

SPECIFICATION FOR APPROVAL

CUSTOMER : _____

PRODUCT TYPE : SMD LVPECL CXO 2.5*2.0

NOMINAL FREQ. : 156.25MHz

TXC P/N : EBA5600004

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.

MSL:Level 1
RoHS Compliant

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

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PE/RD	QA	MFG
 Oscar Chen	 MingJung Lin	 Huiyao Huang
2022/9/27	2022/9/27	2022/9/27

NOTE:

- (1) If customer's application involves ultrasonic 、molding 、PCBA dicing and manual soldering processes or customer's products are used in automotive system, the applicability should be confirmed with TXC R&D responsible person.
- (2) 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.
- (3) Revision "Sx" is for engineering samples only. PE/RD's approval required.
- (4) Revision "Ax" is production ready. PE, QA and MFG's approval required.

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Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
A1	N/A	Initial released (From S2)	2022/9/27	N/A	Oscar Chen

ELECTRICAL SPECIFICATIONS

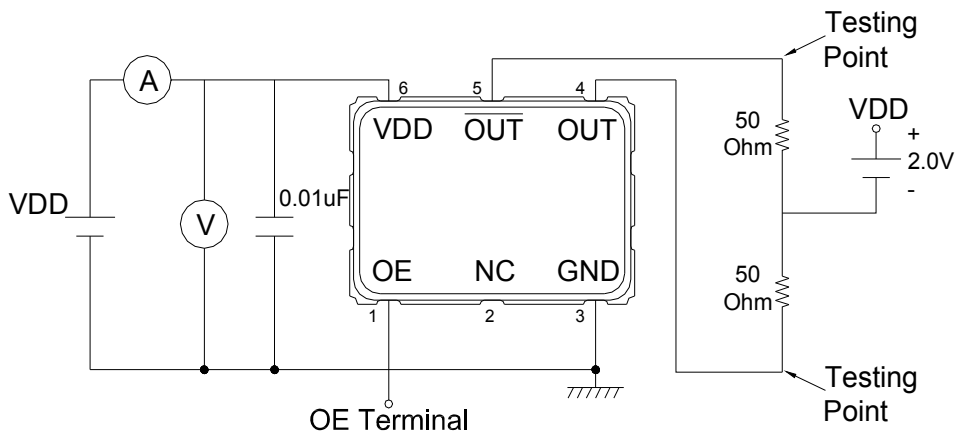
Item	Parameters	Condition	Electrical Specifications			
			MIN	TYP	MAX	UNITS
1	Nominal Frequency (Fo)		156.250000			MHz
2	Oscillation Mode		3rd Overtone			
3	Operating Temperature		-40	-	105	°C
4	Storage Temperature		-55	-	125	°C
5	Frequency Stability	Note 1	-50	-	50	PPM
6	Supply Voltage		2.25	3.3	3.63	V
7	Current Consumption	RL=50Ω to VDD-2V	-	-	40	mA
8	Standby Function	Internal Pull Up	YES			
9	Current Consumption(Standby)	OE=Low	-	-	20	uA
10	Output Type		LVPECL			
11	Output Load		50			Ω
12	Output Voltage High		VDD-1.025	-	VDD-0.88	V
13	Output Voltage Low		VDD-1.81	-	VDD-1.62	V
14	Rise Time	20% ~ 80% Output Swing	-	-	0.5	nS
15	Fall Time	80% ~ 20% Output Swing	-	-	0.5	nS
16	Symmetry		45	50	55	%
17	Start-up Time	To 90% of Final Amplitude	-	-	10	mS
18	Enable Voltage High (Logic 1)	Note 2	0.7VDD	-	-	V
19	Enable Voltage Low (Logic 0)	Note 2	-	-	0.3VDD	V
20	Output Enable Delay Time		-	-	2	mS
21	Output Disable Delay Time		-	-	200	nS
22	Phase Jitter	12K ~ 20MHz @ 3.3V	-	-	0.1	pS rms
		12K ~ 20MHz @ 2.5V	-	-	0.12	pS rms
23	Output Voltage Range	Differential peak-to-peak	600	1400	2000	mV

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.

