



TXC CORPORATION

4F, NO. 16, Sec. 2 Chung Yang S Rd., Peitou, Taipei, Taiwan.

TEL : 886-2-2894-1202 , 886-2-2895-2201 FAX : 886-2-2894-1206 , 886-2-2895-6207

www.txccorp.com

SPECIFICATION FOR APPROVAL

CUSTOMER : Nokia

PRODUCT TYPE : SMD SEAM SEALING X'TAL 2.5 × 2.0

NOMINAL FREQ. : 26.000000MHz

TXC P/N : 8Z26000010

REVISION : A4

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: Product Specification Sheet

1
2
3
4
5

RoHS Compliant



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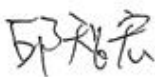
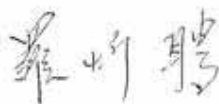
PRODUCT SPECIFICATION SHEET

PRODUCT TYPE : SMD SEAM SEALING X'TAL 2.5 × 2.0

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REVISION : A4

PE/RD	QA	MFG
		
17-Mar-10	17-Mar-10	17-Mar-10

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



<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	21-Jul-09	N/A	Yachuan Miao
A2	2 & 5	Add Aging Spec & tape tolerance	17-Nov-09	ECN-09P111304	Yachuan Miao
A3	3 & 5	Dimensions & Packing Change	4-Jan-10	ECN-09P122802	Yachuan Miao
A4	4 & 6	Add Terminal Plating Thickness & Packaging Attachments	17-Mar-10	ECN-10P031701	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 : 29±10

Relative humidity : 40%~70%

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

Ambient temperature : 29±3

Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by HP E5100A or equivalent.

Crystal cutting type

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

Unit Weight:

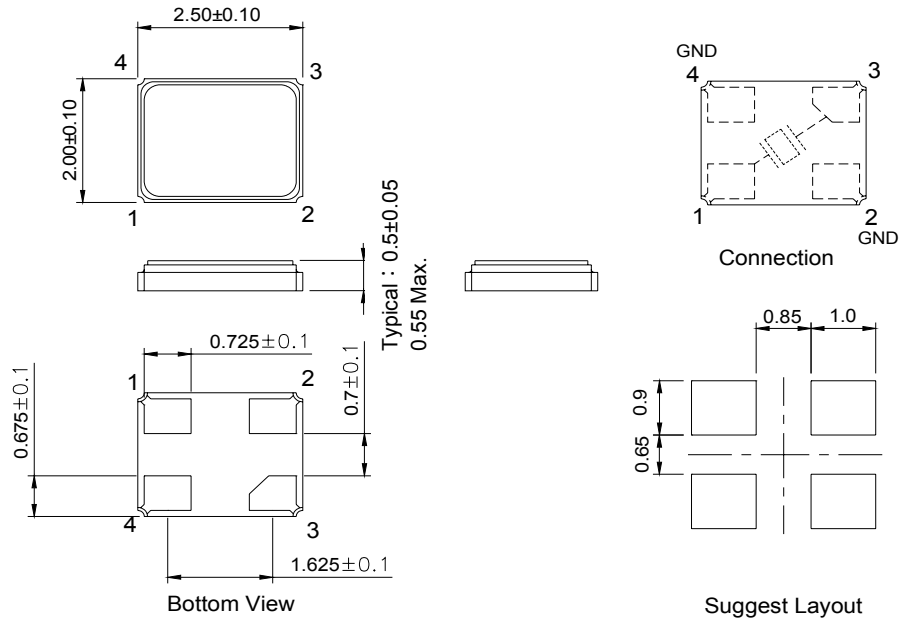
0.009±0.001 g/pcs

	Parameters	Symbol	Electrical Spec.				Notes
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	FL	26.000000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Load Capacitance	CL	8			pF	-
4	Frequency Tolerance	-	±10			ppm	at 29 ± 3
5	Frequency Stability	-	±10			ppm	Over Operating Temp. Range (Reference 29)
6	Operating Temperature	-	-30	~	85		-
7	Aging	-	±1			ppm	1st Year
		-	±3			ppm	over 5years period
8	Drive Level	DL	-	50	100	uW	-
9	Equivalent Series Resistance	ESR	-	-	40	Ω	-
10	Shunt Capacitance C0	C0	0.9	1.05	1.1	pF	-
11	Motional Capacitance C1	C1	3.24	3.6	3.96	fF	-
12	Capacitance Ratio(C0 / C1)	C0 / C1	262	291	320	-	Note (1)
13	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
14	Storage Temperature Range	-	-40	~	85		-
15	Pulling Sensitivity	-	20	22	24	ppm/pF	-
16	Frequency Perturbation	-	±1			ppm	-
17	Relative series resistance of unwanted modes $a_{NW}=20 \cdot \log(R_{NW}/R_r)$	-	6	-	-	dB	-

