

#### ● FEATURES

- TEMPERATURE STABILITY  $\pm 0.5\text{ppm} \sim \pm 2.5\text{ppm}$
- OPERATING TEMPERATURE RANGE  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- VOLTAGE CONTROL AVAILABLE (RTV-124 SERIES)



#### ● SPECIFICATIONS

| PARAMETER                                   |                            | VALUE                          |
|---------------------------------------------|----------------------------|--------------------------------|
| FREQUENCY RANGE                             |                            | 13 ~ 52 MHz                    |
| SUPPLY VOLTAGE                              |                            | 1.8 ~ 3.3 V                    |
| INPUT CURRENT                               |                            | 2.5 mA max                     |
| FREQUENCY STABILITY                         | vs. TEMPERATURE            | $\pm 0.5 \sim \pm 2.5$ ppm     |
|                                             | vs. LOAD ( $\pm 10\%$ )    | $\pm 0.2$ ppm max              |
|                                             | vs. SUPPLY VOLTAGE         | $\pm 0.2$ ppm max              |
|                                             | AGING 1 <sup>st</sup> YEAR | $\pm 1.0$ ppm max              |
| FREQUENCY TOLERANCE at 25°C AFTER 2 REFLOWS |                            | $\pm 2.0$ ppm max              |
| OPERATING TEMPERATURE RANGE <sup>1</sup>    |                            | $-40 \sim +85^{\circ}\text{C}$ |
| STORAGE TEMPERATURE RANGE                   |                            | $-40 \sim +85^{\circ}\text{C}$ |
| SINEWAVE OUTPUT                             |                            |                                |
| CLIPPED SINEWAVE OUTPUT VOLTAGE             |                            | 0.8 V <sub>P-P</sub> typ       |
| SINEWAVE OUTPUT LOAD                        |                            | 10 kΩ // 10 pF                 |
| CMOS OUTPUT                                 |                            |                                |
| CMOS OUTPUT LOAD                            |                            | 15 pF                          |
| SYMMETRY                                    |                            | 45 ~ 55 %                      |
| START-UP TIME                               |                            | 5 ms max                       |
| FREQUENCY TUNING RANGE <sup>2</sup>         |                            | $\pm 7 \sim \pm 16$ ppm        |
| PHASE NOISE at 10 kHz OFFSET                |                            | -145 dBc/Hz max                |



NOTE: 1. NOT ALL STABILITIES ARE AVAILABLE FOR ALL OPERATING TEMPERATURE RANGES.  
CONTACT FACTORY FOR AVAILABILITY.  
2. RTV ONLY

