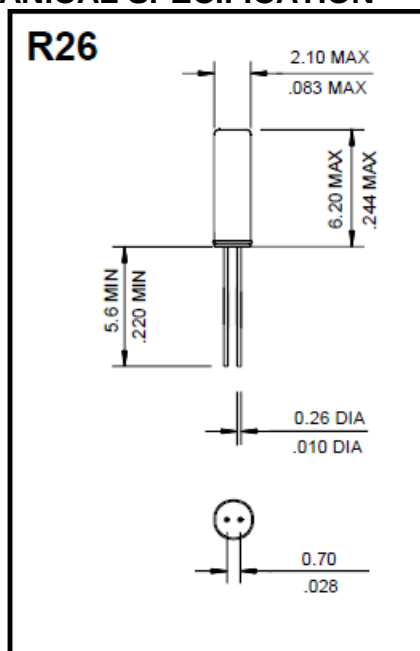


## ● ELECTRICAL SPECIFICATIONS

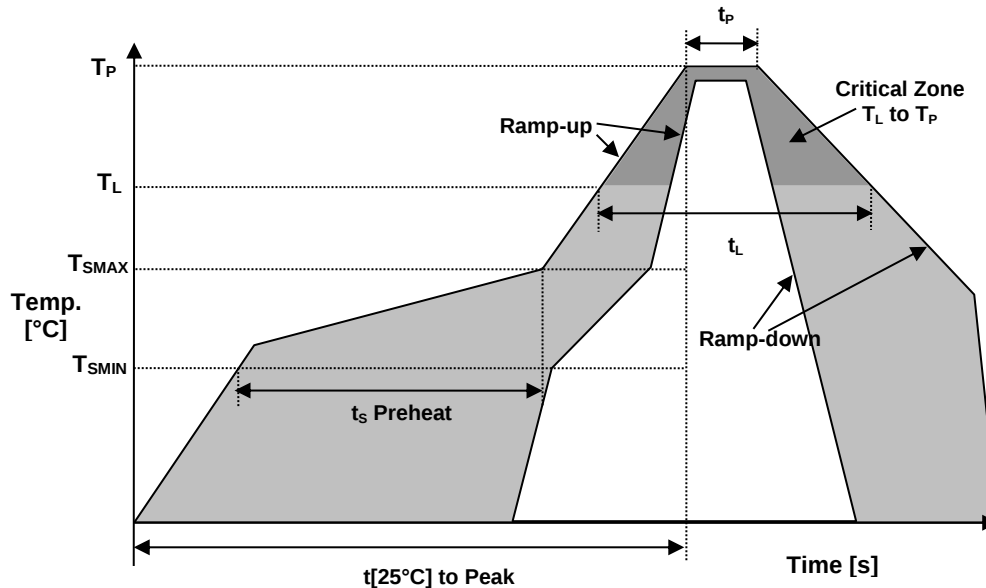
| PARAMETER                    | VALUE                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------|
| NOMINAL FREQUENCY            | 32.768 kHz                                                                                    |
| FREQUENCY TOLERANCE AT 25°C  | ±20 ppm max                                                                                   |
| TURNOVER TEMPERATURE         | 25°C ± 5°C                                                                                    |
| PARABOLIC CURVATURE CONSTANT | -0.034 ppm/Δ°C <sup>2</sup>                                                                   |
| LOAD CAPACITANCE             | 6 pF                                                                                          |
| EQUIVALENT SERIES RESISTANCE | 35 kΩ max                                                                                     |
| DRIVE LEVEL                  | 1.0 μW typ                                                                                    |
| MOTIONAL CAPACITANCE         | 0.003 pF typ                                                                                  |
| SHUNT CAPACITANCE            | 1.35 pF                                                                                       |
| CAPACITANCE RATIO            | 450                                                                                           |
| AGING (FIRST YEAR)           | ±3 ppm                                                                                        |
| QUALITY FACTOR               | 70000 typ                                                                                     |
| INSULATION RESISTANCE        | 500 MΩ min                                                                                    |
| OPERATING TEMPERATURE RANGE  | -20°C to +60°C                                                                                |
| STORAGE TEMPERATURE RANGE    | -40°C to +85°C                                                                                |
| SHOCK RESISTANCE             | ±5ppm max 75 cm drop test in 3 axes onto a hard surface or 3000gx0.3msx1/2 sinewave in 3 axes |

## ● MECHANICAL SPECIFICATION



NOTE: Through hole device, can withstand 245°C soldering by terminals only

## REFLOW PROFILE



| Reflow profile                                 |                                       |             |
|------------------------------------------------|---------------------------------------|-------------|
| Temperature Min Preheat                        | $T_{SMIN}$                            | 150°C       |
| Temperature Max Preheat                        | $T_{SMAX}$                            | 200°C       |
| Time ( $T_{SMIN}$ to $T_{SMAX}$ )              | $t_s$                                 | 60-180 sec. |
| Temperature                                    | $T_L$                                 | 217°C       |
| Peak Temperature                               | $T_P$                                 | 245°C       |
| Ramp-up rate                                   | $R_{UP}$                              | 3°C/s max.  |
| Ramp-down rate                                 | $R_{DOWN}$                            | 6°C/s max.  |
| Time within 5°C of Peak Temperature            | $t_p$                                 | 10 s        |
| Time $t[25^\circ\text{C}]$ to Peak Temperature | $t[25^\circ\text{C}] \text{ to Peak}$ | 480 s       |
| Time                                           | $t_L$                                 | 60-150 s    |

## ENVIRONMENTAL

| PARAMETER                  | VALUE                       |
|----------------------------|-----------------------------|
| MOISTURE SENSITIVITY LEVEL | 1                           |
| RoHS-2                     | 5/6 COMPLIANT, EXEMPTION 7a |
| REACH SVHC                 | COMPLIANT                   |
| HALOGEN-FREE               | COMPLIANT                   |
| ESD CLASSIFICATION LEVEL   | N/A                         |
| TERMINATION FINISH         | Sn                          |





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TUNING FORK CRYSTAL

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- **APPROVAL**

|              |                      |
|--------------|----------------------|
| DRAWN BY:    | CP, January 19, 2015 |
| APPROVED BY: | CP, January 19, 2015 |
| REVISION:    | A, Initial Release   |