49SMD Standard and Low Profile

FEATURES

- Low cost crystal for mass market applications
- Surface mount version of HC49-4H crystal
- Comprehensive stockholding of standard frequencies
- Customized parts readily available
- Industry-standard package
- Low-profile versions available

DESCRIPTION

49USMX crystals are low profile surface mount crystals that have the same footprint as standard HC49 or HC49-4H crystals. 49USMD crystals are ideal for use in low cost, mass-market applications. The crystal may also be specified with close tolerances when required.

SPECIFICATION

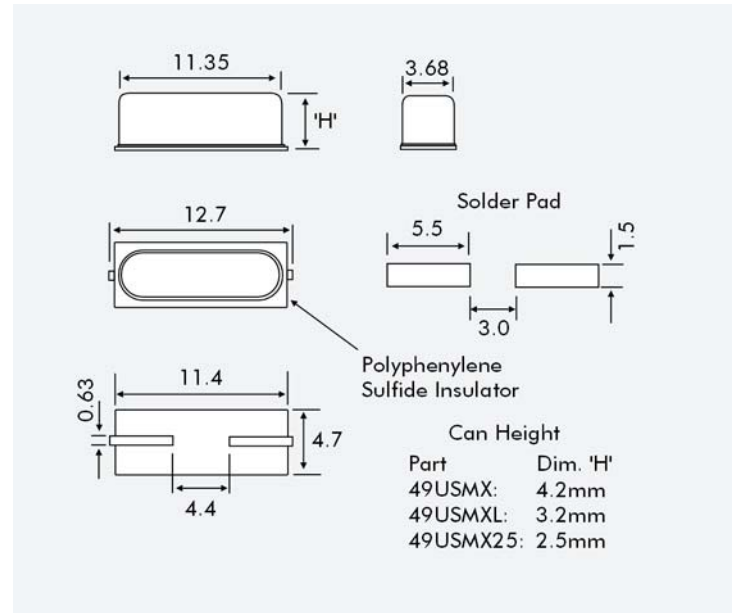|	
Frequency Range:	3.2MHz to 70MHz
Calibration Tolerance:	±30ppm at 25°C standard ±10ppm available
Frequency Stability over Temp.	
AT-Cut:	±30ppm over -10° ~ +60°*
BT-Cut:	±100ppm over -10° ~ +60°C*
Operating Temperature Range:	-10° ~ +60°C to -40° ~ +85°C
Shunt Capacitance (C0):	4pf typical, 7pF maximum
Load Capacitance (CL):	Series or from 8pF to 32pF (*Customer specified*)
Ageing:	±3ppm maximum in first year ±1ppm per year thereafter (Ta = 25°C, drive 100 W)
Drive Level:	100μW typical, 500μW maximum
Reflow Soldering:	260°C, 10s maximum
Holder:	Hermetic seal, resistance weld
Packaging:	EIA 24mm tape and reel 1000 pieces per reel
RoHS Status:	Compliant

* Closer tolerances may be specified

ESR & OSCILLATION MODE

Frequency Range (MHz)	Crystal Cut & Oscillation Mode	Max. ESR (Ohms)
3.2~3.4	AT Fund.	300
3.5~4.0	AT Fund.	150
4.1~4.9	AT Fund.	120
5.0~5.9	AT Fund.	100
6.0~8.9	AT Fund.	80
9.0~9.9	AT Fund.	60
10.0~12.9	AT Fund.	50
13.0~24.0	AT Fund.	45
24.1~30.0	AT Fund.	40
24.0~48.0	BT Fund.	40
27.0~30.0	AT 3rd OT	150
30.0~50.0	AT 3rd OT	100
50.1~70.0	AT 3rd OT	80

OUTLINE & DIMENSIONS

11.35, 3.68, 'H'
12.7
Solder Pad
5.5, 1.5
3.0
Polyphenylene Sulfide Insulator
0.63, 11.4, 4.7
4.4

Can Height

Part	Dim. 'H'
49USMX:	4.2mm
49USMXL:	3.2mm
49USMX25:	2.5mm

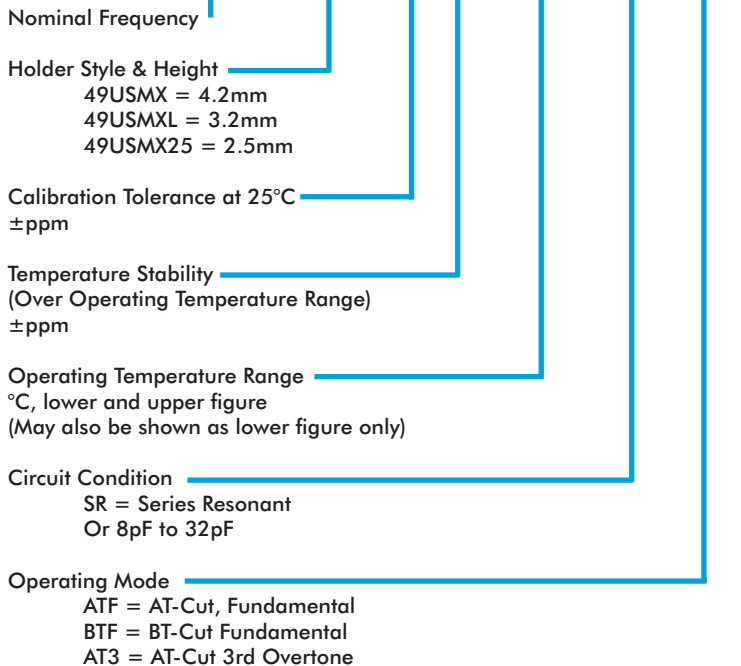## PART NUMBERING

49USMX part numbers are derived as follows:

Example: **16.000MHz 49USMX/30/50/-20+70/30pF/ATF**

Nominal Frequency

Holder Style & Height
49USMX = 4.2mm
49USMXL = 3.2mm
49USMX25 = 2.5mm

Calibration Tolerance at 25°C
±ppm

Temperature Stability
(Over Operating Temperature Range)
±ppm

Operating Temperature Range
°C, lower and upper figure
(May also be shown as lower figure only)

Circuit Condition
SR = Series Resonant
Or 8pF to 32pF

Operating Mode
ATF = AT-Cut, Fundamental
BTF = BT-Cut Fundamental
AT3 = AT-Cut 3rd Overtone

* If required the maximum ESR may be specified, in which case use the suffix '/R40' where for instance a maximum ESR of 40Ω is required.