

# SPECIFICATION FOR APPROVAL

CUSTOMER	:	
PRODUCT TYPE	:	Oven-Controlled Crystal Oscillator (OCXO)
NOMINAL FREQ.	:	48MHz
TXC P/N	:	OG48070001
REVISION	:	S1
CUSTOMER P/N	:	
PM / SALES	:	Paul Chen
DATE	:	2-Sep-19
CUSTOMER CONFIRMATION	:	(Singnature)
		(Date)

- (1) TXC requires one copy returned with signature and title of authorized individual that signifies acceptance of the attached specifications.
- (2) Orders received and accepted by TXC after return of signed copy of specification will be produced per these specifications.
- (3) Any changes to these specifications must be agreed upon by both parties and new revision of the Product Specification Sheet will be issued.
- (4) Any issuance of purchase order prior to consigning back the Approval page of "Specification Sheets" from customers will be regarded as the agreement on the contents of these specifications.

**RoHS Compliant**

(for glass crystal only : Pb used in sealing glass material is exempt from EU directive)


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REVISION : S1

PE/RD	QA	MFG
 Wan-Lin Hsieh		
2-Sep-19		

**NOTE:**

- (1) The green product standard set by TXC is based upon the international standards. Related information is publicly described on the TXC's Website, and updated regularly. The document is compliant with the latest green product quality system directives at the time.
- (2) Revision "Sx" is for engineering samples only. PE/RD's approval required.
- (3) Revision "Ax" is production ready. PE, QA and MFG's approval required.

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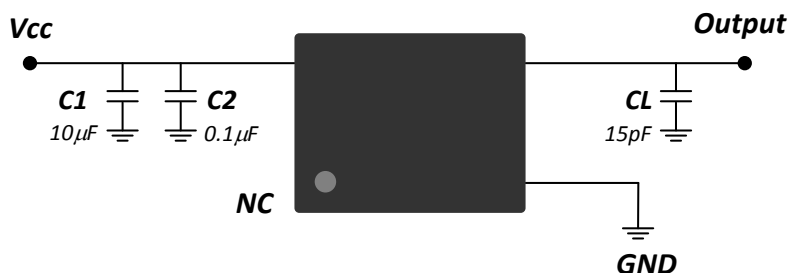


# ELECTRICAL SPECIFICATIONS

Item	Parameters		Measurement Condition	Electrical Specifications			
				MIN	TYP	MAX	UNITS
1	Nominal frequency				48		MHz
2	Supply voltage (Vcc)		±5%	3.135	3.3	3.465	V
3	Current consumption	During warm up	Ambient temperature at 25 °C			750	mA
4		At steady state				200	mA
5	Power dissipation <sup>1</sup>					2.7	W
6	Warm-up time				3		minute
7	Initial frequency accuracy		At time of shipment, reference to nominal frequency, at 25°C ±2°C	-500		500	ppb
8	Operating temperature range			-40		95	°C
9	Storage temperature range			-55		125	°C
10	Frequency stability	vs. temperature	Within operating temperature range, reference to (Fmax+Fmin)/2			±20	ppb
11		vs. Vcc variation	Vcc variation ±2%, reference to frequency at Vcc=3.3V		±5		ppb
12		vs. load variation	Load variation ±5%, reference to frequency at load= 15pF		±5		ppb
13	Frequency slope (in still air)		Temperature ramping rate ≤ 1° C/minute			±1.5	ppb/°C
14	G sensitivity		Gamma vector of all three axes from 9Hz to 200Hz			1	ppb/g
15	Output load				15		pF
16	Output waveform	Output type		LVCMOS			NA
17		High level (VOH)		2.7			V
18		Low level (VOL)				0.3	V
19		Duty cycle		45	50	55	%
20		Rise time				4	ns
21		Fall time				4	ns
22	Phase noise	At 1Hz offset	Ambient temperature at 25°C		-72		dBc/Hz
23		At 10Hz offset			-103		dBc/Hz
24		At 100Hz offset			-131		dBc/Hz
25		At 1kHz offset			-149		dBc/Hz
26		At 10kHz offset			-158		dBc/Hz
27		At 100kHz offset			-159		dBc/Hz
28		At 1MHz offset			-159		dBc/Hz
29	Allan deviation	Tau=1.0s	After 1hr of operation			7.0	e-11
30	Aging	Daily	After 30 days of operation		±1		ppb/day
31		1 year				±0.8	ppm/yr
32		10 year				±2	ppm/10yr

<sup>1</sup> Operation beyonds this limit may result in permanent damage to the device.