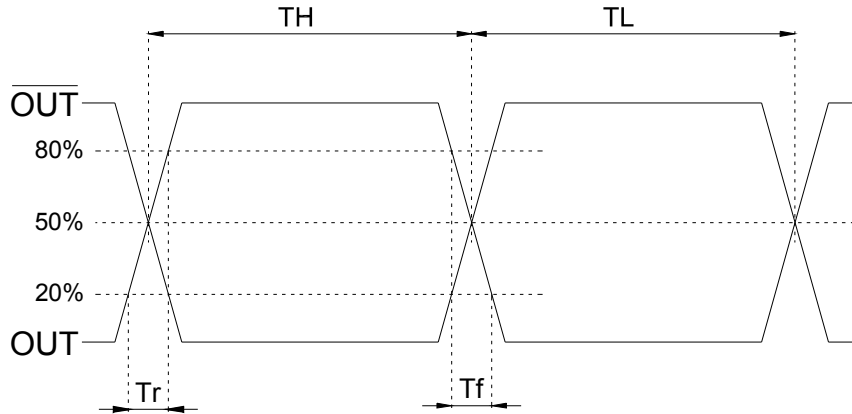
TESTING CIRCUIT



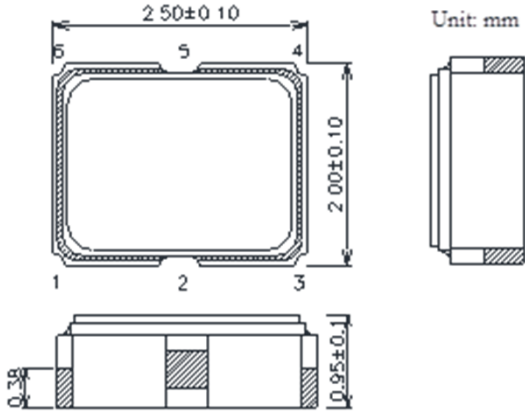
Testing Circuit Note:

- 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

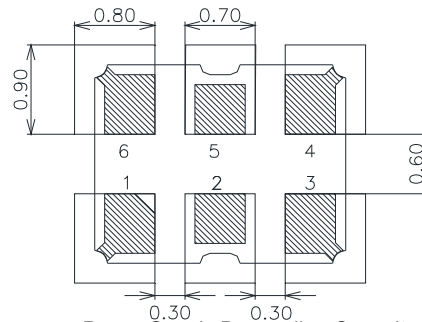
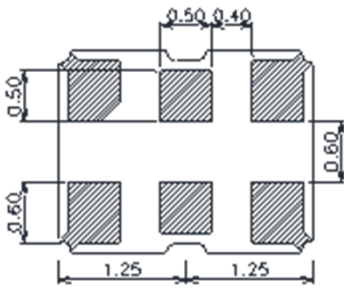


Unit: mm

Pin Function:

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

Land Pattern:

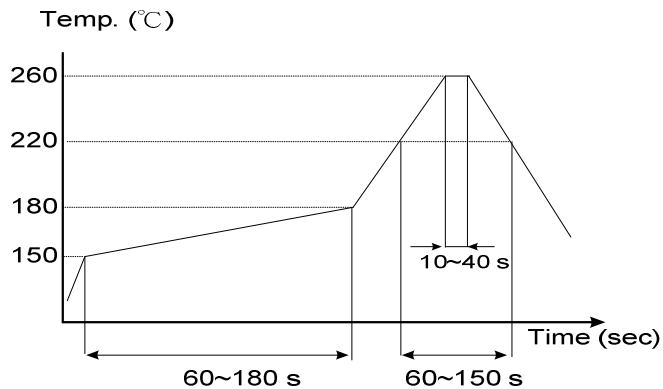


※ Pad dimension tolerance ± 0.2 mm

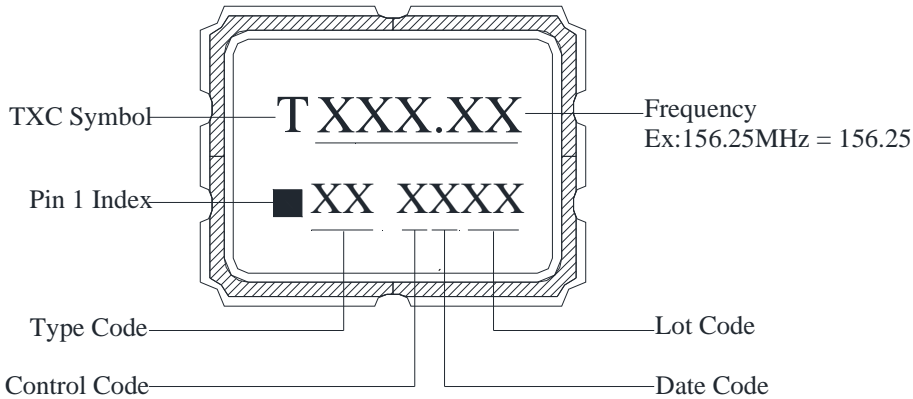
※ Power Supply Decoupling Capacitor is Required.

