

# HC49USM Series



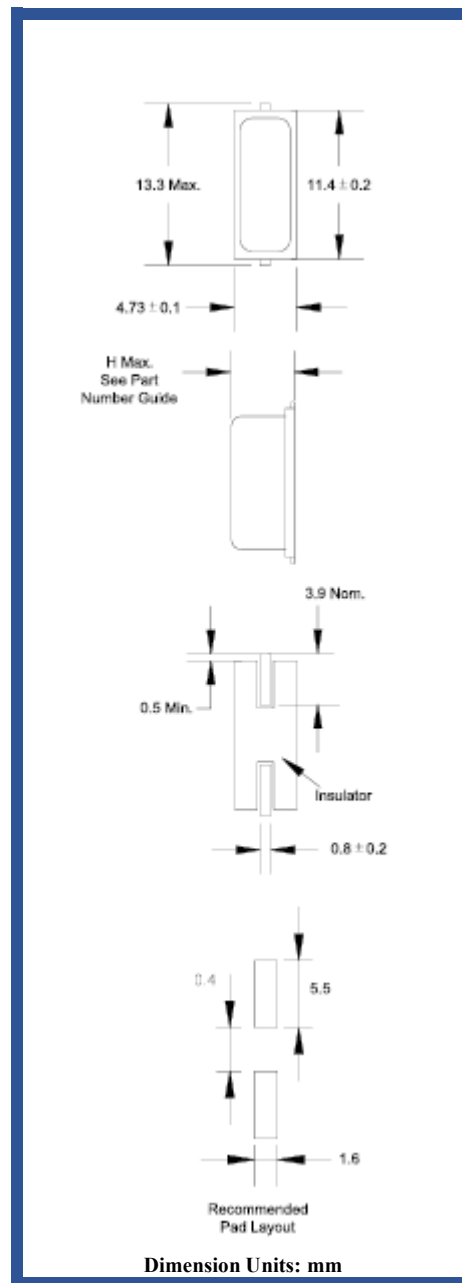
## Product Feature:

Low Cost SMD Package  
Low ESR  
Compatible with Leadfree Processing

## Applications:

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

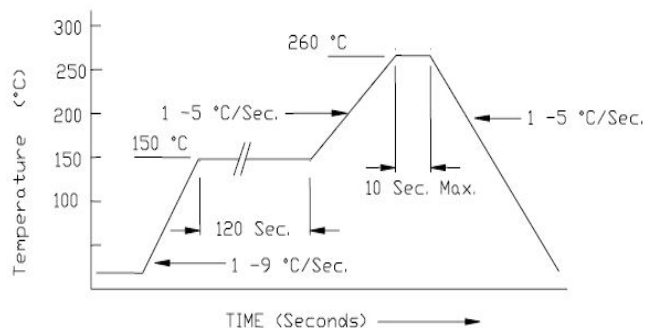
<b>Frequency</b>	3.2 MHz to 100 MHz
<b>ESR (Equivalent Series Resistance)</b>	
3.2 MHz - 3.49 MHz	300 Ω Max.
3.5 MHz - 3.99 MHz	200 Ω Max.
4.0 MHz - 4.99 MHz	150 Ω Max.
5.0 MHz - 5.99 MHz	120 Ω Max.
6.0 MHz - 6.99 MHz	100 Ω Max.
7.0 MHz - 8.9 MHz	80 Ω Max.
9.0 MHz - 12.9 MHz	60 Ω Max.
13 MHz - 19.9 MHz	40 Ω Max.
20 MHz - 36 MHz	30 Ω Max.
36 MHz - 100.0 MHz (3rd O.T.)	100 Ω Max.
<b>Shunt Capacitance (C0)</b>	7 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>	1 mW 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



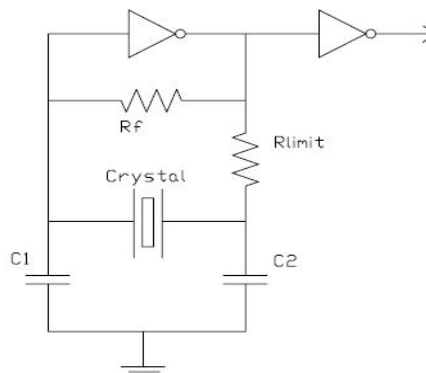
Part Number Guide		Sample Part Number: HC49USM - FB1F18 - 20.000 MHz				
Package	Tolerance (ppm) at Room Temperature	Stability (ppm) over Operating Temperature	Operating Temperature Range	Mode (overtone)	Load Capacitance (pF)	Frequency (MHz)
HC49USM- (4.5 mm H)	B = ±50ppm	A = ±100ppm	0 = 0°C to +50°C	F = Fundamental	18pF Standard Or Specify	-20.000 MHz
	F = ±30ppm	B = ±50ppm	1 = 0°C to +70°C	3 = Third Overtone		
HC49USM2- (3.5 mm H)	G = ±25ppm	G = ±25ppm	2 = -10°C to +60°C			
	H = ±20ppm	H = ±20ppm	3 = -20°C to +70°C			
HC49USM3- (3.1 mm H)	I = ±15ppm	I = ±15ppm	5 = -40°C to +85°C			
	J = ±10ppm*	J = ±10ppm	9 = -10°C to +50°C			

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

## Pb Free Solder Reflow Profile:



## Typical Circuit:



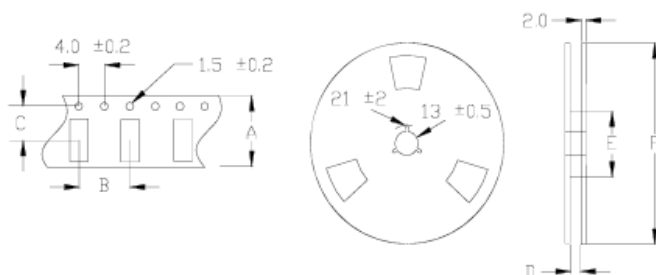
\*Units are backward compatible with 240C reflow processes

## Package Information:

MSL = N/A

Termination = e4 (Sn / Cu/ Ag over Ni over Kovar base metal).

## Tape and Reel Information:



<b>A</b>	<b>24 +/- 0.3</b>
<b>B</b>	<b>12 +/- 0.2</b>
<b>C</b>	<b>11.5 +/- 0.2</b>
<b>D</b>	<b>25 +/- 1.5</b>
<b>E</b>	<b>80/100</b>
<b>F</b>	<b>330</b>
<b>QTY per Reel</b>	<b>1000</b>

## 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