

REGULATORY COMPLIANCE



ITEM DESCRIPTION

Quartz Crystal Resonator 5.0mm x 7.0mm x 1.3mm 4 Pad Ceramic Surface Mount (SMD)

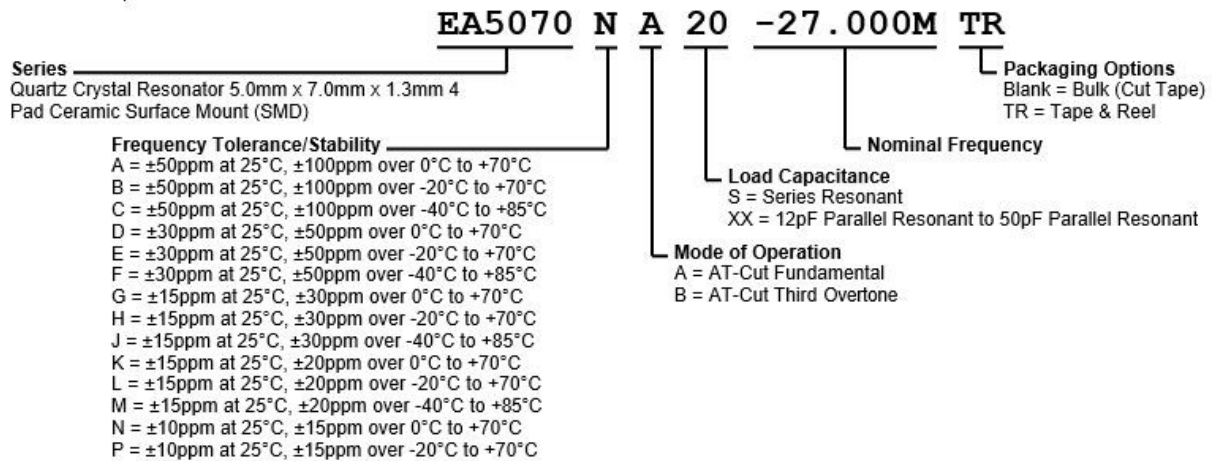
ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| Nominal Frequency | 6MHz to 66MHz |
| Frequency Tolerance/Stability | $\pm 50\text{ppm}$ at 25°C , $\pm 100\text{ppm}$ over 0°C to $+70^{\circ}\text{C}$ $\pm 50\text{ppm}$ at 25°C , $\pm 100\text{ppm}$ over -20°C to $+70^{\circ}\text{C}$ $\pm 50\text{ppm}$ at 25°C , $\pm 100\text{ppm}$ over -40°C to $+85^{\circ}\text{C}$ $\pm 30\text{ppm}$ at 25°C , $\pm 50\text{ppm}$ over 0°C to $+70^{\circ}\text{C}$ $\pm 30\text{ppm}$ at 25°C , $\pm 50\text{ppm}$ over -20°C to $+70^{\circ}\text{C}$ $\pm 30\text{ppm}$ at 25°C , $\pm 50\text{ppm}$ over -40°C to $+85^{\circ}\text{C}$ $\pm 15\text{ppm}$ at 25°C , $\pm 30\text{ppm}$ over 0°C to $+70^{\circ}\text{C}$ $\pm 15\text{ppm}$ at 25°C , $\pm 30\text{ppm}$ over -20°C to $+70^{\circ}\text{C}$ $\pm 15\text{ppm}$ at 25°C , $\pm 30\text{ppm}$ over -40°C to $+85^{\circ}\text{C}$ $\pm 15\text{ppm}$ at 25°C , $\pm 20\text{ppm}$ over 0°C to $+70^{\circ}\text{C}$ $\pm 15\text{ppm}$ at 25°C , $\pm 20\text{ppm}$ over -20°C to $+70^{\circ}\text{C}$ $\pm 15\text{ppm}$ at 25°C , $\pm 20\text{ppm}$ over -40°C to $+85^{\circ}\text{C}$ $\pm 10\text{ppm}$ at 25°C , $\pm 15\text{ppm}$ over 0°C to $+70^{\circ}\text{C}$ $\pm 10\text{ppm}$ at 25°C , $\pm 15\text{ppm}$ over -20°C to $+70^{\circ}\text{C}$ |
| Aging at 25°C | $\pm 3\text{ppm/year}$ Maximum |
| Load Capacitance | Series Resonant, 12pF Parallel Resonant to 50pF Parallel Resonant |
| Shunt Capacitance | 7pF Maximum |
| Equivalent Series Resistance | See the Equivalent Series Resistance (ESR), Mode of Operation, and Crystal Cut Table Below |
| Mode of Operation | AT-Cut Fundamental (Only available over Nominal Frequency range of 6MHz to 40MHz) AT-Cut Third Overtone (Only available over Nominal Frequency range of 35.328MHz to 66MHz) |
| Drive Level | 50 μ Watts Maximum |
| Spurious Response | Measured from F_0 to $F_0 + 5000\text{ppm}$ -3dB Minimum |
| Storage Temperature Range | -40°C to $+85^{\circ}\text{C}$ |
| Insulation Resistance | Measured at 100Vdc 500 Megaohms Minimum |

