

# Quartz Crystals

**M49G**

[ 12.4 \* 4.5 \* 4.0 mm ]

**ML49G**

[ 12.4 \* 4.5 \* 3.0 mm ]

Surface Mount Crystals

Fundamental

3rd Overtone

Min.

3.2 MHz

Max.

70 MHz

## Features

### Specifications

- Withstands solder reflow and available in EIA-481A tape and reel
- AT-strip crystal inside. Optimized for low spurious.
- Lowest cost among all Mercury SMD crystals



RoHS Compliance

## General Specifications

| Item / Type                   | M49 ( 12.4 * 4.5 * 4.0mm ) series   | ML49 ( 12.4 * 4.5 * 3.0mm ) series |
|-------------------------------|---|------------------------------------|
| Frequency Range & Crystal Cut | 3.2.000 ~ 48.000 MHz , AT-cut , Fundamental Mode ( see Table 1 )<br>27.000 ~ 70.000 MHz , AT-cut , 3rd overtone ( see Table 1 ) |                                    |
| Load Capacitance              | Series or Parallel ( 8 to 32 pF ) resonance   |                                    |
| Drive Level                   | 100μ W typical ( 500μ W max. )  |                                    |
| Frequency Tolerance           | ± 10 ppm , ± 20 ppm or ± 30 ppm ( max. ) at 25°C  |                                    |
| Frequency Stability           | See Table 2   |                                    |
| Aging                         | Δ F / F : ± 3 ppm / year ( max. )   |                                    |
| Storage Temperature Range     | - 50°C to 105°C   |                                    |

Table 1

| ESR ( Equivalent Series Resistance ) |        |            |             |        |           |
|--------------------------------------|--------|------------|-------------|--------|-----------|
| Freq.(MHz)                           | E.S.R. | Osc. Mode  | Freq.(MHz)  | E.S.R. | Osc. Mode |
| 3.2 ~ 3.4                            | 300 Ω  | AT , Fund. | 27.0 ~ 30.0 | 150 Ω  | AT , 3rd  |
| 3.5 ~ 6.0                            | 120 Ω  |            | 30.1 ~ 50.0 | 100 Ω  |           |
| 6.1 ~ 10.0                           | 60 Ω   |            | 50.1 ~ 70.0 | 80 Ω   |           |
| 10.1 ~ 30.0                          | 40 Ω   |            |             |        |           |

Table 2

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

○ : available ; ▲ : contact Mercury

## Outline Dimensions ( Unit : mm )

