

actual size

HC-49/U

HOORAY

## through hole quartz crystal

### features

- wide frequency range
- most flexible specifications

type	HC-49/U or (S-type)			
	2.4 ~ 3.5 MHz	3.57 ~ 35.0 MHz	20.0 ~ 90.0 MHz	50.0 ~ 150.0 MHz
frequency	fundamental AT-cut	fundamental AT-cut	3rd overtone AT-cut	5th overtone AT-cut
frequency tolerance at 25 °C	± 30 ppm	± 30 ppm	± 30 ppm	± 30 ppm
frequency temperature characteristic	± 50 ppm	± 30 ppm	± 30 ppm	± 50 ppm
standard operating temperature	-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
load capacitance $C_L$	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
drive level	1.0 mW	0.1 mW	0.1 mW	0.1 mW
aging	< ± 5 ppm	< ± 5 ppm	< ± 5 ppm	< ± 5 ppm

### 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
- 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:

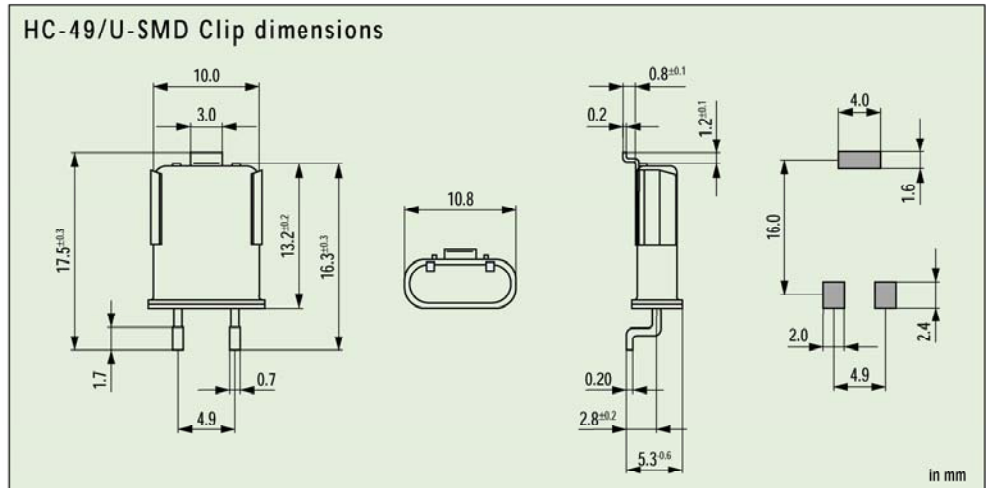
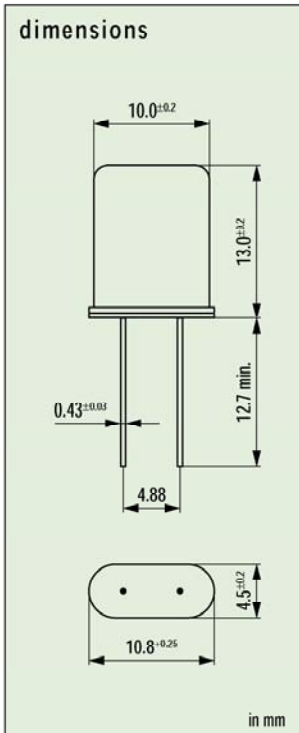
line 1 = company code  
line 2 = frequency / date code

### date code

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2007	a	b	c	d	e	f	g	h	j	k	l	m
2008	n	p	q	r	s	t	u	v	w	x	y	z
2009	A	B	C	D	E	F	G	H	J	K	L	M
2010	N	P	Q	R	S	T	U	V	W	X	Y	Z

# HC-49/U

# HOORAY



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

frequency in MHz	cut	vibration mode	Rs max. in $\Omega$	Rs typ. in $\Omega$	C1 typ. in fF
2.0 ~ 2.99	AT	fund	500	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	100	35	12
4.0 ~ 4.99	AT	fund	70	30	14
5.0 ~ 5.99	AT	fund	50	25	16
6.0 ~ 6.99	AT	fund	50	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	30	10	22
20.0 ~ 35.0	AT	fund	30	10	25
20.0 ~ 29.99	AT	3rd OT	50	35	1.5
30.0 ~ 69.99	AT	3rd OT	40	25	1.5
70.0 ~ 91.0	AT	3rd OT	40	25	1.0

