

SPECIFICATION FOR APPROVAL

CUSTOMER : _____

PRODUCT TYPE : SMD CMOS VCXO 7.0*5.0

NOMINAL FREQ. : 61.44MHz

TXC P/N : BR61400002

REVISION : A2

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

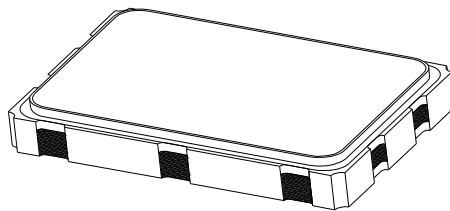
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PE/RD	QA	ME
陳志炯 2/11	Chen Shih-Ing 2/11	成瑋 2/11
2011/1/12		

NOTE:

- (1) Lead Free Products are " Directive 2002/95/EC of The European Parliament of 27 January 2003 on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment" Compliant (Attachment: SGS Test Report).
- (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

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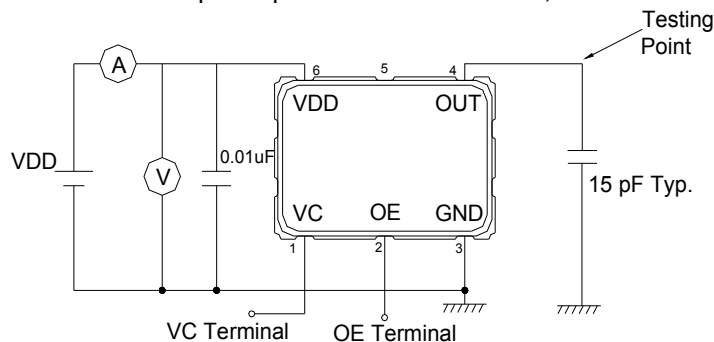
<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
A1	N/A	Initial released	2009/6/24	N/A	Cheese Chiang
A2	P.3	PKG Change	2011/1/12	ECN-11P011102	Oscar Chen

ELECTRICAL SPECIFICATIONS

Item	Parameters	Condition	Electrical Specifications			
			MIN	TYP	MAX	UNITS
1	Nominal Frequency		61.440000			MHz
2	Oscillation Mode		Fundamental			
3	Operating Temperature		-40	-	85	°C
4	Storage Temperature		-55	-	125	°C
5	Frequency Tolerance @ 25°C		-	-	±10	ppm
6	Frequency Stability	Note3	-	-	±20	ppm
7	Supply Voltage (+3.3 V)		2.97	3.30	3.63	V
8	Current Consumption		-	-	30	mA
9	Standby Function	Internal Pull Up	YES			
10	Current Consumption(Standby)	OE=Low	-	-	10	uA
11	Output Type		CMOS			
12	Output Load		15pF			
13	Output Voltage High +25 °C		0.9VDD	-	-	V
14	Output Voltage Low +25 °C		-	-	0.1VDD	V
15	Rise Time	20%~80% Output Swing	-	-	5	nS
16	Fall Time	80%~20% Output Swing	-	-	5	nS
17	Symmetry or Duty Cycle		45	50	55	%
18	Jitter(12kHz - 20MHz BW),61.44MHz		-	-	1	ps(rms)
19	Phase Noise, fo = 61.44MHz					
	10 Hz offset			-70		dBc/Hz
	100 Hz offset			-105		dBc/Hz
	1k Hz offset			-130		dBc/Hz
	10k Hz offset			-144		dBc/Hz
	100k Hz offset			-150		dBc/Hz
	1M Hz offset			-160		dBc/Hz
	10M Hz offset			-160		dBc/Hz
20	Start-up Time	To 90% of Final Amplitude	-	-	10	mS
21	Enable Voltage High (Logic 1)	Note 2	0.7VDD	-	-	V
22	Enable Voltage Low (Logic 0)	Note 2	-	-	0.3VDD	V
23	Control Voltage for APR (+3.3V)		0	-	3.3	V
24	Pull Range		±90	-	±185	ppm
25	Absolute Pulling Range (APR)	Note 1	±50	-	±150	ppm
26	Control Voltage Bandwidth (-3dB)		20	-	-	kHz
27	VC Pin Input Impedance		2	5	-	MΩ
28	Linearity		-	-	10	%

- Note 1 APR=Pull Range - (frequency tolerance at 25°C, variation over temperature, supply voltage, and aging.)
 Note 2 Output will be enable if OE is Logic 1 or open ; Output will be disable if OE is Logic 0.
 Note 3 Over operating temperature range refer to 25°C .
 Note 4 The standard testing environment except temperature test is 25±5°C, 40%~70% relative humidity.