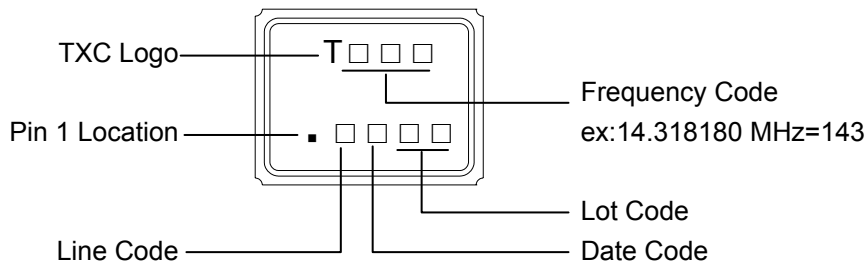
Note (1): Formula of C0/C1:
Type C0/C1 = Type C0(pF) / Type C1(fF)
Min & Max C0/C1 = Type C0/C1 ± (10% Type C0/C1)

DIMENSIONS

(Unit:mm)



MARKING



Date Code:

YEAR				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

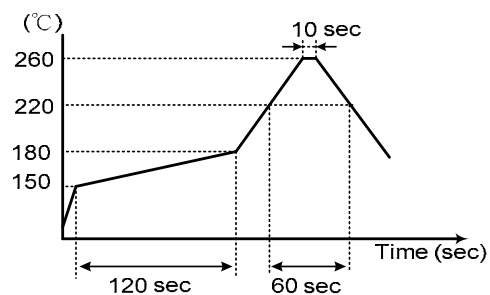
*This date code will be cycled every four years

Production location:Taiwan

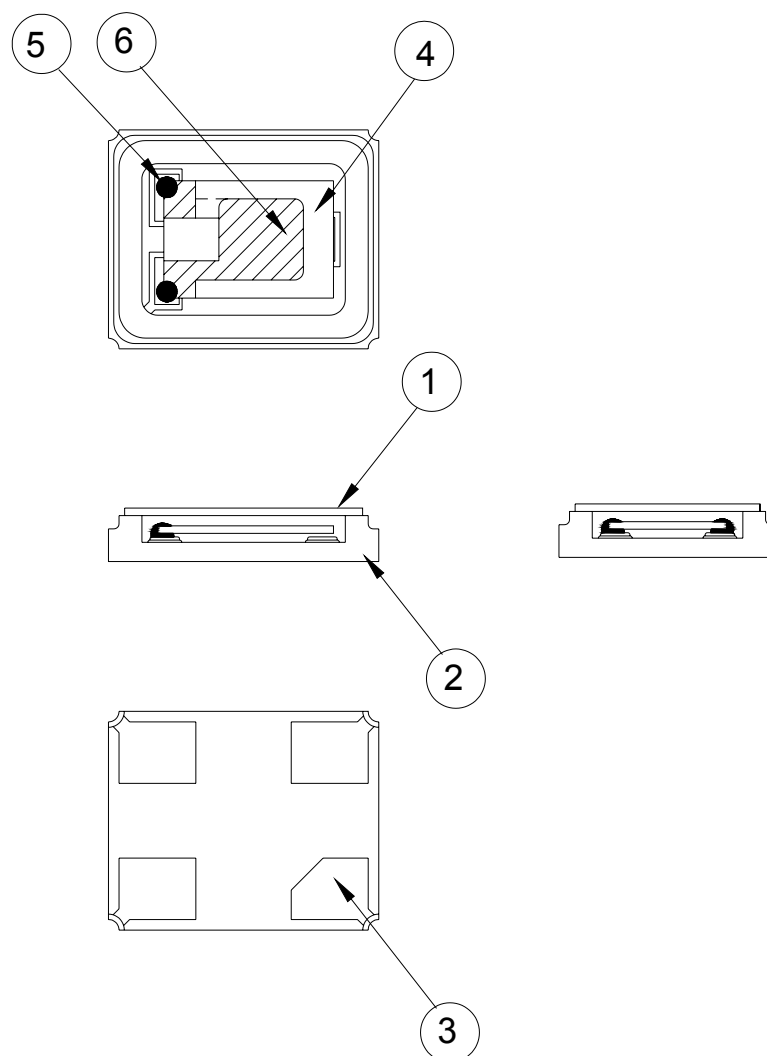
SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :220

