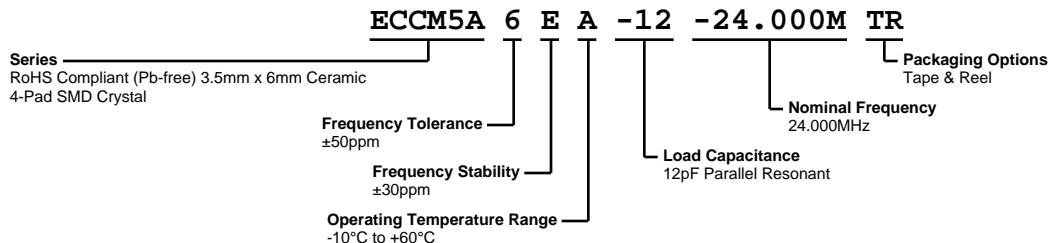


# ECCM5A6EA-12-24.000M TR



**ECLIPTEK**  
CORPORATION



## ELECTRICAL SPECIFICATIONS

<b>Nominal Frequency</b>	24.000MHz
<b>Frequency Tolerance</b>	±50ppm
<b>Frequency Stability</b>	±30ppm
<b>Aging at 25°C</b>	±3ppm/year Maximum
<b>Operating Temperature Range</b>	-10°C to +60°C
<b>Load Capacitance</b>	12pF Parallel Resonant
<b>Shunt Capacitance (C0)</b>	5pF Maximum
<b>Equivalent Series Resistance</b>	50 Ohms Maximum
<b>Mode of Operation</b>	AT-Cut Fundamental
<b>Drive Level</b>	100µWatts Maximum
<b>Spurious Response</b>	-3dB Minimum; Fo to Fo +5000ppm
<b>Storage Temperature Range</b>	-40°C to +85°C
<b>Insulation Resistance</b>	500 Megaohms Minimum at 100Vdc

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

<b>ESD Susceptibility</b>	MIL-STD-883, Method 3015, Class 1, HBM: 1500V
<b>Fine Leak Test</b>	MIL-STD-883, Method 1014, Condition A
<b>Flammability</b>	UL94-V0
<b>Gross Leak Test</b>	MIL-STD-883, Method 1014, Condition C
<b>Mechanical Shock</b>	MIL-STD-883, Method 2002, Condition B
<b>Moisture Resistance</b>	MIL-STD-883, Method 1004
<b>Moisture Sensitivity</b>	J-STD-020, MSL 1
<b>Resistance to Soldering Heat</b>	MIL-STD-202, Method 210, Condition K
<b>Resistance to Solvents</b>	MIL-STD-202, Method 215
<b>Solderability</b>	MIL-STD-883, Method 2003
<b>Temperature Cycling</b>	MIL-STD-883, Method 1010, Condition B
<b>Vibration</b>	MIL-STD-883, Method 2007, Condition A

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## MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Input
2	Case/Ground
3	Output
4	Case/Ground

LINE	MARKING
1	<b>E24.00</b> E=Ecliptek Designator
2	<b>XXXXX</b> XXXXX=Ecliptek Manufacturing Identifier

## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

<b>T<sub>s</sub> MAX to T<sub>L</sub> (Ramp-up Rate)</b>	3°C/second Maximum
<b>Preheat</b>	
- Temperature Minimum (T <sub>s</sub> MIN)	150°C
- Temperature Typical (T <sub>s</sub> TYP)	175°C
- Temperature Maximum (T <sub>s</sub> MAX)	200°C
- Time (t <sub>s</sub> MIN)	60 - 180 Seconds
<b>Ramp-up Rate (T<sub>L</sub> to T<sub>p</sub>)</b>	3°C/second Maximum
<b>Time Maintained Above:</b>	
- Temperature (T <sub>L</sub> )	217°C
- Time (t <sub>L</sub> )	60 - 150 Seconds
<b>Peak Temperature (T<sub>p</sub>)</b>	260°C Maximum for 10 Seconds Maximum
<b>Target Peak Temperature (T<sub>p</sub> Target)</b>	250°C +0/-5°C
<b>Time within 5°C of actual peak (t<sub>p</sub>)</b>	20 - 40 seconds
<b>Ramp-down Rate</b>	6°C/second Maximum
<b>Time 25°C to Peak Temperature (t)</b>	8 minutes Maximum
<b>Moisture Sensitivity Level</b>	Level 1

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C

<b><math>T_S</math> MAX to <math>T_L</math> (Ramp-up Rate)</b>	5°C/second Maximum
<b>Preheat</b>	
- 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
<b>Ramp-up Rate (<math>T_L</math> to <math>T_P</math>)</b>	5°C/second Maximum
<b>Time Maintained Above:</b>	
- Temperature ( $T_L$ )	150°C
- Time ( $t_L$ )	200 Seconds Maximum
<b>Peak Temperature (<math>T_P</math>)</b>	245°C Maximum
<b>Target Peak Temperature (<math>T_P</math> Target)</b>	245°C Maximum 2 Times / 230°C Maximum 1 Time
<b>Time within 5°C of actual peak (<math>t_p</math>)</b>	10 seconds Maximum 2 Times / 80 seconds Maximum 1 Time
<b>Ramp-down Rate</b>	5°C/second Maximum
<b>Time 25°C to Peak Temperature (t)</b>	N/A
<b>Moisture Sensitivity Level</b>	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.