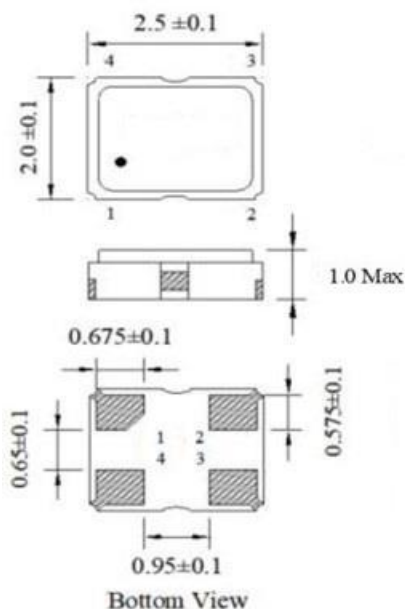


#### ELECTRICAL SPECIFICATION

| PARAMETER                                                              | SYMBOL                                                          | CONDITIONS                                                                                    | VALUE                               | UNIT               |
|------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------|--------------------|
| Nominal Frequency                                                      | $f_o$                                                           | $T_a = 25^{\circ}\text{C}$                                                                    | 16.000                              | 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                                    | $\Delta f/f_o(T_a)$                                             | Reference to $+25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (-40 ~ +85 $^{\circ}\text{C}$ )      | $\pm 2.5$                           | ppm                |
| Frequency Stability<br>vs. Supply Voltage<br>vs. Load<br>vs. Aging max | $\Delta f/f_v$<br>$\Delta f/f_L$<br>$\Delta f/f_o(\text{year})$ | $V_{CC} \pm 5\%$<br>Load $\pm 5\%$<br>Per Year at $+25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ | $\pm 0.3$<br>$\pm 0.3$<br>$\pm 1.0$ | ppm<br>ppm<br>ppm  |
| Initial Frequency Calibration, max                                     | $f_c$                                                           | Measured at $25^{\circ}\text{C}$ , before shipment                                            | $\pm 1.0$                           | ppm                |
| Reflow Shift, max                                                      | $\Delta f/f_r$                                                  | 2 consecutive reflows, after 2 hours relaxation                                               | $\pm 1.0$                           | 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                             | %                  |

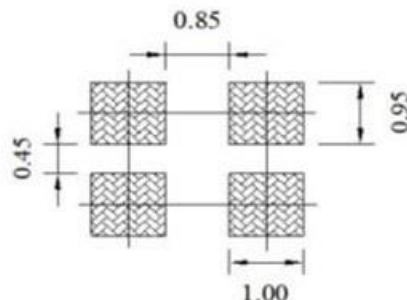
#### MECHANICAL SPECIFICATION



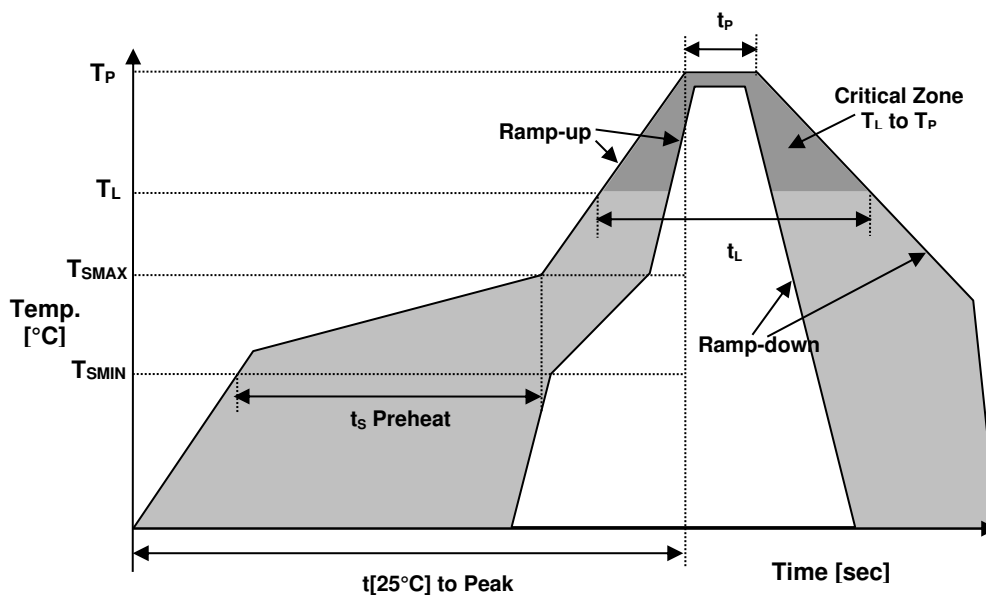
#### PIN FUNCTIONS:

- [1] E/D
- [2] GND
- [3] OUTPUT
- [4] VCC

#### Recommended Soldering Pattern



#### REFLOW PROFILE



| Reflow profile                                 |                   |              |
|------------------------------------------------|-------------------|--------------|
| Temperature Min Preheat                        | T <sub>SMIN</sub> | 150°C        |
| Temperature Max Preheat                        | T <sub>SMAX</sub> | 200°C        |
| Time (T <sub>SMIN</sub> to T <sub>SMAX</sub> ) | t <sub>s</sub>    | 60-180 sec.  |
| Temperature                                    | T <sub>L</sub>    | 217°C        |
| Peak Temperature                               | T <sub>P</sub>    | 260°C        |
| Ramp-up rate                                   | R <sub>UP</sub>   | 3°C/sec max. |
| Ramp-down rate                                 | R <sub>DOWN</sub> | 6°C/sec max. |
| Time within 5°C of Peak Temperature            | t <sub>p</sub>    | 10 sec.      |
| Time t[25°C] to Peak Temperature               | t[25°C] to Peak   | 480 sec.     |
| Time                                           | t <sub>L</sub>    | 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

Rx16.00  
• 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:    | YL, May 26, 2021   |
| APPROVED BY: | CP, May 26, 2021   |
| REVISION:    | A, Initial Release |

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