

# Lead-Free / RoHS Compliance

All Laird Technologies' surface mount and through hole EMI components (including assemblies with wire and cofired monolithic ferrite chip beads and common mode chokes) are available lead-free and RoHS compliant.

## Part Numbering System

Lead-free board level part numbers are differentiated by a suffix descriptor. The suffix (-10) identifies the part number for all lead-free parts. This part number suffix is for use on board level part numbers only.

## Part Number Examples :

|                 |                       |                      |                 |                       |                      |
|-----------------|-----------------------|----------------------|-----------------|-----------------------|----------------------|
| <b>Old Part</b> | <b>HZ0805E601R-00</b> | <b>contains lead</b> | <b>Old Part</b> | <b>28F0121-0SR</b>    | <b>contains lead</b> |
| <b>New Part</b> | <b>HZ0805E601R-10</b> | <b>is lead-free</b>  | <b>New Part</b> | <b>28F0121-0SR-10</b> | <b>is lead-free</b>  |

All Laird Technologies' new and old ferrite cable cores are RoHS compliant. No part number change for cable cores.

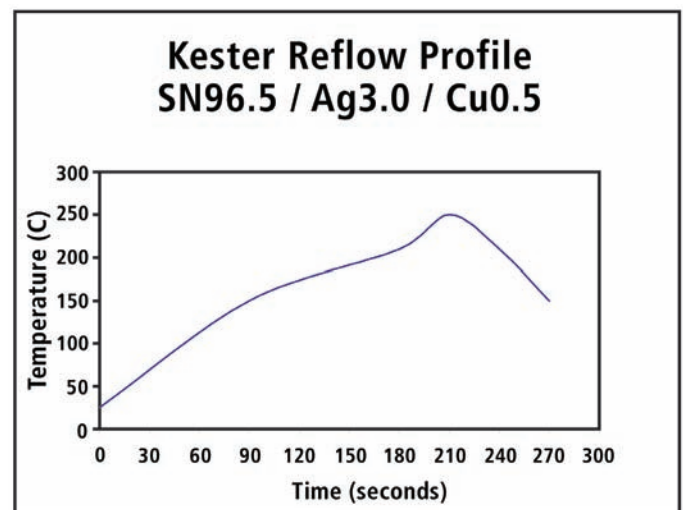
## Composition

Laird Technologies' lead-free component terminations and wire platings are 100% matte Tin (Sn) over a Nickel (Ni) barrier and are reverse compatible with existing Tin (Sn)/Lead (Pb) materials.

Concerns over the use of pure tin coatings on component leads and terminations, due to the possibility of tin whiskering, are still under industry discussion. Electroplating 100% matte tin over a nickel barrier is recognized as an effective whisker growth mitigation strategy that is accepted by most industry groups. Laird Technologies' maintains a minimum plating thickness of 3µm [118µin] of Tin, and 1.5µm [59µin] of Nickel.

## Recommended Lead-Free Soldering Profile

While Laird Technologies' lead-free surface mount and through hole components are reverse compatible with existing Sn/Pb materials, higher peak temperatures (up to 260°C) provide better wetting characteristics during the solder reflow process. The higher reflow temperatures typically used for lead-free processes will not damage Laird Technologies' surface mount components, but the delta T between the board and larger components must be considered. Smaller delta Ts can be achieved with slower belt speed to increase the pre-heat time. Soldering cycle time (throughput) must be balanced with reflow temperature. Allowance must be made for the coldest part (largest heat sink) to solder, considering the thermal mass of the board and size of the components.



# Storage and Environment Conditions for Board Level Parts

## Moisture Sensitivity

Laird Technologies' surface mount components are not moisture sensitive as defined in IPC / JEDC J-STD-020C, as they are hermetic devices. All surface mount components are packaged in tape & reel. Each reel is single packed in a sealed bag with sufficient desiccant to prevent oxidation of part terminations and maintain shelf life.

## Shelf Life

Cofire Monolithic Products – are allowed twelve (12) months from date of manufacture for product stored in unopened, original packaging. Once the original packaging is opened the shelf life is reduced to three months (or the remainder of the 12 months if opened after 9 months).\*

Assembled Products with wire – are allowed twenty-four (24) months from date of manufacture for product stored in unopened, original packaging. Once the original packaging is opened the shelf life is reduced to six Months (or the remainder of the 24 months if opened after 18 months).\*

**\*Note: Board Level Cofire (monolithic) and Assembled products with wire must be stored in a non-corrosive, temperature and humidity controlled environment. The temperature should be between -5°C and +40°C, and the humidity between 40 and 60% RH, with no sudden changes.**

Ferrite Cores for cables & wiring harnesses – have an unlimited shelf life. All cores are RoHS compliant.

Ferrite Disks & Plates with adhesive– have twenty-four (24) months shelf life on the adhesive from date of certificate of analysis. Ferrite Disks & Plates will be labeled at the manufacturing site to indicate expiration date of the adhesive on the disk or plate. Ferrite Disks & Plates are RoHS compliant.

## Operating Temperature for Board Level Parts

All board level part electrical specifications and tolerances are based on room temperature (23°C ± 2°C). Laird Technologies' board level parts have an operating temperature of -40°C to +125°C (unless stated otherwise). While the parts will continue to operate and not be damaged over this range, they may not operate within the specified electrical performance tolerances during exposure to extreme temperatures.

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**NOTE : All Laird Technologies' Ferrite EMI cable cores are RoHS compliant**

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