

Quartz Crystal Series	
<b>HC-49/S (49S)</b> <b>HC-49/SS (49SS)</b>	<b>Features</b> ◆RoHS Compliant      ◆Low profile type

**Electrical Specifications**

Item	Specifications	Remarks
Nominal Frequency Range	3.000MHz to 30.000MHz	Fund.; AT-Cut
	20.000MHz to 48.000MHz	Fund.; BT-Cut
	30.000MHz to 110.000MHz	3 <sup>rd</sup> O.T.; AT-Cut
Frequency Tolerance	±20ppm(Standard) at 25°C±3°C	Others are offered
Load Capacitance	Fund.: 10pF to ∞, O.T.: 5pF to ∞	Please specify
Series Resistance	As ESR table	
Shunt Capacitance	7pF Max	
Drive Level	10μW to 100μW	1000μW Max
Operating Temperature	-20°C to +70°C(Standard)	Others are offered
Storage Temperature	-55°C to +125°C / -65°C to +135°C	
Stability vs. Temperature	±20ppm(Standard)	Others are offered
Insulated Resistance	500MΩ	Minimum at 100Vdc
Aging	±2ppm/year	Maximum

**ESR(Series Resistance)**

Frequency(MHz)	Mode	Ohm Max	Frequency(MHz)	Mode	Ohm Max
3.0~3.999	Fund.	120	10.0~12.999	Fund.	40
4.0~4.999	Fund.	90	13.0~19.999	Fund.	35
5.0~5.999	Fund.	90	20.0~30.0	Fund.	25
6.0~6.999	Fund.	65	20.0~48.0(BT)	Fund.	25
7.0~7.999	Fund.	55	29.999~49.999	3 <sup>rd</sup> O.T.	100
8.0~8.999	Fund.	50	50.0~89.999	3 <sup>rd</sup> O.T.	80
9.0~9.999	Fund.	45	90.0~110.0	3 <sup>rd</sup> O.T.	120

**Stability vs. Temperature**

◆ Standard ◇ Please specify		1	2	3	5	6	7	Remarks
		±10ppm	±20ppm	±30ppm	±50ppm	±100ppm	±150ppm	
B	-10°C to +60°C	◇	◇	◇				
C	-20°C to +70°C	◇	◆	◇	◇	◇	◇	Standard
D	-40°C to +85°C	◇	◇	◇	◆	◇	◇	
E	-45°C to +125°C			◇	◇	◆	◇	

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HC-49/S (49S)

HC-49/SS (49SS)

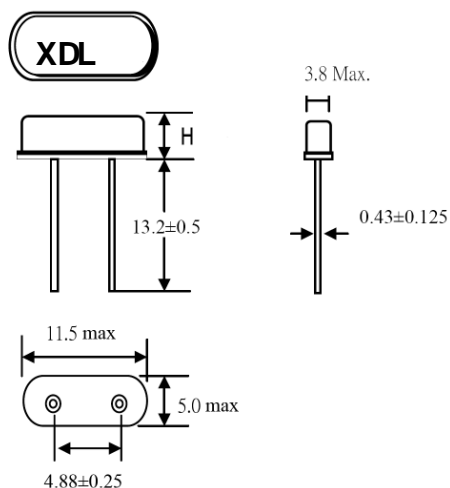
## Ordering Information

Q	R	Type	Pin	XX.XXXX	M	Mode	CL pF	Freq.Tolerance at 25°C	Operating Temp.	Stability Vs.Temp.	Option
Q:Quartz R:Resonator	49S 49SS	Blank:2	Center frequency 3.0 to 110.0MHz	M: MHz	F:Fund.;AT O: 3 <sup>rd</sup> O.T.;AT	See Table	±10ppm to ±150ppm	See Table	See Table		F:Lead Free T:T&R Blank:Bulk

**Example:QR49S16.0000MFK2C2FT**

(Crystal, HC-49/S, 2pins, 16.0000MHz, Fund AT, 20pF, ±20ppm, -20 to +70deg. ±20ppm, Lead free, T&amp;R)

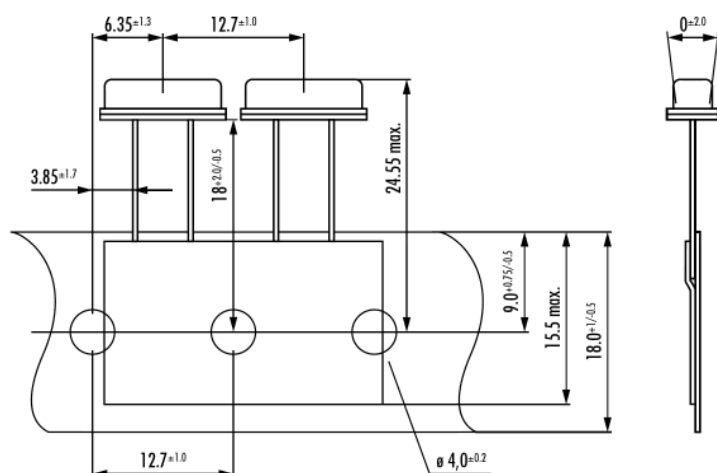
## Dimensions



TYPE		H
49S	HC-49/S	3.68 Max.
49SS	HC-49/SS	2.50 Max.

Unit:mm

## Taping Specification



1000pcs/Reel

## Load Capacitance Codes

7pF: E	8pF: F	9pF: B	10pF: R
12pF: T	15pF: H	16pF: I	18pF: J
20pF: K	22pF: L	25pF: G	27pF: M
30pF: N	32pF: P	33pF: W	Series: S

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## Reflow Soldering Profile