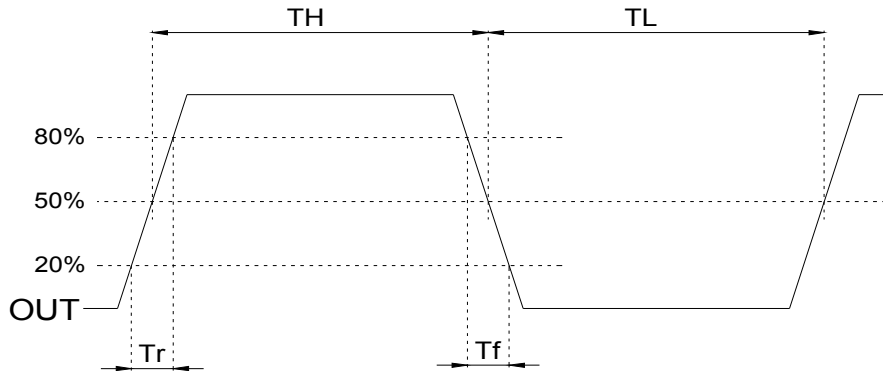
TESTING CIRCUIT



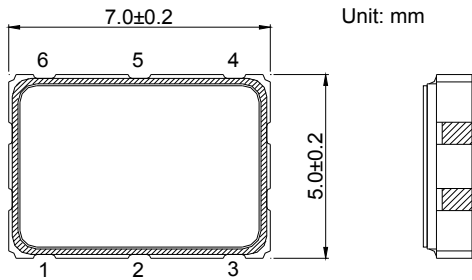
Testing Circuit Note:

- 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

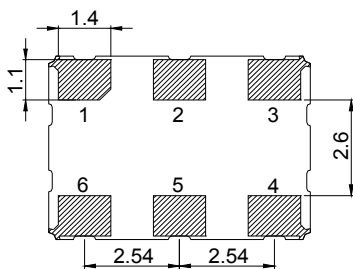
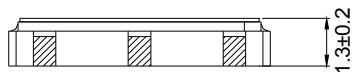


DIMENSIONS



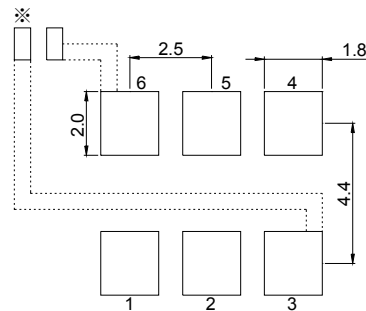
Pin Function:

- 1. VC
- 2. OE
- 3. GND
- 4. OUT
- 5. NC
- 6. VDD



※ Pad dimension tolerance ±0.2 mm

Land Pattern:

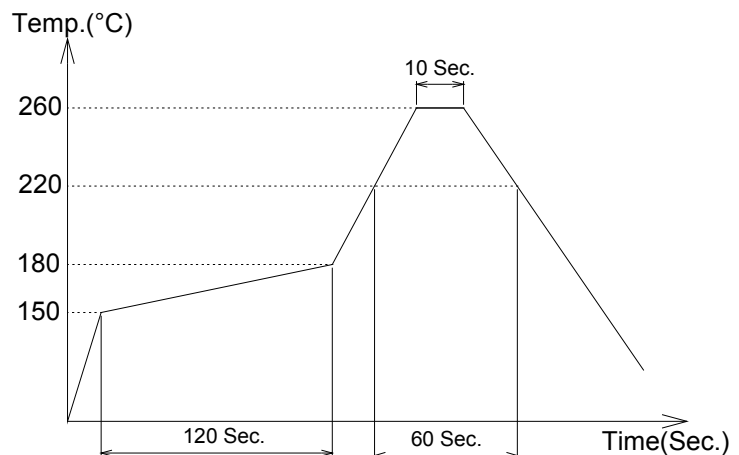


※ Power Supply Decoupling Capacitor is Required.

