SPECIFICATION FOR APPROVAL

CUSTOMER	:	
PRODUCT TYPE	:	SMD TCXO 2.0 * 1.6
NOMINAL FREQ.	:	26 MHz
TXC P/N	:	7Z26090001
REVISION	:	A1
CUSTOMER P/N	:	
PM / SALES	:	
DATE	:	
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.

Attachment: Product Specification Sheet

1
2
3
4
5

MSL:Level 1

RoHS Compliant

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

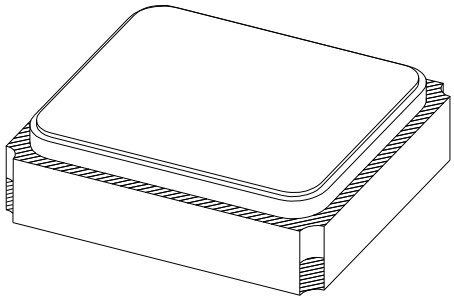
PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD TCXO 2.0 * 1.6

NOMINAL FREQ. : 26 MHz

TXC P/N : 7Z26090001

REVISION : A1



PE/RD	QA	MFG
Eric Tsao **Eric Tsao**	Alex Huang **Alex Huang**	Hungte Liu **Hungte Liu**
13-Oct-16	*13-Oct-16*	*13-Oct-16*

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.

MSL:Level 1

RoHS Compliant

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

Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
A1	N/A	Initial released (From S3)	2016/10/13	N/A	Su-Chen Chiang

■ ELECTRICAL SPECIFICATIONS

Item	Parameters		Condition	Electrical Specifications				Note
				MIN	TYP	MAX	UNITS	
1	Nominal Frequency				26.000000		MHz	
2	Operating Temperature Range			-40		+85	℃	
3	Supply Voltage			1.71	1.80	1.89	V	
4	Current Drain					1.5	mA	
5	Output Level			0.8			V	1
6	Output Type				Clipped Sinewave			
7	Output Load		Resistance	9	10	11	kΩ	
8			Capacitance	9	10	11	pF	
9	Initial Frequency Tolerance		At 25 ℃			±1.0	ppm	2
10	Frequency Tolerance		After 4 times reflow			±1.0	ppm	3
11	Frequency Stability	vs. Temperature	Temp: -40 ~ +85 ℃			±2.5	ppm	4
12			Temp: -30 ~ +85 ℃			±0.5	ppm	
13		vs. Load	Load: 10 kΩ // 10 pF ±10%			±0.2	ppm	
14		vs. Supply Voltage	Vcc: 1.8 V ±5%			±0.1	ppm	
15	Slope of Frequency Drift over Temperature		Temp: -40 ~ -30℃			±0.5	ppm/℃	
16			Temp: -30 ~ +85℃			±0.1	ppm/℃	
17	Static Temperature Hysteresis					±0.6	ppm	
18	Allan Variance		Tau=1 sec			1.0	ppb	
19	Micro-Jump					1.0	ppb	5
20	Storage Temperature			-40		+85	℃	
21	Duty Cycle			40	50	60	%	
22	Aging		1 year			±0.2	ppm	
23			2 years			±0.5	ppm	
24			3 years			±0.6	ppm	
25			5 years			±0.8	ppm	
26			6 years			±1.1	ppm	
27			8 years			±1.3	ppm	
28			10 years			±1.5	ppm	
29	Harmonics		2^{nd},3^{rd}			-8	dBc	
30			Others			-15	dBc	
31	Phase Noise	@ 1 Hz offset				-57	dBc/Hz	
32		@ 10 Hz offset				-88	dBc/Hz	
33		@ 100 Hz offset				-112	dBc/Hz	
34		@ 1 kHz offset				-130	dBc/Hz	
35		@ 10 kHz offset				-140	dBc/Hz	
36	G Sensitivity		All 3 axes, 30 Hz to 1.5 kHz			1.5	ppb/g	

