

actual size

# Oscillator JT11LE · low voltage TCXO

- temp. compensated crystal oscillator, 1.6 x 1.2 mm
- 1.2V ~ 1.8V low voltage TCXO with clipped sine output
- temp. range -40 °C ~ +85 °C and  $\pm 0.5$  ppm stability available
- with energy-saving standby function
- for navigation system use, please prefer JT11GLE



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

## GENERAL DATA

| TYPE                          |                  | JT11LE clipped sine low voltage TCXO                  |
|-------------------------------|------------------|-------------------------------------------------------|
| standard frequencies          |                  | 19.20 / 26.0 / 38.40 / 52.0 MHz                       |
| frequency tolerance/stability | at +25°C         | $\pm 2.0$ ppm (incl. 2x reflow)                       |
|                               | temperature      | $\pm 0.5$ ppm ~ $\pm 5$ ppm (table 1)                 |
|                               | aging first year | $\pm 1$ ppm                                           |
|                               | supply voltage   | $\pm 0.2$ ppm (at any $V_{DC}$ $\pm 5\%$ )            |
|                               | load change      | $\pm 0.2$ ppm (at 10 K $\Omega$    10 pF $\pm 10\%$ ) |
| current consumption           |                  | 2.0 mA max. <26 MHz / 2.5 mA max. <52 MHz             |
| supply voltage $V_{DC}$       |                  | 1.2 V -5 % ~ 1.8 V +5 % (variable)                    |
| temperature                   | operating        | see table 1                                           |
|                               | storage          | -40 °C ~ +85 °C                                       |
| output                        | load nom.        | 10 K $\Omega$ // 10 pF                                |
|                               | level min.       | 0.8 Vpp (clipped sine)                                |
| standby function              |                  | stop function, see table 2                            |
| disabled supply current       |                  | 0.1 $\mu$ A typ. / 1.0 $\mu$ A max.                   |
| start-up time max.            |                  | 3.0 ms                                                |
| enable time max.              |                  | 3.0 ms                                                |
| disable time max.             |                  | 150 ns                                                |
| phase noise at $f_o$ 26 MHz   | at 100 Hz        | -115 dBc/Hz typ.                                      |
|                               | at 1 KHz         | -136 dBc/Hz typ.                                      |
|                               | at 10 KHz        | -147 dBc/Hz typ.                                      |

## TABLE 1: FREQUENCY STABILITY VS. TEMPERATURE

| operating temperature code | frequency stability code / ppm |           |           |           |           |           |           |
|----------------------------|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                            | Y                              | Z         | A         | B         | C         | D         | E         |
| B: -20 °C ~ +70 °C         | $\pm 5.0$                      | $\pm 3.0$ | $\pm 2.5$ | $\pm 2.0$ | $\pm 1.5$ | $\pm 1.0$ | $\pm 0.5$ |
| G: -30 °C ~ +75 °C         |                                |           |           |           |           |           |           |
| M: -30 °C ~ +85 °C         |                                |           |           |           |           |           |           |
| K: -40 °C ~ +85 °C         |                                |           |           |           |           |           |           |

○ on request

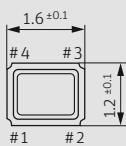
## TABLE 2: ENABLE / DISABLE FUNCTION

| PIN #1 (E/D CONTROL)                                                                                                | PIN #3 (OUTPUT)                         |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| high "1" ( $V_{IH} \geq 0.8 V_{DC}$ )                                                                               | active (see information below)          |
| low "0" ( $V_{IL} \leq 0.2 V_{DC}$ )                                                                                | oscillator stops, output high impedance |
| Important: To activate the TCXO permanently, please connect an external pull-up resistor of 10 k $\Omega$ to pin #1 |                                         |

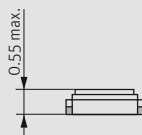
## NOTE

- external AC coupling for output recommended
- for best supply noise rejection, connect a capacitor closely to the supply voltage pins
- for higher supply voltages 1.8 V / 2.5V / 3.3 V refer to: JT11S (TCXO) and JT11SV (VCTCXO)
- standard frequencies are 19.20 / 26.0 / 38.40 and 52.0 MHz  
Please contact Jauch to ask for other frequencies

