Product Specification
TCXO

Model	6TN3840802
Size	2016
Frequency	38.400000MHz
Type	TCXO
Vcc	+2.8V
Vcont	N/A
AFC Range	N/A
Temp.	±1.5ppm max.@-30 ~ +85℃
Initial Frequency	±2.0ppm max.(After 2times reflow)

Issued Date	2019.08.13
Revised Date	
Prepared part	R&D
Drawn	Kuro Peng
Checked	
Approved	

1. Electrical Characteristics

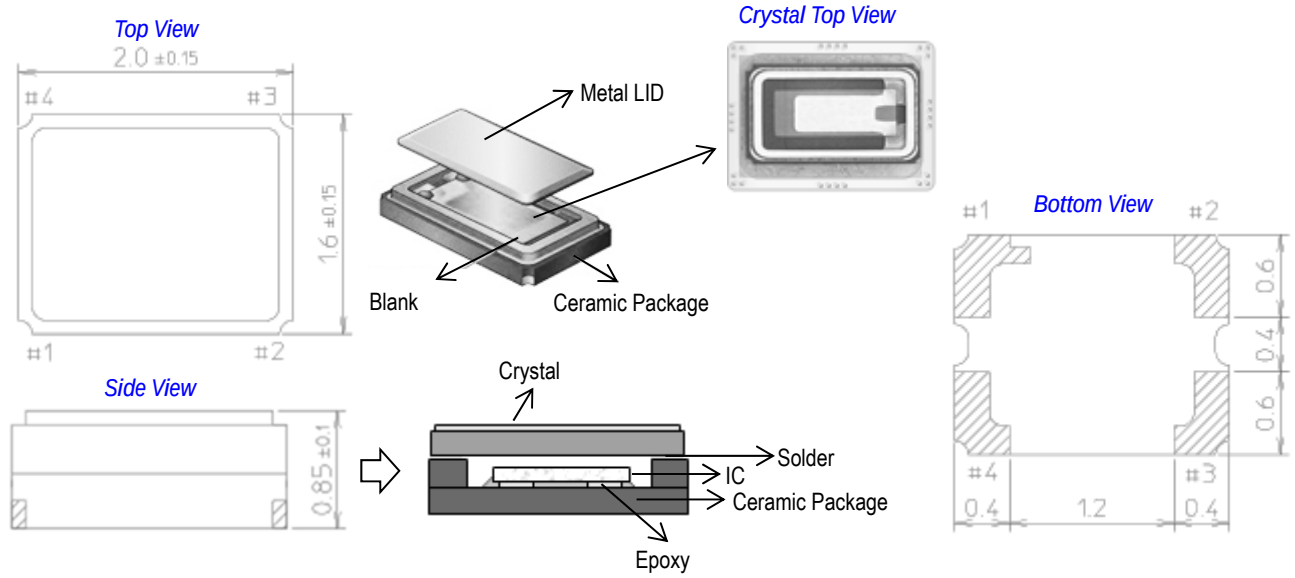
Parameter		Value	Conditions
Frequency		38.400000MHz	
Supply Voltage(Vcc)		+2.8V±5%	
Output Load		10kohm//10pF±10%	
Control Voltage(Vcont)		N/A	
Voltage Control Range		N/A	
Output Level		0.8Vp-p min.	Clipped sine wave(DC-coupled)
Current		2.0mA max.	10koms//10pF±10%
Duty Cycle		50±10%	
Operating Temperature Range		-30~+85˚C	
Storage Temperature Range		-40~+85˚C	
Initial Frequency Tolerance		±2.0ppm max.	After 2times reflow
Frequency Stability	vs. Temperature(-30 ~ +85˚C)	±1.5ppm max.	Referenced to +25˚C frequency
	vs. Supply Voltage	±0.1ppm max.	Vcc±5%
	vs. Load	±0.1ppm max.	10koms//10pF±10% each
	vs. Aging	±1.0ppm max.	1st Year
Startup Time		2ms max.	more than 90% of final amplitude
Harmonics		-8dBc max.	
Phase Noise		-60dBc/Hz typ. -90dBc/Hz typ. -115dBc/Hz typ. -135dBc/Hz typ. -146dBc/Hz typ. -147dBc/Hz typ.	1Hz offset 10Hz offset 100Hz offset 1KHz offset 10KHz offset 100KHz offset

