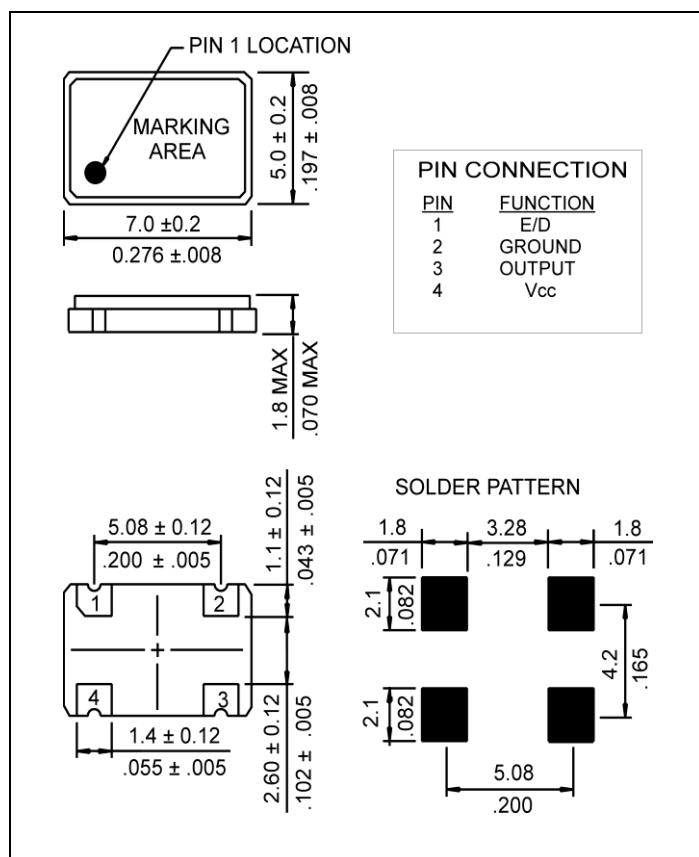


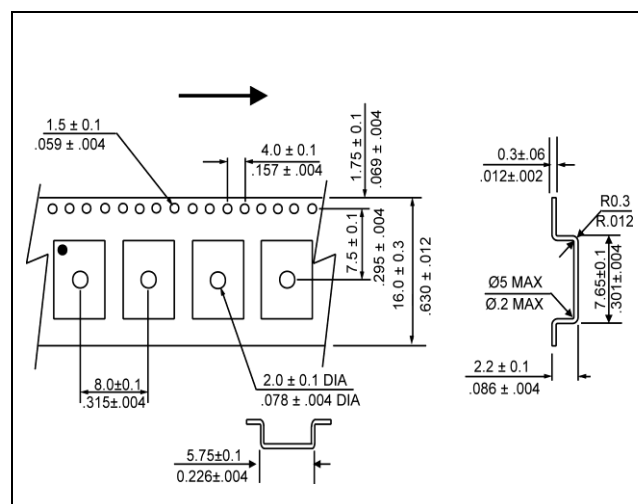
#### ELECTRICAL SPECIFICATION

| PARAMETER                     | SYMBOL                             | CONDITIONS                                                                                                      | VALUE              | UNIT       |
|-------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------|------------|
| Frequency, nom                | fo                                 | -                                                                                                               | 20.000             | MHz        |
| Supply voltage, nom.          | Vcc                                | Vcc ±10%                                                                                                        | 5V                 | V          |
| Supply current, max.          | Is                                 | Vcc=3.3 VDC; Ta=+25°C;<br>Load=20 pF CMOS or 5 TTL MAX                                                          | 45.0               | mA         |
| Output Voltage Levels         | V <sub>OH</sub><br>V <sub>OL</sub> | Logic 1<br>Logic 0                                                                                              | 0.9 MIN<br>0.5 MAX | VDC<br>VDC |
| Duty cycle                    | DC                                 | @ 50% of signal                                                                                                 | 45...55            | %          |
| Rise time / Fall time, max.   | tr / tf                            | 20%~80% Vout, 80%~20% Vout,                                                                                     | 5                  | ns         |
| Jitter, RMS, max.             | J                                  | 1σ, 12KHz < F <sub>J</sub> < 20MHz                                                                              | 1.0                | ps         |
| Overall freq. stability, max. | Δf/fc                              | Inclusive of 25° Tolerance, Operating Temperature Range, Voltage & Load Variations, Aging, Shock and Vibration. | ±100               | ppm        |
| Output Enabled / Disabled     | En<br>Dis                          | Pin 1: High Voltage or No Connect, Pin 3 Enabled<br>Pin 1: Ground, Pin 3 Disabled                               | 2.2 MIN<br>0.8 MAX | VDC<br>VDC |
| Operating temperature range   | Ta                                 | -                                                                                                               | -40...+85          | °C         |
| Storage temperature range     | T(stg)                             | -                                                                                                               | -55...+125         | °C         |

