



actual size

# Oscillator · JO21 · 3.3 V

SMD Oscillator with Stop Function · 2.0 x 1.6 mm

- ultra small package
- low current consumption
- reflow soldering temperature: 260 °C max.
- ultra flat ceramic / metal package



## General Data

|                                 |   |
|---------------------------------|---|
| <b>type</b>                     | <b>JO21 3.3 V</b>   |
| 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 $V_{DC}$         | 3.3 V ± 10%   |
| temperature                     | operating** -20 °C ~ +70 °C / -40 °C ~ +85 °C<br>storage -65 °C ~ +125 °C   |
| output                          | rise & fall time see table 3<br>load max. 15 pF<br>current max. 4 mA<br>low level max. $0.1 \times V_{DC}$<br>high level min. $0.9 \times V_{DC}$ |
| 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 $0.5 \times V_{DC}$ | 45% ~ 55% max.  |

\*\* ask if a 105 °C version is available

Table 1: Frequency Stability Code

| stability code                          | A         | B        | G        | C        |  |  |
|---|-----------|----------|----------|----------|--|--|
|   | ± 100 ppm | ± 50 ppm | ± 30 ppm | ± 25 ppm |  |  |
| -20 °C ~ +70 °C                         |           | ○        | ○        | D        |  |  |
| -40 °C ~ +85 °C                         | ○         | ○        |          |          |  |  |
| ● standard ○ available D excludes aging |           |          |          |          |  |  |

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

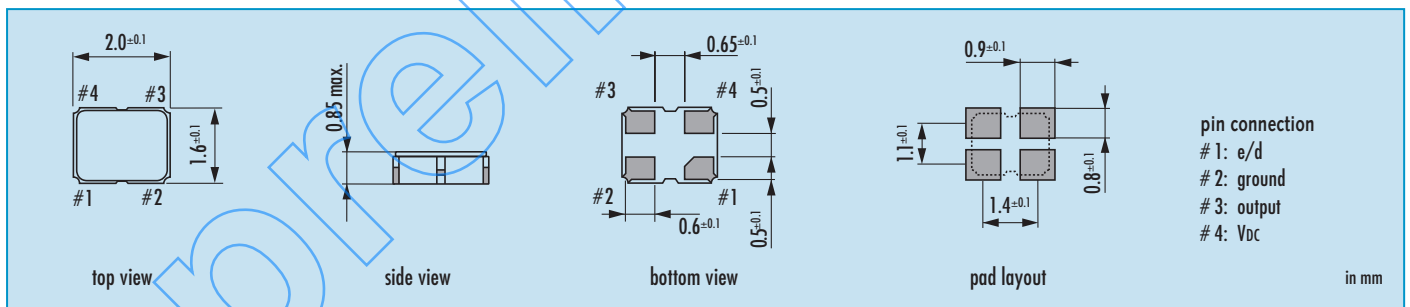
Table 2: Current Consumption max.

|                              |         |
|------------------------------|---------|
| 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 |

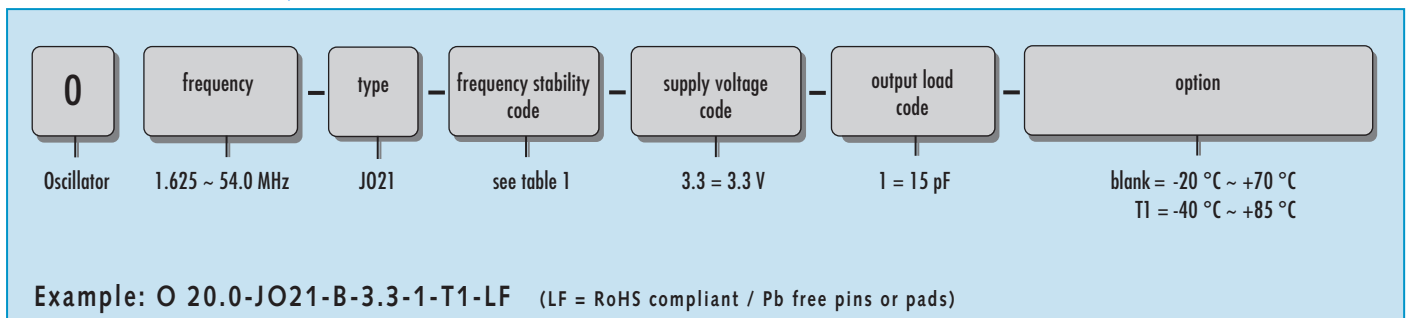
Table 3: Rise & Fall Time max.

