

QESM07

3.2 x 2.5 mm, SMD



Frequency and Electrical Characteristics

| Parameter | Min. | Typ. | Max. | Unit | Test condition / Description |
|--------------------------------------|------|------------|------------|-------|--|
| Nominal frequency (Fn) | 10 | | 64 | MHz | |
| Calibration tolerance | | | ±10 to ±30 | ppm | Frequency at 25°C ± 2°C and specified load capacitance |
| Reflow shift | | | ±1 | ppm | Frequency shift after reflow with 4 hours settling at 25°C |
| Operating temperature range | | -20 to +70 | -40 to +85 | °C | Refer to ordering information |
| Storage temperature range | -55 | | +125 | °C | |
| Frequency stability over temperature | | | ±10 to ±30 | ppm | Referenced to frequency reading at 25°C and the specified load capacitance |
| Long-term stability (Aging) | | | ±2 | ppm | Frequency drift over 1 year at 25°C |
| g sensitivity | | | 2 | ppb/g | Gamma vector of all three axes from 30 Hz to 1500 Hz |
| Shunt capacitance (CO) | | | 3.0 | pF | |
| Load capacitance (CL) | 6 | | 20 | pF | Refer to ordering information |
| Drive level | | 100 | 200 | µW | |
| Equivalent series resistance (ESR) | | | | | Mode of vibration: Fundamental (AT-cut) |
| 10.000 to 11.999MHz | | | 150 | Ω | Fundamental (AT-cut) |
| 12.000 to 19.999MHz | | | 100 | | Fundamental (AT-cut) |
| 20.000 to 23.999MHz | | | 70 | | Fundamental (AT-cut) |
| 24.000 to 64.000MHz | | | 50 | | Fundamental (AT-cut) |
| Insulation resistance (IR) | 500 | | | MΩ | 100 V ±15 V at 25°C |

Environmental Specifications

| Parameter | Test condition / Description |
|----------------------|---|
| Mechanical vibration | 10g, Frequency: 10Hz ~ 2KHz according to standard CEI 68-2-63 |
| Shock | 100g, 6ms according to standard CEI 68-2-27 |

Order Part Example – QESM07.1.10.HQ.10.10 / 14.7456MHZ

| Parameter | Package type | Vibration mode | Frequency tolerance | Operating temperature range | Frequency stability | Load capacitance | Nominal Frequency (MHz) |
|-----------|---|------------------------|--|--|--|------------------|------------------------------------|
| Code | QESM07 | 1 | 10 | HQ | 10 | 10 | 14.7456MHZ |
| Decode | QESM = SMD Crystal 07 = 3.2 x 2.5 mm | 1 = Fundamental | 10 = ±10ppm 15 = ±15ppm 20 = ±20ppm 30 = ±30ppm | D = -40°C F = -30°C H = -20°C Q = +70°C T = +85°C | 10 = ±10ppm 15 = ±15ppm 20 = ±20ppm 30 = ±30ppm | 10 = 10pF | Please enter the nominal frequency |

Model Outline, Recommended Pad Layout and Marking

TOP VIEW

FRONT VIEW

BOTTOM VIEW

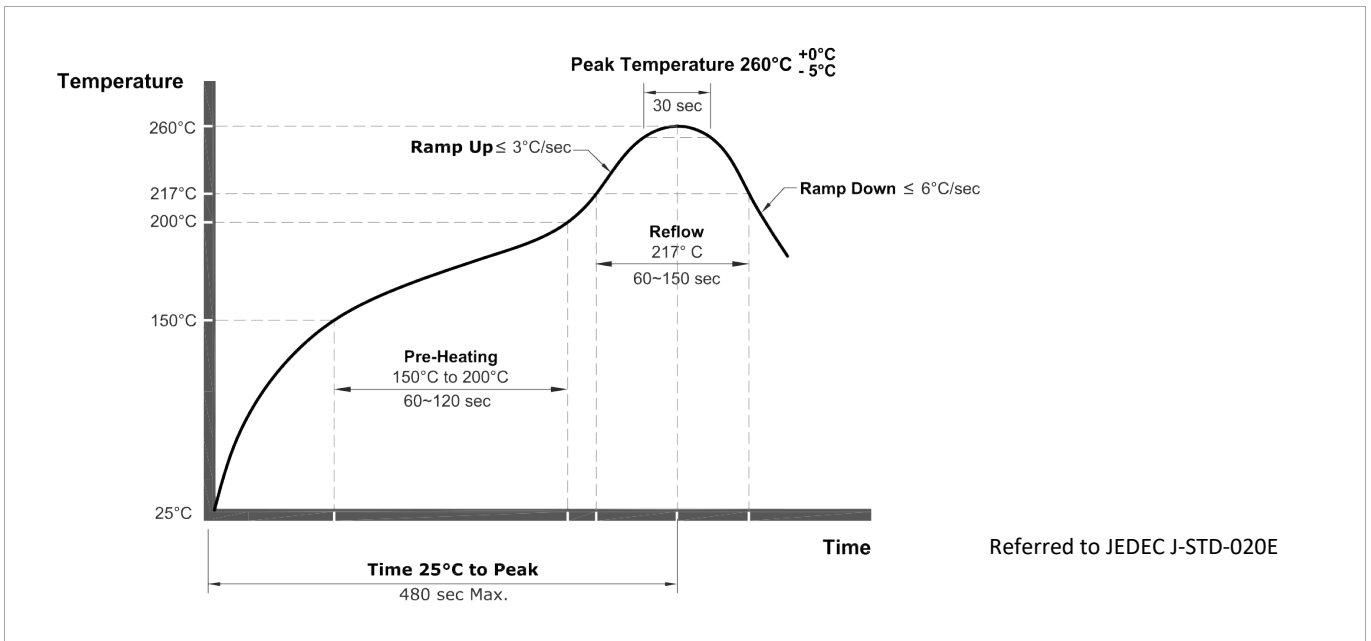
| Marking | | Example: QESM07.1.10.HQ.10.15 / 12.8MHz |
|---------|-----------------------|---|
| Line 1 | Rakon code (6 digits) | 104969 |
| Line 2 | T+date code (YWW) | T233 |