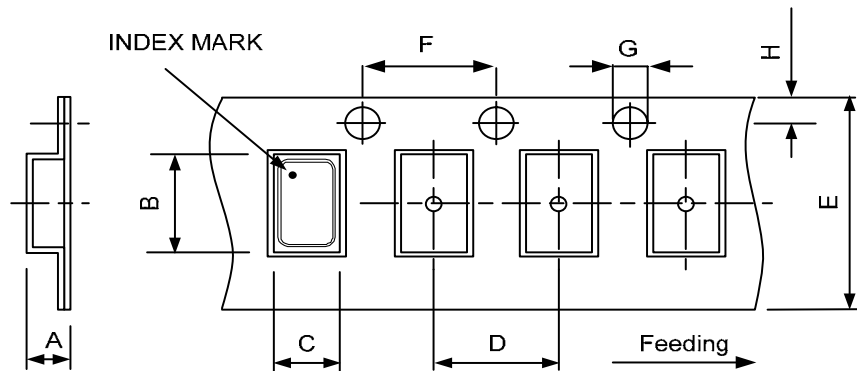


■ STRUCTURE ILLUSTRATION



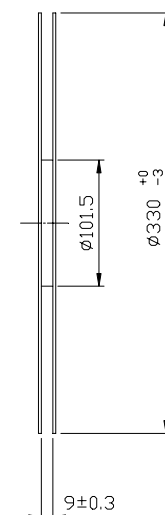
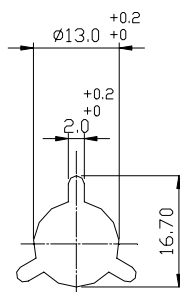
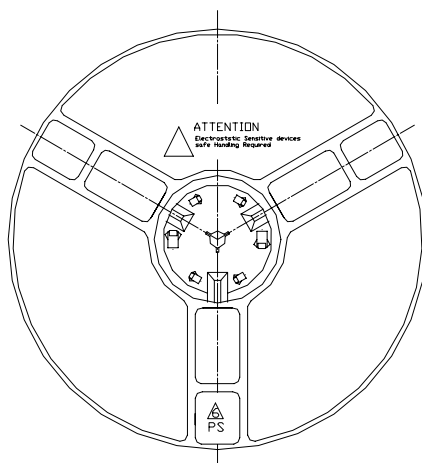
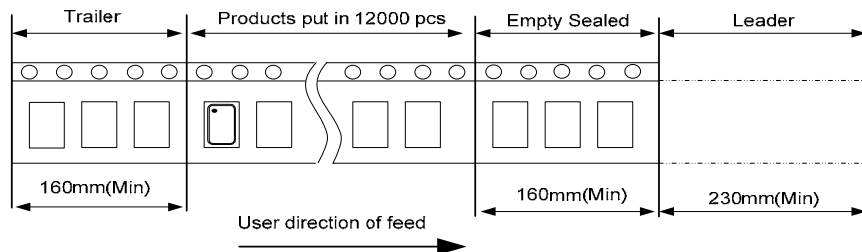
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Kovar (Fe/Co/Ni)	-
2	Base(Package)	Ceramic (Al ₂ O ₃) + Kovar (Fe/Co/Ni)+ Ag/Cu	Alumina ceramics
3	PAD	Au	Tungsten metalize + Ni plating + Au plating (0.3~1.0μm)
4	Crystal blank	SiO ₂	-
5	Conductive adhesive	Ag	Silicone resin
6	Electrode	Noble Metal	-

■ PACKING



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT : mm)
	1.05 ±0.05	2.7 ±0.05	2.25 ±0.05	4 ±0.10	8 ±0.20	4 ±0.10	1.55 ±0.05	1.75 ±0.10	

REMARK :



■ PACKAGING PROCEDURE

TXC packaging procedure (Reel : 330mm)



