

# SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

PRODUCT TYPE : SMD LVDS CXO 7.0\*5.0

NOMINAL FREQ. : 50.MHz

TXC P/N : BE50020001

REVISION : A1

CUSTOMER P/N : \_\_\_\_\_

PM / SALES : \_\_\_\_\_

DATE : \_\_\_\_\_

CUSTOMER SIGNATURE & 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(s):

- 1. Product Specification Sheet
- 2. Testing Report(Electrical & Temperature)
- 3. Reliability Report

**RoHS Compliant**

# PRODUCT SPECIFICATION SHEET

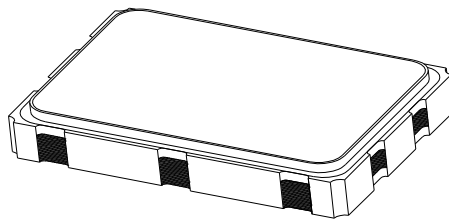
CUSTOMER : \_\_\_\_\_


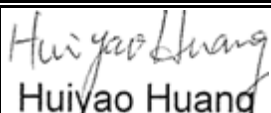

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NOMINAL FREQ. : 50.MHz

TXC P/N : BE50020001

REVISION : A1



PE/RD	QA	ME
 Oscar Chen	 Huiyao Huang	 Leye Tang
2015/5/7	2015/5/7	2015/5/7

**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.

**RoHS Compliant**



**ELECTRICAL SPECIFICATIONS**

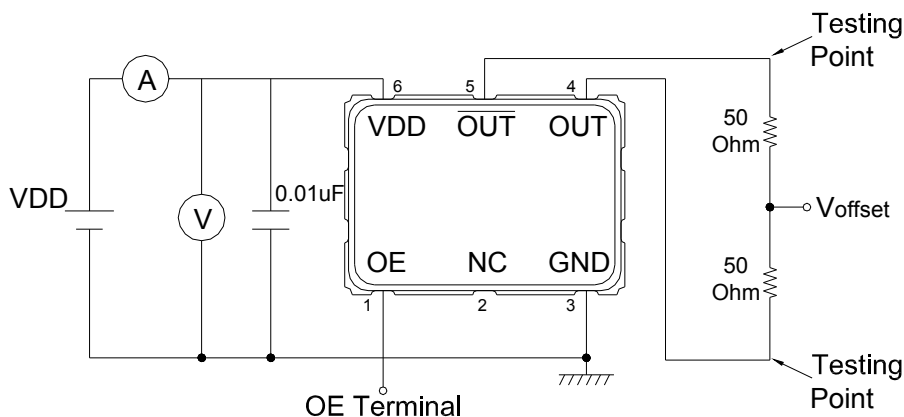
Item	Parameters	Condition	Electrical Specifications			
			MIN	TYP	MAX	UNITS
1	Nominal Frequency (Fo)		50.000000			MHz
2	Oscillation Mode		Fundamental			
3	Operating Temperature		-40	-	85	°C
4	Storage Temperature		-55	-	125	°C
5	Frequency Stability	Note 1	-50	-	50	PPM
6	Supply Voltage		2.97	3.30	3.63	V
7	Current Consumption	RL=100Ω	-	-	80	mA
8	Standby Function	Internal Pull Up	YES			
9	Current Consumption(Standby)	OE=Low	-	-	10	uA
10	Output Type		LVDS			
11	Output Load		100			Ω
12	Output Voltage High		-	1.43	1.6	V
13	Output Voltage Low		0.9	1.1	-	V
14	Offset Voltage		1.125	1.250	1.375	V
15	Different Output Voltage		247	330	454	mV
16	Rise Time	20% ~ 80% Output Swing	-	-	0.5	nS
17	Fall Time	80% ~ 20% Output Swing	-	-	0.5	nS
18	Symmetry		45	50	55	%
19	Start-up Time	To 90% of Final Amplitude	-	-	10	mS
20	Enable Voltage High (Logic 1)	Note 2	0.7VDD	-	-	V
21	Enable Voltage Low (Logic 0)	Note 2	-	-	0.3VDD	V
22	Output Enable Delay Time		-	-	2	mS
23	Output Disable Delay Time		-	-	200	nS
24	Phase Jitter	12K ~ 20MHz	-	-	1	pS rms

Note 1 Inclusive of frequency tolerance at 25degC, variation over temperature, supply voltage variation, aging and vibration.

