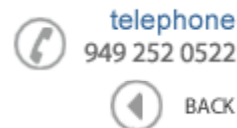




Data Sheet



Product Category: Quartz Crystals

Series Number	Package	Description	Last Modified
141 ~ 142	HC-49U / HC-49T	Weld Type Quartz	April. 17 2008

Quartz Crystal FEATURES

- Industry Standard Package
- Wide Frequency range
- Tight Tolerances
- Excellent reliability/Aging
- "AT" cut crystals
- Cost effective
- RoHs / Lead Free compliant

**OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS**

PARAMETERS	CONDITIONS	CHARACTERISTICS	UNITS
Frequency Range	f_O	1.800 ~ 100.00	MHz
Frequency Tolerance	Ref @ +25°C	±30 std. (±5 ~ ±100 avail.)	PPM
Temperature Tolerance	T_L	±50 std. (See Table 2)	PPM
Operating Temperature	T_{OPR}	-20 ~ +70 std. (See Table 2)	°C
Storage Temperature	T_{STG}	-55 ~ +125	°C
Shunt Capacitance	C_O	7.0 max.	pF
Load Capacitance	C_L	20.0 std. (8 ~ 50 and Series avail.)	pF
Drive Level	D_L	0.05 ~ 1.0	mW
Aging (First Year)	@ +25°C	±5.0 max.	PPM/Y
Insulation Resistance	I_R	500 (DC100 ±10V) min.	Mohm

TABLE 1 - MODE OF OSCILLATION AND EQUIVALENT SERIES RESISTANCE

FREQUENCY RANGE (MHz)	MODE	HC-49T (ohm max.)	HC-49U (ohm max.)
1.800 ~ 2.000	Fundamental	-	600
2.000 ~ 2.400	Fundamental	-	450
2.400 ~ 3.000	Fundamental	-	350
3.000 ~ 3.500	Fundamental	-	150
3.500 ~ 4.000	Fundamental	150	90
4.000 ~ 7.000	Fundamental	90	70
7.000 ~ 10.000	Fundamental	50	50
10.000 ~ 15.000	Fundamental	45	35
15.000 ~ 20.000	Fundamental	25	25
20.000 ~ 25.000	Fund. / 3rd OT	25 / 60	25 / 50
25.000 ~ 30.000	Fund. / 3rd OT	25 / 40	25 / 40
30.000 ~ 75.000	3rd Overtone	40	40
75.000 ~ 100.000	3rd / 5th Overtone	- / 60	- / 60
27.000 ~ 35.000	BT Fund.	40	40

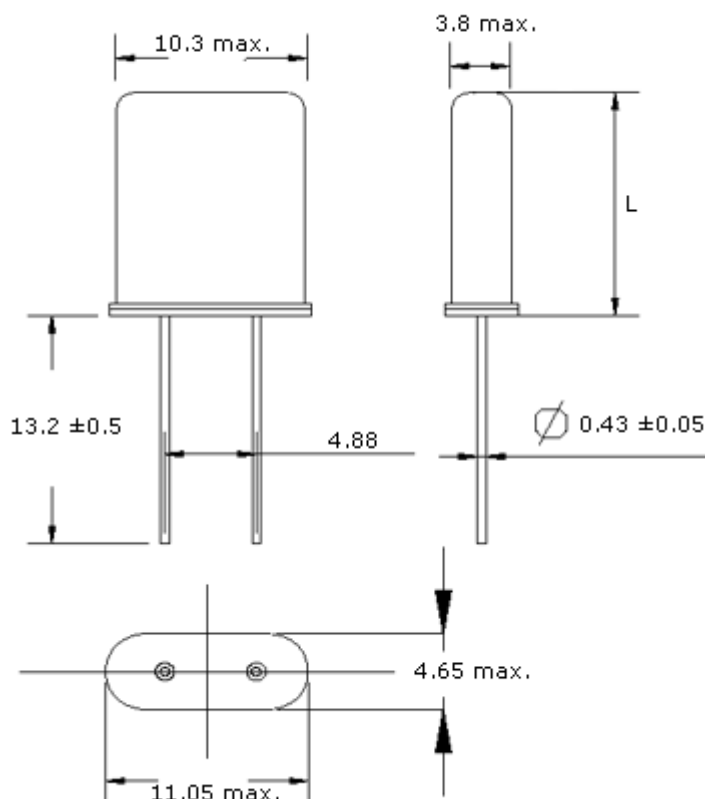
TABLE 2 - FREQUENCY - TEMPERATURE TOLERANCE

	Tolerance (PPM)
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Cutting	Temperature Range	±5.00	±10.0	±15.0	±20.0	±30.0	±50.0
AT	0 ~ +50°C	x	x	x	x	x	x
	-10 ~ +60°C		x	x	x	x	x
	-20 ~ +70°C			x	x	O	x
	-30 ~ +80°C				x	x	O
	-40 ~ +85°C						x
BT	Within a range of ±80 ~ ±120 PPM						

x	available
O	recommended

PACKAGE DIMENSIONS (mm)



