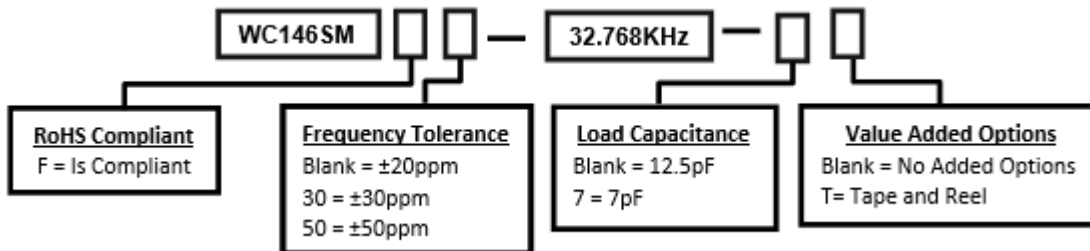


- Ultra Low Profile with 1.4mm Height max
- 32.768 kHz
- Small Compact Size
- Ideal for use in space confined applications
- RoHS Compliant Available
- Tape and Reel Packaging

### Electrical Specifications:

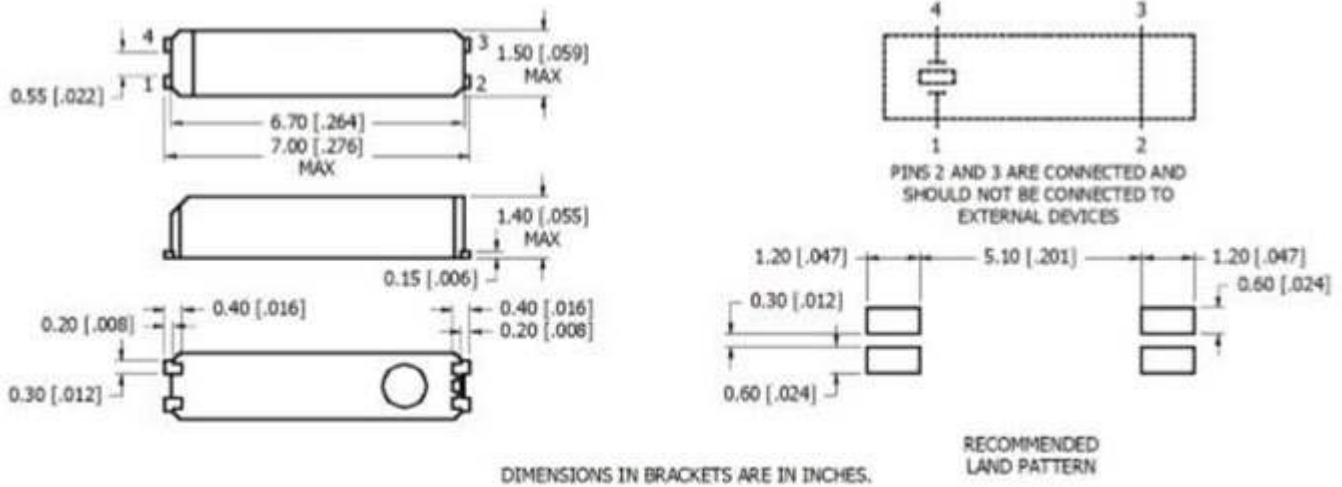
Frequency	32.768kHz
Frequency Tolerance (at 25°C)	±20ppm Max (See Options)
Turnover Temperature	+25°C ±5°C
Load Capacitance (CL)	12.5pF (See Options)
Equivalent Series Resistance (ESR)	65K Ohms max
Drive Level	1.0 uWatt Max
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +125°C
Shunt Capacitance (Co)	1.8pF typ
Aging	±3ppm/First Year Max
Mode of Operation	Flexural Mode (Tuning Fork)
Frequency Stability	-0.035(±0.01) ppm / (Change in °C) <sup>2</sup> Typ, Parabolic Curve
Insulation Resistance	500 Mohms Min (at 100Vdc ±15Vdc)

