TXC CORPORATION

www.txccorp.com

SPECIFICATION FOR APPROVAL

CUSTOMER	:	
PRODUCT TYPE	:	SMD HCSL CXO 3.2*2.5
NOMINAL FREQ.	:	156.25MHz
TXC P/N	:	DHA5620001
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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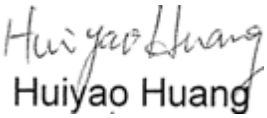
REVISION : A1

PE/RD	QA	ME
 Oscar Chen	 Huiyao Huang	 Leye Tang
2017/1/19	2017/1/19	2017/1/19

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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Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
A1	N/A	Initial released (From S3)	2017/1/19	N/A	Oscar Chen

ELECTRICAL SPECIFICATIONS

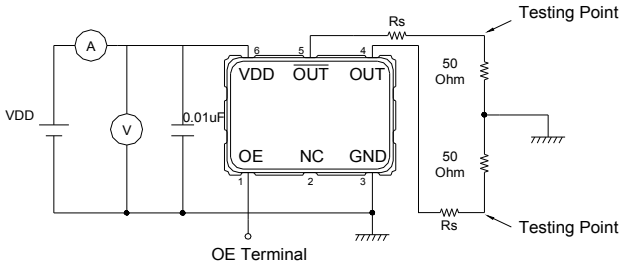
Item	Parameters	Condition	Electrical Specifications			
			MIN	TYP	MAX	UNITS
1	Nominal Frequency (Fo)			156.250000		MHz
2	Operating Temperature		-40	-	85	℃
3	Storage Temperature		-55	-	125	℃
4	Frequency Stability	Note 1	-100	-	100	PPM
5	Supply Voltage		2.97	3.30	3.63	V
6	Current Consumption	RL=50Ω to VDD-2V	-	-	30	mA
7	Standby Function	Internal Pull Up		YES		
8	Current Consumption(Standby)	OE=Low	-	-	0.5	mA
9	Output Type			HCSL		
10	Output Load			50		Ω
11	Output Voltage High		660	740	850	mV
12	Output Voltage Low		-150	0	150	mV
13	Rise Time	20% ~ 80% Output Swing	-	-	0.5	nS
14	Fall Time	80% ~ 20% Output Swing	-	-	0.5	nS
15	Symmetry		45	50	55	%
16	Start-up Time	To 90% of Final Amplitude	-	-	10	mS
17	Enable Voltage High (Logic 1)	Note 2	0.7VDD	-	-	V
18	Enable Voltage Low (Logic 0)	Note 2	-	-	0.3VDD	V
19	Output Enable Delay Time		-	-	2	mS
20	Output Disable Delay Time		-	-	200	nS
21	Phase Jitter	12K ~ 20MHz	-	-	0.2	pS rms
22	Phase Noise, fo = 156.25MHz 10 Hz offset 100 Hz offset 1k Hz offset 10k Hz offset 100k Hz offset 1M Hz offset 10M Hz offset 20M Hz offset			 -70 -100 -128 -138 -143 -150 -155 -156		 dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
23	Aging	1st year	-	-	±3	ppm

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.