Dim. L	
HC-49U (141 Series)	13.2mm
HC-49T (142 Series)	11.2mm

PART NUMBER GUIDE

Series Number	Frequency	Load Capacitance	Tolerance @ +25C	Tolerance Over Temp (oC)	Operating Temp (oC)	Value Added
141	- 12.0M	-20	- 05	K	S	- VS
141 = HC-49U 142 = HC-49T	See table below for standard freq. and enter here e.g. 2.048M = 2.048 MHz OR enter any desire frequency.	Enter desired capacitance here. See table below for standard load capacitance Enter SR for Series.	Blank *= ±30PPM or Fill in E.G 05 = ±5 PPM 25 = ±25 PPM Avail. = ±5 ~ ±100	Blank* = ±50 PPM G = ±30 PPM H = ±20 PPM K = ±15 PPM L = ±10 PPM M = ±5 PPM N = ±100 PPM	P = 0~+50 R = -10~+60 S = -20~+70 T = -30~+80 W = -40~+85	Blank * = Standard IT = Insulator Tab TL = Third Lead L2 = Alt. Third Lead VS = Vinyl Sleeveing
NOTE: Deviations on all parameters available. Please consult Oscilent for details. DEFINITIONS: Click on the characteristic name above for definitions of that particular characteristic. *STANDARDS: "Blank" part number selections indicate standard variables for that particular characteristic. PACKAGING: Add -TR for Tape/Reel. Click here 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	32
1.000	-	-	Std.	-	-	-	-	-
1.8432	Std.	-	Std.	-	-	-	-	Std.
2.000	Std.	-	-	-	-	-	Std.	Std.
2.048	-	Std.	-	-	-	-	-	-
2.4576	-	-	-	-	-	-	Std.	Std.
2.500	Std.	-	-	-	-	-	-	-
3.000	Std.	-	-	-	-	-	-	-
3.2768	-	-	-	-	Std.	-	-	-
3.579545	Std.	-	-	-	Std.	-	-	-
3.6864	Std.	-	-	-	-	Std.	-	-
3.93216	-	-	-	-	Std.	-	-	-
4.000	Std.	-	-	-	-	-	Std.	-
4.032	Std.	-	-	-	-	-	Std.	-
4.096	-	-	-	-	-	-	Std.	-
4.194304	-	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	-	-	-	-	-	-	-	-
6.5536	-	Std.	-	-	-	-	-	-
7.3728	Std.	-	-	-	-	-	Sd.	-
7.680	-	-	-	-	-	-	Std.	-
8.000		-	-	-	-	Std.	Std.	Std.
8.192	Std.	-	-	-	-	-	-	-
9.216	Std.	-	-	-	-	-	Std.	-
9.8304	Std.	-	-	-	-	-	Std.	-
10.000	Std.	-	-	-	-	-	-	-
10.738635	Std.	-	-	-	-	-	-	-
11.000	Std.	-	-	-	-	-	-	-
11.046	Std.	-	-	-	-	-	-	-
11.0592	Std.	-	-	-	-	-	Std.	Std.
11.228	Std.	-	-	-	-	-	-	-

11.520	Std.	-	-	-	-	-	-	-
11.98135	Std.	-	-	-	-	-	-	-
12.000	Std.	-	-	-	-	-	Std.	Std.
12.000393	-	-	-	-	-	Std.	-	-
12.096	Std.	-	-	-	-	-	-	-
12.288	Std.	-	-	-	-	-	Std.	-
13.5168	Std.	-	-	-	-	-	-	-
14.31818	Std.	-	-	-	-	-	Std.	-
14.690	Std.	-	-	-	-	-	-	-
14.7456	Std.	-	-	-	-	-	Std.	-
15.000	Std.	-	-	-	-	-	-	-
16.000	Std.	-	-	-	-	-	Std.	-
16.000312	-	-	-	-	-	Std.	-	-
18.000	Std.	-	-	-	-	-	Std.	-
18.432	Std.	-	-	-	-	Std.	Std.	-
19.6608	Std.	-	-	-	-	-	Std.	-
20.000	Std.	-	-	-	-	-	Std.	-
22.1184	Std.	-	-	-	-	-	-	-
24.000(F)	Std.	-	-	-	-	-	Std.	-
24.00014 (F)	-	-	-	-	-	Std.	-	-
35.2512 (OT)	-	-	-	-	-	Std.	-	-
38.00053 (OT)	-	-	-	-	-	Std.	-	-
40.32 (OT)	-	-	-	-	-	Std.	-	-
48.00 (OT)	Std.	-	-	-	-	-	-	-
49.86 (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. PEASE SPECIFY IN PART NUMBER GUIDE								

Oscilent Corporation - CALL **949.252.0522**

Series No.: 141 to 142

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