# UM-1 and UM-5 Crystals

- **Frequency range 1.0MHz to 200MHz**
- **High-precision crystal ideal for telecoms applications**
- **High quality resistance weld sealing**
- **Suitable for reflow soldering**

## DESCRIPTION

Um-1 and UM-5 crystals are a long-established design, being widely used in telecommunications applications where their compact size and ease of producing to close tolerances makes them an ideal crystal. In addition to the standard packages a 'Slimline' package is also available.

## SPECIFICATION

| | | |
|---|---|---|
| Frequency Range | | |
| | UM-1 | 1.0MHz to 1.2MHz (SL-Cut)<br>4.0MHz to 200MHz (AT-Cut) |
| | UM-5 | 10MHz to 200MHz (AT-Cut) |
| Oscillation Mode: | | See table |
| Calibration Tolerance at 25°C | | |
| SL-Cut (<1.3MHz): | | from ±50ppm |
| AT-Cut (>4.0MHz): | | from ±3ppm |
| Frequency Tolerance | | |
| | SL-Cut: | from ±100ppm -10° to +60°C |
| | AT-Cut: | from ±3ppm 0° to +50°C |
| Shunt Capacitance (C0): | | 4pF typical, 7pF maximum |
| Load Capacitance (CL): | | Series or from 8pF to 32pF<br>(*Customer specified CL*) |
| Ageing: | | ±2ppm maximum, 1st year,<br>±1ppm per year thereafter. |
| Drive Level: | | 100µWatts typ., 500µWatts max. |
| Crystal Holder: | | Resistance-weld hermetic seal |
| Supply format: | | Bulk pack |

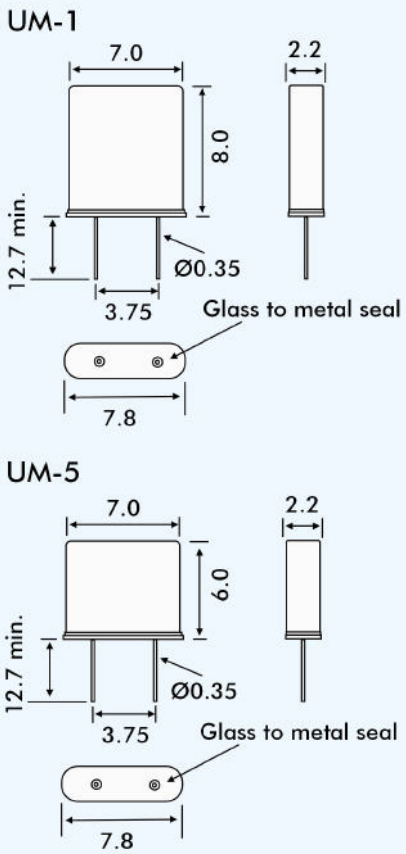
## PART NUMBER GENERATION

Part numbers for UM-1 crystals are generated as follows:

Example: 16.00MHz UM-1/20/30/-10+60/18pF/60R

- Nominal Frequency
- Package UM-1 or UM-5
- Calibration tolerance at 25°C (±ppm)
- Temperature Stability over temp. range (±ppm)
- Operating Temp. Range (°C) *(Lower and upper limits)*
- Load Capacitance *(SR for series or CL in pF)*
- Equivalent Series Resistance *(Optional - use when special value is required)*

## OUTLINE & DIMENSIONS




A three lead (centre earth lead) package is available with the designation UM-1-3L

## ESR and OSCILLATION MODE

| Frequency Range MHz | Crystal Cut Osc. Mode | ESR Ohms Max. |
|---|---|---|
| 1.0 ~1.2 | SL Fund. | 5k |
| 4.0 ~ 4.9 | AT Fund. | 150 |
| 5.0 ~ 5.9 | AT Fund. | 120 |
| 6.0 ~ 6.9 | AT Fund. | 100 |
| 7.0 ~ 7.9 | AT Fund. | 90 |
| 8.0 ~ 8.9 | AT Fund. | 80 |
| 9.0 ~ 10.9 | AT Fund. | 60 |
| 11.0 ~ 12.9 | AT Fund. | 40 |
| 13.0 ~ 45.0 | AT Fund. | 25 |
| 50.1 ~ 100.0 | AT 3rd o. | 40 |
| 80.0 ~ 200.0 | AT 5th o. | 80 |

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