


Quartz Crystal Series	Features ◆RoHS Compliant ◆Low profile type	
HC-49S/SMD (49SMD)		
HC-49SS/SMD (49SSMD)		

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 rd 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 rd O.T.	100
8.0~8.999	Fund.	50	50.0~89.999	3 rd O.T.	80
9.0~9.999	Fund.	45	90.0~110.0	3 rd O.T.	120

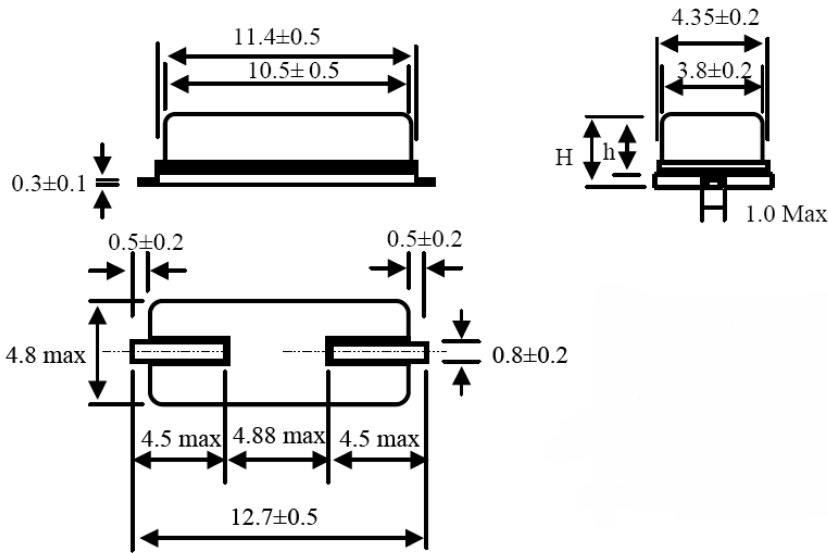
Stability vs. Temperature								
◆ Standard		1	2	3	5	6	7	Remarks
◇ Please specify		±10ppm	±20ppm	±30ppm	±50ppm	±100ppm	±150ppm	
B	-10°C to +60°C	◇	◇	◇				
C	-20°C to +70°C	◇	◆	◇	◇			Standard
D	-40°C to +85°C	◇	◇	◇	◆	◇	◇	
E	-45°C to +125°C			◇	◇	◆	◇	

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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		49SMD 49SSMD	Blank: 2	Center frequency 3.0 to 110.0MHz	M: MHz	F: Fund.; AT O: 3 rd O.T.; AT	See Table	±10ppm to ±150ppm	See Table	See Table	F: Lead Free Blank: T&R B: Bulk
Example: QR49SMD11.0592MFK2C2F (Crystal, HC-49S/SMD, 11.0592MHz, 2pins, 20pF, ±20ppm, -20 to +70deg, ±20ppm. Lead free, T&R)											

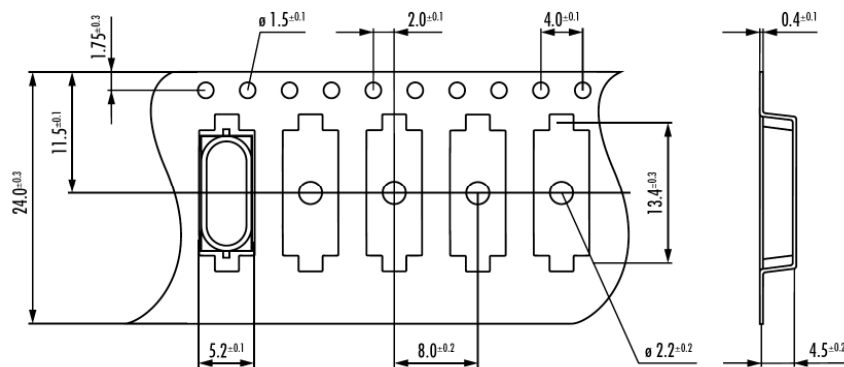
Dimensions



TYPE		H	h
49SMD	HC-49S/SMD	4.0±0.3	3.5±0.3
49SSMD	HC-49SS/SMD	2.9±0.3	2.2±0.3

Unit:mm

Taping Specification



1000pcs/Reel

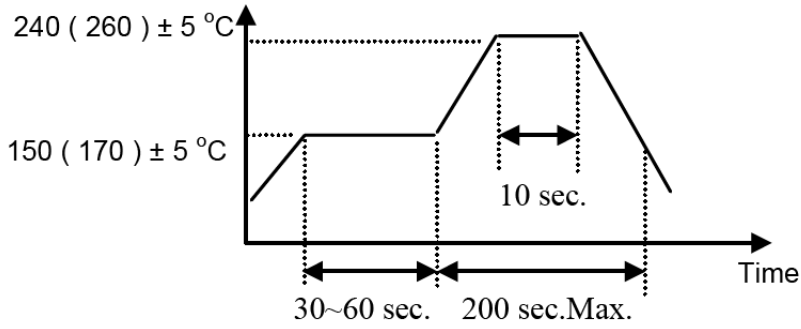
Load Capacitance Codes

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



Total time: 200 sec. Max.
Solder melting point: 185 °C (215 °C)