



SPECIFICATION FOR APPROVAL

CN: _____

CUSTOMER : _____

PRODUCT TYPE : SMD TSX 2.0x1.6

NOMINAL FREQ. : 55.200000MHz

TXC P/N : AF55270001

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)



PRODUCT SPECIFICATION SHEET

CN: _____

PRODUCT TYPE : SMD TSX 2.0x1.6

NOMINAL FREQ. : 55.200000MHZ

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REVISION : A1

PE/RD	QA	MFG
<i>Lin Tao</i>	<i>Wu Honglin</i>	<i>Li Baotai</i>
<i>14-Jun-22</i>	<i>14-Jun-22</i>	<i>14-Jun-22</i>

NOTE:

- (1) If customer's application involves ultrasonic, molding, PCBA dicing and manual soldering processes or customer's products are used in automotive system, the applicability should be confirmed with TXC R&D responsible person.
- (2) 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.
- (3) Revision "Sx" is for engineering samples only. PE/RD's approval required.
- (4) Revision "Ax" is production ready. PE, QA and MFG's approval required.

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■ Crystal Specifications

Standard atmospheric conditions

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

Ambient temperature : $25 \pm 10^{\circ}\text{C}$
 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 S&A 250B or equivalent.

Weight:

0.0086g / piece(TYP)

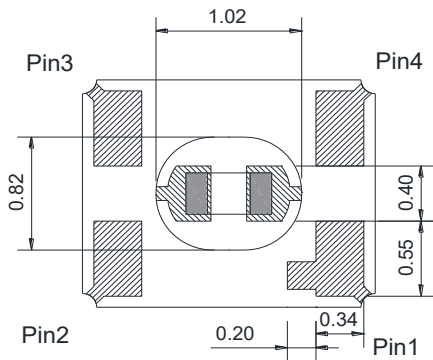
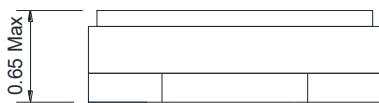
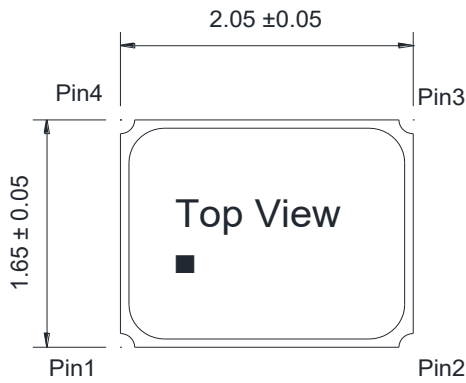
	Parameters	Symbol	Electrical Spec.				Condition
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	FL	55.200000			MHz	-
2	Oscillation Mode	-	Fundamental			-	-
3	Frequency Tolerance	-	-10	~	10	ppm	$25^{\circ}\text{C} \pm 2^{\circ}\text{C}$
4	Frequency versus temperature characteristics	-	-29	~	29	ppm	$-20 \sim +65^{\circ}\text{C}$, $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	-32.4	~	32.4	ppm	$-40 \sim +115^{\circ}\text{C}$, $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	-2.6	5.8	14.1	ppm	-40°C , $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	8.3	14.3	20.2	ppm	-20°C , $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	-26.9	-19.5	-12.0	ppm	$+65^{\circ}\text{C}$, $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	-27.9	-17.4	-6.8	ppm	$+85^{\circ}\text{C}$, $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	-14.8	-2.1	10.6	ppm	$+105^{\circ}\text{C}$, $T_{\text{ref.}}: +25^{\circ}\text{C}$
		-	-1.1	13.0	27.0	ppm	$+115^{\circ}\text{C}$, $T_{\text{ref.}}: +25^{\circ}\text{C}$
5	Shunt Capacitance C0	C0	0.55	0.65	0.75	pF	-
6	Motional Capacitance C1	C1	1.87	2.2	2.53	fF	-
7	Pulling Sensitivity	TS	10.1	14.5	18.9	ppm/pF	-
8	Equivalent Series Resistance	ESR	-	-	50	ohms	-
9	Load Capacitance	CL	8			pF	-
10	Drive Level	DL	-	10	200	uW	-
11	Operating Temperature	-	-40	~	115	$^{\circ}\text{C}$	-
12	Storage Temperature Range	-	-40	~	125	$^{\circ}\text{C}$	-
13	Frequency Aging(at $+25^{\circ}\text{C}$)	-	-3	~	3	ppm	5 years
		-	-6	~	6	ppm	10 years
		-	-10	~	10	ppm	15 years
14	Frequency drift after reflow	-	-2	~	2	ppm	2 times
15	Insulation Resistance	-	500	-	-	M Ω	at DC 100V
16	Frequency Perturbation due to Activity Dip	-	-1	~	1	ppm	Difference from fifth-order curve fit Drive level at 50uW