Note 1 Decoupling capacitor (1000 pF) is required in external circuit

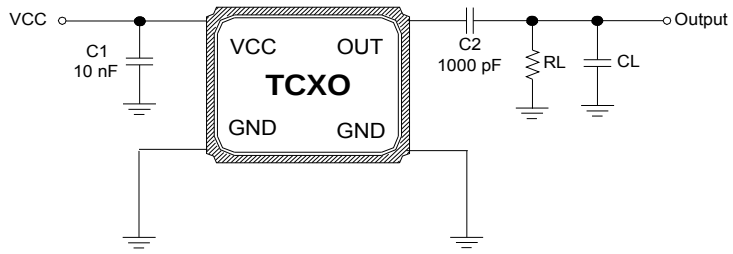
Note 2 Refer to nominal frequency

Note 3 Refer to Initial frequency

Note 4 Referenced to the midpoint between min. and max. frequency over this temperature rage

Note 5 When measured as the frequency difference between any two adjacent 100ms measurement periods. The frequency measurements conducted over the 100 ms measurement periods should be contiguous over a sample period of 500 seconds.

RECOMMENDED TESTING CIRCUIT

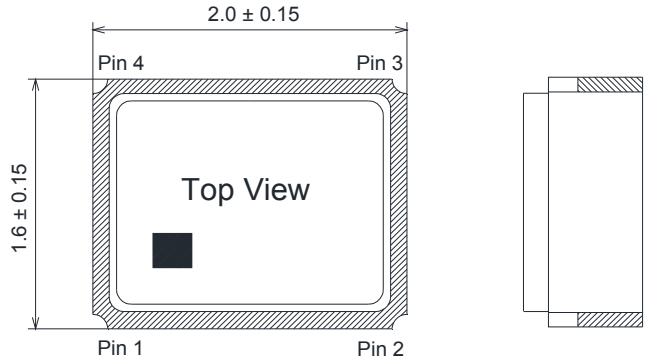


External Components

Name	Function
C1	AC Noise Bypass for VCC
C2	DC Block for Output
RL	Load Resistance
CL	Load Capacitance

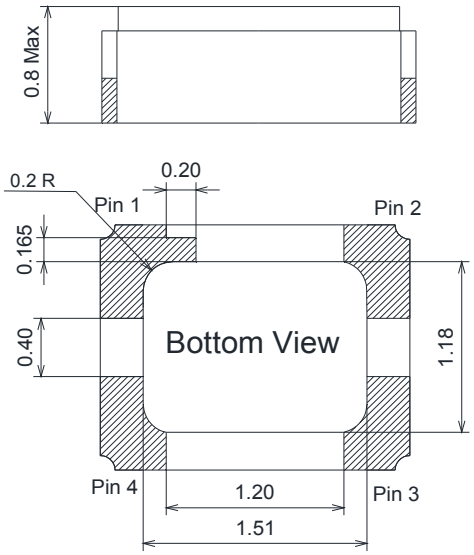
Note: Bypass capacitor (C1) and DC blocking capacitor (C2) should be placed.