Notes:

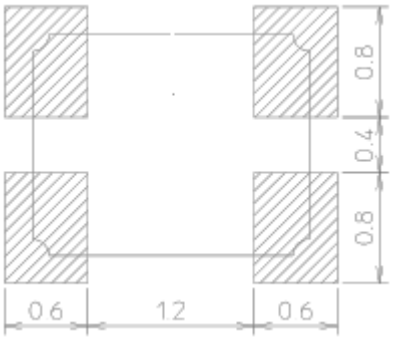
- Please leave after reflow in 2h or more at room ambient

2. Outline Specification

Unit：mm

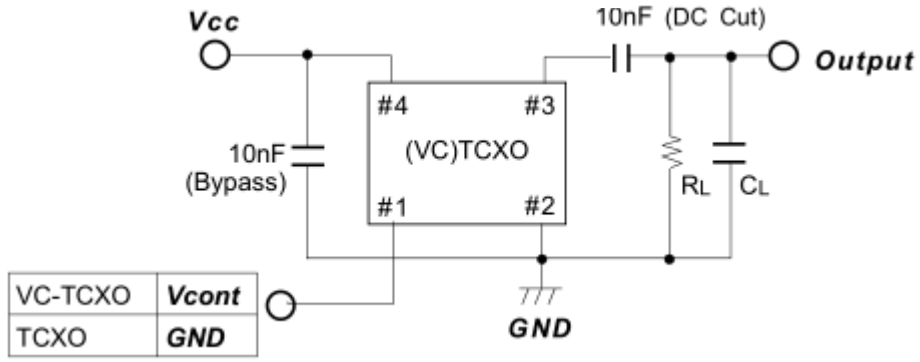


Recommended Land Pattern



Pad No.	Connection	
	TCXO	VC-TCXO
#1	GND	Vcont
#2	GND	GND
#3	Output	Output
#4	Vcc	Vcc

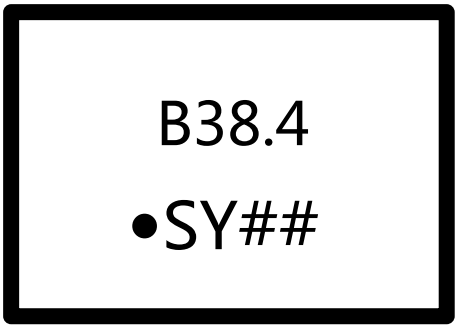
Measurement Circuit



Notes：

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

3. Marking Specification



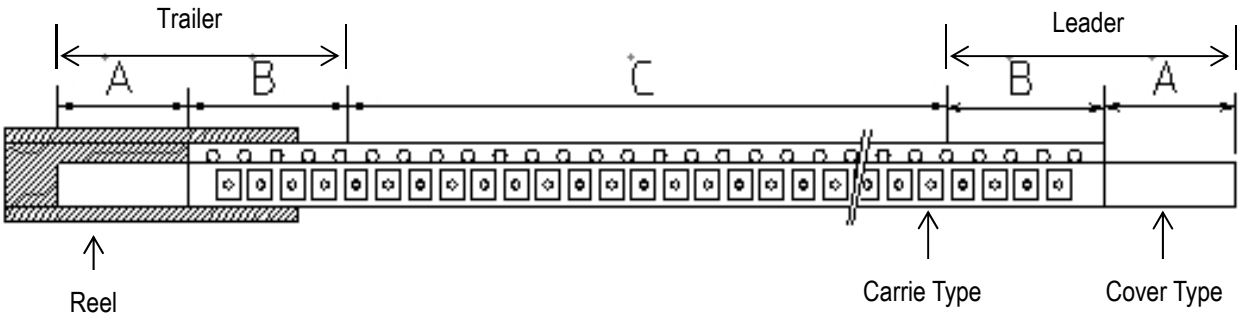
●Mark-1： B38.4
①②~⑤

●Mark-2： ●SY##
①~②③~⑤

Mark-1		
Digit order	Symbol	Explanation
1	B	Customization
2~5	38.4	Frequency
Mark-2		
Digit order	Symbol	Explanation
1~2	●S	Customization
3	Y	Year
4~5	##	Week