■ Thermistor specifications

Parameters	Min.	Typ.	Max.	Units	Notes
Resistance		10±1%		kΩ	25°C
B-Constant		3435±1%		K	25°C–85°C
Operating temperature	-40	~	115	°C	-

■ DIMENSIONS

(Unit:mm)

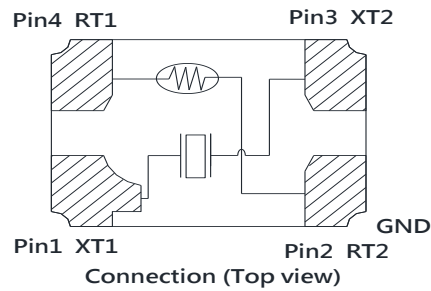


■ PIN FUNCTION

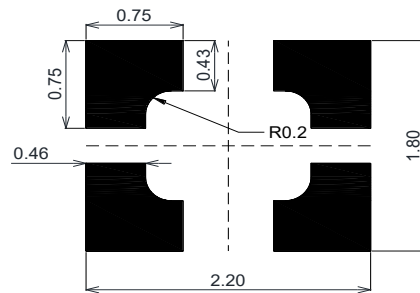
	Symbol	Function
Pin 1	XT1	XTAL Terminal 1
Pin 2	RT2	Thermistor Terminal 2
Pin 3	XT2	XTAL Terminal 2
Pin 4	RT1	Thermistor Terminal 1

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

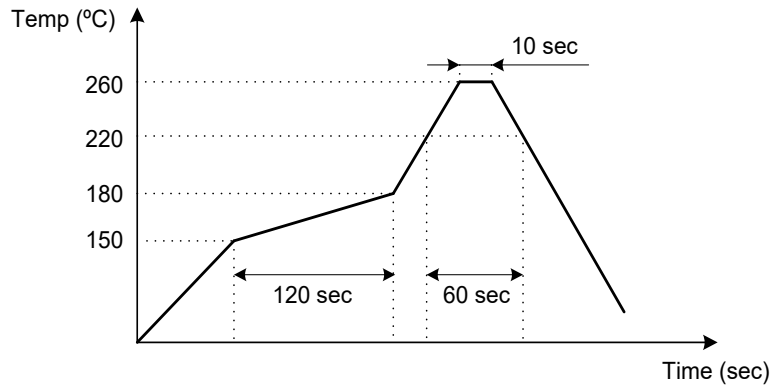
■ BLOCK DIAGRAM



■ SUGGESTED LAYOUT

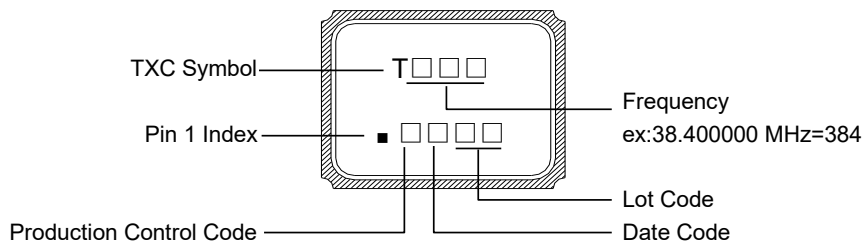


■ SUGGESTED REFLOW PROFILE



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

■ MARKING



Date Code:

