

# ***APPLICATION NOTE #115***

## ***Transformer Layout Guidelines for CT2577-XX-YY-F84 Series***

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## Transformer Layout Guidelines for CT2577-XX-YY-F84 series

In general the connection from the CT2577 (Device) to the Bus Interface Transformer (BIT) should be as short, heavy and direct as possible. The Device pinout is configured allowing the BIT to be conveniently connected. Pins 29, 30 and 74, 75 are Data\_0, NData\_0 and Data\_1, NData\_1 respectively with Data\_X connecting to pin 3 of the BIT. BIT pin 8 is in phase with pin 3.

The following guidelines should be observed:

1. Power and Ground planes should be used. As a minimum each power pin pair 34, 35 and 78, 79 should be decoupled with a 2.2uf tantalum and a 0.1uf ceramic both located as close to the Device as feasible.
2. The BIT should be located as close to pins 29, 30 and 74, 74 as possible. It is recommended that this distance be less than 1 inch. Ground plane is allowed under these conductors up to BIT pins 1 and 3 (primary side).
3. To minimize effects due to the high currents flowing through the BIT to the Device the 2 traces connecting to each BIT must be greater than 100 mils wide, be of equal length and not pass through any PCB vias. These connections should be located on the side of the PCB that the Device and BIT package leads are soldered to.
4. The BIT center tap (CT) should be connected directly to the ground plane. If a surface mount BIT is used the CT to ground plane connection should be multiple filled vias. In addition Device ground pins 35 and 79 should be connected as close to their respective BIT CTs as possible.
5. BIT secondary side pins 4 through 8 interface with the 1553 bus. Pins 4 and 8 through isolation resistors forming the "Direct Coupled" connection while pins 5 and 7 are "Transformer or Stub Coupled". BIT CT pin 5 is usually not connected. Currents flowing on the secondary side of the BIT are 100-120ma with voltage levels as high as 26vpp. To maximize signal integrity, impedance levels and minimize crosstalk to other signal traces the interconnect to the 1553 connectors should be as direct as possible with the **ground plane relieved along the length of the traces**. Matching trace lengths is not critical but differences should be minimized. Trace length should be kept to a minimum. If it is necessary to extend these traces they, assuming the above criteria is observed, should be no longer than 10 inches. To limit mutual interactions any signals crossing these conductors should be kept to a minimum and should do so a right angles.