#### MECHANICAL SPECIFICATION



OUTLINE TOLERANCE: ±0.015" / 0.4mm (Unless otherwise specified)

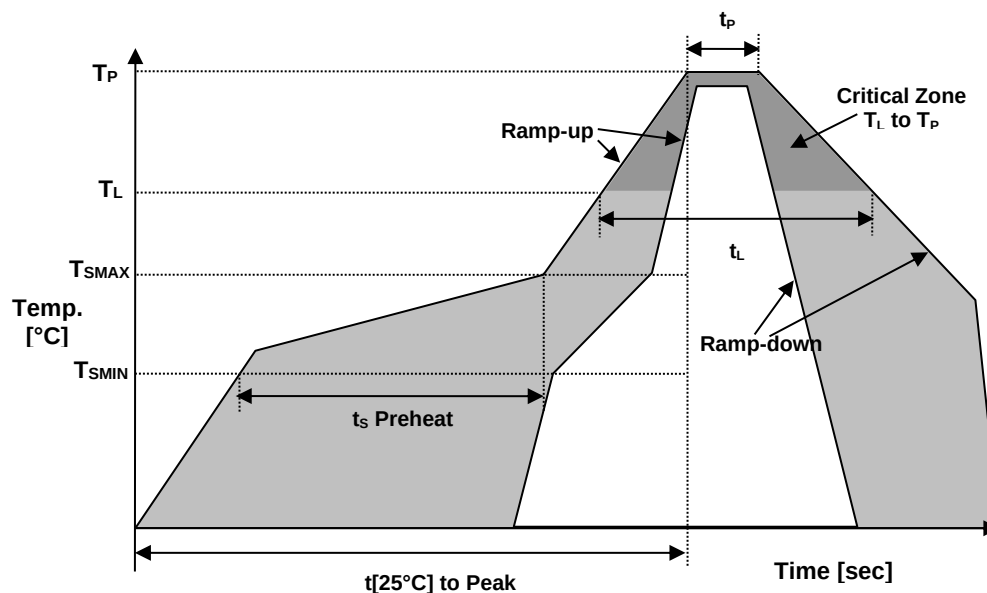


#### PACKAGING

254 mm REEL DIAMETER  
16 mm TAPE WIDTH, 8 mm PITCH  
QUANTITY: 1000 PIECES PER REEL

IN ACCORDANCE WITH EIA-481

## REFLOW PROFILE



| Reflow profile                                 |                               |              |
|------------------------------------------------|-------------------------------|--------------|
| Temperature Min Preheat                        | $T_{S\min}$                   | 150°C        |
| Temperature Max Preheat                        | $T_{S\max}$                   | 200°C        |
| Time ( $T_{S\min}$ to $T_{S\max}$ )            | $t_s$                         | 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-2                     | 6/6 LEAD FREE |
| REACH-SVHC                 | COMPLIANT     |
| HALOGEN-FREE               | COMPLIANT     |
| TERMINATION FINISH         | Au            |
| UNIT WEIGHT (grams)        | 0.155         |





A RAMI TECHNOLOGY Company

CLOCK OSCILLATOR

Page 3 of 3

CO4910-20.000-EXT-T-TR

## ● MARKING

Rxx20.0  
●9CEyww

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

|              |                         |
|--------------|-------------------------|
| DRAWN BY:    | KJackson, Feb. 24, 2015 |
| APPROVED BY: | KJackson, Feb. 24, 2015 |
| REVISION:    | A, Initial Release      |

Raltron Electronics/RAMI Technology USA, LLC, including its affiliates, employees, agents and other persons acting on its behalf (collectively Raltron/RAMI Tech), disclaim any and all liability for any errors or inaccuracies contained in this data sheet. While Raltron/RAMI Tech has made every reasonable effort to ensure the accuracy of all product information, specifications and data contained herein, Raltron/RAMI Tech does not guarantee that the information is accurate, reliable or current. The product information is provided for reference purposes only and is subject to change, correction or revision, at any time without notice. Raltron/RAMI Tech does not assume any liability arising out of an application or use of any product described herein and disclaims any warranties expressed or implied. The user of products in such applications shall assume all risks of such use and will agree to hold Raltron/RAMI Tech, harmless against all damages.