Note 2 Output will be enable if OE is Logic 1 or open ; Output will be disable if OE is Logic 0.

Note 3 The standard testing environment except temperature test is 25±5degC, 40%~70% relative humidity.

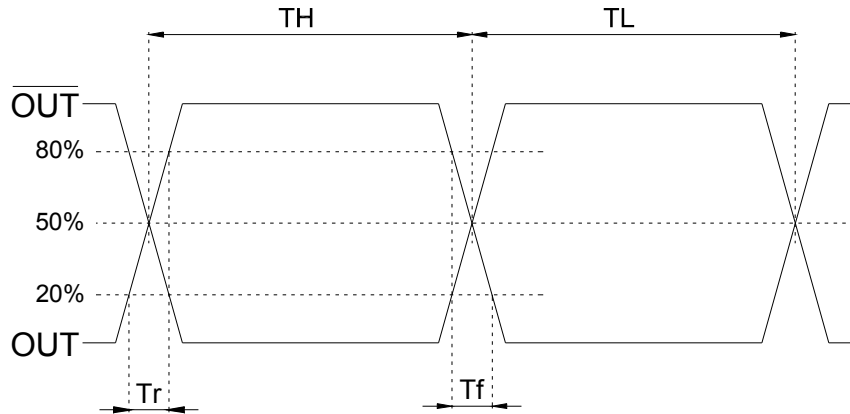
**TESTING CIRCUIT**



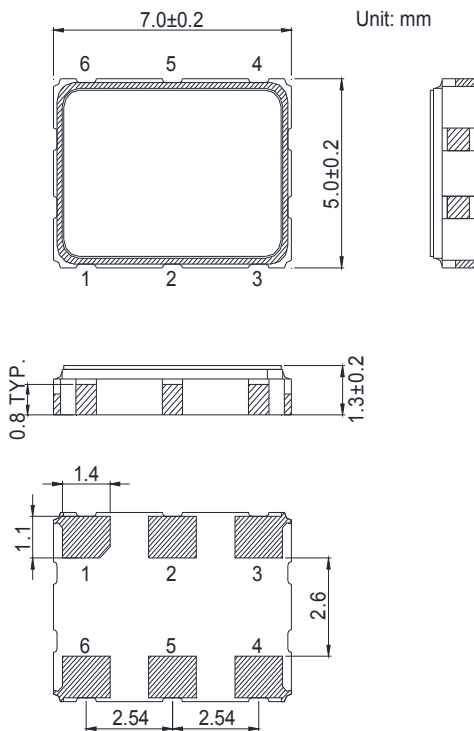
Testing Circuit Note:

- 1) Above testing circuits cover all the specifications except temperature test & Jitter measurement.
- 2) All the testing equipments are 50Ohm terminal.
- 3) OE terminal is open connection except OE function test.