DIMENSIONS



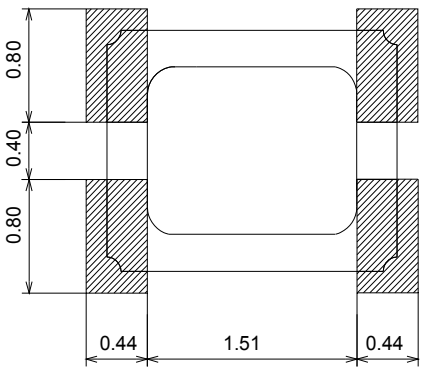
Pin Connection

Name	Connection
Pin 1	GND or NC
Pin 2	GND
Pin 3	OUTPUT
Pin 4	VCC

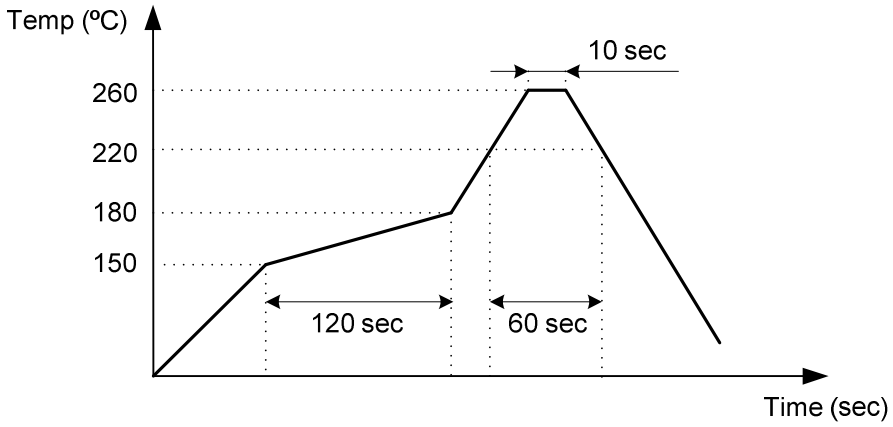


Unit : mm

Recommended Land Pattern



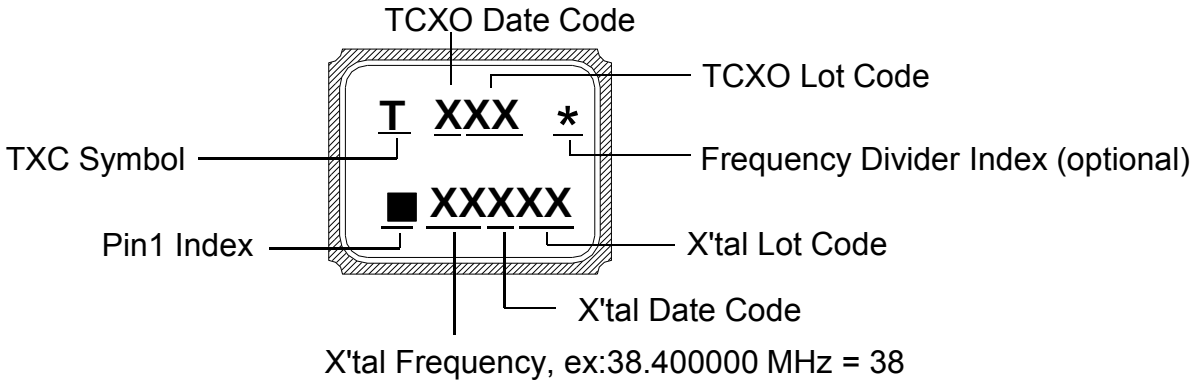
■ SUGGESTED REFLOW PROFILE



Note 1: Period while temperature exceeds the solder melting point : 220°C should be less than 200 sec.

Note 2: Period while temperature stays at the top melting point : 260°C should be less than 30 sec.

■ MARKING



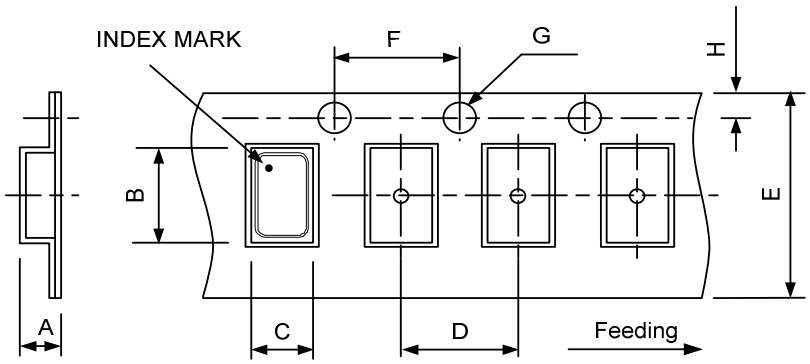
DATE CODE

YEAR \ MONTH					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2005	2009	2013	2017	2021	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	2023	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	2024	n	p	q	r	s	t	u	v	w	x	y	z

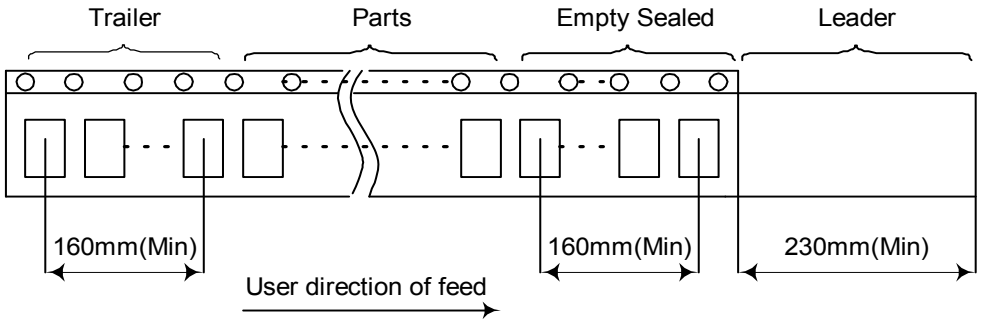
* This date code will be cycled every four years.

