



# Quartz Crystal

## Resistance Welded HC-49/S Surface Mount Package

### FEATURE

- I Height 4.0mm, or 3.0mm, compact unit for surface mount
- I Able to by means of a metal case and completely sealed high solution characteristics
- I Copes with high density mounting and is the optimum for mass production

### ELECTRICAL SPECIFICATIONS

Nominal frequency	3.000MHz ~ 100.00MHz
Oscillation mode	Fundamental
Operating temperature range	-20°C--+70°C (Typical), -10°C ~ +60°C, -40°C ~ +85°C, or specify
Storage temperature range	-40°C--+85°C
Frequency tolerance	±30PPM at 25±2°C (Typical), or specify
Freq. Temp characteristics	±50PPM -20°C--+70°C (Typical), or specify
Load capacitance	Series, 16pF, 20pF, 30pF, or specify
Equivalent series resistance	See below table
Parallel capacitance(Co)	7PF Max
Drive level	100 µW
Insulation resistance	More than 500MΩ AT DC100V

### EQUIVALENT SERIES RESISTANCE(ESR) AND OSCILLATION MODE

Frequency Range	E.S.R (Ω)	Mode	Frequency Range	E.S.R (Ω)	Mode
3.000MHz~5.999MHz	150Max	Fundamental/AT	24.000MHz~40.320MHz	30Max	Fundamental/ BT
6.000MHz~7.999MHz	60Max	Fundamental/AT	24.000MHz~29.999MHz	100Max	Third Overtone /AT
8.000MHz~15.999MHz	50Max	Fundamental/AT	30.000MHz~49.999MHz	80Max	Third Overtone /AT
16.000MHz~30.000MHz	30Max	Fundamental/AT	50.000MHz~100.000MHz	60Max	Third Overtone /AT

### Mechanical characteristics

Resistance to shock:	±3PPM Max ±3 Ω Max, Naturally drop it 3 times on a hard wood plate from 100cm height
Resistance to vibration:	±3PPM Max ±3 Ω Max



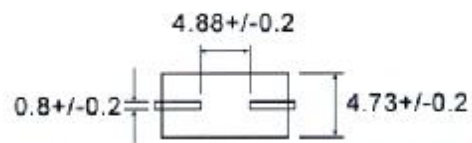
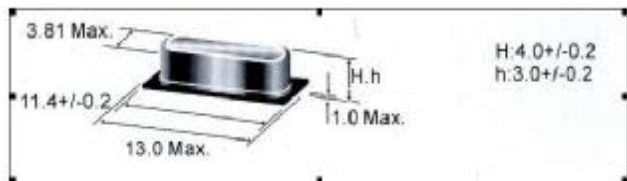
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### Reliability

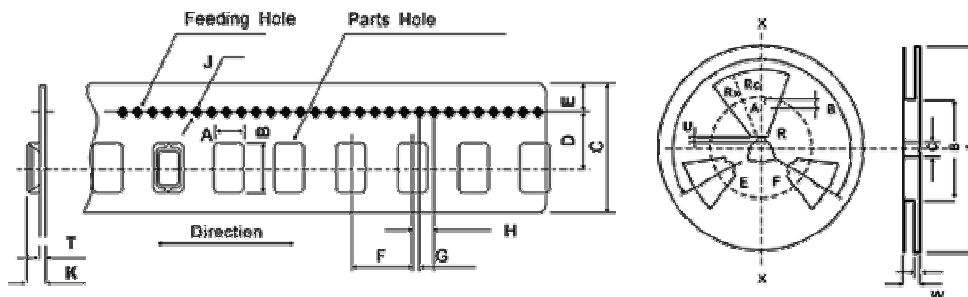
Aging	$\pm 3\text{PPM Max/Year}$
Air tightness	
(1) Gross leak	should be immersed in hot water( $90 \pm 5^\circ\text{C}$ ) for 5 minutes
(2) Fine leak	should be less than $5 \times 10^{-8}$ atmcc/sec by helium leak detector
Low drive characteristics	Measured $\Delta 1, \text{C1,3}$ point at 1.0, 10, 100 $\mu\text{W}$

### Dimension



[New height lowest : 2.5MM +/-0.2MM](#)

### Tape & Reel



The design, manufacturing process, and specifications of this device are subject to change without notice.



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Description		Code	Dimensions
Flanges	Diameter	A	$\phi 330 \pm 2.0$
	Thickness	t	$2.4 \pm 0.2$
	WidthbetweenFlanges	W	$+2.0$ $24.4-0$
Flanges	OutlineDiameter		B $\phi 100 \pm 2.0$
	CenterCoreslit	Width	F $2.3 \pm 1.0$
		Depth	V $6.0 \pm 1.0$
		Position	Q $120^\circ \pm 3.0^\circ$
	SpindleDiameter		C $\phi 13.0 \pm 0.5$
	KeySeats	Width	E 2.5
		Depth	U $5.0 \pm 0.5$
Position		Q $120^\circ \pm 3^\circ$	
Fenestrate	OutlineRadius		Ro $R90 \pm 1.0$
	InlineRadius		Ri $R40 \pm 1.0$
	RoundedComers		Rc $+2.0$ $R5-0$
	OpenAngle		R $40^\circ \pm 2^\circ$

Code	Dimension	Code	Dimension	Code	Dimension
A	$5.0 \pm 0.1$	E	$1.75 \pm 0.1$	J	$\phi 1.5 (+0.1, -0)$
B	$15.0 \pm 0.2$	F	$8.0 \pm 0.1 / 12.0 \pm 0.1$	K	$5.0 \pm 0.1$
C	$24.0 \pm 0.3$	G	$2.0 \pm 0.1$	T	$5.0 \pm 0.1$
D	$11.05 \pm 0.1$	H	$4.0 \pm 0.1$		

**Notice:** These parts do not contain any hazardous substances as specified in the RoHS ( The Restriction of Hazardous Substances )

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