# Quartz Crystal [ Metal Jacket type ] *U5MJ series*

## *SMD type*
## *9.8 * 7.8 * 3.5 mm*

RoHS Compliance

### Applications

- A round shaped AT-Cut crystal plate inside.
- Available up to 200 MHz using a 5th overtone crystal mode
- Annealed and pre-aged for low frequency drift over a long-term operation

**General Specifications**

| Paramenters | Electrical Spec. |
|---|---|
| Item / Type | **U1MJ** ( 9.8 * 7.8 * 3.5 mm ) |
| Frequency Range | 10.0 ~ 200.0 MHz |
| Load Capacitance | Series or Parallel ( 8 to 32 pF ) resonance |
| Drive Level | 100μ W typical ( 500μ W max. ) |
| Frequency Tolerance | AT-cut : ± 5 ppm , ± 10 ppm , ± 20 ppm or ± 30 ppm at 25°C<br>SL-cut : ± 50 ppm at 25°C |
| Frequency Stability | See Table 2 |
| Aging | △F / F : ±3 ppm / year ( max. ) |
| Storage Temperature Range | - 50°C to 105°C |

Table 1

| U1 & U1MJ ESR ( Equivalent Series Resistance ) | | | | | |
|---|---|---|---|---|---|
| Freq.(MHz) | Osc. Mode | E.S.R. | Freq.(MHz) | Osc. Mode | E.S.R. |
| 1.0 ~ 1.2 | SL , Fund. | 5K Ω | 11.0 ~ 12.9 | AT , Fund. | 40 Ω |
| 6.0 ~ 6.9 | AT , Fund. | 100 Ω | 13.0 ~ 45.0 | AT , Fund. | 25 Ω |
| 7.0 ~ 7.9 | AT , Fund. | 90 Ω | 30.0 ~ 50.0 | AT , 3rd | 40 Ω |
| 8.0 ~ 8.9 | AT , Fund. | 80 Ω | 50.1 ~ 100.0 | AT , 3rd | 50 Ω |
| 9.0 ~ 10.9 | AT , Fund. | 90 Ω | 80.0 ~ 200.0 | AT , 5th | 80 Ω |

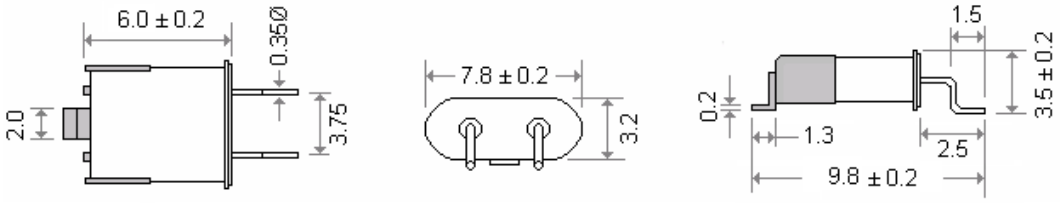
| U5 & U5MJ ESR ( Equivalent Series Resistance ) | | | | | |
|---|---|---|---|---|---|
| Freq.(MHz) | Osc. Mode | E.S.R. | Freq.(MHz) | Osc. Mode | E.S.R. |
| 10.0 ~ 11.9 | AT , Fund. | 60 Ω | 90.1 ~ 135.0 | AT , 3rd | 40 Ω |
| 12.0 ~ 14.9 | AT , Fund. | 50 Ω | 90.1 ~ 159.0 | AT , 5th | 100 Ω |
| 15.0 ~ 35.0 | AT , Fund. | 30 Ω | 160.0 ~ 200.0 | AT , 5th | 80 Ω |
| 35.1 ~ 90.0 | AT , 3rd | 60 Ω | | | |

Table 2

| Frequency stability vs Operating temperature range | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Stability code | Temp. (ºC) \ ppm | ± 5 | ± 10 | ± 15 | ± 20 | ± 25 | ± 30 | ± 50 | ± 100 (SL-cut ) |
| X | -10 to 60°C | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Y | -20 to 70°C | ▲ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I | -40 to 85°C | | ▲ | ○ | ○ | ○ | ○ | ○ | ○ |

○ : available ; ▲: contact Mercury

**General Specifications ( Unit : mm )**

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