|                        |  |
|------------------------|--|
| 5 ns: 1.625 ~ 54.0 MHz | <b>note:</b><br>- specific data on request<br>- rise time: $0.1 V_{DC} \sim 0.9 V_{DC}$<br>- fall time: $0.9 V_{DC} \sim 0.1 V_{DC}$ |
|------------------------|--|

## Dimensions

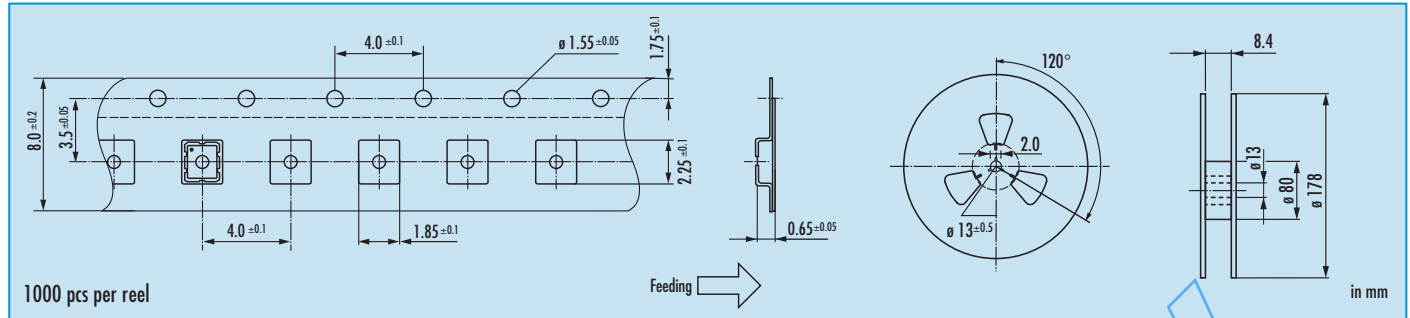


## Order Information



# Oscillator · JO21 · 3.3 V · Stop Function

## Taping Specification



## Enable / Disable Function

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

**stop function:**

- oscillator stops
- output high impedance

## Marking

frequency  
company code / frequency stability code / date code

date code:

A ~ M: Jan. - Dec.

|      |       |      |      |     |      |
|------|-------|------|------|-----|------|
| Jan. | Febr. | Mar. | Apr. | May | June |
| A    | B     | C    | D    | E   | F    |

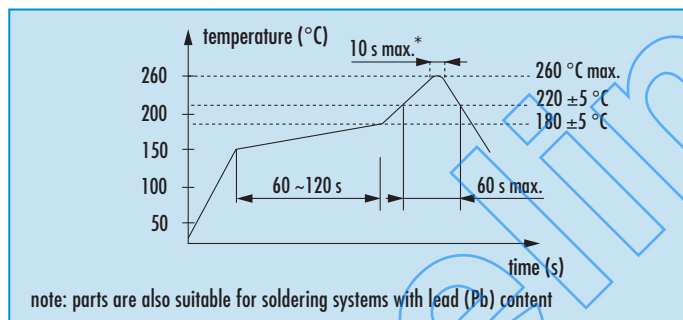
0: 2010    3: 2013

|      |      |       |      |      |      |
|------|------|-------|------|------|------|
| July | Aug. | Sept. | Oct. | Nov. | Dec. |
| G    | H    | J     | K    | L    | M    |

1: 2011    4: 2014

2: 2012    5: 2015

## Reflow Soldering Profile



## Packing Note

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

\* hand soldering temperature should not exceed 280 °C