



# Quartz Crystal · HC49/U-SMC

- SMD Crystal Version · 17.5 x 10.8 mm
- high frequency stability
- reflow soldering temperature: 260 °C max.
- customized versions available, please ask



RoHS compliant



Pb free



REACH compliant



Conflict mineral free



actual size

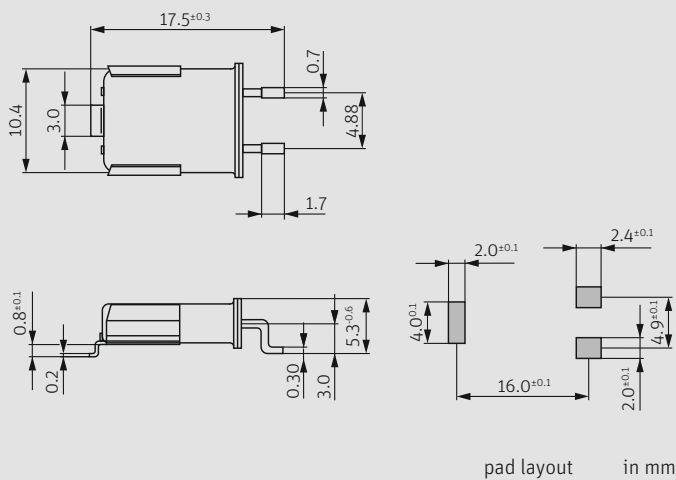
## GENERAL DATA

TYPE	S (HC49/U-SMC)
frequency range	1.8432 ~ 40.0 MHz (fund. AT-cut)
	20.0 ~ 105.0 MHz (3rd OT AT-cut)
	50.0 ~ 175.0 MHz (5th OT AT-cut)
	70.0 ~ 250.0 MHz (7th OT AT-cut)
frequency tolerance at 25 °C	±3 ppm ~ ±50 ppm
load capacitance $C_L$	8 pF ~ 32 pF or series
shunt capacitance $C_0$	< 7 pF
storage temperature	-55 °C ~ +125 °C
drive level max.	1.0 mW (100 µW recommended)
aging	< ± 5ppm first year

## ESR (SERIES RESISTANCE RS)

frequency in MHz	vibration mode	ESR max. in Ω	ESR typ. in Ω
1.8432	fund. - AT	800	400
2.0 ~ 2.999	fund. - AT	400	150
3.0 ~ 3.499	fund. - AT	150	50
3.57 ~ 6.999	fund. - AT	60	20
7.00 ~ 12.999	fund. - AT	30	15
13.0 ~ 40.000	fund. - AT	20	10
20.0 ~ 29.999	3rd OT - AT	80	35
30.0 ~ 105.00	3rd OT - AT	60	30
50.0 ~ 175.00	5th OT - AT	150	60
70.0 ~ 250.00	7th OT - AT	180	80

## DIMENSIONS



## TABLE 1: FREQUENCY STABILITY VS. TEMPERATURE

		±3 ppm	±5 ppm	±10 ppm	±30 ppm	±50 ppm	±100 ppm
0 °C ~ +60 °C	STD.	○	○	○			
-20 °C ~ +70 °C	STD.		○	○	●		
-40 °C ~ +85 °C	T1			○	○	●	
-40 °C ~ +90 °C	T4				○	○	○
-40 °C ~ +105 °C	T2				○	○	○
-40 °C ~ +125 °C	T3					○	○

● standard ○ available

## MARKING

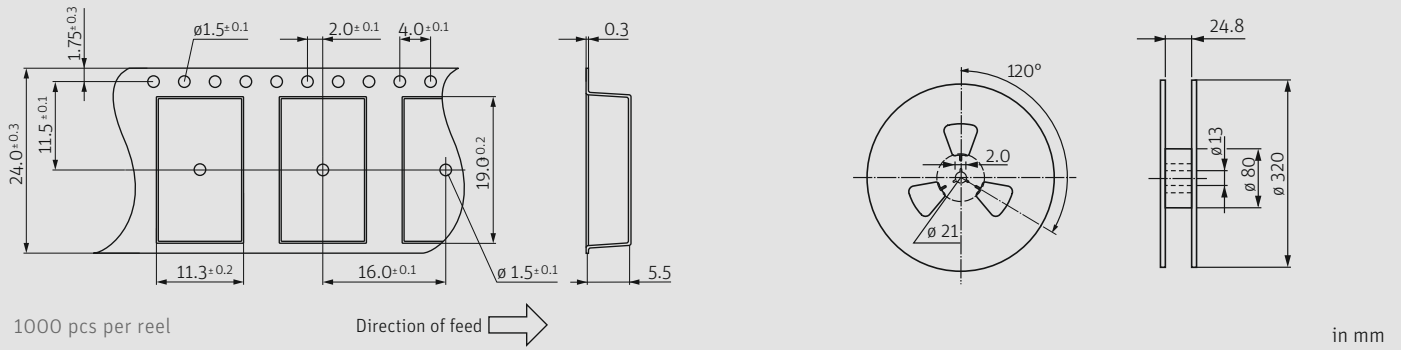
frequency  
company code / load capacitance  
date code / internal code

## ORDER INFORMATION

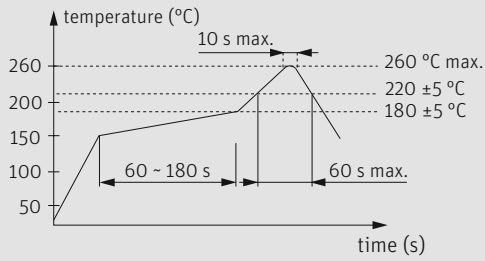
Q	frequency	type	load capacitance in pF	tolerance at 25 °C	stability vs. temp. range	option	SMD version
Quartz	1.8432 ~ 250.0 MHz	S	30 pF standard 12 pF ~ 32 pF S for series	±3 ppm ~ ±50 ppm see table	see table 1	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +105 °C T3 = -40 °C ~ +125 °C T4 = -40 °C ~ +90 °C FU = for fundamental frequencies ≥ 20 MHz 30T = 3rd overtone 50T = 5th overtone 70T = 7th overtone	SMC

**Example:** Q 28.0-S-30-30/30-T1-FU-SMC-LF (Suffix LF = RoHS compliant / Pb free pins)

## TAPING SPECIFICATION SMD VERSION



## REFLOW SOLDERING PROFILE



note: parts are also suitable for soldering systems with lead (Pb) content