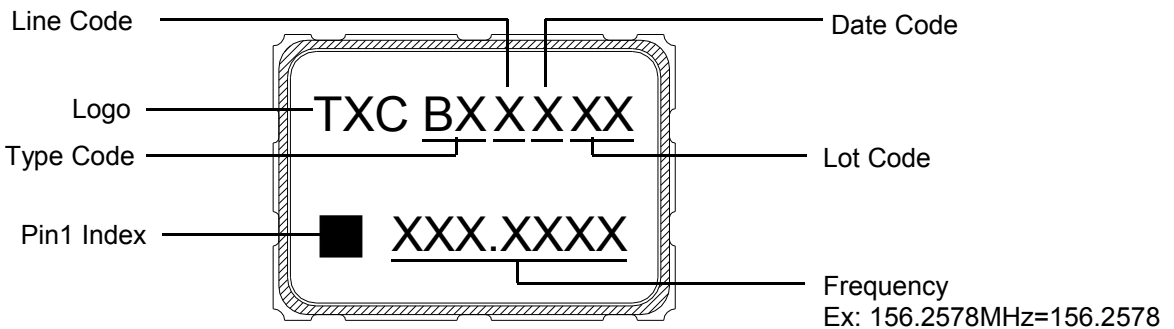
※ Pad dimension tolerance ±0.2 mm

SUGGESTED REFLOW PROFILE

Tota Time: 200 Sec. Max.
Solder Melting Point: 220 °C



MARKING



DATE CODE

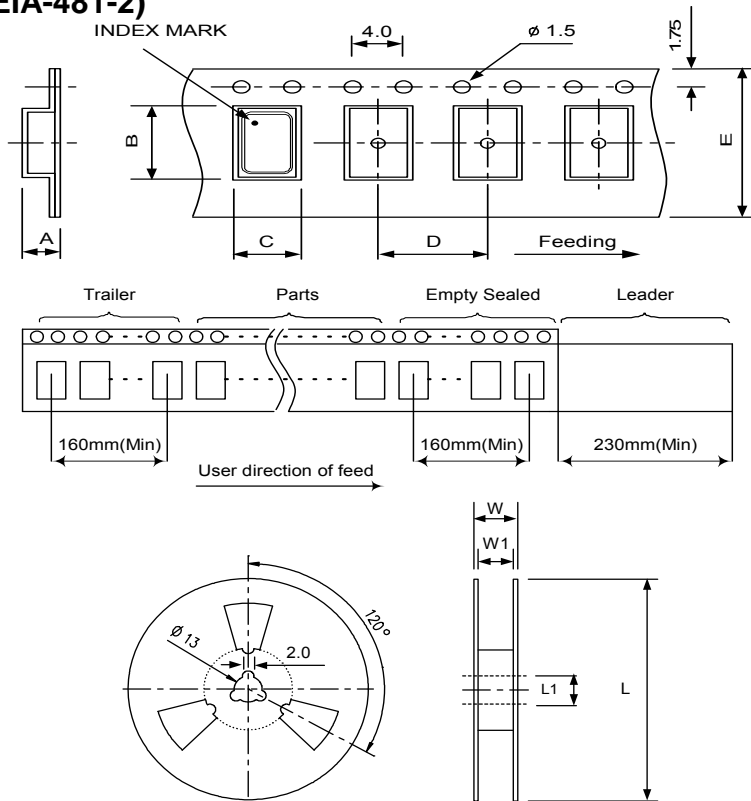
MONTH				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
YEAR															
2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z

* This date code will be cycled every four years.

TYPE CODE

Oscillation mode	Fundamental	PLL	Multiplier
Code	BR	-	-

PACKING : (EIA-481-2)