SUGGESTED REFLOW PROFILE

Total time : 600 sec. Max.
Solder melting point : 220 °C



MARKING



DATE CODE

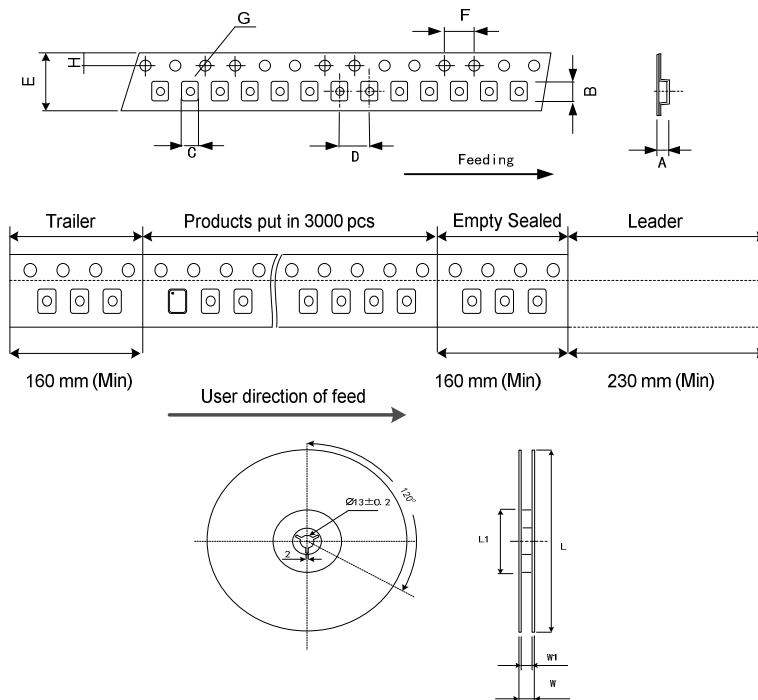
YEAR \ MONTH					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
					A	B	C	D	E	F	G	H	J	K	L	M
2021	2025	2029	2033	2037	N	P	Q	R	S	T	U	V	W	X	Y	Z
2022	2026	2030	2034	2038	a	b	c	d	e	f	g	h	j	k	l	m
2023	2027	2031	2035	2039	n	p	q	r	s	t	u	v	w	x	y	z
2024	2028	2032	2036	2040												

* This date code will be cycled every four years.

TYPE CODE

Oscillation mode	Fundamental	3rd Overtone
Code	EA	EB

PACKING : (EIA-481)



Unit: mm

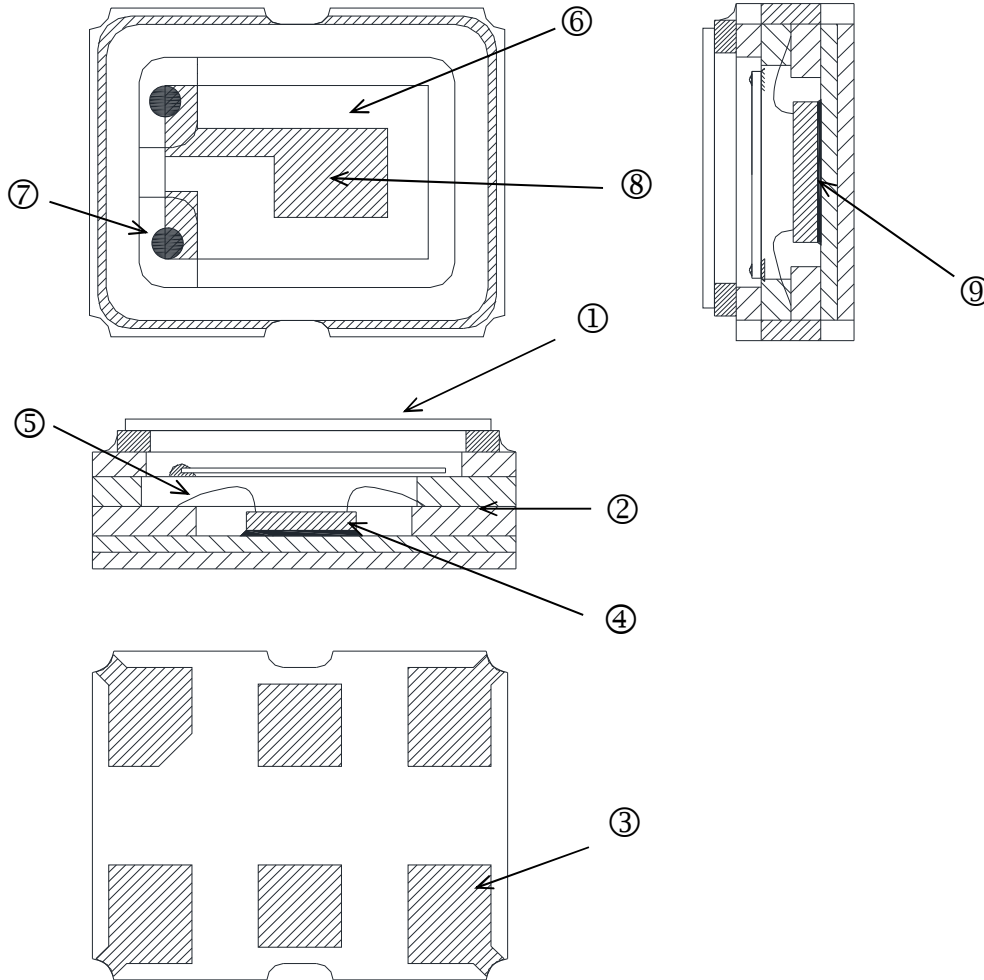
DIMENSIONS (mm)	A	B	C	D	E	F	G	H	L	L1	W	W1	Standard Reel Quantity is 3,000 pcs per reel
	1.15	2.70	2.25	4.00	8.00	4.00	1.55	1.75	180.00	60.00	11.40	9.00	
	±0.05	±0.05	±0.05	±0.10	±0.20	±0.10	±0.05	±0.10	0/-3	+1/0	±0.10	±0.30	

