# **ILCX13 Series**

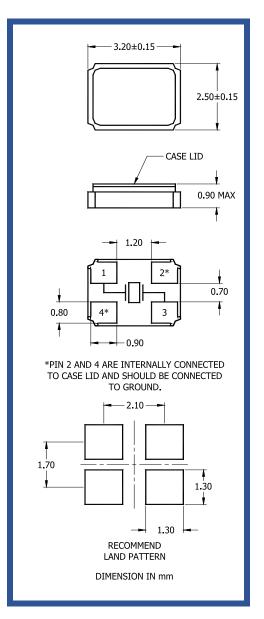


**Product Feature:** 

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 (3 <sup>rd</sup> 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		



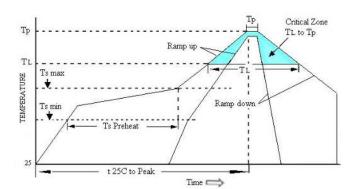
Part Numbe	r Guide	Sample P	Sample Part Number: ILCX13 - FB1F18 - 20.000000 MHz				
Package	Tolerance (ppm) at Room Temperature	Stability (ppm) over Operating Temperature	Operating Temperature Range	Mode (overtone)	Load Capacitance (pF)	Frequency	
ILCX13 -	B = ±50 ppm	B = ±50 ppm	0 = 0°C to +50°C	F = Fundamental	8pF to 32pF		
	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			- 20.000	
	I = ±15 ppm	I = ±15 ppm**	5 = -40°C to +85°C		Or Specify	MHz	
	J = ±10 ppm*	J = ±10 ppm**	9 = -10°C to +50°C				
			D = -10°C to +105°C*				
			E = -40°C to +105°C*				

<sup>\*</sup> Not available at all frequencies. \*\* Not available for all temperature ranges.

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#### **Pb Free Solder Reflow Profile:**



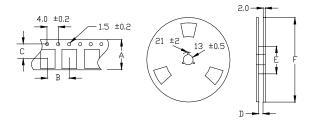
Ts max to T <sub>∟</sub> (Ramp-up Rate)	3°C / second max	
Preheat		
Temperature min (Ts min)	150°C	
Temperature typ (Ts typ)	175°C	
Temperature max (Ts max)	200°C	
Time (Ts)	60 to180 seconds	
Ramp-up Tate (T <sub>∟</sub> to Tp	3°C / second max	
Time Maintained Above		
Temperature (T <sub>∟</sub> )	217°C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

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	
Α	8.0 ±0.2	
В	4.0 ±0.2	
С	3.5 ±0.2	
D	12.0 ±3.0	
Е	60 / 80	
F	180	