

2 Lead Metal Package Quartz Crystal, 4.7mm x 11mm

HC49U Series

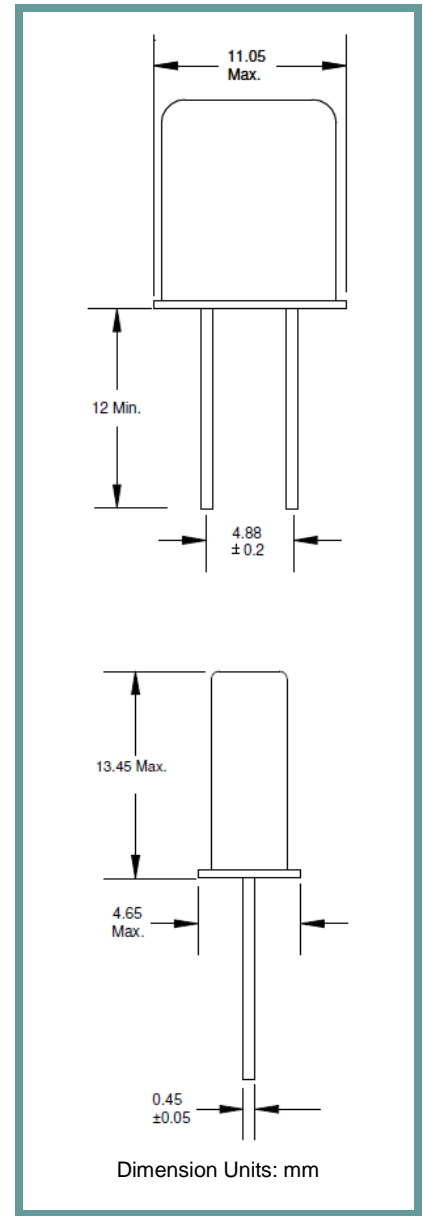
Product Features:

- Low Cost
- RoHS Compliant
- Compatible with Leadfree Processing

Applications:

- Fibre Channel
- Server & Storage
- Sonet /SDH
- 802.11 / Wifi
- T1/E1, T3/E3
- System Clock

Frequency	1.300MHz to 160.000MHz
ESR (Equivalent Series Resistance)	
1.300MHz – 1.999MHz	800 Ohms Maximum
2.000MHz – 2.999MHz	500 Ohms Maximum
3.000MHz – 3.299MHz	200 Ohms Maximum
3.300MHz – 3.999MHz	150 Ohms Maximum
4.000MHz – 4.499MHz	100 Ohms Maximum
4.500MHz – 4.999MHz	80 Ohms Maximum
5.000MHz – 5.999MHz	70 Ohms Maximum
6.000MHz – 6.999MHz	50 Ohms Maximum
7.000MHz – 7.999MHz	40 Ohms Maximum
8.000MHz – 9.999MHz	30 Ohms Maximum
10.000MHz – 35.999MHz	25 Ohms Maximum
25.000MHz – 100.000MHz (3 rd OT)	50 Ohms Maximum
70.000MHz – 160.000MHz (5 th OT)	40 Ohms Maximum
Shunt Capacitance	7pF Maximum
Frequency Tolerance @ +25° C	See Part Number Guide
Frequency Stability over Temperature	See Part Number Guide
Crystal Cut	AT Cut
Load Capacitance	See Part Number Guide
Drive Level	1mWatts Maximum
Aging	±5ppm/Year Maximum
Operating Temperature Range	See Part Number Guide
Storage Temperature Range	-40°C to +85°C



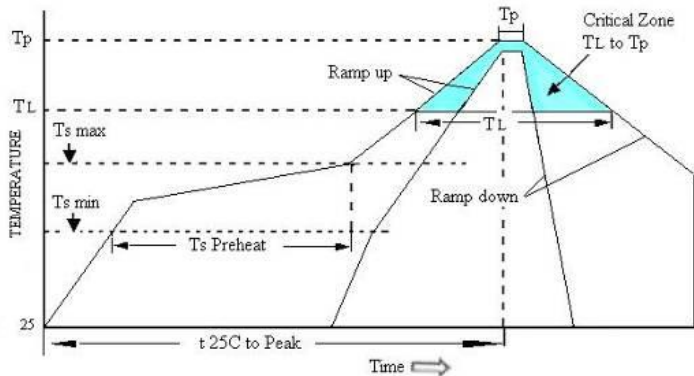
Part Number Guide		Sample Part Number: HC49U - FB1F18 - 20.000 MHz				
Package	Tolerance (ppm) at Room Temperature	Stability (ppm) over Operating Temperature	Operating Temperature Range	Mode (overtone)	Load Capacitance (pF)	Frequency
HC49U - (13.46 mm H)	B = ±50 ppm	B = ±50 ppm	0 = 0°C to +50°C	F = Fundamental	18 pF or Specify	- 20.000 MHz
	F = ±30 ppm	F = ±30 ppm	1 = 0°C to +70°C	3 = 3 rd overtone		
	G = ±25 ppm	G = ±25 ppm	2 = -10°C to +60°C	5 = 5 th overtone		
	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				

* Not available at all frequencies. ** Not available for all temperature ranges.

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Pb Free Solder Reflow Profile:



Ts max to T _L (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 _L to T _p)	3°C / second max
Time Maintained Above Temperature (T _L)	217°C
Time (T _L)	60 to 150 seconds
Peak Temperature (T _p)	260°C max for 10 seconds
Time within 5°C to Peak Temperature (T _p)	20 to 40 seconds
Ramp-down Rate	6°C / second max
Time 25°C to Peak Temperature	8 minutes max

Units are backward compatible with +240°C reflow processes

Package Information:

MSL = 1

Termination = e1 (Sn / Cu / Ag over Ni over Kovar base metal).

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 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 A1
Solvent Resistance	MIL-STD-202, Method 215

Marking

Line 1: ILSI
 Line 2: Frequency
 Line 3: Date Code (YWW)