**WAVEFORM CONDITONS**



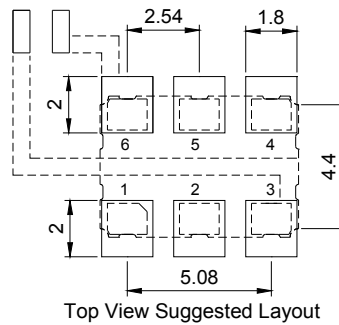
**DIMENSIONS**



**Pin Function:**

1. OE
2. NC
3. GND
4. OUT
5.  $\overline{\text{OUT}}$
6. VDD

**Land Pattern:**

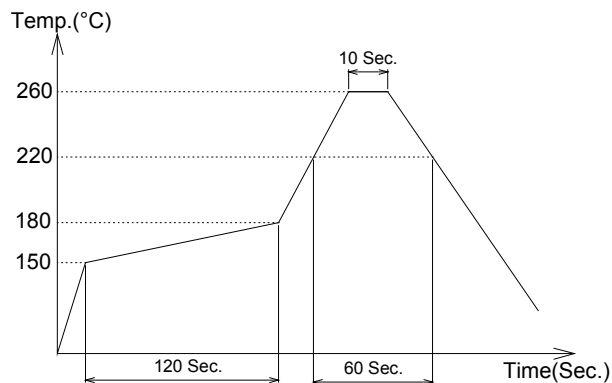


※ Pad dimension tolerance ±0.2 mm

※ Power Supply Decoupling Capacitor is Required.

※ Pad dimension tolerance ±0.2 mm

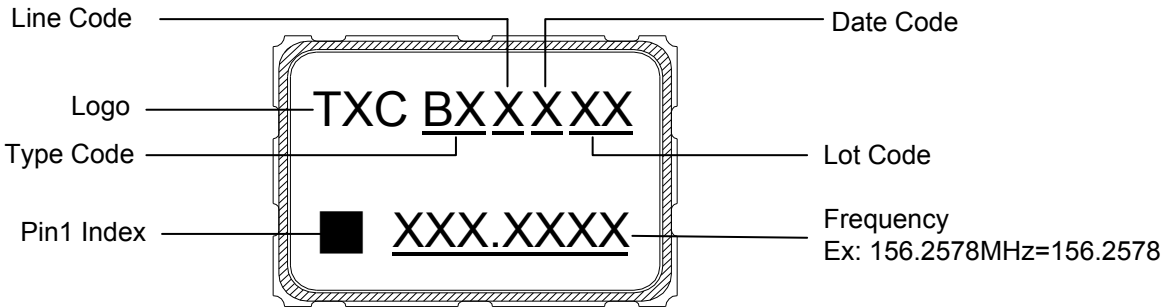
**SUGGESTED REFLOW PROFILE**



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

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

**MARKING**



**DATE CODE**

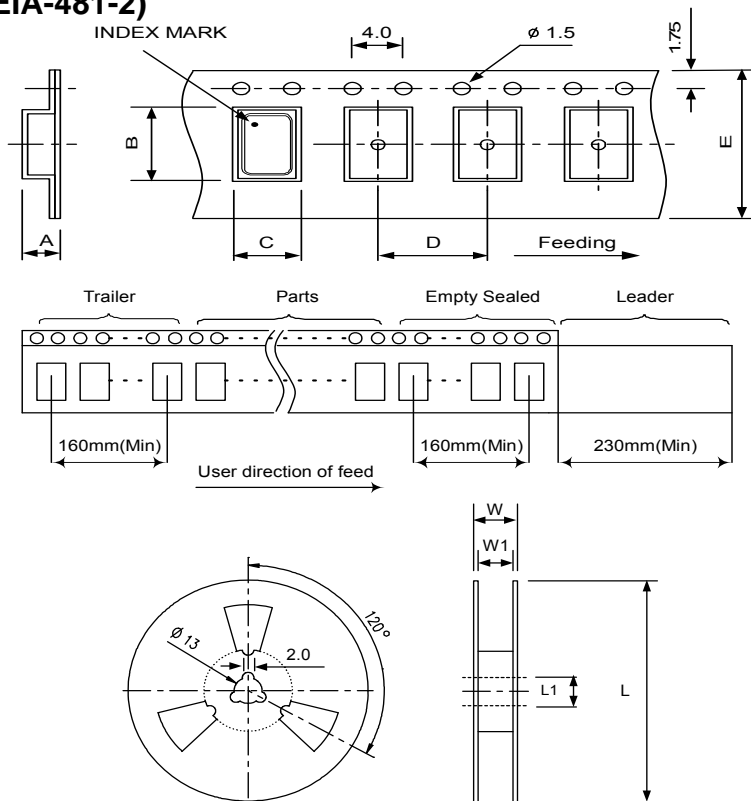
MONTH				YEAR											
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z

\* This date code will be cycled every four years.