1. Put air bag into carton box for buffer.

2. Each reel put into it's air bag

3. Put 7 pcs reel within air bag into carton box

4. Put air bag cover

■ RELIABILITY SPECIFICATIONS

	Test Item	Test condition	Test method	Working instruction
Group B	Pre-condition	I .IR Reflow ,3X	-	-
		II .Gross & FineLeak test	FUKUDA(MS-5063) ALCATEL CO.(DGC-152T)	OIS-REL021 OIS-REL022
		III .Electrical Measure for Initial data	Saunders&Associates(250B)	OIS-REL031
	Dimension check	X: 2.50 ± 0.10 mm Y: 2.00 ± 0.10 mm Z: 0.55 Max	MIL-STD-883E Method 2016	OIS-REL011
	Reflow heat resistance	Reflow: 3times the profile in MES00025 Curing:1 time at 150±10degC, time=5 minutes(see MES00025)	N/A	N/A
Group C	Solderability	245±5℃ for 3.0±0.5sec 2b) Sn96/Ag/Cu for Pb free assembly process.	NQV 00083	OIS-REL019
	Temperature cycle	-40 >(25) > 85℃ Duration:5min (or 10 min) soak time,2...3cycles per 500cycles	JEDEC STD A104-B	OIS-REL027
	High temperature bias	85℃+2℃ 128/504hr	MIL-STD-883 Method 1005	OIS-REL007
Group D	High temperature humidity	85±2℃ RH 85% 128/504hr	IEC68-2-67, EIA/JESD22-A101-B	OIS-REL007
	Solder heat resistance, soldering iron	255 ± 5℃ (at start) applied to the termination for 2...3 sec. To be conducted 2 times	IEC 68-2-20 Ta	OIS-REL008
	Soldering heat resistance, manual hot gas	255 ± 5℃ (at start) applied to the termination for 30 max sec. To be conducted 2 times	IEC 68-2-20 Ta	OIS-REL008
	Strength of terminals	A) Bending 1.0mm,minimum for 5±1sec. Part soldered at 1.0 (or 1.6±)-0.10 mm thick board at 45± 2mm apart the component 5times separately,same module. For modules apply force to the PWB.	IEC 68-2-21-Ue1 JISC 0051	OIS-REL024
		B) Shear test: Force=10N Time=60sec,4 sides separately. For Baluns, Couplers and Diplexers with size smaller than 0805(2.0x1.25mm) Force=5N Time=30sec,4 sides separately	IEC 68-2-21-Ue3	OIS-REL024
		C) Twisting:A load of rotational force is applied about the centerline of the longitudinal axis of the sample, so that twisting angle equals 12 deg. Use the same PWB as specified in D3 25 cycles with 2s in end position. Twist speed 10 deg/s.	N/A	OIS-REL024
	Temperature cycle	-40 >(25) > 85℃ Duration:5min (or 10 min) soak time,2...3cycles per 1000cycles	JEDEC STD A104-B	OIS-REL027
	High temperature bias with humidity	85±2℃ RH 85% 1000hr Biased	MIL-STD-883 Method 1005	OIS-REL007
	Low temperature	-40 ±3℃ 96±2/-0 hr	IEC 68-2-1 Aa JISC0020	OIS-REL005
	High temperature	85±2℃ 96±2/-0 hr	IEC 68-2-2 Ba JISC0021	OIS-REL004
	Shock	Height 1,8m, onto concrete a) 2 times for each 6 side direction(12 drops) b) 2 times for each 8 corner(16 drops) c) 1 times for each 12 edge direction(12 drops) Totally 40 drops	N/A	OIS-REL012
	Free fall - Repeated	Based on: IEC 68-2-32 Height 1,0m,Number of falls 150	IEC 68-2-32	N/A
	Vibration Sinusoidal: IEC 68-2-6 Fc JISC0040 ss = 30, c = 0 Random: IEC68-2-36 Fdb wide band	2-8Hz 8-200Hz Search for resonances 3 mutually perpendicular directions,which should be chosen so that faults are most likely to be revealed a) 5-10Hz; +10dB/octave b) 10-50Hz; 5.58 m/s² c) 50-300Hz; 10dB/octave. 3x20 min 3 mutually perpendicular direction	Sinusoidal: IEC 68-2-6 Fc JISC0040 Random: IEC68-2-36 Fdb wide band	OIS-REL023
	Electro static discharge	Apply pulses at (HBM ±300V , CDM ± 500V) step, until level specified in table below is reached Apply 10 pulses in both (+/-)modes.	IEC 1000-4-2	N/A