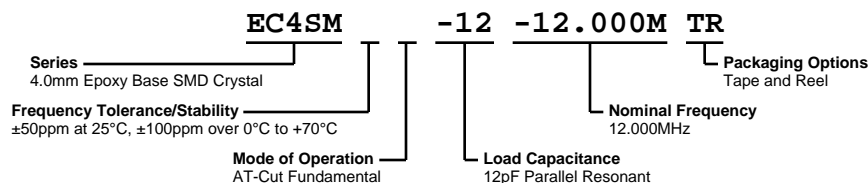


# EC4SM-12-12.000M TR



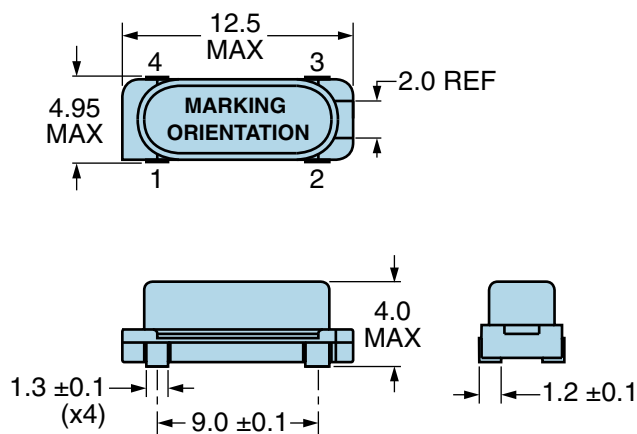
## ELECTRICAL SPECIFICATIONS

Nominal Frequency	12.000MHz
Frequency Tolerance/Stability	$\pm 50\text{ppm}$ at $25^\circ\text{C}$ , $\pm 100\text{ppm}$ over $0^\circ\text{C}$ to $+70^\circ\text{C}$
Aging at $25^\circ\text{C}$	$\pm 5\text{ppm/year}$ Maximum
Load Capacitance	12pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	70 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatts Maximum
Storage Temperature Range	$-40^\circ\text{C}$ to $+85^\circ\text{C}$
Insulation Resistance	500 Megaohms Minimum at 100Vdc

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

Fine Leak Test	MIL-STD-883, Method 1014 Condition A
Gross Leak Test	MIL-STD-883, Method 1014 Condition C
Mechanical Shock	MIL-STD-202, Method 213 Condition C
Resistance to Soldering Heat	MIL-STD-202, Method 210
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010
Vibration	MIL-STD-883, Method 2007 Condition A

## MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Connected to Pin 4 and to Crystal
2	Connected to Pin 3 and to Crystal
3	Connected to Pin 2 and to Crystal
4	Connected to Pin 1 and to Crystal

