

RF Components Frequently Asked Questions

Coaxial Resonators and/or Inductors

1. **Tab Material** - Cu Alloy plated with Au & Ni under layer
2. **Type of solder used** - Sn95/Ag5 reflowed between 240 -260 C

Customer Reflow Information	Coax
Reflow peak temperature	260 C Max
Maximum time at peak temperature	3 seconds
Maximum # of Reflow Cycles	3

3. **Moisture Sensitivity Level (MSL) and Electrical Sensitive Devices (ESD) information:**

MSL & ESD:

Item	MSL	ESDS (HBM)
Coax Resonators	Level 1	3B

TTI does not test ESDS or MSL for TTI components, therefore no supporting evidence exists for ESDS or MSL levels

All TTI resonators are solid, pore –free, ceramics that do not absorb moisture and are not affected by electrical discharge.

(Reference Standard IPC.JEDEC J-STD-20 MSL Classifications)

4. **Electrical Testing –**
 - a. **Coaxial Resonators:** Critically Coupled, S11 Reflection, and measured to 1% AQL test level
 - b. **Inductors:** Inductors are S21 direct coupled measured to 2% tolerance
5. **ROHS elements and PPM levels:** http://www.trans-techinc.com/documents/COAX_RoHS_Summary.pdf
6. **Silver Tarnish:** occurs naturally and can be minimized with silver saver packaging. Tarnish does not affect electrical performance.
7. **Standard Electronic cleaning methods** should be used. During ultrasonic cleaning avoid using high power due to potential component damage.

Filters

1. **PCB** - Standard FR4 or other PCB material required to meet Filter Specs

2. **Inspection Standards:**

- a. PCB Filters: (http://www.trans-techinc.com/documents/IMS/RF_Components/TT-PC-0378_PCB_Filters.pdf)
- b. 6mm Filters (http://www.trans-techinc.com/documents/IMS/RF_Components/TT-PC-0539_6mm_Filters.pdf)

3. **Customer Reflow Profile** -

Customer Reflow Information	Filters
Reflow peak temperature	260 C Max
Maximum time at peak temperature	3 seconds
Maximum # of Reflow Cycles	2

4. **Moisture Sensitivity Level (MSL) and Electrical Sensitive Devices (ESD)** information:

MSL & ESD:

Item	MSL	ESDS (HBM)
PCB Filter	Level 2	3B

TTI does not test ESDS or MSL for TTI components, therefore no supporting evidence exists for ESDS or MSL levels

All TTI resonators are solid, pore –free, ceramics that do not absorb moisture and are not affected by electrical discharge. PCB may absorb moisture.

(Reference Standard IPC.JEDEC J-STD-20 MSL Classifications)

5. **Electrical Testing** - Calibrated Network Analyzer Tuned to 50 ohm match
6. **Tuning marks (Grinding)** - Material removed from resonators (by grinding) to tune filter to electrical specifications.
7. **Standard Electronic cleaning methods** should be used. During ultrasonic cleaning avoid using high power due to potential component damage.

ROHS Compliance Available Upon Request