



actual size

# Oscillator JO33H · 2.5 V

- High Stability Oscillator with Stop Function · 3.2 x 2.5 mm
- Stability suitable for wireless application (Bluetooth, WiFi etc.)
- LVCMOS / HCMOS compatible output
- Low phase jitter, no PLL
- Seam sealed ceramic/metal package



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

GENERAL DATA		JO33H 2.5 V
TYPE	JO33H 2.5 V	
frequency range	10.0 ~ 54.0 MHz (15 pF max.)	
frequency stability over all*	± 10 ppm ~ ± 20 ppm / ± 25 ppm (T2) see table 1	
aging 1 st year	±2 ppm max.	
current consumption max.	4 mA ≤ 20.0 MHz / 5.5 mA ≤ 54.0 MHz	
supply voltage V <sub>DC</sub>	2.5 V ± 10%	
temperature	operating	-20 °C ~ +70 °C up to -40 °C ~ +105 °C
	storage	-40 °C ~ +105 °C
output	rise & fall time	5 nsec max.
	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.	3 ms	
output disable time max.	250 ns	
start-up time max.	3 ms	
standby function	stop	
standby current max.	10 µA	
phase jitter 12 kHz ~20 MHz	< 0.35 ps RMS max. / 0.2 ps RMS typ.	
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	C	D	E	F
	± 25 ppm	± 20 ppm	± 15 ppm	± 10 ppm
-20 °C ~ +70 °C		○	○	○
-40 °C ~ +85 °C		○	○	○
-40 °C ~ +105 °C	○	○		

○ available

TABLE 2: RISE & FALL TIME MAX.	
5 ns: 10.0 ~ 54.0 MHz	<b>note:</b> - 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>

ENABLE / DISABLE FUNCTION	
pin #1 (e/d control)	pin #4 (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>	
<ul style="list-style-type: none"> <li>• oscillator stops</li> <li>• output high impedance</li> </ul>	

### DIMENSIONS

top view: 3.2±0.2 x 2.5±0.2 mm

side view: 1.0±0.1 mm height

bottom view: pin locations #1, #2, #3, #4 with dimensions 0.9, 1.0, 1.2, 0.65

pad layout: 1.3 x 1.0 mm pads, 1.1 mm spacing, 0.8 mm pad width

pin connection: # 1: e/d, # 2: GND, # 3: output, # 4: V<sub>DC</sub>

in mm

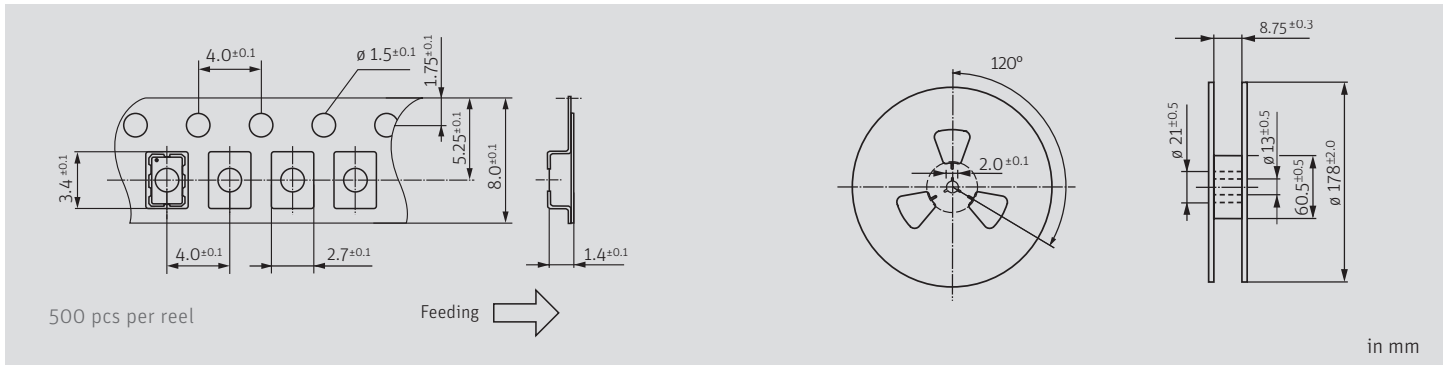
### ORDER INFORMATION

0	frequency	type	frequency stability code	supply voltage code	output load code	option
Oscillator	10.0 ~ 54.0 MHz	JO33H	see table 1	2.5 = 2.5 V	1 = 15 pF	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +105 °C

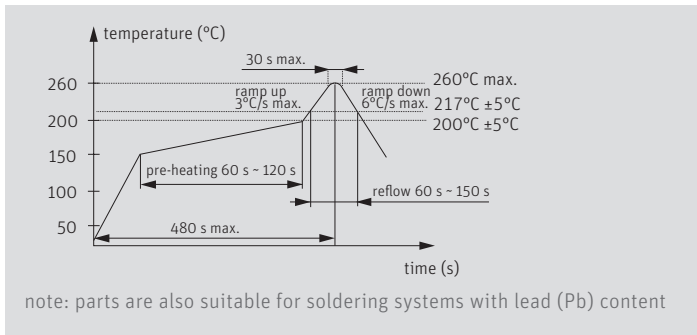
**Example: 0 40.0-JO33H-F-2.5-1-T1-LF** (Suffix LF = RoHS compliant / Pb free)

# Oscillator J033H · 2.5 V · High Stability Low Power Oscillator

## TAPING SPECIFICATION



## REFLOW SOLDERING PROFILE



## MARKING

### frequency

### company stability code / date code

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

3: 2023    4: 2024    5: 2025    6: 2026    7: 2027    8: 2028

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