4. Packing Specifications

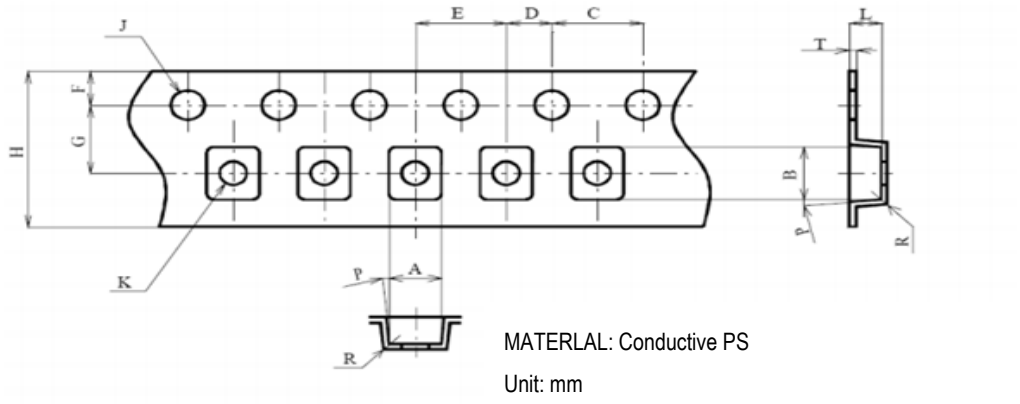
Basic Taping Specification



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)

