Product Specification
TCXO

Customer	-
Model	2TG3209001
Size	2520
Frequency	32.000000MHz
Type	TCXO
Vcc	+1.7V ~ +3.3V
Vcont	N/A
AFC Range	N/A
Temp.	±0.5ppm max.@-30 ~ +85℃, ±3.0ppm max.@-40 ~ -30℃,
Slope	±0.05ppm/℃ max.@-20 ~ +65℃ ±0.1ppm/℃ max.@-30 ~ +85℃,±0.35ppm/℃ max.@-40 ~ -30℃
Initial Frequency	±2.0ppm max.(After 2times reflow)

Issued Date	2020.12.17
Revised Date	-
Prepared part	R&D
Drawn	Han Shuang
Checked	Kuro Peng
Approved	Jay

1. Electrical Characteristics

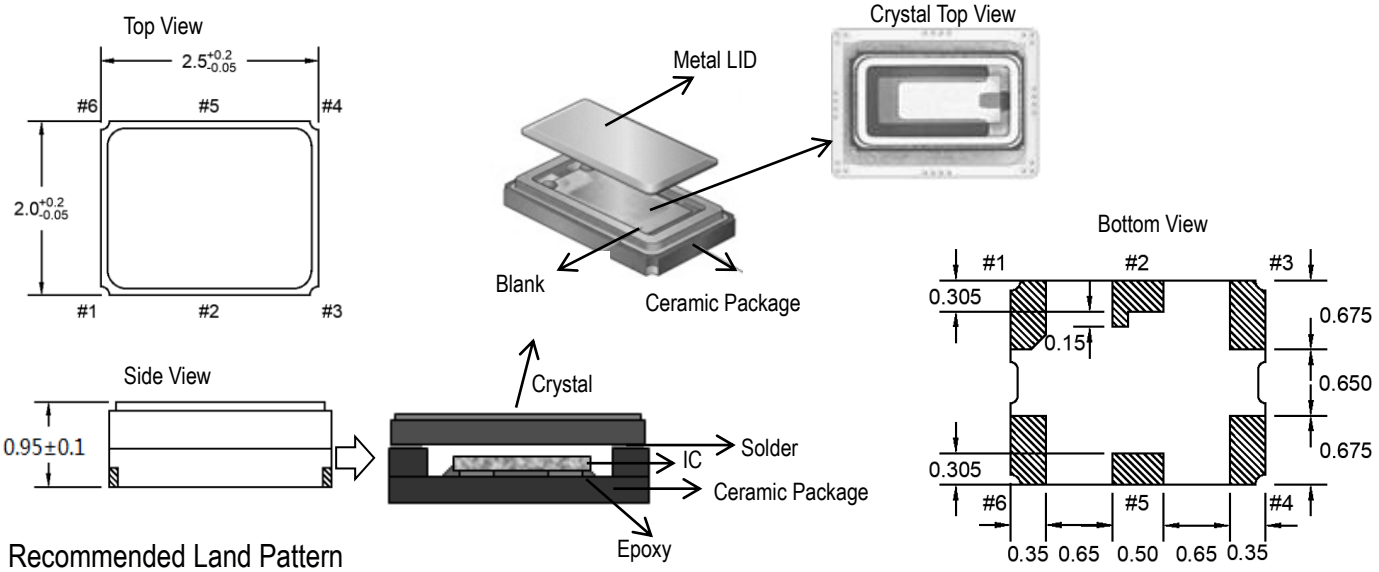
Parameter		Value	Conditions
Frequency		32.000000MHz	
Supply Voltage(Vcc)		+1.8±5% ,+2.8V±5%,+3.0±5%	
Output Load		10kohm//10pF±10%	
Control Voltage(Vcont)		N/A	
Output Level		0.8Vp-p min.	Clipped sine wave(DC-coupled)
Current		2.0mA max.	10koms//10pF±10%
Duty Cycle		50±5%	
Operating Temperature Range		-40~+85˚C	
Storage Temperature Range		-40~+85˚C	
Initial Frequency Tolerance		±2.0ppm max.	After 2times reflow
Frequency Stability	vs. Temperature(-30 ~ +85℃)	±0.5ppm max.	Referenced to +25˚C frequency
	vs. Temperature(-40 ~ -30℃)	±3.0ppm max.	
	vs. Supply Voltage	±0.2ppm max.	Vcc±5%
	vs. Load	±0.2ppm max.	10koms//10pF±10% each
	vs. Aging	±1.0ppm max.	1st Year
Frequency Slope	vs. Temperature(-20 ~ +65℃)	±0.05ppm/˚C max.	Every +2˚C
	vs. Temperature(-30 ~ +85℃)	±0.1ppm/˚C max.	
	vs. Temperature(-40 ~ -30℃)	±0.35ppm/˚C max.	
Start-up Time		2ms max.	More than 90% of final amplitude
Phase Noise		-130dBc/Hz max.	1KHz offset

