D Series

- **HC-49/S SMD Crystal**
- **3rd Lead Ground Option Available**
- **Wide Frequency Range**
- **Fundamental or 3rd OT AT Cut**



Frequency Range	3.200MHz to 80.000MHz
Frequency Tolerance / Stability	(See Part Number Guide for Options)
Operating Temperature Range	(See Part Number Guide for Options)
Storage Temperature	-55°C to +125°C
Aging	±5ppm / first year Max
Shunt Capacitance	7pF Max
Load Capacitance	20pF Standard (See Part Number Guide for Options)
Equivalent Series Resistance	See ESR Chart
Mode of Operation	See ESR Chart
Drive Level	1mW Max

Environmental & Mechanical Detail

Shock	MIL-STD-883, Method 2002 Cond B
Solderability	MIL-STD-883, Method 2003
Solvent Resistance	MIL-STD-202, Method 215
Vibration	MIL-STD-883, Method 2007, Cond A
Gross Leak Test	MIL-STD-883, Method 1014, Cond C
Fine Leak Test	MIL-STD-883,Method 1014, Cond A2
MSL	Level 1 per IPC/JEDEC J-STD 20

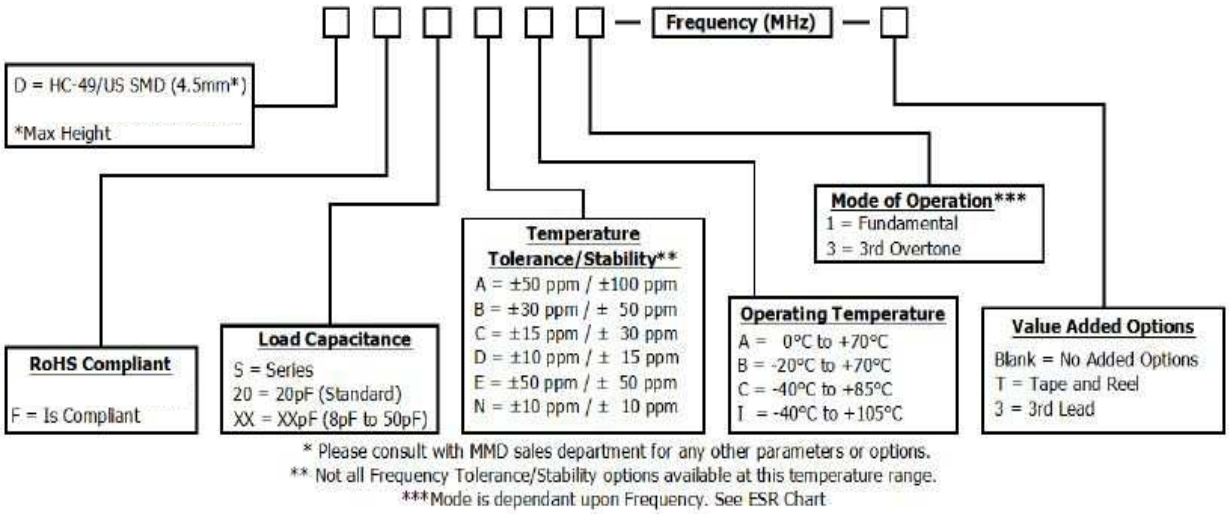
Marking Detail

Line 1: MXX.XXX
XX.XXX = Frequency in MHz
Line 2: SYMCCL
S = Internal Code
YM = Date Code (Year/Month)
CC = Crystal Parameters Code
L = Denotes RoHS Compliant

ESR Chart

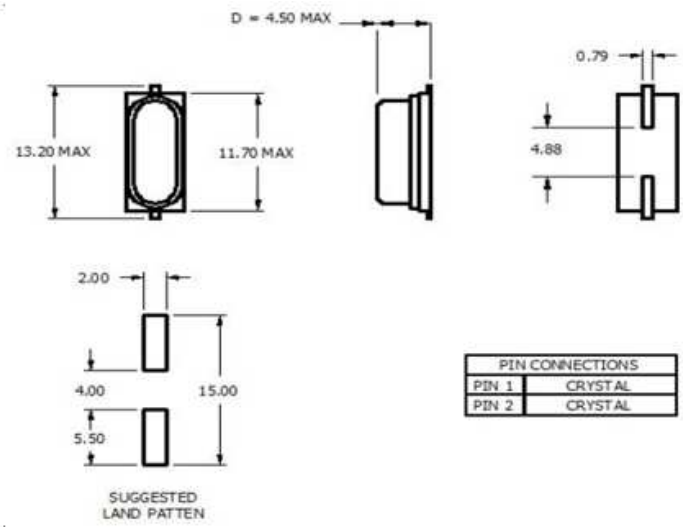
Frequency Range	ESR (Ohms)	Mode / Cut
3.200MHz to 3.999MHz	150 Max	Fund / AT
4.000MHz to 4.999MHz	120 Max	Fund / AT
5.000MHz to 5.999MHz	100 Max	Fund / AT
6.000MHz to 7.999MHz	90 Max	Fund / AT
8.000MHz to 9.999MHz	70 Max	Fund / AT
10.000MHz to 11.999MHz	50 Max	Fund / AT
12.000MHz to 14.999MHz	50 Max	Fund / AT
15.000MHz to 19.999MHz	40 Max	Fund / AT
20.000MHz to 33.000MHz	30 Max	Fund / AT
24.576MHz to 29.999MHz	100 Max	3rd OT / AT
30.000MHz to 80.000MHz	80 Max	3rd OT / AT

