

SPECIFICATION FOR APPROVAL

CUSTOMER : _____

PRODUCT TYPE : SMD TCXO 2.5 * 2.0

NOMINAL FREQ. : 26 MHz

TXC P/N : AL26000001

REVISION : S3

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

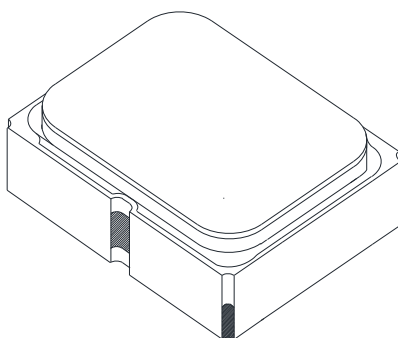
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PE/RD	QA	MFG
<i>Eric Tsao</i>		
2015/8/3		

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.

RoHS Compliant

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■ ELECTRICAL SPECIFICATIONS

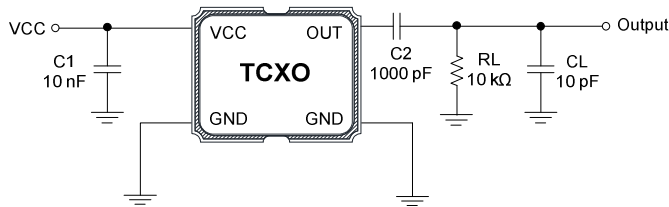
Item	Parameters		Condition	Electrical Specifications				Note
				MIN	TYP	MAX	UNITS	
1	Nominal Frequency			26.000000			MHz	
2	Operating Temperature Range			-40		+85	°C	
3	Supply Voltage			1.70	1.80	3.60	V	
4	Current Drain					1.5	mA	
5	Output Level			0.8			V	1
6	Output Type			Clipped Sinewave				
7	Output Load		Resistance	9	10	11	kΩ	
8			Capacitance	9	10	11	pF	
9	Frequency Tolerance		After 2 times reflow			±1.0	ppm	2
10	Frequency Stability	vs. Temperature	Temp: -40 ~ -30 °C			±1.0	ppm	3
11			Temp: -30 ~ +85 °C			±0.5	ppm	
12		vs. Load	Load: 10 kΩ // 10 pF ±10%			±0.2	ppm	
13		vs. Supply Voltage	Vcc: 1.8 V ± 5%			±0.1	ppm	
14	Slope of Frequency Drift over Temperature		Temp: -40 ~ -30 °C			±0.3	ppm/°C	
15			Temp: -30 ~ +85 °C			±0.1	ppm/°C	
16	Start-up Time	vs. Output Level	To 90% of Vp-p			1.5	ms	
17	Storage Temperature			-40		+105	°C	
18	Duty Cycle			40	50	60	%	
19	Aging		1 year(@-40 ~ +85 °C)			±1.0	ppm	
20			10 years(@-40 ~ +85 °C)			±5.0	ppm	
21	Phase Noise	@ 1 Hz offset				-60	dBc/Hz	
22		@ 10 Hz offset				-90	dBc/Hz	
23		@ 100 Hz offset				-115	dBc/Hz	
24		@ 1 kHz offset				-135	dBc/Hz	
25		@ 10 kHz offset				-148	dBc/Hz	
26		@ 100 kHz offset				-150	dBc/Hz	
27		@ 1 MHz offset				-152	dBc/Hz	
28	Integrated RMS Jitter		From 10 Hz to 1 MHz			1.7	ps	

