TXC CORPORATION

www.txccorp.com

SPECIFICATION FOR APPROVAL

CUSTOMER	:	
PRODUCT TYPE	:	SMD TSX 2.5 x 2.0
NOMINAL FREQ.	:	26.000000MHz
TXC P/N	:	OZ26030001
REVISION	:	A2
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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PRODUCT SPECIFICATION SHEET

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NOMINAL FREQ.	:	26.000000MHz
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REVISION	:	A2

PE/RD	QA	MFG
Robin Huang	Samson Xiong	Jake Liu
4-Apr-18	*4-Apr-18*	*4-Apr-18*

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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RoHS Compliant

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Rev	Revise page	Revise contents	Date	Ref.No.	Reviser
S1	N/A	Initial released	4-Aug-17	N/A	Xiaoyan Jiang
A1	N/A	S Turn A	22-Dec-17	N/A	Xiaoyan Jiang
A2	3	Add TC2:-40~85℃/-20~10ppm	4-Apr-18	ECR-18N041205	Xiaoyan Jiang

CRYSTAL 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±10℃

Relative humidity : 40%~70%

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

Ambient temperature : 25±3℃

Relative humidity : 40%~70%

Measurement Equipment

Electrical characteristics measured by S&A 250B or equivalent.

Crystal Cutting Type

The crystal is using AT CUT (thickness shear mode)

Unit Weight:

0.0135 g / piece(TYP), 40 ± 2 g /3 kpcs(regardless of tape weight)

	Parameters	Symbol	Electrical Spec.				Condition
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	FL		26.000000		MHz	-
2	Oscillation Mode	-		Fundamental			-
3	Load Capacitance	CL	-	7	-	pF	-
4	Frequency Tolerance	-		±10		ppm	25℃ ± 3℃
5	Frequency Stability Over Operating Temp. Range1(Reference 25°C)	-	-12	~	10	ppm	-30 to +85°C
6	Frequency Stability Over Operating Temp. Range2(Reference 25°C)	-	-20	~	10	ppm	-40 to +85℃
7	Operating Temperature	-	-30	~	105	℃	-
8	Frequency drift after reflow	-	-2	~	2	ppm	After two reflows (0.5hr freq. drift subtract 168hr freq. drift)*
9	Aging	-		±0.7		ppm	first year at 25℃ ± 3℃
		-		±1.4		ppm	2 year at 25℃ ± 3℃
		-		±2.5		ppm	5 years at 25℃ ± 3℃
		-		±5.0		ppm	10 years at 25℃ ± 3℃
10	Drive Level	DL	10	50	100	μW	
11	Equivalent Series Resistance	ESR	-	-	50	Ω	
12	Spurious Mode Resistance	-	500	-	-	Ω	±500 KHz
13	Q Factor	Q	7500	-	-	-	-
14	Insulation Resistance	-	500	-	-	MΩ	at DC 100V
15	Storage Temperature Range	-	-40	-	105	℃	-
16	Pulling Sensitivity	TS	13.5	-	16.5	ppm/pF	-
17	Full Cycle Temperature Hysteresis	-	-0.5	-	0.5	ppm	Note 1

17	5℃ Small Cycle Temperature Hysteresis	-	-0.05	-	0.05	ppm	Note 2
18	Full Cycle Frequency Stability Slope	-	-50	-	50	ppb/℃	Note 3
19	5℃ Small Cycle Frequency Stability Slope	-	-50	-	50	ppb/℃	Note 3
20	Inflection Point	Ti	29	30.5	32	℃	-
21	Room Temp	To	-	30.5	-	℃	-
22	S curve 3 order curve fitting coefficient (T0=30.5℃)	C1	-0.4	-0.25	-0.1	ppm/℃	Ta=-40℃~85℃ per 1℃
		C2	-4.5	0	4.5	e^4-ppm/℃^{2}	
		C3	8.7	9.85	11	e^5-ppm/℃^{2}	

Note 1 Temp.range:-30℃ to 85℃ for each 1℃(Temp.rate:~1.0℃/min)
Test flow:25℃(1)->-30℃->85℃->25℃(2)(25℃(1)freq.drift Subtrace 25℃(2)freq.drift)
Note 2 Temp.range:-30℃ to 85℃ for each 0.5℃(Temp.rate:~1.0℃/min)
Test flow:any 5℃ cycle(ex.25℃(1)->-30℃->25℃(2),25℃(1) freq.drift subtract 25℃(2) freq.drift)
Note 3 Ta=-30℃ to 85℃ for each 1℃(Temp.rate:~1.0℃/min)
(difference from fifth-order curve fit)

■ ELECTRICAL SPECIFICATIONS(DLD)

