



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

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								

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Series No.: 161 to 162

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