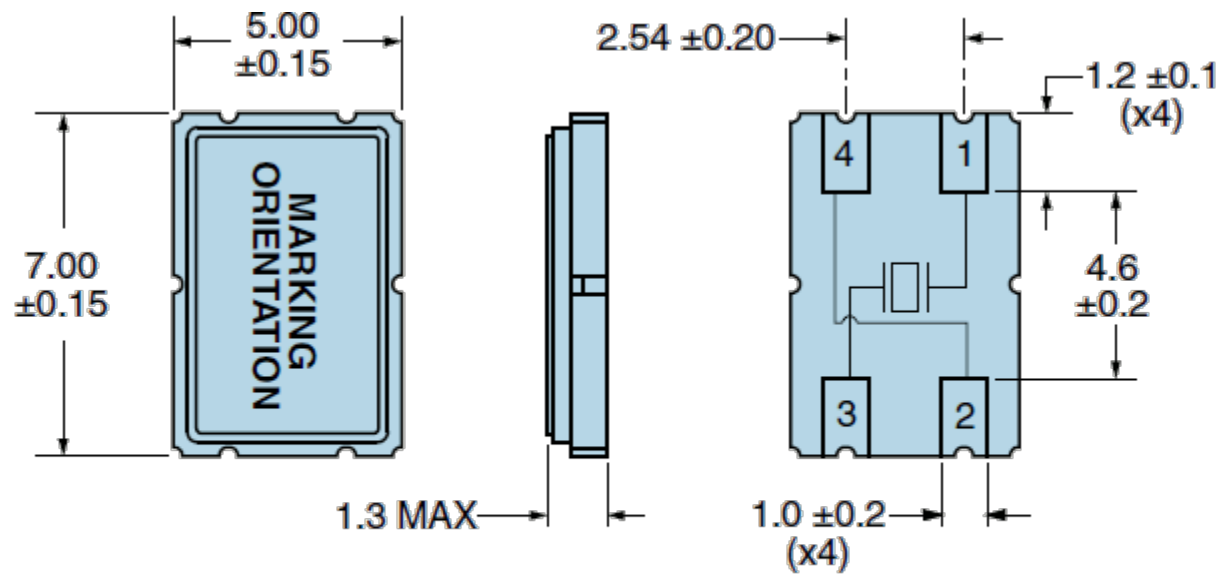
EQUIVALENT SERIES RESISTANCE (ESR), MODE OF OPERATION AND CRYSTAL CUT

| Frequency Range | ESR (Ohms Max) | Mode | Frequency Range | ESR (Ohms Max) | Mode |
|-----------------------|----------------|--------------------|---------------------------|----------------|-----------------------|
| 6MHz to 9.999999MHz | 90 | AT-Cut Fundamental | 16MHz to 40MHz | 30 | AT-Cut Fundamental |
| 10MHz to 10.999999MHz | 60 | AT-Cut Fundamental | 35.328MHz to 39.999999MHz | 100 | AT-Cut Third Overtone |
| 11MHz to 13.999999MHz | 50 | AT-Cut Fundamental | 40MHz to 59.999999MHz | 80 | AT-Cut Third Overtone |
| 14MHz to 15.999999MHz | 40 | AT-Cut Fundamental | 60MHz to 66MHz | 80 | AT-Cut Third Overtone |