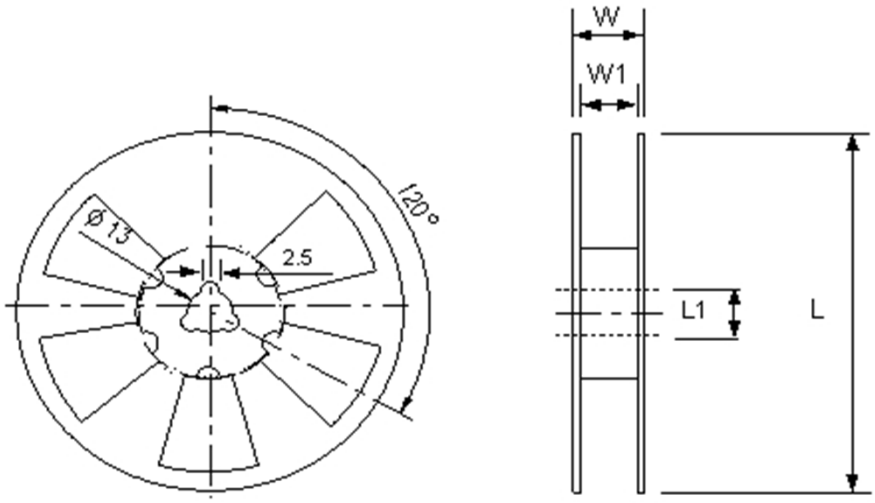
Note: If TCXO frequency is X'tal frequency divided by 2, then frequency divider index appears.
If TCXO frequency is the same as X'tal frequency, then no frequency divider index appears.

■ PACKING : (EIA-481-2)



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	0.90	2.30	1.90	4.00	8.00	4.00	1.55	1.75	





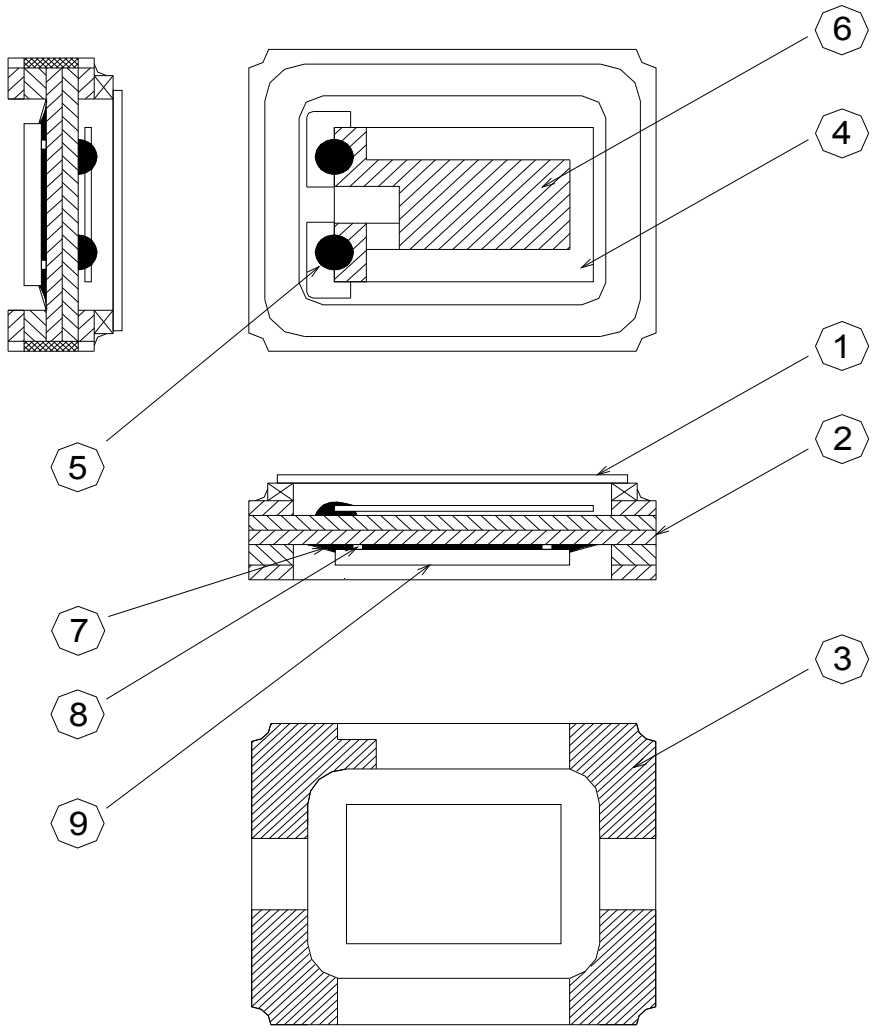
DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	178	13	11.5	8	Standard Reel Quantity is 3,000 pcs per reel

