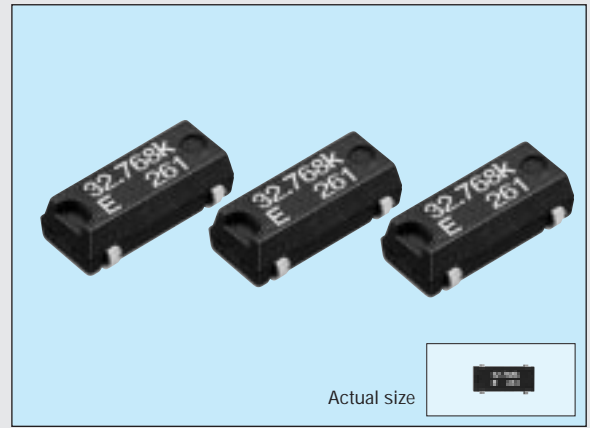


SMALL SMD LOW / MEDIUM-FREQUENCY  
CRYSTAL UNIT

# MC-306

- High-density mounting-type SMD.
- Photolithography finished allows uniform and stable performance.
- Excellent reliability and environmental capability.
- 2.54mm thickness is equal to SMD-type IC.



## Specifications (characteristics)

| Item                                | Symbol                | Specifications  |                           | Remarks   |
|-------------------------------------|-----------------------|---|---------------------------|---|
| Nominal frequency                   | f                     | 32.768 kHz  | 20.000 kHz to 165.000 kHz |   |
| Temperature range                   | Storage temperature   | T <sub>STG</sub> -55°C to +125°C                                    |                           | Stored as bare product after unpacking  |
|                                     | Operating temperature | T <sub>OPR</sub> -40°C to +85°C                                     |                           |   |
| Maximum drive level                 | GL                    | 1.0μW max.  |                           |   |
| Soldering condition                 | T <sub>SOL</sub>      | Twice at under 260°C within 10 sec.<br>or under 230°C within 3 min. |                           |   |
| Frequency tolerance (standard)      | Δf/f                  | ±20ppm, ±50ppm  | ±50ppm, ±100ppm           | T <sub>a</sub> =25°C, DL=0.1μW  |
| Peak temperature (frequency)        | θT                    | 25°C ±5°C   |                           |   |
| Temperature coefficient (frequency) | a                     | -0.04ppm/°C <sup>2</sup> max.                                       |                           |   |
| Load capacitance                    | C <sub>L</sub>        | 6pF to ∞  |                           | Please specify  |
| Series resistance                   | R <sub>1</sub>        | 50 kΩ max.  | 55 kΩ to 10 kΩ            | As per below table  |
| Motional capacitance                | C <sub>1</sub>        | 1.8fF typ.  | 4.0fF to 0.6fF            |   |
| Shunt capacitance                   | C <sub>0</sub>        | 0.9pF typ.  | 2.0pF to 0.6pF            |   |
| Insulation resistance               | IR                    | 500 MΩ min.   |                           |   |
| Aging                               | f <sub>a</sub>        | ±3ppm/Y max.  | ±5ppm/Y max.              | T <sub>a</sub> =25°C ±3°C, first year   |
| Shock resistance                    | S.R.                  | ±5ppm max.  |                           | Three drops on a hard board from 75 cm or excitation test with 3000G x 0.3ms x 1/2 sine wave x 3 directions |

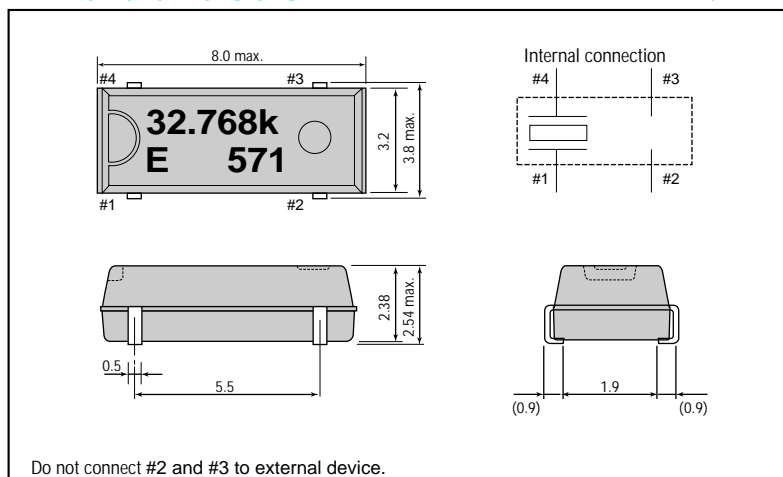
There are some cases that a parts of the cylindrical capsule of quartz unit expose on the surface of the molding material.

### Series resistance

| Frequency (kHz)                 | 20 ≤ f < 30 | 30 ≤ f < 40 | 40 ≤ f < 60 | 60 ≤ f < 70 | 70 ≤ f < 120 | 120 ≤ f < 165 |
|---------------------------------|-------------|-------------|-------------|-------------|--------------|---------------|
| Series resonance resistance (Ω) | 55K Ω max.  | 45K Ω max.  | 20K Ω max.  | 15K Ω max.  | 12K Ω max.   | 10K Ω max.    |

### External dimensions

(Unit: mm)



### Recommended soldering pattern

(Unit: mm)

