

## Data sheet

### ZM200

### 32.768KHz SMD Quartz Crystal

## FEATURES

- High reliability and good stability
- Ultra-thin thickness 2.5mm
- Excellent aging characteristics
- Reflow is possible
- Applications: Consumer electronics, Microprocessor clocks...



| Parameter                          | min.  | typ.   | max. | Unit | Condition           |
|------------------------------------|---|--------|------|------|---------------------|
| Frequency                          |   | 32.768 |      | KHz  |                     |
| Vibration mode                     | XY-cut  |        |      |      |                     |
| Frequency stability                |   |        |      |      |                     |
| Initial tolerance @25°C            |   | ±20    |      | ppm  |                     |
| Operating temperature range        | -40   |        | +85  | °C   |                     |
| Turnover temperature               | 25°C ±5 °C                                    |        |      |      |                     |
| Parabolic curvature constant       | -0.045x10 <sup>-6</sup> /°C <sup>2</sup> max. |        |      |      |                     |
| Equivalent Series Resistance (ESR) | 50KΩ max.                                     |        |      |      |                     |
| Load Capacitance (CL)              | Standard: 12.5pF (see options)                |        |      |      |                     |
| Shunt Capacitance (Co)             |   |        | 3.0  | pF   |                     |
| Drive Level                        |   |        | 1    | μW   |                     |
| Aging                              |   | ±5     |      | ppm  | At 25°C, first year |
| Insulation Resistance              | 500   |        |      | MΩ   | @ 100Vdc            |
| Enclosure (see drawing) (LxWxH)    | 8.0 x 3.8 x 2.5                               |        |      | mm   |                     |
| Packing                            | 3000 pcs per reel                             |        |      |      |                     |

### Ordering Code:

| Load Capacitance | Frequency in MHz |
|------------------|------------------|
| 12.5 = 12.5pF    | Specify the      |
| 10 = 10pF        | frequency in KHz |
| 9 = 9pF          |                  |
| 7 = 7pF          |                  |
| 6 = 6pF          |                  |

### Standard specifications:

- ± 20ppm
- 12.5pF

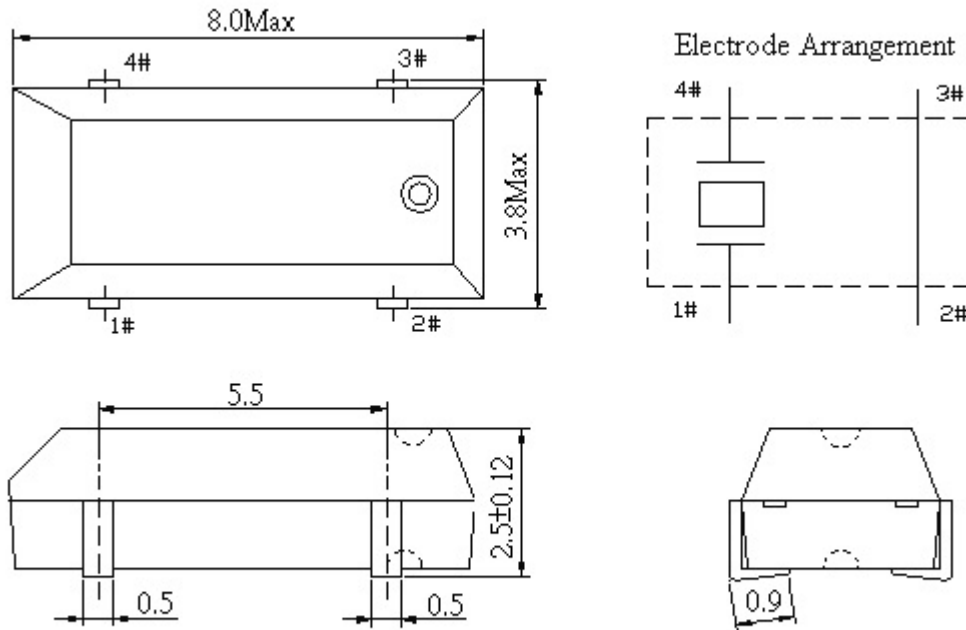
**Example: ZM200-12.5-32.768**

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### Outline Dimensions:



Note : Do not connect #2 and #3 to external device and GND.

### Environmental conditions

| Test                             | IEC 60068<br>Part ... | IEC 60679-1<br>clause ... | Test conditions (IEC)   |
|----------------------------------|-----------------------|---------------------------|---|
| Sealing tests<br>(if applicable) | 2-17                  | 5.6.2                     | Gross leak: Test Qc,<br>Fine leak: Test Qk                            |
| Solderability                    | 2-20                  | 5.6.3                     | Test Ta Method 1  |
| Resistance to<br>soldering heat  | 2-58                  |                           | Test Td <sub>1</sub> Method 2<br>Test Td <sub>2</sub> Method 2        |
| Shock*                           | 2-27                  | 5.6.8                     | Test Ea, 3 x per axes 100g, 6 ms half-sine pulse                      |
| Vibration, sinusoidal*           | 2-6                   | 5.6.7.1                   | Test Fc, 30 min per axes,<br>10 Hz - 55 Hz 0,75mm; 55 Hz - 2 kHz, 10g |
| Vibration random *               | 2-64                  | 5.6.7.3                   | Test Fdb  |
| Endurance tests                  |                       |                           |   |
| - ageing                         |                       | 5.7.1                     | 30 days @ 85°C, OCXO @25°C  |
| - extended aging                 |                       | 5.7.2                     | 1000h, 2000h, 8000h @85°C   |

Rev. 2 dated 01-02-2013