

# B & E Series Crystal



- HC-49/S Thru-Hole Crystal
- RoHS Compliant Available
- Wide Frequency Range
- AT Cut
- Three Lead Ground Options



Frequency Range	3.200MHz to 91.730MHz
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 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

**QUALITY SYSTEM  
CERTIFIED  
= ISO 9001 =**

**MMD MONITOR/QUARTZEK – An ILSI Company,**  
5458 Louie Lane, Reno, NV 89511  
Phone: (775) 851-8880, [www.mmdcomp.com](http://www.mmdcomp.com)

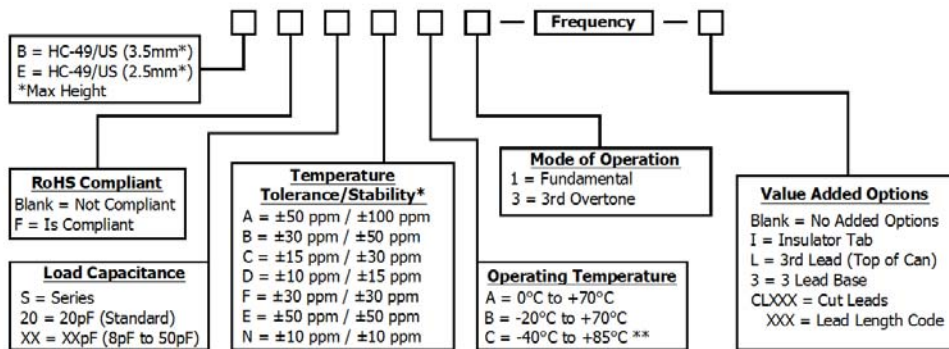


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# ESR Chart

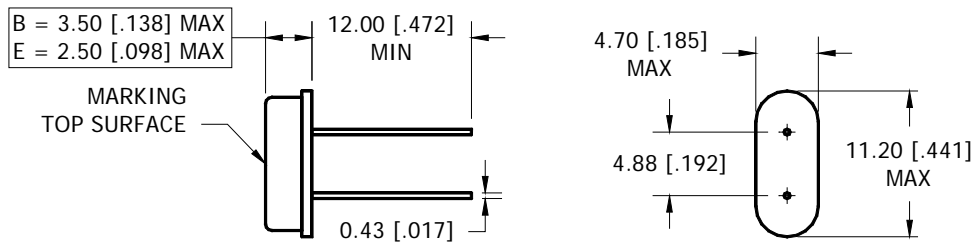
Frequency Range	ESR (Ohms)	Mode / Cut
3.200MHz to 4.999MHz	200 Max	Fund / AT
5.000MHz to 5.999MHz	150 Max	Fund / AT
6.000MHz to 7.999MHz	120 Max	Fund / AT
8.000MHz to 8.999MHz	90 Max	Fund / AT
9.000MHz to 9.999MHz	80 Max	Fund / AT
10.000MHz to 16.999MHz	50 Max	Fund / AT
17.000MHz to 24.999MHz	40 Max	Fund / AT
25.000MHz to 36.000MHz	25 Max	Fund / AT
24.000MHz to 34.999MHz	100 Max	3 <sup>rd</sup> OT / AT
35.000MHz to 59.999MHz	80 Max	3 <sup>rd</sup> OT / AT
60.000MHz to 91.730MHz	60 Max	3 <sup>rd</sup> 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.

## Mechanical Details



DIMENSIONS IN BRACKETS ARE INCHES

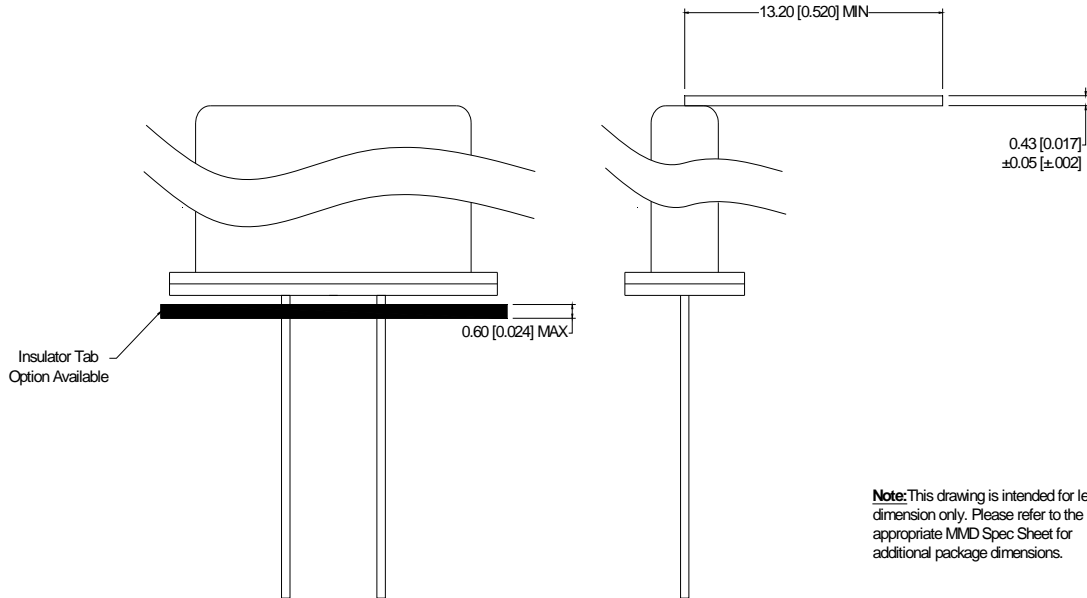
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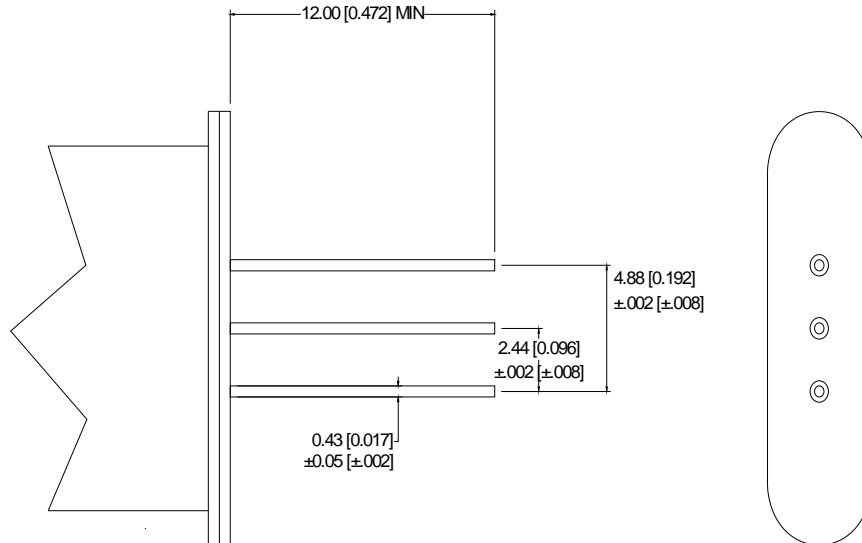
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## 3rd Lead (Top of Can)



**Note:** This drawing is intended for lead dimension only. Please refer to the appropriate MMD Spec Sheet for additional package dimensions.

## 3 Lead Base



**Note:** This drawing is intended for lead dimension only. Please refer to the appropriate MMD Spec Sheet for additional package dimensions.

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