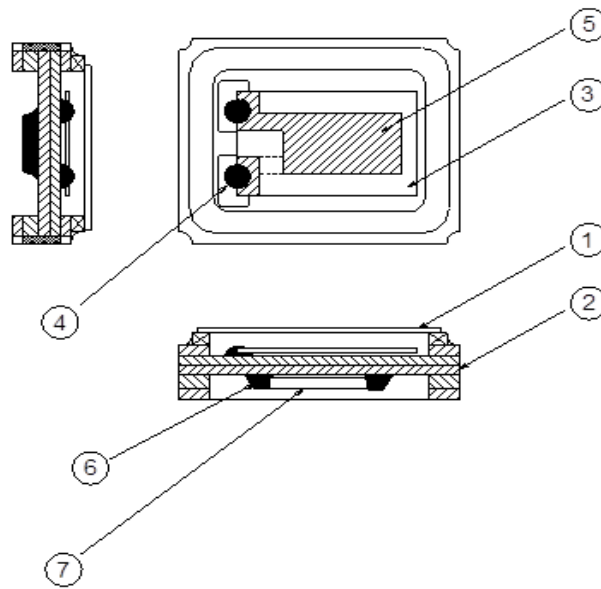
YEAR					MONTH											
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2021	2025	2029	2033	2037	A	B	C	D	E	F	G	H	J	K	L	M
2022	2026	2030	2034	2038	N	P	Q	R	S	T	U	V	W	X	Y	Z
2023	2027	2031	2035	2039	a	b	c	d	e	f	g	h	j	k	l	m
2024	2028	2032	2036	2040	n	p	q	r	s	t	u	v	w	x	y	z

