Oscillator JOX254S(V) · (VC)OCXO

- oven controlled crystal oscillator (OCXO or VCOCXO)
- sinewave output, 25.4 mm x 25.4 mm
- superior frequency stability, best option ± 0.5 ppb
- wide temperature range up to -40 °C ~ +85 °C
- frequency control option available (VCOCXO)
- supply voltage options 3.3 V, 5.0 V (option 12.0 V)

RoHS 2015/863/EU compliant · Pb free · REACH compliant · Conflict mineral free

GENERAL DATA (OVERVIEW OF OPTIONS)

TYPE		JOX254S / JOX254SV
frequency range		10.0 ~ 100.0 MHz (see table 1)
frequency tolerance / stability	at +25 °C (*1)	± 50 ppb / ± 100 ppb max.
	temperature (*2)	± 0.5 ppb ~ ± 50 ppb, examples see table 2
	supply voltage (*3)	± 0.2 ppb ~ ± 20 ppb max. (at V_{DC} ± 5%)
	load change (*4)	± 0.2 ppb ~ ± 20 ppb max (at nom load ± 5%)
	aging first year (*5)	± 50 ppb ~ 300 ppb max. (at +25 °C)
	aging per day (*6)	± 0.5 ppb ~ 5.0 ppb max. (at +25 °C)
tempera-ture	operating	up to -40 °C ~ +85 °C, see table 2
	operable	up to -40 °C ~ +85 °C
	storage	-55 °C ~ +105 °C
supply voltage V_{DC}		3.3V (± 5 %) / 5.0V (± 5 %) / 12.0V (± 5 %)
steady current consumption		250 mA typ. / 400 mA max. (example)
warm-up current consumption		650 mA typ. / 800 mA max. (example)
warm-up time (*7)		5 minutes typ.
output	load nom.	50 Ω
	level min.	6 dBm
	harmonic suppression	-30 dBc max. -40 dBc typ.
	spurious suppression	-60 dBc max. -80 dBc typ.
V_C frequ. tuning range JOX254SV		± 0.5 ppm min. ~ ± 2.5 ppm min.
V_C frequ. tuning voltage JOX254SV		1.65 V ± 1.65 V at V_{DC} = 3.3 V
		2.50 V ± 2.50 V at V_{DC} = 5.0 V
		2.50 V ± 2.50 V at V_{DC} = 12.0 V
input impedance of V_C min.		100 kΩ
V_C frequ. tuning linearity max.		10%
phase noise at f_o = 10.0 MHz, V_{DC} = 5.0V	at 10 Hz	-125 dBc/Hz typ.
	at 100 Hz	-150 dBc/Hz typ.
	at 1 KHz	-155 dBc/Hz typ.
	at 10 KHz	-160 dBc/Hz typ.
	at 100 KHz	-160 dBc/Hz typ.

TABLE 1: DEVELOPED FREQUENCIES

all frequencies in MHz:	10.0	12.80	16.3840	19.20
	20.0	38.40	40.0	100.0

TABLE 2: FREQUENCY STABILITY CODE (EXAMPLES)

frequency stability temperature code		E ± 50 ppb	G ± 20 ppb	I ± 5.0 ppb	L ± 2.0 ppb	N ± 0.5 ppb
-10 °C ~ +70 °C	F	O	O	O	O	O
-20 °C ~ +70 °C	B	O	O	O	O	O
-30 °C ~ +85 °C	M	O	O	O	O	O
-40 °C ~ +70 °C	N	O	O	O	O	O
-40 °C ~ +85 °C	K	O	O	O	O	O

O = ask for availability or other frequency stability options

TABLE 3: VC DEPENDENT FREQUENCY TUNING RANGE CODING METHOD

V_C frequency tuning range of JOX254	code	minimal	maximal
options may not be available at all frequencies, individually ask for other options	05X0	± 0.5 ppm	undefined
	10X0	± 1.0 ppm	undefined
	0510	± 0.5 ppm	± 1.0 ppm
	0815	± 0.8 ppm	± 1.5 ppm
	0824	± 0.8 ppm	± 2.4 ppm
	1525	± 1.5 ppm	± 2.5 ppm
	25X0	± 2.5 ppm	undefined

TABLE 4: VC CENTER VOLTAGE AND VC RANGE CODING METHOD

V_C center voltage and V_C range	code	center and range of V_C	at supply
	16	1.65 V ± 1.65 V	± 3.3 V
	25	2.50 V ± 2.50 V	± 5.0 V
	25	2.50 V ± 2.50 V	± 12.0 V

