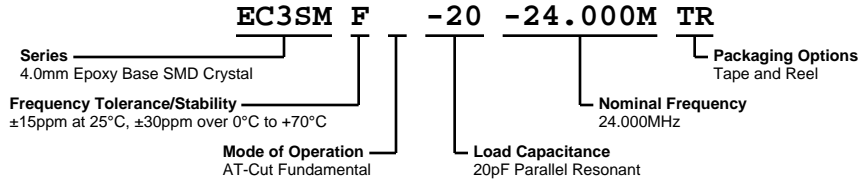


EC3SMF-20-24.000M TR



ELECTRICAL SPECIFICATIONS

Nominal Frequency	24.000MHz
Frequency Tolerance/Stability	$\pm 15\text{ppm}$ at 25°C , $\pm 30\text{ppm}$ over 0°C to $+70^\circ\text{C}$
Aging at 25°C	$\pm 5\text{ppm}/\text{year}$ Maximum
Load Capacitance	20pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	40 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatts Maximum
Storage Temperature Range	-40°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)



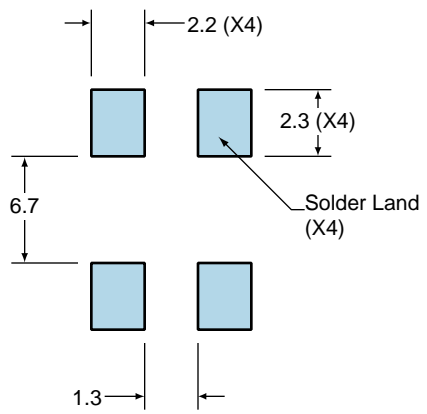
PIN	CONNECTION
1	Crystal
2	Connected to Pin 3
3	Connected to Pin 2
4	Crystal