■ WEIGHT

0.00854g / piece(TYP), 25 ± 2 g /3 kpcs(regardless of tape weight)

STRUCTURE ILLUSTRATION

Crystal Enclosure Seal: Seam Welding



No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Cap	Metal(Fe + Co + Ni)	-
2	Base	Ceramic	Color Black
3	Pad	Au	Molybdenum Metalize + Ni Plating + Au Plating
4	Crystal Blank	SiO_2	-
5	Conductive Adhesive	Ag	Silicone Resin
6	Electrode	Noble Metal	-
7	Underfill	Organic	Color Black
8	Bump	Au	
9	IC	Si	

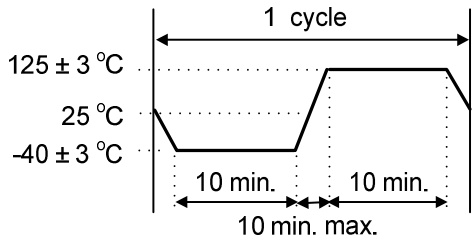
■ RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods	Criteria
1.1	Drop Test	Hegiht : 100 cm height Direction : X,Y,Z 6 directions Test cycles : 3 cycles Fall freely on to concrete floor Mounting on test fixture (total weight=100 g)	+/- 2.0 ppm
1.2	Mechanical Shock	Acceleration : 1000 g Duration : 0.5 ms Test cycles : 3 times for all 3 directions	+/- 2.0 ppm
1.3	Vibration	Acceleration : 20 g Duration : 4 hours/each direction Frequency range : 10 ~ 2000 Hz Amplitude : 1.52 mm Direction : X,Y,Z 3 directions Sweep speed : 20 minutes/cycle	+/- 2.0 ppm
1.4	Gross Leak	Standard sample for automatic gross leak detector. Test Pressure : 2 kg/cm^2	< 1.5×10^{-5} Pa m^3 / sec
1.5	Fine Leak	Helium bomging 4.5 kgf/cm^2 for 2 hours	< 1.0×10^{-9} Pa m^3 / sec
1.6	Solderability	Preheate temperature : 125℃ ± 5℃ Preheate time : 120 sec Solding temperature : 245℃ ± 5 ℃ Duration : 5 ± 1 sec Method : Solder bath method	90% Coated

[Note] Criteria mean the maximum frequency change after reliability test, frequency shell be measured at 25℃.

2. Environmental Endurance

No.	Test Item	Test Methods	Criteria
2.1	High Temp. Storage	Temperature : +125℃ ± 3℃ Duration : 168 hours	+/- 2.0 ppm
2.2	Low Temp. Storage	Temperature : -40℃ ± 3℃ Duration : 500 hours	+/- 2.0 ppm
2.3	Thermal Shock (Air to Air)	Total 100 cycles of the following temperature cycle : 	+/- 2.0 ppm
2.4	High Temp & Humidity	Temperature : 85℃ ± 3℃ Humidity: RH 85% Duration : 168 hours	+/- 2.0 ppm
2.5	Aging	Temperature : 85℃ ± 3℃ Duration : 500 hours Voltage input by specification	+/- 2.0 ppm

[Note] Criteria mean the maximum frequency change after reliability test, frequency shell be measured after 2 hours at 25℃ leaving.