Important Note: This generic datasheet can't show all available options. Therefore, please contact our sales team for specific options not shown in this datasheet.
(*1) ~ (*7): Please refer to the examples for test conditions on page 2

ORDER INFORMATION

0	frequency	–	type	–	supply voltage	–	frequency stability code	–	operating temp. code	–	control voltage (for JOX254SV)	–	tuning range (for JOX254SV)	–	internal spec. code
Oscillator	10.0 ~ 100.0 MHz		JOX254S = OCXO JOX254SV = VCOCXO		3 = 3.3 V 5 = 5.0 V 12 = 12.0 V		E ~ N see table 2		F ~ K see table 2		see table 4		see table 3		

Example: O 10.0-JOX254SV-5-N-K-25-05X0-MDBE-LF (Suffix LF = RoHS compliant / Pb free)

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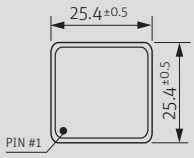
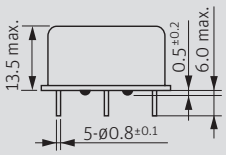
Oscillator JOX254S(V) · OCXO & VCOCXO · PIN TYPE

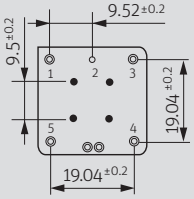
DIMENSIONS



top view



side view



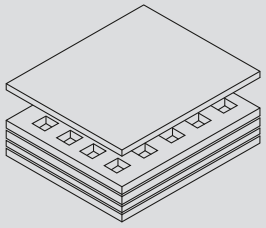
bottom view

OCXO	VCOCXO
JOX254	JOX254V
# 1: output	# 1: output
# 2: GND	# 2: GND
# 3: NC	# 3: $V_{Control}$
# 4: NC	# 4: NC (option ref. voltage)
# 5: V_{DC}	# 5: V_{DC}

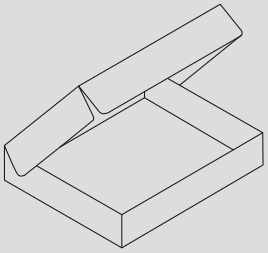
pin connection

in mm

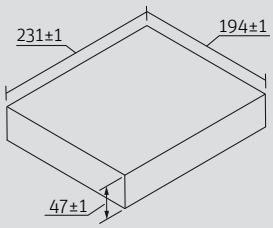
PACKING



buffer material



cardboard – max. 20 pcs



dimensions in mm

PACKAGING NOTE

- typically supplied in a carton box
- a full carton box contains 20 pcs.

NOTE

- for best supply noise rejection, connect a capacitor of 100 nF and a second capacitor of 10 µF closely to the supply voltage pins
- a separate voltage supply rail ensures the best phase noise

TEST CONDITIONS (EXAMPLES)

*1: Measured frequency after 15 minutes of operation, observed with T_A = +25 °C ± 1 °C, at nominal V_{DC}, the nominal load and nominal center V_C (if applicable) and within 30 days after ex-factory. The measured frequency is referenced to the specified nominal frequency.

*2: T_A varied in the specified operating temperature range. The frequency variation is normalized to $f_{ref} = (f_{max} + f_{min})/2$, at nominal V_{DC} and nominal center V_C (if applicable), and at nominal output load, temperature variable speed less than 2 °C per minute.

*3: Frequency variation if V_{DC} is varied by ± 5% of nominal V_{DC}, frequency variation is normalized to frequency observed at nominal V_{DC}, nominal center V_C (if applicable), T_A = +25 °C and nominal load.

*4: Frequency variation if the load is varied by ±5 % of nominal load, frequency variation is normalized to frequency observed at nominal V_{DC}, nominal center V_C (if applicable), T_A = +25 °C and nominal load.

*5: Long-term maximum frequency deviation at T_A = +25 °C ±1 °C over the specified time, referred to the ex-factory status at constant T_A, nominal V_{DC}, and nominal V_C (if applicable). The frequency reference is determined at T_A = +25 °C, at nominal V_{DC}, nominal center V_C (if applicable), nominal load and 30 days of operation. Normally, the largest frequency deviation occurs within the 1st year.

*6: Maximum frequency deviation within 24 hours in a steady state. The initial status acquired at T_A = +25 °C, at nominal V_{DC}, nominal center V_C (if applicable), nominal load and after 30 days of continuous operation.

*7: Time until the maximum frequency deviation is less than a specified value, referred to the final frequency. This final frequency is acquired after 1h of continuous operation at T_A = +25 °C, at nominal V_{DC}, nominal center V_C (if applicable) and nominal load.

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