LINE	MARKING
1	E24.000 E=Ecliptek Designator

EC3SMF-20-24.000M TR

Suggested Solder Pad Layout

All Dimensions in Millimeters

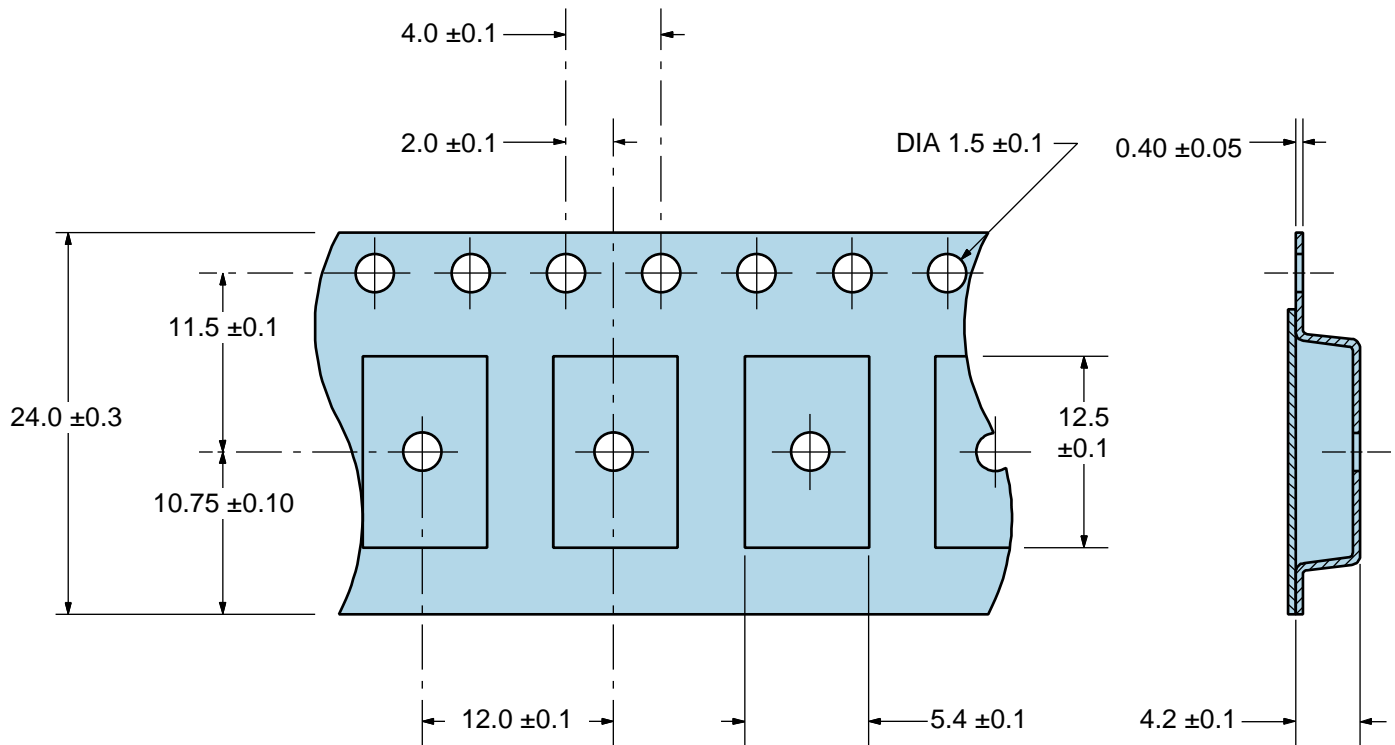


All Tolerances are ± 0.1

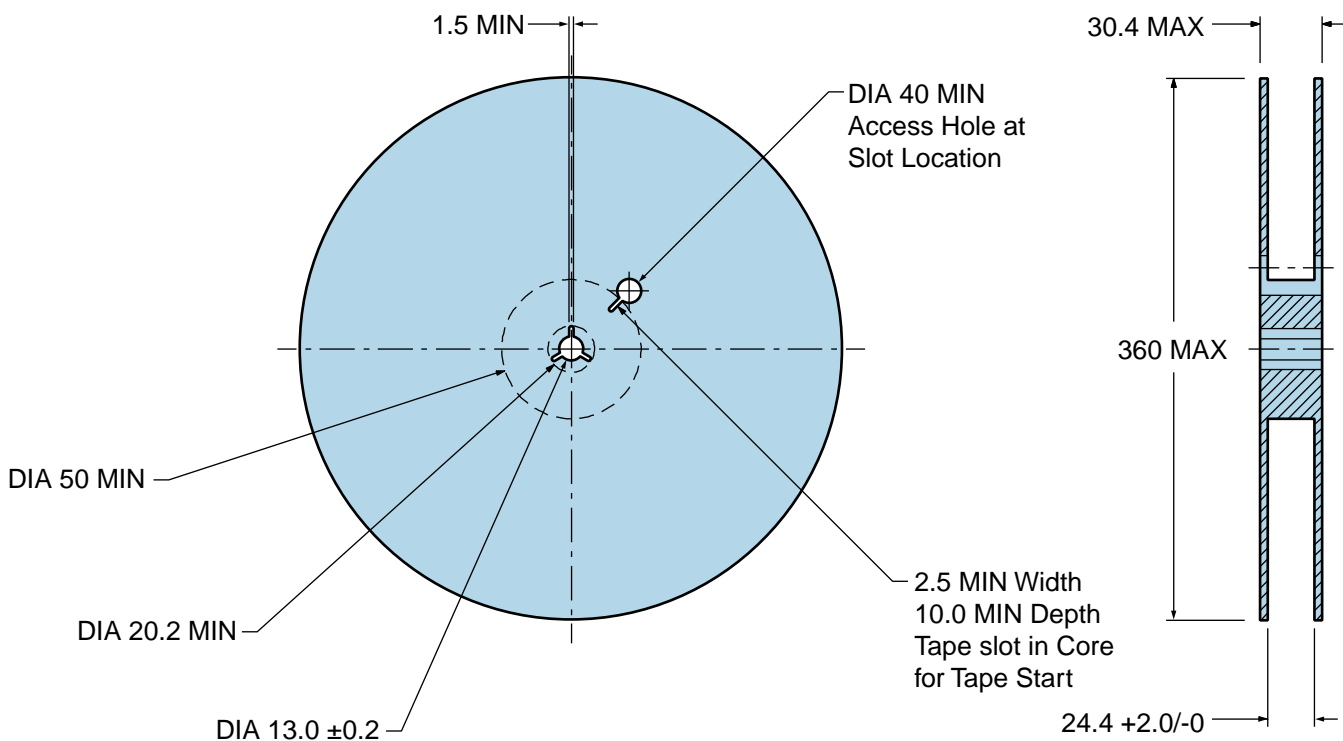
EC3SMF-20-24.000M TR

Tape & Reel Dimensions

Quantity Per Reel: 1,000 units



*Compliant to EIA 481A



Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 225°C

$T_s \text{ MAX}$ to T_L (Ramp-up Rate) 5°C/second Maximum

Preheat

- Temperature Minimum ($T_s \text{ MIN}$) N/A
- Temperature Typical ($T_s \text{ TYP}$) 150°C
- Temperature Maximum ($T_s \text{ MAX}$) N/A
- Time ($t_s \text{ MIN}$) 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 ($T_p \text{ Target}$) 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.