



actual size

# Oscillator · JO22H · 1.8 V

High Stability Oscillator with Stop Function · 2.5 x 2.0 mm

- low cost high stability SMD oscillator
- stability meets spec for WiMax and WLAN
- RoHS compliant, ceramic/metal package
- reflow soldering temperature: 260 °C max.



## General Data

| type                           |                  | JO22H 1.8V                    |
|--------------------------------|------------------|-------------------------------|
| frequency range                |                  | 4.0 ~ 54.0 MHz (15pF max.)    |
| frequency stability over all*  |                  | ± 10ppm ~ ± 20ppm (table 1)   |
| current consumption            |                  | 3 mA max.                     |
| supply voltage V <sub>DC</sub> |                  | 1.8 V ±5%                     |
| temperature                    | operating        | -20°C ~ +70°C / -40°C ~ +85°C |
|                                | storage          | -40°C ~ +85°C                 |
| output                         | rise & fall time | 5 nsec max.                   |
|                                | load max.        | 15pF                          |
|                                | current max.     | 4 mA                          |
|                                | low level max.   | 0.1 x V <sub>DC</sub>         |
|                                | high level min.  | 0.9 x V <sub>DC</sub>         |
| output enable time max.        |                  | 10 ms                         |
| output disable time max.       |                  | 250ns                         |
| start-up time max.             |                  | 10 ms                         |
| standby function               |                  | stop                          |
| standby current max.           |                  | 10 µA                         |
| phase jitter 12kHz~20MHz       |                  | < 3.0 ps RMS typ.             |
| symmetry at 0.5 x VDC          |                  | 45% ~ 55% max.                |

Table 1: Frequency Stability Code

| stability code  | D<br>± 20 ppm | E<br>± 15 ppm | F<br>± 10 ppm |  |  |
|-----------------|---------------|---------------|---------------|--|--|
| -20 °C ~ +70 °C | ○             | ○             | ○             |  |  |
| -40 °C ~ +85 °C | ○             | ○             | ○             |  |  |
| ○ available     |               |               |               |  |  |

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

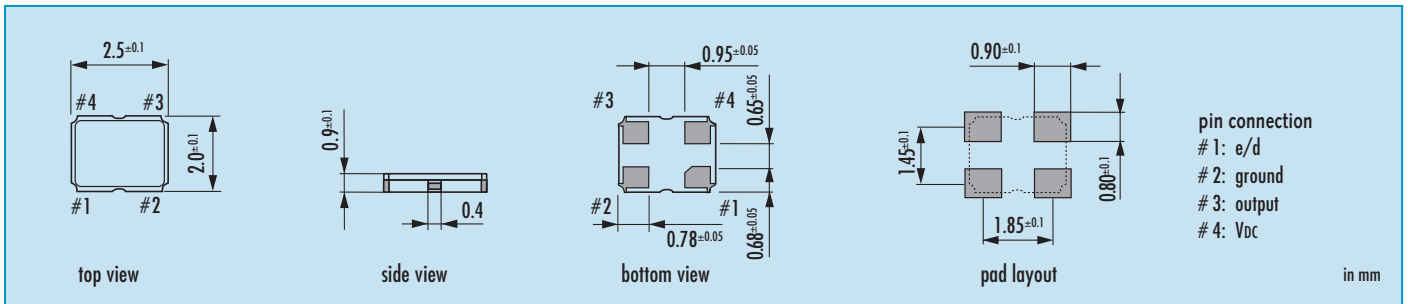
Table 2: Rise & Fall Time max.

|                      |  |
|----------------------|--|
| 5 ns: 4.0 ~ 54.0 MHz | <b>note:</b><br>- specific data on request<br>- rise time: 0.1 V <sub>DC</sub> ~ 0.9 V <sub>DC</sub><br>- fall time: 0.9 V <sub>DC</sub> ~ 0.1 V <sub>DC</sub> |
|----------------------|--|

## Enable / Disable Function

| pin #1 (e/d control)   | pin #3 (output) |
|--|-----------------|
| open   | active          |
| high "1" (V <sub>IH</sub> ≥ 0.7 V <sub>DC</sub> )                  | active          |
| low "0" (V <sub>IL</sub> ≤ 0.3 V <sub>DC</sub> )                   | high impedance  |
| <b>stop function:</b> • oscillator stops / • output high impedance |                 |

## Dimensions

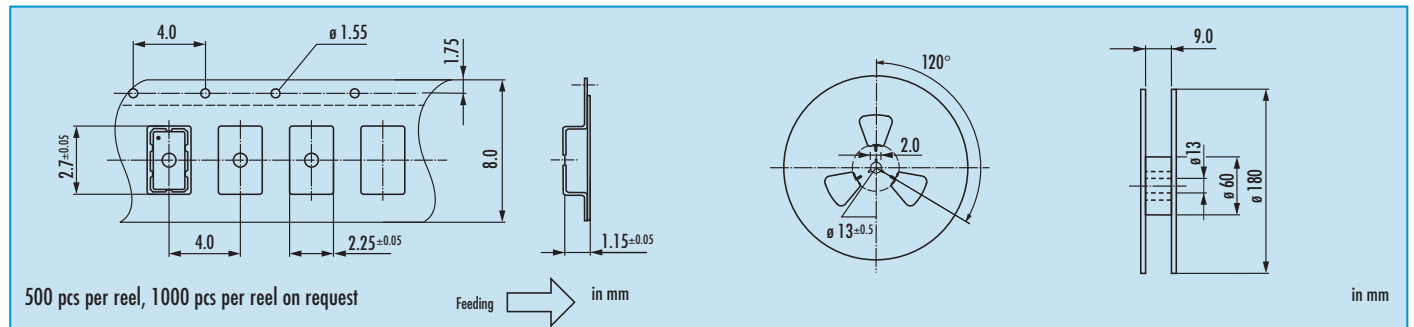


## Order Information

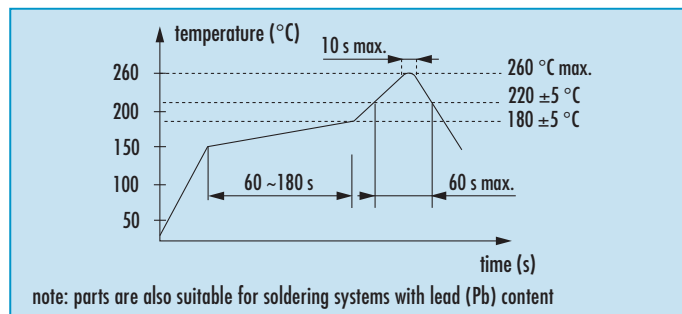
| 0  | frequency      | type  | frequency stability code | supply voltage code | output load code | option                                      |
|--|----------------|-------|--------------------------|---------------------|------------------|---|
| Oscillator   | 4.0 ~ 54.0 MHz | JO22H | see table 1              | 1.8 = 1.8 V         | 1 = 15 pF        | blank = -20°C ~ +70°C<br>T1 = -40°C ~ +85°C |
| <b>Example:</b> O 20.0-JO22H-F-1.8-1-T1 (LF = RoHS compliant / Pb free pins or pads) |                |       |                          |                     |                  |   |

# Oscillator · JO22H · 1.8 V · Low Power

## Taping Specification



## Reflow Soldering Profile



## Marking

frequency  
J / stability code / date code

date code:

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

A ~ M: Jan.- Dec.  
9: 2009  
0: 2010  
1: 2011

## Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk