

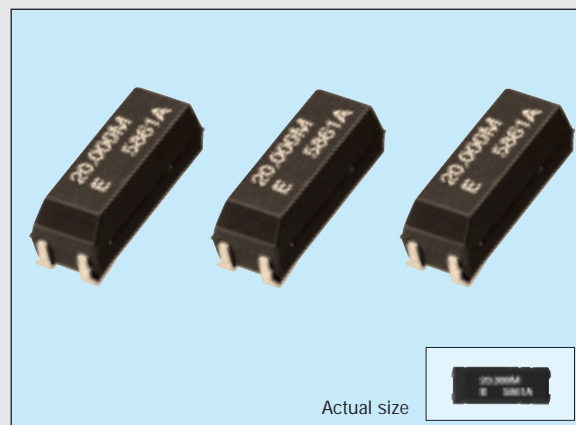
SMD HIGH-FREQUENCY CRYSTAL UNIT

MA-505/506

Products number

Q22MA505xxxxx00**Q22MA506xxxxx00**

- High-density mounting-type SMD.
- Excellent heat-resistance and environment capability.
- Capable of covering a wide range of frequency range from 4.0 MHz to 64 MHz.



Actual size

■ Specifications (characteristics)

| Item | Symbol | Specifications | Remarks | |
|--|-------------------------|---|--|---|
| Nominal frequency range | f | 4.000 MHz to 29.999 MHz *1 | Fundamental mode | |
| | | 30.000 MHz to 64.000 MHz *2 | 3rd overtone mode | |
| Temperature range | Storage temperature | T _{STG} | -55 °C to +125 °C | Stored as bare product after unpacking |
| | Operating temperature | T _{OPR} | -20 °C to +70 °C | Please contact us on availability of -40 °C to +85 °C |
| Drive level | Maximum drive level | GL | 2 mW Max. | Only crystal oscillation is guaranteed |
| | Recommended drive level | DL | 10 μW to 100 μW | |
| Frequency tolerance (standard) | Δf/f | ±50 x 10 ⁻⁶ | T _a =+25 °C±3 °C, DL=100 μW | |
| Frequency temperature characteristics (standard) | | Under 5.5 MHz: ±50 x 10 ⁻⁶ | -20 °C to +70 °C, DL=100 μW | |
| | | Over 5.5 MHz: ±30 x 10 ⁻⁶ | | |
| Load capacitance | C _L | Fundamental: 10 pF to ∞. Over tone: 5 pF to ∞ | Please specify | |
| Series resistance | R ₁ | As per below table | -20 °C to +70 °C, DL=100 μW | |
| Shunt capacitance | C ₀ | 5 pF Max. | | |
| Insulation resistance | IR | 500 MΩ Min. | | |
| Aging | f _a | ±5 x 10 ⁻⁶ /year Max. | T _a =+25 °C±3 °C, first year | |
| Shock resistance | S. R. | ±10 x 10 ⁻⁶ Max. | Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² x 0.3 ms x 1/2 sine wave x 3 directions | |

*1 8.0 MHz < f < 8.2 MHz: Unavailable.

4.0 MHz ≤ f < 5.5 MHz: See "Available frequencies from 4.0 MHz to less than 5.5 MHz" on page 22.

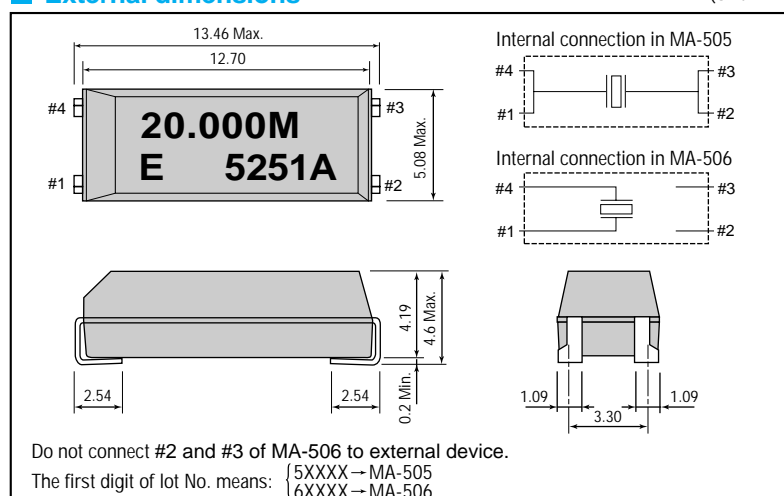
*2 26.000 MHz ≤ f < 30.000 MHz: please contact us for inquiries for 3rd overtone mode.

■ Series resistance

| Frequency (MHz) | 4.0 ≤ f < 5.5 | 5.5 ≤ f < 6.0 | 6.0 ≤ f < 10.0 | 10.0 ≤ f < 12.0 | 12.0 ≤ f < 16.0 | 16.0 ≤ f < 30.0 | 26.0 ≤ f ≤ 36.0 | 36.0 < f ≤ 64.0 |
|-----------------------|------------------|---------------|----------------|-----------------|-----------------|-----------------|-------------------|-----------------|
| Series resistance (Ω) | 150 Ω Max. | 100 Ω Max. | 80 Ω Max. | 60 Ω Max. | 50 Ω Max. | 40 Ω Max. | 100 Ω Max. | 80 Ω Max. |
| Oscillation mode | Fundamental mode | | | | | | 3rd overtone mode | |

■ External dimensions

(Unit: mm)



■ Recommended soldering pattern

(Unit: mm)

