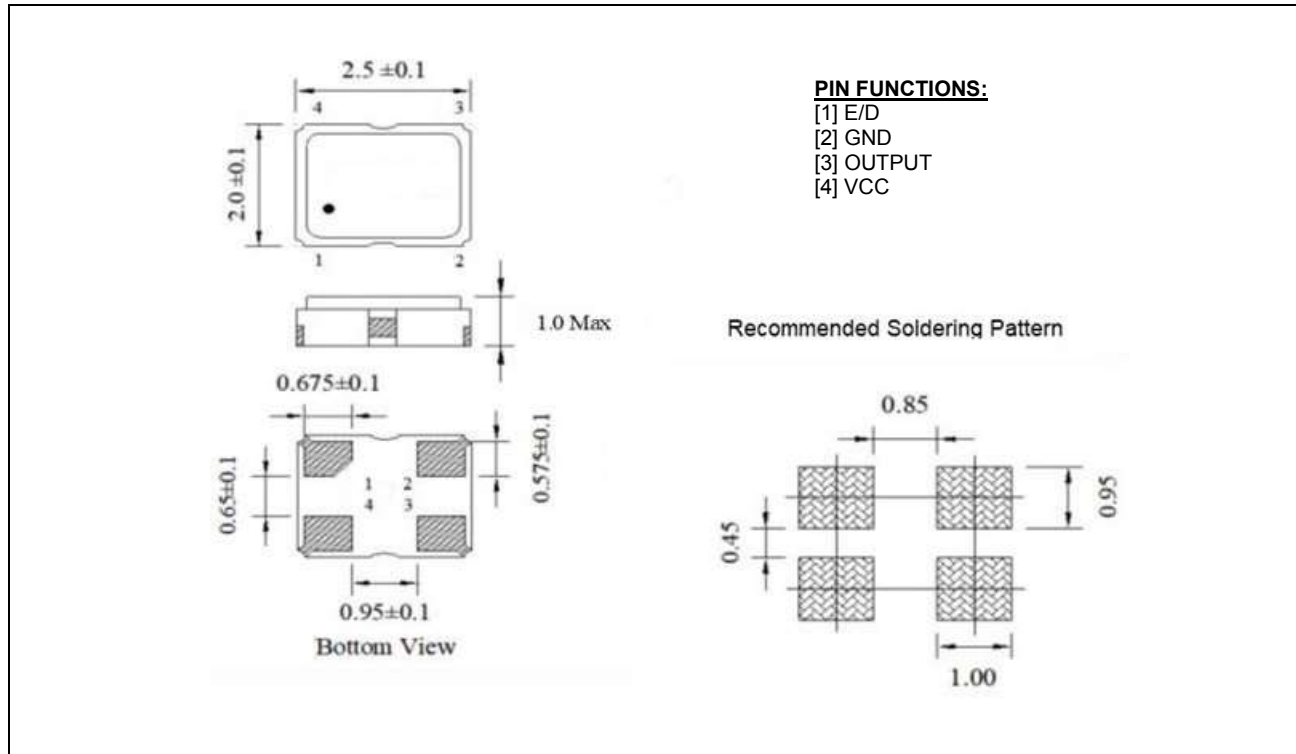


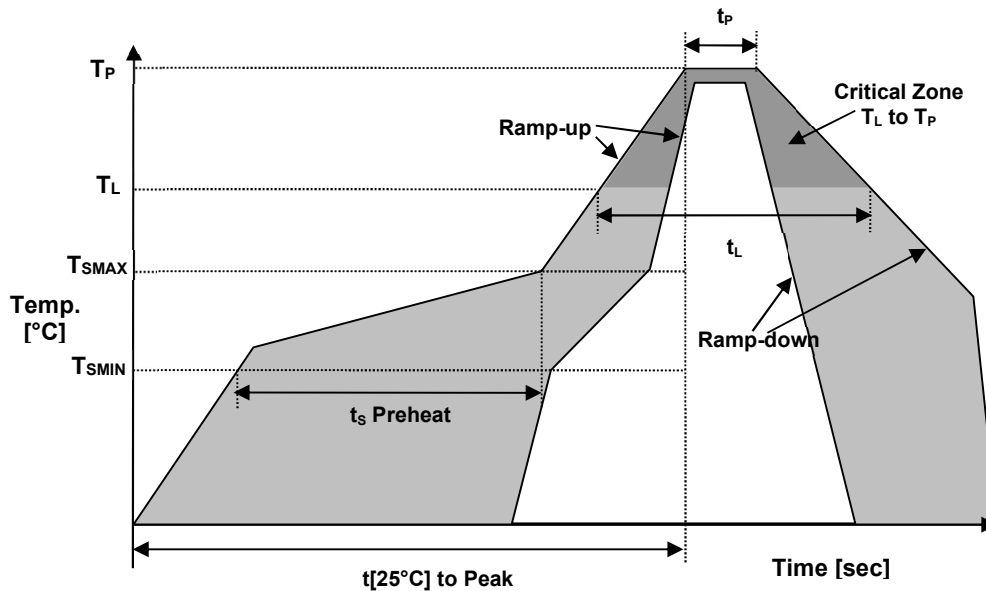
ELECTRICAL SPECIFICATION

| PARAMETER | SYMBOL | CONDITIONS | VALUE | UNIT |
|--|---|---|-------------------------------------|-------------------|
| Nominal Frequency | f_0 | $T_a = 25^\circ\text{C}$ | 24.000 | MHz |
| Supply Voltage, nom. | V_{CC} | $V_{CC} \pm 5\%$ | 3.3 | VDC |
| Supply Current, max | I_s | $T_a = 25^\circ\text{C}$ | 4.8 | mA |
| Operating Temperature Range | T_a | | -40 ~ +85 | $^\circ\text{C}$ |
| Storage Temperature Range | $T(\text{stg})$ | Absolute max | -40 ~ +90 | $^\circ\text{C}$ |
| Frequency Stability vs. Temperature | $\Delta f/f_0(T_a)$ | Reference to $+25^\circ\pm 2^\circ\text{C}$ (-40 ~ +85 $^\circ\text{C}$) | ± 2.5 | ppm |
| Frequency Stability vs. Supply Voltage vs. Load vs. Aging max | $\Delta f/f_v$ $\Delta f/f_L$ $\Delta f/f_0(\text{year})$ | $V_{CC} \pm 5\%$ Load $\pm 5\%$ Per Year at $+25^\circ\text{C} \pm 2^\circ\text{C}$ | ± 0.3 ± 0.3 ± 1.0 | ppm ppm ppm |
| Initial Frequency Calibration, max | f_c | Measured at 25°C , before shipment | ± 1.0 | ppm |
| Reflow Shift, max | $\Delta f/f_r$ | 2 consecutive reflows, after 2 hours relaxation | ± 1.0 | ppm |