**TYPE CODE**

Oscillation mode	Fundamental	3rd Overtone	PLL	Multiplier
Code	BE	BF	BG	BH

**PACKING : (EIA-481-2)**



Unit: mm

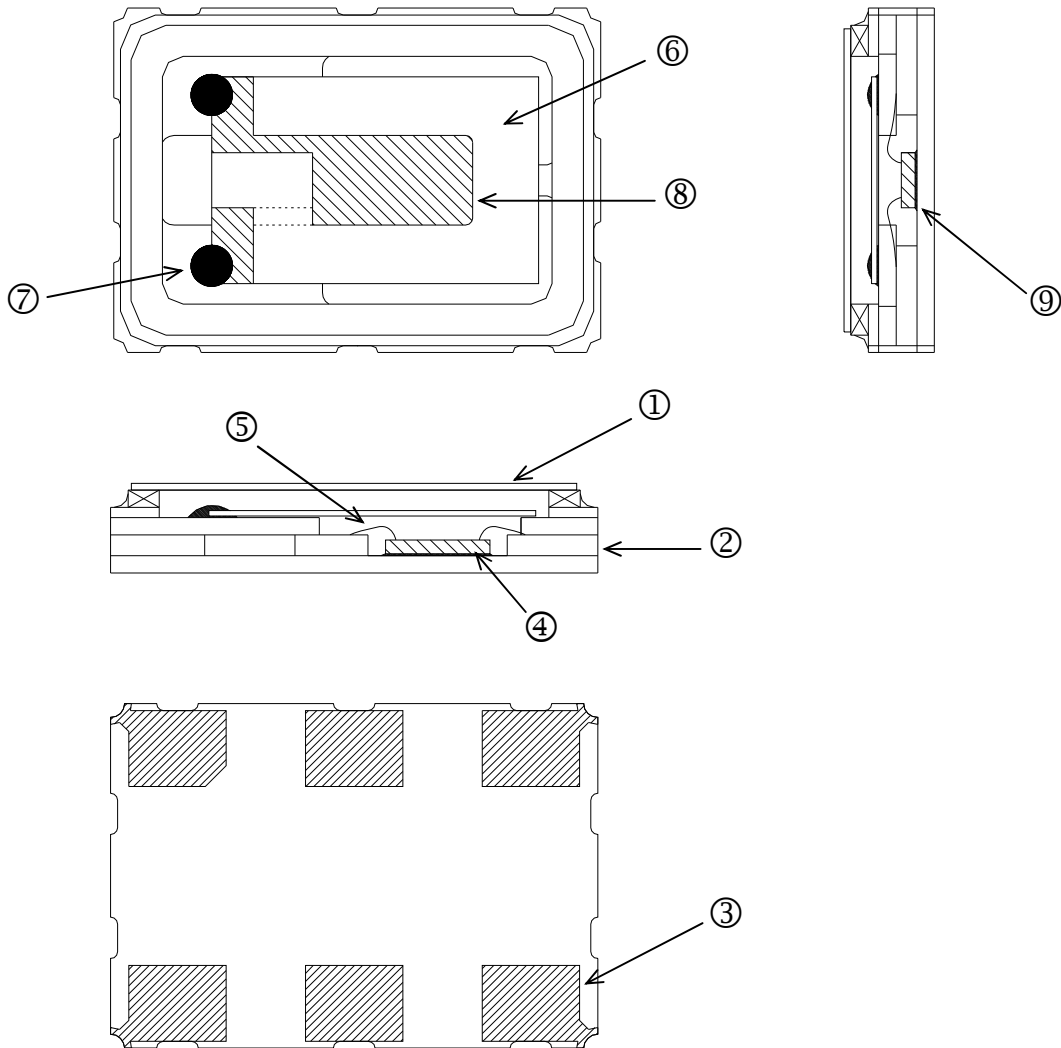
DIMENSIONS	A	B	C	D	E	L	L1	W	W1	Standard Reel Quantity is 1,000 pcs per reel
	2.00	7.90	5.45	8.00	16.0	180.0	13.0	20.5	16.0	