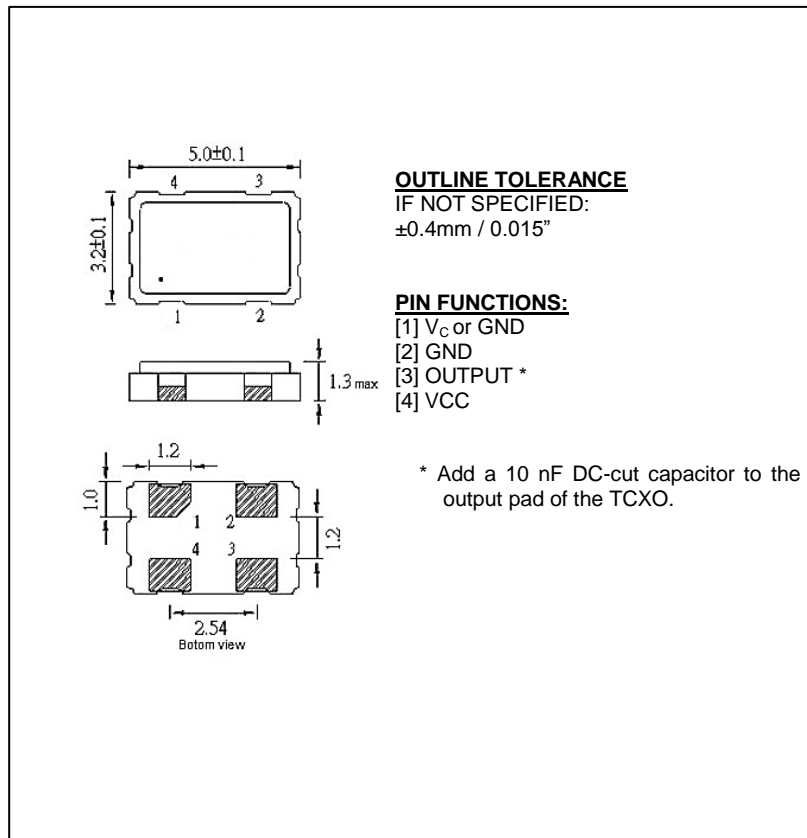
#### ■ PART NUMBERING SYSTEM

| TYPE                       | - | SERIES | STABILITY (ppm)                                                              | TEMP RANGE (°C)                                                | VOLTAGE (V)                               | FREQ TUNING RANGE (ppm)                       | - | OUTPUT                          | - | FREQ (MHz) | - | TAPE & REEL |
|----------------------------|---|--------|------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------|-----------------------------------------------|---|---------------------------------|---|------------|---|-------------|
| RTX (TCXO)<br>RTV (VCTCXO) | - | 124    | A: $\pm 0.5$<br>B: $\pm 1.0$<br>C: $\pm 1.5$<br>D: $\pm 2.0$<br>E: $\pm 2.5$ | LZ: 0 ~ +70<br>HZ: -20 ~ +70<br>F3: -30 ~ +85<br>D3: -40 ~ +85 | 1: 1.8<br>2: 2.5<br>33: 3.3<br>F: 1.8~3.3 | RTX: Blank<br>RTV:<br>26: $\pm 7 \sim \pm 16$ | - | S: Clipped Sine Wave<br>C: CMOS | - |            | - | TR          |

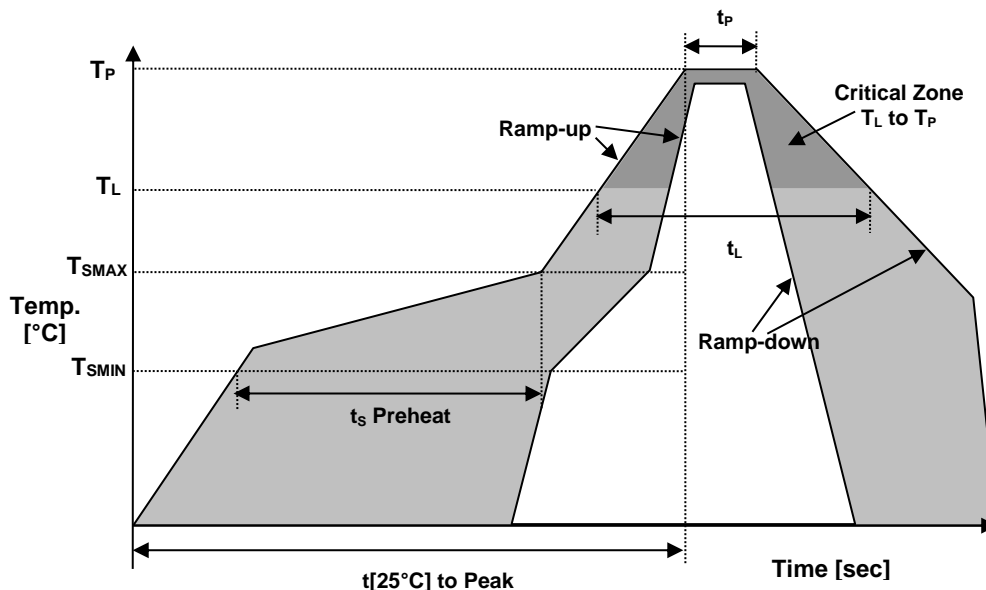
#### EXAMPLE: RTX-124AF31-S-48.000-TR

Surface Mount TCXO, 5.0 mm x 3.2 mm package,  $\pm 0.5$  ppm Stability over the Operating Temperature Range from  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , 3.3V, Clipped Sinewave, 48.000 MHz, Tape and Reel Packaging

#### MECHANICAL SPECIFICATIONS



#### 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                               | $T_P$                         | 260°C        |
| Ramp-up rate                                   | $R_{UP}$                      | 3°C/sec max. |
| Ramp-down rate                                 | $R_{DOWN}$                    | 6°C/sec max. |
| Time within 5°C of Peak Temperature            | $t_p$                         | 10 sec.      |
| Time $t[25^\circ\text{C}]$ to Peak Temperature | $t[25^\circ\text{C}]$ to Peak | 480 sec.     |
| Time                                           | $t_L$                         | 60-150 sec.  |

#### ENVIRONMENTAL

| PARAMETER                  | VALUE     |
|----------------------------|-----------|
| MOISTURE SENSITIVITY LEVEL | 1         |
| RoHS                       | COMPLIANT |
| REACH SVHC                 | COMPLIANT |
| HALOGEN-FREE               | COMPLIANT |
| TERMINATION FINISH         | Au        |

