TXC Corporation Product Introduction

Purpose

- To introduce TXC's TCXO (Temperature-Compensated Crystal Oscillator).

Objectives

- Crystal Oscillator Categories
- What is a TCXO
- Package Type
- Main Features
- Small Size TCXO Manufacturing Flow
- Stratum 3 TCXO Manufacturing Flow
- TXC Core Competence

Content

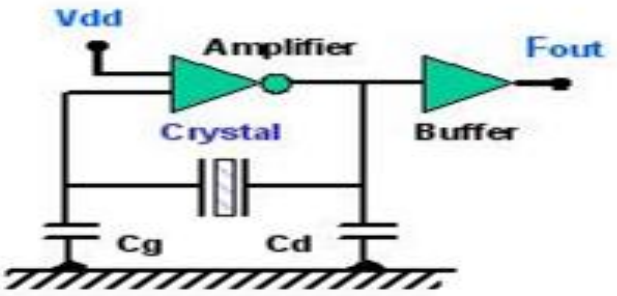
- 10 pages

Learning Time

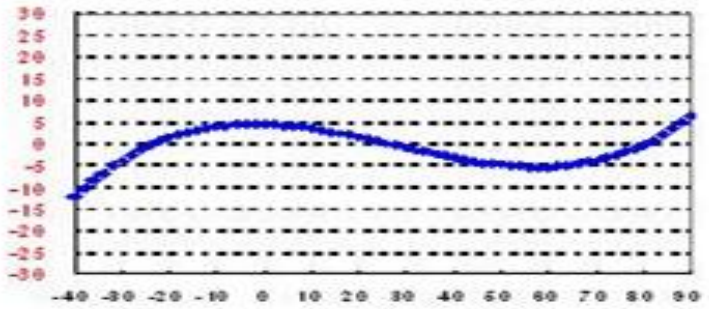
- 10 minutes

Crystal Oscillator Categories

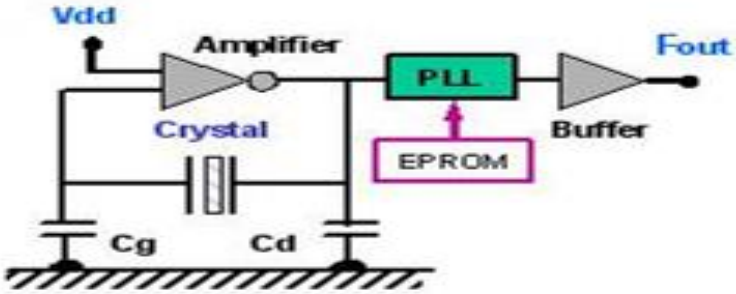
Simple Package Crystal Oscillator



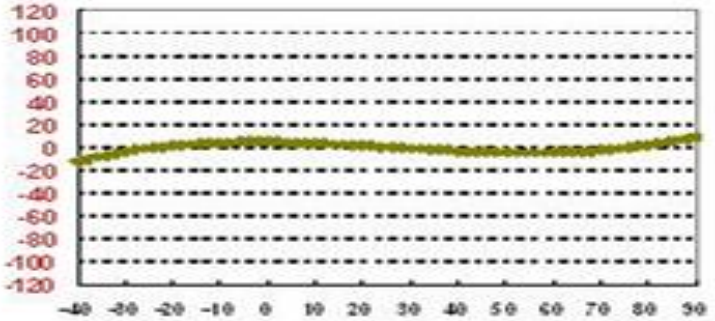
Frequency Stability



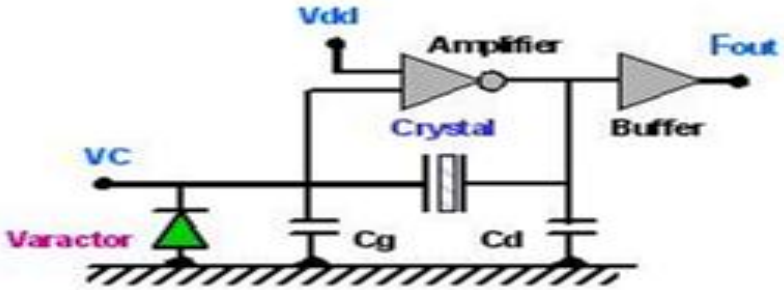
Programmable Crystal Oscillators



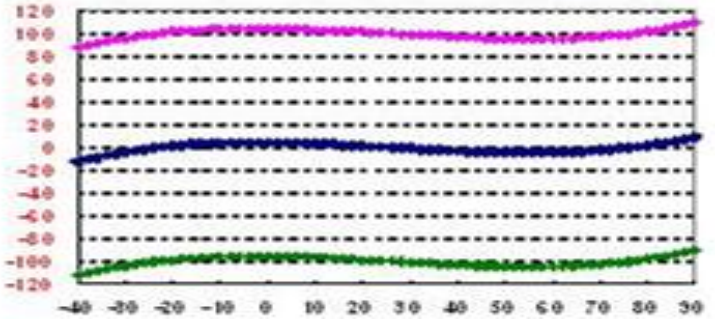
Frequency Stability



Voltage Controlled Crystal Oscillator

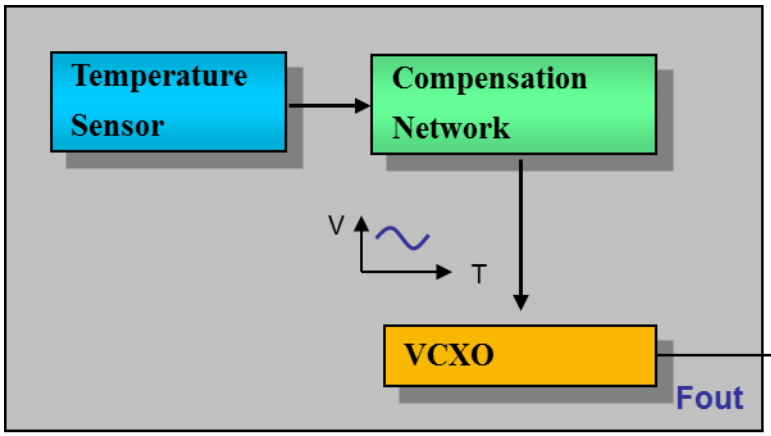