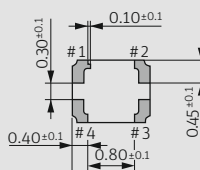
## DIMENSIONS



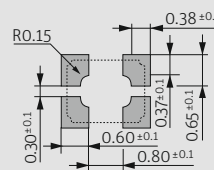
top view



side view



bottom view



pad layout

TCXO  
JT11LE  
#1: e/d  
#2: GND  
#3: output  
#4:  $V_{DC}$

pin connection

in mm

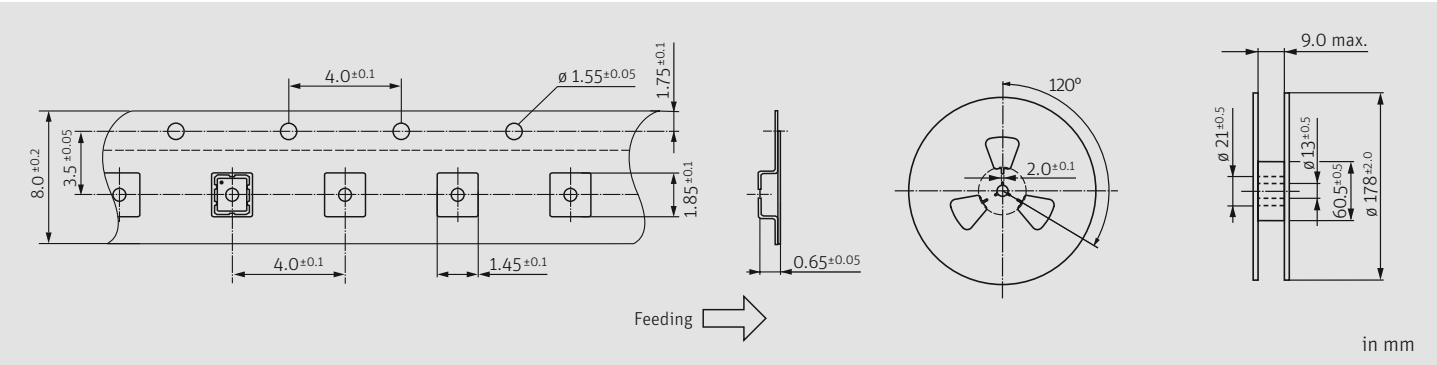
## ORDER INFORMATION

| 0          | standard frequencies                         | type          | frequency stability code | operating temp. code | supply voltage code                                  |
|------------|----------------------------------------------|---------------|--------------------------|----------------------|------------------------------------------------------|
| Oscillator | 19.20 MHz / 26.0 MHz<br>38.40 MHz / 52.0 MHz | JT11LE = TCXO | A - Z<br>see table 1     | A - M<br>see table 1 | V = variable supply voltage<br>1.2 V -5% ~ 1.8 V +5% |

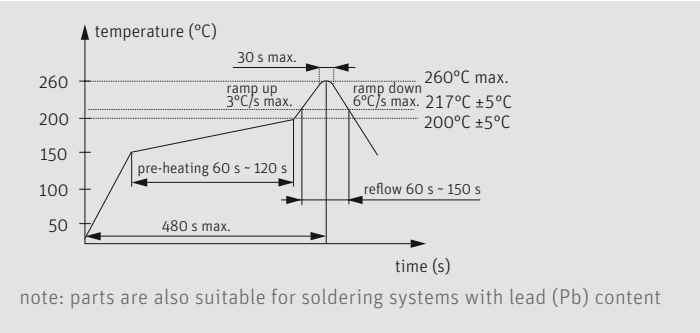
Example: 0 26.0-JT11LE-A-G-V-LF (Suffix LF = RoHS compliant / Pb free)

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## TAPING SPECIFICATION



## REFLOW SOLDERING PROFILE



## MARKING

|                                           |         |         |         |         |         |
|-------------------------------------------|---------|---------|---------|---------|---------|
| frequency                                 |         |         |         |         |         |
| company code / stability code / date code |         |         |         |         |         |
| date code: A ~ M: Jan. - Dec.             |         |         |         |         |         |
| 4: 2024                                   | 5: 2025 | 6: 2026 | 7: 2027 | 8: 2028 | 9: 2029 |
| Jan.                                      | Febr.   | Mar.    | Apr.    | May     | June    |
| A                                         | B       | C       | D       | E       | F       |
| July                                      | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    |
| G                                         | H       | J       | K       | L       | M       |

## PACKAGING NOTE

- standard packing unit is 3000 pieces per reel
- customized quantities on request