



# LOW PROFILE SMD TYPE CRYSTAL UNITS

## • HC-49SM Series



This part is a miniature AT or BT cut strip crystal units packaged for surface mounting. HC-49SMB supplies the same crystal with a lower height of less than 3.2mm.

### FEATURES

- Low Cost
- Industry Standard
- Wide Frequency Range
- Excellent Aging
- Surface Mount

## Electrical Specifications

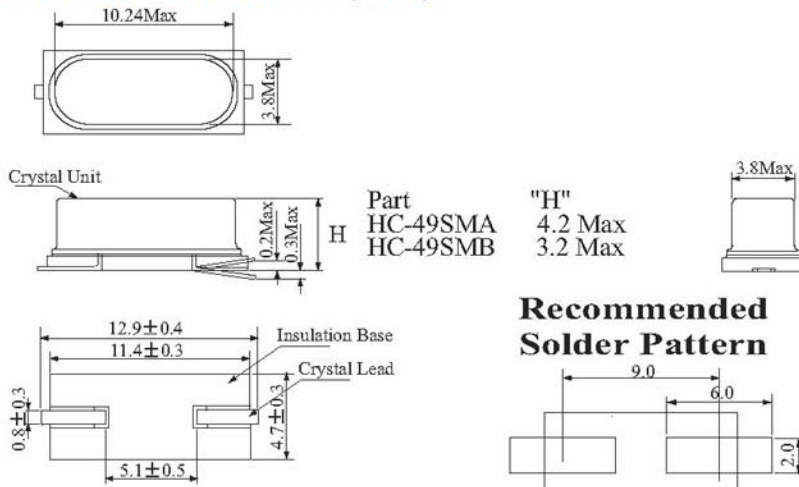
Parameter	Symbol	Condition	Min	Typ	Max	Units
Frequency Range	F <sub>0</sub>	49SMA	3.200		66.000	MHz
		49SMB	8.000		66.000	MHz
Frequency Tolerance	ΔF/F <sub>0</sub>	AT 25°C	±10	±30	±50	ppm
Temperature Stability	T <sub>C</sub>	REF TO 25°C	±10	±30	±50	ppm
Operating Temperature Range	T <sub>OPR</sub>		-20*		+70*	°C
Storage Temperature Range	T <sub>STG</sub>		-40		+85	°C
Shunt Capacitance	C <sub>O</sub>				7	pF
Load Capacitance	C <sub>L</sub>	Customer Specified	10		Series	pF
Insulator Resistance	I <sub>R</sub>	100V <sub>DC</sub>	500			MΩ
Drive Level	D <sub>L</sub>			100	500	μW
Aging	F <sub>a</sub>	AT 25°C, per year	-5.0		+5.0	ppm

\*Operating temperature range: BT cut can only do 0°C to 50°C

## Equivalent Series Resistance(ESR) and Mode of Vibration(Mode)

Frequency Range(MHz)	Max ESR(Ω)	Mode	Frequency Range(MHz)	Max ESR(Ω)	Mode
3.200 to 4.499	150	Fundamental/AT	9.000 to 9.999	60	Fundamental/AT
4.500 to 5.999	120	Fundamental/AT	10.000 to 12.999	50	Fundamental/AT
6.000 to 6.999	100	Fundamental/AT	13.000 to 30.000	40	Fundamental/AT
7.000 to 7.999	90	Fundamental/AT	30.000 to 66.000	80	3 <sup>rd</sup> Overtone
8.000 to 8.999	80	Fundamental/AT	27.000 to 40.000	40	Fundamental/BT

## Mechanical Dimensions(mm)



### Recommended Solder Pattern