| Pin | Connections |
|-----|-------------|
| 1 | Crystal |
| 2 | GND |
| 3 | Crystal |
| 4 | GND/NC |

NOTE:
Dimensions are in inch and millimetre.

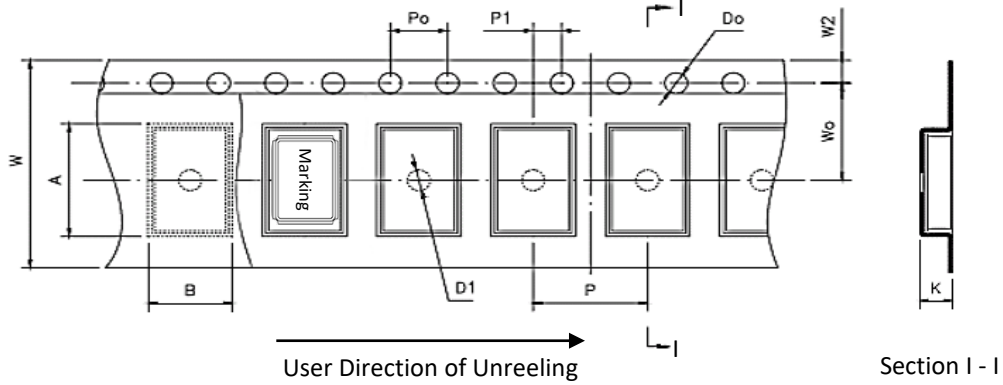
RECOMMENDED PAD LAYOUT (TOP VIEW)

Reflow Soldering Profile



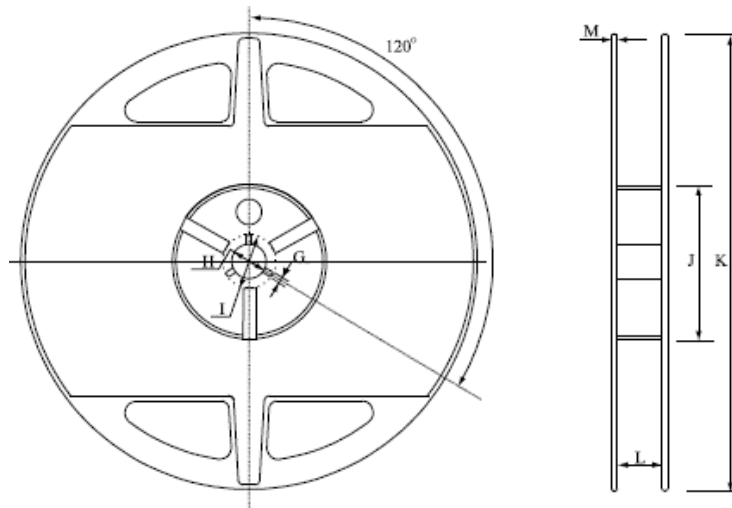
Packaging

TAPE DETAILS:



| Parameter | Code | Dimension | Tolerance |
|---|----------------|-----------|-----------|
| Pitch of components | P | 4.0 | ± 0.1 |
| Pitch of sprocket hole | P ₀ | 4.0 | ± 0.1 |
| Length from hole center to component center | P ₁ | 2.0 | ± 0.1 |
| Width of carrier tape | W | 8.0 | ± 0.1 |
| Width of adhesive tape | W ₀ | 3.5 | ± 0.1 |
| Height of component hole | A | 3.4 | ± 0.1 |
| Width of component hole | B | 2.7 | ± 0.1 |
| Gap of hold down tape and carrier tape | W ₂ | 0.5 | ± 0.1 |
| Diameter of sprocket hole | D ₀ | Φ 1.5 | ± 0.05 |
| Diameter of feed hole | D ₁ | Φ 1.5 | ± 0.25 |
| Total of tape thickness | K | 0.8 | ± 0.1 |

REEL DETAILS:



| G | H | I | J | K | L | M |
|-----------|------------|------------|------------|-------------|-----------|-----------|
| 2.2 ± 0.5 | 13.5 ± 0.5 | 18.2 ± 0.5 | 60.0 ± 1.0 | 178.0 ± 1.0 | 9.5 ± 1.0 | 1.6 ± 0.2 |

NOTE:

- Standard Packing Quantity (SPQ): 3000 pcs/reel
- Unit: mm