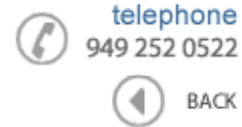




Data Sheet



Product Category: SMD Quartz Crystal

Series Number	Package	Description	Last Modified
252 ~ 255	HC-49SM 4 Pad	SMD Quartz Crystal	Jan. 01 2002

## FEATURES

- Cost effective
- Low profile
- Space saving design
- Tape and Reel



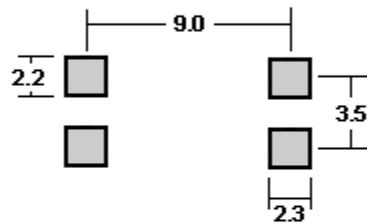
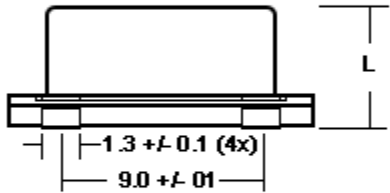
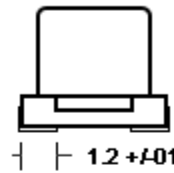
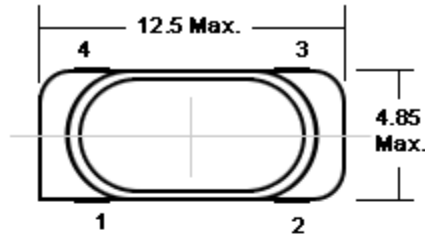
## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CHARACTERISTICS	UNITS
Frequency Range	$f_0$	3.579545 ~ 70.00	MHz
Frequency Tolerance	Ref @ +25°C	±30 (Std.) / ±15 , ±50 (Option)	PPM
Temperature Tolerance	$T_L$	±50 (Std.) / ±30 , ±100 (Option)	PPM
Operating Temperature	$T_{OPR}$	-20 ~ +70 (Std.) / -40 ~ +85 (Option)	°C
Storage Temperature	$T_{STG}$	-40 ~ +85	°C
Shunt Capacitance	$C_O$	7.0 max.	pF
Load Capacitance	$C_L$	18.0 (Std.) / 10 ~ 50 and Series (Option)	pF
Drive Level	$D_L$	1.0 max.	mW
Aging (First Year)	@ +25°C	±5.0	PPM/Y
Insulation Resistance	$I_R$	500 (DC100 ±10V) min.	Mohm

## TABLE 1 - OPERATION MODE AND MOTIONAL RESISTANCE (RS)

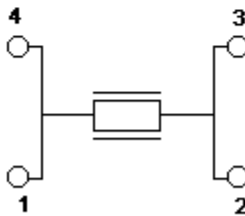
FREQUENCY RANGE (MHz)	MODE	ohm max.	FREQUENCY RANGE (MHz)	MODE	ohm max.
3.579545 ~ 4.999	Fundamental/AT	200	15.0 ~ 15.999	Fundamental/AT	60
5.0 ~ 5.999	Fundamental/AT	150	16.0 ~ 23.999	Fundamental/AT	50
6.0 ~ 7.999	Fundamental/AT	120	24.0 ~ 30.999	Fundamental/AT	40
8.0 ~ 8.999	Fundamental/AT	90	24.0 ~ 40.32	Fundamental/BT	40
9.0 ~ 9.999	Fundamental/AT	80	24.576 ~ 29.999	3rd OT/AT	150
10.0 ~ 14.999	Fundamental/AT	70	30.0 ~ 70.0	3rd OT/AT	100