| Output Levels, HCMOS | V_{OH} | "0" Level, min | $0.8 V_{CC}$ | V |
| | V_{OL} | "1" Level, max | $0.2 V_{CC}$ | V |
| Enable Voltage High, min | - | Output Enabled | $0.7 V_{CC}$ | V |
| Enable Voltage Low, max | - | Output Disabled | $0.3 V_{CC}$ | V |
| Load | | | 15 | pF |
| Start-up Time, max | t_s | $V_{OUT} \geq 90\% V_{P-P}$ | 10 | ms |
| Rise and Fall Time, max | t_r/t_f | $10\% V_{CC}$ to $90\% V_{CC}$ | 8 | ns |
| Symmetry | - | @ 50% V_{CC} level | 40 ~ 60 | % |

MECHANICAL SPECIFICATION



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 |
| ESD CLASSIFICATION LEVEL | N/A |
| TERMINATION FINISH | Sn |



MARKING

Rx24.00
• ED3yw

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

| YEAR CODE | |
|-----------|------|
| Year | Code |
| 2018 | 8 |
| 2019 | 9 |
| 2020 | 0 |
| 2021 | 1 |
| 2022 | 2 |
| 2023 | 3 |
| 2024 | 4 |
| 2025 | 5 |
| 2026 | 6 |
| 2027 | 7 |
| 2028 | 8 |
| 2029 | 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: | KJ, October 6, 2023 |
| APPROVED BY: | JL, October 6, 2023 |
| REVISION: | A, Initial Release |

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