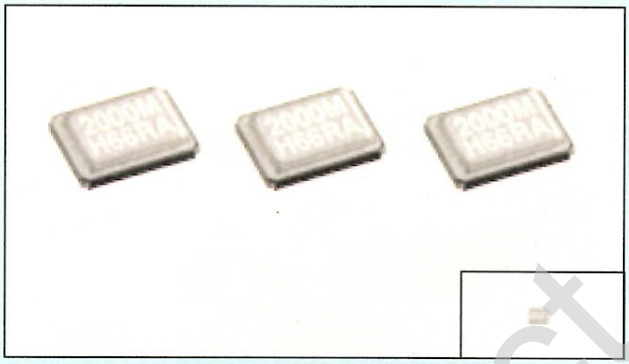
## THIN SMD HIGH-STABILITY CRYSTAL UNIT

# FA-23H

**Product number (please contact us)**
**Q24FA23H0xxxx00**

- •Frequency range : 16 MHz to 32 MHz
- •Thickness : 0.6 mm Typ.
- •Overtone order : Fundamental
- •Applications : Bluetooth and GSM and W – LAN
  (Sensitivity 26 MHz:
  $18 \times 10^{-6}$/pF·at 10 pF (Typ.))
- •Lead(Pb)-free : Comply with EU RoHS directive
  (Lead free completely)




Actual size

## ■ Specifications (characteristics)

| Item | | Symbol | Specifications | Remarks |
|---|---|---|---|---|
| Nominal frequency | | f | 16.000 MHz to 32.000 MHz<br>Standard : 16.000 MHz / 26.000 MHz / 32.000 MHz | Fundamental mode<br>For the out of standard specifications, please contact us for inquiries. |
| Recommended apllications | | | Bluetooth / GSM / Mobile communication device | |
| Temperature Range | Storage temperature | TSTG | -40 °C to +125 °C | |
| | Operating temperature | TOPR | -40 °C to +85 °C | Specified equivalent series must be satisfied |
| | Operable temperature | TUSE | As per below table | Specified equivalent series and frequency temperature characteristics must be satisfied. |
| Recommended drive level | | DL | 10 µW to 100 µW | |
| Frequency tolerance (standard) | | Δf/f | $\pm 10 \times 10^{-6}$ | Ta = +25 °C For the out of standard specifications, please contact us for inquiries. |
| Frequency temperature characteristics (standard) | | | $\pm 10 \times 10^{-6}$ | -20 °C to +70 °C For the out of standard specifications, please contact us for inquiries. |
| Load capacitance | | CL | 10 pF (standard) | For the out of standard specifications, please contact us for inquiries. |
| Series resistance | | R1 | As per below table | Operable temperature range, DL = 100 µW |
| Shunt capacitance | | C0 | 5 pF Max. | |
| Insulation resistance | | IR | 500 MΩ Min. | |
| Aging | | fa | $\pm 1 \times 10^{-6}$ / year Max. | Ta = +25 °C, first year |
| Shock resistance | | S.R. | $\pm 2 \times 10^{-6}$ Max. | 100 g dummy (Seiko Epson Standard) drop from 1500 mm height on to the concrete 3 directions 10 times. |

*1 Over the 40MHz be only standard specification.

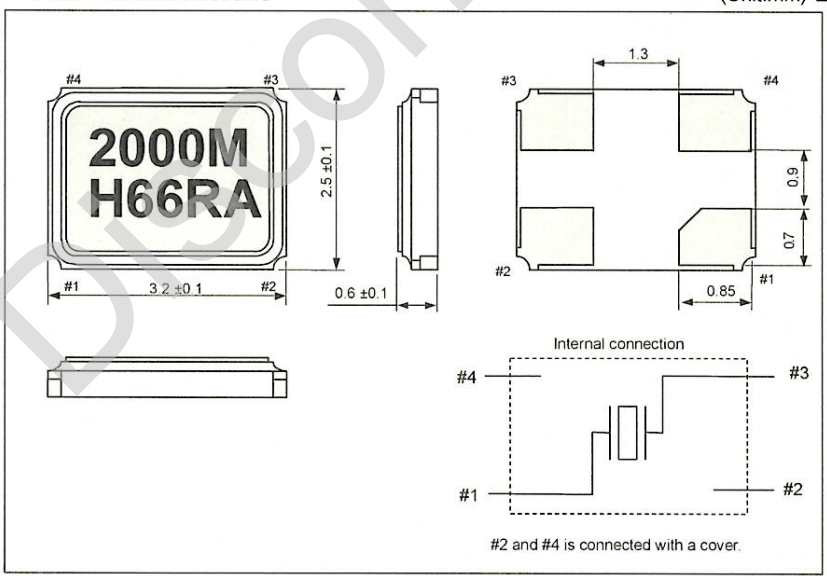
## ■ Frequency temperature characteristics

| Operable temperature | Frequency tolerance |
|---|---|
| 0 °C to +50 °C | $\pm 5 \times 10^{-6}$ Min. |
| -10 °C to +60 °C | $\pm 7 \times 10^{-6}$ Min. |
| -20 °C to +70 °C | $\pm 10 \times 10^{-6}$ Min. |
| -30 °C to +80 °C | $\pm 15 \times 10^{-6}$ Min. |
| -40 °C to +85 °C | $\pm 20 \times 10^{-6}$ Min. |

## ■ Series resistance (R1)

| Frequency | Series resistance |
|---|---|
| 16.0 MHz ≤ f < 20.0 MHz | 80 Ω Max. |
| 20.0 MHz ≤ f < 25.0 MHz | 60 Ω Max. |
| 25.0 MHz ≤ f < 30.0 MHz | 50 Ω Max. |
| 30.0 MHz ≤ f ≤ 50.0 MHz | 40 Ω Max. |

## ■ External dimensions (Unit:mm)




## ■ Recommended soldering pattern (Unit:mm)