Note 1 Decoupling capacitor (1000 pF) is required in external circuit

Note 2 Refer to nominal frequency

Note 3 Refer to frequency at 25±2°C

TESTING CIRCUIT

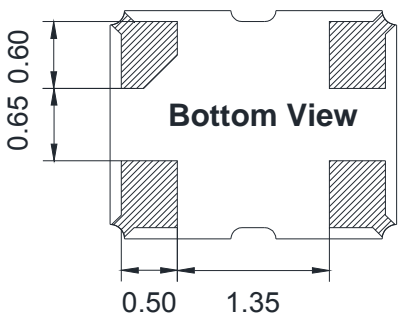
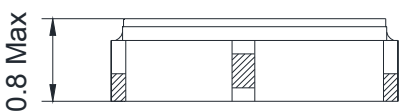
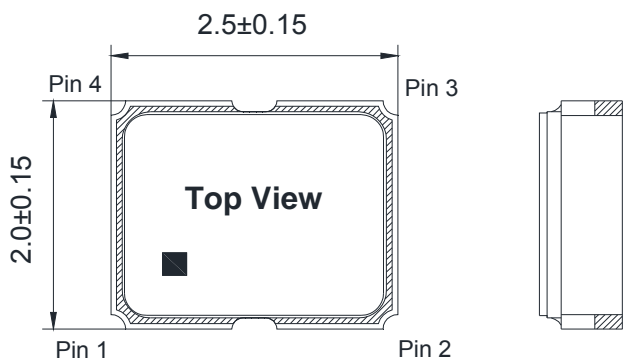


External Components

Name	Function
C1	AC Noise Bypass for VCC
C2	DC Block for Output
RL	Load Resistance
CL	Load Capacitance

Note: Bypass capacitor (C1) and DC blocking capacitor (C2) should be placed.

DIMENSIONS

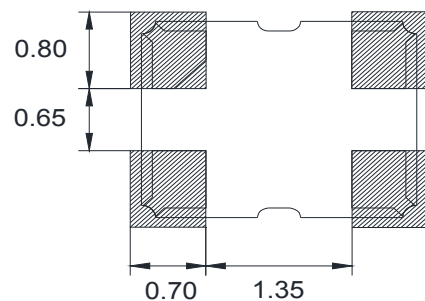


Unit : mm

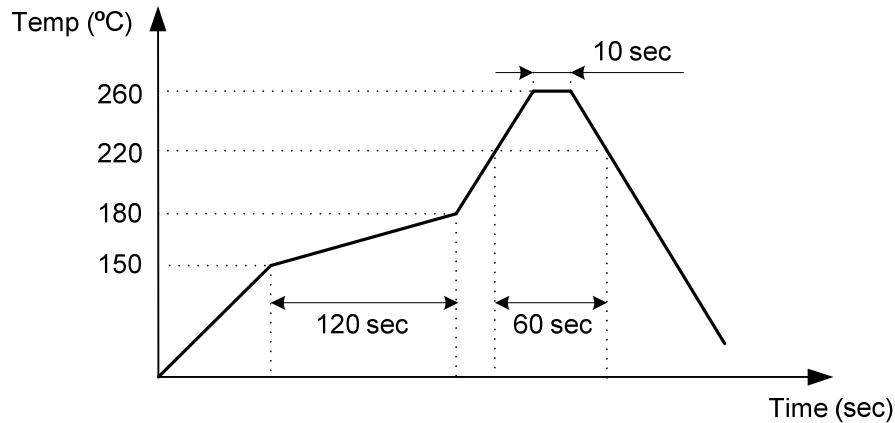
Pin Connection

Name	Function
Pin 1	NC
Pin 2	GND
Pin 3	OUTPUT
Pin 4	VCC

Recommended Land Pattern



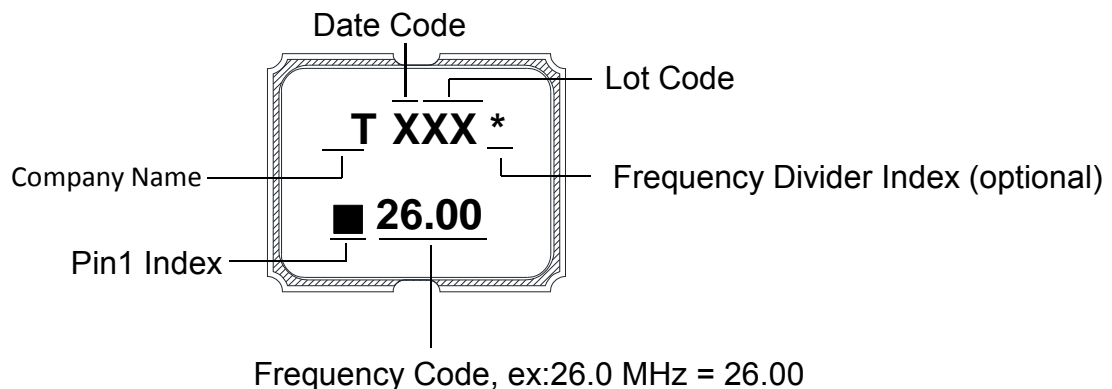
■ **SUGGESTED REFLOW PROFILE**



Note 1: Period while temperature exceeds the solder melting point : 220°C should be less than 200 sec.

