# MHz RANGE CRYSTAL UNIT

# FA-128

- Nominal frequency range : 16 MHz to 54 MHz
- External dimensions : 2.0 × 1.6 × 0.5 mm
- Overtone order : Fundamental
- Applications : Mobile phone, Bluetooth, W-LAN ISM band radio, Clock for MPU

Pb Free RoHS Compliant

**Product Number (please contact us)**
**Q22FA1280xxxx00**


Actual size

## Specifications (characteristics)

| Item | Symbol | Specifications | | Conditions / Remarks |
|---|---|---|---|---|
| | | For RF Reference | For Clock | |
| Nominal frequency range | f_nom | 16.000 MHz to 54.000 MHz | | Fundamental<br>Please contact us about available frequencies. |
| Storage temperature range | T_stg | -40 °C to +125 °C | | Storage as single product. |
| Operating temperature range | T_use | -40 °C to +85 °C | | |
| Level of drive | DL | 100 μW Max. | 200 μW Max. | Recommended: 1 to 100 μW |
| Frequency tolerance (standard) | f_tol | $\pm 10 \times 10^{-6}$ *1 | $\pm 30 \times 10^{-6}$ | +25 °C, Please contact us for requirements not listed in this specifications. |
| Frequency versus temperature characteristics (standard) | f_tem | $\pm 10 \times 10^{-6}$ *1 | $\pm 30 \times 10^{-6}$ | -20 °C to +75 °C, Please contact us for requirements not listed in this specifications. |
| Load capacitance | $C_L$ | 6 pF to ∞ | | Please specify. |
| Motional resistance (ESR) | $R_1$ | As per table below | | -20 °C to +75 °C |
| Frequency aging | f_age | $\pm 1 \times 10^{-6}$ / year Max. | $\pm 5 \times 10^{-6}$ / year Max. | +25 °C, First year |

*1 Please contact us for available frequency tolerances as they are dependent upon the nominal frequency.

## Motional resistance (ESR)

| Frequency | Motional resistance |
|---|---|
| 16.0 MHz ≤ f_nom < 18.0 MHz | 200 Ω Max. |
| 18.0 MHz ≤ f_nom < 20.0 MHz | 150 Ω Max. |
| 20.0 MHz ≤ f_nom < 24.0 MHz | 100 Ω Max. |
| 24.0 MHz ≤ f_nom < 26.0 MHz | 80 Ω Max. |
| 26.0 MHz ≤ f_nom ≤ 54.0 MHz | 60 Ω Max. |

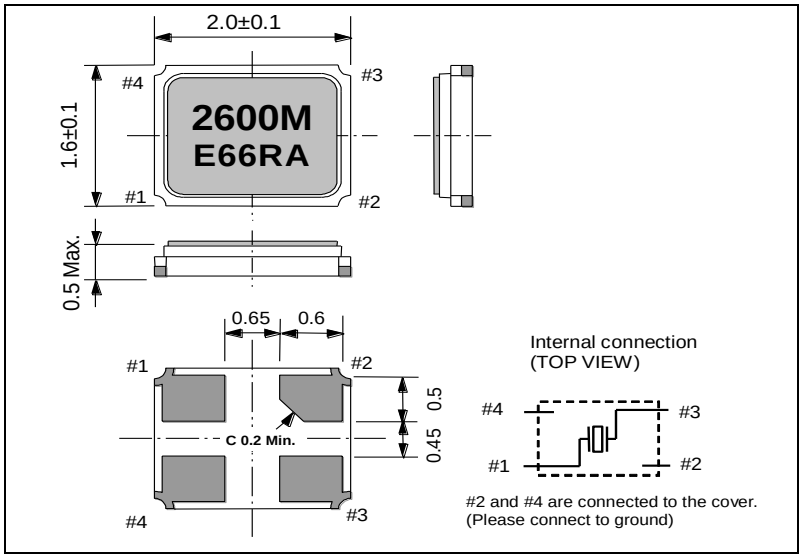
Product name (Standard form)

FA-128 (①) 24.000000MHz (②) 12.0 (③) +10.0-10.0 (④)

①Model ②Frequency ③Load capacitance(pF) ④Frequency tolerance(× $10^{-6}$, +25 °C)

In addition to the above mentioned specification item, please specify frequency temperature characteristics and operating temperature range in case of inquiry.

## External dimensions (Unit:mm)




## Footprint (Recommended) (Unit:mm)