# RALTRON
*A Rami Technology Company*

■ **ELECTRICAL SPECIFICATION**

| PARAMETER | SYMBOL | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| Nominal Frequency | fo | Ta=25°C | 32.000 | MHz |
| Supply voltage range | $V_{CC}$ | --- | 1.8 | VDC |
| Supply current, max | $I_S$ | Ta=25°C | 2.0 | mA |
| Operating temperature | Ta | --- | -40 ~ +85 | °C |
| Storage temperature | T(stg) | Absolute max | -40 ~ +85 | °C |
| Frequency Stability<br>vs. Temperature<br>vs. Supply Voltage<br>vs. Load<br>vs. Aging Max | <br>$\Delta f/fo(Ta)$<br>$\Delta f/f_V$<br>$\Delta f/f_L$<br>$\Delta f/fo(year)$ | <br>Reference to +25°C over Temperature Range<br>Vcc=3.0 ± 0.15 V<br>Load ±10%,  Vcc=3.0 ±5%<br>Per Year at +25°C ± 2°C | <br>±1.5<br>±0.2<br>±0.2<br>±1.0 | <br>ppm<br>ppm<br>ppm<br>ppm |
| Initial Frequency Calibration, Max | $f_C$ | Measured at  25°C,  Reference to fo | ±1.0 | ppm |
| Output Level, Clipped Sine Wave, Minimum | - | 10K Ohms // 10 pF ±10% | 0.8 | $V_{P-P}$ |
| Start up time, Max | $t_s$ | $V_{OUT} \geq 90\%$ $V_{P-P}$ | 2 | ms |
| Phase noise @ freq. offset, typical. | £ ($\Delta f$) | $\Delta f$=1kHz | -135 | dBc/Hz |