Note 2: Period while temperature stays at the top melting point : 260°C should be less than 30 sec.

■ **MARKING**



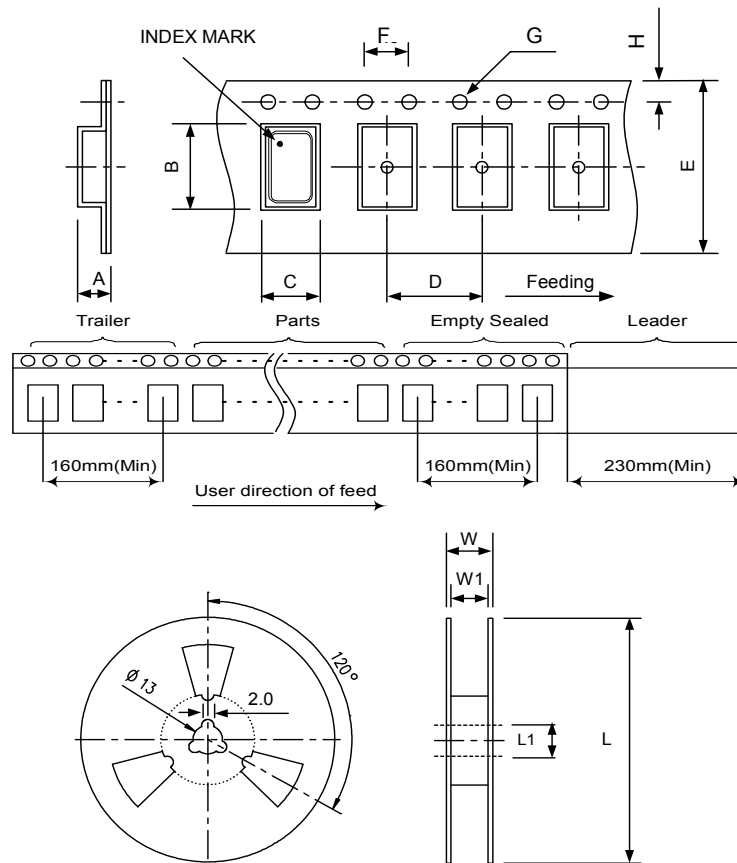
DATE CODE

				MONTH											
YEAR				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.

Note: If TCXO frequency is X'tal frequency divided by 2, then frequency divider index appears.
 If TCXO frequency is the same as X'tal frequency, then no frequency divider index appears.

■ PACKING : (EIA-481-2)



Unit: mm

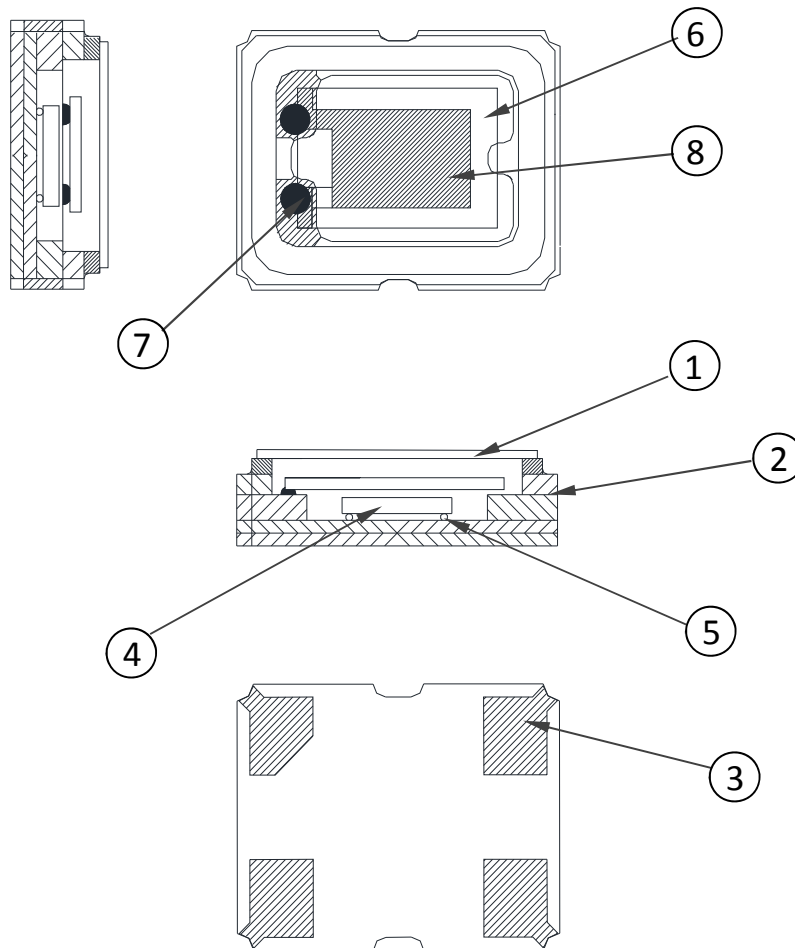
DIMENSIONS (mm)	A	B	C	D	E	F	G	H	L	L1	W	W1	Standard Reel Quantity is 3,000 pcs per reel
	1.15	2.70	2.25	4.00	8.00	4.00	1.55	1.75	178	13.0	11.6	8.4	