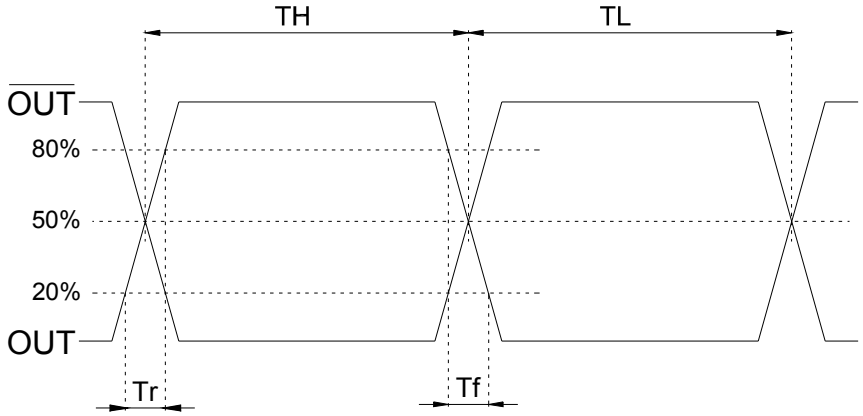
TESTING CIRCUIT



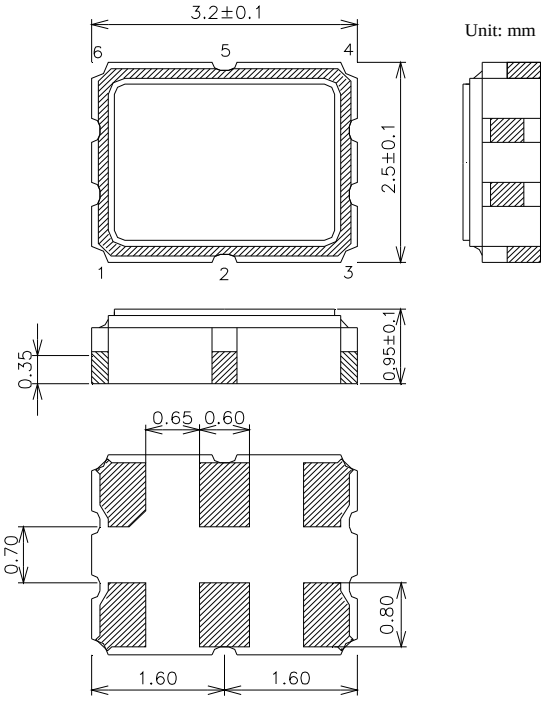
Testing Circuit Note:

1) Above testing circuits cover all the specfications except temperature test & Jitter measurement.
2) All the testing equipments are 50Ohm terminal.
3) OE terminal is open connection except OE function test.
4) RS= 0 Ohm for test. 0 Ohm to 33 Ohm to minimize overshoot and ringback effect in application.

WAVEFORM CONDITONS



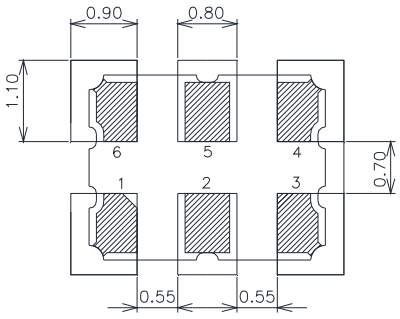
DIMENSIONS



Pin Function:

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

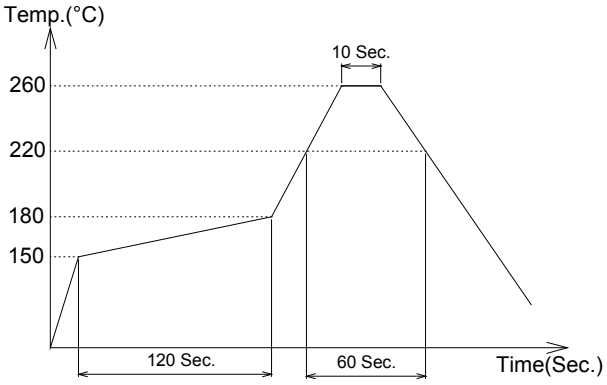
Land Pattern:



※ Pad dimension tolerance ±0.2 mm

※ Power Supply Decoupling Capacitor is Required.

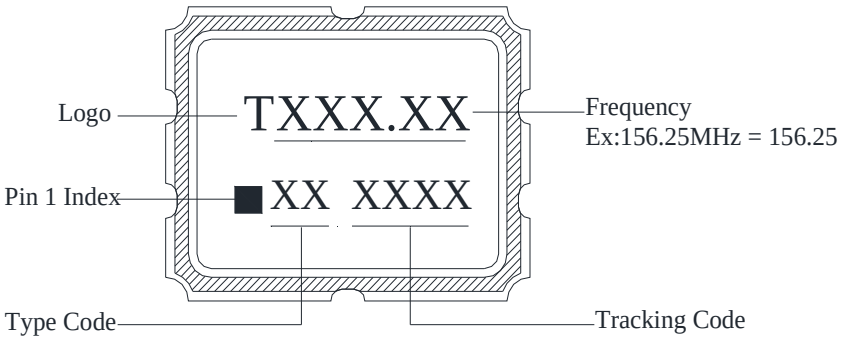
SUGGESTED REFLOW PROFILE



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.

