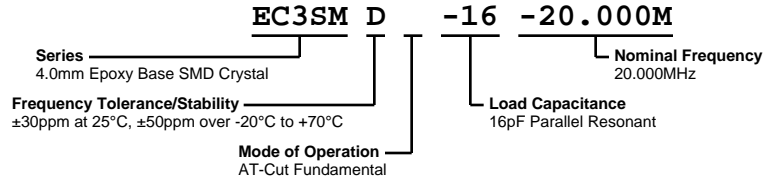


# EC3SMD-16-20.000M



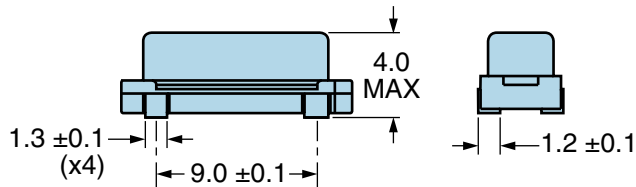
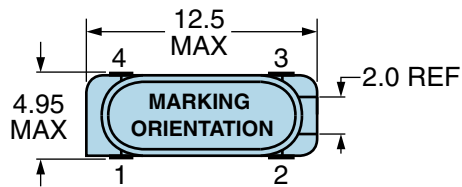
## ELECTRICAL SPECIFICATIONS

Nominal Frequency	20.000MHz
Frequency Tolerance/Stability	$\pm 30\text{ppm}$ at 25°C, $\pm 50\text{ppm}$ over -20°C to +70°C
Aging at 25°C	$\pm 5\text{ppm/year}$ Maximum
Load Capacitance	16pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	50 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatts Maximum
Storage Temperature Range	-40°C to +85°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	Crystal
2	Connected to Pin 3
3	Connected to Pin 2
4	Crystal

LINE	MARKING
1	<b>E20.000</b> E=Ecliptek Designator

# EC3SMD-16-20.000M

## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

# EC3SMD-16-20.000M

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 225°C

**T<sub>s</sub> MAX to T<sub>L</sub> (Ramp-up Rate)** 5°C/second Maximum

#### Preheat

- Temperature Minimum (T<sub>s</sub> MIN) N/A
- Temperature Typical (T<sub>s</sub> TYP) 150°C
- Temperature Maximum (T<sub>s</sub> MAX) N/A
- Time (t<sub>s</sub> MIN) 30 - 60 Seconds

**Ramp-up Rate (T<sub>L</sub> to T<sub>p</sub>)** 5°C/second Maximum

#### Time Maintained Above:

- Temperature (T<sub>L</sub>) 150°C
- Time (t<sub>L</sub>) 200 Seconds Maximum

**Peak Temperature (T<sub>p</sub>)** 225°C Maximum

**Target Peak Temperature (T<sub>p</sub> Target)** 225°C Maximum 2 Times

**Time within 5°C of actual peak (t<sub>p</sub>)** 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.