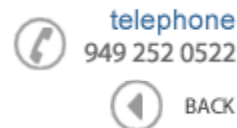


**Data Sheet**

Product Category: Quartz Crystals

Series Number	Package	Description	Last Modified
161 ~ 162	UM-1 / UM-5	Quartz	July. 01 2005

Quartz Crystal FEATURES

- Excellent Aging
- Wide Frequency range
- Low Profile, industry standard package
- Excellent reliability
- Tape and Reel (1,000 pcs)
- Cost effective
- RoHs / Lead Free compliant

**OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS**

PARAMETERS	CONDITIONS	161 (UM-1)	162 (UM-5)	UNITS
Frequency Range	Fundamental	10.00 ~ 125.00	16.00 ~ 125.00	MHz
Frequency Tolerance	@ +25°C	±10 Std. (±5 ~ ±100 Avail.)		PPM
Temperature Tolerance	@ +25°C	±10 Std. (See Table 2 Below)		PPM
Operating Temperature	T _{OPR}	-20 ~ +70 Std. (See Table 2 Below)		°C
Storage Temperature	T _{STG}	-55 ~ +125		°C
Shunt Capacitance	C _O	7 max.		pF
Load Capacitance	C _L	8 - 50, Series, (18pF Std.)		pF
Drive Level	D _L	0.05 ~ 1.0		mW
Aging	@ +25°C	±5 max.		PPM
Insulation Resistance	I _R	500 (DC 100 ±10V) min.		Mohm

TABLE 1 - MODE OF OSCILLATION AND EQUIVALENT SERIES RESISTANCE

FREQUENCY RANGE (MHz)	MODE	MAX ESR	
		UM-1	UM-5
10.00 ~ 15.00	Fundamental	40	-
15.00 ~ 20.00	Fundamental	30	40
15.00 ~ 25.00	Fund / 3rd Overtone	25	35
25.00 ~ 30.00	Fund / 3rd Overtone	50 / -	50
30.00 ~ 75.00	3rd / 5th Overtone	70	70
75.00 ~ 100.00	3rd / 5th Overtone	70 / 80	70 / 80
100.00 ~ 125.00	5th Overtone	80	80

TABLE 2 - FREQUENCY - TEMPERATURE TOLERANCE (@+25°C)

Cutting	Temperature Range	Tolerance (x10 ⁻⁶)				
		±5.00	±10.0	±15.0	±20.0	±30.0
	0 ~ +50°C	x	x	x	x	x

AT	-10 ~ +60°C		O	x	x	x
	-20 ~ +70°C			x	x	x
	-30 ~ +80°C				x	O
	-40 ~ +85°C					x

x	available
O	recommended

PACKAGE DIMENSIONS (mm)

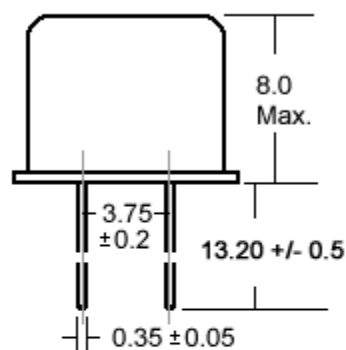


Figure 1)

- UM-1 Crystal Unit
- Side and Bottom Views

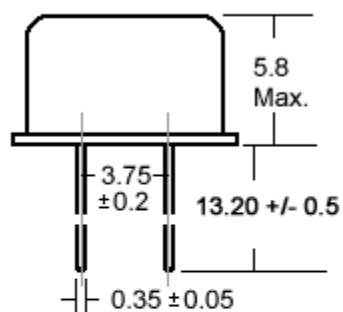


Figure 2)

- UM-5 Crystal Unit
- Side and Bottom Views

PART NUMBER GUIDE

Series Number	Frequency	Load Capacitance	Tolerance @ +25°C	Tolerance Over Temp (°C)	Operating Temp (°C)	Value Added
161	- 10.0M	-20	- 25	L	R	- VS
161 = UM-1 162 = UM-5	See table below for standard freq. and enter here e.g. 15.0 M OR enter any desired frequency.	Enter desired load capacitance. See table below for standard load capacitances Enter SR for series.	Blank = ±30 PPM or Fill in E.G 05 = ±5 PPM 10 = ±10 PPM * Avail. = ±5 ~ ±100	G = ±30 PPM H = ±20 PPM K = ±15 PPM L = ±10 PPM * M = ±5 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 Sleeving

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:** Indicate standard variables for that particular characteristic.

PACKAGING: Add "-TR" for Tape and 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
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. PLEASE SPECIFY IN PART NUMBER GUIDE								

Oscilent Corporation - CALL **949.252.0522**

Series No.: 161 to 162

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