PART NUMBERING GUIDE



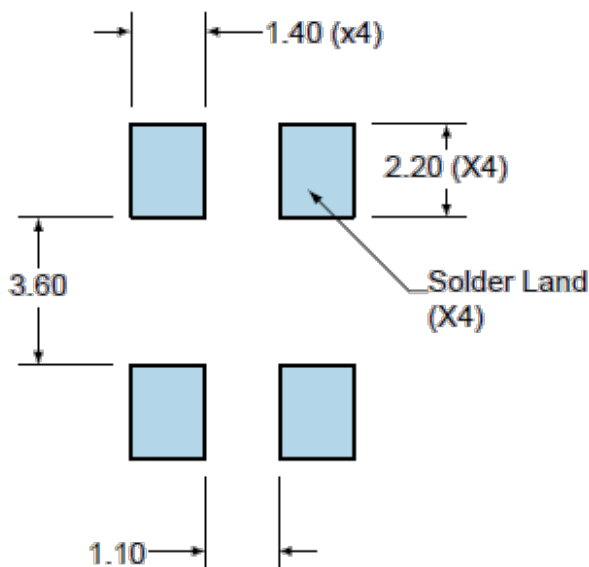
MECHANICAL DIMENSIONS



Note: Chamfer and index mark not shown.

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

SUGGESTED SOLDER PAD LAYOUT



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

All Tolerances are ± 0.1

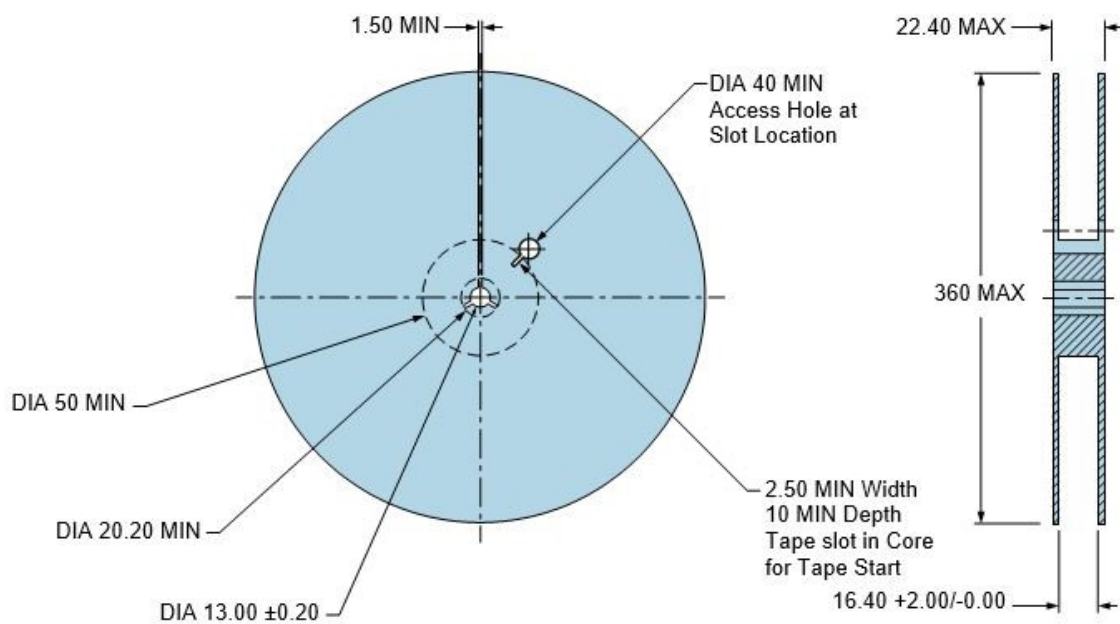
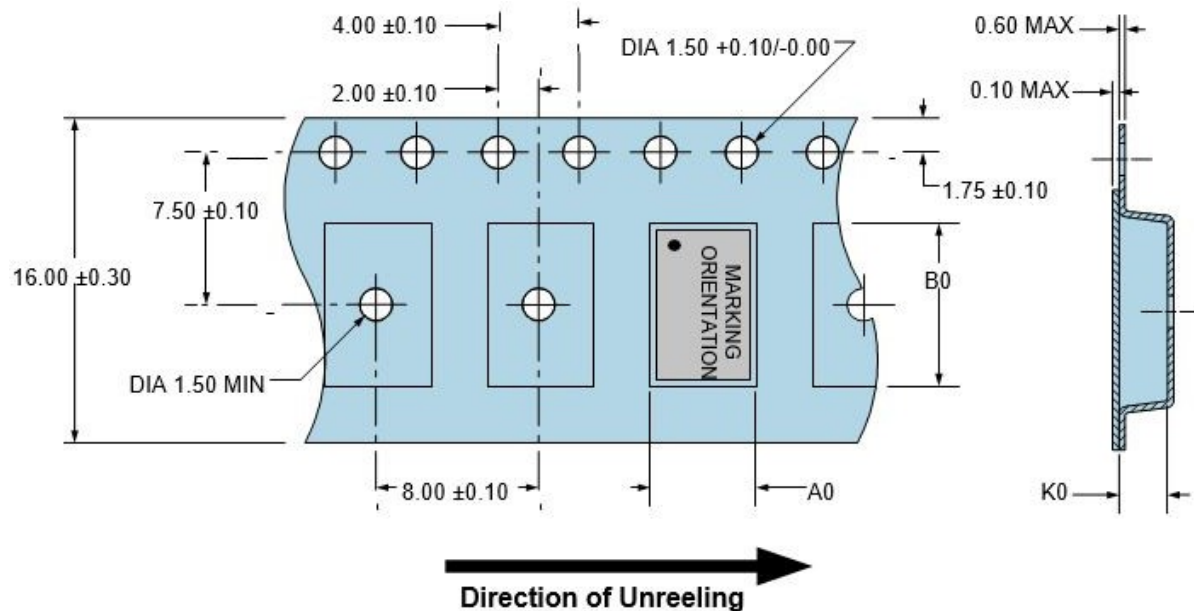
All Dimensions in Millimeters