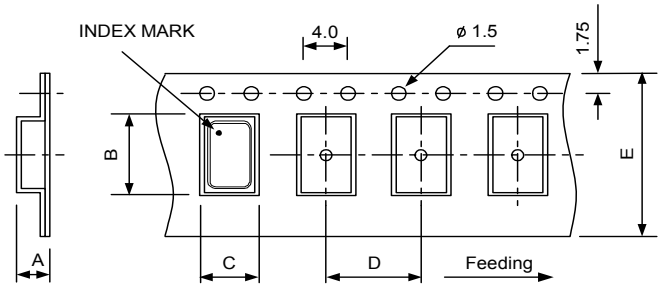
MARKING

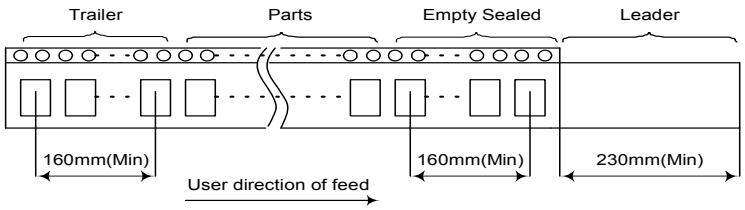


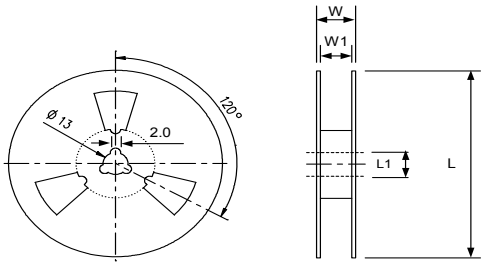
TYPE CODE

Oscillation mode	HCSL
Code	DH

PACKING : (EIA-481-2)







