



actual size

Oscillator JOH32 · HCSL

- SMD Low Voltage HCSL Oscillator, 3.2 x 2.5 mm
- suitable for PCIe
- complementary outout, low EMI
- very low phase jitter, no PLL
- excellent phase noise (option -IP)



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

GENERAL DATA		
TYPE		JOH32 3.3V & 2.5V (3rd OT)
frequency range		13.50 ~ 160.0 MHz
frequency stability over all*		±25 ppm ~ ±100 ppm (see table 1)
current consumption max.		33 mA ≤100 MHz; 40 mA ≤160 MHz
supply voltage		3.3 V ±5% / 2.5 V ±5%
temperature	operating	-20°C ~ +70°C (T0)
		-40°C ~ +85°C (T1)
		-40°C ~ +105°C (T2 Δ)
		-40°C ~ +125°C (T3 Δ)
storage	-55°C ~ +125°C	
	output	rise & fall time
output	slew rate	1 V/ns min. / 4 V/ns max. (Vc ±0.15 V)
	Vc typ.	0.35 V
	load nom.	50 Ω to GND at each output
	SE swing min.	0.65 Vp-p (3.3 V) / 0.6 Vp-p (2.5 V)
	"H" level	+600 mV min. / +850 mV max.
	"L" level	-150 mV min. / +150 mV max.
	"H" overshoot	+300 mV max.
	"L" undershoot	-300 mV min.
	output enable time max.	10 ms
output disable time max.	200 ns	
start-up time max.	10 ms	
phase jitter at 12 kHz ~ 20.0 MHz	(depending on f _o , see table 2)	
symmetry at 50% of Vpp	45% ~ 55% max. (40% ~ 60% if T3)	

TABLE 1: FREQUENCY STABILITY CODE					
stability code		A	B	G	C
temp. code*		±100 ppm	±50 ppm	±30 ppm	±25 ppm
-20°C ~ +70°C	T0	○	○	○	○
-40°C ~ +85°C	T1	○	○	○	
-40°C ~ +105°C	T2 Δ	○	○		
-40°C ~ +125°C	T3 Δ	○	○		

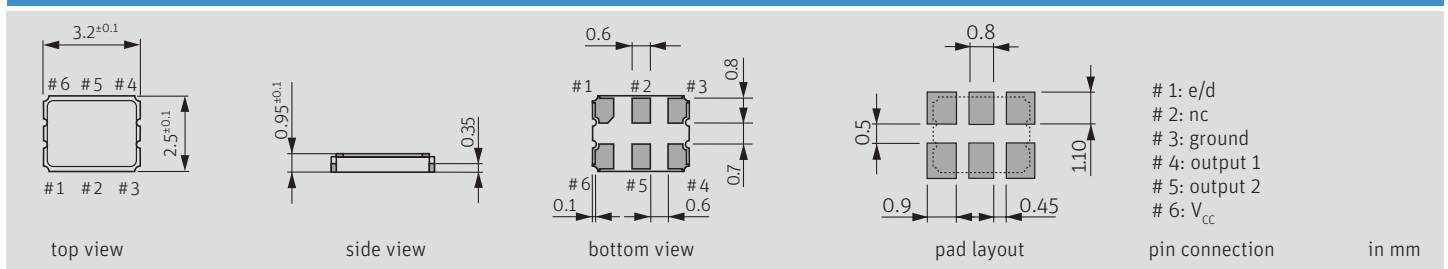
* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

ENABLE / DISABLE FUNCTION	
pin #1 (e/d control)	pin #4 / #5 (outputs)
open or ≥ 0.7 V _{CC}	enable
gnd or ≤ 0.3 V _{CC}	high impedance
standby function	stop
standby current max.	10 μA

TABLE 2: PHASE NOISE OPTIONS	
standard	option -IP
< 0.3 ps RMS (50 MHz ≤ f _o ≤ 160 MHz)	< 0.1 ps RMS (125 MHz ≤ f _o ≤ 160 MHz)
< 0.5 ps RMS (13.5 MHz < f _o < 50 MHz)	< 0.2 ps RMS (50 MHz ≤ f _o < 125 MHz)
	< 0.3 ps RMS (13.5 MHz < f _o < 50 MHz)
contact us for availability of jitter test data or specific low jitter options	
note: phase jitter at 12 kHz ~ 5.0 MHz offset for f _o ≤ 40MHz	

Δ ask for availability of higher temperature ranges and frequency stabilities

DIMENSIONS



ORDER INFORMATION

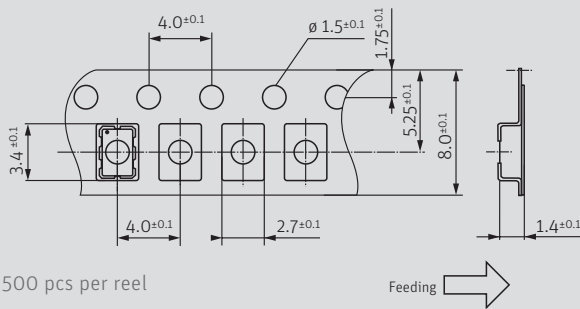
0	frequency	type	frequency stability code	supply voltage code	option	improved phase noise
Oscillator	13.50 ~ 160.0 MHz	JOH32	see table 1	2.5 = 2.5 V 3.3 = 3.3 V	T0 = -20°C ~ +70°C T1 = -40°C ~ +85°C T2 = -40°C ~ +105°C please ask T3 = -40°C ~ +125°C please ask	IP = improved phase noise

Example: 0 156.250-JOH32-B-3.3-T1-IP-LF (Suffix LF = RoHS compliant / Pb free)

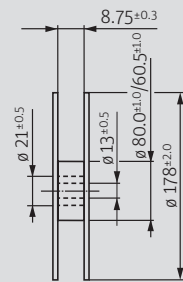
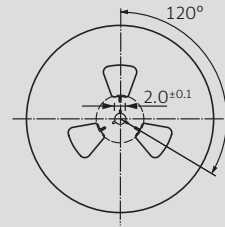


Oscillator J0H32 · HCSL

TAPING SPECIFICATION



500 pcs per reel



in mm

PACKAGING NOTE

- standard packing unit is 500 pieces per reel
- customized quantities on request

MARKING

company code / frequency

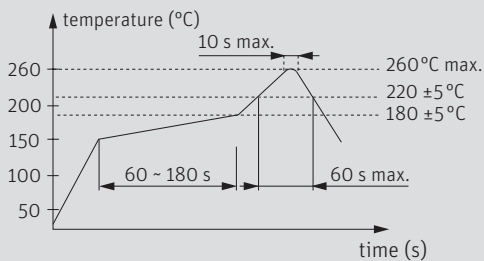
□ DH / internal code / date code

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

1: 2021 2: 2022 3: 2023 4: 2024 5: 2025 6: 2026

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

REFLOW SOLDERING PROFILE



note: parts are also suitable for soldering systems with lead (Pb) content