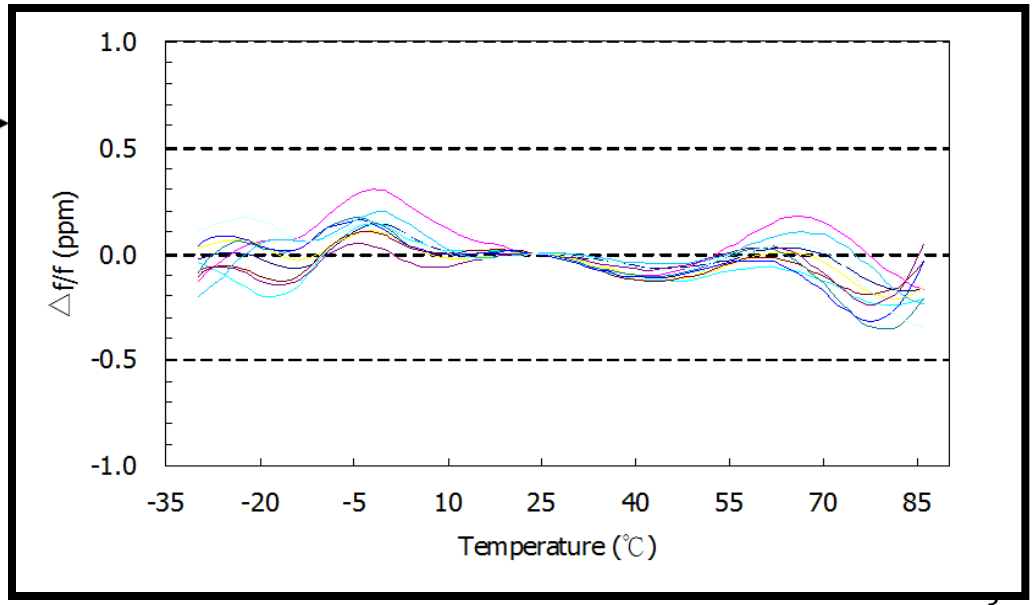
Frequency Stability



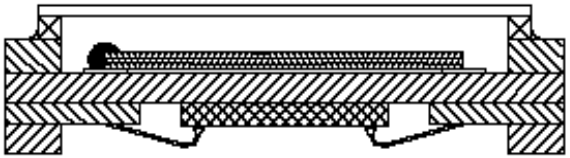
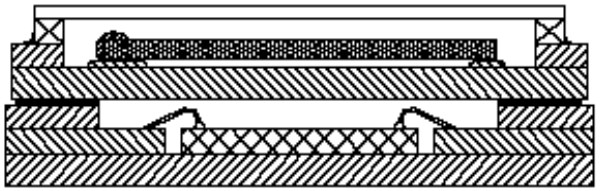
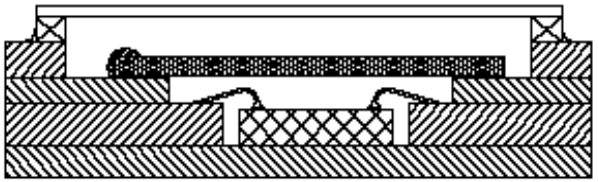
What is a TCXO?

The output signal from a temperature sensor is used to generate a correction voltage via a compensation network. The correction voltage is applied to the varactor in the VCXO. The capacitance variations compensate for the crystal's frequency vs.temperature characteristics.





Package Type

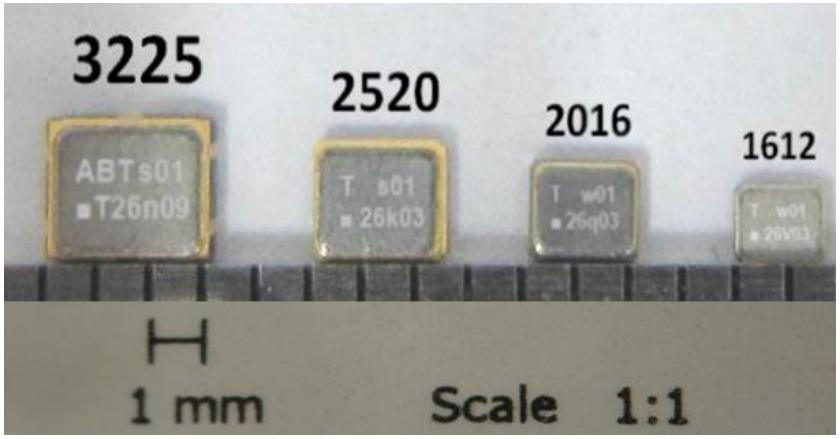
Package Structure	*Features*
a. H Type 	• *The thermal paths of both quartz and IC are the same, easy to get sync and precise compensated frequency.* • *Strong package structure to resist the thermal during SMT process.* • *Easy to achieve smaller size than 2016*
b. Double Type 	• *The thermal paths of both quartz and IC are quite different, hard to get sync and precise compensated frequency.* • *Poor package structure, high risk to separate after heating process.*
c. All-in-One Type 	• *The thermal paths of both quartz and IC are not different, easy to get sync and precise compensated frequency.* • *Strong package structure to resist the thermal during SMT process.* • *Hard to achieve smaller size than 2016.*

Small Size TCXO Main Features

	Freq.	Freq. Stability vs. Temp	Voltage	OTR	Output	PKG (mm)
TCXO	13~52MHz	±0.5ppm ±2.0ppm	1.8~3.3V	-30℃~85℃	Clipped Sine Wave	3.2*2.5 2.5*2.0 2.0*1.6 1.6*1.2

Additional features:

- AFC (Auto Frequency Control) function is available in all package sizes



Stratum3 TCXO Main Features

	Freq.	Freq. Stability vs. Temp	Voltage	OTR	Output	PKG (mm)
S3-TCXO	10~52MHz	±0.28ppm	2.7~5.5V	-40℃~85℃	Clipped Sine Wave / CMOS	7.0*5.0
						5.0*3.2

