

# PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD SEAM SEALING CXO 3.2\*2.5

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NOMINAL FREQ. : 40.000000MHz





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TXC P/N : 7X40000096

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REVISION : A3

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PE/RD	QA	MFG
 		
15-Nov-07	15-Nov-07	15-Nov-07

**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**



Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
A1	N/A	Initial released	9-Mar-07	N/A	Yachuan Miao
A2	2	Output Disable Delay Time,Output Enable Delay Time Change(100ns to 150us)	12-Sep-07	ECN-07P091202	Yachuan Miao
A3	2	Unit Weight Change	15-Nov-07	ECN-07P110101	Yachuan Miao

## ■ ELECTRICAL SPECIFICATIONS

### Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature :  $25\pm 5^{\circ}\text{C}$   
 Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

Ambient temperature :  $25\pm 3^{\circ}\text{C}$   
 Relative humidity : 40%~70%

### Measure equipment

Electrical characteristics measured by MD 37WX-05M or equivalent.

### Crystal cutting type

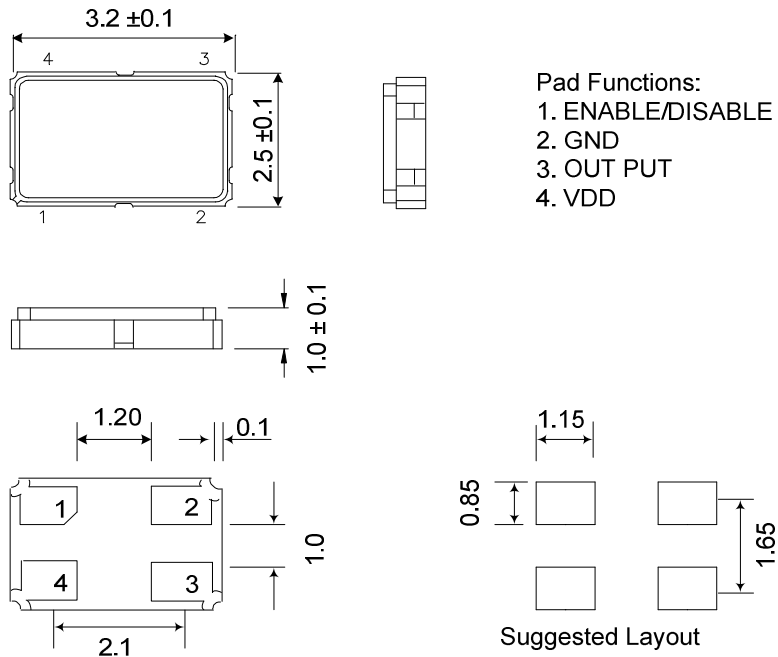
The crystal is using AT CUT (thickness shear mode).

### Unit Weight:

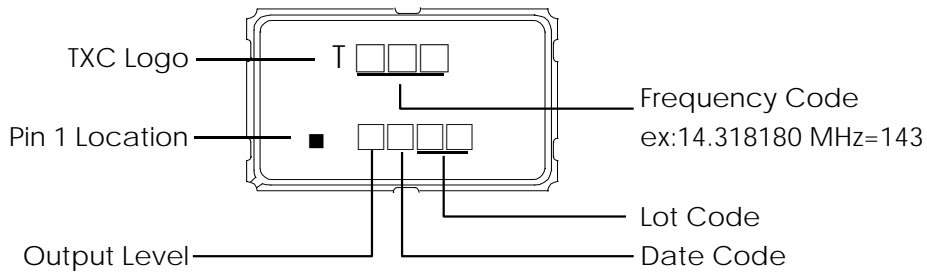
$0.025\pm 0.002$  g/pcs

	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYPE	MAX	UNITS	
1	Nominal Frequency	-	40.000000			MHz	-
2	Frequency Stability	-	$\pm 20$			ppm	-
3	Operating Temperature	Topr	-30	25	85	$^{\circ}\text{C}$	-
4	Storage Temperature	Tstg	-55	~	125	$^{\circ}\text{C}$	-
5	Supply Voltage	VDD	$1.8 \pm 10\%$			V	-
6	Input Current	Icc	-	-	9	mA	-
7	Enable Control	-	Yes			-	Pad 1
8	Output Load : CMOS	CL	15			pF	-
9	Output Voltage High	VoH	90%Vdd	-	-	V	-
10	Output Voltage Low	VoL	-	-	10%Vdd	V	-
11	Rise Time	Tr	-	-	5	ns	10%→90%VDD Level
12	Fall Time	Tf	-	-	5	ns	90%→10%VDD Level
13	Symmetry (Duty ratio)	TH/T	45	~	55	%	-
14	Start-up Time	Tosc	-	-	10	ms	-
15	Enable Voltage High	Vhi	70%Vdd	-	-	V	-
16	Disable Voltage Low	Vlo	-	-	30%Vdd	V	-
17	Aging	-	$\pm 3$			ppm/yr.	1st. Year at $25^{\circ}\text{C}$
18	Output Disable Delay Time	T off	-	-	150	us	-
19	Output Enable Delay Time	T on	-	-	150	us	-