Notes:

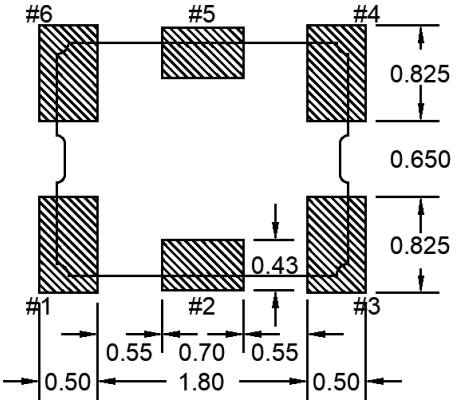
- Please leave after reflow in 2h or more at room ambient

2. Outline Specification

Unit： mm

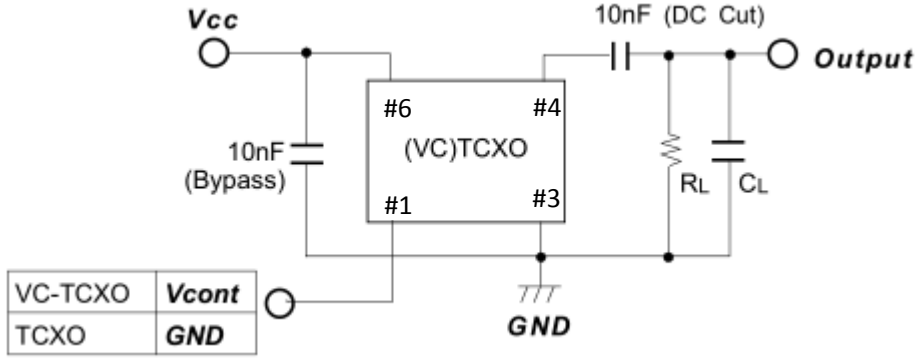


Recommended Land Pattern



Pad No.	Connection	
	TCXO	VC-TCXO
#1	GND	Vcont
#3	GND	GND
#4	Output	Output
#6	Vcc	Vcc
#2,#5	N.C.	N.C.

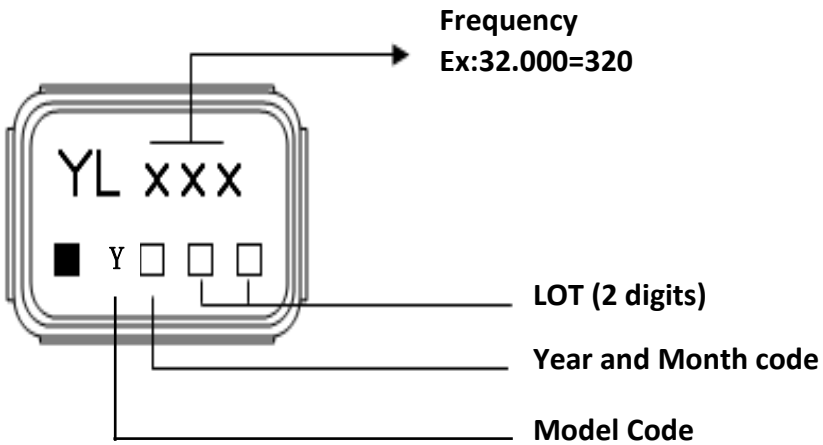
Measurement Circuit



Notes：

- Please connect a bypass capacitor closely to Vcc Pad.
- Load capacitance (CL) includes probe and test board capacitance.

