

Introduction

The Teridian 78Q8392L 10BASE-2 Transceiver IC can be used as a replacement for other industry standard 8392s. However, there are some differences between the Teridian 8392L and competitor's versions of the 8392. This application note describes the differences and required circuit changes, if necessary, to use the 78Q8392L as a replacement for the competitor's device.

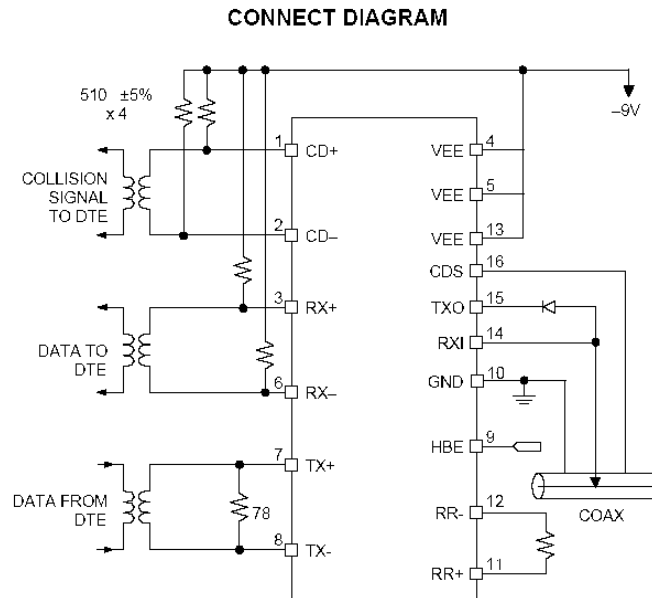
Compatibility Issues

DEVICE PINOUT

The Teridian 78Q8392L device pin assignments are identical to all other industry standard 8392 devices. No printed circuit board changes are required with regards to the device pinout.

AUI TERMINATION RESISTORS

The Teridian 78Q8392L is specified for use with $510\Omega \pm 5\%$ termination resistors on CD+/- and RX+/- . A single $78\Omega \pm 1\%$ termination resistor is required across TX+/- . Refer to the following CONNECT DIAGRAM for the required AUI termination circuitry.



The CD+/- termination resistor may be increased to $1.5K\Omega$ to save power. Refer to the CD+/- pin description in the data sheet for specific information.

-9V POWER SUPPLY

The Teridian 78Q8392L consumes much less power than other “Bi-Polar” versions of the 8392. If an “un-regulated power supply module is used to generate the -9V power, the -9V VEE power supply voltage may exceed the 78Q8392L’s +/-5% voltage tolerance. One of the following three workarounds is required to maintain the VEE power supply voltage within -9V +/-5%:

1. Use a lower power rated module.
2. Use a regulated power module.
3. Add a load resistor.

VEE/GND PRINTED CIRCUIT BOARD LAYOUT

The VEE and GND signals connecting the 78Q8392L’s device pins to their respective external components must be implemented using copper pour polygons. The polygons are shaped to represent local copper planes and also help dissipate heat. These polygons can reside on existing signal layers or be cutout from existing power/ground layers. It is not necessary to dedicate separate layers for the 78Q8392L’s VEE and GND signals. Provide 1500V isolation between the 78Q8392L’s VEE/GND signals and associated components to the surrounding system components per IEEE 802.3.

COLLISION PIN CONNECTION

The 78Q8392L’s CDS pin connection to the coaxial cable shield must be isolated from surrounding board noise sources. External noise may cause false collision detection events.

TXO and RXI PIN CONNECTIONS

The 78Q8392L’s TXO and RXI pin connections to the coaxial cable connector must not exceed 1Ω in printed circuit board DC trace resistance. Excessive DC trace resistance will create additional DC offset creating false collision detection events. Additionally, the trace impedance to its respective cable shield connection must match the coaxial cable’s 50Ω impedance. Improper operation of RXI and CDS inputs and/or device damage may occur if the two 50Ω line terminators are not present during operation.

78Q8392L-A02 vs 78Q8392L-A03

The two versions of the SSI/TDK/Teridian 78Q8392L require different external resistor values attached to the RR+/- pins.

Device Version	Ordering Number	RR+/- Resistor
-A02	78Q8392L-xxxx	1.0kΩ +/- 1%
-A03	78Q8392LA03-xxxx	976Ω +/- 1%