**■ DIMENSIONS**



**■ MARKING**



Output Level:

VDD	5.0V	3.3V	2.8V	2.5V	1.8V	2.9V	3.0V	2.85V	2.6V
CODE	A	B	C	D	E	F	G	H	J

Date Code:

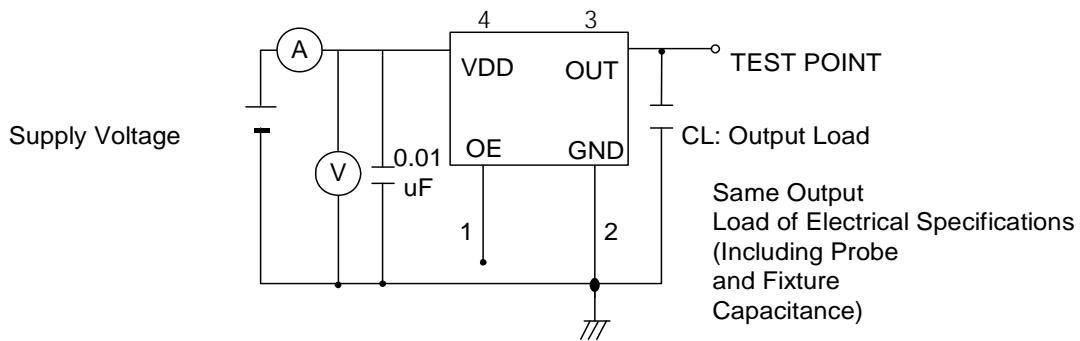
YEAR \ MONTH				MONTH											
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z

\*This date code will be cycled every four years

**Production location: Taiwan**

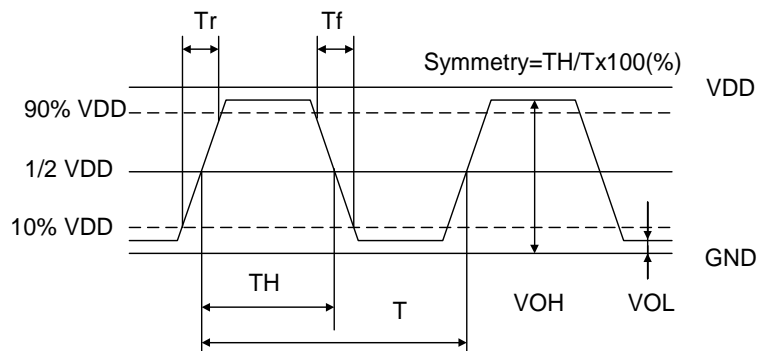
**TEST DIAGRAM**

Control input (output enable/disable)  
 Logic 1 or open on pad 1: Oscillator output  
 Logic 0 on pad 1 : Disable output to high impedance



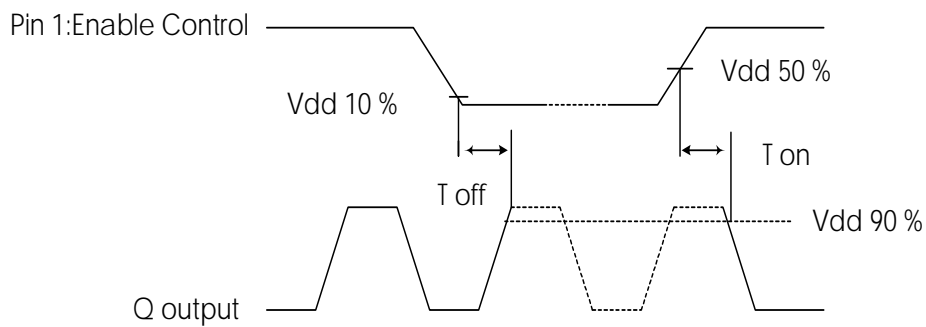
**WAVEFORM CONDITIONS**

Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.



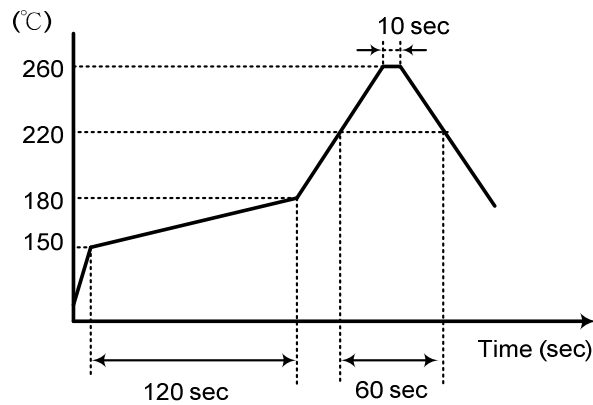
**OUTPUT ENABLE / DISABLE DELAY**

The following figure shows the oscillator timing during normal operation . Note that when the device is in standby, the oscillator stops. When standby is released, the oscillator starts and stable oscillator output occurs after a short delay.

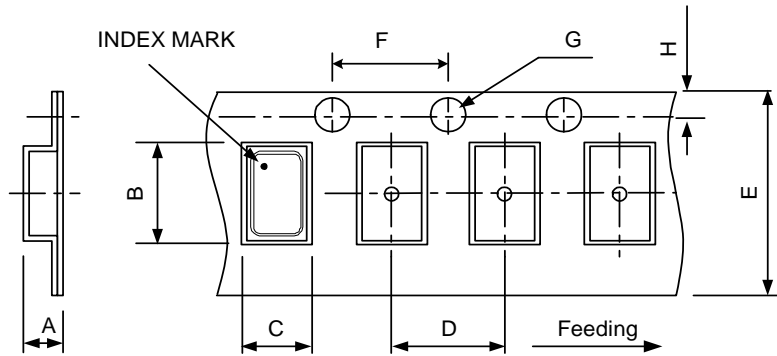


**SUGGESTED REFLOW PROFILE**

Total time : 200 sec. Max.  
Solder melting point :220 °C

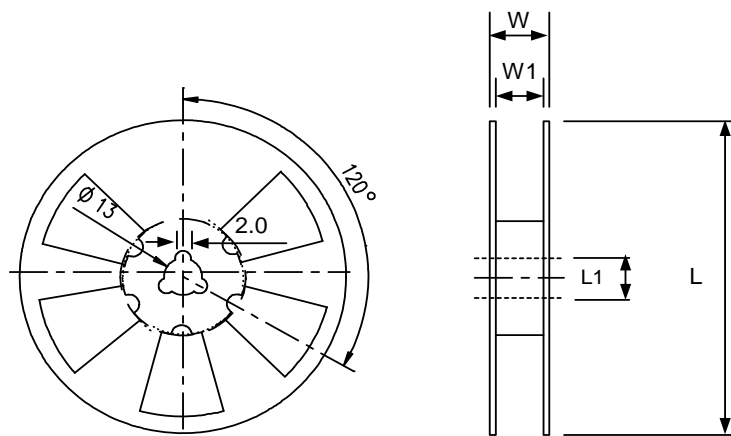
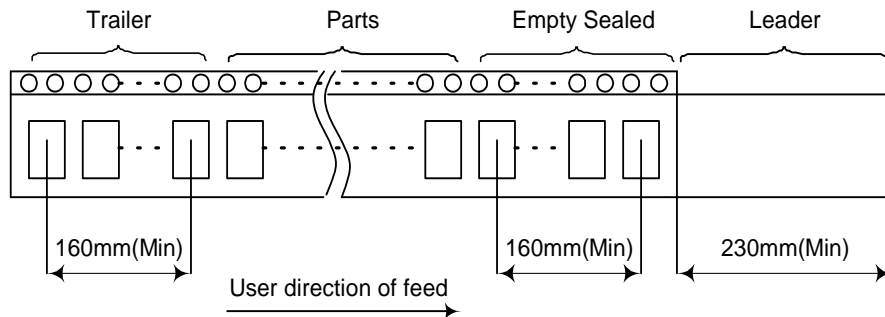


■ PACKING : (EIA-481-2)



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	1.40	3.40	2.70	4.00	8.00	4.00	1.55	1.75	

REMARK :



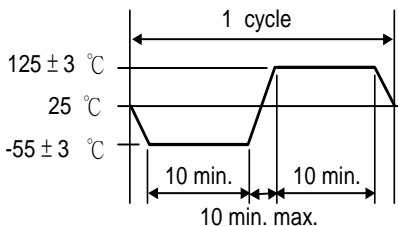
DIMENSIONS	L	L1	W	W1	pcs / Reel (UNIT : mm)
	178	13	11.5	8	Standard Reel Quantity is 3,000 pcs per reel

## ■ RELIABILITY SPECIFICATIONS

### 1. Mechanical Endurance

No.	Test Item	Test Methods	REF. DOC
1	Drop Test	75 cm height, 3 times on concrete floor .	JIS C6701
1	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	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm/20G Sweep time 20 minute perpendicular axes each test time 4 hours (Total test time 12 hours)	MIL-STD-883E
1	Gross Leak	Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2Kg / cm <sup>2</sup>	MIL-STD-883E
2	Fine Leak	Helium Bomging 4.5 Kg / cm <sup>2</sup> for 2 hr	
2	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	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	High Temp. Storage	+ 125 °C ± 3 °C for 1000 ± 12 hours	MIL-STD-883E
2	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 hours	
2	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
3	High Temp & Humidity	85°C ± 3°C, RH 85% , 1000Hrs	JIS C5023
3	Pressure Cooker Storage	121 ± 3°C , RH100% , 2 bar , 240Hrs	JIS C6701