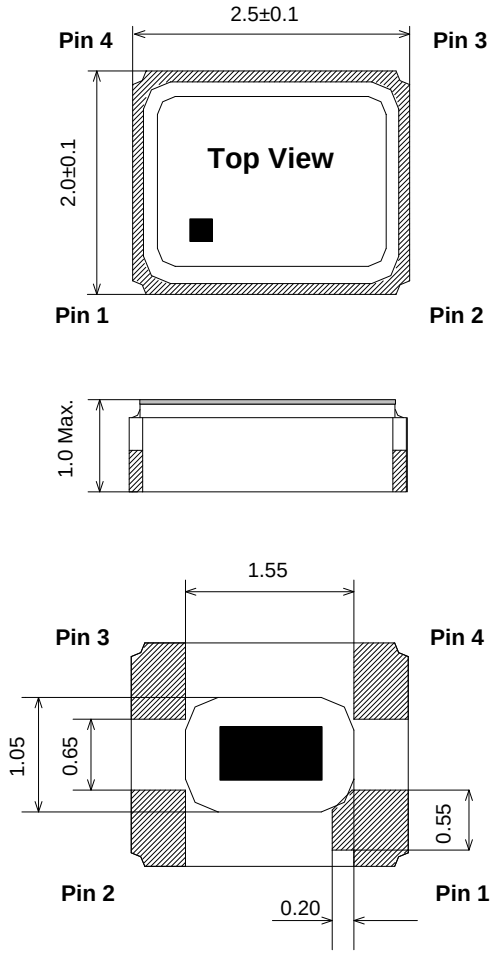
	Parameters	Symbol	Electrical Spec.				Condition
			Min.	Typ.	Max.	Units	
1	DLD	-	-	-	2.5	Ω	Drive Level 10nW~100uW Step Ratio is sqrt 10
2	FDLD	-	-	-	3.5	ppm	
3	DLDH2	-	-	-	1.5	Ω	
4	FDLDH	-	-	-	0.7	ppm	

NTC THERMISTOR ELECTRICAL SPECIFICATION

	Parameters	Symbol	Electrical Spec.				Note
			Min.	Typ.	Max.	Units	
1	Resistance (25 ℃)	-		100k ± 1%		Ω	-
2	B-Constant (25-50 ℃)	-		4250 ± 1%		K	The B constant is calculated using the zero-power resistance values measured at 25 ℃ and 50℃
3	Size	-		±1		%	-

Note 1 The B constant is calculated using the zero-power resistance values measured at 25℃ and 50℃

DIMENSIONS

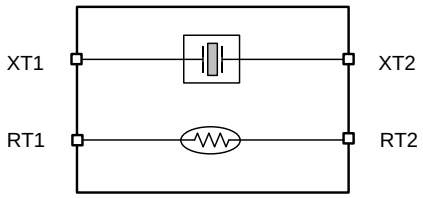


PIN FUNCTION

	Symbol	Function
Pin 1	XT1	XTAL Terminal 1
Pin 2	RT2	Thermistor Terminal 2
Pin 3	XT2	XTAL Terminal 2
Pin 4	RT1	Thermistor Terminal 1

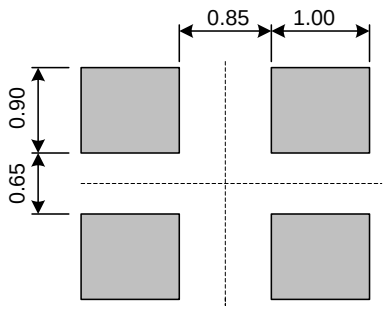
Note: Pin 2 is connected to the metal lid and thermistor
Pin 4 is connected to the thermistor only

