



actual size

# Oscillator JO21 · 3.3 V

- SMD Oscillator with Stop Function • 2.0 x 1.6 mm
- LVCMOS / HCMOS compatible output
- Low phase jitter, no PLL
- Flat seam sealed ceramic/metal package



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

## GENERAL DATA

| TYPE                              |                  | JO21 3.3 V                          |
|-----------------------------------|------------------|-------------------------------------|
| frequency range                   |                  | 1.6250 ~ 54.0 MHz                   |
| frequency stability over all*     |                  | ± 25 ppm ~ ± 100 ppm<br>see table 1 |
| current consumption               |                  | see table 2                         |
| supply voltage V <sub>DC</sub>    |                  | 3.3 V ± 10%                         |
| temperature                       | operating        | see table 1                         |
|                                   | storage          | -55 °C ~ +125 °C                    |
| output                            | rise & fall time | see table 3                         |
|                                   | load max.        | 15 pF                               |
|                                   | current max.     | 4.0 mA                              |
|                                   | low level max.   | 0.4 V                               |
|                                   | high level min.  | V <sub>DC</sub> - 0.4 V             |
| output enable time max.           |                  | 10 ms                               |
| output disable time max.          |                  | 200 ns                              |
| start-up time max.                |                  | 10 ms                               |
| standby function                  |                  | stop                                |
| standby current max.              |                  | 10 µA                               |
| symmetry at 0.5 x V <sub>DC</sub> |                  | 45% ~ 55% max.                      |

\* includes stability at 25 °C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

## TABLE 1: FREQUENCY STABILITY CODE

| stability code   | A<br>± 100 ppm | B<br>± 50 ppm | G<br>± 30 ppm | C<br>± 25 ppm |
|------------------|----------------|---------------|---------------|---------------|
| -20 °C ~ +70 °C  |                | ○             | ○             | □             |
| -40 °C ~ +85 °C  | T1             | ○             | ○             |               |
| -40 °C ~ +105 °C | T2             | ○             |               |               |

○ available □ excludes aging

## TABLE 2: CURRENT CONSUMPTION MAX.

3.3 V: current at 15pF load:

|                   |         |
|-------------------|---------|
| 1.625 ~ 19.9 MHz  | 5.0 mA  |
| 20.000 ~ 39.9 MHz | 7.0 mA  |
| 40.000 ~ 54.0 MHz | 10.0 mA |

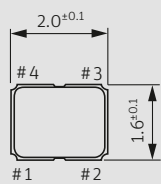
## TABLE 3: RISE & FALL TIME MAX.

5 ns: 1.625 ~ 54.0 MHz

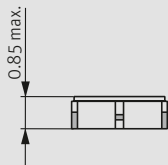
note:

- specific data on request
- rise time: 0.1 V<sub>DC</sub> ~ 0.9 V<sub>DC</sub>
- fall time: 0.9 V<sub>DC</sub> ~ 0.1 V<sub>DC</sub>

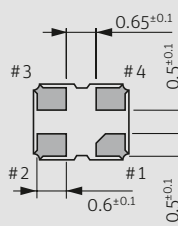
## DIMENSIONS



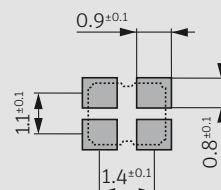
top view



side view



bottom view



pad layout

- # 1: e/d
- # 2: ground
- # 3: output
- # 4: V<sub>DC</sub>

pin connection

in mm

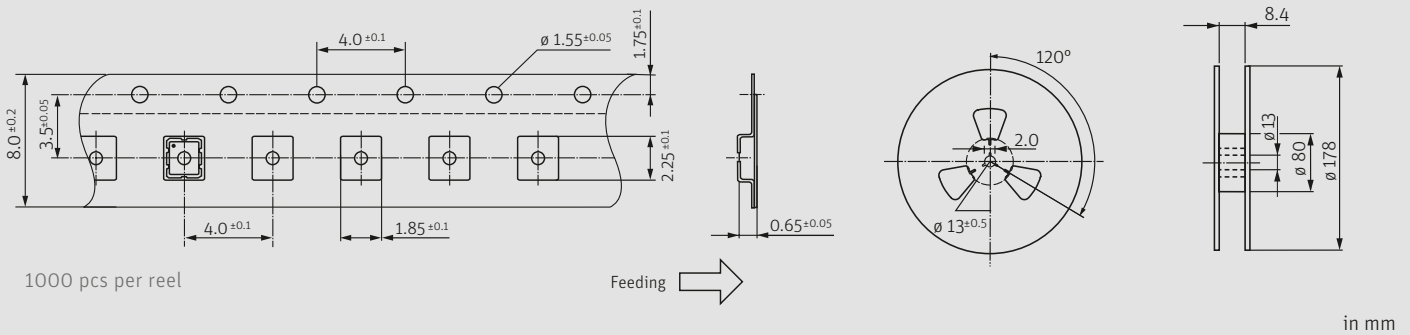
## ORDER INFORMATION

|            |                  |      |                          |                     |                  |  |
|------------|------------------|------|--------------------------|---------------------|------------------|--|
| <b>0</b>   | frequency        | type | frequency stability code | supply voltage code | output load code | option   |
| Oscillator | 1.625 ~ 54.0 MHz | JO21 | see table 1              | 3.3 = 3.3 V         | 1 = 15 pF        | blank = -20 °C ~ +70 °C<br>T1 = -40 °C ~ +85 °C<br>T2 = -40 °C ~ +105 °C |

**Example: 0 20.0-JO21-B-3.3-1-T1-LF** (Suffix LF = RoHS compliant / Pb free)

# Oscillator J021 · 3.3 V · Stop Function

## TAPING SPECIFICATION



## ENABLE / DISABLE FUNCTION

| pin #1 (e/d control)                  | pin #3 (output) |
|---------------------------------------|-----------------|
| open                                  | active          |
| high "1" ( $V_{IH} \geq 0.7 V_{DC}$ ) | active          |
| low "0" ( $V_{IL} \leq 0.3 V_{DC}$ )  | high impedance  |

### stop function:

- oscillator stops
- output high impedance

## MARKING

### frequency

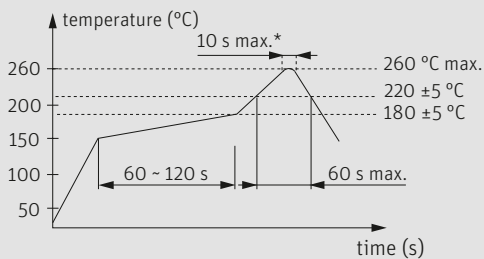
### company stability code / data code

data code: A ~ M: Jan. - Dec.

7: 2017    8: 2018    9: 2019    0: 2020    1: 2021    2: 2022

| Jan. | Febr. | Mar.  | Apr. | May  | June |
|------|-------|-------|------|------|------|
| A    | B     | C     | D    | E    | F    |
| July | Aug.  | Sept. | Oct. | Nov. | Dec. |
| G    | H     | J     | K    | L    | M    |

## REFLOW SOLDERING PROFILE



note: parts are also suitable for soldering systems with lead (Pb) content

## PACKAGING NOTE

- standard packing unit is 1000 pieces per reel
- non-multiple packing units are only supplied taped / bulk

\* hand soldering temperature should not exceed 280 °C