

actual size

S series • HC49/U

through hole quartz crystal

features

- wide frequency range
- most flexible specifications

type	S (HC49/U)				
frequency	921.0 kHz ~ 1.2288 MHz	1.7 ~ 3.5 MHz	3.57 ~ 35.0 MHz	20.0 ~ 90.0 MHz	50.0 ~ 150.0 MHz
	fundamental SL-cut	fundamental AT-cut	fundamental AT-cut	3rd overtone AT-cut	5th overtone AT-cut
frequency tolerance at 25 °C	± 50 ppm	± 30 ppm	± 30 ppm	± 30 ppm	± 30 ppm
frequency temperature characteristic	± 100 ppm	± 50 ppm	± 30 ppm	± 30 ppm	± 50 ppm
standard operating temperature	-20 °C ~ +60 °C	-20 °C ~ +70 °C	-20 °C ~ +70 °C	-20 °C ~ +70 °C	-20 °C ~ +70 °C
storage temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C
load capacitance C_L	20 pF / 30 pF	12 pF ~ 30 pF / series	12 pF ~ 30 pF / series	12 pF ~ 30 pF / series	12 pF ~ 30 pF / series
shunt capacitance C_0	< 7 pF	< 7 pF	< 7 pF	< 7 pF	< 7 pF
drive level max.	2.0 mW	1 mW	1 mW	0.5 mW	0.5 mW
aging	< ± 5 ppm	< ± 5 ppm	< ± 5 ppm	< ± 5 ppm	< ± 5 ppm

order information example:

Q - 10.0 - S - 30 - 30 / 30 - TR

1. 2. 3. 4. 5. 6. 7.

1. quartz: Q
2. frequency: 10.0 MHz
3. type: S (HC49/U)
4. load capacitance: 30 pF (S for series)
5. frequency stability at 25 °C: ± 30 ppm
6. frequency vs temperature: ± 30 ppm
7. special requirement: taped

option table:

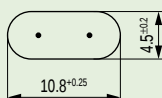
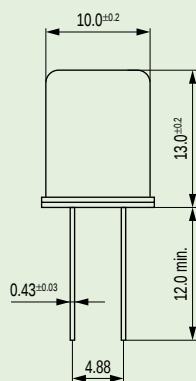
- TP — top pin
- MP — middle pin
- TR — taped
- SL — sleeved
- IS — insulation spacer
- SMC — surface mount with clip
- LL — lead length
- FUND — fundamental tone
- 3 OT — 3rd overtone
- 5 OT — 5th overtone
- T1 — -40 °C ~ +85 °C
- T2 — -40 °C ~ +105 °C
- T3 — -40 °C ~ +125 °C
- T4 — -40 °C ~ +90 °C

marking:

1. line = frequency
2. line = company code / load capacitance
3. line = date code / internal code

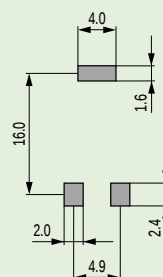
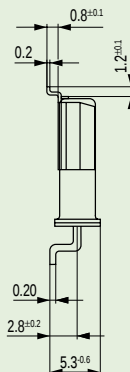
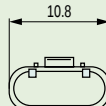
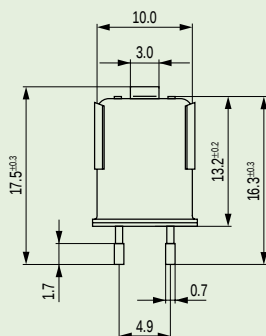
S series • HC49/U

dimensions



in mm

HC49/SMD-Clip dimensions

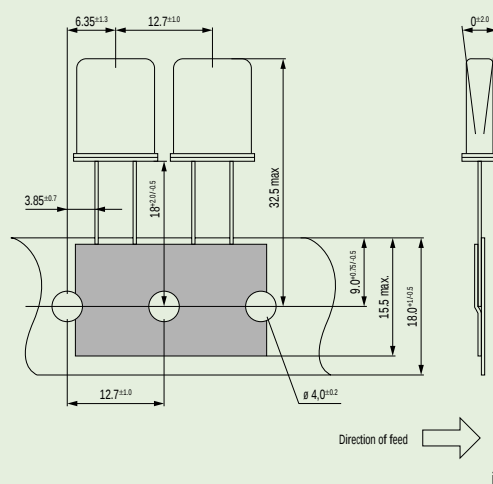


in mm

handling note:

We do not recommend to use fundamental tone crystals > 10.0 MHz and 3rd overtone crystals > 30.0 MHz on tape and reeled.

taping according to DIN IEC 286-2



in mm

series resistance (Rs) / motional capacitance (C1) table

frequency in MHz	cut	vibration mode	Rs max. in Ω	Rs typ. in Ω	C1 typ. in fF
0.92 ~ 1.2288	SL	fund	3000	800	3
1.8432	AT	fund	800	400	6
2.0 ~ 2.99	AT	fund	400	200	7
3.0 ~ 3.19	AT	fund	180	60	10
3.2 ~ 3.49	AT	fund	150	50	10
3.5 ~ 3.99	AT	fund	90	35	12
4.0 ~ 4.99	AT	fund	80	30	14
5.0 ~ 5.99	AT	fund	70	25	16
6.0 ~ 6.99	AT	fund	60	15	16
7.0 ~ 9.99	AT	fund	40	10	18
10.0 ~ 12.99	AT	fund	30	10	20
13.0 ~ 19.99	AT	fund	25	10	22
20.0 ~ 35.0	AT	fund	20	10	25
20.0 ~ 29.99	AT	3rd OT	80	35	1.5
30.0 ~ 69.99	AT	3rd OT	60	35	1.5
70.0 ~ 91.0	AT	3rd OT	50	35	1.0
50.0 ~ 99.99	AT	5th OT	150	70	0.8
100.0 ~ 150.0	AT	5th OT	150	100	0.5

test conditions:

- a) acceleration: 1000 g / 0.5 ms, 1/2 sine wave
- b) shock (random drop): height 75 cm, 3 times to hardwood surface ($\Delta R/R \leq 20\%$; $\Delta f/f \leq \pm 5$ ppm)
- c) vibration: f = 10 Hz ~ 55 Hz; amplitude = 1.5 mm; period = about 1 minute; time = 2 h each direction
- d) solderability: according to DIN 68-2-54