Unit: mm

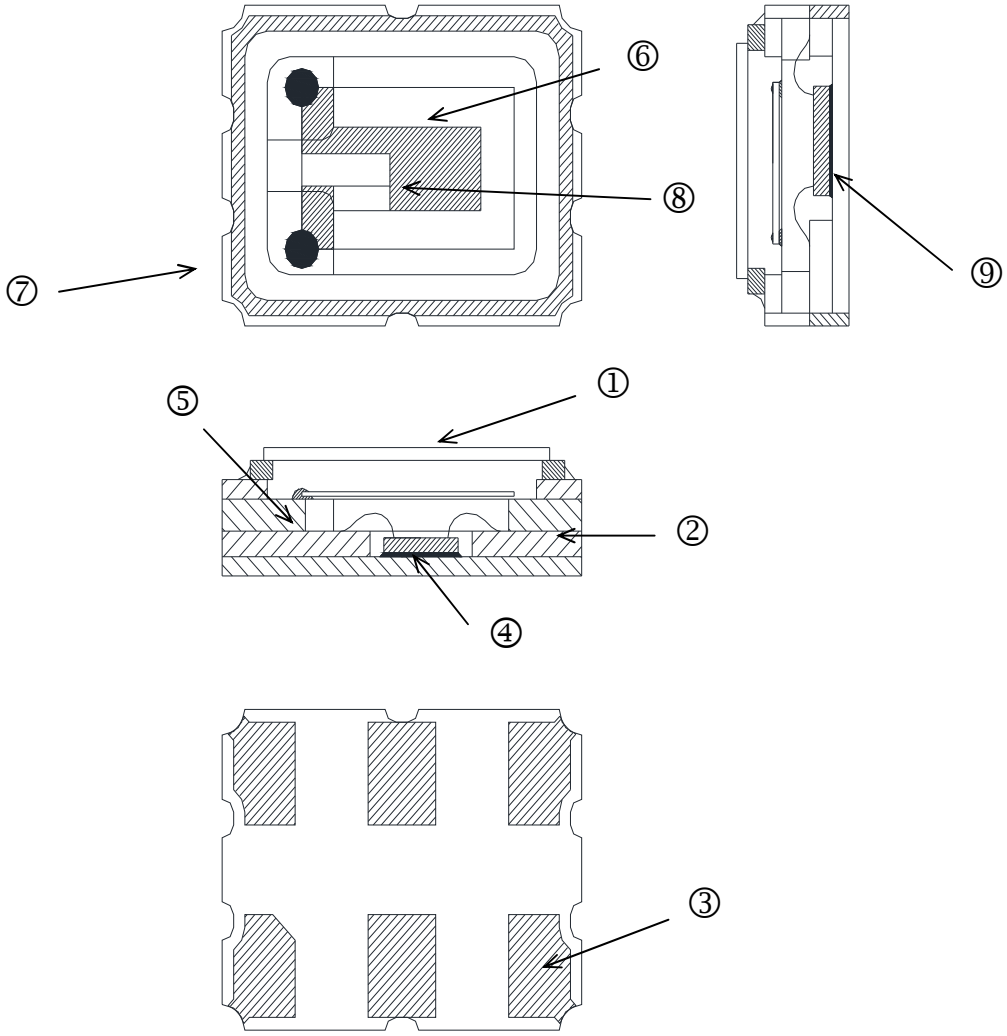
DIMENSIONS (mm)	A	B	C	D	E	L	L1	W	W1	Standard Reel Quantity is 3,000 pcs per reel
	1.40	3.40	2.70	4.00	8.0	178.0	13.0	11.5	8.0	

WEIGHT

0.0217 g / piece(TYP), 65 ± 2 g /3 kpcs (regardless of tape weight)

STRUCTURE ILLUSTRATION

Crystal Enclosure Seal: Seam Welding
Crystal Enclosure Medium: Vacuum



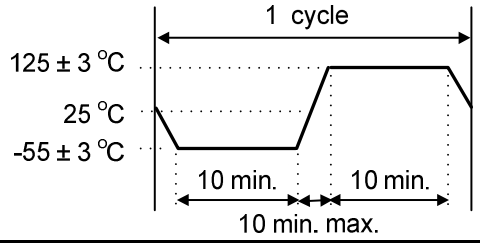
No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar(Fe-Ni-Co)	-
2	Base(Package)	Ceramic (Al_2O_3)	-
3	Pad	Au	Tungsten Metalize + Ni Plating + Au Plating
4	IC Chip	Si	-
5	Bonding Wire	Au	-
6	Crystal Blank	SiO_2	-
7	Conductive Adhesive	Ag	Silicon Resin
8	Electrode	Au + Cr	-
9	Conductive Adhesive	Ag	Epoxy Resin

RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods		REF. DOC
1.1	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 Amplitude Sweep time Perpendicular axes each test	10 ~ 2000 Hz 1.52 mm 20 minutes 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^2		MIL-STD-883E
1.5	Fine Leak	Pre-condition - Helium Bomging 4.5 Kgf / cm^2 for 2 hrs Tested by mass-spectrumeter		MIL-STD-883E
1.6	Solderability	Temperature Immersing depth Immersion time Flux	245 °C ± 5°C 0.5 mm minimum 5 ± 1 seconds 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 Pre-heat time Test temperature Test time	125 °C 60 ~ 120 sec. 260 ± 5 °C 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-JESED22
2.6	High Temp & Humidity	85°C ± 3°C, RH 85% , 1000 hours		EIA-JESED22
2.7	Aging	85°C ± 3°C, Voltage input by specification, 1000 Hrs		EIA-JESED22