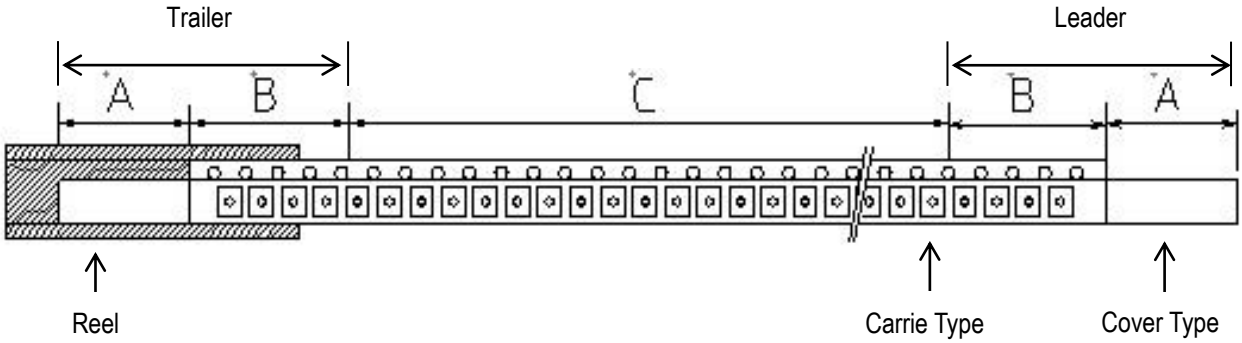
3. Marking Specification



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

4. Packing Specifications

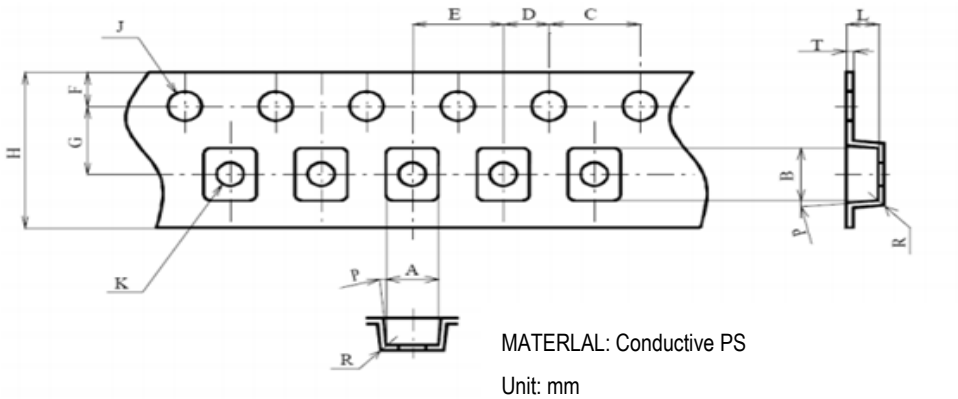
Basic Taping Specification



A	Cover tape only	200mm min.
B	Empty carrier tape	300mm min.
C	Component Section	

Notes:
- Insert TCXO product in carrier tape
- Attach cover tape using heat pressing method

Carrier Tape (8mm)

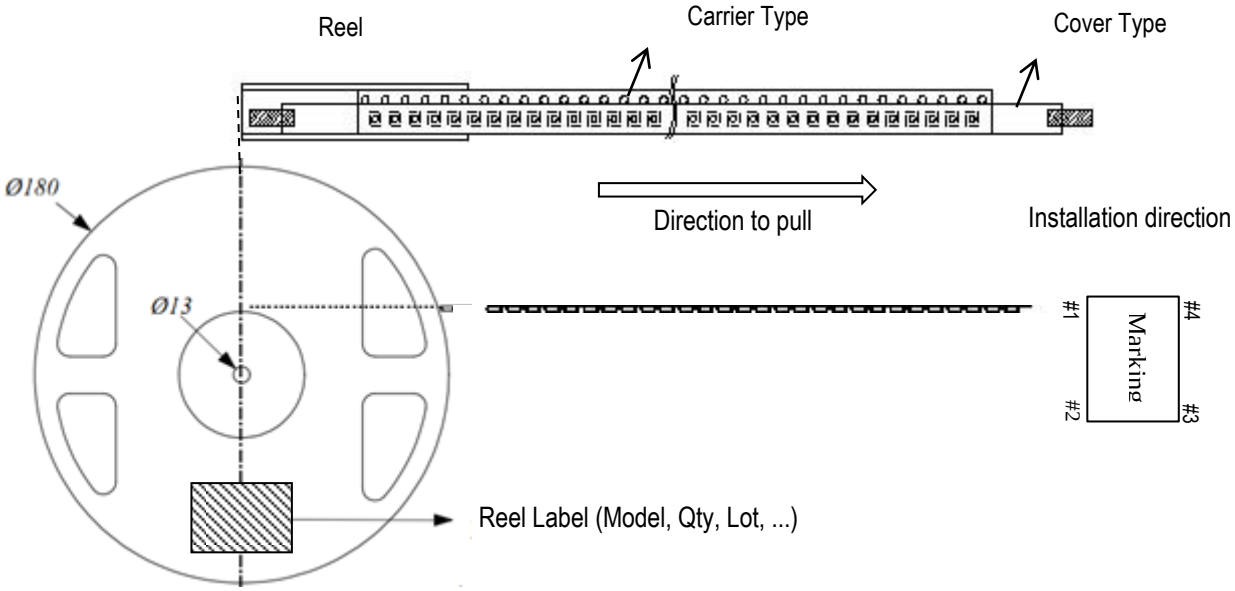


MATERLAL: Conductive PS

Unit: mm

Symbol	A	B	C	D	E	F	G
Dimension	2.3±0.1	2.7±0.1	4.0±0.1	2.0±0.05	4.0±0.1	1.75±0.1	3.5±0.05
Symbol	H	J	K	L	P	T	R
Dimension	8.0±0.2	Φ1.5+0.1/-0	Φ1.2±0.1	1.4±0.1	5° max.	0.3±0.05	R0.3 max.