■ WEIGHT

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

■ **STRUCTURE ILLUSTRATION**

Crystal Enclosure Seal: Seam Welding



No.	COMPONENTS	MATERIALS	FINISH/SPECIFICATIONS
1	Cap	Metal(Fe + Co + Ni)	-
2	Base	Ceramic	Color Black
3	Pad	Au	Tungsten Metalize + Ni Plating + Au Plating
4	IC	Si	
5	Bonding wire	Au	
6	Crystal Blank	SiO ₂	-
7	Conductive Adhesive	Ag	Silicone Resin
8	Electrode	Noble Metal	-

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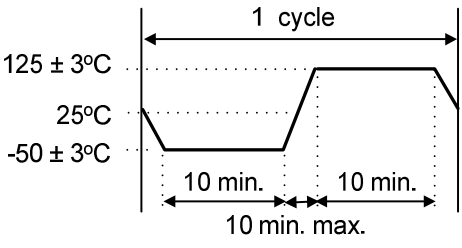
REVISION : S3

RELIABILITY SPECIFICATIONS (AECQ-100 Compliant)

1. Mechanical Endurance

No.	Test Item	Test Methods	Standard
1.1	Drop Test	Height : 120 cm height Direction : X,Y,Z 6 directions Test cycles : 3 cycles Fall freely on to concrete floor	AECQ-100
1.2	Mechanical Shock	Acceleration : 1500 g Duration : 0.5 ms Test cycles : 5 times for all 3 directions	JESD22-B104
1.3	Vibration	Frequency range : 10 ~ 2000 Hz Amplitude : 1.52 mm (10 ~ 80 Hz) Acceleration : 50 g (80 ~ 2000 Hz) Sweep speed : 5 minutes/cycle Direction : X,Y,Z 3 directions Duration : 1 hours/each direction	JESD22-B103
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 hours	MIL-STD-883
1.6	Solderability	Preheate temperature : 125°C ± 5°C Preheate time : 120 sec Soldering temperature : 245°C ± 5°C Duration : 5 ± 1 sec Method : Solder bath method	JESD22-B102

2. Environmental Endurance

No.	Test Item	Test Methods	Standard
2.1	High Temp. Storage	Temperature : +125°C ± 3°C Duration : 1000 hours	JESD22-A103
2.2	Low Temp. Storage	Temperature : -40°C ± 3°C Duration : 1000 hours	MIL-STD-883
2.3	High Temp. Operation Life	Temperature : +85°C ± 3°C Duration : 1000 hours	JESD22-A108
2.4	Temperature Cycling (Air to Air)	Total 500 cycles of the following temperature cycle : 	JESD22-A104
2.5	High Temp & Humidity	Temperature : 85°C ± 3°C Humidity: RH 85% Duration : 1000 hours	JESD22-A101
2.6	Autoclave	Temperature : 121°C ± 3°C Humidity: RH 100% Pressure: 2 bar Duration: 240 hours	JESD22-A102