## TESTING CIRCUIT

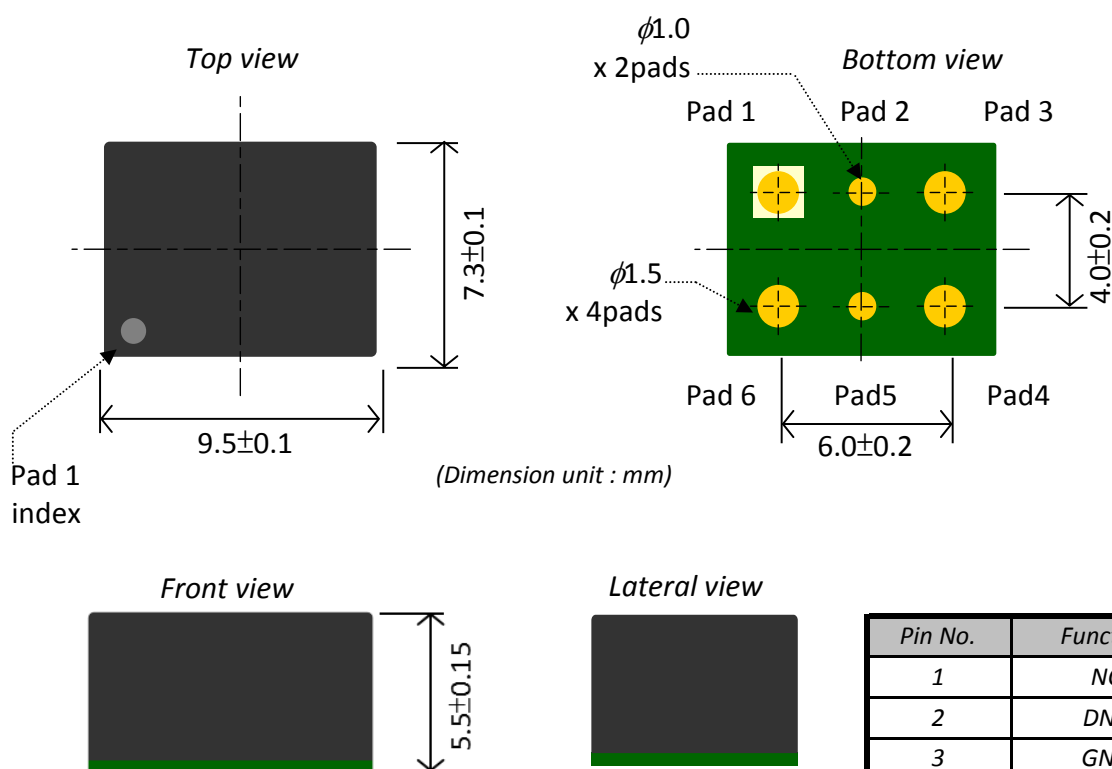


External components:

Name	Function
C1	AC Noise Bypass for Vcc
C2	AC Noise Bypass for Vcc
CL	Load Capacitance

Note: Bypass capacitor should be placed.

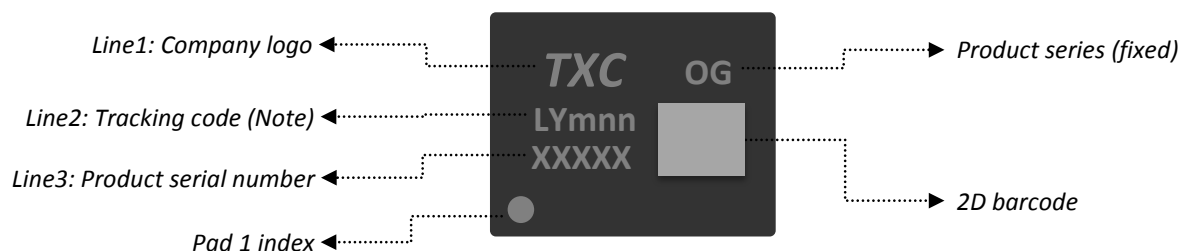
## DIMENSION & PAD CONNECTIONS



Pin No.	Function
1	NC
2	DNC
3	GND
4	Output
5	DNC
6	Vcc

DNC = Do Not Connect

## MARKING



(Note) Tracking Code = Lot (L) + Year (Y) + Month (m) + Lot Serial Number (nn)

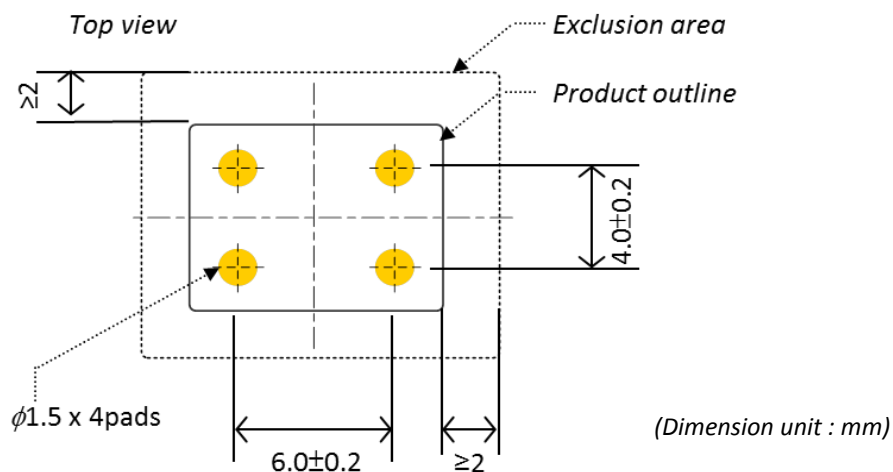
### Year

2017	2018	2019	2020	2021
A	B	C	D	E
2022	2023	2024	2025	2026
F	G	H	J	K
2027	2028	2029	2030	2031
M	N	P	Q	R
2032	2033	2034	2035	2036
S	T	U	V	W

