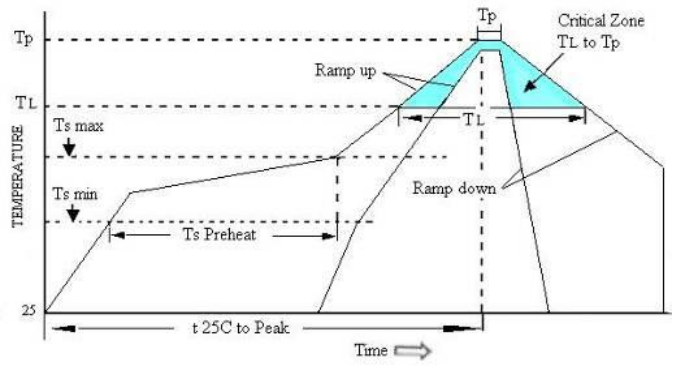


Part Number Guide **Sample Part Number: ILCX13 - FB1F18 - 20.000000 MHz**

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	8pF to 32pF Or Specify	- 20.000 MHz
	F = ±30 ppm	F = ±30 ppm	1 = 0°C to +70°C	3 = 3rd 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:



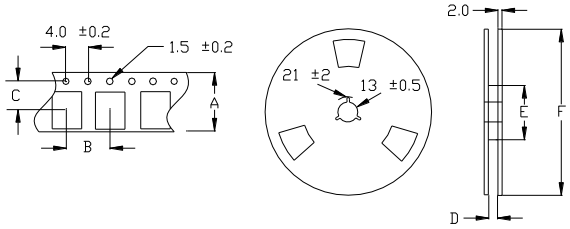
Units are backward compatible with 240C reflow processes

Ts max to T_L (Ramp-up Rate)	3ºC / second max
Preheat Temperature min (Ts min) Temperature typ (Ts typ) Temperature max (Ts max) Time (Ts)	 150ºC 175ºC 200ºC 60 to180 seconds
Ramp-up Tate (T_L to Tp	3ºC / second max
Time Maintained Above Temperature (T_L) Time (T_L)	 217ºC 60 to 150 seconds
Peak Temperature (Tp)	260ºC max for 10 seconds
Time within 5ºC to Peak Temperature (Tp)	20 to 40 seconds
Ramp-down Rate	6ºC / second max
Tune 25ºC to Peak Temperature	8 minutes max

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 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
Solvent Resistance	MIL-STD-202, Method 215

Marking:

Line 1: I-Date Code (yww)
Line 2: Frequency