Part Number Guide

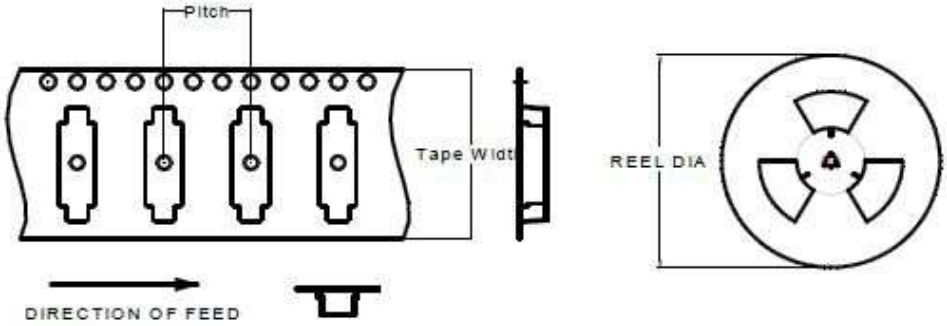


* Please consult with MMD sales department for any other parameters or options.
** Not all Frequency Tolerance/Stability options available at this temperature range.
***Mode is dependant upon Frequency. See ESR Chart

Mechanical Details



Tape & Reel

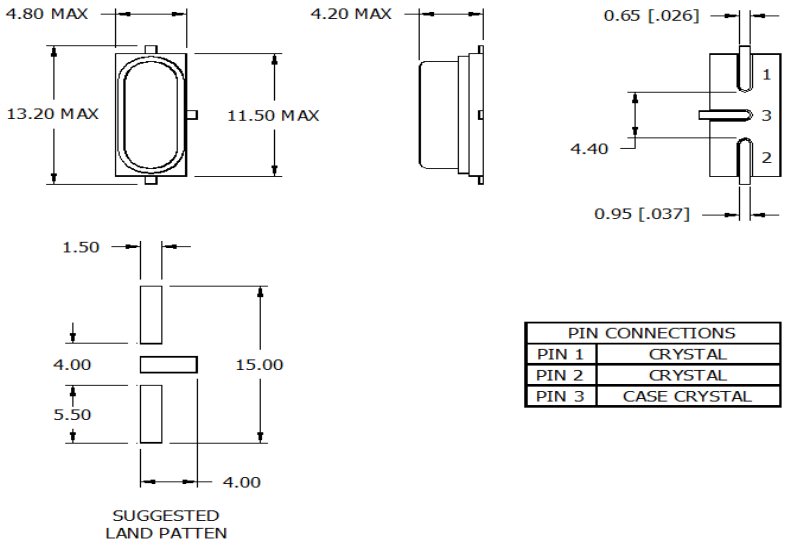


PITCH	12.00 [0.628]
TAPE WIDTH	24.00 [0.945]
REEL DIA	330 [13]
COUNT.	1000

Notes: UNLESS OTHERWISE SPECIFIED

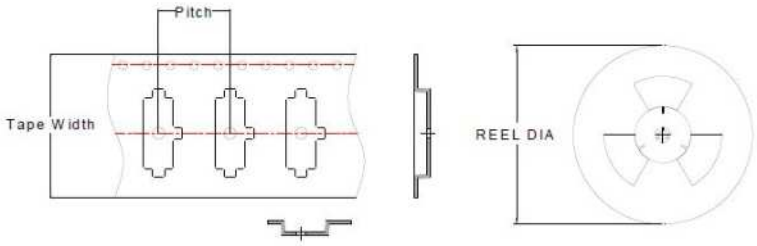
1. Applicable Standards / Specifications
   ANSI Y14.5M, Dimensions and Tolerances
   EIA-481-B, 8mm through 200mm Embossed Carrier Tapping and 8mm and 12mm Punched Carrier Tapping of Surface Mount Components for Automatic Handling.
2. Dimensions are in millimetres.
3. Tolerances are ±0.1 [0.004] mm unless otherwise specified.
4. Do not scale drawing.

3rd Lead Mechanical Details



PIN CONNECTIONS	
PIN 1	CRYSTAL
PIN 2	CRYSTAL
PIN 3	CASE CRYSTAL

3rd Lead Tape & Reel Dimensions



PITCH	12.00 [0.471]
TAPE WIDTH	24.00 [0.942]
REEL DIA	330 [13.0]
COUNT.	1000 pcs

NOTES: UNLESS OTHERWISE SPECIFIED

5. Applicable Standards / Specifications
   ANSI Y14.5M, Dimensions and Tolerances
   EIA-481-B, 8mm through 200mm Embossed Carrier Tapping and 8mm and 12mm Punched Carrier Tapping of Surface Mount Components for Automatic Handling.
6. Dimensions are in millimetres.
7. Tolerances are ±0.10 [0.004] mm unless otherwise specified.
8. Do not scale drawing.