

**Data sheet**

**UM-1, UM-5, UM-4**

**Small Size Through Hole Quartz Crystal**

**FEATURES**

- Wide frequency range
- Excellent frequency temperature characteristics
- Resistance weld completely sealed type
- High precision availability
- Applications: Telecommunication equipments, pagers...



Parameter	min.	typ.	max.	Unit	Condition
Frequency range	8.0		200.0	MHz	
Fundamental 3rd overtone	8.0		70.0	MHz	
	35.0		200.0	MHz	
Vibration mode	AT cut, fundamental, 3rd ovt				
Frequency stability					
Initial tolerance @25°C		±30		ppm	Specify (see options)
vs. operating temperature range		±30		ppm	Specify (see options)
operating temperature range	-10		+60	°C	Specify (see options)
Equivalent Series Resistance (ESR)	See table 1				
Load Capacitance (CL)	Series or 8pF to 32pF (see options)				
Shunt Capacitance (Co)			5.0	pF	
Drive Level			300	µW	
Aging		±5	±2	ppm	At 25°C, first year
Insulation Resistance	500			MΩ	@ 100Vdc
Enclosure (see drawing) (LxWxH)	UM-1	7.9 x 3.2 x 8.0		mm	
	UM-5	7.9 x 3.2 x 6,0		mm	
	UM-4	7.9 x 3.2 x 4.7		mm	
Packing	Bulk in bag				

**Ordering Code:**

Version	Freq. Tolerance	Freq. Stability	Operating Temp.	Load Capacitance	Mode	Frequency in MHz	(ESR if other than
UM-1	05 = ± 5ppm	05 = ± 5ppm	D = -10 / +60°C	Please specify CL	F = Fundamental	Specify the	Specify a value
UM-5	10 = ± 10ppm	10 = ± 10ppm	E = 0° / +70°C	in pF or	3 = 3rd ovt	frequency in MHz	in Ω
UM-4	15 = ± 15ppm	15 = ± 15ppm	F = -20° / +70°C	S for series	(5 = 5th ovt)		
	20 = ± 20ppm	20 = ± 20ppm	G = -30° / +75°C				
	25 = ± 25ppm	25 = ± 25ppm	H = -30° / +85°C				
	30 = ± 30ppm	30 = ± 30ppm	K = -40° / +85°C				
	50 = ± 50ppm	50 = ± 50ppm					

**Example: UM-5-10-10-E-30-F-26.500MHz**

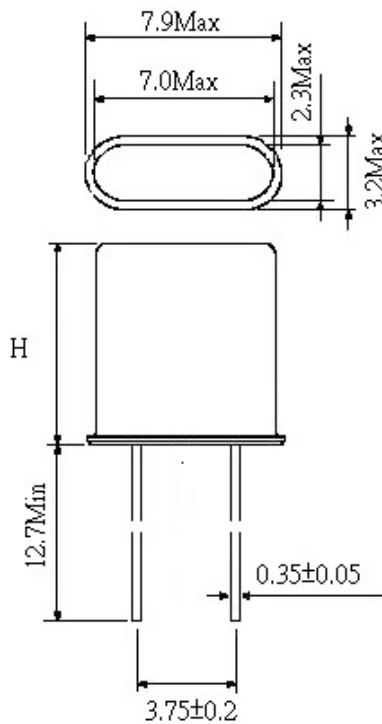
**3rd lead is an option. Specify as '-3L' (UM-1-20-20-F-30-F-16.000MHz-3L)**

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**Outline Dimensions:**



**Table 1 : Standard ESR**

Frequency	Mode	ESR
8.0 ~ 11.9 MHz	Fundamental	50 Ω max.
12.0 ~ 14.9 MHz	Fundamental	30 Ω max.
15.0 ~ 70.0 MHz	Fundamental	25 Ω max.
35.0 ~ 44.9 MHz	3rd ovt	50 Ω max.
45.0 ~ 54.9 MHz	3rd ovt	45 Ω max.
55.0 ~ 200.0 MHz	3rd ovt	40 Ω max.

Type	Height (max.)
UM-1	8.0mm
UM-5	6.0mm
UM-4	4.7mm

**Environmental conditions**

Test	IEC 60068 Part ...	IEC 60679-1 clause ...	Test conditions (IEC)
Sealing tests (if applicable)	2-17	5.6.2	Gross leak: Test Qc, Fine leak: Test Qk
Solderability	2-20	5.6.3	Test Ta Method 1
Resistance to soldering heat	2-58		Test Td <sub>1</sub> Method 2 Test Td <sub>2</sub> Method 2
Shock*	2-27	5.6.8	Test Ea, 3 x per axes 100g, 6 ms half-sine pulse
Vibration, sinusoidal*	2-6	5.6.7.1	Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 2 kHz, 10g
Vibration random *	2-64	5.6.7.3	Test Fdb
Endurance tests			
- ageing		5.7.1	30 days @ 85°C, OCXO @25°C
- extended aging		5.7.2	1000h, 2000h, 8000h @85°C

Rev. 2 dated 01-02-2013