

actual size

# Quartz Crystal · HC3225M4

4 Pad Version · 3.2 x 2.5 mm

- seam sealed ceramic/metal package
- extended temperature ranges available
- high mechanical reliability type available
- for automotive type, see automotive datasheet



## General Data

type	HC3225M4	
frequency range	10.0 ~ 54.0 MHz	(fund. AT-cut)
frequency tolerance at 25 °C	± 10 ppm / ± 30 ppm	
load capacitance $C_L$	12 pF standard	(option: 8 pF ~ 30 pF / series)
shunt capacitance $C_0$	< 5 pF	
storage temperature	-40 °C ~ +90 °C	
drive level max.	100 uW (others recommended)	
aging	< ± 3 ppm max first year	

## ESR (series resistance $R_s$ )

frequency in MHz	vibration mode	ESR max. in $\Omega$	ESR typ. in $\Omega$
10.0 ~ 11.999	fund. - AT	300	150
12.0 ~ 12.999	fund. - AT	100	50
13.0 ~ 15.999	fund. - AT	100	40
16.0 ~ 18.999	fund. - AT	80	40
19.0 ~ 21.999	fund. - AT	70	30
22.0 ~ 29.999	fund. - AT	70	25
30.0 ~ 54.000	fund. - AT	50	20

## Frequency Stability vs. Temperature

		± 10 ppm	± 15 ppm	± 20 ppm	± 30 ppm	± 50 ppm	± 100 ppm
-20 °C ~ +70 °C	STD.	●	○*	○	●	○	○
-30 °C ~ +85 °C	T (-30/+85)		□				
-40 °C ~ +85 °C	T1		◇	○	○*	●	○
-40 °C ~ +105 °C	T2					○	○
-40 °C ~ +125 °C	T3					○	○

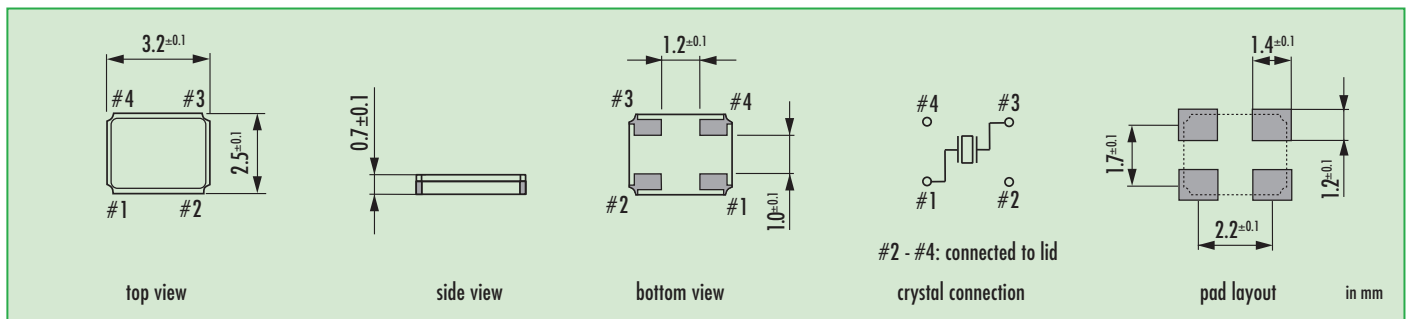
● standard ○ available ◇ for frequencies > 20 MHz, ask if available < 20 MHz □ for frequencies < 20 MHz  
\* best value for frequencies < 12.0 MHz

## Marking

frequency with load capacitance code  
company code / date code / internal code

	Jan.	Febr.	Mar.	Apr.	May	June	July	Aug.	Sept.	Okt.	Nov.	Dec.	
2011	2015	a	b	c	d	e	f	g	h	i	k	l	m
2012	2016	n	p	q	r	s	t	u	v	w	x	y	z
2013	2017	A	B	C	D	E	F	G	H	J	K	L	M
2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z

## Dimensions



## Taping Specification