TAPE & REEL DIMENSIONS

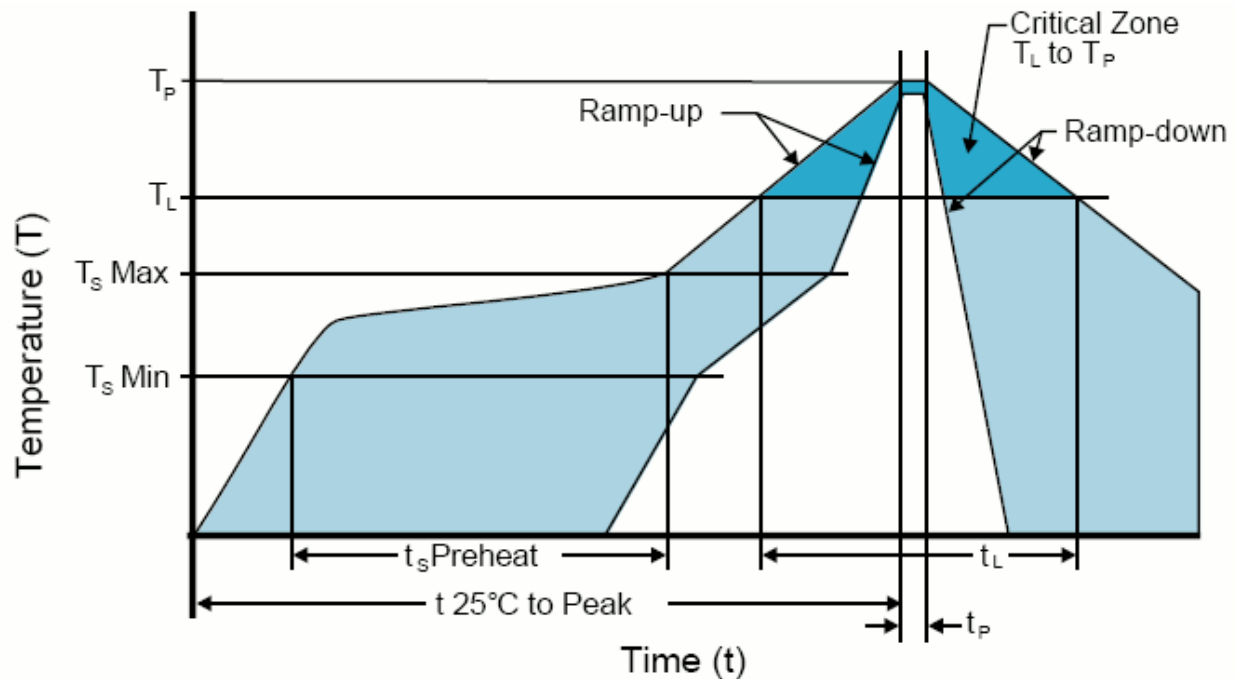
Quantity per Reel: 1,000 Units

All Dimensions in Millimeters

Compliant to EIA-481



RECOMMENDED SOLDER REFLOW METHOD



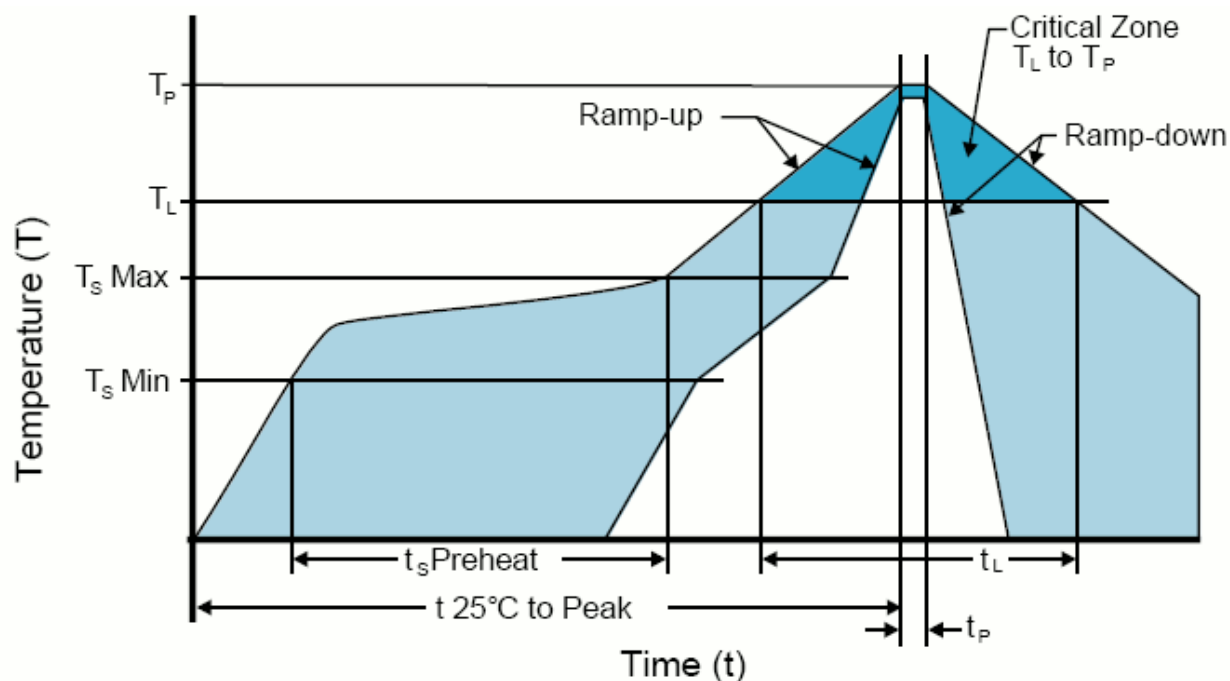
HIGH TEMPERATURE INFRARED/CONVECTION

| | |
|--|---|
| T_S MAX to T_L (Ramp-up Rate) | 3°C/Second Maximum |
| Preheat | |
| - Temperature Minimum (T _S MIN) | 150°C |
| - Temperature Typical (T _S TYP) | 175°C |
| - Temperature Maximum (T _S MAX) | 200°C |
| - Time (t _s) | 60 - 180 Seconds |
| Ramp-up Rate (T_L to T_P) | 3°C/Second Maximum |
| Time Maintained Above: | |
| - Temperature (T _L) | 217°C |
| - Time (t _L) | 60 - 150 Seconds |
| Peak Temperature (T_P) | 260°C Maximum for 10 Seconds Maximum |
| Target Peak Temperature (T_P Target) | 250°C +0/-5°C |
| Time within 5°C of actual peak (t_p) | 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 | Temperatures shown are applied to body of device. |

High Temperature Manual Soldering

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

RECOMMENDED SOLDER REFLOW METHOD



LOW TEMPERATURE INFRARED/CONVECTION

| | |
|--|--|
| 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) | 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) | 245°C Maximum |
| Target Peak Temperature (T_P Target) | 245°C Maximum 2 Times / 230°C Maximum 1 Time |
| Time within 5°C of actual peak (t_p) | 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 | Temperatures shown are applied to body of device. |

Low Temperature Manual Soldering

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

Mouser Electronics

Authorized Distributor

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