Unit: mm

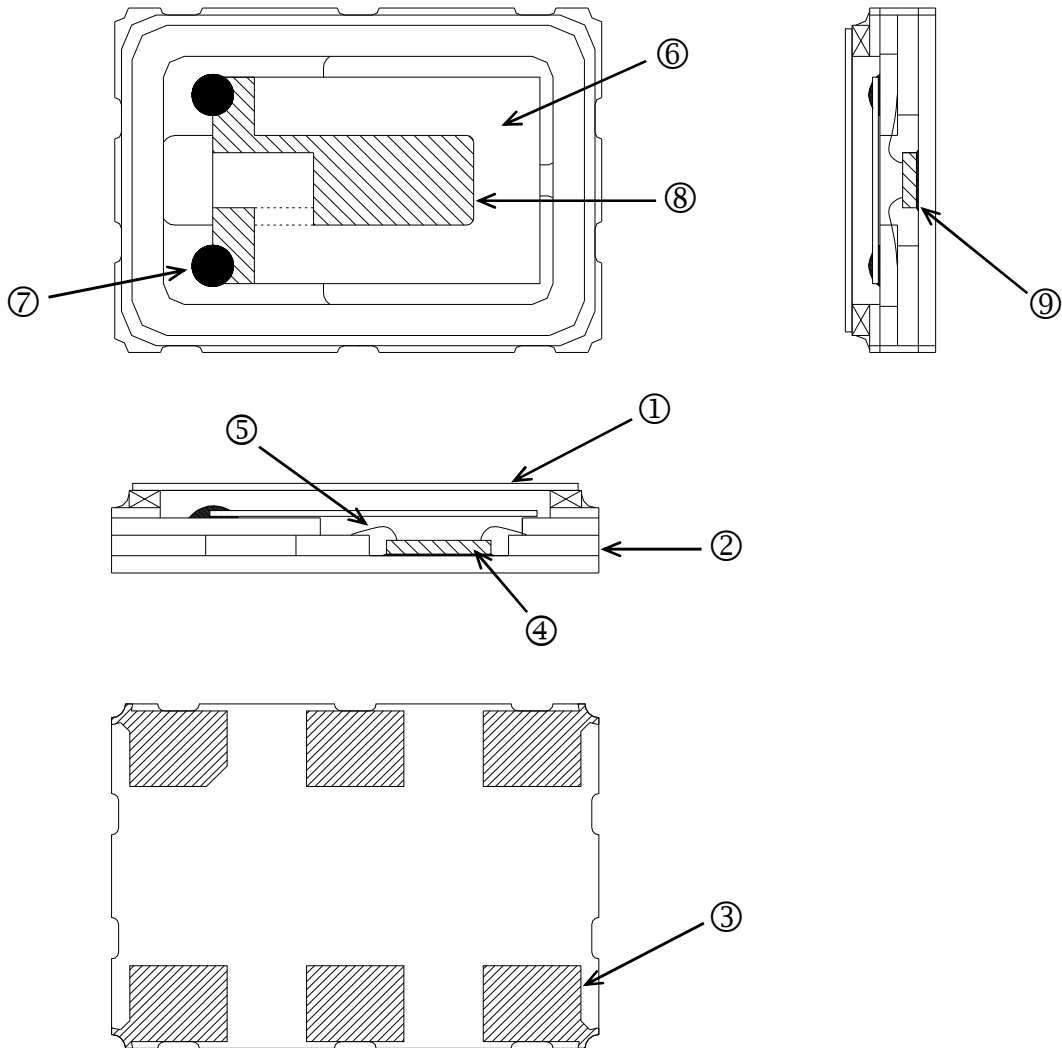
DIMENSIONS	A	B	C	D	E	L	L1	W	W1	Standard Reel Quantity is 1,000 pcs per reel
	2.00	7.90	5.45	8.00	16.0	180.0	13.0	20.5	16.0	

WEIGHT

0.149±0.001 g/pcs

■ STRUCTURE ILLUSTRATION

Crystal Enclosure Seal: Seam Welding
 Crystal Enclosure Medium: Nitrogen



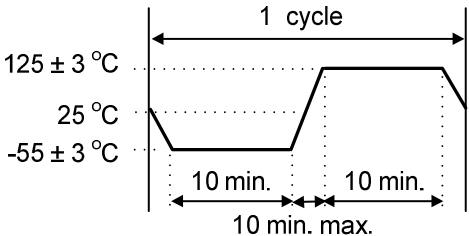
No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar(Fe-Ni-Co)	-
2	Base(Package)	Ceramic (Al ₂ O ₃)	-
3	Pad	Au	Tungsten Metalize + Ni Plating + Au Plating
4	IC Chip	Si	-
5	Bonding Wire	Au	-
6	Crystal Blank	SiO ₂	-
7	Conductive Adhesive	Ag	Silicon Resin
8	Electrode	Noble Metal	-
9	Conductive Adhesive	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-202
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-883
1.4	Gross Leak	Standard Sample For Automatic Gross Leak Detector. Test Pressure: 2Kg / cm ²	MIL-STD-883
1.5	Fine Leak	Pre-condition - Helium Bombing 4.5 Kgf / cm ² for 2 hrs Tested by mass-spectrometer	MIL-STD-883
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-883

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-202
2.2	High Temp. Storage	+125 °C ± 3 °C for 1000 hours	MIL-STD-883
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-883
2.5	Pressure Cooker Test	120 ± 3°C, RH100%, 2 bar, for 240 hours	JESD22-A102
2.6	High Temp & Humidity	85°C ± 3°C, RH 85% , 1000 hours	JIS C5023
2.7	Aging	85°C ± 3°C, Voltage input by specification, 1000 Hrs	JIS C6701