WEIGHT

0.0155 g / piece(TYP), 65 ± 2 g / 3 kpcs (regardless of tape weight)

■ STRUCTURE ILLUSTRATION

Crystal Enclosure Seal: Seam Welding
 Crystal Enclosure Medium: Nitrogen



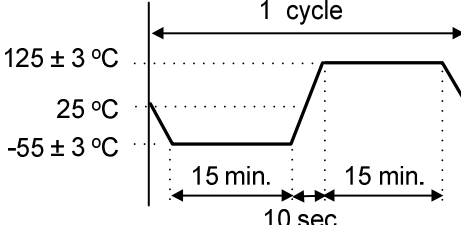
No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar(Fe-Ni-Co)	-
2	Base(Package)	Ceramic (Al ₂ O ₃)	-
3	Pad	Au	Tungsten Metalize + Ni Plating + Au Plating
4	IC Chip	Si	-
5	Bonding Wire	Au	-
6	Crystal Blank	SiO ₂	-
7	Conductive Adhesive	Ag	Silicon Resin
8	Electrode	Au + Cr	-
9	Conductive Adhesive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

RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods	REF. DOC
1.1	Free Drop	75 cm height, fall freely onto concrete floor 18 times	JIS C6701
1.2	Mechanical Shock	1500G, 0.5ms, 5 pulse for 6 directions	MIL-STD-883 Method 2002
1.3	Sine Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm Sweep time 20 minutes Perpendicular axis each test 4 hours (Total test time 12 hrs)	MIL-STD-883 Method 2007
1.4	Gross Leak	Standard sample for automatic gross leak detector. Test pressure: 2Kg / cm ²	MIL-STD-883 Method 1014
1.5	Fine Leak	Precondition - Helium bombing 4.5 Kgf / cm ² for 2 hrs Tested by mass-spectrometer	MIL-STD-883 Method 1014
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)	J-STD-002
1.7	Board Flex	Duration time: 5sec, deviation: 5mm	EIAJ-RCX-0104/101

2. Environmental Endurance

No.	Test Item	Test Methods	REF. DOC
2.1	High Temp. Storage	125 °C ± 2 °C, 1008 hours	MIL-STD-883 Method 1005
2.2	Low Temp. Storage	The lowest specification of storage temperature, 1008 hours	JESD22-A119
2.3	Thermal Shock (Air to Air)	Total 500 cycles of the following temperature cycle 	JESD22-A104
2.4	Autoclave	121°C ± 3°C, RH100%, 29.7psi, for 240 hours	JESD22-A102
2.5	High Temp. & Humidity	85°C ± 3°C, RH 85% , 1008 hours	JESD22-A101
2.6	Aging	The highest specification of operation temperature, 1008 hours	JESD22-A108