**PACKAGE DIMENSIONS (mm)**

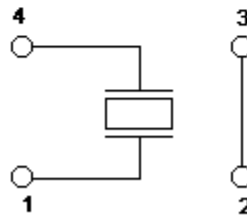


Series	Layout	Dim. L
252	Fig. A	4.0mm
253	Fig. B	
254	Fig. A	5.0mm
255	Fig. B	

**Figure 1) Suggested Solder Pad Layout**



**Figure A) 252 and 254 Series**



**Figure B) 253 and 255 Series**

**PART NUMBER GUIDE**

Series Number	Frequency	Load Capacitance	Tolerance @ +25oC	Tolerance Over Temp ( oC )	Operating Temp ( oC )	Packaging**
252	- 12.0M	- 18	- 50	N	W	- TR
HC-49SM 252:L=4.0 (A) 253:L=4.0 (B) 254:L=5.0 (A) 255:L=5.0 (B)	See table below for standard freq. and enter here e.g. 2.048M for 2.048 MHz OR enter any desire frequency.	Enter desired capacitance here. See table below for standard load capacitance e.g. - 20 for 20pF or Enter SR for Series.	Blank * = ±30 PPM 15 = ±15 PPM 50 = ±50 PPM	Blank* = ±50 PPM G = ±30 PPM N= ±100 PPM	S = -20~+70 W = -40~+85	Blank* = Bulk TR = Tape/Reel

**NOTE:** Deviations on all parameters available. Please consult Oscilent for details.

**DEFINITIONS:** Click on the characteristic names above for definitions of that particular characteristic.

**\*STANDARDS:** "Blank" part number selections indicate standard variables for that particular characteristic.

**\*\*PACKAGING:** Click on the packaging name above for tape/reel specifications

**STANDARD FREQUENCIES / LOAD CAPACITANCE - FOR GUIDE ONLY/ OTHER FREQ./LOADS AVAILABLE**

FREQUENCY (MHz)	LOAD (pF)							
	Series	12	13	16	17	18	20	30
3.579545	Std.	-	-	-	Std.	-	-	-
3.6864	Std.	-	-	-	-	-	Std.	-
4.000	Std.	-	-	-	-	-	Std.	-

4.032	Std.	-	-	-	-	-	Std.	-
4.096	-	-	-	-	-	-	Std.	-
4.194304	-	Std.	-	Std.	-	-	-	-
4.433618	-	-	-	-	-	-	Std.	-
4.9152	Std.	-	-	-	-	-	Std.	-
5.000	Std.	-	-	-	-	-	Std.	-
5.0688	Std.	-	-	-	-	-	Std.	-
5.185	Std.	-	-	-	-	-	-	Std.
5.9904	Std.	-	-	-	-	-	Std.	-
6.000	Std.	-	-	-	-	-	-	Std.
6.144	-	-	-	-	-	-	-	Std.
6.5536	Std.	-	-	-	-	-	-	-
7.3728	Std.	-	-	-	-	-	Std.	-
8.000	Std.	-	-	-	-	Std.	-	Std.
9.216	Std.	-	-	-	-	-	Std.	-
9.8304	Std.	-	-	-	-	-	Std.	-
10.000	Std.	-	-	-	-	Std.	-	-
11.000	Std.	-	-	-	-	-	-	-
11.0592	Std.	-	-	-	-	-	Std.	Std.
12.000	Std.	-	-	-	-	-	Std.	Std.
12.000393	-	-	-	-	-	Std.	-	-
12.288	Std.	-	-	-	-	-	Std.	-
14.31818	Std.	-	-	-	-	Std.	Std.	-
14.7456	Std.	-	-	-	-	-	Std.	-
15.000	Std.	-	-	-	-	-	-	-
16.000	Std.	-	-	-	-	-	Std.	-
16.000312	-	-	-	-	-	Std.	-	-
16.257	Std.	-	-	-	-	-	Std.	-
16.9344	-	-	-	-	-	-	Std.	-
18.000	Std.	-	-	-	-	-	Std.	-
18.432	Std.	-	-	-	-	Std.	Std.	-
19.6608	Std.	-	-	-	-	-	Std.	-
20.000	Std.	-	-	Std.	-	Std.	Std.	-
22.1184	Std.	-	-	-	-	-	-	-
24.000(F)	Std.	-	-	Std.	-	Std.	Std.	-
24.00014 (F)	-	-	-	-	-	Std.	-	-
40.00 (OT)	-	-	-	-	-	Std.	-	-
40.32 (OT)	-	-	-	-	-	-	Std.	-

FREQUENCY (MHz)	Series	12	13	16	17	18	20	32
LOAD (pF)								
F = Fundamental   OT = 3RD Overtone								
NOTE: Other frequencies and load capacitance available. Please consult Oscilent for part numbers.								

**Oscilent Corporation** - CALL **949.252.0522**

**Series No.:** [252 to 255](#)

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