Reel Taping



Inner Bag / Inner Box / Outer Box



Inner Bag(1Reel)

HDPE(15 reels enter)

Outer Box(60Reel max.)

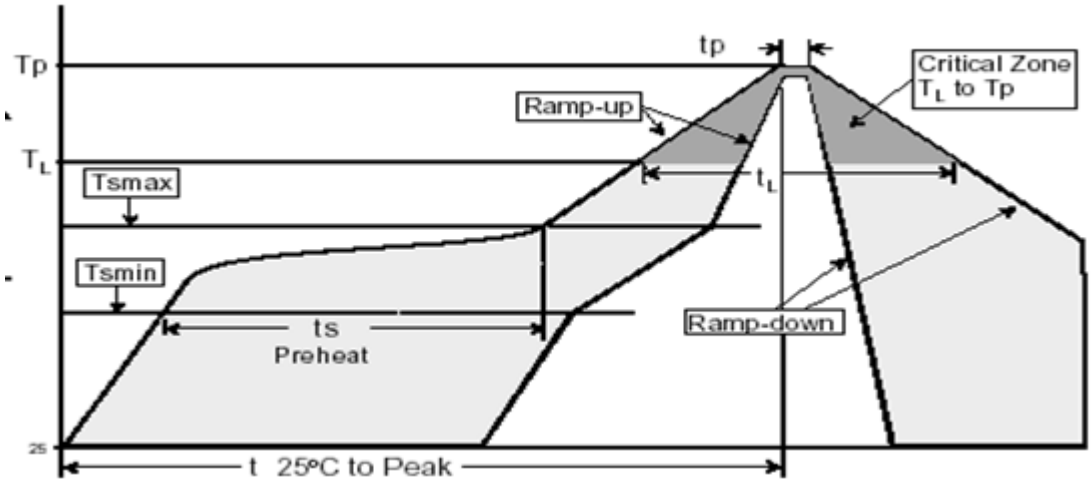
pocketful	Outer Box
45Kpcs	180Kpcs



5. Reliability Specifications

	Test Item	Test Condition	Criteria
1	Preconditioning	125'C 24Hr → 85'C,85%RH 168Hr → 3times reflow It shall be measured after 4Hr to 12Hr at room temperature & humidity	±1.0ppm
2	Drop	Preparation: Test pieces should be fixed on the dummy load with 120~150g weights Condition: Height 150cm onto Iron-plate Drop times: 3 times in 6 mutually perpendicular axes, 1 time random drop total 19 times Condition: Height 120cm onto Iron-plate Drop times: 2 times in 6mutually perpendicular axes Total drop times: 31 times	±1.0ppm
3	High Temp. & Humidity Storage	85'C,85%RH 240Hr It shall be measured after 4Hr to 12Hr at room temperature & humidity	±1.0ppm
4	Thermal shock	-40'C/30min↔ 85'C/30min, 100cycles It shall be measured after 4Hr to 12Hr at room temperature & humidity	±1.0ppm
5	Vibration	20~2000Hz, PSD 0.053g2/Hz, X.Y.Z direction,15min/direction	±1.0ppm
6	High Temp. Storage	125'C, 240Hr	±1.0ppm
7	Low Temp. Storage	-55'C, 240Hr	±1.0ppm
8	Solderability	Precondition: 105'C, 100%RH, 4Hr Condition:235±5'C for 3±0.5sec, Solder Pot	90%
9	Solder Heat Resistance	260±5'C, 10±1sec, Solder Pot It shall be measured after 2Hr to 4Hr at room temperature & humidity	±1.0ppm
10	ESD(Electrostatic Discharge) Human Body Model	C = 100pF, V = ±1KV, R = 1.5kohm, 3times	±1.0ppm

6. Recommended Reflow Profile



1	Preheat -Temp. Min (Tsmin) -Temp. Max (Tsmax) -Time (ts)	 150'C 200'C 60~180sec
2	Primary Heat -Temp. (TL) -Time (tL)	 220'C 60~150sec
3	Peak -Temp. (Tp) -Time (tp)	 260'C 10sec max.