

# EA5070PA20-16.000M TR

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## REGULATORY COMPLIANCE (Data Sheet downloaded on Jun 21, 2020)


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## ITEM DESCRIPTION

Quartz Crystal Resonator 5.0mm x 7.0mm x 1.3mm 4 Pad Ceramic Surface Mount (SMD) 16.000MHz  $\pm 10$ ppm at 25°C,  $\pm 15$ ppm over -20°C to +70°C 20pF Parallel Resonant

## ELECTRICAL SPECIFICATIONS

|                               |                                                        |
|-------------------------------|--------------------------------------------------------|
| Nominal Frequency             | 16.000MHz                                              |
| Frequency Tolerance/Stability | $\pm 10$ ppm at 25°C, $\pm 15$ ppm over -20°C to +70°C |
| Aging at 25°C                 | $\pm 3$ ppm/year Maximum                               |
| Load Capacitance              | 20pF Parallel Resonant                                 |
| Shunt Capacitance             | 7pF Maximum                                            |
| Equivalent Series Resistance  | 30 Ohms Maximum                                        |
| Mode of Operation             | AT-Cut Fundamental                                     |
| Drive Level                   | 50 $\mu$ Watts Maximum                                 |
| Spurious Response             | -3dB Minimum (Measured from Fo to Fo +5000ppm)         |
| Storage Temperature Range     | -40°C to +85°C                                         |
| Insulation Resistance         | 500 Megaohms Minimum (Measured at 100Vdc)              |

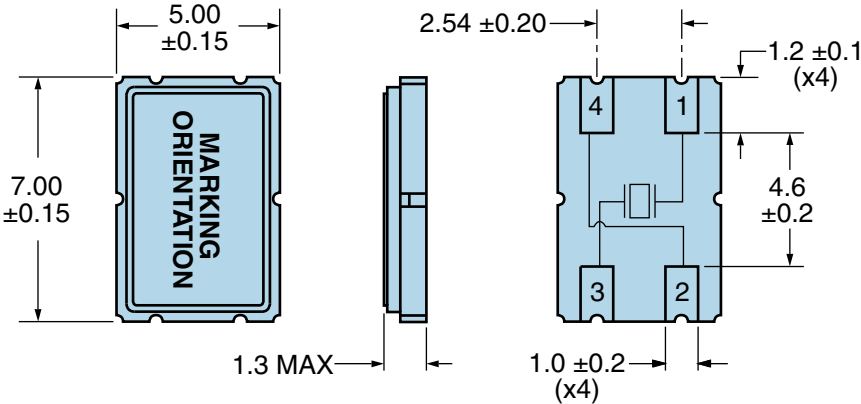
## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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

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MECHANICAL DIMENSIONS (all dimensions in millimeters)



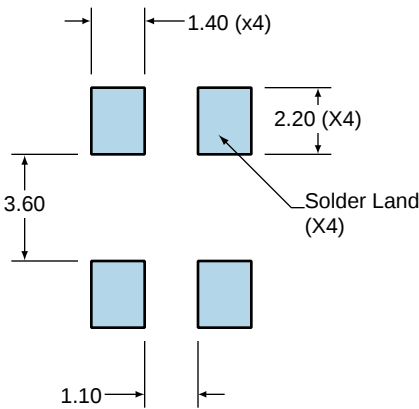
| PIN | CONNECTION   |
|-----|--------------|
| 1   | Crystal      |
| 2   | Cover/Ground |
| 3   | Crystal      |
| 4   | Cover/Ground |

| LINE | MARKING                                                   |
|------|-----------------------------------------------------------|
| 1    | <b>E16.00</b><br>E=Ecliptek Designator                    |
| 2    | <b>XXXXXX</b><br>XXXXXX=Ecliptek Manufacturing Identifier |

Terminal Plating Thickness: Gold (0.3 to 1.0µm). Nickel (1.27 to 8.89µm).