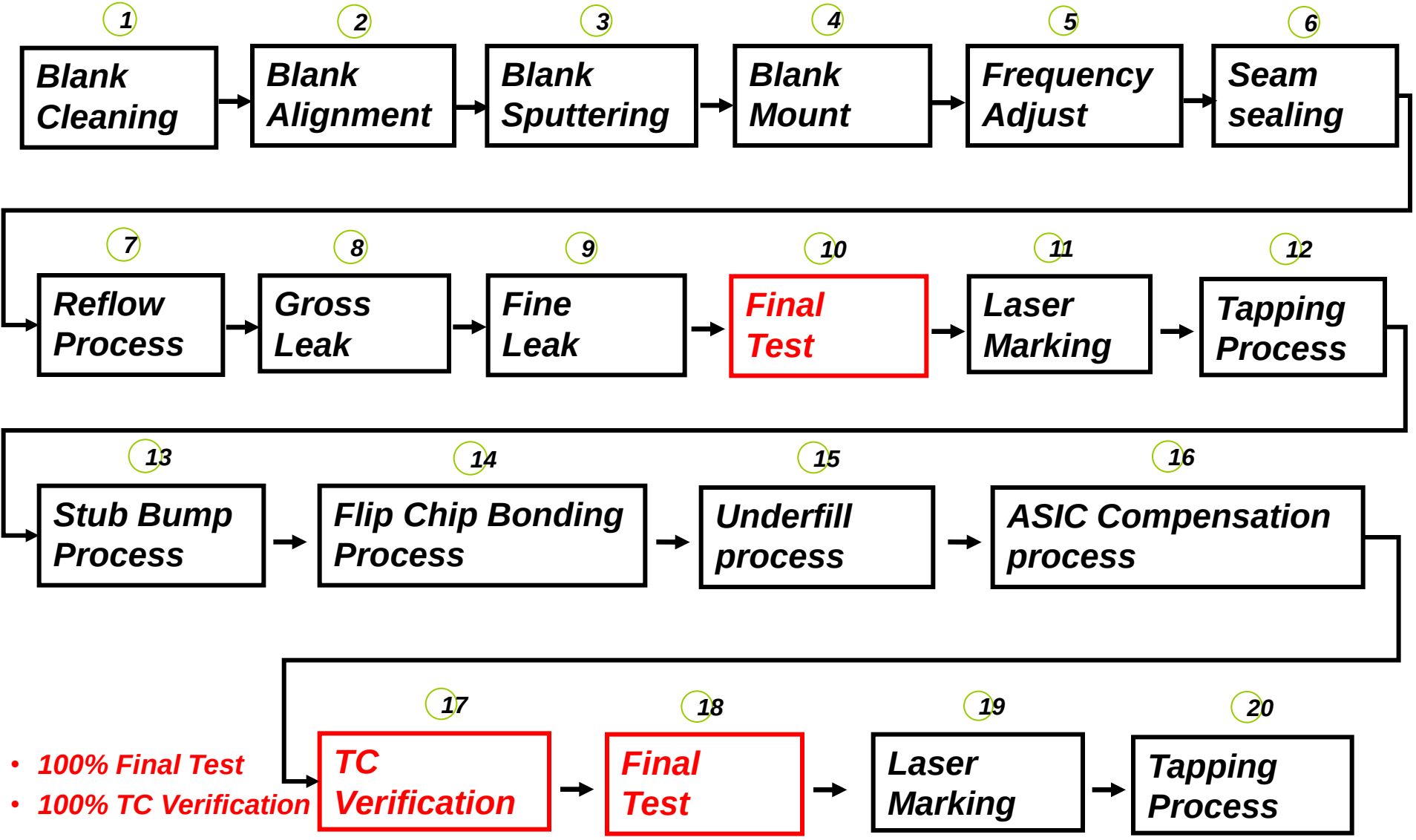
Additional features:

