



actual size

# Oscillator · (VC)TCXO · JT33(V)

Temp. Compensated Crystal Oscillator · 3.2 x 2.5 mm

- low power VCTCXO or TCXO
- temperature range -40 °C ~ +85 °C available
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



## General Data

type		JT33 / JT33V
frequency range		8.0 ~ 52.0 MHz
frequency tolerance/ stability	at +25 °C	± 1.5 ppm (incl. 2x reflow)
	temperature	± 1 ppm ~ ± 5 ppm (table 1)
	aging first year	± 1 ppm
	supply voltage	± 0.2 ppm (at V <sub>DC</sub> ± 5%)
	load change	± 0.2 ppm
current consumption		2.5 mA max.
supply voltage V <sub>DC</sub>		1.8 / 2.5 / 2.8 / 3.0 / 3.3 (± 5%)
temperature	operating	see table 1
	storage	-40 °C ~ +85 °C
output	load nom.	10 KΩ // 10 pF
	level min.	0.8 Vpp (clipped sine)
external tuning range JT33V		± 8 ppm min.
external tuning voltage JT33V		0.9 V ± 0.9 V at V <sub>DC</sub> = 1.8 V (standard) 1.5 V ± 1.0 V at V <sub>DC</sub> ≥ 2.5 V (standard) 1.4 V ± 1.0 V at V <sub>DC</sub> ≥ 2.5 V (option)
start-up time max.		2.5 ms
phase noise	at 100 Hz	-109 dBc/Hz typ.
	at 1 KHz	-133 dBc/Hz typ.
at f <sub>o</sub>	at 10 KHz	-148 dBc/Hz typ.

Table 1: Frequency Stability vs. Temperature

operating temperature code	frequency stability code					
	Y	Z	A	B	C	D
± 5.0 ppm	± 3.0 ppm	± 2.5 ppm	± 2.0 ppm	± 1.5 ppm	± 1.0 ppm	
A: -30 °C ~ +80 °C	○	○	○	○	○	○
B: -20 °C ~ +70 °C	○	○	○	○	○	○
C: -10 °C ~ +60 °C	○	○	○	○	○	○
D: 0 °C ~ +85 °C	○	○	○	○	○	○
E: 0 °C ~ +55 °C	○	○	○	○	○	○
F: -10 °C ~ +70 °C	○	○	○	○	○	○
G: -30 °C ~ +75 °C	○	○	○	○	○	○
H: -20 °C ~ +75 °C	○	○	○	○	○	○
K: -40 °C ~ +85 °C	○	○	○	○		
L: -20 °C ~ +85 °C	○	○	○	○	○	○
M: -30 °C ~ +85 °C	○	○	○	○		

● standard ○ on request

## Note

- TCXO JT33: pin #1 connected to GND
- VCTCXO JT33V: pin #1 is control voltage V<sub>c</sub>
- external AC coupling for output recommended

## Dimensions

top view

side view

bottom view

pad layout

TCXO JT33	VCTCXO JT33V
# 1: GND	# 1: Vcontrol
# 2: GND	# 2: GND
# 3: output	# 3: output
# 4: Vdc	# 4: Vdc

pin connection

in mm

## Order Information

0	frequency in MHz	type	frequency stability code	operating temp. code	supply voltage	control voltage (for JT33V only)
Oscillator	8.0 ~ 45.0 MHz	JT33 = TCXO JT33V = VCTCXO	A - Z see table 1	A - K see table 1	1.8 = 1.8 V 2.5 = 2.5 V 2.8 = 2.8 V 3.0 = 3.0 V 3.3 = 3.3 V	0.9 = V <sub>c</sub> 0.9 V ± 0.9 V at V <sub>DC</sub> = 1.8 V 1.5 = V <sub>c</sub> 1.5 V ± 1.0 V at V <sub>DC</sub> ≥ 2.5 V 1.4 = V <sub>c</sub> 1.4 V ± 1.0 V at V <sub>DC</sub> ≥ 2.5 V see General Data

Example: O 26.0-JT33V-A-G-3.3-1.5-LF (Suffix LF = RoHS compliant / Pb free pads)