■ **MECHANICAL SPECIFICATION**



3.2±0.1
.126±.004

4    3

MARKING AREA

2.5±0.1
.098±.004

1    2

1.3 MAX
.06 MAX

**PIN CONNECTION**
1 - No Connect or GND
2 - GROUND
3 - OUTPUT *
4 - Vcc

\* Add a 1000 pF DC cut-off capacitor
  to the output pad of the TCXO

**OUTLINE TOLERANCE**
IF NOT SPECIFIED:
±0.015" / 0.4mm

0.79
.031

0.79
0.031

0.8
.032

1.5
.059

RECOMMENDED SOLDER PATTERN

3.5
.138

1.0
.039

2.8
.110

1.8
.071
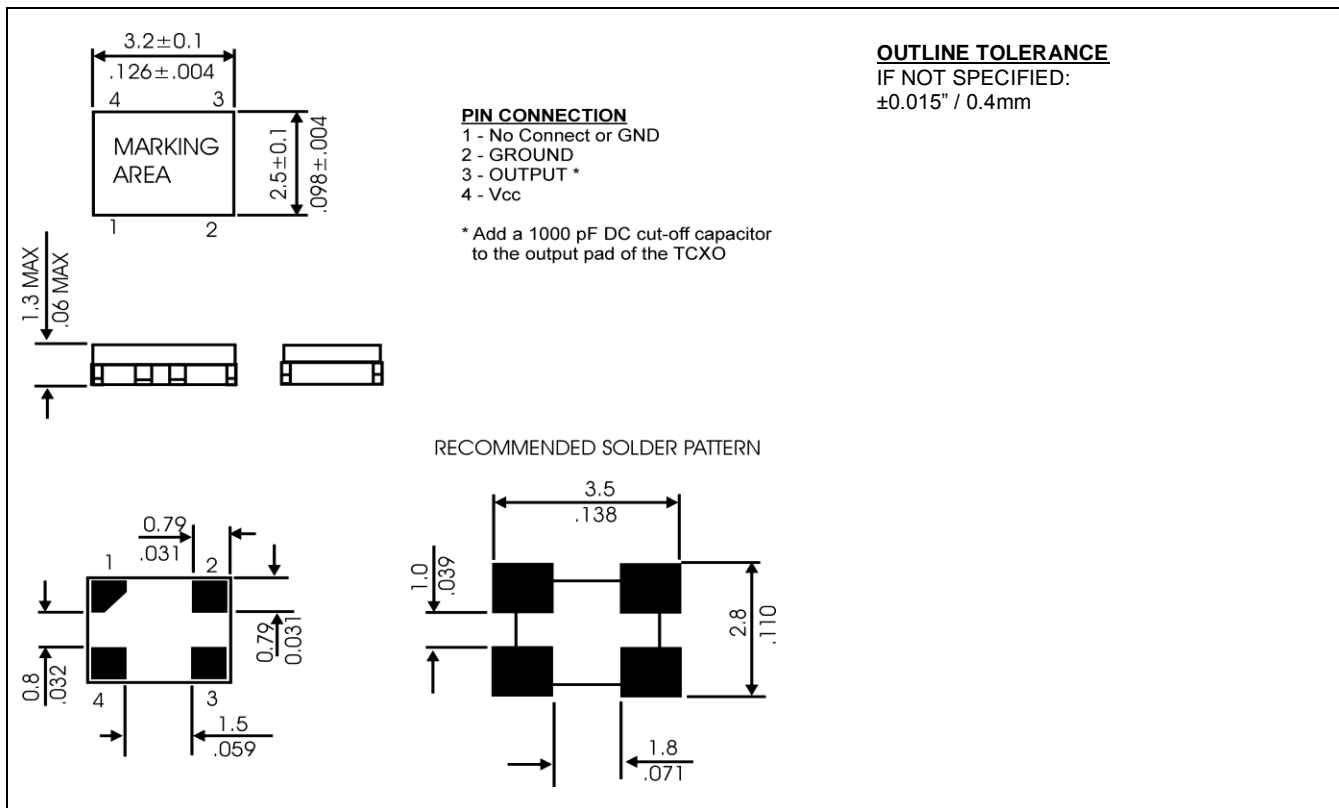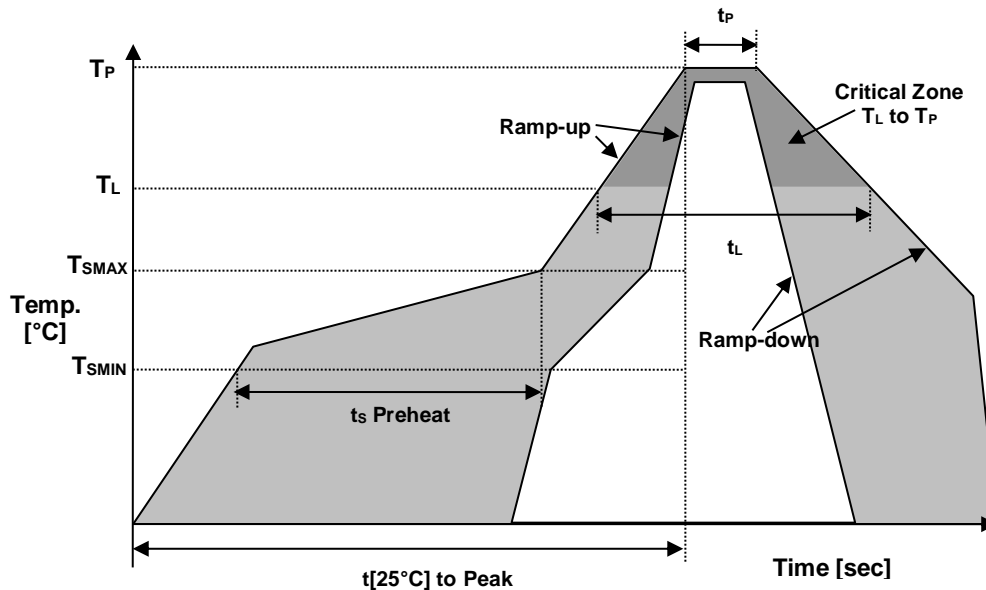
■ **REFLOW PROFILE**



| 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°C] to Peak Temperature | t[25°C] to Peak | 480 sec. |
| Time | $t_L$ | 60-150 sec. |

● **ENVIRONMENTAL**

| PARAMETER | VALUE |
|---|---|
| MOISTURE SENSITIVITY LEVEL | 1 |
| RoHS2 | Compliant |
| REACH-SVHC | Compliant |
| HALOGEN-FREE | Compliant |
| TERMINATION FINISH | Au |

- **MARKING**

      Rxx32.00
      • CD31yw

            x – Internal Production ID code
            y – Year code
            w – Week code

| YEAR CODE ||
|---|---|
| **Year** | **Code** |
| 2011 | 1 |
| 2012 | 2 |
| 2013 | 3 |
| 2014 | 4 |
| 2015 | 5 |
| 2016 | 6 |
| 2017 | 7 |
| 2018 | 8 |
| 2019 | 9 |

| ALPHA WEEK CODE TABLE ||||||
|---|---|---|---|---|---|
| **Week** | **Code** | **Week** | **Code** | **Week** | **Code** |
| 1 | a | 19 | s | 37 | K |
| 2 | b | 20 | t | 38 | L |
| 3 | c | 21 | u | 39 | M |
| 4 | d | 22 | v | 40 | N |
| 5 | e | 23 | w | 41 | O |
| 6 | f | 24 | x | 42 | P |
| 7 | g | 25 | y | 43 | Q |
| 8 | h | 26 | z | 44 | R |
| 9 | i | 27 | A | 45 | S |
| 10 | j | 28 | B | 46 | T |
| 11 | k | 29 | C | 47 | U |
| 12 | l | 30 | D | 48 | V |
| 13 | m | 31 | E | 49 | W |
| 14 | n | 32 | F | 50 | X |
| 15 | o | 33 | G | 51 | Y |
| 16 | p | 34 | H | 52 | Z |
| 17 | q | 35 | I | | |
| 18 | r | 36 | J | | |

- **APPROVAL**

| RALTRON ||
|---|---|
| DRAWN BY: | KJackson, July 20, 2017 |
| APPROVED BY: | JIvens, July 20, 2017 |
| REVISION: | A, Initial Release |