BLOCK DIAGRAM

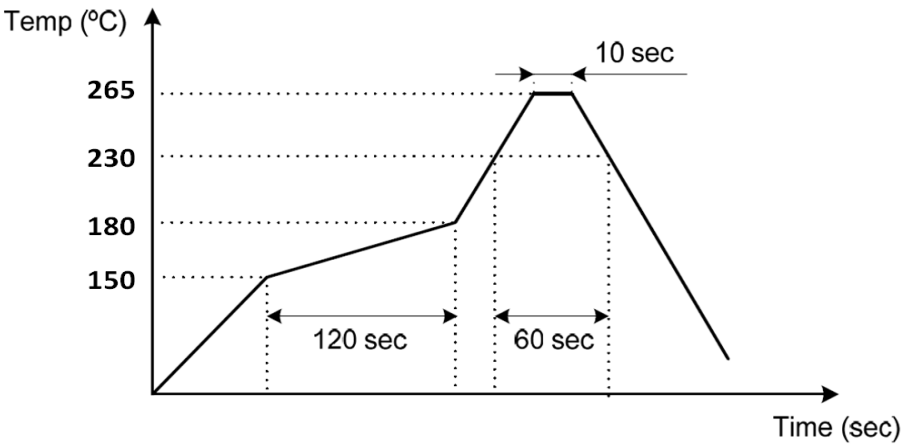


Note: RT2 shall be connected to GND is recommended

SUGGESTED LAYOUT

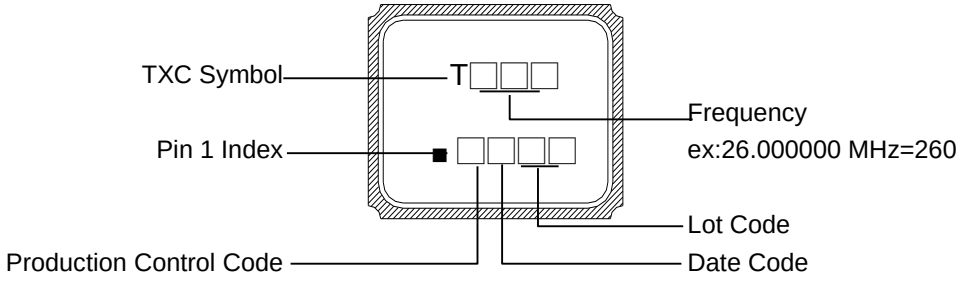


SUGGESTED REFLOW PROFILE



Note : Total Time: 200 sec. Max., Solder Melting Point: 220°C

MARKING

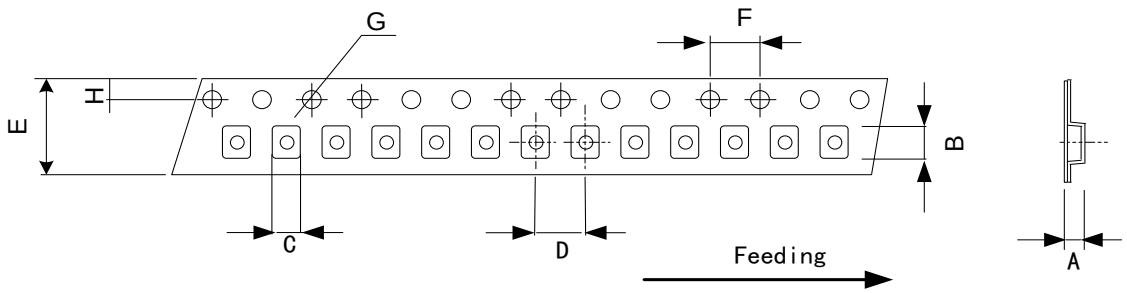


DATE CODE

YEAR \ MONTH					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2005	2009	2013	2017	2021	A	B	C	D	E	F	G	H	J	K	L	M
2006	2010	2014	2018	2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	2011	2015	2019	2023	a	b	c	d	e	f	g	h	j	k	l	m
2008	2012	2016	2020	2024	n	p	q	r	s	t	u	v	w	x	y	z

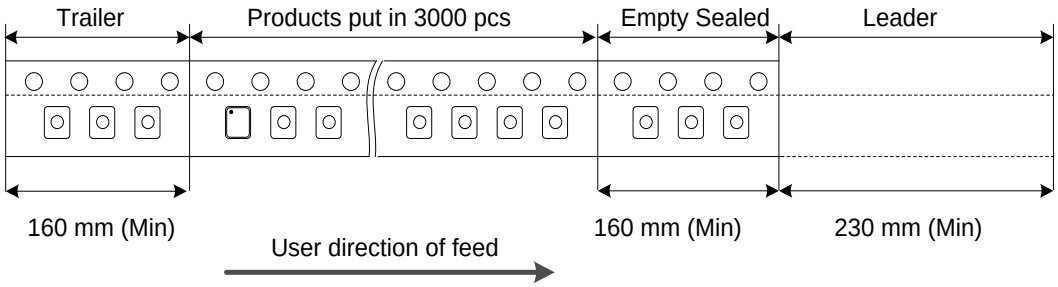
Note: This date code will be cycled every four years

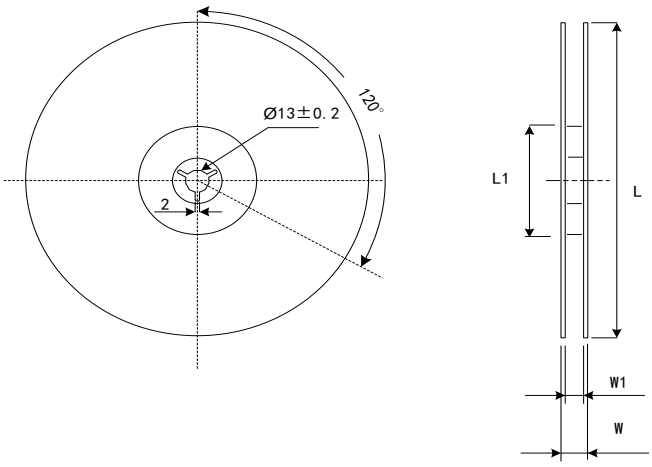
■ PACKING :



	A	B	C	D	E	F	G	H	
DIMENSIONS	1.15 ±0.05	2.70 ±0.05	2.25 ±0.05	4.00 ±0.10	8.00 ±0.20	4.00 ±0.10	1.55 ±0.05	1.75 ±0.10	(UNIT:mm)

REMARK :

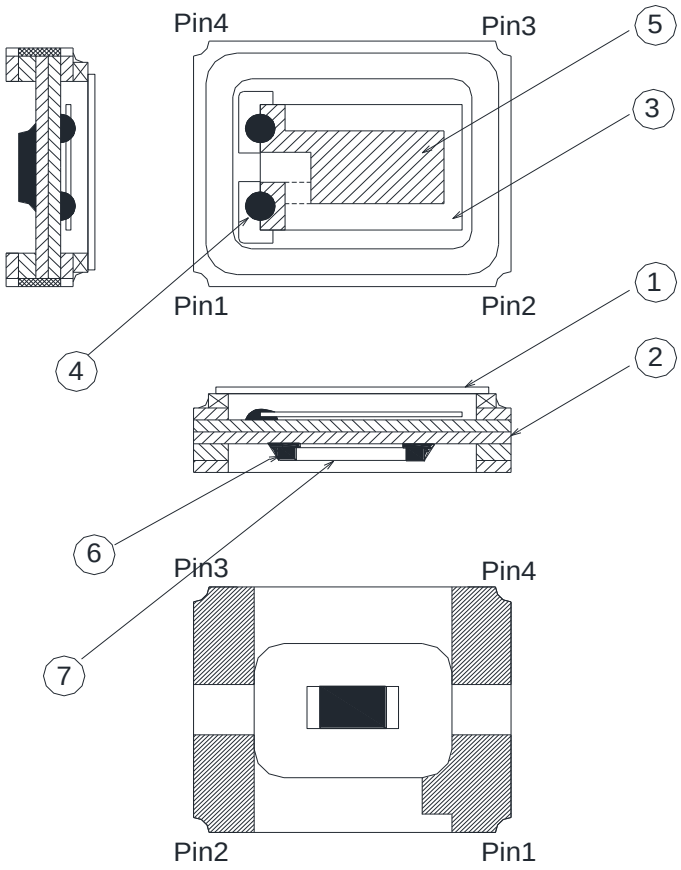




	L	L1	W	W1	
DIMENSIONS	178 ±1	60.2 ±0.5	11.5 ±0.2	8 +1/-0	Standard Reel Quantity is 3,000 pc (UNIT:mm)

STRUCTURE ILLUSTRATION

Crystal Enclosure Seal : Seam Welding



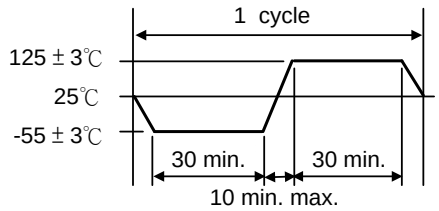
No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Metal (Fe+Co+Ni)	-
2	Base (Package)	Ceramic (Al_2O_3) + Kovar (Fe+Co+Ni) + Ag/Cu	Alumina Ceramics
3	Crystal Blank	SiO_2	-
4	Conductive Adhesive	Ag	Silicone Resin
5	Electrode	Noble Metal	-
6	Solder	Sn	-
7	Thermistor	Al_2O_3, Ag, Ni	-

■ RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods	Reference
1.1	Drop Test	150 cm height, 3 times on concrete floor.	JIS C6701
1.2	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5 msec. duration time	MIL-STD-202
1.3	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm/20 G Sweep time 20 minutes Perpendicular axes each test time 4 Hrs (Total test time 12 Hrs)	MIL-STD-883
1.4	Gross Leak	Standard sample for automatic gross leak detector Test pressure: 2 kg / cm^2	MIL-STD-883
1.5	Fine Leak	Helium bombing 4.5 kg/ cm^2 for 2 Hrs	
1.6	Solderability	Temperature 245℃ ± 5℃ 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	Reference
2.1	Resistance To Soldering Heat	Pre-heat temperature 125℃ Pre-heat time 60 ~ 120 sec. Test temperature 260 ± 5℃ Test time 10 ± 1 sec.	MIL-STD-202
2.2	High Temp. Storage	+ 125 ℃ ± 3 ℃ for 500 ± 12 Hrs	MIL-STD-883
2.3	Low Temp. Storage	- 40℃ ± 3℃ for 500 ± 12 Hrs	
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883
2.5	High Temp＆Humidity	85℃ ± 3℃, RH 85% , 500 Hrs	JIS C5023

单击下面可查看定价，库存，交付和生命周期等信息

>>TXC(台湾晶技)