*This date code will be cycled every four years

Production location: Taiwan/China

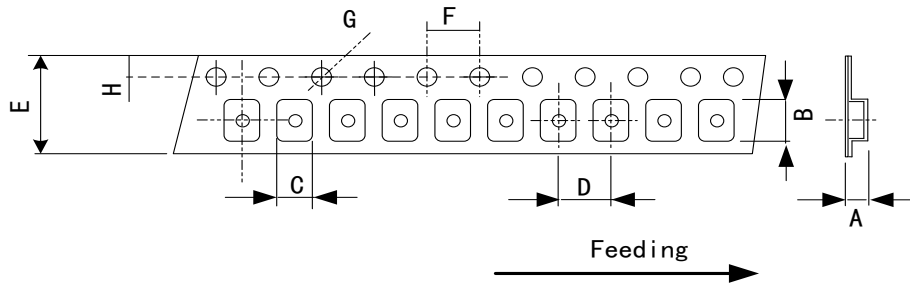
■ STRUCTURE ILLUSTRATION

Crystal Enclosure Seal : Seam Welding



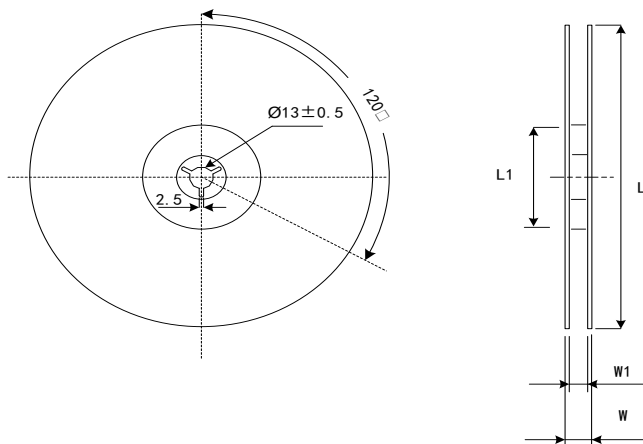
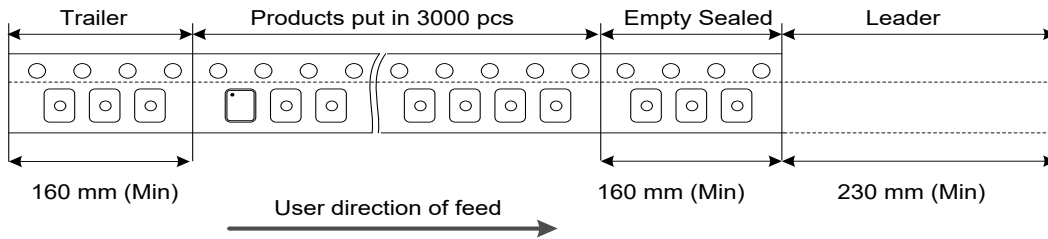
NO	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Lid	Metal (Fe+Co+Ni)	-
2	Base(Package)	Ceramic (Al ₂ O ₃) + Kovar (Fe+Co+Ni)+Pad (Au)	Alumina ceramics
3	Crystal blank	SiO ₂	-
4	Conductive adhesive	Ag	Silicone resin
5	Electrode	Noble Metal	-
6	Solder	Sn	-
7	Thermistor	Al ₂ O ₃ , Ag, Ni	-

■ PACKING



DIMENSIONS	A	B	C	D	E	F	G	H	(UNIT:mm)
	1.20 ±0.10	2.30 ±0.10	1.90 ±0.10	4.00 ±0.10	8.00 ±0.20	4.00 ±0.10	1.55 ±0.05	1.75 ±0.10	

REMARK :



DIMENSIONS	L	L1	W	W1	Standard Reel Quantity is 3,000 pcs per reel (UNIT:mm)
	178 ±1.00	60.2 ±0.50	11.5 ±0.2	8 +1/-0	

■ RELIABILITY SPECIFICATIONS (AEC-Q200 Compliant)

1.Mechanical Endurance

No.	Test Item	Test Methods	REF.DOC
1.1	Free Drop	20 times,120 cm height, Fall freely onto stainless plate.	JIS C6701
1.2	Mechanical Shock	5000G, 0.3 msec. , 3 times for all 6 directions.	MIL-STD-202
1.3	Vibration	20G,10~2000Hz~10Hz, 1.52 mm, 3 direction ; Sweep 20 Min. for each cycle, 12 cycles for each direction	MIL-STD-202
1.4	Terminal Strength	Applied Force: 1.8 kg , Duration Time: 60 Sec	AEC-Q200-006
1.5	Board Flex	Duration Time: 60 sec, Deviation: 3 mm	AEC-Q200-005
1.6	Solder ability	Temperature 245°C ± 5 °C,Solder Dipping Depth 1.25 mm , Immersion time : 5 ± 1sec	J-STD-002

2.Environmental Endurance

No.	Test Item	Test Methods	REF.DOC
2.1	Resistance To Soldering Heat	10±1 Seconds immersion into 260±5°C solder pot immersed of specimen 1.5 mm	MIL-STD-202
2.2	High Temperature Storage	125 °C± 3 °C, 1008 hours	MIL-STD-202
2.3	Low Temperature Storage	-40 °C± 3°C, 1008 hours	JESD22
2.4	Thermal Shock	-55 °C~125 °C, dwell time: 30 min, transfer time: 20 sec, 1000 cycles	MIL-STD-202
2.5	High Temperature Operating Life	Maximum operating temperature, 1008 hours.	MIL-STD-202
2.6	High Temperature and Humidity Bias	85°C± 2°C , RH 85% ± 5%, 1008 hours.	MIL-STD-202

单击下面可查看定价，库存，交付和生命周期等信息

[>>TXC\(台湾晶技\)](#)