### Part Number Guide



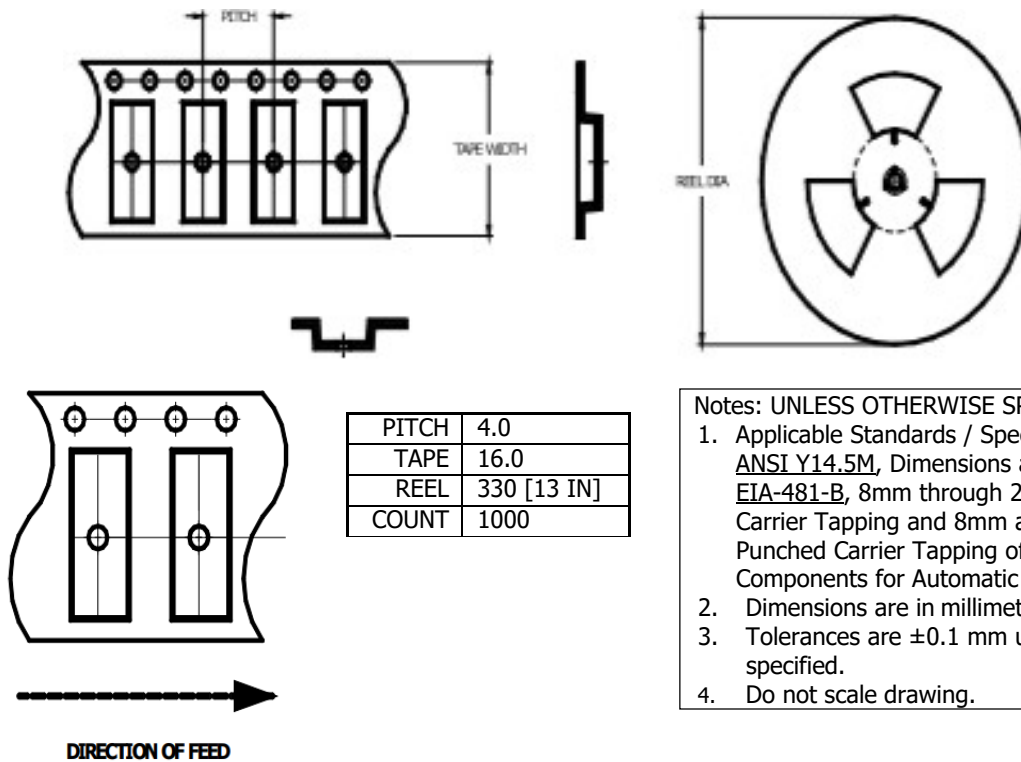
Please consult with MMD sales department for any other parameters or options.

### Mechanical Details



NOTE: The part of the metal cylinder inside the resin mold may sometimes be exposed on the top or bottom of this crystal unit. This aspect is purely cosmetic and does not have any effect on the quality, reliability, or electrical performance of the crystal unit

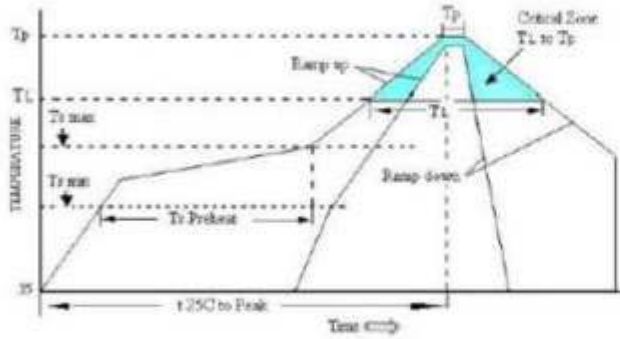
### Tape & Reel Dimensions



Notes: UNLESS OTHERWISE SPECIFIED

1. Applicable Standards / Specifications, ANSI Y14.5M, Dimensions and Tolerances EIA-481-B, 8mm through 200mm Embossed Carrier Tapping and 8mm and 12mm Punched Carrier Tapping of Surface Mount Components for Automatic Handling.
2. Dimensions are in millimeters.
3. Tolerances are  $\pm 0.1$  mm unless otherwise specified.
4. Do not scale drawing.

### Pb Free Solder Reflow Profile



Units are backward compatible with +240°C reflow processes

Ts max to Tl (Ramp-up Rate)	3°C / second max
Preheat	
Temperature min (Ts min)	150°C
Temperature typ (Ts typ)	175°C
Temperature max (Ts max)	200°C
Time (Ts)	60 to 180 seconds
Ramp-up Rate (Tl to Tp)	3°C / second max
Time Maintained Above Temperature (Tl)	217°C
Time (Tl)	60 to 150 seconds
Peak Temperature (Tp)	260°C max for 10 seconds
Time within 5°C to Peak Temperature (Tp)	20 to 40 seconds
Ramp-down Rate	6°C / second max
Time 25°C to Peak Temperature	8 minutes max