- AFC (Auto Frequency Control) function is available in all package sizes

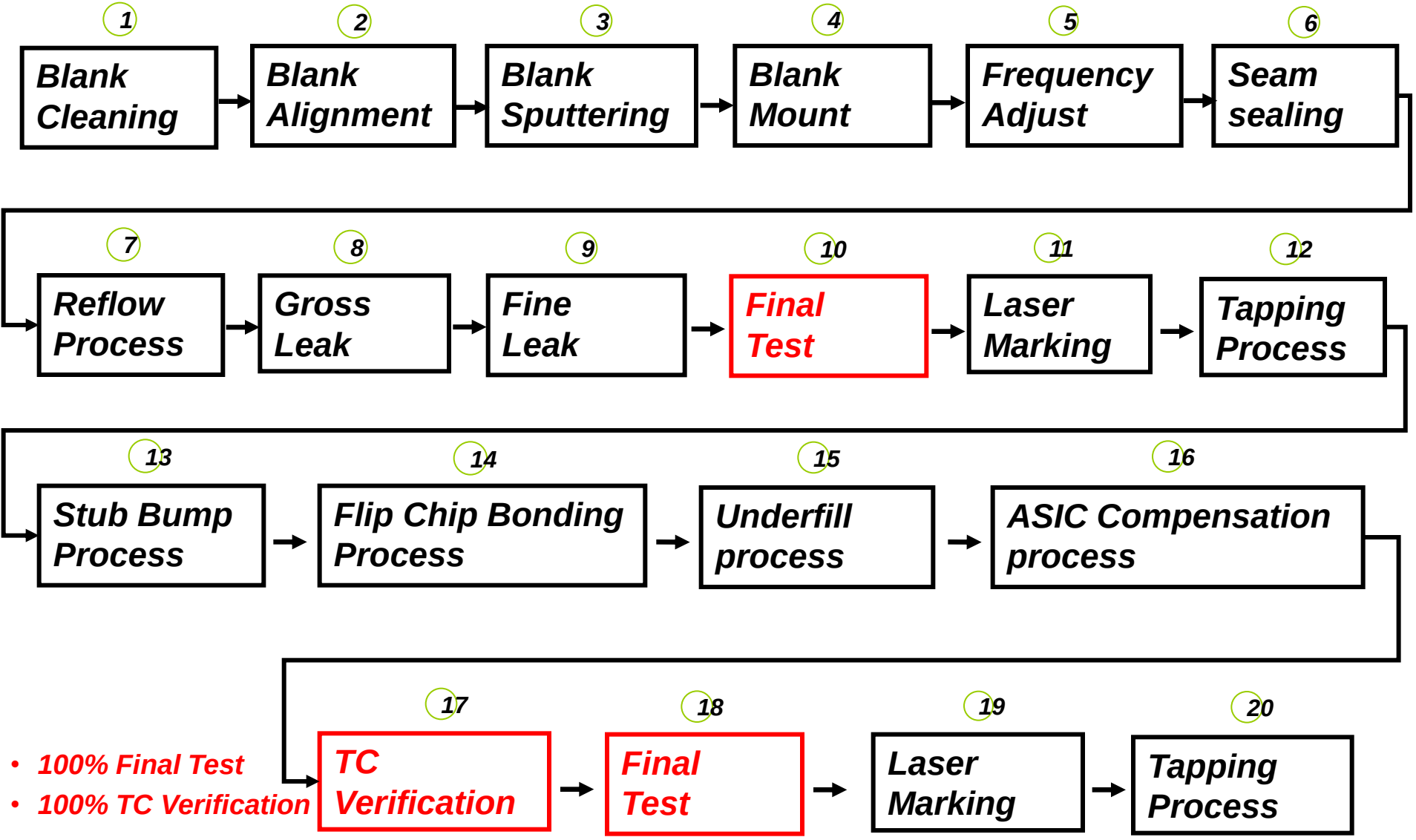
7050

5032

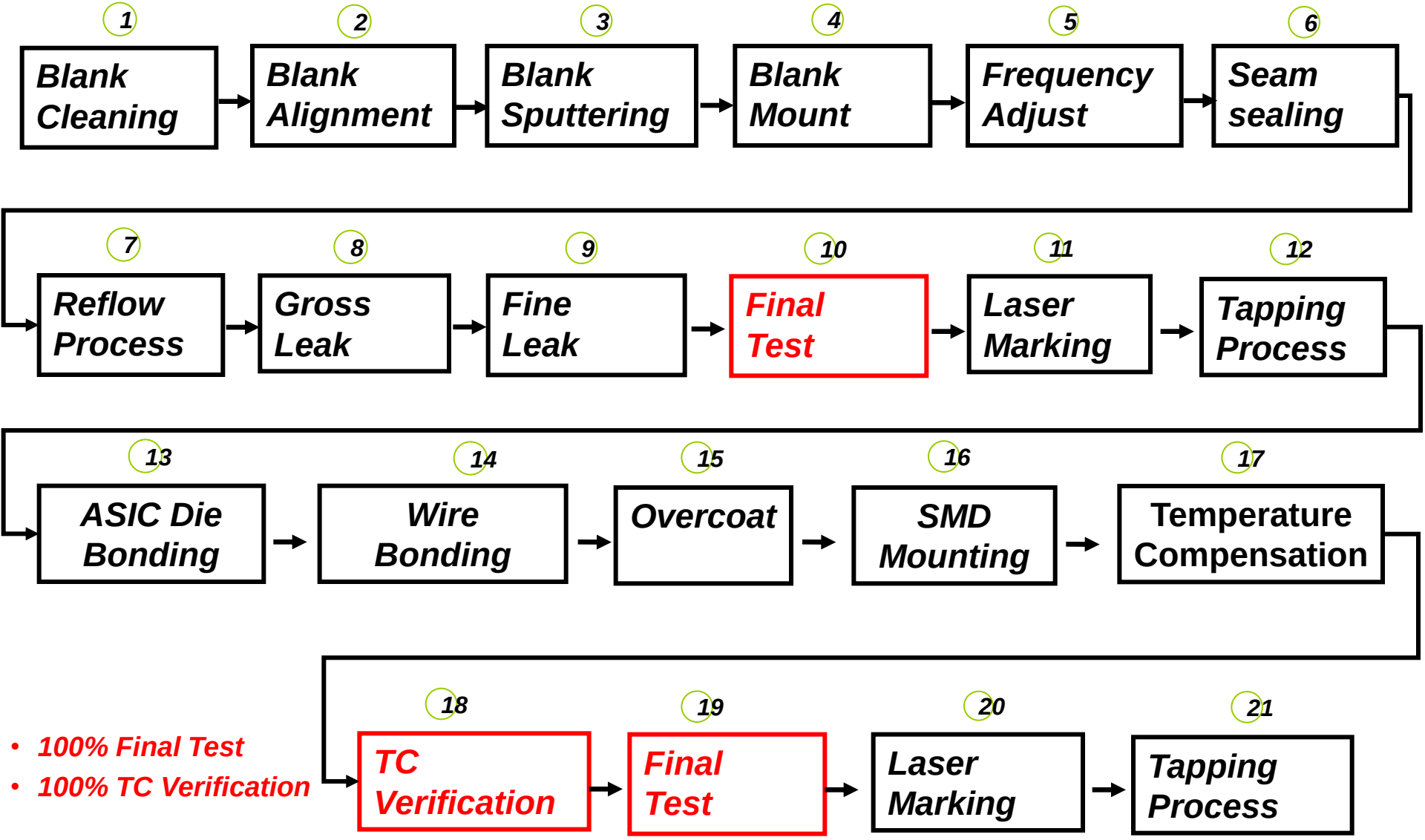
Small Size TCXO Manufacturing Flow



Stratum 3 TCXO(5x3.2) Manufacturing Flow



Stratum 3 TCXO(7x5) Manufacturing Flow



- 100% Final Test
- 100% TC Verification

TXC Core Competence

- ***Technology***
  In-House Design, Simulation, and Processing Capabilities
- ***Quality***
  Assurance on Design and Production
- ***Service***
  Global Sales, Marketing and FAE Support
- ***Cost Efficiency***
  Economy of Scale Production in both Taiwan and China Factories
- ***Time to Market***
  Leader in Crystal & Oscillator Miniaturization
- ***Flexibility***
  Agile Sampling Capability and Quick Ramp Up to Volume