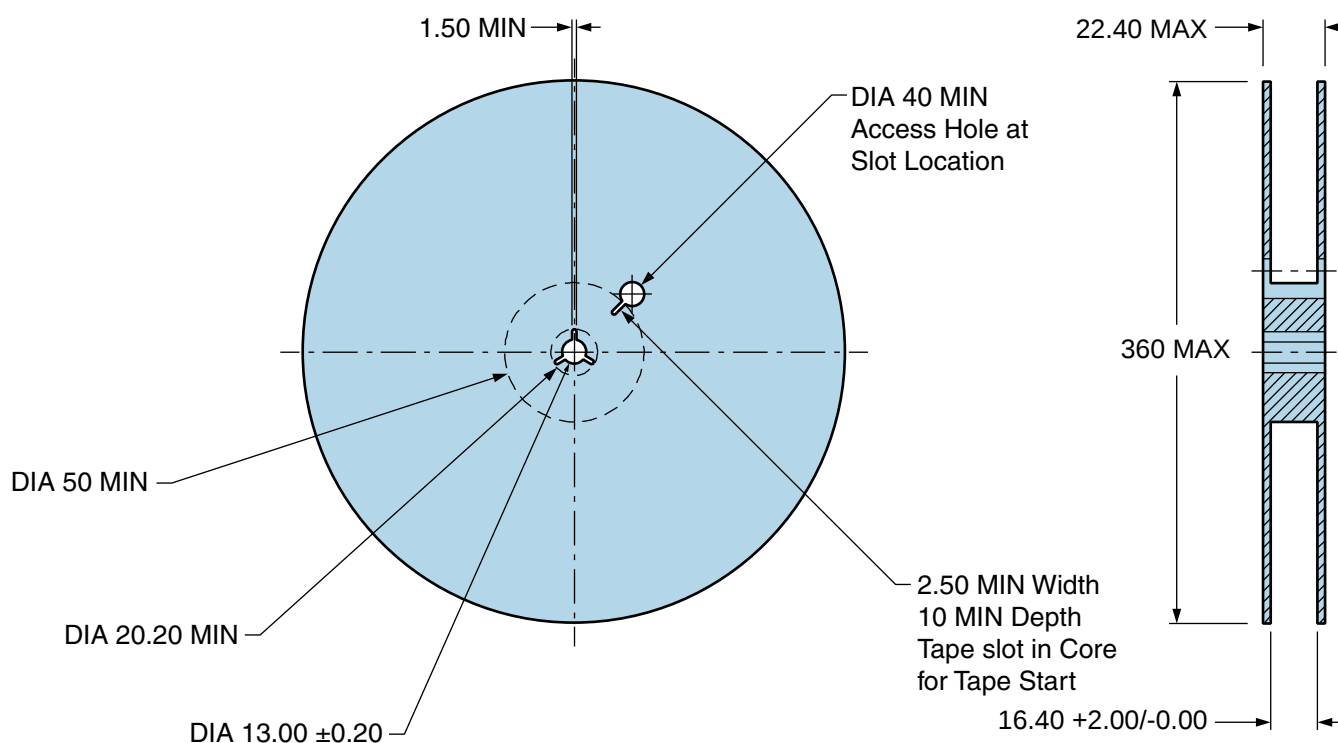
Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

Compliant to EIA-481



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Recommended Solder Reflow Methods



High Temperature Infrared/Convection

|                                     |                                                  |
|-------------------------------------|--------------------------------------------------|
| Ts MAX to TL (Ramp-up Rate)         | 3°C/Second Maximum                               |
| Preheat                             |                                                  |
| - Temperature Minimum (Ts MIN)      | 150°C                                            |
| - Temperature Typical (Ts TYP)      | 175°C                                            |
| - Temperature Maximum (Ts MAX)      | 200°C                                            |
| - Time (ts MIN)                     | 60 - 180 Seconds                                 |
| Ramp-up Rate (TL to TP)             | 3°C/Second Maximum                               |
| Time Maintained Above:              |                                                  |
| - Temperature (TL)                  | 217°C                                            |
| - Time (tL)                         | 60 - 150 Seconds                                 |
| Peak Temperature (TP)               | 260°C Maximum for 10 Seconds Maximum             |
| Target Peak Temperature (TP Target) | 250°C +0/-5°C                                    |
| Time within 5°C of actual peak (tp) | 20 - 40 Seconds                                  |
| Ramp-down Rate                      | 6°C/Second Maximum                               |
| Time 25°C to Peak Temperature (t)   | 8 Minutes Maximum                                |
| Moisture Sensitivity Level          | Level 1                                          |
| Additional Notes                    | Temperature shown are applied to body of device. |

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 245°C

|                                     |                                                        |
|-------------------------------------|--------------------------------------------------------|
| TS MAX to TL (Ramp-up Rate)         | 5°C/Second Maximum                                     |
| Preheat                             |                                                        |
| - Temperature Minimum (TS MIN)      | N/A                                                    |
| - Temperature Typical (TS TYP)      | 150°C                                                  |
| - Temperature Maximum (TS MAX)      | N/A                                                    |
| - Time (ts MIN)                     | 30 - 60 Seconds                                        |
| Ramp-up Rate (TL to TP)             | 5°C/Second Maximum                                     |
| Time Maintained Above:              |                                                        |
| - Temperature (TL)                  | 150°C                                                  |
| - Time (tL)                         | 200 Seconds Maximum                                    |
| Peak Temperature (TP)               | 245°C Maximum                                          |
| Target Peak Temperature (TP Target) | 245°C Maximum 2 Times / 230°C Maximum 1 Time           |
| Time within 5°C of actual peak (tP) | 10 Seconds Maximum 2 Times / 80 Seconds Maximum 1 Time |
| Ramp-down Rate                      | 5°C/Second Maximum                                     |
| Time 25°C to Peak Temperature (t)   | N/A                                                    |
| Moisture Sensitivity Level          | Level 1                                                |
| Additional Notes                    | Temperature shown are applied to body of device.       |

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperature shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperature shown are applied to body of device.)

# Mouser Electronics

Authorized Distributor

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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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