

Quartz Crystal Series	
HC-49E/SMD (49E) HC-49EE/SMD (49EE)	Features ◆RoHS Compliant ◆Low profile type



Electrical Specifications

Item	Specifications	Remarks
Nominal Frequency Range	3.000MHz to 48.000MHz	Fund.; AT-Cut
	24.000MHz to 110.000MHz	3 rd O.T.;AT-Cut
Frequency Tolerance	±20ppm(Standard) at 25℃±3℃	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℃ to +70℃(Standard)	Others are offered
Storage Temperature	-55℃ to +125℃ / -65℃ to +135℃	
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.	180	10.0~19.999	Fund.	40
4.0~4.999	Fund.	100	20.0~48.0	Fund.	30
5.0~5.999	Fund.	90	24.0~79.999	3 rd O.T.	90
6.0~6.999	Fund.	70	80.0~110.0	3 rd O.T.	70
7.0~9.999	Fund.	60			

Stability vs. Temperature

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

Ordering Information

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

Example:QR49E11.0592MFK2C2F (Crystal,HC-49E/SMD,11.0592MHz,2pins,20pF,+/-20ppm,-20 to +70deg,+/-20ppm.Lead free,T&R)

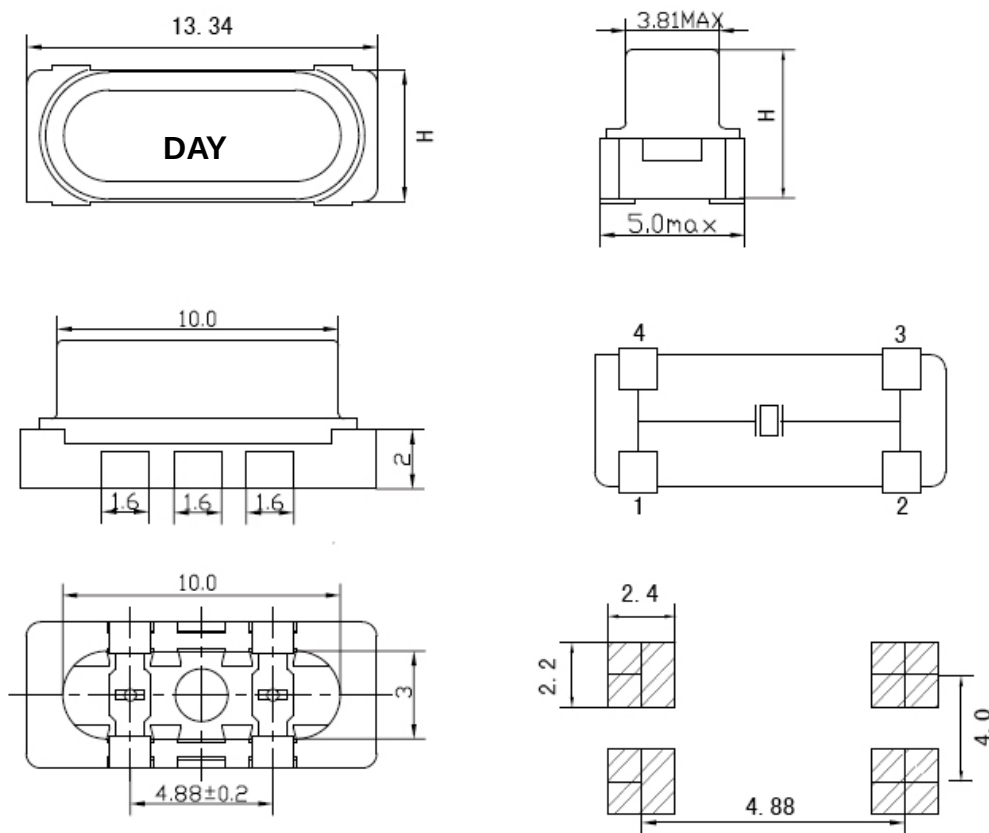
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Load Capacitance Codes

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

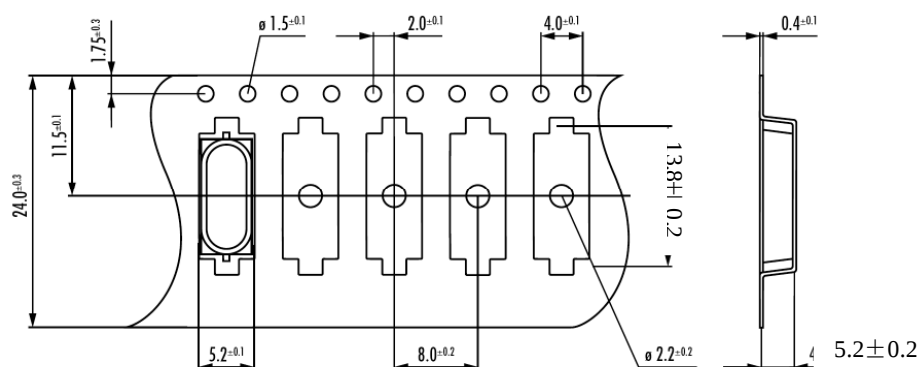
Dimensions



TYPE		H
49E	HC-49E/SMD	5.0±0.2
49EE	HC-49EE/SMD	4.5±0.2

Unit:mm

Taping Specification



1000pcs/Reel

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Reflow Soldering Profile