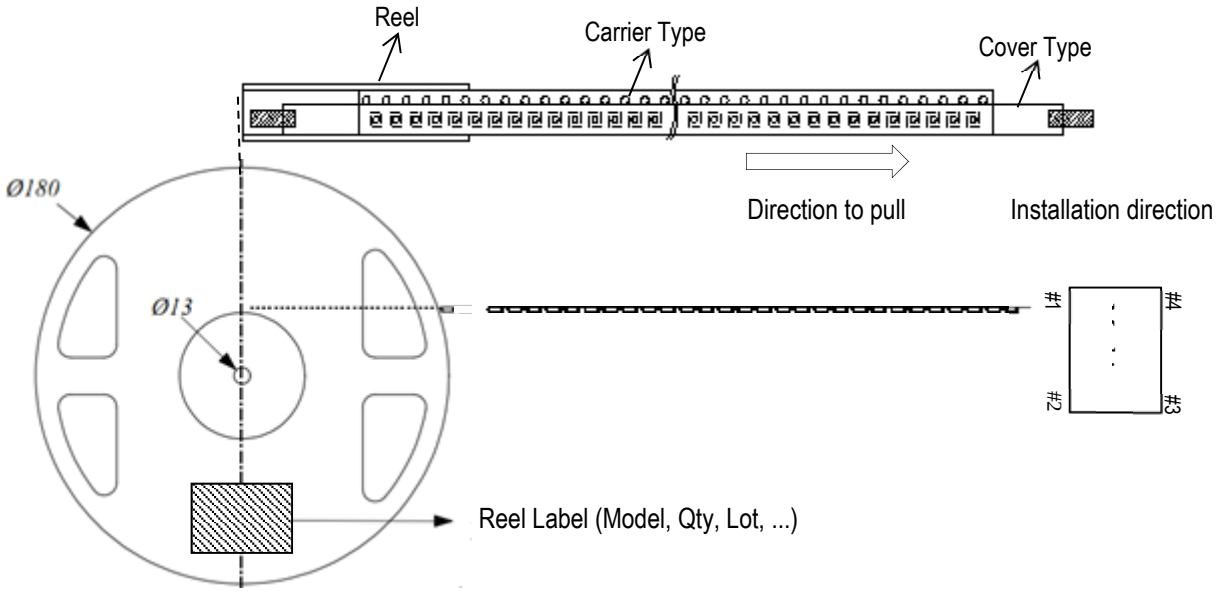


MATERLAL: Conductive PS

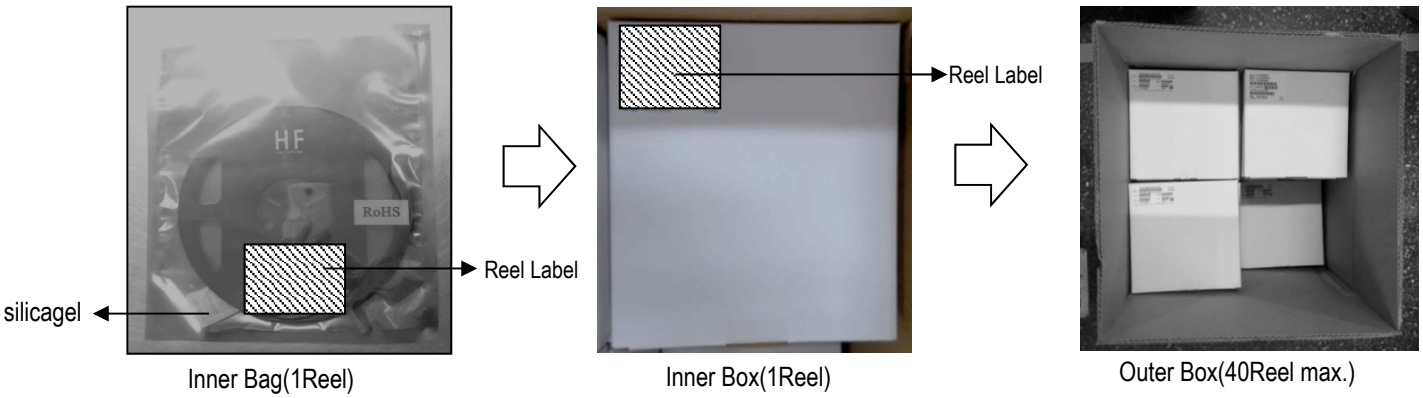
Unit: mm

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.

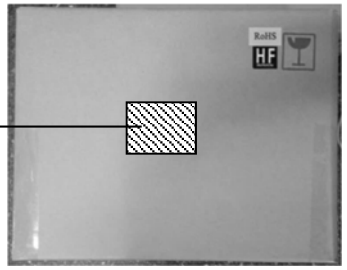
Reel Taping



Inner Bag / Inner Box / Outer Box



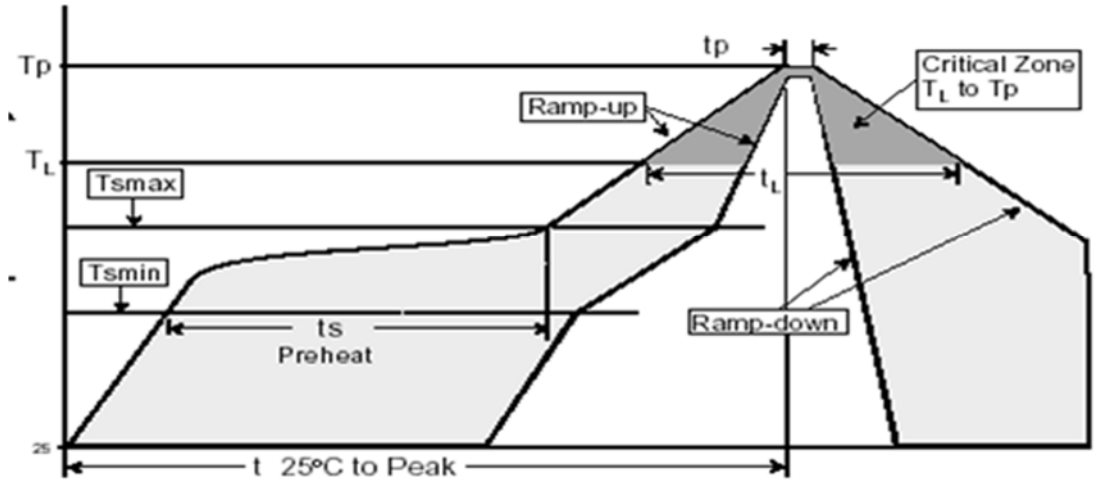
Reel	Inner Bag	Inner Box	Outer Box
3,000pcs	3,000pcs	3,000pcs	120,000pcs max.



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	PCT(Pressure Cooker Test)	121'C, 100%RH, 96Hr It shall be measured after 2Hr to 48Hr at room temperature & humidity	±1.0ppm
9	Solderability	Precondition: 105'C, 100%RH, 4Hr Condition:235±5'C for 3±0.5sec, Solder Pot	90%
10	Solder Heat Resistance	260±5'C, 10±1sec, Solder Pot It shall be measured after 2Hr to 4Hr at room temperature & humidity	±1.0ppm
11	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.