**WEIGHT**

0.149±0.001 g/pcs

**■ STRUCTURE ILLUSTRATION**

Crystal Enclosure Seal: Seam Welding  
 Crystal Enclosure Medium: Vacuum



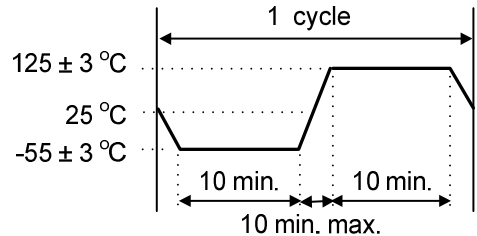
No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar(Fe-Ni-Co)	-
2	Base(Package)	Ceramic (Al <sub>2</sub> O <sub>3</sub> )	-
3	Pad	Au	Tungsten Metalize + Ni Plating + Au Plating
4	IC Chip	Si	-
5	Bonding Wire	Au	-
6	Crystal Blank	SiO <sub>2</sub>	-
7	Conductive Adhesive	Ag	Silicon Resin
8	Electrode	Noble Metal	-
9	Conductive Adhesive	Ag	Epoxy Resin

## ■ RELIABILITY SPECIFICATIONS

### 1. Mechanical Endurance

No.	Test Item	Test Methods	REF. DOC
1.1	Drop Test	75 cm height, fall freely onto concrete floor 3 times.	JIS C6701
1.2	Mechanical Shock	Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times. 0.5m sec. duration time.	MIL-STD-202F
1.3	Vibration	Frequency range            10 ~ 2000 Hz Amplitude                    1.52 mm Sweep time                    20 minutes Perpendicular axes each test 4 hours (Total test time 12 hrs)	MIL-STD-883E
1.4	Gross Leak	Standard Sample For Automatic Gross Leak Detector. Test Pressure: 2Kg / cm <sup>2</sup>	MIL-STD-883E
1.5	Fine Leak	Pre-condition - Helium Bombing 4.5 Kgf / cm <sup>2</sup> for 2 hrs Tested by mass-spectrometer	MIL-STD-883E
1.6	Solderability	Temperature                245 °C ± 5°C Immersing depth            0.5 mm minimum Immersion time            5 ± 1 seconds Flux                            Rosin resin methyl alcohol solvent ( 1 : 4 )	MIL-STD-883E

### 2. Environmental Endurance

No.	Test Item	Test Methods	REF. DOC
2.1	Resistance to Soldering Heat	Pre-heat temperature        125 °C Pre-heat time                60 ~ 120 sec. Test temperature            260 ± 5 °C Test time                      10 ± 1 sec.	MIL-STD-202F
2.2	High Temp. Storage	+125 °C ± 3 °C for 1000 hours	MIL-STD-883E
2.3	Low Temp. Storage	-40 °C ± 3 °C for 1000 hours	
2.4	Thermal Shock (Air to Air)	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
2.5	Pressure Cooker Test	120 ± 3°C, RH100%, 2 bar, for 240 hours	EIA-JESD22
2.6	High Temp & Humidity	85°C ± 3°C, RH 85% , 1000 hours	EIA-JESD22
2.7	Aging	85°C ± 3°C, Voltage input by specification, 1000 Hrs	EIA-JESD22