### Month

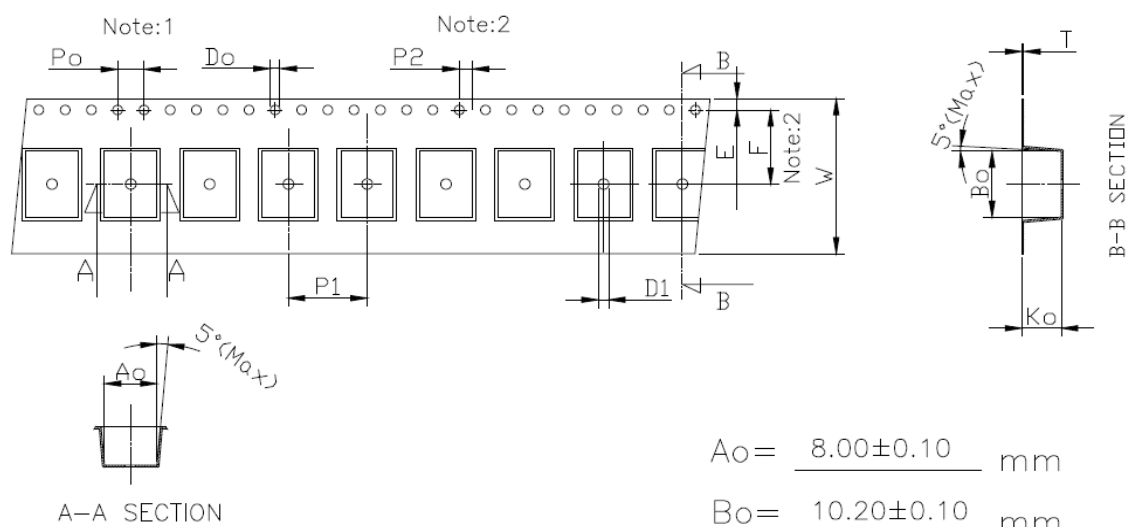
JAN	FEB	MAR	APR	MAY	JUN
a	b	c	d	e	f
JUL	AUG	SEP	OCT	NOV	DEC
g	h	j	k	m	n

## RECOMMENDED PAD LAYOUT



- (1) Recommended exclusion area in any copper plane to isolate the OCXO from the underlying ground or power planes to reduce thermal loss.
- (2) To further minimize the thermal loss, it is also recommended that the trace connecting to the pads should not connect to any layer inside the exclusion area.
- (3) For the same reason, it is recommended to preserve the exclusion area larger than the product size of 2mm in both of length and width.

■ PACKING

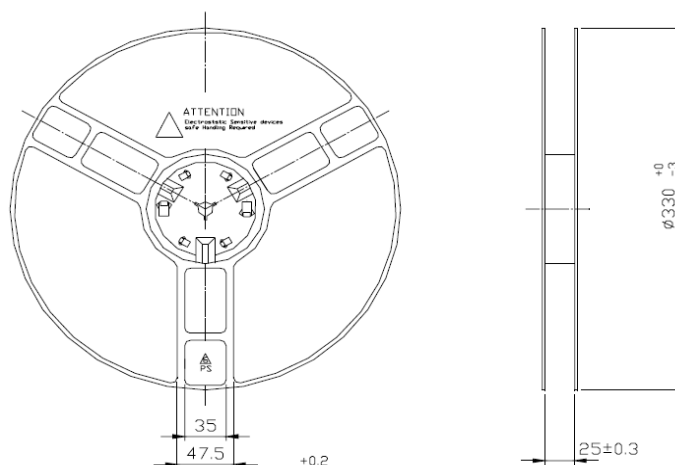


$$A_0 = \frac{8.00 \pm 0.10}{\text{mm}}$$

$$B_0 = \frac{10.20 \pm 0.10}{\text{mm}}$$

$$K_0 = \frac{6.00 \pm 0.10}{\text{mm}}$$

Symbol	Spec.
Po	4.0±0.10
P1	12.0±0.10
P2	2.0±0.10
Do	1.50 <sup>+0.1</sup> <sub>-0</sub>
D1	1.50(MIN)
E	1.75±0.10
F	11.50±0.10
10Po	40.0±0.10
W	24.0 <sup>+0.3</sup> <sub>-0.1</sub>
T	0.40±0.05



Notice:

1. 10 Sprocket hole pitch cumulative tolerance is ±0.1mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. A<sub>0</sub> & B<sub>0</sub> measured on a plane 0.3mm above the bottom of the pocket to top surface of the carrier.
4. K<sub>0</sub> measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

Standard Reel Quantity is 800 pcs per reel