LINE	MARKING
1	<b>E12.000</b> E=Ecliptek Designator

# EC4SM-12-12.000M TR

## Suggested Solder Pad Layout

All Dimensions in Millimeters

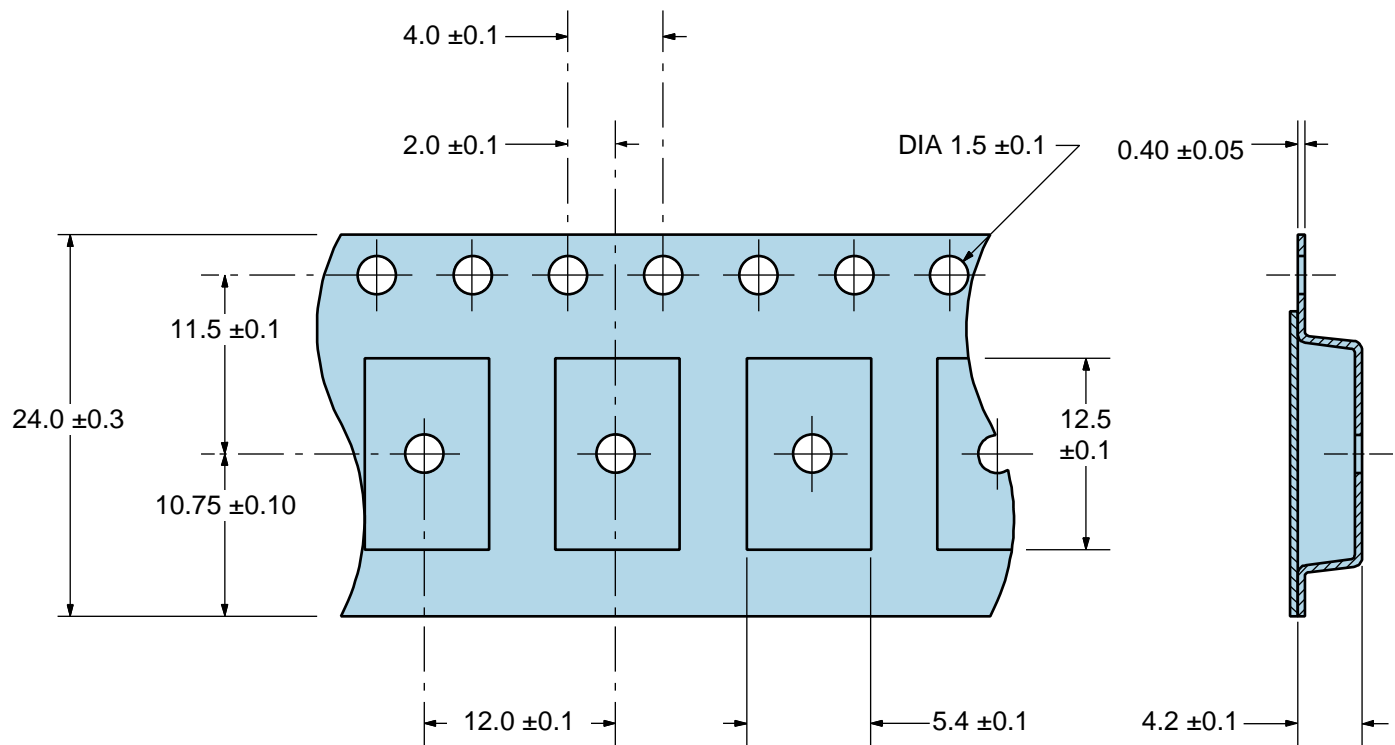


All Tolerances are  $\pm 0.1$

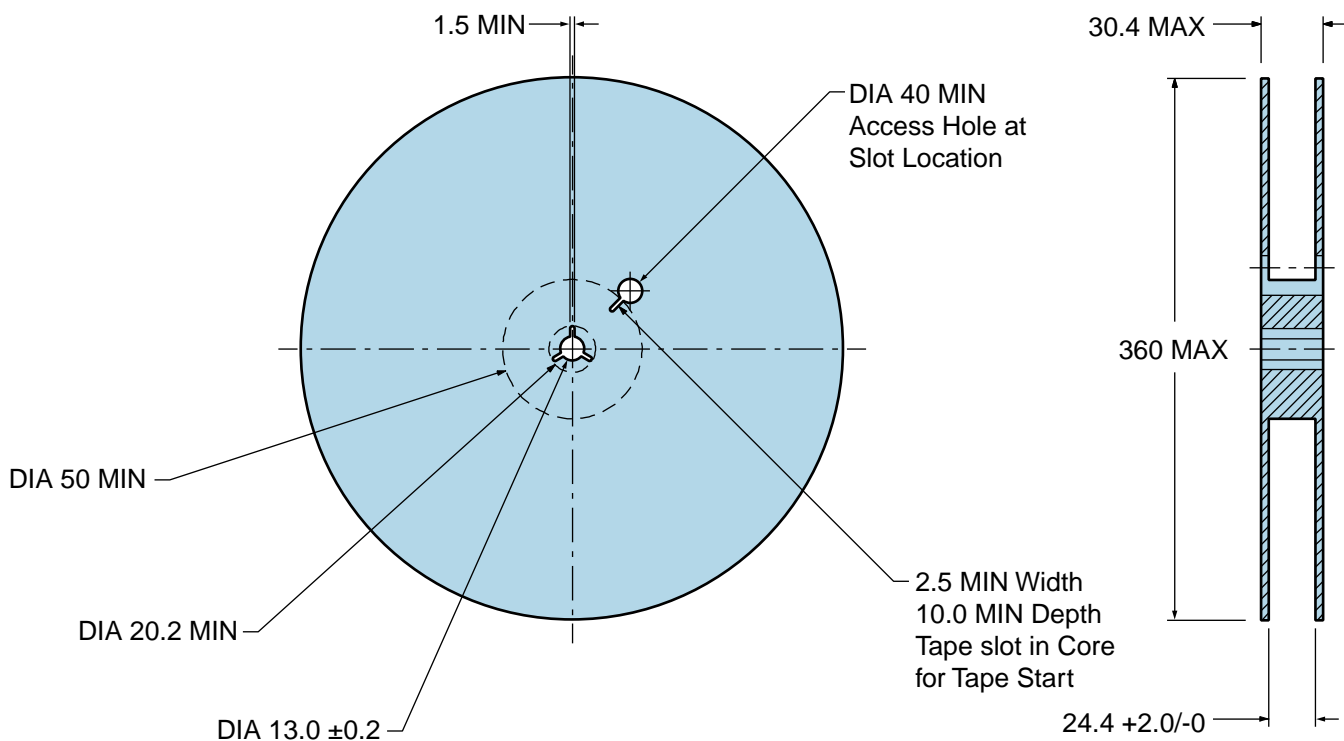
# EC4SM-12-12.000M TR

## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units



\*Compliant to EIA 481A



## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 225°C

$T_S$  MAX to  $T_L$  (Ramp-up Rate) 5°C/second Maximum

#### Preheat

- Temperature Minimum ( $T_S$  MIN) N/A
- Temperature Typical ( $T_S$  TYP) 150°C
- Temperature Maximum ( $T_S$  MAX) N/A
- Time ( $t_s$  MIN) 30 - 60 Seconds

Ramp-up Rate ( $T_L$  to  $T_P$ ) 5°C/second Maximum

#### Time Maintained Above:

- Temperature ( $T_L$ ) 150°C
- Time ( $t_L$ ) 200 Seconds Maximum

Peak Temperature ( $T_P$ ) 225°C Maximum

Target Peak Temperature ( $T_P$  Target) 225°C Maximum 2 Times

Time within 5°C of actual peak ( $t_p$ ) 80 seconds Maximum 2 Times

Ramp-down Rate 5°C/second Maximum

Time 25°C to Peak Temperature (t) N/A

Moisture Sensitivity Level Level 1

### Low Temperature Manual Soldering

185°C Maximum for 10 seconds Maximum, 2 times Maximum.

### High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum.